Presque Isle County
HAZARD MITIGATION PLAN

2021

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PRESQUE ISLE COUNTY HAZARD MITIGATION PLAN 2021

Presque Isle County, Michigan

Prepared for:

Presque Isle County
and the
Jurisdictions in Presque Isle County

Prepared by:

Presque Isle County Office of Emergency Management
P.O. Box 110
Rogers City, Michigan 49779

and

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Adopted Insert Date

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Chapter 1 Introduction

Introduction

Throughout the world communities are impacted by natural, technological, and human-related hazards. Natural hazards occur when the natural processes of the environment interact with the resources and assets in the communities. These hazards include storms, floods, and wildfires. In 2018, the National Weather Service reported the United States experienced 530 fatalities, 1,378 injuries, $35,849,320,000 in property damage, and $5,102,540,000 in crop damage due to natural hazards. Technological hazards take place when the existing technology fails. These types of hazards include hazardous material spills, structural fires, infrastructure failures, and transportation accidents. The final hazard, human-related, occurs as a product of human activities, such as chemical or biological attacks and cyber-attacks. Depending on many characteristics, such as geographical location and land use practices, these hazards have the potential to cause death, injuries, damage to property, infrastructure and the environment, and disruption to economic and social activities. These hazards also have the potential to become disasters. However, governments, organizations, businesses, and the public can reduce the impacts from hazards through hazard mitigation efforts.

Hazard mitigation planning allows communities to create long-term plans to reduce or eliminate the impacts that hazards have on the community's population, economy, and natural environment. These plans identify and inventory potential hazards, assess the risks and vulnerabilities from hazards, and develop hazard mitigation strategies. Through plan preparation and mitigation efforts, communities are able to better protect public safety and facilities, remove structures from hazard prone areas, accelerate recovery time after disasters, increase hazard education and awareness, and create partnerships.

The Stafford Act, as amended by the Disaster Mitigation Act of 2000, requires state, tribal, and local governments to develop and adopt FEMA-approved hazard mitigation plans to receive certain types of non-emergency disaster assistance. Every five years, jurisdictions must update their plans and re-submit them for FEMA approval to maintain eligibility. The Northeast Michigan Council of Governments (NEMCOG) assisted seven counties in the Northeastern Lower Peninsula of Michigan to update their 2014 hazard mitigation plans.

In Presque Isle County, NEMCOG worked with the Emergency Services Coordinator and the Local Emergency Planning Committee (LEPC) to review and update Presque Isle County's 2014 Hazard Mitigation Plan. The plan update focused on natural, technological, and human-related hazards to increase public awareness about hazards and hazard mitigation, maintain the county's grant eligibility, maintain the county's compliance with state and federal legislative requirements for hazard mitigation plans, and to develop projects and policies that can be implemented to reduce or prevent future disasters and improve public safety.

Summary of Plan Contents

The 2021 Presque Isle County Hazard Mitigation Plan Update identifies the county's hazards, analyzes the hazards based on the county's current conditions, assesses its risk and vulnerability, identifies the communities' goals and objectives, identifies, evaluates, and prioritizes the alternatives for hazard mitigation strategies, selects and recommends feasible mitigation strategies, and documents the plan's progress towards mitigating its hazards. The hazard mitigation strategies within the plan are intended to be integrated into other planning documents.

Specific Plan Updates

Chapter 1: Introduction

- Reviewed and updated the summary of plan contents, specific plan updates, and planning process sections.

Chapter 2: Environment

- Reviewed and updated information regarding the climate, discharge permits, and sites of environmental contamination sections.

Chapter 3: Community Profile

- Reviewed and updated population and housing demographics, and economic indicators.

Chapter 4: Land Use Characteristics

- Reviewed and made minor changes to the chapter.

Chapter 5: Community Services and Facilities

- Reviewed and updated the government, public safety, warning system, water and sewer, solid waste, medical facilities, utilities, communications, schools, transportation system, and community capability sections.

Chapter 6: Hazard Identification and Assessments

- Reviewed and updated all of the natural, technological, and human-related hazards. A biomass fire hazard was added.
- Combined the Hazard Identification and Hazard Risk and Vulnerability Assessments Chapters.
- Reviewed and updated the hazard ranking table, and the risk and vulnerability assessment table. A biomass fire hazard was added to the table.

Chapter 8: Goals and Objectives

- Reviewed the goals and objectives and added a goal and its corresponding objectives regarding the County's geographical information system.

Chapter 9: Mitigation Strategies and Priorities

- Reviewed and updated the mitigation actions and implementation strategies.

Chapter 10: Plan Maintenance

- Reviewed and made minor changes to the chapter.

Hazard Mitigation Planning Process

In 2005, Presque Isle County prepared its first Hazard Mitigation Plan and updated it in 2014. In 2019, NEMCOG began working with the Emergency Services Coordinator and the LEPC to review and update the 2014 Hazard Mitigation Plan. The LEPC is made up of representatives from local governments, law enforcement, fire departments, community organizations, and local, state and federal agencies.

Table 1-1 Presque Isle County LEPC Membership

Name	Title
Sarah Melching	Emergency Services Coordinator
Deb Greene	EOC Liaison and Volunteer for Disaster Health Services, American Red Cross
Ann Marie Main	Clerk, Presque Isle County
Chuck Abshagen	Mayor, City of Onaway
Scott McLennan	Mayor, Rogers City
Mike Horn	President/Trustee, RACES
Matt Radocy	Emergency Preparedness Coordinator, District Health Department #4

Table 1-1 Presque Isle County LEPC Membership	
Name	**Title**
Christina McEmber	Assistant Community Planner, NEMCOG
Kelly Robinette	Services Coordinator, NEMCSA/Region 9 Area on Agency on Aging
Laurie Sauer	Director, Region 9 Area Agency on Aging
Mike Tuck	Volunteer, American Red Cross
Lee Gapczynski	Commissioner, Presque Isle County
Jerry Smigelski	Superintendent/Manager, Presque Isle County Road Commission
Al Stiller	Airport Manager, Rogers City-Presque Isle County
Dallas Hyde	Coordinator, Onaway Area Ambulance Service
Jim Fleury	Manager, CISS
Terry Buczkowski	Fire Chief, Carmeuse, Posen Fire Department
Mike Kroll	Fire Chief, Rogers City
John Kieliszewski	Maintenance Supervisor, Medilodge of Rogers City
Joseph Sobeck	Director, Medilodge
Michelle Styma	CEO, Thunder Bay Community Health
Joe Brewbaker	Sheriff, Presque Isle County Sheriff's Office
Chris Flewelling	Undersheriff, Presque Isle County Sheriff's Office
Brian Jarema	MSP Trooper, Michigan State Police
Jamie Meyer	Chief of Police, Rogers City Police
Matt Topp	MSP Trooper, Michigan State Police
Marie Chagnon-Hazelman	Public Relations, Presque Isle Electric & Gas Co-op
Wesley Repke	System Engineer, Presque Isle Electric & Gas Co-op
Chuck Kieliszewski	Water Superintendent, Rogers City
Kelli Stockwell	City Manager, Onaway
Joe Hefele	City Manager, Rogers City
Matt Bisson	Police Officer/District Liasion, Rogers City Police Department

Community Involvement

The local jurisdictions, stakeholders, and public were involved during the drafting phase of the hazard mitigation plan and during the completion of the draft plan before it was adopted. Information was disseminated to the communities and public through public meetings, news releases, and email. Representatives from Presque Isle County, Allis Township, Bearinger Township, Belknap Township, Bismark Township, Case Township, Krakow Township, Metz Township, Moltke Township, North Allis Township, Ocqueoc Township, the City of Onaway, the City of Rogers City, the Village of Millersburg, and the Village of Posen participated in updating the hazard rankings and hazard mitigation implementation actions and strategies.

The planning process educated community leaders and residents about hazard awareness, which assisted the communities in making informed decisions. Additionally, the process strengthened partnerships between local governments, planning commissions, emergency services, public agencies, and private entities. These partnerships facilitate communication and allow for the pooling of resources.

Table 1-2 Jurisdiction Participation Status		
Jurisdiction	**Representative**	**Participation Status**
Presque Isle County	Lee Gapczynski, County Commissioner; Carl Altman, County Commissioner; Ann Marie Main, Clerk	Continuing Participant
Allis Township	Richard Nash, Supervisor	Continuing Participant
Bearinger Township	Archie Patterson II, Supervisor	Continuing Participant
Belknap Township	Allan Berg, Supervisor	Continuing Participant
Bismark Township	John Kleiber, Supervisor	Continuing Participant
Case Township	Chris Bednark, Supervisor	Continuing Participant
Krakow Township	Michael Grohowski, Supervisor	Continuing Participant
Metz Township	Nyle Wickersham, Supervisor	Continuing Participant
Moltke Township	Neil Sorgenfrei, Supervisor	Continuing Participant
North Allis Township	David Webster, Supervisor	Continuing Participant
Ocqueoc Township	Jerry Counterman, Supervisor	Continuing Participant
City of Onaway	Chuck Abshagen, Mayor; Ron Horrocks, City Council	Continuing Participant
City of Rogers City	Scott McLennan, Mayor	Continuing Participant
Village of Millersburg	Jeff Whitsitt, President	Continuing Participant
Village of Posen	John Ataman, President	Continuing Participant
Rogers Township	Randall Smolinski, Supervisor	Non-Participant
Pulawski Township	Martha Roznowski, Supervisor	Non-Participant
Posen Township	James Zakshesky, Supervisor	Non-Participant
Presque Isle Township	Larry Fields, Supervisor	Non-Participant
Other Agencies		
Name	**Title**	**Agency**
Terry Darden	FirstNet Solutions Consultant at AT&T	FirstNet
Nicole Jensen	Business Sales Executive	AT&T
Pat Bak	Warning Coordination Meteorologist	NWS Gaylord, MI
CMSgt Jeremy Wohlford	Fire Chief, Fire and Emergency Services	Alpena CRTC Fire Department
Bill Forbush	Fire Chief	City of Alpena Fire Department
Mary Grace Graham	Hyper-reach Sales Consultant	Hyper-reach

Regional Public Participation Survey

The Emergency Services Coordinator and LEPC commissioned a regionwide survey to gain input and feedback regarding the perceptions and opinions about natural, technological, and human-related hazards, and the preferred methods and techniques to reduce risk and losses from hazards. The region includes Alpena, Alcona, Crawford, Montmorency, Oscoda, Otsego, and Presque Isle Counties. The regionwide survey was available online and hard copies were available at the

Presque Isle County Emergency Management Office for the public, neighboring jurisdictions, and stakeholders from August 12, 2019 through November 19, 2019. Press releases were issued to inform the communities about the availability of the survey in *The Alpena News, Weekly Choice, The Montmorency County Tribune,* and the *Petoskey News*. On August 12, 2019, a link to the survey and a request to forward the link to other individuals was sent to the LEPC, Presque Isle County Board of Commissioners, and the local jurisdictions' mayor, managers, presidents, supervisors, and clerks as well as the surrounding counties and local governments.

Fifty-five completed surveys were received for Alpena, Alcona, Crawford, Montmorency, Oscoda, Otsego, and Presque Isle Counties (see results below). See Appendix A for the survey results specific to individuals residing in Presque Isle County and a link to the regionwide survey. Participants were asked a number of different questions, including their concern levels for natural, technological, and human-related hazards, their perception of the county's preparedness level for each hazard, identification of community assets, and their approval/disapproval of various mitigation approaches. Lastly, participants were asked to provide suggestions to improve hazard mitigation. The county evaluated and incorporated both the regional survey results and the county specific survey results during the plan update.

Approximately 65.5% of respondents have not received information about how to make their household safer from natural, technological, or human-related hazards. The respondents who had received information indicated it came from the American Red Cross, FEMA, the Alpena County Emergency Management Office, Otsego County Emergency Management Office, USDA/Forest Service, DTE Energy, the Firewise program, insurance companies and CERT. The majority of respondents indicated the internet, mail, and television were the most effective ways to distribute information, followed by radio, newspaper, and public workshops/meetings. About 60.0% of respondents indicated they have not experienced a hazard event in the last five years. The respondents who had experienced a hazard indicated they had experienced flooding, snowstorms/winter storms, a hurricane, and straight-line winds/windstorms.

Natural Hazards

Respondents are very concerned or somewhat concerned about the following hazards:

- Snow/ice storms: 78.2%
- Windstorm/high winds: 72.7%
- Extreme cold: 65.5%
- Wildfires: 56.4%
- Tornadoes: 43.6%

Respondents are not very concerned or not concerned about the following hazards:

- Drought: 50.9%
- Floods: 49.1%
- Extreme heat: 41.8%

Approximately 38.2% of respondents were neutral regarding their concern for thunderstorms. Additionally, respondents indicated they were concerned about milfoil in the lakes, earthquakes, mass shootings and disease outbreaks.

Respondents feel the region is best prepared to handle snow/ice storms (74.6%), extreme cold (69.1%), thunderstorms (65.5%), and windstorms/high winds (40.0%). Respondents are unsure if the region is prepared to handle drought (49.1%), extreme heat (40.7%), tornadoes (40.0%), and

wildfires (36.4%). About 40.7% of respondents were evenly split (least prepared or unsure) in how prepared the region is to handle flooding.

Technological Hazards
Respondents are very concerned or somewhat concerned about the following hazards:

- Communications failures: 81.8%
- Power failures: 80.0%
- Structural fires: 78.2%
- Oil and gas accidents: 74.5%
- Hazardous material spills: 69.1%
- Road accidents: 67.3%
- Water or wastewater treatment system failures: 44.4%
- Air transportation accidents: 43.6%

Respondents are not very concerned or not concerned about the following hazards:

- Railroad accidents: 66.0%
- Dam failures: 61.1%
- Water transportation accidents: 52.7%
- Terrorism/sabotage: 43.6%

Respondents feel the region is best prepared to handle road accidents (81.8%), structural fires (70.4%), power failures (54.6%), hazardous material spills (48.2%), and oil and gas accidents (48.2%). Respondents feel the region is least prepared to handle terrorism/sabotage (65.5%), water transportation accidents (45.5%), communications failures (38.9%), and air transportation accidents (36.4%). Respondents were unsure how prepared the region is to handle dam failures (53.7%), railroad accidents (51.9%), and water or wastewater treatment system failures (47.3%).

Human-Related Hazards
Respondents are very concerned or somewhat concerned about the following hazard:

- Cyber-attacks: 59.3%

Respondents are not very concerned or not concerned about the following hazard:

- Chemical or biological attacks: 47.3%

Respondents feel the region is least prepared to handle cyber-attacks (58.2%) and chemical or biological attacks (55.6%).

Community Assets
Respondents ranked the following community assets from the most vulnerable to the least vulnerable to the hazard impacts:

1. Human (death/injuries)
2. Infrastructure (damage or loss of bridges, utilities, schools, etc.)
3. Economic (business closures, job losses, etc.)
4. Environmental (damage or loss of forests, waterways, etc.)
5. Governance (ability to maintain order and/or provide public amenities and services)
6. Cultural/Historic (damage or loss of libraries, museums, fairgrounds, etc.)

Regulatory Approaches
Respondents supported the following approaches to reduce risk and loss associated with disasters:

- Improving the disaster preparedness of local schools (98.2%)
- Taking steps to safeguard the local economy following a disaster (96.4%)
- Creating an inventory of at-risk buildings and infrastructure (94.4%)
- Making their home more disaster-resilient (89.1%)
- Disclosing natural hazard risks on real estate transactions (87.3%)
- Policies to prohibit development in areas subject to natural hazards (83.3%)
- Protecting historical or cultural structures (71.7%)
- The use of tax dollars to reduce risk and losses from natural disasters (70.4%)
- Regulatory approaches (68.5%)
- Non-regulatory approaches (57.4%)

Respondents recommended increasing public outreach and education efforts, improving wildfire protection, bringing specialists into the communities to assist in mitigating hazards, enforcing reasonable and consistent fire codes, increasing funding to enhance essential public safety services, developing a rapid marine response to boaters in danger on Lake Huron, increasing milfoil awareness at local lakes, providing training opportunities, increasing security for cyber communications, installing broadband throughout the entire counties, limiting oil transport under/through/on the Great Lakes, being proactive with trimming and removing trees, strengthening local government partnerships, and increasing support for emergency services.

Meetings

During the preparation of the draft plan, LEPC meetings were held for participants to provide input and feedback through facilitated discussions that gained a consensus (Appendix B). Notices of the public meetings were sent to LEPC members and local community officials. In addition to the LEPC meetings and discussions, additional meetings were held.

NEMCOG Board of Directors' Meetings

On April 18, 2019, NEMCOG staff gave a brief status update about the hazard mitigation process to the NEMCOG Board of Directors. Attendees included Dan Gauthier (Alcona County Board of Commissioner), Dave Karschnick (Alpena County Board of Commissioner), John Wallace (Cheboygan County Board of Commissioner), James Kargol (Emmet County Board of Commissioner), Kyle Yoder (Oscoda County Board of Commissioner, Chair), Robert Pallarito (Otsego County Board of Commissioner), Carl Altman (Presque Isle County Board of Commissioner, Vice Chair), Adam Poll (City of Alpena Planning and Development Director), Marisue Moreau (Northeast Michigan Consortium/Michigan Works!), Robert Heilman (NEMCOG Board of Directors' Chair), Doug Baum (City of Grayling, Crawford County, Manager), Dave Post (Village of Hillman, Montmorency County, Manager), Bill Wishart (City of Gaylord, Otsego County, Mayor), Norman Brecheisen (Livingston Township, Otsego County, Supervisor), and NEMCOG staff, Diane Rekowski, Theresa Huff, Karen Cole, and Christina McEmber.

On December 19, 2019, NEMCOG staff provided a status of county hazard mitigation plan updates and explained the approval process. Attendees included Dan Gauthier (Alcona County Board of Commissioner), Dave Karschnick (Alpena County Board of Commissioner), Daryl Peterson (Montmorency County Board of Commissioner), Kyle Yoder (Oscoda County Board of Commissioner, Chair), Robert Pallarito (Otsego County Board of Commissioner), Carl Altman (Presque Isle County Board of Commissioner, Vice Chair), Adam Poll (City of Alpena Planning and Development Director), Marisue Moreau (Northeast Michigan Consortium/Michigan Works!), Robert Heilman (NEMCOG Board of Directors' Chair), Bruno Wojcik (Briley Township,

Montmorency County, Supervisor), Scott McLennan (City of Rogers City, Presque Isle County, Mayor), Doug Baum (City of Grayling, Crawford County, Manager), Dave Post (Village of Hillman, Montmorency County, Manager), Norman Brecheisen (Livingston Township, Otsego County, Supervisor), and NEMCOG staff, Diane Rekowski, Theresa Huff, Karen Cole, Steve Schnell, Nico Tucker, Denise Cline and Christina McEmber.

Emergency Services Coordinator Meetings

On May 3, 2019, NEMCOG staff, Christina McEmber, and the Emergency Services Coordinator, Sarah Melching, discussed the hazard mitigation plan update.

On February 27, 2020, NEMCOG staff, Christina McEmber, and the Emergency Services Coordinator, Sarah Melching, reviewed and updated the hazard mitigation tables and discussed the next steps in updating the plan.

Kick off Meeting

On September 25, 2019, NEMCOG met with the LEPC to review and update the 2014 Hazard Mitigation Plan. A brief overview of the hazard mitigation planning process, current plan status, and grant match was discussed. The committee reviewed and updated the county's hazard rankings based on their social impact, likelihood of occurrence, and administrative potential. The committee elevated the county's risk for extreme temperatures, shoreline flooding, riverine flooding, and subsidence, while reducing the county's risk for terrorism/sabotage/weapons of mass destruction, earthquakes, dam failure, civil disturbance, and nuclear attack. The committee also added a biomass fire hazard since the Hillman Power Company is set to be decommissioned in May 2022 and local sawmills currently take their wood waste to the facility. The committee also reviewed and updated the plan's goals and objectives to include a goal and its corresponding objectives regarding the county's geographic information system. Attendees included Scott McLennan, Lee Gapczynski, Kelly Robinette, Debra Greene, Jerry Smigelski, Sarah Melching, Wesley Repke, Matt Topp, Ann Marie Main, Alan Stiller, John Kieliszewski, Chuck Abshagen, Ron Horrocks, Jim Fleury, Mike Horn, and NEMCOG staff, Christina McEmber.

Plan Review and Update Meetings

On January 21, 2020, NEMCOG met with the LEPC to continue reviewing and updating the 2014 Hazard Mitigation Plan. The committee reviewed the county hazard ranking table and determined no additional updates were needed. The committee also began reviewing and updating the mitigation actions and implementation strategies. The priority ranking, financial and technical sources, progress and future status were updated. Several actions were moved to the all-hazard mitigation action table, two actions were no longer relevant in the county (and will be removed from future plans), and multiple actions were determined to be ongoing projects. Attendees included Scott McLennan, Kelly Robinette, Mike Tuck, Sarah Melching, Bryan Jarema, Ann Marie Main, John Kieliszewski, Jim Fleury, Jamie Meyer, Matthew Radocy, Laurie Sauer, Terry Darden, Nicole Jensen, and NEMCOG staff, Christina McEmber.

On September 2, 2020, the LEPC continued to review and update the 2014 Hazard Mitigation Plan. The committee reviewed and updated the public safety information, early warning and siren systems, and wildfire, structural fire, fixed site hazardous material accident, and transportation hazardous material accident mitigation action and implementation strategies. The committee added riverine and urban flooding mitigation action and implementation strategies. Attendees included Sarah Melching, Ann Marie Main, Patrick Bak, Kelli Stockwell, and Deb Greene.

On November 18, 2020, NEMCOG updated the LEPC about the status of the county's hazard mitigation plan, updates to the plan, and next steps. Attendees included Sarah Melching, Ann Marie

Main, Deb Greene, Mary Grace Graham, Lt. Michael de Castro, and NEMCOG staff, Christina McEmber.

Draft Plan

The draft Presque Isle County Hazard Mitigation Plan was made available to local governments, agencies, and the public for review and comment. A public notice was sent to the local newspaper informing the residents about the draft plan and where it could be reviewed. The draft plan was posted on the county's website and public event calendar, NEMCOG's website, and paper copies were available through the Presque Isle County Emergency Management and Homeland Security Office. On February 5, 2021, a link to the draft plan was emailed to the neighboring counties and communities, and Presque Isle County's local jurisdictions' mayors, managers, presidents, supervisors, clerks, and Board of Commissioners for review and comment.

On February 24, 2021, a public hearing was held to receive comments and suggestions on the draft plan. No public comments were received in-person, through email, or mail. Attendees included Sarah Melching, Ann Marie Main, Kelli Stockwell, Mike Horn, Terry Buczkowski, Scott McLennan, and NEMCOG staff, Christina McEmber.

The draft plan was submitted to the Michigan State Police and FEMA for approval before adoption by the Presque Isle County Board of Commissioners and local municipalities.

Plan Adoption

INSERT DATE, the Presque Isle County Hazard Mitigation Plan received "approvable pending adoption" status from the State and FEMA. A public notice was sent to the local newspaper informing residents when the County Board of Commissioners would be considering adoption of the draft plan.

INSERT DATE, NEMCOG presented the Presque Isle County Hazard Mitigation Plan to the Presque Isle County Board of Commissioners to request adoption of the plan (Appendix C). After adoption by the County, the local jurisdictions were contacted and requested to adopt the plan (Appendix C).

Incorporation of Plans, Studies, and Technical Information

NEMCOG staff reviewed relevant plans, maps, studies, and reports. Federal, state, regional, and local government sources were reviewed to update the county's community profile. These sources included the U.S. Census Bureau, zoning ordinances, master plans, recreation plans, capital improvement plans, parcel maps, aerial photography, Michigan Department of Natural Resources' Michigan Resource Information System land use/land cover information, USGS topographic maps, the National Oceanic and Atmospheric Administration's National Centers for Environmental Information Data Center, the USDA's Soil Surveys, NRCS soils maps, Michigan Department of Transportation, Michigan Hazard Analysis, Michigan Hazard Mitigation Plan, local hazard analysis, flood insurance rate maps, emergency management plans, Michigan Department of Environment, Great Lakes, and Energy, U.S. Forest Service, Michigan State Police Emergency Management and Homeland Security Division, and the Bureau of Fire Services.

GIS was used as a public education and decision tool throughout the planning process. Data sets were used to analyze existing conditions and potential future scenarios. Specialized maps, such as community hazards, land cover/use, and infrastructure were used during the drafting phase of the plan. The maps assisted in identifying community characteristics, vulnerable populations, and hazard areas.

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Chapter 2 Environment

Overview

Presque Isle County encompasses 656 square miles and has 72 miles of shoreline along Lake Huron in Michigan's Northeastern Lower Peninsula. It is bordered by Cheboygan County to the west, Montmorency and Alpena Counties to the south, and Lake Huron to the north and east (Figure 2-1). The county is composed of two cities, two unincorporated villages, and fourteen townships:

- City of Rogers City (County Seat)
- City of Onaway
- Village of Posen
- Village of Millersburg
- Bearinger Township
- North Allis Township
- Allis Township
- Ocqueoc Township
- Case Township
- Rogers Township
- Moltke Township
- Bismark Township
- Belknap Township
- Metz Township
- Pulawski Township
- Posen Township
- Krakow Township
- Presque Isle Township

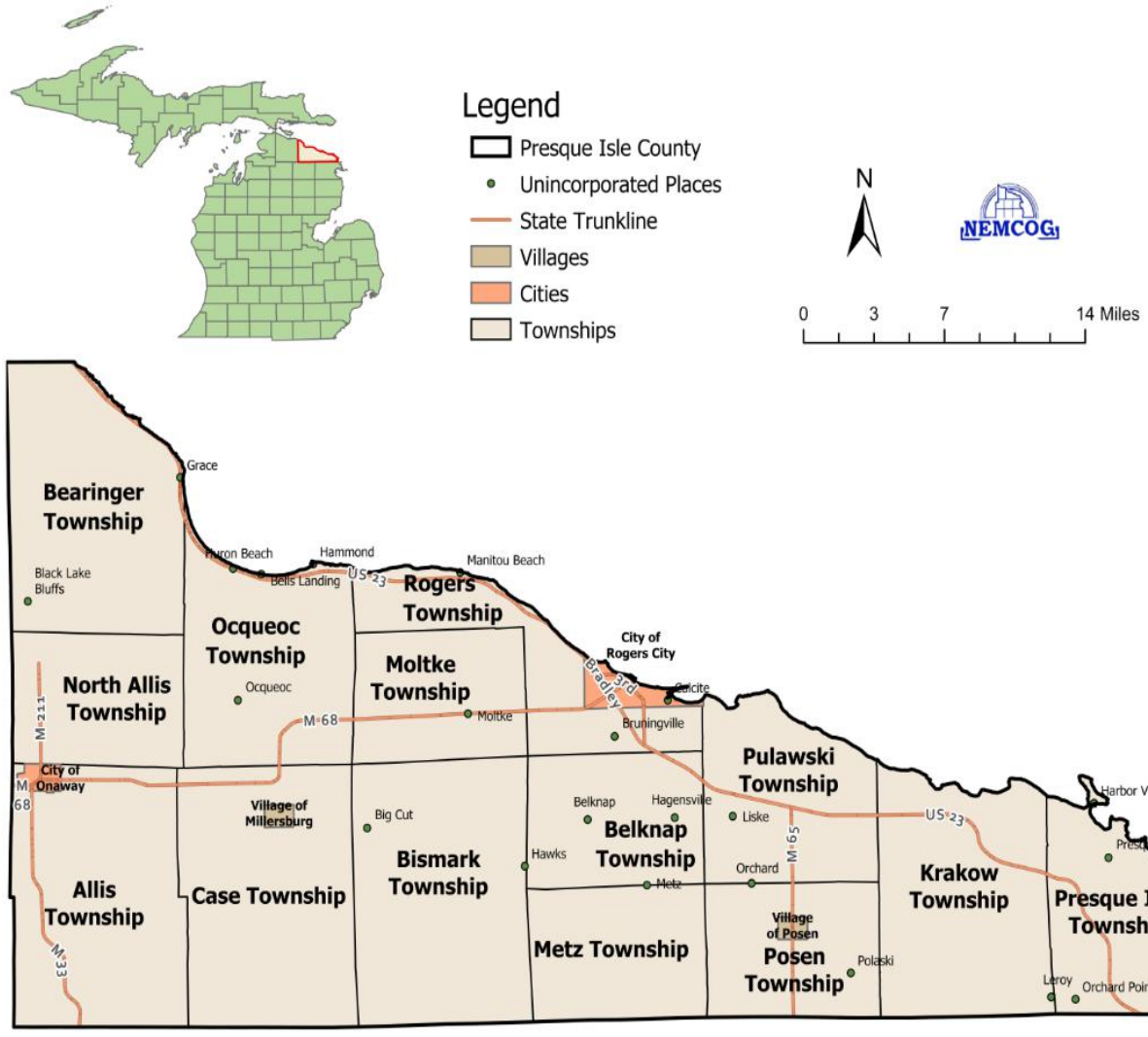

Figure 2-1 Location Map

Climate

Generally, Presque Isle County experiences long, cold winters, cool springs, moderately warm summers, and warm falls. The county is influenced by the moderating effects of Lake Huron and temperature data from the Midwest Regional Climate Center indicates the climate along the immediate Lake Huron shoreline is semi-marine and lacks the temperature extremes found a few miles inland.

The County's temperature ranges between 19 degrees Fahrenheit and 63 degrees Fahrenheit in the spring and between 50 degrees Fahrenheit and 78 degrees Fahrenheit in the summer. The highest temperature on record occurred in Onaway at 106 degrees Fahrenheit. The average annual precipitation is 28.47 inches with approximately 60% of the precipitation falling between April and September. Typically, the frost dates for Rogers City is May 21st to October 3 according to *The Old Farmer's Almanac*.

The County's temperature ranges between 29 degrees Fahrenheit and 68 degrees Fahrenheit in the fall, and between 10 degrees Fahrenheit to 31 degrees Fahrenheit in the winter. The lowest temperature on record occurred in Onaway at -35 degrees Fahrenheit. The average annual snowfall is 96 inches with the highest snowfall recorded in Rogers City at 169 inches. On average, 119 days of the year have at least one inch of snow on the ground according to the *Soil Survey of Presque Isle County, Michigan.* However, the number of days varies each year.

According to the National Aeronautics and Space Administration, Earth's climate has been warming over the past century at an unprecedented rate due to human activities. Carbon dioxide and other gases are trapping heat, which is causing the earth to warm. According to the *Planning for Community Resilience in Michigan: A Comprehensive Handbook*, Michigan is predicted to experience more frequent and severe storms, increases in winter and spring precipitation, less precipitation as snow and more as rain, reduced ice cover on the Great Lakes, an extended growing season, more flooding events with erosion risks, an increase in the frequency and length of severe heat events, and an increase in drought and wildfires. Since Presque Isle County's 2014 Hazard Mitigation Plan Update, the county has seen an increase of 0.4 degrees Fahrenheit in annual temperature, an increase of 9.47 inches of precipitation, and an increase of 7 inches of snow.

Topography and Geology

The retreating glaciers created the county's rolling hills, river valleys, swamps, and lakes. In the county's central and southwestern portions, ground moraines and till plains are located within the Onaway Drumlin Field and Moltke Drumlin Field. The drumlin fields are ground moraine areas consisting of hills that trend in a southeast direction. The average elevation of Lake Huron is 580 feet above sea level, while the highest elevation is 950 feet above sea level in Moltke, Allis, and Case Townships. The greatest variation in elevation occurs between the lake plain west of Rogers City, the Moltke highlands in the karst sinkholes, and the lakes region associated with the upper Ocqueoc River. The county's sedimentary bedrock consists of shale, limestone, and dolomite, which limestone and stoneport quarries are extracting the limestone and dolomite deposits (Figure 2-2).

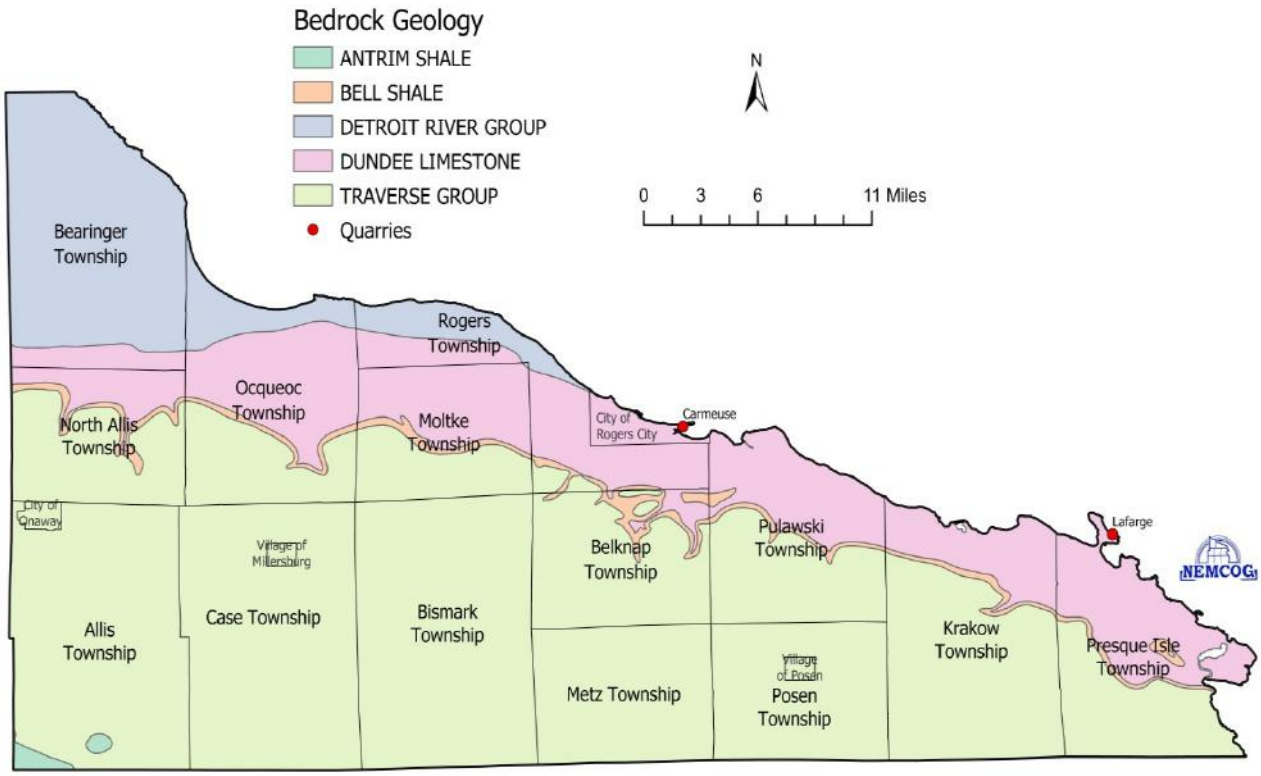

Figure 2-2 Presque Isle County's Bedrock Geology

Karst features can be found in the Shoepac Lake area in Allis Township and on the Rockport property in Presque Isle Township (Figure 2-3). Karst topography is characterized by sinkholes, underground streams, and caves. These features occur when the bedrock is dissolved and the surface rock collapses into the cavity, which causes tremors that may be reported as earthquakes. It takes several decades for new sinkholes to appear on the surface. Due to the moist terrain within the bedrock and the partially subterranean shaded location, the sinkholes host plant communities that are not found in the surrounding surface areas.

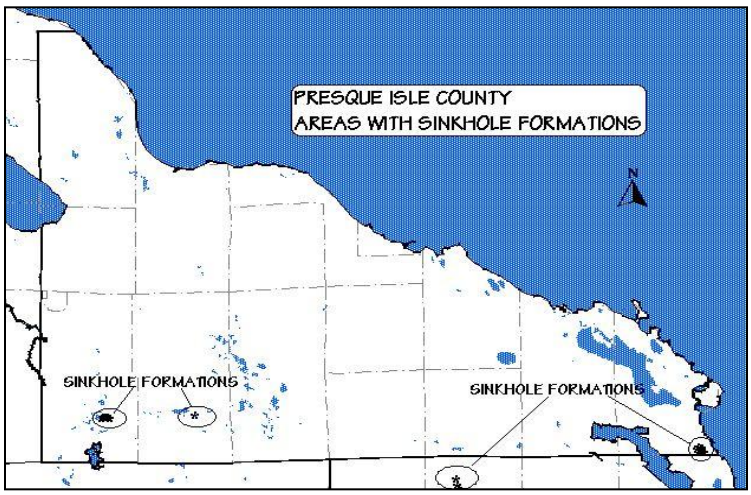

Figure 2-3 Sinkhole Groupings in Allis and Presque Isle Townships

Soils

The Natural Resource Conservation Service completed a detailed soil survey of Presque Isle County and the soil survey maps were acquired from the Michigan Center for Geographic Information to assist in analyzing the County's soil types. The soils range widely in texture, natural drainage, slope, and other characteristics. Figure 2-4 shows the location of prime agricultural soils.

Hydric Soils and Steep Slopes

Soil type and slope are two important factors that should be considered when planning for land use intensity and type. The cost to develop areas with hydric soils and steep slopes is greater than the cost of developing in less constrained areas since hydric soils and steep slopes require severe building constraints and special design considerations, such as erosion control measures, slope stabilization, and on-site water retention. Lower density and less intensive development should be directed to these areas. If developed improperly, the environmental impacts would be far reaching.

Hydric soils are located adjacent to streams and creeks, and are classified as poorly drained and very poorly drained. During part of the growing season, these soils are saturated, flooded or ponded, which makes them poor soils for building site development and sanitary facilities. The high water table of these soils may classify them as wetlands and require a wetland permit for development. Presque Isle County has approximately 137,535 acres of hydric soils (33% of the County's land area) and 82,216 acres of soils with hydric inclusions (upland soils with small areas of hydric soils) (Figure 2-5).

According to the *Soil Survey of Presque Isle County, Michigan,* areas with slopes 18% and greater are minimal and are concentrated in the headwaters of the Ocqueoc River and the chain of lakes area (Lake Nettie, Lake Emma and Lake May) in southwest Bismarck Township, in southwest Allis Township near Canada Creek, and in Moltke Township (Figure 2-5).

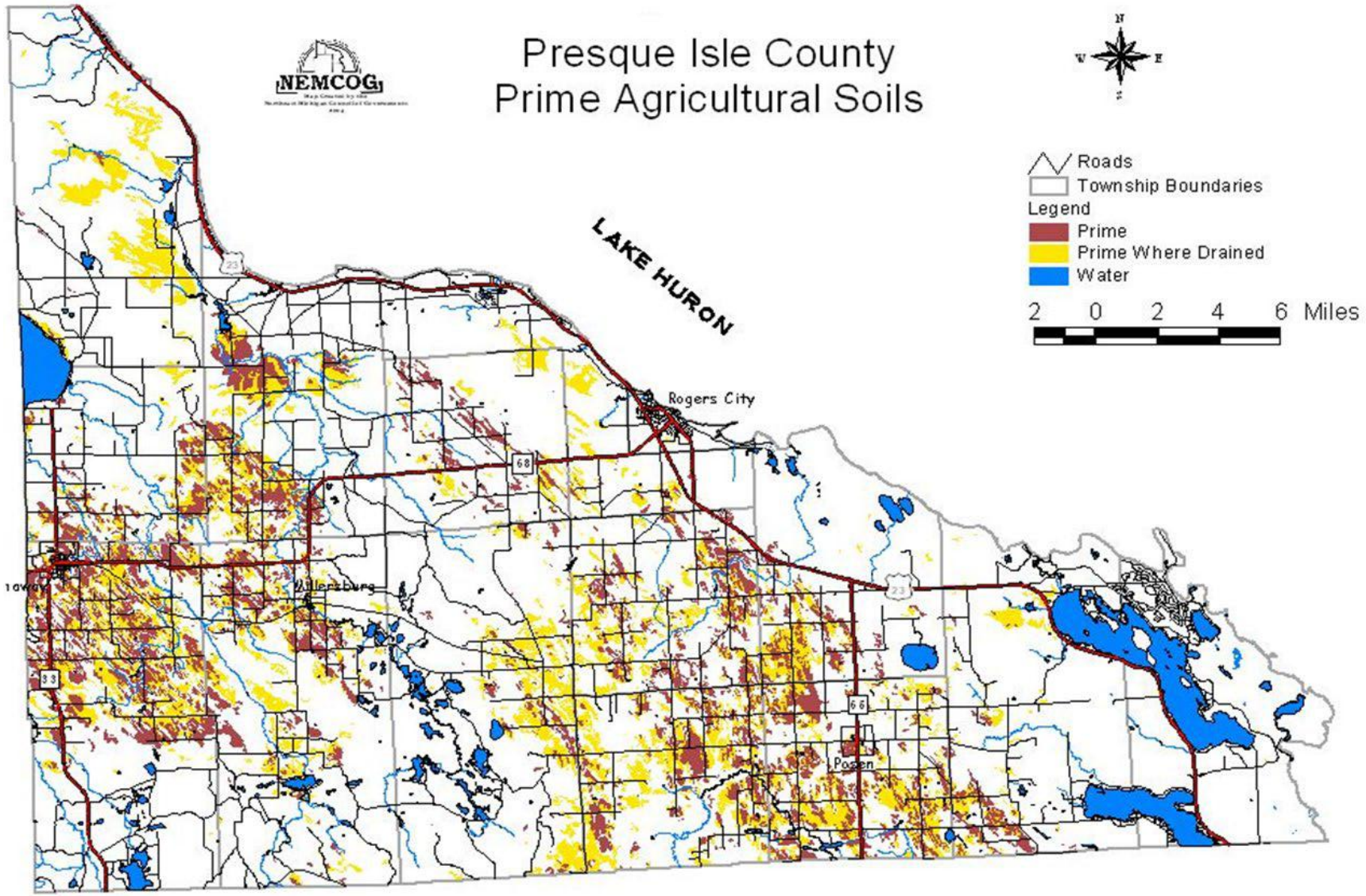

Figure 2-4 Presque Isle County's Prime Agricultural Soils

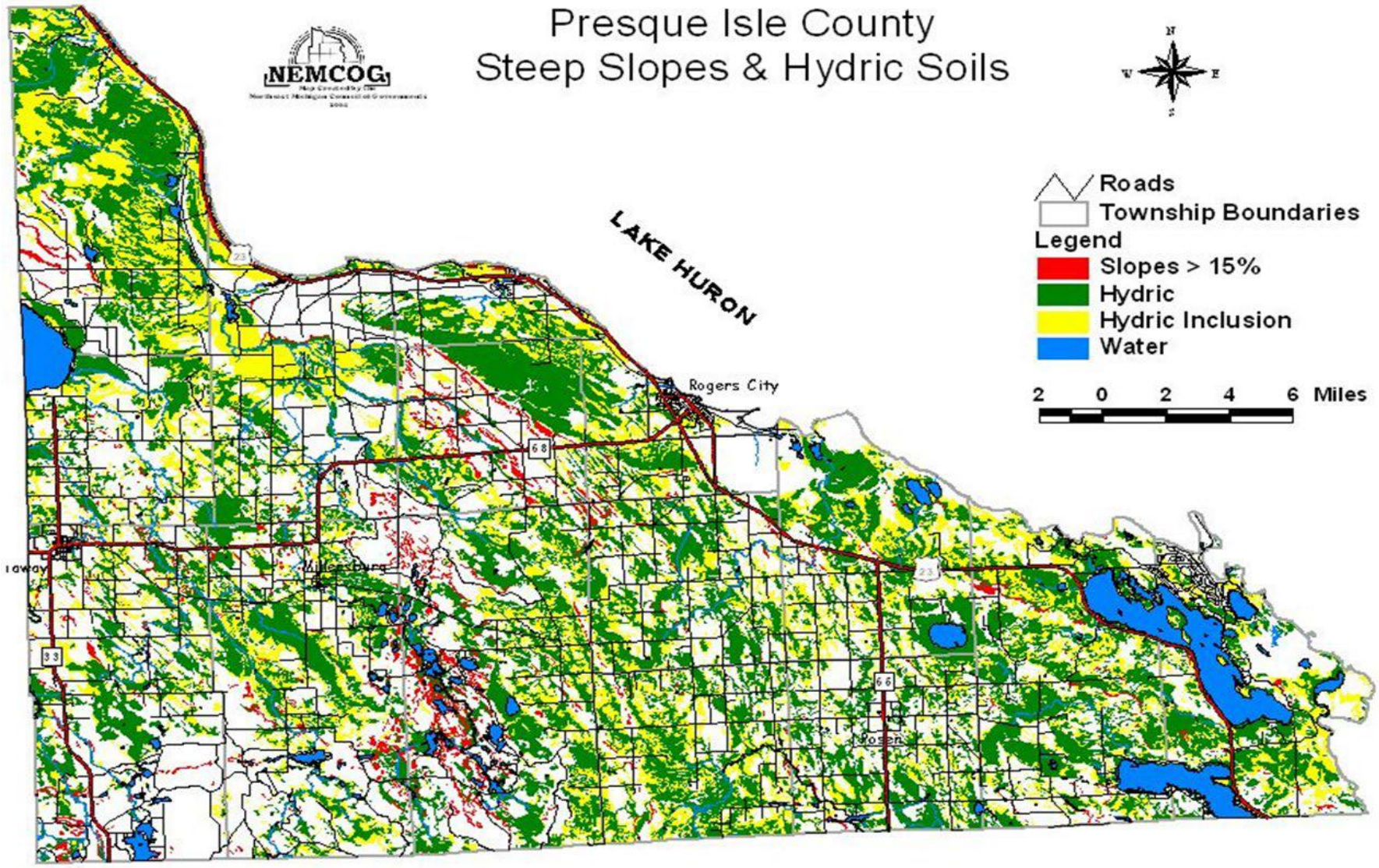

Figure 2-5 Presque Isle County's Steep Slopes and Hydric Soils

Water Resources

Presque Isle County has numerous lakes, streams, and creeks that provide fishing opportunities to residents and visitors. According to the *Soil Survey of Presque Isle County, Michigan,* the county has 16,376 acres of surface water that includes 89 inland lakes, and 300 miles of streams and creeks. Black Lake, Grand Lake and Long Lake are over 2,000 acres in size, while Lake Augusta, Lake Esau, Big Trout Lake, Lake Nettie and Tomahawk Creek Flooding have surface areas of 250 acres or greater. Warm water lakes have walleye, northern pike, largemouth bass, smallmouth bass and panfish. Lake Huron is the county's largest water resource with a surface area of 23,000 square miles and 3,827 miles of shoreline. Lake Huron has salmon and lake trout, which are marketed for the annual Salmon Tournament in Rogers City. The streams interconnect the lakes with smaller water bodies (e.g. small ponds, kettle holes and marshes). These water bodies are characterized by seasonal water level fluctuations. Brook, rainbow, and brown trout are established in the streams.

Presque Isle County is composed of four watersheds: the Lake Huron Coastal Watershed, the Black River Watershed (part of the Cheboygan River Watershed), the Ocqueoc River Watershed, and the Thunder Bay River Watershed (Figure 2-6). The Lake Huron Coastal Watershed occurs along the county's northern and eastern coasts. The Black River Watershed is located in the western portion of the county and includes the Upper Black River, Canada Creek, Tomahawk Creek, Stony Creek and Rainy River. The Ocqueoc River Watershed is located in the west-central parts of the county and includes the chain of lakes area (Lake Nettie, Lake Emma and Lake May). The Thunder Bay River Watershed is located in the south-central portion of the county and includes the North Branch of the Thunder Bay River.

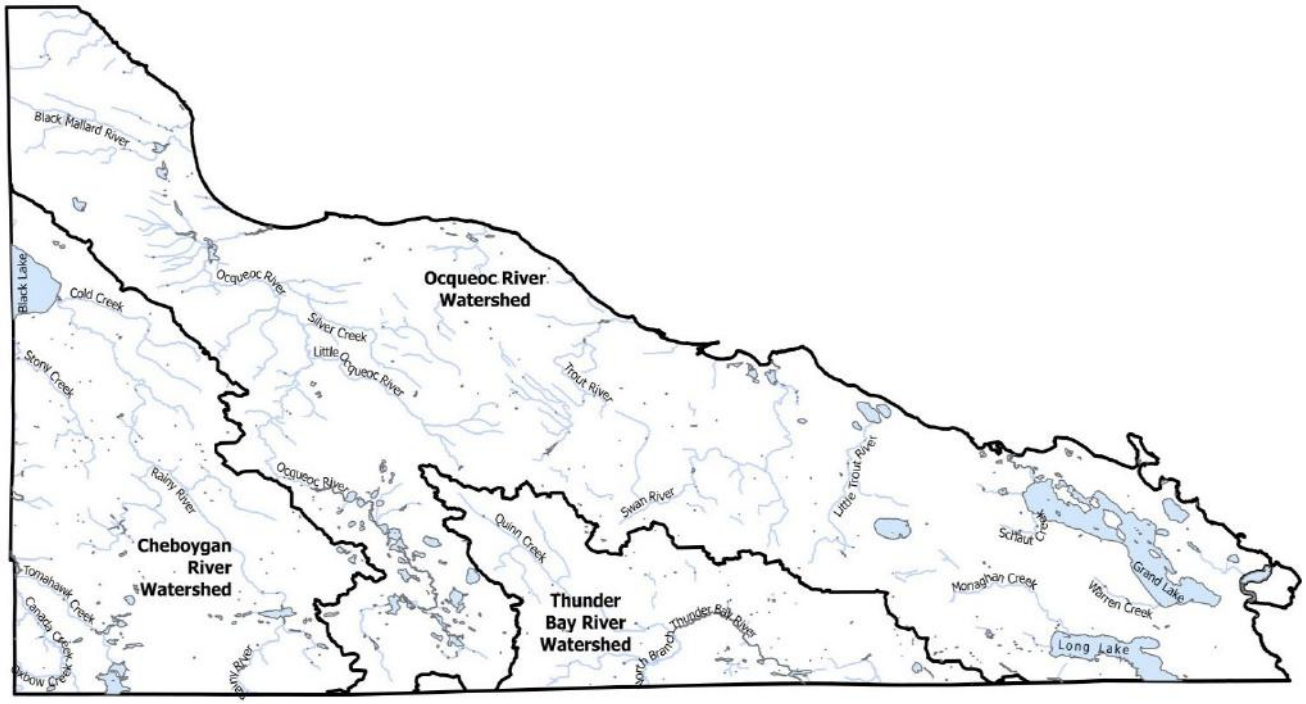

Figure 2-6 Presque Isle County's Watersheds

All of the county's drinking water is from groundwater that is provided through subsurface aquifers. Generally, the county has high water quality with high concentrations of calcium, magnesium, and fluoride. However, the county's karst topography and sandy soils put the groundwater at risk for contamination (Figure 2-7). According to a study conducted by District Health Department #4, there are four sources of pollutants to domestic water supplies: agriculture

(barnyards, feedlots, pastures, and croplands), residential (septic systems, abandoned wells), illicit dumping, and road corridors.

Historically, karst sinkholes were used as dumping sites, which increased the risk of refuse coming into contact with the groundwater. For example, in one sinkhole clean-out project, there were eight automobiles, three snowmobiles, a 250-gallon fuel oil tank, several tons of other metal materials, and a large amount of household trash. The Presque Isle Soil and Water Conservation District, in cooperation with other agencies, developed the *Northeast Michigan Karst Aquifer Protection Plan* to protect Presque Isle County's and parts of Alpena County's drinking water.

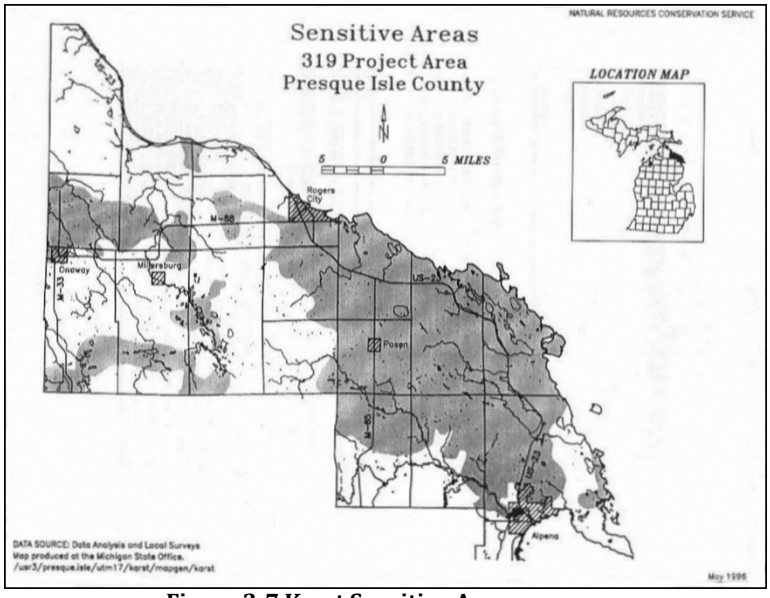

Figure 2-7 Karst Sensitive Areas

Wetlands

Wetlands are located between terrestrial and aquatic systems where the water table is high for a significant portion of the year. The hydrology of these areas permits the formation of hydric soils and the growth of hydrophytic vegetation. These areas include marshes, swamps, and bogs. Wetlands serve many functions, including wildlife habitat, protecting shorelines from erosion, discharging and recharging aquifers, and improving water quality through the filtration of pollutants, organic chemicals, and toxic heavy metals.

The Michigan Resource Information System Land Cover Inventory (MIRIS) and the National Wetlands Inventory (NWI) were used to depict the location and type of wetlands in Presque Isle County (Table 2-1; Figure 2-8). Each source uses different criteria to classify wetlands, which results in the NWI classifying more areas as wetlands than MIRIS. However, both sources found forested wetlands to be the dominant wetland type in the county. Forested wetland species include northern white cedar, black spruce, eastern tamarack, black ash, elm, balsam poplar, aspen, and red maple. MIRIS found shrub-scrub wetlands to be the second most prevalent wetland type and include tag alder, dogwood, and willow.

Table 2-1Comparison between the Michigan Resource Information System (MIRIS) Land Cover Inventory and National Wetlands Inventory (NWI)

Wetland Type	Michigan Resource Information System (MIRIS) Land Cover Inventory	National Wetlands Inventory
Forested Wetlands	87,071 acres	124,462 acres
Shrub-Scrub Wetlands	10,335 acres	14,790 acres
Emergent-Aquatic Wetlands	1,828 acres	9,879 acres

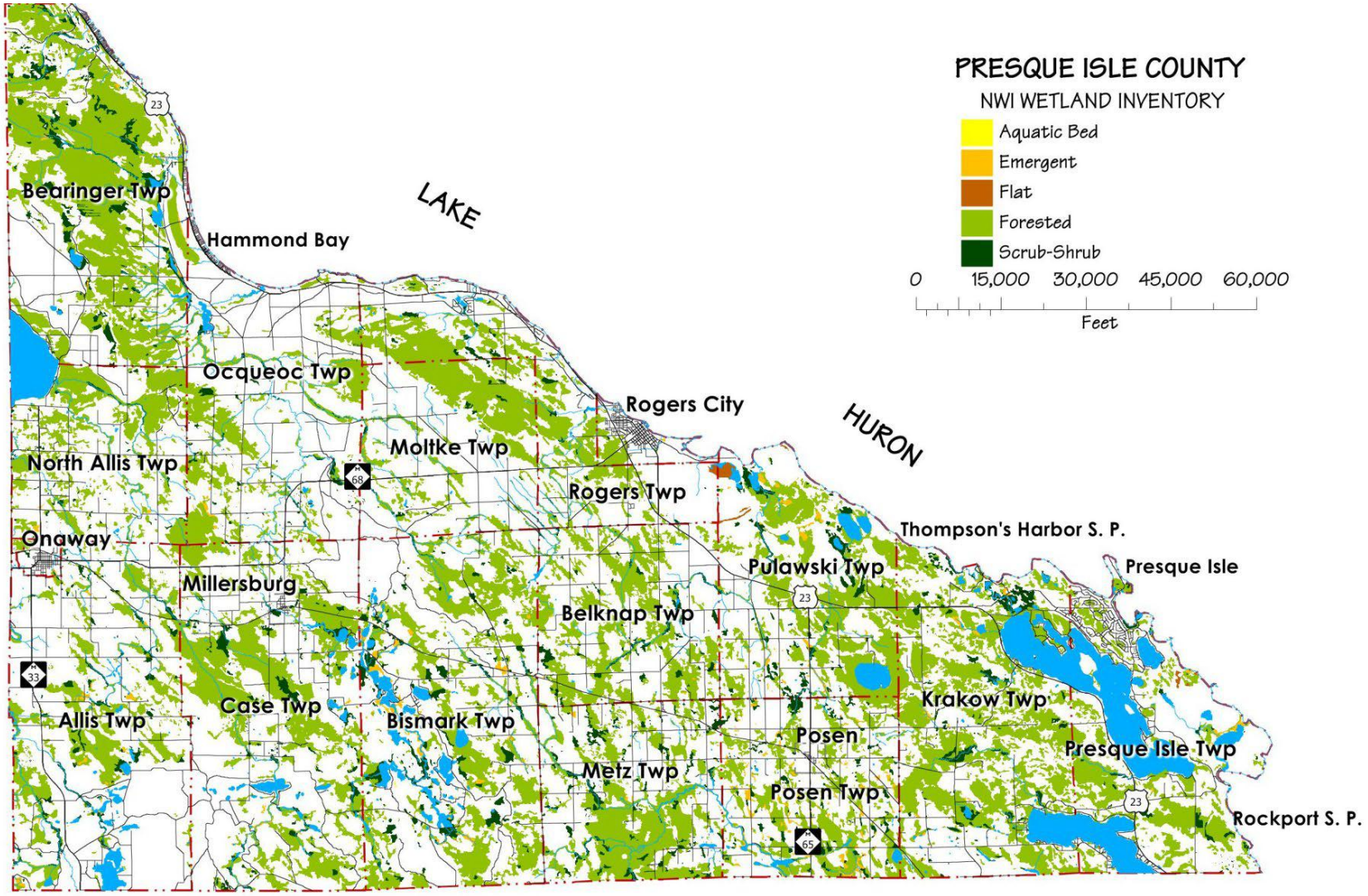

Figure 2-8 Presque Isle County Wetland Classification
Source: National Wetland Inventory

Forestlands

Forestlands provide wildlife habitat, hunting opportunities, prevent erosion, and act as a buffer for noise. In Presque Isle County, approximately 24% of the forestlands are state-owned, while the remaining forestlands are under private ownership. The county's dominant forest types include aspen/birch stands, lowland conifers (cedar, tamarack and spruce) and lowland hardwoods (black ash, slippery elm, balsam poplar, aspen, and red maple) (Figure 2-9). Other forest types include pine (red, jack and white), oak (red and white) and northern hardwoods (sugar maple, American beech and basswood). Deer, grouse, woodcock, rabbit, waterfowl, bear, coyote, bobcat, elk, turkey, and squirrel populations can be found in the forestlands. Michigan's elk herd is located in the southwest portion of the county on land owned by the State and private clubs.

Along with Alpena, Montmorency, Oscoda, and Alcona Counties, Presque Isle County is located in the Bovine Tuberculosis outbreak area that effects the local deer population and other wild animals. The Michigan DNR has created a deer management unit (DMU 452) to manage and prevent the spread of the disease through the enforcement of special regulations regarding deer hunting and feeding. The long term effect of Bovine Tuberculosis on the area's hunting is unknown.

To assist in defining the vulnerable areas and populations in the county, the Michigan DNR's pre-settlement vegetation maps were used to analyze the forest types (Figure 2-10). The maps show extensive areas covered with beech-sugar maple-hemlock forests, cedar swamps, and mixed conifer swamps. White pine-red pine forests and jack pine-red pine forests were also present. Logging and subsequent wildfires shifted the county's forests from pines and mixed forest swamps to aspen-birch forests. In addition, early settlers cleared sugar maple-beech stands since the soils were most suitable for agricultural purposes.

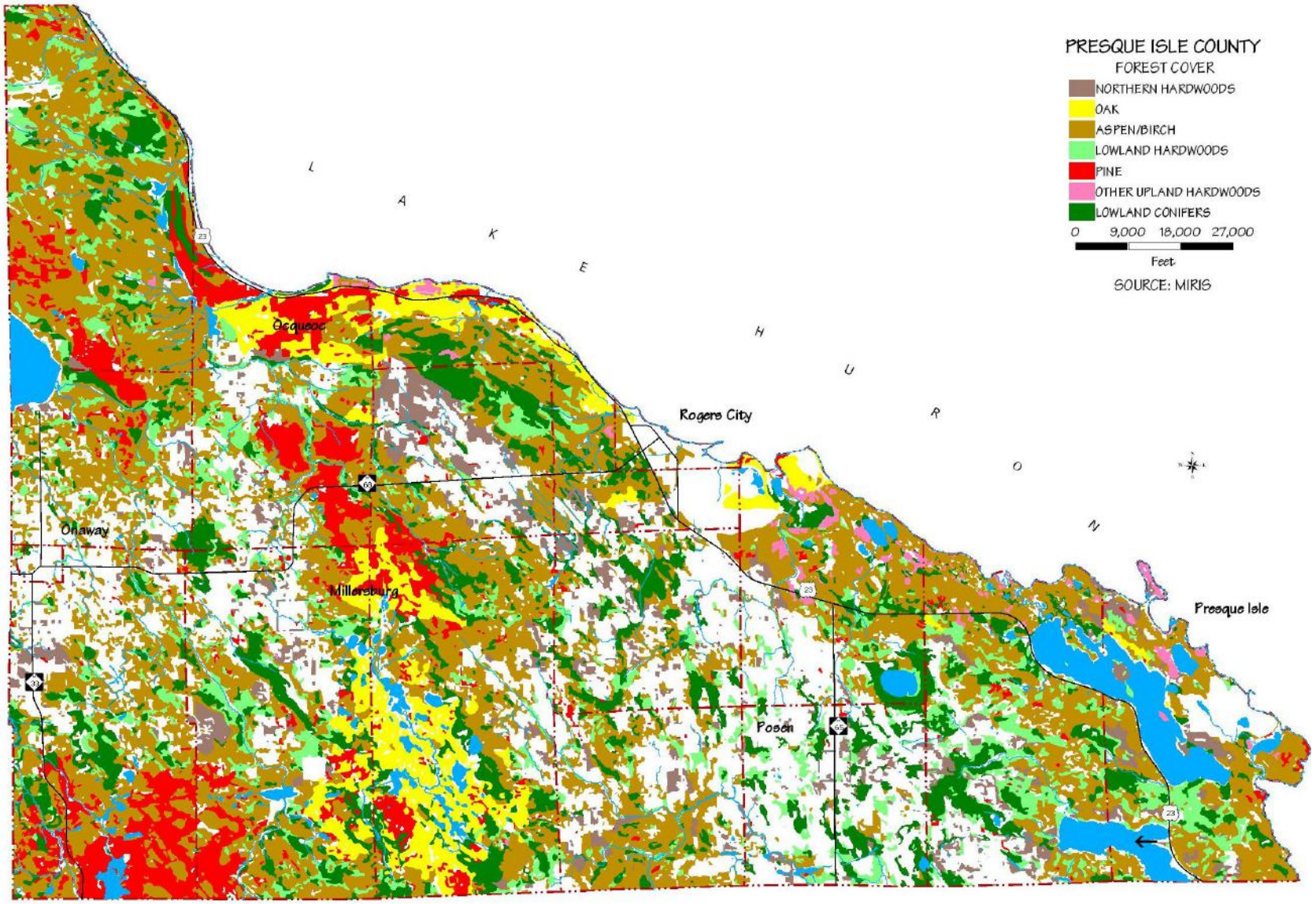

Figure 2-9 Presque Isle County Forest Cover

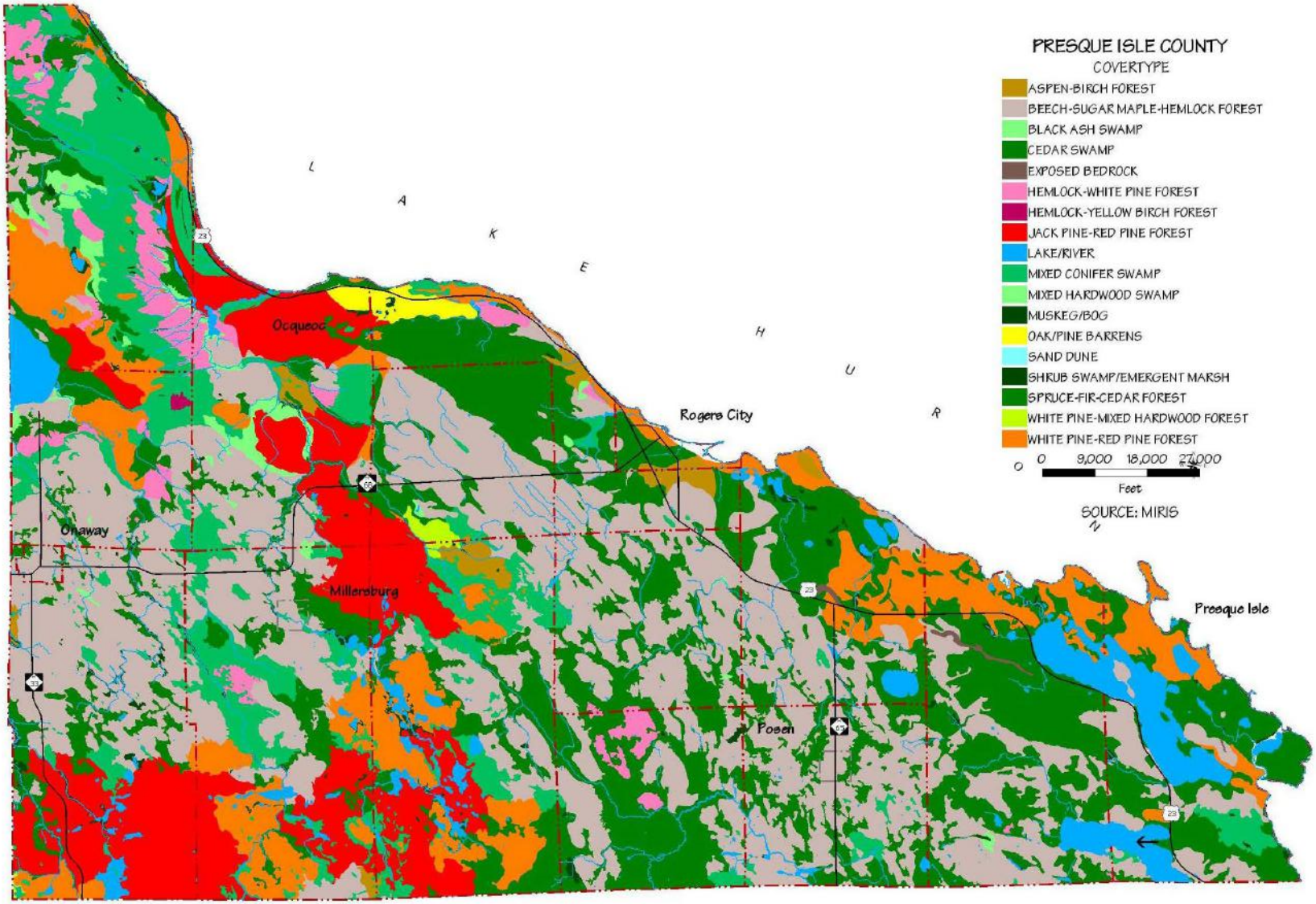

Figure 2-10 Presque Isle County Pre-Settlement Forest Cover

Discharge Permits

Surface Water (National Pollutant Discharge Elimination System) Permits

The State of Michigan controls the discharge of pollutants from waste and wastewater into Michigan's surface waters through the National Pollutant Discharge Elimination System (NPDES) permitting process. This process imposes effluent limitations and other necessary conditions to protect the environment and meet State and Federal regulations. Ten NPDES permits have been issued in Presque Isle County (Table 2-2).

Table 2-2 National Pollutant Discharge Elimination System Permits in Presque Isle County

Site Name	Address	Site Type	Permit Number	Expiration Date
Cadillac Products Inc-Rogers	4858 Williams Road	Industrial	MIS210545	4/1/22
Carmeuse Lime & St-Rogers City	1035 Calcite Road	Industrial	MI0004111	10/1/21
Elk Run Landfill	20667 Five Mile Highway	Industrial	MIS210181	4/1/22
Lafarge-Presque Isle	11351 East Grand Lake Road	Industrial	MI0003468	10/1/17
Onaway WWTP	21132 Spruce Street	Municipal Sanitary-Public	MI0055522	10/1/23
Presque-Isle Elec & Gas-Weed	various Locations in the northeastern Lower Peninsula	Pesticide	MIG031022	2/1/22
Rogers City WWTP	450 North First Street	Municipal Sanitary-Public	MI0057813	10/1/21
Specification Stone-Onaway	3242 Main Street	Industrial	MIS210999	4/1/22
Standard Industrial Corp	14821 Polaski Road	Industrial	MIS210159	4/1/22
USDI-Hammond Bay Biological Station	11188 Ray Rd	Industrial	MI0005100	10/1/21

Source: Michigan Department of Environment, Great Lakes, and Energy, Retrieved May 2019

Groundwater Discharge Permit

The State of Michigan regulates the discharge of wastes and wastewaters into the ground or groundwater system through the groundwater discharge permit program. Field staff review effluent and groundwater data, and inspect discharge facilities. The issuance of a groundwater permit does not authorize the violation of local, state, or federal regulations, nor does it remove the obligation to obtain other permits or government approvals. According to the Michigan Department of Environment, Great Lakes, and Energy (EGLE), there are three groundwater discharge permits issued in Presque Isle County:

- DNR-Parks & Recreation-Hoeft
- MDNR-Swan River Salmon Egg
- Presque Isle County Road Commission

Air Discharge (Renewable Operating Permit/ Title V) Permits

The State of Michigan administers the Renewable Operating Permit (ROP) system to regulate air emissions for facilities that emit more than a certain amount of air contaminants. According to EGLE, there is one renewable operating permit issued in Presque Isle County: Green for Life (GFL) North Michigan Landfill- Elk Run Landfill.

Sites of Environmental Contamination

The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended regulates facilities of environmental contamination in Michigan. The Remediation and Redevelopment Division of EGLE works toward managing and revitalizing sites of environmental contamination to protect the environment. The division administers two programs: Environmental Remediation (release of hazardous substances from facilities) and Leaking Underground Storage Tanks (release of hazardous substances from underground storage tanks).

The facility inventory database has information for Sites of Environmental Contamination (Part 201), Leaking Underground Storage Tanks (Part 213), and Baseline Environmental Assessments (BEA). The Baseline Environmental Assessments document the existing contamination and allows a facility to be acquired and/or operated without being held liable for the existing contamination. In Presque Isle County, the facility inventory database reports the following:

- 12 sites with completed Baseline Environmental Assessments
- 22 sites listed as Sites of Environmental Contamination (Part 201)
- 32 sites listed as Leaking Underground Storage Tanks (Part 213)

Chapter 3 Community Profile

Population

According to the U.S. Census Bureau, Presque Isle County's population is 12,854, which is a 10.8% decline since 2000 (Table 3-1). The county's population density is 19.5 persons per square mile. Between 2000 and 2017, most of the County's municipalities experienced a population decline with the greatest declines occurring in North Allis Township (44.0%), Metz Township (24.8%), the Village of Millersburg (24.7%), the Village of Posen (24.7%), the City of Onaway (23.0%), and Moltke Township (22.2%). The City of Rogers City lost the most people (613 people) despite having a small population decline. Krakow, Presque Isle, and Rogers Townships had an increase in their populations.

Table 3-1 Population for Presque Isle County and its Municipalities

Municipality	2000 Population	2010 Population	2017 Population	Percent Change 2000-2017	Numeric Change 2000-2017
Presque Isle County	**14,411**	**13,376**	**12,854**	**-10.8%**	**-1,557**
Allis Township	1,035	948	939	-9.3%	-96
Bearinger Township	329	369	313	-4.9%	-16
Belknap Township	854	751	728	-14.8%	-126
Bismarck Township	408	386	404	-1.0%	-4
Case Township	942	903	779	-17.3%	-163
Krakow Township	622	705	724	16.4%	102
Metz Township	331	302	249	-24.8%	-82
Moltke Township	352	296	274	-22.2%	-78
North Allis Township	618	521	346	-44.0%	-272
Ocqueoc Township	634	655	600	-5.4%	-34
Posen Township	959	850	810	-15.5%	-149
Presque Isle Township	1,691	1,656	1,774	4.9%	83
Pulawski Township	372	343	371	-0.3%	-1
Rogers Township	949	984	1,069	12.6%	120
City of Onaway	993	880	765	-23.0%	-228
City of Rogers City	3,322	2,827	2,709	-18.5%	-613
Village of Millersburg	263	206	198	-24.7%	-65
Village of Posen	292	234	220	-24.7%	-72

Source: U.S. Census Bureau
Note: Green text indicates an increase; Red text indicates a decline

Seasonal Population Estimate

It is difficult to determine the number of seasonal residents, visitors, and tourists in the county. However, an approximate estimate for the number of seasonal residents can be obtained by multiplying the number of seasonal housing units (3,937) by the average number of persons per household (2.13) to get a seasonal population estimate of 8,386 persons. When the seasonal population estimate is combined with the U.S. Census Bureau's population figure, the County's population becomes 21,240. Unfortunately, this population estimate does not include seasonal visitors or tourists who stay in motels, campgrounds, or family homes.

Age Distribution

According to the U.S. Census Bureau, Presque Isle County has an older population with 61.4% of the individuals aged 45 years or older (Table 3-2). The jurisdictions with large mid-life populations (aged 45-64 years) include Presque Isle County, the City of Onaway, the Village of Millersburg, the Village of Posen, and Posen, Moltke, Case, Belknap, Bismarck, Allis, and Presque Isle Townships. The jurisdictions with large older populations (aged 65 years and older) include the City of Rogers City, Bearinger, Krakow, North Allis, Ocqueoc, Pulawski, and Rogers Townships. Metz Township has equivalent mid-life and older populations. The Village of Posen and the City of Rogers City have the largest populations of people between the ages of 25 and 44.

Between 2000 and 2017, the median age of residents in Presque Isle County increased from 45.1 to 54.3 years, while the State's median age increased from 35.5 to 39.6 years (Figure 3-1, Table 3-2). Since the county is aging at a faster rate than the State, the County's population will have a greater need for accessible social and medical services. Out of the jurisdictions, the Village of Millersburg has the lowest median age at 41.5 years, while Bearinger Township has the highest median age at 63.5 years.

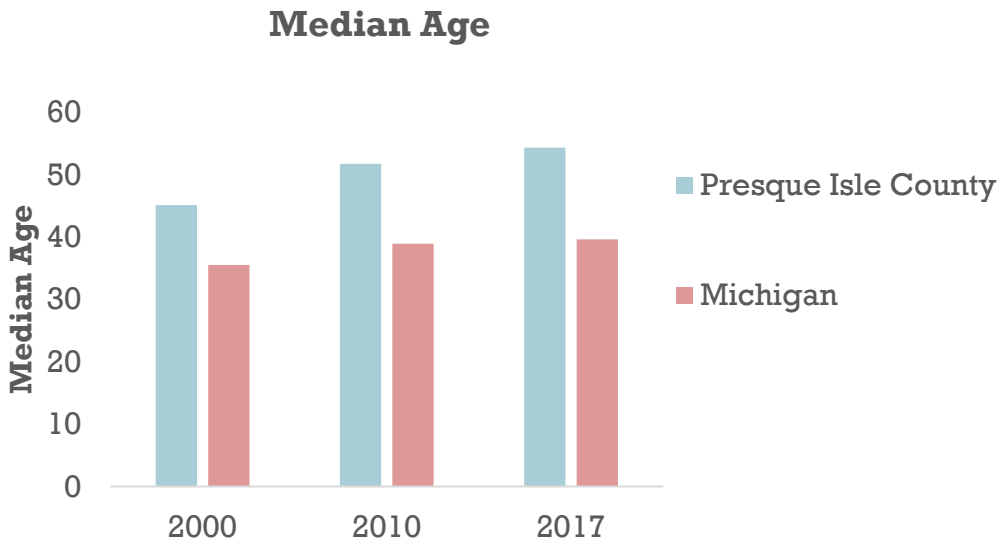

Figure 3-1 Median Age of Presque Isle County Residents

Table 3-2 Age Distribution by Municipality, 2017													
Municipality	**< 5 Years**	**%***	**5-19 Years**	**%***	**20-24 Years**	**%***	**25-44 Years**	**%***	**45-64 Years**	**%***	**65 Years and Older**	**%***	**Median Age**
Presque Isle County	**476**	**3.7**	**1,845**	**14.3**	**524**	**4.1**	**2,106**	**16.4**	**4,136**	**32.1**	**3,767**	**29.3**	**54.3**
Allis Township	34	3.6	144	15.3	39	4.2	180	19.1	328	34.8	214	22.8	53.0
Bearinger Township	8	2.6	21	6.7	6	1.9	21	6.7	120	38.4	137	43.7	63.5
Belknap Township	22	3.0	145	19.9	17	2.3	99	13.7	242	33.2	203	27.9	54.7
Bismarck Township	9	2.2	52	12.9	20	5.0	54	13.4	137	33.9	132	32.7	55.8
Case Township	33	4.2	142	18.2	32	4.1	134	17.2	250	32.1	188	24.0	49.5
Krakow Township	7	1.0	79	10.9	23	3.2	74	10.3	254	35.0	287	39.7	60.8
Metz Township	1	0.4	27	10.8	5	2.0	26	10.4	95	38.1	95	38.1	62.7
Moltke Township	3	1.1	34	12.4	4	1.5	45	16.4	104	37.9	84	30.7	57.0
North Allis Township	7	2.0	49	14.2	14	4.0	55	16.0	103	29.8	118	34.0	55.5
Ocqueoc Township	12	2.0	88	14.7	15	2.5	55	9.2	211	35.2	219	36.4	58.5
Posen Township	56	6.9	114	14.1	17	2.1	161	19.8	265	32.7	197	24.3	48.9
Presque Isle Township	31	1.7	223	12.6	41	2.3	272	15.4	657	37.1	550	31.0	57.8
Pulawski Township	31	8.4	75	20.2	34	9.2	57	15.4	83	22.4	91	24.6	43.1
Rogers Township	29	2.7	204	19.1	19	1.8	155	14.5	328	30.7	334	31.2	55.3
City of Onaway	41	5.4	124	16.2	55	7.2	141	18.5	277	36.2	127	16.7	46.0
City of Rogers City	152	5.6	324	12.0	183	6.8	577	21.4	682	25.2	791	29.2	48.0
Village of Millersburg	12	6.1	44	22.2	14	7.1	32	16.1	57	28.8	39	19.8	41.5
Village of Posen	17	7.7	34	15.4	11	5.0	61	27.7	50	22.7	47	21.4	41.7
Michigan	**571,999**	**5.8**	**1,910,417**	**19.3**	**723,180**	**7.3**	**2,396,359**	**24.1**	**2,748,380**	**27.7**	**1,575,233**	**15.8**	**39.6**

*Percentage that each age group is represented out of the municipality's total population.
Source: U.S. Census Bureau

Disability Status

Disabled status data is estimated by the American Community Survey and is based on a sample (Table 3-3). A person was classified as having a disability if they had a sensory, physical, mental, self-care, going outside the home, or an employment disability. Approximately 36.2% of Presque Isle County's population is classified as having some type of disability. There are approximately 1,903 people between the ages of 18 and 64 years who have some type of disability with ambulatory disabilities and cognitive difficulties being the most common.

Table 3-3 Disability Status in Presque Isle County	
Status Type	**Number of Persons**
Population under 5 years with a disability	**0**
With a hearing difficulty	0
With a vision difficulty	0
Population 5-17 years with a disability	**121**
With a hearing difficulty	16
With a vision difficulty	12
With a cognitive difficulty	64
With an ambulatory difficulty	19
With a self-care difficulty	10
Population 18-64 years with a disability	**1,903**
With a hearing difficulty	237
With a vision difficulty	147
With a cognitive difficulty	451
With an ambulatory difficulty	568
With a self-care difficulty	167
With an independent living difficulty	333
Population 65+ years with a disability	**2,632**
With a hearing difficulty	724
With a vision difficulty	267
With a cognitive difficulty	265
With an ambulatory difficulty	766
With a self-care difficulty	214
With an independent living difficulty	396
Source: American Community Survey 2017	

Selected Economic Indicators for Presque Isle County

According to the U.S. Census Bureau, the number of people in the labor force has decreased from 6,500 people in 2000 to 5,111 people in 2017. Additionally, the county's unemployment rate has been decreasing since 2013 (Figure 3-2). The county's unemployment rate has consistently been higher than State and national rates.

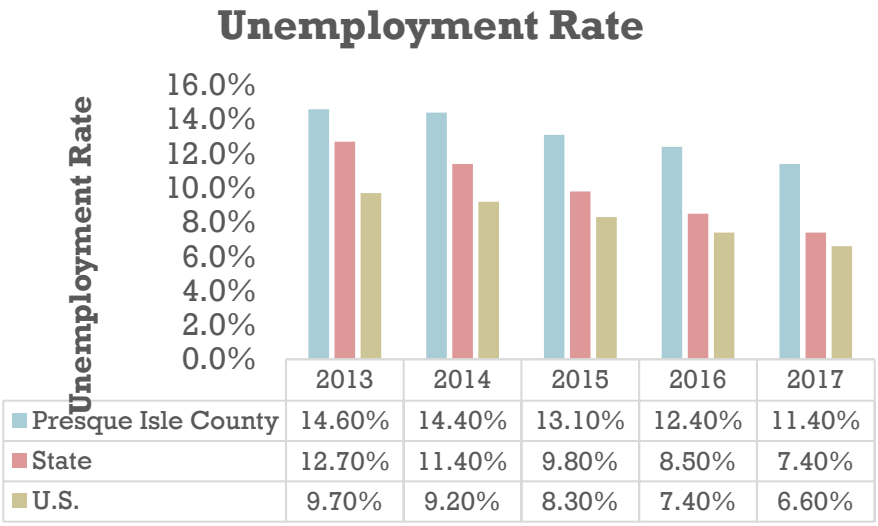

Figure 3-2 Unemployment Rate in Presque Isle County

Median Household Income

Median household income is a reliable measure of the economic health of families. In the eight counties in Northeast Michigan, the median income has steadily increased over the past several decades. However the median income in Northeast Michigan is lower than the State. The U.S. Census Bureau reports Presque Isle County's median household income was $43,758, which was 83.1% of the State's median household income and 75.9% of the national median household income (Table 3-4). In addition, 25.9% of households have a total income with benefits that is less than $25,000 (Table 3-5).

Table 3-4 Northeast Michigan Median Household Income

Place	2017
Alcona County	$39,424
Alpena County	$40,954
Cheboygan County	$42,876
Crawford County	$42,666
Montmorency County	$39,152
Oscoda County	$36,833
Otsego County	$50,823
Presque Isle County	$43,758
State of Michigan	$52,668
United States	$57,652

Source: U.S. Bureau of the Census – American Community Survey

Table 3-5 Income & Benefits per Household, 2017

Income and Benefits	Percent of Households
Less than $10,000	7.3%
$10,000 - $14,999	6.5%
$15,000 - $24,999	12.1%
$25,000 - $34,999	13.3%
$35,000 - $49,999	17.7%
$50,000 - $74,999	20.1%
$75,000 – $99,999	11.7%
$100,000 +	11.1%

Source: U.S. Bureau of the Census - American Community Survey

The median household incomes in Northeast Michigan are expected to remain lower than the State as the region has a higher proportion of older individuals than the State and the region's economy becomes more reliant on its service and tourism industries, which tend to have seasonal employment opportunities and lower incomes. As younger people move out of the region in search of steady, year-round employment with higher incomes, the region may experience a continued decrease in median household income and an increase in an older population.

Poverty Rates

Poverty remains an issue in Presque Isle County with approximately 10.2% of families living in poverty (Table 3-6). The poverty rates increases to 24.6% when children are present. The poverty rate for a female householder with no husband is 40.3% and increases to 61.2% when there are children present.

Table 3-6 Presque Isle County Poverty Rates, 2017	
Category	**Percent**
Families	10.2%
All families w/related children under 18	24.6%
Married couple families	5.9%
Married couple families w/related children under 18	11.5%
Female householder, no husband present	40.3
Female householder, no husband present w/ related children under 18	61.2%
Householder 65+ years	4.8%
Source: U.S. CensusBureau – American Community Survey	

Housing Stock

According to the U.S. Census Bureau, Presque Isle County has 10,462 housing units with 5,929 occupied housing units and 4,533 vacant housing units (Table 3-8). Presque Isle Township has the most housing units at 1,808 units, while the Village of Millersburg has the least amount of units.

Communities with lakes, rivers, and private forestlands tend to have a higher number of seasonal housing units, which presents challenges when mitigating hazards due to their geographic location. In Presque Isle County, 37.6% of the total housing units are seasonal with the majority of units located in Bearinger (68.0%) and Bismarck Townships (63.4%). Other townships that have more than half of their vacant housing units classified as seasonal units include Ocqueoc, North Allis, Presque Isle, and Krakow.

Generally, older housing units are more likely to need renovations. In Presque Isle County, the majority of the structures were built between 1960 and 1979 (Table 3-7). Approximately 33.7% of the structures were built prior to 1960 and 14.3% were built prior to 1940. There were approximately 21.5% of structures built after 1990.

Table 3-7 Year Structure Built, Presque Isle County	
Year Structure Built	**Percent of Structures**
2000 or later	9.0%
1990-1999	12.5%
1980-1989	12.3%
1960-1979	32.5%
1940-1959	19.4%
1939 or earlier	14.3%
Source: American Community Survey 2017	

Table 3-8 Housing Counts and Occupancy Status in Presque Isle County, 2017						
Jurisdictions	**Total Housing Units**	**Occupied Housing Units**	**Vacant Housing Units**	**Percent Vacant Units**	**Seasonal Units**	*** Percent Seasonal Units**
Presque Isle County	**10,462**	**5,929**	**4,533**	**43.3**	**3,937**	**37.6**
Allis Township	588	420	168	28.6	137	23.3
Bearinger Township	584	161	423	72.4	397	68.0
Belknap Township	418	286	132	31.6	72	17.2
Bismarck Township	554	186	368	66.4	351	63.4
Case Township	698	334	364	52.1	320	45.8
Krakow Township	848	353	495	58.4	430	50.7
Metz Township	249	134	115	46.2	89	35.7
Moltke Township	193	128	65	33.7	50	25.9
North Allis Township	423	182	241	57.0	219	51.8
Ocqueoc Township	826	298	528	63.9	484	58.6
Posen Township	460	356	104	22.6	71	15.4
Presque Isle Township	1,808	835	973	53.8	926	51.2
Pulawski Township	181	142	39	21.5	37	20.4
Rogers Township	623	482	141	22.6	130	20.9
City of Onaway	453	355	98	21.6	48	10.6
City of Rogers City	1,556	1,277	279	17.9	176	11.3
Village of Millersburg	120	82	38	31.7	21	17.5
Village of Posen	140	119	21	15.0	9	6.4
* Percent of total housing Source: US Census Bureau						

Agriculture

Farming is an important part of the local economy and lifestyle for many residents. According to the USDA's 2012 Census of Agriculture County Profile for Presque Isle County, the number of farms in the county has increased from 289 (71,079 acres) in 2007 to 323 (81,536 acres) in 2012 (Table 3-9). The average farm made $70,654 in 2012 as opposed to $46,387 in 2007. The 2012 County Profile found the market value of products sold to be $22,821,000 with $17,469,000 in crop sales and $5,352,000 in livestock sales.

Table 3-9 Presque Isle County Agricultural Statistics	
Total farm production expenses	$18,313,000
Organic Program certified farms	1 farm
Cropland in transition to the Organic Program certified farms	1 farm
Revenue by Grains, oilseeds, dry beans, and dry peas	$10,454,000
Revenue by Vegetables, melons, potatoes, and sweet potatoes	$5,141,000
Revenue by Milk from cows	$3,668,000
Total livestock inventory	9,592 animals
2012 USDA Census of Agriculture	

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Chapter 4 Land Use Characteristics

Overview

Existing land use maps, future land use maps, and zoning maps can be combined with hazardous areas and land uses to develop an assessment of the existing land uses in Presque Isle County. The process identifies urban land uses (e.g. residential and commercial) and natural land uses (farmlands, forests, and wetlands). Once assessed, the county can identify vulnerable populations and mitigate potential hazards through the use of planning and zoning techniques. Minimal development has occurred in the county; therefore, no significant changes in development have occurred since the previous plan update.

Land Division Patterns

Approximately 24% of the county's total land area is public land (Figure 4-1). Most of the privately-owned properties are divided into smaller tracts of 10 acres or less. Low density residential developments are spread throughout the county on two acres or larger. Small tracts (less than one-half acre) and subdivisions are concentrated in cities, villages, near water features and within the Presque Isle Harbor development (Presque Isle Township).

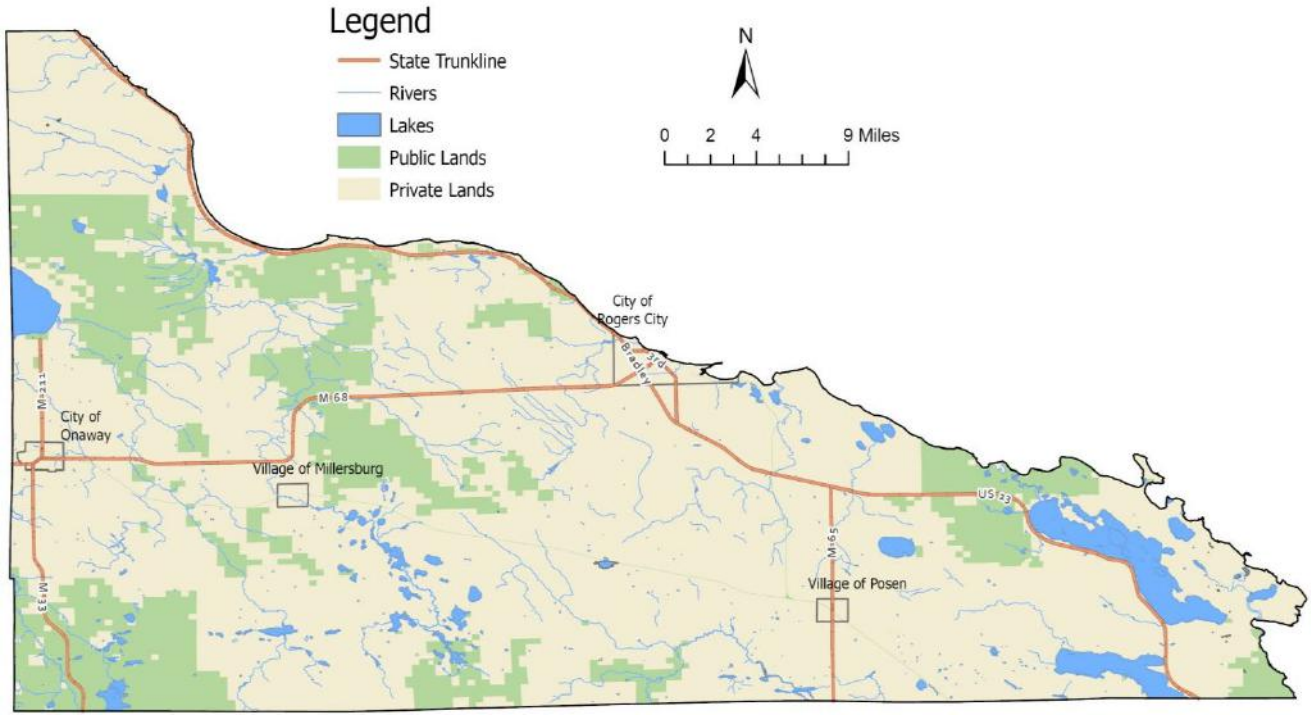

Figure 4-1 Presque Isle County Public and Private Ownership

Land Cover/Use

The Michigan Resource Information System's land cover/use (MIRIS) data was updated and used to determine the existing land use in the county (Table 4-1; Figure 4-2). NEMCOG used aerial photographs from 1992 and field checking in the fall of 1995 to update the 1978 MIRIS data.

Table 4-1 Land Cover/Use in Presque Isle County

Land Use Category	Number of Acres	Percent of Land
Residential	7,383	1.7%
Commercial	437	0.1%
Industrial/Extractive/Transportation	8,080	1.9%
Institutional/Recreational	1,129	0.3
Agricultural	66,579	15.2
Non-forested Uplands	22,510	5.1
Upland Forests	217,211	49.6
Lowland Forests	87,071	19.9
Non-forested Wetlands	12,146	2.8
Water	15,253	3.5
TOTAL	**437,797**	**100**

Source: Michigan Resource Inventory System and NEMCOG photo interpretation, field verification and map updating in 1995.

Residential

Residential developments (single family residential) occupy less than two percent of the county's land and are concentrated in cities, villages, Presque Isle Harbor Development, and areas adjacent to water features. Individual homes on large tracts of land were not delineated; therefore, low density residential development is not accounted for. If low density residential development was mapped, this category would increase by less than one percent.

Commercial

Commercial areas (service and retail) comprise one tenth of one percent of the county's total land area and are concentrated in Rogers City, Onaway, Posen, and Millersburg. Low density commercial development occurs along highways, county roads and water features.

Industrial/Extractive/Transportation

Industrial/Extractive/Transportation accounts for approximately 2% of the county's land and include industrial parks, manufacturing facilities, landfills, oil and gas processing facilities, airports, sand and gravel pits, Lafarge Presque Isle Quarry (Presque Isle Township), and Calcite (Rogers City).

Institutional/Recreational

Institutional/Recreational use accounts for 0.3% of the land area in the county and includes schools, churches, cemeteries, hospitals, government facilities, public and private parks, golf courses, and campgrounds. State Parks (Onaway (North Allis Township), Hoeft (Rogers Township), and Rockport (Presque Isle Township)) are mapped as recreational, while other natural parks (Thompson's Harbor (Krakow Township)) are mapped as forests and wetlands. Even though other natural parks are not mapped as recreational, the land does provide recreational opportunities.

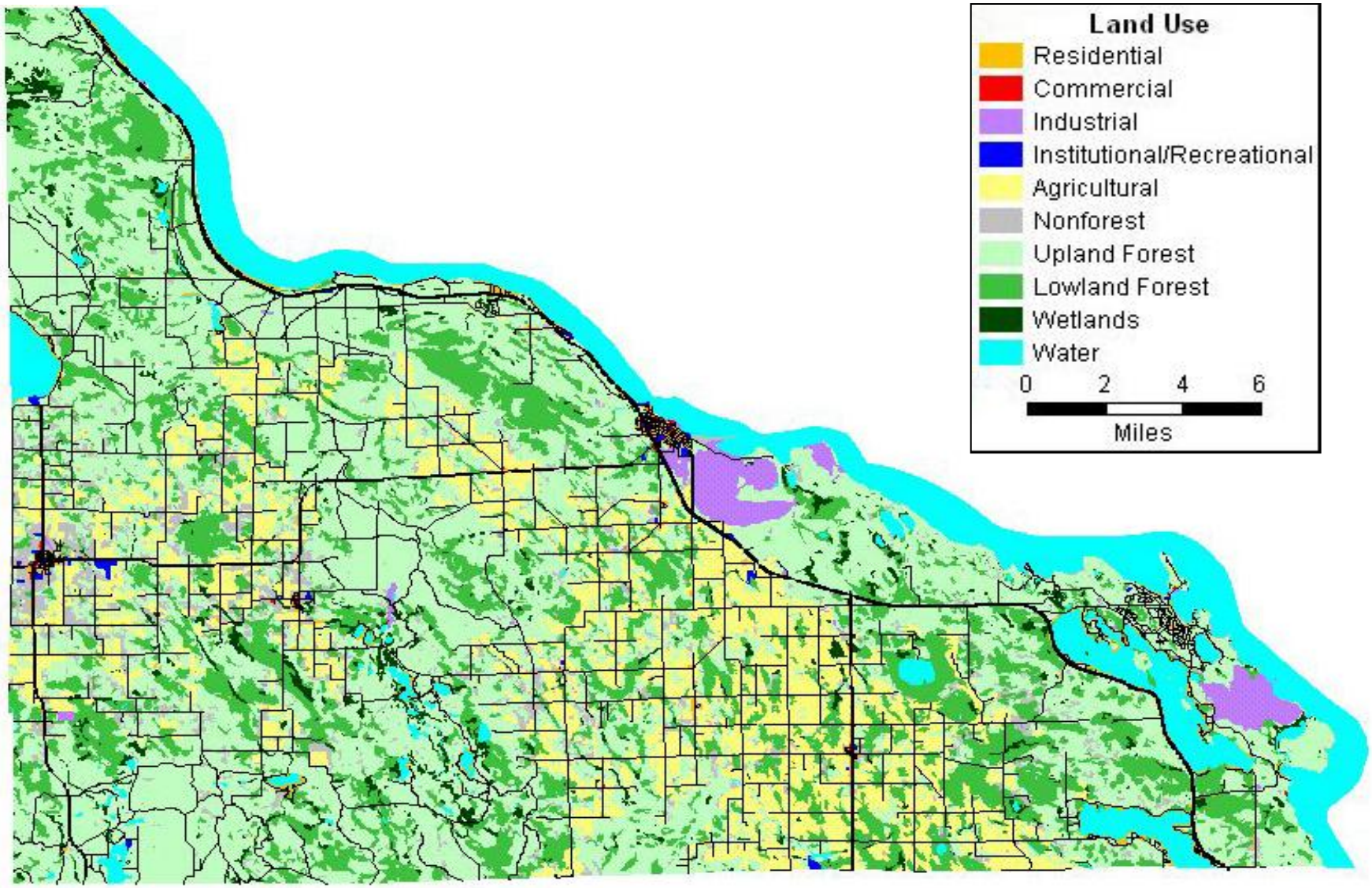

Figure 4-2 Presque Isle County Existing Land Use

Agricultural
Agricultural lands comprise approximately 15.2% of the county and include farming activities (e.g. hay production, pastureland and row crops). Since 2007, farming activities have increased in the county; however, unmanaged agricultural land tends to convert into open lands instead of being developed into subdivisions and commercial developments.

Non-forested Uplands
Non-forested uplands account for 5.1% of the county's land and include herbaceous open land, shrub land, old agricultural land, and recently clear-cut areas. Typical plants are quack grass, fescues, timothy, brome grass, Kentucky bluegrass, sedges, spotted knapweed, goldenrod, reed canary grass, clovers, blackberry and raspberry briars, dogwood, willow, sweet fern, sumac and tag alder.

Upland Forests
Upland forests are the predominant land cover in the county and account for 49.6% of the land area. The most prevalent forest type is aspen/birch, while other forest types include pine (red, jack and white), oak (red and white) and northern hardwoods (sugar maple, American beech and basswood).

Lowland Forests and Wetlands
Lowland forests account for 19.9% of the county's land, while non-forested wetlands account for 2.8%. Lowland forests are often classified as wetlands since they have seasonally high-water tables and support lowland hardwoods and conifers (e.g. northern white cedar, black spruce, balsam fir, elm, red maple, ash and aspen species). Major wetland areas are adjacent to streams and lakes, and support tag alder, willow, freshwater marshes with bulrushes and cattails, open bogs, aquatic wetlands, and wet meadows.

Surface Water
Surface water accounts for 3.5% of the county's land area and includes the county's 89 inland lakes. Thirteen of the lakes are 100 acres or larger. Black Lake (Bearinger and North Allis Townships), Grand Lake (Presque Isle and Krakow Townships) and Long Lake (Presque Isle and Krakow Townships) are over 2,000 acres in size, while Lake Augusta (Pulawski Township), Lake Esau (Presque Isle Township), Big Trout Lake (Pulawski Township), Lake Nettie (Bismarck Township) and Tomahawk Creek Flooding (Allis Township) have surface areas of 250 acres or greater.

Chapter 5 Community Services & Facilities

Overview

Community services and facilities play an important role in maintaining and improving quality of life (Figure 5-1). The location and level of some services, such as public water, public wastewater, and fiber optic lines, determine the types and intensities of development within a community. Presque Isle County is primarily a rural community with a relatively low population density, which presents challenges in providing facilities and services to county residents. However, the facilities and services may be sufficient for the needs of the current population and have the potential to be impacted by a natural hazard. In the county, the City of Rogers City has the largest population and infrastructure concentrations.

County Government

The Presque Isle County Board of Commissioners meets on the second Thursday at 4:00 pm and the last Friday at 9:30 am of each month at the County Courthouse, unless posted otherwise. The county is represented by five commissioners. There are a number of county departments including clerk, register of deeds, treasurer, courts, equalization, building, drain commissioner, emergency services, housing commission, and MSU Extension.

Township Government

Presque Isle County has fourteen townships:

- Allis Township located at 20018 W. 638 Highway. in Onaway
- Bearinger Township located at 17034 Town Hall Highway in Ocqueoc
- Belknap Township located at 1720 W. 638 Hwy. in Hawks
- Bismarck Township located at 7662 Claus Road in Hawks
- Case Township located at 5280 Maple Street in Millersburg
- Krakow Township located at 12022 Bolton Road in Posen
- Metz Township located at 9385 Highway 441 in Posen
- Moltke Township located at 5928 M-68 in Rogers City
- North Allis Township located at 1940 M-211 in Onaway
- Ocqueoc Township located at 14101 N. Allis Highway in Millersburg
- Posen Township located at 10813 N. Michigan Avenue in Posen
- Presque Isle Township located at 12653 E. Grand Lake Road in Presque Isle
- Pulawski Township located at 5025 Darga Highway in Posen
- Rogers Township located at 2442 M-451 in Rogers City

City & Village Government

- City of Onaway located at 20631 State Street in Onaway
- City of Rogers City located at 193 E. Michigan Avenue in Rogers City
- Village of Millersburg located at 5525 Main Street in Millersburg
- Village of Posen located at 7103 State Street in Posen

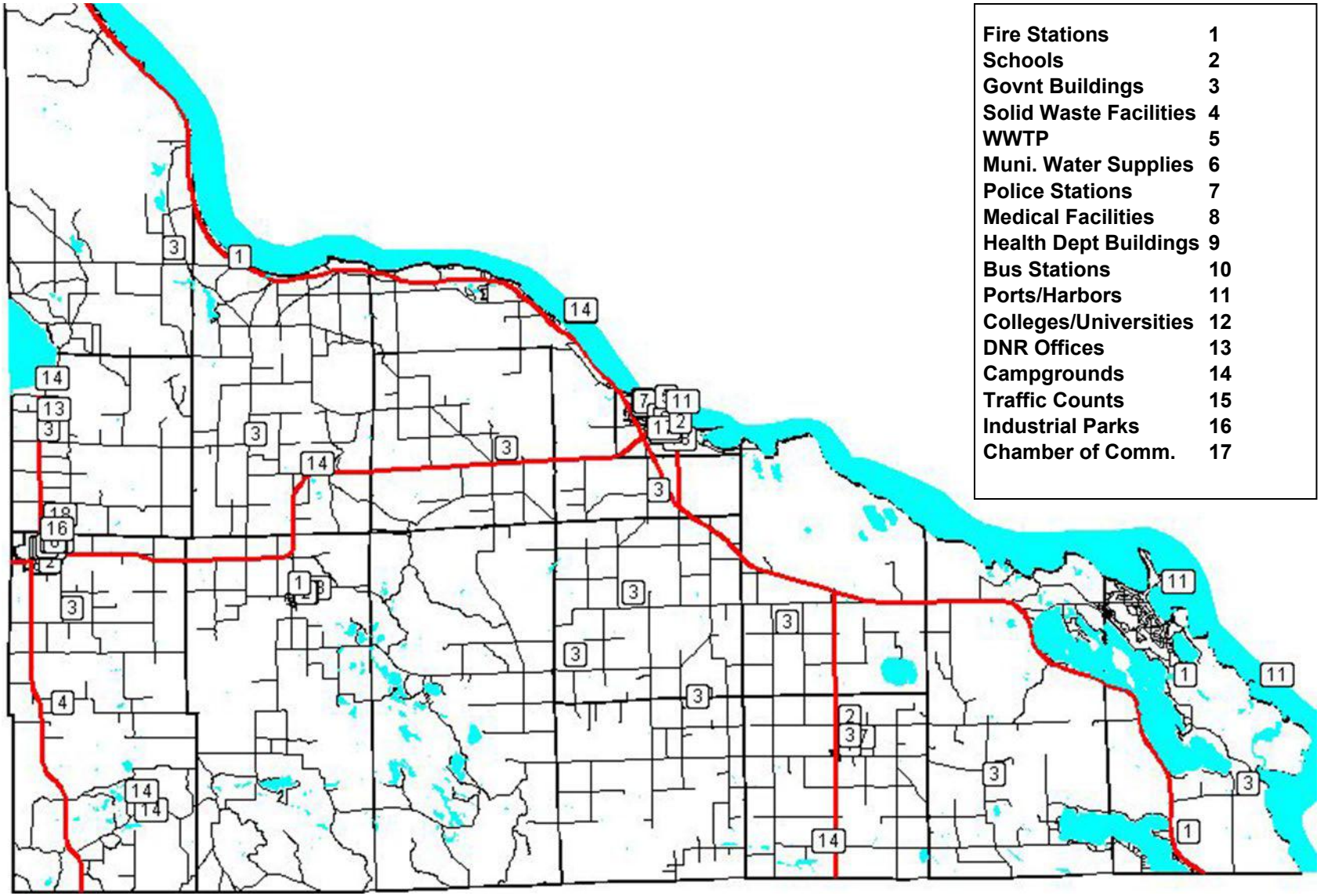

Figure 5-1 Presque Isle County's Critical Facilities

Public Safety

Law Enforcement

The Presque Isle County Sheriff's Office is the primary law enforcement office for the county. It operates the county jail, maintains 24-hour road patrol, court services, marine patrol, snowmobile patrol, animal control, a victims' service unit, and emergency dispatch. In addition to the County Sheriff Department, the cities of Rogers City and Onaway operate police departments and provide law enforcement services within their respective boundaries. The Michigan State Police also provides additional support to the Presque Isle Sheriff's Office when necessary.

HUNT

The Huron Undercover Narcotics Team (HUNT) is a multi-jurisdictional narcotics task force serving the Northeast Michigan counties of Alcona, Alpena, Montmorency, and Presque Isle. The team is comprised of officers from the Michigan State Police and local law enforcement agencies. The team is dedicated to reducing the trafficking and availability of narcotics in the community, as well as the associated violent crime that often accompanies narcotics activity. The team was formed in 1990, and has since arrested nearly 3,000 criminals, and removed over $8 million worth of drugs from area communities. In 2016, they investigated 163 complaints region wide.

Emergency Medical Services

Presque Isle County has three emergency medical service providers:

- **Onaway Area Ambulance**, 20734 Industrial Drive in Onaway
    - Service area: Case, Allis, and North Allis Townships, portions of Ocqueoc and Bearinger Townships, City of Onaway, two Cheboygan County Townships, portion of Montmorency Township in Montmorency County
    - Population served: 4,551
    - Staff: 20
    - Equipment: 3 Ambulances, 1 non-transport truck
    - Provides: full life-support and transport services

- **East Grand Lake Fire Department**, 8959 E Grand Lake Road in Presque Isle
    - Staff: 20
    - Equipment: 1 Ambulance
    - Basic Life Support; Intercept agreement with Alpena Fire Department for Advanced Life Support care when needed

- **Rogers City Area Ambulance Authority/Cheboygan Life Support Systems**, 500 Park Drive in Rogers City
    - Service area: Bearinger, Belknap, Bismark, Krakow, Metz, Moltke, Ocqueoc, Posen, Pulawski, and Rogers Townships, and City of Rogers City
    - Population served: 9,132
    - Staff: 14
    - Equipment: 3 Ambulances
    - Provides: 24-hour, full life-support and transport services

Fire Protection

Presque Isle County has seven community fire departments that provide fire protection to the county. In addition, the Michigan Department of Natural Resources has a field office in Onaway.

- **Posen Area Fire and Rescue**, 7103 W 634 Hwy in Posen
  - Service area: Posen, Pulawski, Krakow, and Metz Townships
  - Population served: 2,284
  - Staff (part-time paid): 20
  - Equipment: 2 Pumpers, 1 Tankers, 1 ATV, 1 Grass Rig, 1 Rescue Truck

- **Onaway Area Fire Department**, 2800 Beech Street in Onaway
  - Service area: Allis and North Allis Townships, City of Onaway
  - Population served: 2,646
  - Staff (part-time paid): 18
  - Equipment: 2 Pumpers, 2 Tankers, 1 Grass Rig, 1 Rescue Truck

- **Ocqueoc/Bearinger Fire Department**, 14127 Town Hall Hwy in Millersburg
  - Service area: Ocqueoc and Bearinger Townships
  - Population served: 963
  - Staff (part-time paid): 10
  - Equipment: 1 Pumper, 2 Tankers, 1 Brush Rig, 1 Rescue Truck

- **East Grand Lake Fire Department**, 8959 East Grand Lake Road in Presque Isle
  - Service area: East portion of Presque Isle Township
  - Population served: 1,200
  - Staff: 1 full-time, 12 part-time, 3 non-firefighting volunteers
  - Equipment: 2 Pumper, 1 Tankers, 1 ALS Ambulance, 1 Fire Boat, 1 Hovercraft

- **Presque Isle Township Fire Department**, 24335 US 23 South in Presque Isle
  - Service area: West portion of Presque Isle Township
  - Population served: 800-1,000
  - Staff: 20
  - Equipment: 2 Pumpers, 1 Tanker, 1 Brush Rig, 1 Boat, 1 Rescue

- **Rogers City Area Fire Department**, 193 East Michigan Avenue in Rogers City
  - Service area: Rogers, Belknap, Moltke, and Bismark Townships, City of Rogers City
  - Population served: 5,885
  - Staff: 23
  - Equipment: 2 Pumpers, 2 Tankers, 1 Brush Rig, 1 - 50' Platform Pumper

- **Case Township Fire Department**, 475 Maple Street in Millersburg
  - Service area: Case, South Ocqueoc, and South Allis Townships
  - Population served: 1,742
  - Staff: 17 part-time paid; 3 non-firefighting volunteers
  - Equipment: 1 Pumper, 1 Tanker, 1 Grass Rig, 1 Hovercraft, 2 ATVs, 1 Snowmobile, 1 Rescue Rig

- **DNR Onaway Field Office**, M-211 in Onaway

Alpena Combat Readiness Training Center

- Service area: Alpena Combat Readiness Center, 2nd Alarm Wilson Township 19 and response to 19 mutual aid agreements (up to 3,000 residents)
    - In Presque Isle County: Mutual aid agreement with Rogers City, Presque Isle, and Grand Lake
- Acts as the Region 7 Regional Hazmat Response Team
- Staff: 28 full-time staff, 5 open positions
- Equipment: 1 Pierce P-22 500 gallons of agent, 1 KME P-26 4000 gallons of agent, 1 6-pack F-250 2 wheel drive, 1 Kawasaki Mule 4 seater grass rig, 1 14ft V water rescue boat with 15 HP motor, 1 RDB "banana boat" and ice rescue trailer with 15 suits, 2 P-23 Crash rescue vehicles, 5 3,300 gallons of agent including C-6 ARFF foam, P-30 Medium Rescue with rescue equipment, F-450 small rescue with rescue and medical equipment, Chief 1 command vehicle, Mobile Command Trailer, Bauer Portable Air Trailer, Technical Rescue Trailer for confined space, High angle rescue, advance DECON trailer, spill response trailer, Hazmat trailer

Early Warning & Siren Systems

Downtown Rogers City and the Fire Hall in the Village of Posen are the only active sirens in Presque Isle County. The old police station (no longer manned) in Onaway has an inactive siren and Presque Isle Township has an inactive siren at the U.S. 23 station. The county uses Code Red as a communication notification system/emergency alert system and is looking into cost options for a universal emergency alert system, such as IPAWS.

The National Weather Service's NOAA Weather Radio alert system and the National Emergency Alert System also serve as the county warning system. Signal coverage from the transmitter in Alpena County covers much of the county except for a few areas in the western portion. The Emergency Alert System broadcasts over every radio and television station in the area, but many rural residents receive TV programming via satellite, which in many cases does not broadcast local information.

Water and Sewer

Rogers City and Onaway have municipal water and sewer service. The Village of Millersburg has public water services that extend to a few residents just outside the village limits. The Village of Posen has a municipal water system. Residents of the Presque Isle Harbor Development receive water service from the privately owned Presque Isle Harbor Water Company. Individual wells and septic systems serve the remainder of the County. District Health Department #4 is the permitting agency for private wells and septic systems since improperly designed or inadequately maintained septic systems have the potential to negatively impact the county's water system.

Solid Waste

The *Presque Isle County Solid Waste Management Plan* designates the County's solid waste may be received at Elk Run Sanitary Landfill in Allis Township, City Environmental Services, Inc. of Waters in Crawford County, and Montmorency-Oscoda-Alpena Sanitary Landfill in Montmorency County's Loud Township. The plan also indicates solid waste may be accepted at the Elk Run facility in Presque Isle County from other northern Lower Peninsula and eastern Upper Peninsula counties.

Residents and business owners generally contract with private waste haulers to pick up refuse. Household trash may also be delivered to transfer stations in Rogers City, Krakow Township or Ocqueoc Township for a per-bag price. Additionally, dumpsters are located at several businesses

around the County where trash is accepted at a per-bag price. Residents of Rogers City and Onaway are charged a fee on their monthly water/sewer bills for city-wide curbside garbage pick-up.

Presque Isle County Recycling is managed by Presque Isle Conservation District. There are seven collection locations throughout Presque Isle County that take paper, plastic, glass, and metal container items. However, the collection locations do not accept sharp items, Styrofoam, or non-container plastic, metal or glass items. The Rogers City Transfer Station provides recycling services and a collection point for leaves and brush.

Medical Facilities

Presque Isle County does not have a hospital. For healthcare services not offered in the county, residents travel to nearby hospitals, such as Otsego Memorial Hospital in Gaylord, Mid-Michigan Medical Center-Alpena in Alpena, McLaren Northern Michigan in Cheboygan, and Munson Healthcare in Traverse City.

District Health Department #4 service area includes Alpena, Cheboygan, Montmorency and Presque Isle Counties. Services are provided through four major divisions; Personal Health Services; Home Health Services; Environmental Health Services and Health Education. Health Department offices are located in Alpena, Cheboygan, Atlanta and Rogers City.

Thunder Bay Community Health Services is a non-profit organization that has two locations in Presque Isle County: Onaway and Rogers City. This organization provides health care services, such as dental, family practice, and behavioral health, to residents in Montmorency, Alpena, Presque Isle, Cheboygan, Oscoda, and Otsego Counties.

Northeast Michigan Community Mental Health provides support services to developmentally disabled persons as well as persons needing mental health services. The Northeast Michigan Community Mental Health service area covers Alpena, Alcona, Montmorency, and Presque Isle Counties.

Region 7 Healthcare Coalition covers Alpena, Crawford, Montmorency, Otsego, and Presque Isle Counties. Some of the coalition's responsibilities include functioning as the regional resource for hospitals and medical control authorities, coordinating the efforts to develop a comprehensive all-hazards medical preparedness plan, and coordinating the efforts to enhance the medical system and its services.

To activate the Region 7 Medical Coordination Center:

- Dial 1-989-732-5141
- During your call include your name and contact number, your agency or hospital, the reason for requesting the resource, the exact location where you need the resource delivered, and who will accept and sign for the resource.

Utilities

The majority of Presque Isle County's electricity is provided by Presque Isle Electric and Gas Co-op (headquartered in the City of Onaway). Three phase power for operating heavy machinery or equipment is available in Rogers City and at certain locations throughout the county. The county's two major quarry operations have on-site diesel generators. Presque Isle Electric and Gas Co-op and DTE provide natural gas throughout the county.

Table 5-1 Presque Isle County Utility System		
Utility	**Company**	**Service Area**
Natural Gas	DTE Gas	Posen, Belknap Township, Krakow Township, Presque Isle Township, Posen Township, Presque Isle Township, Pulawski Township, Rogers City, Rogers Township, Pulawski Township
	Presque Isle Electric & Gas Co-op	Hawks, Metz, Ocqueoc, Millersburg, Allis Township, Bearinger Township, Belknap Township, Bismarck Township, Case Township, Krakow Township, Metz Township, Posen, Onaway, Ocqueoc Township, North Allis Township, Moltke Township, Rogers City, Rogers Township
Electricity	Alpena Power Company	Presque Isle Township (southern portion)
	Presque Isle Electric & Gas Co-op	Hawks, Metz, Ocqueoc, Millersburg, Allis Township, Bearinger Township, Belknap Township, Bismarck Township, Case Township, Metz Township, Moltke Township, North Allis Township, Ocqueoc Township, Presque Isle Township, Pulawski Township, Rogers Township
	Consumers	Onaway, Posen, Bearinger Township, Moltke Township, Ocqueoc Township, Presque Isle Township, Pulawski Township, Rogers Township, Rogers City
Source: Michigan Department of Licensing & Regulatory Affairs (Michigan Public Service Commission), 2019		

Communications

Verizon provides local telephone service throughout the county except in remote locations. Residents have the choice of their long distance service provider. In recent years, calling areas for the local exchanges have been expanded to offer a wider range of toll-free calling. A number of cellular telephone services are available throughout the area, with several communications towers located in Presque Isle County to enhance reception. However, reception and transmission may be limited in areas away from major roads or with low elevation.

In 2002, Michigan State University and Northeast Michigan Council of Governments (NEMCOG) worked on a project, *Link Michigan*, to comprehend the complex issues involved with rural telecommunication. The collaborative found that residents of NEMCOG's eight county region reported that basic telephone service was adequate but did not exist in unassigned areas. Additionally, a need for improved wireless communication and internet services was found.

Spectrum is the major cable television service provider in Rogers City, Village of Posen, Presque Isle Township, Posen Township and Moltke Township. However, the service is not provided throughout the entirety of the townships since Spectrum generally installs service where development is at a density of 15 to 20 residences per mile. Northwoods Cable provides service in the Onaway area. Additionally, many residents rely on private satellite dishes.

Schools

Presque Isle County is divided into four public school districts: Posen Consolidated School District, Rogers City Area Schools, Alpena Public Schools, and Onaway Area Community School District. The Alpena Public Schools serves students in Presque Isle Township and those in the Long Lake area of Krakow Township. These students are transported by bus to the appropriate school facility either in or near the City of Alpena. Posen Consolidated School District consists of Posen Township, Pulawski Township, the remainder of Krakow Township, a portion of Belknap Township, and the southern portion of Metz Township. The Posen school facilities are located in the Village of Posen. The Rogers City Area Schools is located in Rogers City. It serves students in the City of Rogers City and the townships of Moltke, Bismarck, a portion of Belknap, Rogers, and the northern part of Metz. Onaway Area Community School District serves the remainder of the County and portions of Cheboygan County. The school facilities are located in Onaway and Millersburg.

There are several private schools located in Rogers City: St. Ignatius Catholic School, St. John Lutheran School, Rogers City Baptist Academy, and St. Michael's Lutheran School. The Onaway Adventist School is located in Onaway.

Transportation System

Roads

Presque Isle County's road system includes roads that have weight restrictions during the spring thaw and roads that are open during all seasons (Table 5-1). The county only has one traffic light in downtown Rogers City at the intersection of Third Street (U.S. 23) and Erie Street (M-68).

The major roads in Presque Isle County include (Figure 5-3):

- U.S. 23 runs adjacent to or near the Lake Huron shoreline
- M-68 runs east-west across the county and provides access to I-75
- M-33 runs north-south on the west side of the County
- M-65 runs north-south on the east side of U.S. 23
- M-211 is a state trunkline from Onaway to Onaway State Park at Black Lake

The Presque Isle County Road Commission has a contract with the Michigan Department of Transportation (MDOT) to maintain the state and federal roads. Additionally, the Road Commission maintains the county's primary and local roads in partnership with the townships. The county primary roads are paved and connect the outlying portions of the county with the major road network, while the local gravel and dirt roads provide access to residential sites, lakes and forests. The Road Commission also maintains a plan for scheduling annual projects to improve or replace road surfaces, improve drainage features, upgrade bridges and stream crossings, and provide routine maintenance and snow removal.

2017 MDOT average daily traffic counts:

- 7,596 vehicles on U.S. 23 between the Alpena County line and M-65
- 5,980 vehicles on U.S. 23 south of Rogers City
- 3,523 vehicles on U.S. 23 just north of Rogers City
- 5,008 vehicles on M-68 between Onaway and Rogers City
- 4,912 vehicles on M-65 between U.S. 23 and the Alpena County line
- 1,143 vehicles on M-33 between Onaway and the Montmorency County line
- 1,193 vehicles on M-211 from Onaway to Black Lake

Table 5.1: All Season Routes in Presque Isle County	
Road	**Location**
County Road 451	U.S. 23 south to Montmorency County
634 Highway	County Road 451 east to M-65
N. & S. Ocqueoc Road	U.S. 23 south to M-68
Glaiser Road	M-68 south to W. 638 Highway
W. 638 Highway	M-33 east to Glaiser Road
Millersburg Road	M-68 south to County Road 638
County Road 638	Millersburg Road east to County Road 451
Wildcat Highway	Millersburg Road west to Rainy Lake Road
Rainy Lake Road	Wildcat Highway south to Five Mile Hwy
County Road 638	1/2 mile east and west of Klee Road
Long Lake Highway	East from M-65 to Alpena County Line
Bolton Road	South from Long Lake Hwy to County Line
Grand Lake Highway	M-65 east to U.S. 23
Rayburn Highway	U.S. 23 east to East Grand Lake Road
East Grand Lake Rd	Rayburn Hwy to LaFarge/Stoneport Drive
Williams Road	U.S. 23 nort to end
Heythaler Highway	U.S. 23 west to S. Ward Branch
Petersville Road	Heythaler Highway to U.S. 23
South Ward Branch	Heythaler Highway to M-68
N. Allis Highway	N. Ocqueoc Road west to County Line
State Highways	
M-211	
M-33	
U.S. 23	
M-65	
M-68	
Source: Presque Isle County Road Commission, June 2019	

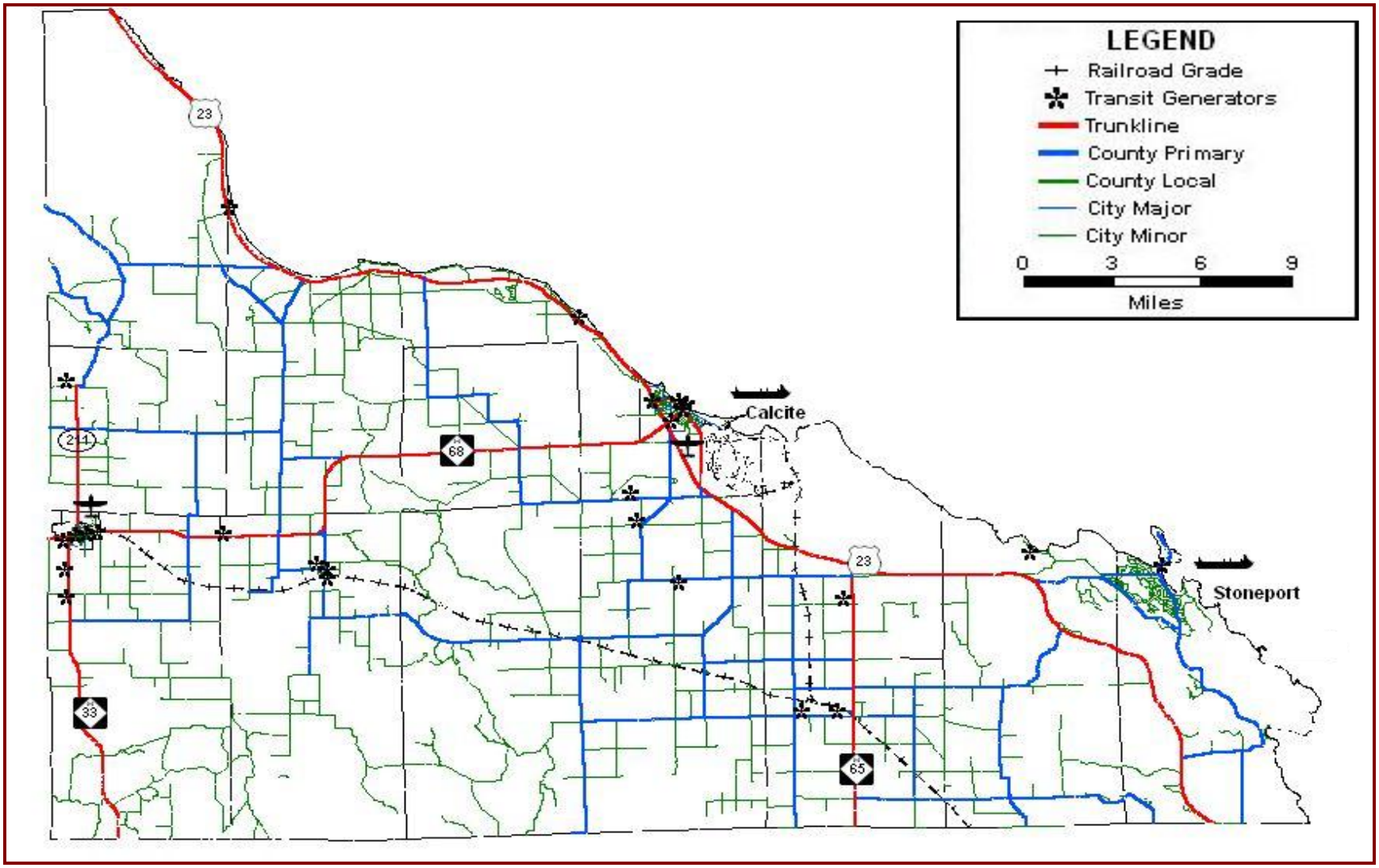

Figure 5-2 Presque Isle County Transportation System

Air Transportation

The Rogers City Airport, a Tier I airport, is owned by Presque Isle County and consists of a terminal building, WIFI, three hangers, fuel and full service for a fee, WSI weather terminal, and AWOS weather terminal. The paved runway is 4,105 ft. x 75 ft with tie downs for 11 airplanes.

In 2019, the Presque Isle County Board of Commissioners voted to close the Leo Goetz Airport, a Tier 3 airport in Onaway, since the infrastructure is deteriorating and the county does not have the funds to improve it. The airport consisted of a terminal building, a paved runway that is 2600 ft. x 60 ft with tie downs for 4 airplanes, and a turf runway that is 1400 ft. x 100 ft. In 2020, the Board of Commissioners sold the airport to Presque Isle Electric and Gas Co-op. Presque Isle Electric and Gas plan to build a new headquarters and service center on the property.

Marine Facilities

The Port of Calcite is a major commercial port located southeast of Rogers City. The port is owned by Carmeuse Lime & Stone and there is a private use agreement with Moran Ironworks. Approximately 500 boatloads of limestone annually (~30,000 tons of limestone/boat) is shipped by Carmeuse Lime & Stone. Other commodities, such as fuel oil, are also shipped from this port. Infrastructure improvements to load products onto ships have increased the opportunities to use the deep water port.

Rogers City Marina is a municipal marina located in downtown Rogers City that hosts 92 seasonal slips and 34 transient slips. There is a US customs agent on call for boats from Canada and abroad. Great Lakes Divers, LLC operates from this marina.
Presque Isle State Harbor is designated as a Michigan Clean Marina in Presque Isle. It offers water, electricity, restrooms and showers, fuel station, grills and picnic tables.

Railways

Presque Isle County does not have active rail lines. The Michigan Department of Natural Resources either bought or lease former D&M tracks from Hawks in Presque Isle County to Mackinaw City. The tracks have been converted into snowmobile trails. For more information, see the Presque Isle County Recreation Plan at http://www.discovernortheastmichigan.org/docview.asp?did=595.

Public Transit

Presque Isle County Council on Aging (PICCA) buses provides free transportation services to senior citizens and disabled persons for medical and dental appointments, local errands, visiting, and shopping anywhere in the county. The buses travel to Cheboygan (once a month) and Alpena Counties (twice a month). Riders under 60 years old and not disabled can ride for a fee. Each bus is equipped with air conditioning and a wheelchair lift.

The Straits Regional Ride coordinates buses for Cheboygan, Emmet, and Presque Isle Counties to provide access to medical appointments, employments, shopping, or entertainment. There are many bus stops along the routes; however, the routes may change and the SRR should be contacted 24 hours in advance to determine times and bus stop locations. The buses can accommodate wheelchairs and walkers.

The Thunder Bay Transportation Authority also provides scheduled public transportation services to the residents of Alpena, Alcona, and Montmorency Counties, and a small portion of Presque Isle County. The authority operates with a fleet of 40 vehicles and 4 hybrid trolley buses.

Indian Trails provides statewide public transportation services on a daily basis. The bus route follows US-23 and stops in Rogers City for passenger drop off and pick up. Buses operate seven days a week, with a northbound run in the morning and a southbound run in the afternoon. Buses are wheelchair lift equipped and have space set aside to accommodate wheelchairs. The Michigan Department of Transportation (MDOT) subsidizes this transportation service for areas in northern Michigan.

Community Capabilities

Overview

Currently, the communities in Crawford County have a limited number of staff and financial resources. Therefore, the communities have limited capabilities in implementing the hazard mitigation action and implementation strategies. However, all agencies, communities, and organizations use a combination of staff, elected officials, appointed officials (e.g. planning commission) and contractual services to provide some level of prevention and educational activities. Given current budget constraints, the communities in Presque Isle County would need additional staff and funding to fully implement the hazard mitigation plan.

Planning and Zoning

Presque Isle County administers planning and zoning for the Village of Millersburg and eleven townships, which include Bearinger, North Allis, Ocqueoc, Case, Rogers, Moltke, Bismark, Belknap, Metz, Pulawski, and Posen Townships. Rogers City, Onaway, Allis Township, the Village of Posen, Presque Isle Township and Krakow Township have exercised their authority under state statutes to administer their own planning and zoning. These communities have a zoning administrator, a planning commission, and a zoning board of appeals. The planning commissions are responsible for overseeing the planning and zoning activities, such as the master plan, recreation plan, and zoning ordinance. Governing bodies of these communities are responsible for managing finances and making policy decisions. Presque Isle County, Rogers City and Onaway have support staff to operate daily government functions. With the exception of Presque Isle Township, townships do not have staff, but rely on elected officials to conduct township business.

Planning and Zoning are the principal tools used by local communities to manage growth, preserve community character, direct development away from hazardous areas, protect property values, enhance economic viability, and provide developers with the flexibility to arrange structures on properties and incorporate Firewise development standards into their designs. Since planning and zoning are not retroactive, they have minimal effect on older developments. Additionally, they have the potential to create public controversy, variance requests, and zoning modifications. However, planning and zoning are used to establish and implement a community's goals and desired future. Building codes can work with and against planning and zoning since the codes provide guidance on how to build in both compatible and incompatible land use areas.

The master plan analyzes the existing conditions of a community, incorporates public input, and generates goals to establish the community's desired future. It includes a section on the future land use of the community, which is designed to guide land use decisions over time. The future land use section contains information about the future land use categories, important resource areas in need of protection, special issue areas (e.g. utility service areas, waterfront development, roads, etc.), compatible and incompatible land uses, and a map that depicts the development types and densities envisioned by the community. Zoning, capital improvement plans, and recreation plans implement the master plan.

Zoning ordinances and zoning maps are local laws that regulate how property can be developed and are primarily used by communities to implement their master plans through the regulation of development types, intensity and location. Communities can use zoning to implement hazard mitigation strategies for land use development, such as developing standards for private/public road construction, driveway standards, and creating development requirements.

Capital improvement plans guide communities' major public expenditures for the next five years. These expenditures include creating access roads and fire breaks, and reducing wildfire fuels projects. Capital improvement plans can be used to create a project timeline to implement hazard mitigation strategies.

Public Safety

Presque Isle County has an Emergency Management Office and Local Emergency Planning Committee. The Sheriff's Office operates under the County Board of Commissioners and manages the countywide 911 system.

Infrastructure

The County operates and maintains three campgrounds, the county fairgrounds located in the Village of Millersburg, and the Rogers City Airport. Presque Isle County's drain commissioner works with communities and landowners regarding drainage and flooding issues. The County Road Commission works in conjunction with the townships to manage the local road network, while MDOT is responsible for the maintenance of the State and Federal highways.

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Chapter 6 Hazard Identification and Assessments

Overview

Presque Isle County is vulnerable to a wide range of natural, technological and human-related hazards. Emergency management officials are challenged with managing these threats to protect life and property. In order to be effective at mitigating, preparing for, responding to, and recovering from all hazards, the types of hazards facing a county should be identified and understood. Hazard identification provides communities with a realistic base to plan for mitigation, preparedness, response, and recovery activities.

Presque Isle County's risk and vulnerability assessments were determined based on the hazard maps, community profile, community input, and the weighted hazard ranking process recommended in Publication #207. However, it should be noted the assessments are not reliable predictors for the occurrence of any hazard. The assessments were used to determine if a hazard poses a risk to the county, inform the mitigation goals and objectives, and to guide emergency management official(s) in setting annual priorities and goals for resource allocation, mitigation strategies, and preparedness techniques.

There have been 167 storm events reported to the National Oceanic and Atmospheric Administration's National Centers for Environmental Information data center between July 1956 and April 2019 in Presque Isle County. Two people have been injured, one person died, and damages are estimated to be about $4.5 million. Since 2012, there have been 20 severe weather events reported.

Natural Hazards

Severe Winds (Derecho)

Description

A derecho is a long-lived windstorm that is associated with fast-moving severe thunderstorms that occur during the spring or summer; however, can occur any time of the year. According to The National Severe Storms Laboratory, winds in excess of 58 miles per hour are considered to be a derecho. Severe windstorms down trees, cause damage to homes, businesses, power lines, and agricultural crops, and may require temporary sheltering of individuals without power for extended periods of time.

According to the *2019 Michigan Hazard Mitigation Plan*, the statewide average annual number of severe wind events is 395 with 2 average annual deaths, 13 average annual injuries, and an expected annual loss of $51.3 million. Windstorms occur in all areas of Michigan, although more often along the lakeshore and in central and southern Lower Michigan. On average, severe wind events can be expected 2-3 times per year in the Upper Peninsula, 3-4 times per year in the northern Lower Peninsula, and 5-7 times per year in the southern Lower Peninsula. Along the Great Lakes shoreline, strong winds regularly occur and occasionally have gusts over 74 miles per hour when in conjunction with a storm front according to the Michigan Department of State Police's *Local Hazard Mitigation Planning Workbook*.

In the Northern Lower Peninsula, *the 2019 Michigan Hazard Mitigation Plan* states on average there are 2 average annual events, 0.2 average annual deaths, 2.6 average annual injuries, and approximately $4.7 million in property and crop damage per year. For example, during September 26-27, 1998, Northern Lower Michigan experienced severe thunderstorms that produced strong winds that damaged or destroyed homes, businesses and public facilities, and downed trees and power lines.

On April 30, 1984, another windstorm struck the entire Lower Peninsula and resulted in winds up to 91 mph in some areas. The storm caused severe shore erosion, and damaging 6,500 buildings, 300 mobile homes, and 5,000 vehicles. The storm also resulted in 1 death, several injuries, and over 500,000 customers without power.

Another storm event that moved across Michigan occurred on November 10-11, 1998. This storm was the strongest storm ever recorded in the Great Lakes with wind gusts of 50-80 miles per hour and a peak gust of 95 miles per hour reported on Mackinac Island. It damaged buildings, downed trees and power lines, killed one person, and left over 500,000 people without power. By the morning of November 11, the winds had pushed so much water into Lake Huron that the water level on Saginaw Bay bottomed out 50" below chart datum, which exposed and dried up to one-half of the bay bed. As the wind died down, the water level in the Saginaw Bay rose to its more normal level.

Measuring Severe Winds

The Beaufort Wind Scale is used to describe wind strength through observation. Table 6-1 shows the Beaufort Wind Scale.

Table 6-1 Beaufort Wind Scale

Force	Wind Speed (knots)	Description	Specifications for use on Land
0	Less than 1	Calm	Calm, smoke rises vertically
1	1-3	Light Air	Smoke drift indicates wind direction, still wind varies
2	4-6	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Dust, leaves, and loose paper lifted; small tree branches move
5	17-21	Fresh Breeze	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Whole trees moving, resistance felt walking against wind
8	34-40	Gale	Twigs breaking off trees, generally impedes progress
9	41-47	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	48-55	Storm	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	56-63	Violent Storm	-
12	64+	Hurricane	-

Location

Severe winds are a regional event that is not confined to geographic boundaries and can affect several areas at one time. Also, the severity of the winds may range across the affected areas. All of Presque Isle County is at risk to the occurrence and impacts from severe winds.

Previous Occurrences and Probability of Future Occurrences
According to the USDA's *Soil Survey of Presque Isle County, Michigan,* thunderstorms occur about 24 days each year. Since 1956, there have been 52 high wind, strong wind, and thunderstorm wind events reported in the county, with the majority of events occurring in the summer and incurring about $4.2 million in property damages. The most severe windstorm occurred on June 17, 1992 with wind speeds up to 68 mph in Presque Isle County, but did not cause any deaths, injuries, or property and crop damages. Between 1956 and 2017, there have been 47 severe wind events associated with thunderstorms in the county. Property damages for the county's windstorms range between $2,000 and $12,000. The costliest windstorms occurred on November 13, 2005, August 23, 2008, and August 2, 2015 with $12,000 in property damages for each event. Wind speeds for these events ranged between 50 to 57 mph and caused downed trees and limbs, power outages, and unsecured items blowing into structures (e.g. a weighted picnic table was blown into the side of a house, causing damage to the siding and sheeting and entering the cabinetry in the house). None of the county's windstorms have had deaths, injuries, or crop damage. On July 18, 2020, a garage and outbuilding overhang were destroyed at Presque Isle Electric and Gas Coop (PI G&E), a garage was destroyed at a private residence adjacent to PI G&E, and two training power poles at the back of the PI G&E were damaged by flying debris. The event had an estimated wind speed of 90 mph. Since there have been 52 high wind, strong wind, and thunderstorm wind events reported in the last 38 years, the data shows approximately 1 event would occur every 0.7 years.

Extent
Winds are measured by wind speed and the amount of damage. The most severe windstorm in Presque Isle County occurred on June 17, 1992 with wind speeds up to 68 mph. The event did not have any deaths, injuries, or property and crop damages. However, the county has had three events with $12,000 in property damages for each event on November 13, 2005, August 23, 2008, and August 2, 2015. However, it should be noted that stronger winds and higher damage estimates are possible.

Vulnerability Assessment
All existing and future buildings and populations are at-risk to severe winds. Severe winds have the potential to blow shingles, siding, awnings, and other features off buildings. Falling trees and tree limbs can damage structures as well as cause timber damage that would result in a loss of timber production. Severe winds can pick up objects and hurl them through the air, which may result in damage to structures or harm to people. Sometimes, structures can be blown off their foundations. Severe winds can also blow down communication infrastructure, utility poles, and aboveground power lines. Businesses may have to close due to power outages.

Ice and Sleet Storms

Description
Ice and Sleet Storms are storms that generate sufficient quantities of ice or sleet that result in hazardous conditions and/or property damage. Ice storms occur when cold rain freezes on contact with the surface and coats the ground, trees, buildings, and overhead wires with ice. Often times, ice storms are accompanied by snowfall, which sometimes causes extensive damage, treacherous conditions, and power loss. On the other hand, sleet storms are small ice pellets that bounce when hitting the ground or other objects. It does not stick to trees or wires, but can cause hazardous driving conditions. When electric lines are down, households are inconvenienced, and communities experience economic loss and the disruption of essential services.

According to the *2019 Michigan Hazard Mitigation Plan*, Michigan has 16 average annual ice and sleet storm events with 0.2 average annual deaths, 0.5 average annual injuries, and $11.4 million in average annual property and crop damage.

Location
Ice and sleet storms are a regional event that is not confined to geographic boundaries and can affect several areas at one time. Also, the severity of the ice and sleet storms may range across the affected areas. All of Presque Isle County is at risk to the occurrence and impacts from ice and sleet storms.

Previous Occurrences and Probability of Future Occurrences
According to NOAA, Presque Isle County has had four reported ice storms events between 1997 and 2019 (one in 1997, one in 2001, one in 2005, and one in 2008). The events did not have any deaths, injuries, or property and crop damages. Since four events have occurred in the past 23 years, approximately one event would occur every 5.8 years. However, this statistic does not accurately estimate the probability of occurrence since it does not take into account the events occurred at the beginning of the range. Additionally, not all ice and sleet storms may have been reported based on the lack of injuries, deaths, and extensive damages. Also, ice and sleet storms may have been reported as other hazards. Therefore, the number of ice and sleet storm events and damages may be higher.

Extent
Ice and sleet storms can be measured based on the cost of damages and the number of injuries and deaths. None of the events in Presque Isle County had any injuries, deaths, or property and crop damages.

Vulnerability Assessment
Walking can cause injuries from falls that may result in fractures or broken bones. Ice accumulation can cause damage to tree limbs, and communication and power infrastructure, which can result in power outages. Icy roads can cause traffic accidents, which may result in injuries and loss of life. Heating shelters and evacuations may be required if power outages last a long time. Power outages and ice covered roads can limit access to food and basic supplies since businesses would have to close and the roads would not be travelable.

Snowstorms

Description
Snowstorms are periods of rapid snow accumulation with high winds, cold temperatures, and low visibility that have the potential to shut down towns and cities. Blizzards are the most perilous snowstorms and are characterized by low temperatures, strong winds, and enormous amounts of fine, powdery snow. Snowstorms have the potential to reduce visibility, cause property damage, and loss of life. Lake-effect snow occurs when the cold air from the high latitudes of North America move across the warm Great Lakes. The heat and moisture from the Great Lakes rises into the cold air where it cools and condenses into snow clouds. The prevailing wind direction determines which areas will receive lake-effect snow.

According to the *2019 Michigan Hazard Analysis,* Michigan has 360 snowstorms with 0.1 average annual deaths, 0.1 average annual injuries, and $1.9 million in average annual property and crop damage. Michigan experiences large differences in snowfall over short distances due to the Great Lakes. The average annual snowfall accumulation ranges from 30 to 200 inches with the highest

accumulations in the northern and western parts of the Upper Peninsula. In Lower Michigan, the highest snowfall accumulations occur near Lake Michigan and in the higher elevations of northern Lower Michigan. For example, the average snowfall ranges from 141 inches in the Gaylord area to 96 inches in Onaway in the northeast region of the Lower Peninsula.

Location
Snowstorms are regional events that are not confined to geographic boundaries and can affect several areas at one time with varying severity depending on factors such as elevation and wind patterns. All of Presque Isle County is at risk to the occurrence and impacts from snowstorms. The county is less susceptible to lake-effect snow from Lake Michigan, but is more susceptible to lake-effect snow from Lake Huron based on its location.

Previous Occurrences and Probability of Future Occurrences
Since 1996, there have been 66 winter storm events, including heavy snow, lake-effect snow, blizzards, winter storms, and winter weather reported in Presque Isle County. None of these events have any deaths, injuries, or crop damages. Property damages ranged between $2,000 and $250,000. This data shows approximately one event will occur every 0.4 years though it should be noted that winter weather hazards fluctuate between years.

Extent
Extent can be measured by the cost of property damages. The property damage caused by snowstorms in Presque Isle County has ranged between $2,000 and $250,000. On November 10, 2006, winter weather caused $6,000 in property damages. The event consisted of thunder, lightning, and wet snow. The weight of the snow caused damage to tree limbs and power lines, which caused parts of Presque Isle County to be without power for 48 hours. On March 1, 2007, a winter storm caused $2,000 in property damages. Rogers City received 16 inches of snow. The heavy, wet snow downed power lines and the winds caused snow drifts. Schools closed early on the first and remained closed through the second. On March 2, 2012, heavy snow caused $250,000 in property damages. The heavy, wet snow caused downed trees and power lines. Residents experienced power outages and shelters were opened to aid those without power or heat. Great Lakes Energy described it as the worst snowstorm in the past 30 years in regard to power outages. Extent can also be measured based on snowfall accumulations. The average annual snowfall in Presque Isle County is 96 inches with the highest recorded snowfall in Rogers City at 169 inches.

Vulnerability Assessment
All existing and future buildings and populations are at-risk for snowstorms. Downed trees and branches can cause damage to buildings and other structures. The weight of snow on roofs can cause the roofs to collapse and ice dams can cause water damage to buildings. Additionally, cold temperatures can freeze pipes in buildings that can rupture and leak. Salting can cause damage to the roads and sidewalks. The weight of snow accumulations on communication and power infrastructure can cause power outages. Shoveling snow can cause heart attacks. During and immediately after a snowstorm, the driving conditions are dangerous since blowing snow, ice, and slush can create slippery roads. Blizzards can create whiteout conditions that result in low to no visibility. Stranded motorists may get hypothermia or frostbite. Heating shelters and evacuations may be required if power outages last a long time. Power outages and snow covered roads can limit access to food and basic supplies since businesses would have to close and the roads would not be travelable.

Lightning

Description
Lightning is a discharge of electricity in the atmosphere between the clouds, air, or ground to equalize the charged regions in the atmosphere. It is still being debated how the electrical charges build up in the clouds. Lightning generally occurs during thunderstorms; however, it can occur without a thunderstorm, such as during intense forest fires and heavy snowstorms. Lightning that occurs without nearby rain is most likely to cause forest fires.

In the United States, approximately 100,000 thunderstorms occur annually according to the *2019 Michigan Hazard Analysis*. According to the National Weather Service Storm Data, in the last 10 years (2009-2018), the U.S. has averaged 27 lightning fatalities and 243 injuries. The *2019 Michigan Hazard Analysis* reports that lightning on average damages more structures, and kills and injures more people in the U.S. per year than tornadoes or hurricanes despite being perceived as a minor hazard.

The *2019 Michigan Hazard Analysis* compiled the following statistics from the National Oceanic and Atmospheric Administration (NOAA) and the National Lightning Safety Institute (NLSI) for the period of 1959-1994:

- The majority of lightning strikes had one victim (91%)
- The majority of lightning strikes occurred during the summer months: June (21%), July (30%), and August (22%)
- Most lightning strikes occur between 2 p.m. and 6 p.m.

The NLSI estimates that 85% of lightning victims are children and young men (ages 10-35) engaged in recreation or work-related activities. Approximately 10% of lightning strike victims die, and 25% of survivors suffer serious long-term after-effects, such as memory and attention deficits, sleep disturbance, fatigue, dizziness, and numbness. Additionally, the NLSI estimated that annual lightning damage to property exceeds $4-5 billion in the United States.

Michigan's lightning deaths and injuries are fairly consistent with the national trends in terms of location of deadly or injury-causing strikes (Table 6-2, Table 6-3). According to the National Weather Service records through the mid-2000s, Michigan has incurred 101 lightning deaths, 711 lightning injuries, and 810 lightning casualties (deaths and injuries combined). During 1959-1995, Michigan was ranked 2nd nationally (behind Florida) in lightning injuries, 12th nationally in lightning deaths. During 1998-2008, Michigan is ranked 13th in the number of lightning deaths.

Table 6-2 Lightning Related Deaths in Michigan, 1959-July 2005

Number of Deaths	Location	Percent of Total
29	Open fields, ball fields	29%
26	Under trees (not golf)	26%
11	Boats / water-related	11%
10	Golf course	10%
4	Near tractors / heavy equipment	4%
2	At telephone	2%
19	Other location / unknown	19%

Source: Storm Data, National Climatic Data Center; 2019 Michigan Hazard Analysis

Table 6-3 Lightning Related Injuries in Michigan, 1959-July 2005		
Number of Injuries	**Location**	**Percent of Total**
243	Open fields, ball fields	34%
104	Under trees (not golf)	15%
35	Golf course	5%
26	Boats / water-related	4%
20	Near tractors / heavy equipment	3%
19	At telephone	3%
264	Other location / unknown	37%
Source: Storm Data, National Climatic Data Center; 2019 Michigan Hazard Analysis		

Location

Lightning is not confined to geographic boundaries and is a regional event. Since lightning occurs randomly, it is impossible to predict where lightning will occur and how severe it will be. All of Presque Isle County is at risk to the occurrence and impacts from lightning.

Previous Occurrences and Probability of Future Occurrences

According to NOAA, Presque Isle County has had three lightning events between June 2001 and April 2019. On June 15, 2001, a lightning event occurred in Rogers City that caused a large tree to be struck by lightning and block a road. The event was associated with thunderstorms and severe winds, and a brief tornado touchdown was reported near the Village of Posen. The lightning event did not have any injuries, death, or property and crop damage. On August 29, 2003, a lightning event occurred in Onaway when lightning struck a tree outside a home and the charge moved through the ground and entered the house where it splintered joists in the crawl space and started a small electrical fire. Property damages were estimated at $4,000. The event did not have any deaths, injuries, or crop damages. The event was associated with severe winds and hail. On August 19, 2016, a lightning event occurred at Grand Lake (Presque Isle Township) when a lifeguard was struck by lightning and passed away. The event did not have any injuries, or property and crop damages. The event was associated with thunderstorms. Based on this data, one event would occur every 6.3 years in the county. However, this statistic does not accurately estimate the probability of occurrence since it does not take into account that the majority of the events occurred at the beginning of the range. Additionally, it should be noted that not all lightning events may have been reported since events with injuries, deaths, and extensive damages tend to be the only ones reported. Therefore, the number of lightning events and damages may be higher.

Extent

One method to measure lightning extent is by flash density even though not all flashes result in a lightning strike. In Presque Isle County, there are 1.5 to 6 flashes per square mile per year on average according to Vaisala, Inc. Another way to measure lightning extent is by the amount of property damage and the number of deaths and injuries. The event on August 29, 2003 had $4,000 in property damages, and no deaths or injuries. The event on August 19, 2016 had one death, and not injuries or property damages.

Vulnerability Assessment

All existing and future buildings, exposed infrastructure, tall trees, and populations are at risk from lightning events since it may cause structural and wildland fires, loss of electrical and telecommunications equipment, and damage to buildings or vehicles from falling trees struck by lightning. People that work outside or participate in outdoor recreation activities are at a higher risk to be struck by lightning.

Tornadoes

Description
A tornado is a violently rotating column of air that extends from a thunderstorm to the ground, and can occur any time during the day and year. It can only be seen if water droplets, dust, and debris form a funnel. The funnel cloud can have winds that reach up to 300 miles per hour with an interior air pressure that is 10-20 percent below the surrounding atmosphere's pressure. The length of a tornado path is approximately 16 miles, but there have been tracks reported up to 200 miles. Tornado path widths are generally less than one-quarter mile wide. When a tornado travels over water, it is called a waterspout. Tornadoes are the most violent of the atmospheric storms since they have the potential to destroy buildings, uproot trees, hurl objects, and cause loss of life. According to the National Oceanic and Atmospheric Administration/National Weather Service's Storm Prediction Center, tornadoes cause approximately 60 deaths and hundreds of millions of dollars in property damage each year.

According to the *2019 Michigan Hazard Mitigation Plan*, Michigan is located on the northern fringe of the nation's tornado belt and has a statewide expected annual loss of about $19.6 million due to tornadoes. Michigan also has an average of 18 tornadoes, approximately 4 deaths, and approximately 50 injuries per year. Between 1999 and 2019, Michigan has had 314 reported tornado events with 52.9 percent as EF0 (weak) or EF1 (moderate), 38.9 percent reported as F0 or F1 (weak), 6.7 percent as EF2 (significant) or EF3 (severe), and 1.6 percent as F2 (strong). In Northern Michigan, tornadoes are most likely in the summer months, although some have occurred in the spring and fall.

Measuring Tornadoes
Prior to 2007, the United States used the Fujita Scale to measure the intensity of tornadoes (Table 6-4). The Fujita Scale used mathematical interpolation to assign wind estimate guesses to a damage scale. In 2007, the United States began using the Enhanced Fujita Scale to measure the intensity of tornadoes since the wind estimates are more associated with the degree of tornado storm damage than the Fujita Scale (Table 6-4).

Table 6-4 Fujita Scale and Enhanced Fujita Scale

Fujita Scale	Fujita Scale Wind Estimate (MPH)	Enhanced Fujita Scale	Enhanced Fujita Scale Wind Estimate (MPH)
F0	< 73	EF0	65-85
F1	73-112	EF1	86-110
F2	113-157	EF2	111-135
F3	158-206	EF3	136-165
F4	207-260	EF4	166-200
F5	261-318	EF5	Over 200

Source: National Oceanic and Atmospheric Administration/National Weather Service Storm Prediction Center, May 2019

Location
Tornadoes are a regional event that are not confined to geographic boundaries and can affect several areas at one time. Also, the magnitude of tornadoes may range across the affected areas. All of Presque Isle County is at risk to the occurrence and impacts from tornadoes. It should be noted that it is impossible to predict where and with what magnitude a tornado will touchdown.

Previous Occurrences and Probability of Future Occurrences
Between 1957 and 2002, Presque Isle County has had seven reported tornadoes, which caused over $302,000 in property damages (Table 6-5). The most destructive tornado touched down in Belknap Township on May 8, 1964 and caused $250,000 in property damage. On July 28, 1964, a tornado touched down in Rogers City and caused one injury and $2,500 in property damages. Since seven events have occurred in the past 63 years, approximately one event will occur every 9 years. It should be noted that the majority f the events occurred between 1957 and 1988. Historical data shows Rogers City is at greater risk for a tornado (Table 6-5).

Table 6-5 Tornado Storm Events, January 1957-April 2019

Date	Time	Location	F-Scale	Deaths	Injuries	Property Damage	Crop Damage
7/4/1957	1600 CST	Bismarck Township	F2	0	0	$25,000	$0
5/8/1964	2158 CST	Belknap Township	F2	0	0	$250,000	$0
7/28/1964	1915 CST	Rogers City	F1	0	1	$25,000	$0
8/8/1986	1140 EST	Rogers City	F1	0	0	$2,500	$0
8/12/1988	1225 EST	Allis Township	F1	0	0	$0	$0
6/15/2001	1530 EST	Village of Posen	F0	0	0	$0	$0
8/1/2002	1802 EST	Black Lake Bluffs (Bearinger Township)	F0	0	0	$0	$0

Source: National Oceanic and Atmospheric Administration/National Weather Service Storm Prediction Center, May 2019

Extent
Based on the Fujita Scale, Presque Isle County's most intense tornadoes occurred in Bismarck Township and Belknap Township with winds ranging from 113-157 mph. The tornado in Bismarck Township did not have any deaths, injuries, or crop damages, but had $25,000 in property damages. The tornado in Belknap Township did not have any deaths, injuries, or crop damages, but had $250,000 in property damages. Presque Isle County has not had any tornadoes since the United States began using the Enhanced Fujita Scale to measure tornadoes. Future tornadoes may have greater wind speeds.

Vulnerability Assessment
All of Presque Isle County's existing and future buildings, population, and infrastructure are at-risk to tornadoes. Buildings and above ground infrastructure in a tornado's path will be damaged and/or destroyed. Older buildings and light construction structures (houses) have a greater risk of damage. Buildings adjacent to a tornado's path may have no to little damage dependent on the amount and type of debris hurled from a tornado at the adjacent buildings. Through a FEMA study in 1999, it was found that mobile homes, homes with crawlspaces, and building with large spans (schools, gyms, factories, theaters, etc.) are more susceptible to damage from tornadoes. Schools are vulnerable to tornadoes due to the number of students and employees in the buildings.

Tornadoes can close roads due to debris on the road or road damage/destruction from the tornado. Tornadoes can cause injuries or death when people are in or near the tornado's path (picked up by the tornado or struck by debris). Individuals in buildings may have injuries or die if they are trapped in a building struck by a tornado or are struck by debris or falling objects. Tornadoes can contaminate water supplies, cause fires, and cause hazardous material spills (pipeline or septic tanks) or gas leaks. If a tornado damages businesses or infrastructure, it will cause economic losses in the county since businesses will have to close and the cost of repairs will impact the business. Tornadoes can also cause power outages. Governments will have to spend money for search and rescue teams, shelters, and clean-up efforts. Also, structural and vegetative debris storage areas may become filled to capacity.

Hailstorms

Description
Hailstorms occur when a severe thunderstorm produces hail that falls to the ground. Hail is formed when the updrafts of the storm carries water droplets above the freezing level, where they form into rounded or irregular lumps of ice that range from the size of a pea to the size of a grapefruit. When the weight of the hail is no longer supported by the air, it falls to the ground and has the potential to batter crops, dent automobiles, and injure people and wildlife. Sometimes, large hail appears before a tornado since it is formed in the area of a thunderstorm that tornadoes are most likely to form.

According to the *2019 Michigan Hazard Mitigation Plan*, Michigan has on average 191 hailstorms, an expected annual statewide loss of about $16.6 million, no deaths, and approximately 1 injury per year. Despite damaging hail occurring in every part of Michigan, the areas of the state most prone to severe thunderstorms (e.g. Southern half of the Lower Peninsula) are also most prone to large and damaging hail. The majority of the hailstorms occur during the growing season from May through August when crops have the greatest potential to be damaged by hail.

According to the *2012 Michigan Hazard Analysis,* the National Weather Service began recording hail activity in Michigan in 1967. The National Weather Service issues forecasts for severe thunderstorms with sufficient warning time to allow residents to take appropriate action to reduce the effects of hail damage to vehicles and some property. However, little can be done to prevent damage to crops. For example, during September 26-27, 1998, a line of severe thunderstorms moved across northern Lower Michigan producing hail up to 2" in diameter, destroying an estimated 30,000-35,000 bushels of apples at area farms, and damaging several homes and vehicles.

Measuring Hailstorms
Hailstorms are categorized using the TORRO Hailstorm Intensity Scale, which ranges from H0 (Hard Hail) to H10 (Super Hailstorms).

Location
Hailstorms are regional events that frequently accompany thunderstorms, and are not confined to geographic boundaries. The severity of hailstorms may range across the affected areas. All of Presque Isle County is at risk to the occurrence and impacts from hailstorms. According to the National Weather Service, Presque Isle County is in an area of the United States that has on average one day of hailstorm events per year.

Previous Occurrences and Probability of Future Occurrences
Between September 1981 and January 2019, Presque Isle County has had 31 hailstorms reported to the National Oceanic and Atmospheric Administration's National Centers for Environmental Information. On August 1, 1993, a hailstorm with 0.75 inch hail caused $5,000 in property damages, and no deaths, injuries, or crop damages. Several cars were dented. On July 13, 2004, a hailstorm caused extensive damage in the Village of Posen and caused hundreds of insurance claims. The hail was reported at 2.75 inches and was driven by wind gusts around 60 mph. There was one injury when an individual suffered a bruised back as he tried to move his vehicle to shelter. Property damages were estimated at $3.5 million and crop damages were estimated at $300,000. Buildings and vehicles were damaged (holes in roofs and siding, dented cars, broken windows). A local church had to patch 300 holes in its roof. Damage to a school roof was estimated at nearly $200,000 and a local greenhouse lost over a thousand 2x2 foot windowpanes. Substantial damage occurred to crop fields (potatoes, beans, tomatoes, and corn). The event was associated with a thunderstorm. Since there have been 31 events in the past 39 years, approximately one event will occur every 1.3 years. It should be noted that hailstorm events and damages may not have been reported to NOAA, which means the number of events and damages may be higher.

Extent
The greatest extent of hail reported in Presque Isle County was 2.75 inches, which correlates to H7 (Destructive) on the TORRO Hailstorm Intensity Scale. According to the scale, hailstones of this size are equivalent to a tennis ball and can cause severe roof damage and serious injuries.

Vulnerability Assessment
All existing and future buildings, exposed infrastructure, and populations are at risk from hailstorms since hail causes damage to roofs, brick walls, glass, landscaping, crops, and cars. Hail can also damage roads, sidewalks, bridges, and above ground utilities. Hail has the potential to cause injury and death, and populations are advised to take shelter when an event occurs.

Wildfires

Description
A wildfire is an unplanned, uncontrolled fire in grassland, brushland, or forested areas. Wildfires can occur in any forest type under dry conditions; however, some forest types are more susceptible to wildland fires. For example, jack and red pine forest stands have a high risk for wildfires, while oak and white pine forest stands have a moderate risk. The primary cause of wildfires is from human activities, specifically burning outdoor debris. Wildfires cause destruction to property and timber resources and injures or loss of life to wildlife and persons living or recreating in wildfire prone areas. Long-term effects include scorched and barren land, soil erosion, landslides/mudflows, water sedimentation, and loss of recreational opportunities.

Historically, Michigan's landscape has been shaped by wildfire; however, over the last several decades, the current landscape has transformed from wildland to residential development. With the increase in residential development in and around rural areas prone to wildfires, there is an increase in the potential for loss of life and property damage. Unfortunately, rural areas do not have enough fire suppression forces available to protect every structure from wildfires.

In Michigan, approximately 600 wildfires are reported each year with the majority occurring in April, May and June (Table 6-5). The Michigan DNR is primarily responsibility for wildfire suppression and prevention; however, the U.S. Forest Service and local fire departments assist them. In 2018, the Michigan Department of Resources reported there were 301 fires and as of June

2019, there were 168 fires. In northeastern Michigan, the large number of permanent and seasonal homes and the increase in tourists during the driest (most vulnerable) times of year greatly increases wildfire risks.

Location

Approximately 65% of Presque Isle County is forested with various tree species due to the soils, moisture, and past activities, such as logging, fires, and land clearing. Beech/maple and Aspen forest types are the most common forest types in the county. Jack pine and oak/hickory forest types cover approximately 12% of the county. A review of the 1978 MIRIS Land Cover/Use Inventory, the pre-settlement vegetation map for Presque Isle County, and community hazard maps show wildfire prone areas are concentrated in Bismark, Allis, North Allis, Ocqueoc, Bearinger, and Case Townships (Figure 6-1). In southern Allis Township and Ocqueoc Township, wildfire prone forest types are primarily located on state-owned property with few residences. Additionally, wildfires cross geographic and political boundaries, which means fires can spread into Alpena, Montmorency, and Cheboygan Counties.

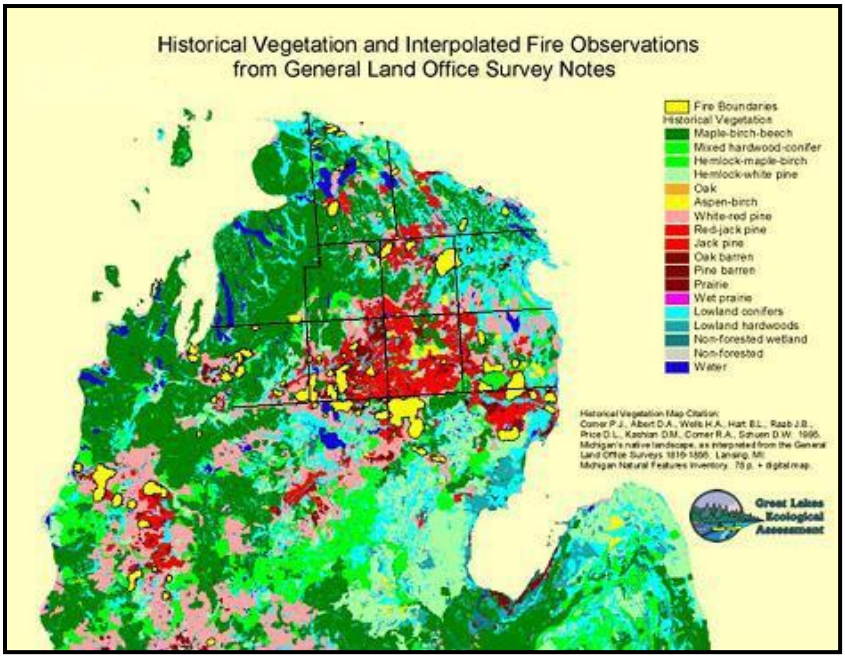


Figure 6-1 Historic Vegetation/Fire Observations

Previous Occurrences and Probability of Future Occurrences

On October 15, 1908, the Metz Fire began west of Millersburg from either an out of control brush fire where workers were clearing land, or from sparks from a Detroit & Mackinac passenger train. This fire burned about 2.5 million acres (over 200,000 acres were burned in Presque Isle County), which makes it one of the largest forest fires in Michigan's history. Over 30 farmsteads were destroyed in Belknap and Pulawski Townships. The fire was pushed by gale force winds to Northern Presque Isle County, Case and Allis Townships, the Village of Millersburg, the outskirts of the City of Alpena (Alpena County), and jumped across the Grand Lake before burning out at the Lake Huron shoreline. The fire threatened Rogers City, South Rogers, Nagel's Corner, Hagensville, Hammond's Bay, Cathro, and Liske. The Village of Metz was burned to the ground, which resulted in 134 families (1,500 people) becoming homeless or in need of supplies. The fire caused 43 deaths, which include the 15 deaths from the Detroit & Mackinac train derailment near Nowicki's Siding. The train was evacuating 40 residents and personal belongings when it derailed from the

tracks being warped by the heat of the fire. Some people were able to escape and walk along the tracks to Posen. Since the county was highly forested, it is predicted there were unknown fatalities at isolated logging camps deep in the woods. Conservative cost estimates determined that the Village of Metz had about $60,000 in property damages, and Presque Isle County had about $200,000 in property damages. After the fire, the Detroit & Mackinac Railroad transported relief supplies and built relief shacks. Additionally, concern about the fire resulted in Michigan's first effective forest fire prevention and control measures.

From 2001 to 2012, the Michigan Department of Natural Resources reported there were 74 wildfires in Presque Isle County that burned 424 acres (not including wildfires suppressed by the U.S. Forest Service or local fire departments). According to the Michigan Department of Natural Resources Wildland Fire Interactive Map, Presque Isle County has had 28 wildland fire incidents between 2013 and 2018 that burned 157.8 acres. In 2019, there was a small grass fire on a private road outside of Millersburg. Due to the private road not having an identification sign and the Sheriff's Office and Fire Department using different GPS systems, response times were delayed. Since Presque Isle County has had 102 wildfires in the past 18 years, the data shows approximately one event will occur every 0.2 years.

Extent
Extent can be measured by the number of acres burned and the cost of property damage. In Presque Isle County, the most destructive fire occurred on October 15, 1908 with estimates determining the fire burned about 2.5 million acres (200,000 acres in Presque Isle County). The fire destroyed the Village of Metz, and caused 43 known deaths and about $260,000 in property damages.

Vulnerability Assessment
All of the county's existing and future buildings and populations are at-risk to wildfires. Additionally, neighboring counties are also at-risk since wildfires can spread across political boundaries. About 12% of the county is composed of jack pine (pyrophytic plants) and oak/hickory forest types. Wildfires burn property and structures, which results in high damage costs. Additionally, wildfires can cause death or injuries for people who become trapped in the fire or who are fighting the fire. Wildfires can cause a loss in timber production and agricultural revenue from the fire damaging timber supplies and agricultural products, and killing livestock. Communication and power infrastructure can be damaged by wildfires, which would result in power outages, reduced/a loss of warning notifications to the public, and the inability to call for emergency services. Also, residents and businesses may have to evacuate and find shelter. Wildfires also have the ability to cause secondary hazards (e.g. fixed site hazardous material accident, oil and gas accident, etc.).

Biomass Fire

Description
Biomass Fires are the burning of living and dead vegetation, including burning for land clearing. According to NASA Langley Research Center, scientists estimate that approximately 90% of biomass fires are caused from human activities. Burning of vegetation releases large amounts of particulates and greenhouse gases that contribute to the increased warming of Earth, which will result in more frequent and larger fires. Biomass burning particulates can affect human health when they are inhaled, which causes respiratory problems.

In Michigan, biomass plant operators are unable to competitively compete with wind, solar, and natural gas prices. Wood-fired biomass makes up about 16% of Michigan's renewable energy portfolio and the plants support jobs in rural areas and provide a repository for large quantities of forest waste and scrap tires since it is difficult to compost wood waste in rural areas. In September 2019, Michigan regulators created a bidding process for Consumers Energy that caused biomass producers to compete with declining wind and solar energy prices when their contracts expire. In recent years, Consumers stated that contracts with independent producers are too expensive.

Location
All of Presque Isle County is at risk for the occurrence and impacts from a biomass fire since these fires are regional events that are not confined to geographic boundaries.

Previous Occurrences and Probability of Future Occurrences
Presque Isle County has not had previous occurrences of a biomass fire. However, with the decommissioning of the Hillman Power Company in the Village of Hillman, the county predicts there will be an increase in biomass fires, which would subsequently increase the risk for wildfires and scrap tire fires.

The Hillman Power Company in the Village of Hillman is one of six biomass power plants in the state that relies on the burning of wood and scrap tires to produce power. Hillman Power provides a market for low-value wood fiber (e.g. tops and limbs from timber harvest, bark, sawdust, etc.) and converts it to energy. Hillman Power blends a small amount of tire-derived fuel into the wood fuel to improve plant performance, reduces air emissions and ash, and helps resolve the problem of what to do with scrap tires that are banned from Michigan's landfills. All the tire-derived fuel Hillman Power uses is under the Michigan Scrap Tire Management Program and is regulated by the Michigan Department of Environment, Great Lakes, and Energy.

Recently, the Michigan Public Service Commission approved a three year power purchase agreement between Consumers Energy and Hillman Power Company. Currently, the majority of Presque Isle County's wood waste is safely disposed of at the Hillman Power Company. Unfortunately, the Hillman Power Company is set to be decommissioned by May 2022 since it is not competitive with other power sources. Local sawmills in Presque Isle County are unsure how to safely dispose of their wood waste after the plant is decommissioned since landfills do not accept wood waste and piles of wood waste create a fire hazard as the wood piles dry out, start decaying and catch fire.

Extent
Extent can be measured by the number of acres burned and the cost of property damages. Presque Isle County has not had a previous occurrence of a biomass fire. Therefore, data is unavailable to quantify the extent. However, it is predicted there will be an increase in biomass fires since the Hillman Power Company is set to be decommissioned.

Vulnerability Assessment
All of the county's existing and future buildings, infrastructure, and populations are at-risk for biomass fires. These fires result in high damage costs from burned property and structures. Additionally, biomass fires can cause death or injuries for people who become trapped in the fire or who are fighting the fire. These fires can cause a loss in timber production and agricultural revenue from the fire damaging timber supplies and agricultural products, and killing livestock. Communication and power infrastructure can be damaged, which would result in power outages,

reduced/a loss of warning notifications to the public, and the inability to call for emergency services. Also, residents and businesses may have to evacuate and find shelter.

Drought

Description
Drought is a consequence of a natural reduction in the amount of expected precipitation over an extended period of time, usually a season or more in length. Drought differs from normal arid conditions found in low rainfall areas since the aridity is a permanent characteristic in the arid areas. The severity of a drought depends on its location, duration, geographical extent, and the water supply demands from human activities and vegetation. Due to the multi-faceted nature of droughts, it is difficult to define it, and assess when and where it will occur.

Some of the severe impacts droughts have on communities and regions include:

- Water shortages for human consumption, power generation, recreation and navigation, and industrial, business and agricultural uses
- Reduction in quality and quantity of crops
- Reduction of water quality in lakes, streams, and other natural water bodies
- Malnourished wildlife and livestock
- Increase in wildfires and wildfire-related losses
- Decline in tourism in areas dependent on water-related activities
- Decline in land values due to the impact of drought conditions on the economic or functional use of the property
- Reduction in tax revenue due to income losses from the agriculture, retail, tourism, and other industry sectors
- Increase in insect infestations, plant disease and wind erosion
- Potential loss of life due to food shortages, extreme heat, fire, increased pollutant concentrations in surface water, and diminished sewage flows

According to the *2012 Michigan Hazard Analysis*, drought is a natural part of Michigan's climate and can be exacerbated by the heat during the warmer months. The *2019 Michigan Hazard Mitigation Plan* states Michigan has 3 average annual drought events with no deaths or injuries, and greater than $7 million in annual property and crop damage. The most common type of drought is agricultural drought, where severe soil-moisture deficits lead to serious consequences for crop production.

In the late 1980's, Michigan experienced a drought that caused an estimated $40 billion in damages from agricultural losses, river transportation disruption, water supply shortages, wildfires, and other related economic impacts across the Central and Eastern portions of the United States. Communities instituted temporary water use restrictions and a state task force was formed to study the drought and formulate mitigation strategies. In June 1988, the Governor issued a statewide outdoor burning ban to prevent potential wildfires. Between 1989 and 1990, the Northeastern Lower Peninsula experienced drought conditions for eight months in a row.

Between 1998 and 2003, Michigan experienced another drought that caused an estimated $6-9 billion in damage from Texas to the Carolinas, over $1 billion in damage in the Eastern U.S. in 1999, and over $4 billion in damages and costs in the South-Central and Southeastern U.S. in 2000. The northeastern and southwestern areas of the Lower Peninsula experienced 9 to 10 months of drought conditions between 1999 and 2000. In 2001, the drought/heat wave damaged or

destroyed one-third of Michigan's fruit, vegetable, and field crops, which resulted in a U.S. Department of Agriculture Disaster Declaration for 82 of the state's counties. In addition, Southeast Michigan experienced water shortages, which resulted in local officials issuing periodic water usage restrictions. In September 2002, Michigan communities were under water use restrictions and the agricultural yields were estimated to be less than 50 percent, while counties in eastern Michigan were declared agricultural disaster areas.

Measuring Droughts

Two main methods to measure drought are the Palmer Drought Severity Index (PDSI) and the U.S. Drought Monitor. The PDSI was the first comprehensive drought index and the U.S. Drought Monitor is a newer index that combines quantitative measures with input from experts in the field.

The Palmer Drought Severity Index (PDSI) responds to weather conditions that have been abnormally dry or abnormally wet and is calculated with precipitation and temperature data, and the local available water content of the soil. The index's scale ranges from -6.0 (dry) to +6.0 (wet), where zero is normal. Presque Isle County has one station that maintains PDSI information. The station shows Presque Isle County's coastal and inland areas are currently experiencing a moderate wet period (Figure 6-2).

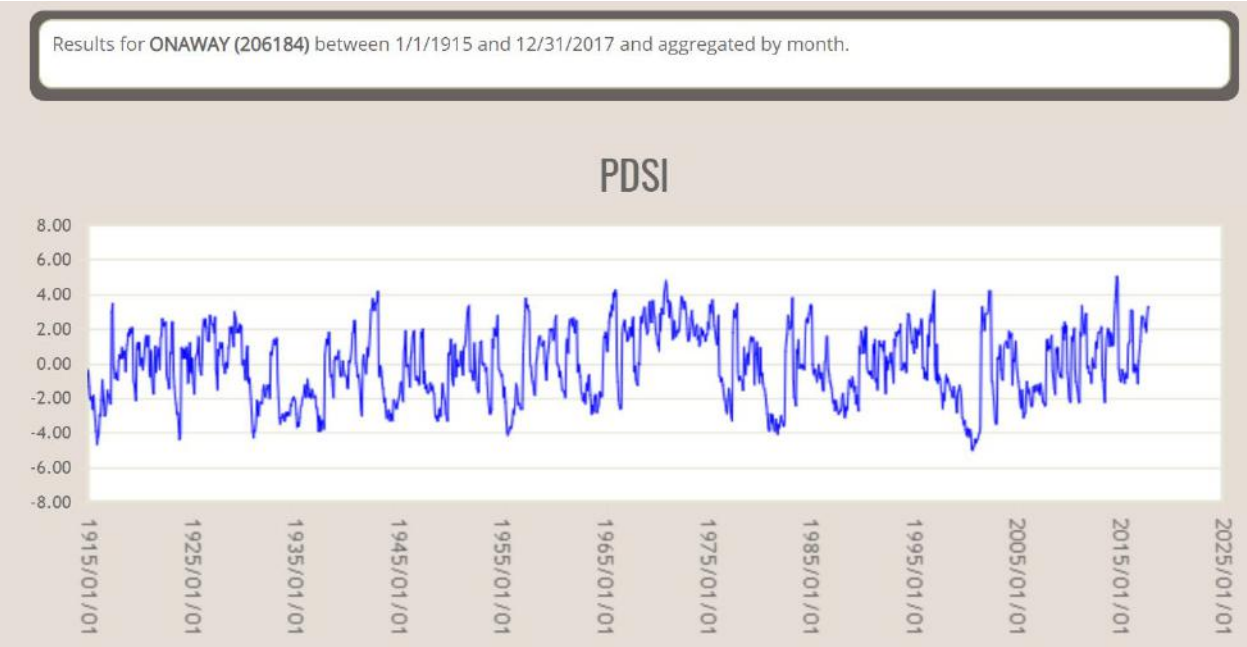


Figure 6-2 Palmer Drought Severity Index for Onaway
Source: The National Drought Mitigation Center's Drought Risk Atlas

The U.S. Drought Monitor classifies droughts into four categories from least intense (D1) to most intense (D4) and has an additional category for drought watch (D0). Drought watch (D0) results in short-term dryness with slowed planting, slowed crop and pasture growth, and some lingering water deficits. Moderate Drought (D1) results in some crop and pasture damage, low streams, reservoirs, or wells, some water shortages, and voluntary water-use restrictions. Severe Drought (D2) results in crop or pasture losses, common water shortages, and water restrictions. Extreme Drought (D3) results in crop and pasture losses, widespread water shortages and water restrictions. Exceptional Drought (D4) results in water emergencies with widespread crop and pasture losses, and a shortage of water in reservoirs, streams, and wells.

Location
A drought is a regional event that is not confined to geographic boundaries and can affect several areas at one time. Also, the severity of the drought may range across the affected areas. All of Presque Isle County is at risk to drought occurrence and impacts. Agricultural lands are primarily found in Allis, North Allis, Ocqueoc, Case, Moltke, Posen, Metz, Belknap, and Pulawski Townships.

Previous Occurrences and Probability of Future Occurrences
The amount of precipitation received each year has the potential to inform the impact drought may have on the county. Presque Isle County's average annual precipitation is 28.47 inches, and its average annual snowfall is 96 inches.

In Michigan, droughts are monitored and analyzed through its ten climate divisions. According to the *2019 Michigan Hazard Analysis,* Presque Isle County is part of Climate Division 4, along with Alcona, Alpena, Crawford, Cheboygan, Iosco, Montmorency, Ogemaw, Oscoda, Otsego, and Roscommon Counties. The U.S. Drought Monitor for Climate Division 4 shows the division's area tends to be abnormally dry with some moderate and severe droughts throughout the years (Figure 6-3). Between 1895 and 2018, 51% of the years did not have any drought months in Climate Division 4 according to the *2019 Michigan Hazard Analysis*. The most extreme drought in this climate division occurred in February 1931 with a Palmer Index of -6.13. The division also had droughts in the following time periods: 1895-1896 (15 months), 1908-1911 (37 months), 1913-1915 (21 months), 1925-1926 (10 months), 1930-1931 (12 months), 1948-1949 (17 months), 1955-1956 (12 months), 1963-1964 (8 months), 1976- 1977 (11 months), 1989-1990 (8 months), 1998-1999 (11 months), and 1999-2001 (21 months).

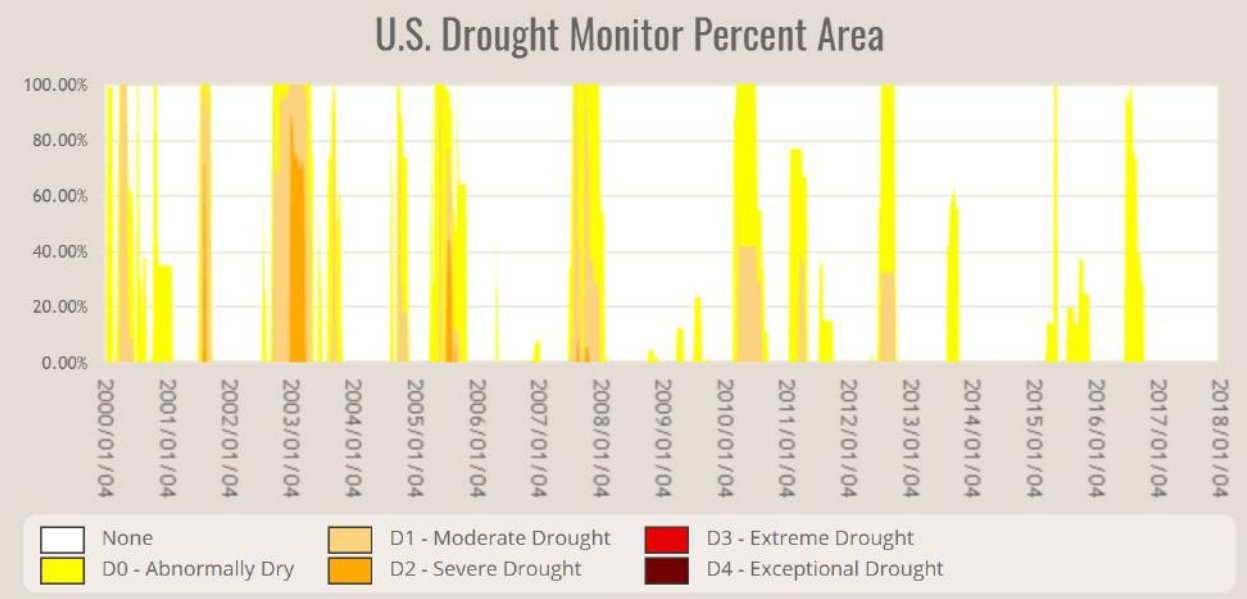


Figure 6-3 U.S. Drought Monitor Percent Area for Climate Division 4
Source: The National Drought Mitigation Center's Drought Risk Atlas

On March 2, 1977, Presque Isle County received a Presidential Drought Emergency Declaration during the 1976-77 drought in the Great Plains, Upper Midwest, and West. The drought conditions contributed to wildfires, crop damage, and low Great Lakes levels in Michigan.

Due to the limited amount of data available for droughts, an exact probability is difficult to calculate. However, based on the U.S. Drought Monitor Index, Presque Isle County experienced drought in 16 out of the 18 years on record, which equates to an 88% chance that a drought will occur each year. It is difficult to predict future occurrences of drought in the county since multiple factors, such as climate change, precipitation, humidity, and temperature can influence drought conditions. However, droughts are more likely to occur in the summer months when the higher temperatures increase evaporation rates. Based on the data from the U.S. Drought Monitor Index, abnormally dry conditions are predicted for future drought occurrences in the county, which would result in slowed planting, slowed crop and pasture growth, and some water deficits.

Extent
Generally, the county experiences abnormally dry conditions that fall into the drought watch category of the U.S. Drought Monitor. Severe droughts occurred in 2001, 2003, 2005, and 2007. Despite not experiencing exceptional droughts, the county has the potential to experience them in the future.

Vulnerability Assessment
It is difficult to quantify drought conditions since droughts do not have specific boundaries and are dependent on the weather-related factors. In Presque Isle County, impacts from extended drought are a reduction in crop and livestock production, increased potential for wildfires, a reduction in farm products, a reduction in timber production, and a loss of tourism with a decrease in watercraft access to Lake Huron and large inland lakes. Drought conditions may increase the risk for wildfires, which would require residents to be warned and/or evacuated. Droughts can also impact the county's public health through the reduction of the quality and quantity of available water for drinking, business operations, and recreational, agricultural, and forestry management activities. While droughts have not been severe enough to fully deprive the county of water, it is possible. Additionally, droughts may impact food prices and may result in food product shortages since farming activities (hay production, pastureland, and row crops) occur on about 15.2% of the county's land. Farms may see an increase in production expenses.

Extreme Temperatures (Extreme Heat and Extreme Cold)

Description
Prolonged periods of very high or very low temperatures are often accompanied by other extreme meteorological conditions, such as high humidity, drought, heavy snowfall, or high winds. Extreme heat or extreme cold primarily affect the most vulnerable segments of the population, such as the elderly, children, impoverished individuals, and people in poor health.

Nationwide, there have been approximately 175 deaths per year that are attributable to extreme heat according to the *2019 Michigan Hazard Analysis.* The threats from extreme heat are heatstroke, sunstroke, muscle cramps, fatigue, and heat exhaustion. It is hazardous to livestock and agricultural crops, causes water shortages, exacerbates fire hazards, exacerbates respiratory problems, prompts excessive energy demands, and causes infrastructure failures. Urban areas experience the most serious extreme heat with the combined high temperatures and high humidity that produce a heat-island effect. According to the *2019 Michigan Hazard Mitigation Plan*, Michigan has 11 average annual extreme heat events with 0.4 average annual deaths and 41 average annual injuries.

In the United States, approximately 700 people die each year as a result of severe cold temperature-related causes according to the *2019 Michigan Hazard Analysis*, with a significant number of deaths occurring due to illnesses or disease that are negatively impacted by severe cold weather, such as stroke, heart disease, and pneumonia. The major threats from extreme cold are hypothermia and frostbite. According to the *2019 Michigan Hazard Mitigation Plan*, Michigan has 35 average annual extreme cold events with 1 death, 9.4 average annual injuries, and $6.4 million in average annual property and crop damage. Extreme cold affects transportation modes and power utilities, resulting in dead vehicle batteries and loss of power/heat.

Measuring Extreme Temperatures (Extreme Heat and Extreme Cold)

Extreme heat is measured with the National Weather Service's Heat Index Chart (Figure 6-4). The chart uses relative humidity and air temperature to determine the likelihood of heat disorders with prolonged exposure or strenuous activity. Individuals are unable to shed excess heat from their bodies when they experience prolonged exposure to hot temperatures, which results in heat disorders.

Extreme cold is measured with the windchill index, which is a measure of the rate of heat loss from exposed skin caused by the combined effects of wind and cold. As the wind increases, heat is carried away from the body and reduces the external and internal body temperatures. Figure 6-5 shows the NOAA Wind Chill Chart as it corresponds to various temperatures and wind speeds.

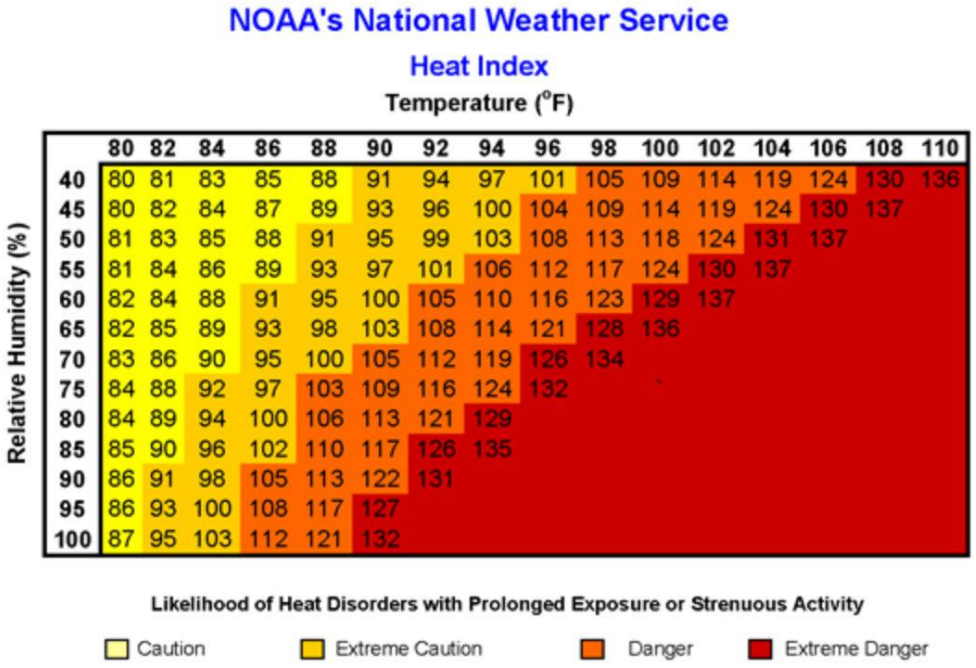


Figure 6-4 NOAA's National Weather Service Heat Index

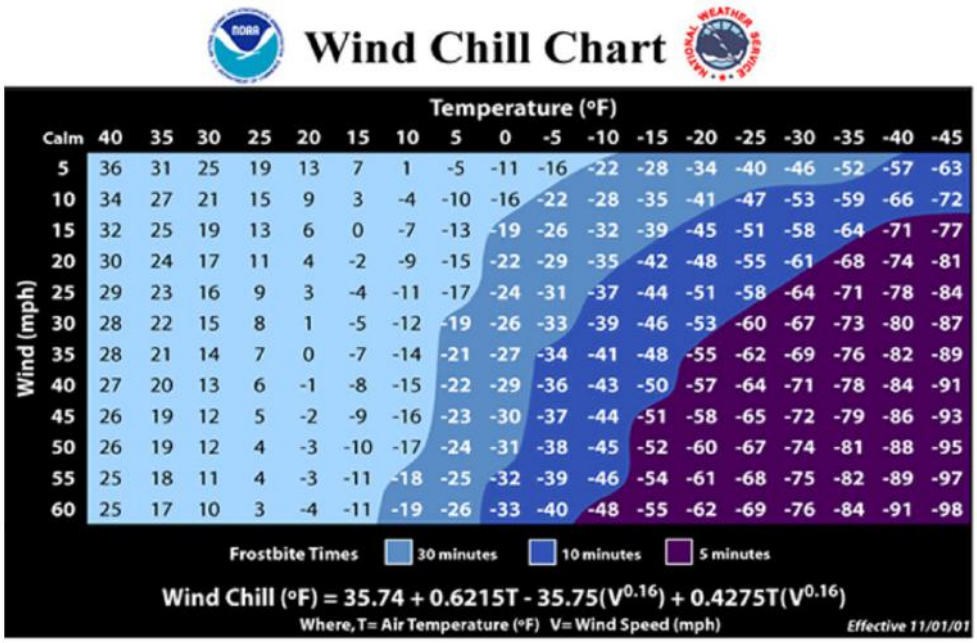


Figure 6-5 Wind Chill Chart

Location

Extreme temperatures are a regional event that are not confined to geographic boundaries and range in severity across the affected areas. All of Presque Isle County is at risk to the occurrence and impacts from extreme temperatures.

Previous Occurrences and Probability of Future Occurrences

A comparison between average maximum/minimum temperatures and extreme maximum/minimum temperatures assists in understanding the risk for extreme temperatures in the county. Figure 6-6 shows the average maximum temperatures and extreme maximum temperatures in Presque Isle County between 1900 and 2020 from the Western Regional Climate Center, Onaway 4N, MI Station (206184). Figure 6-7 shows the average minimum temperatures and extreme minimum temperatures in Presque Isle County between 1900 and 2020 from the Western Regional Climate Center, Onaway 4N, MI Station (206184).

Presque Isle County has had two heat or excessive heat events in 2001 and 2018. The events did not have any deaths, injuries, or property/crop damages. The events consisted of hot and humid conditions that caused outdoor events to be modified and attendance at outdoor events to be lower than normal. Since there have been two extreme heat events in Presque Isle County in the last 19 years, approximately one extreme heat event would occur every 9.5 years.

Between 2001 and 2019, there have been two extreme cold/windchill events reported in Presque Isle County. The events did not have any deaths, injuries, or property/crop damages. The low temperatures caused schools to close. However, since cold temperatures typically occur during winter months and are coupled with blustery winds and snowstorms, many events may have gone unrecorded or reported as other hazards. Since there have been two extreme cold events in Presque Isle County in the last 19 years, approximately one extreme cold event would occur every 9.5 years.

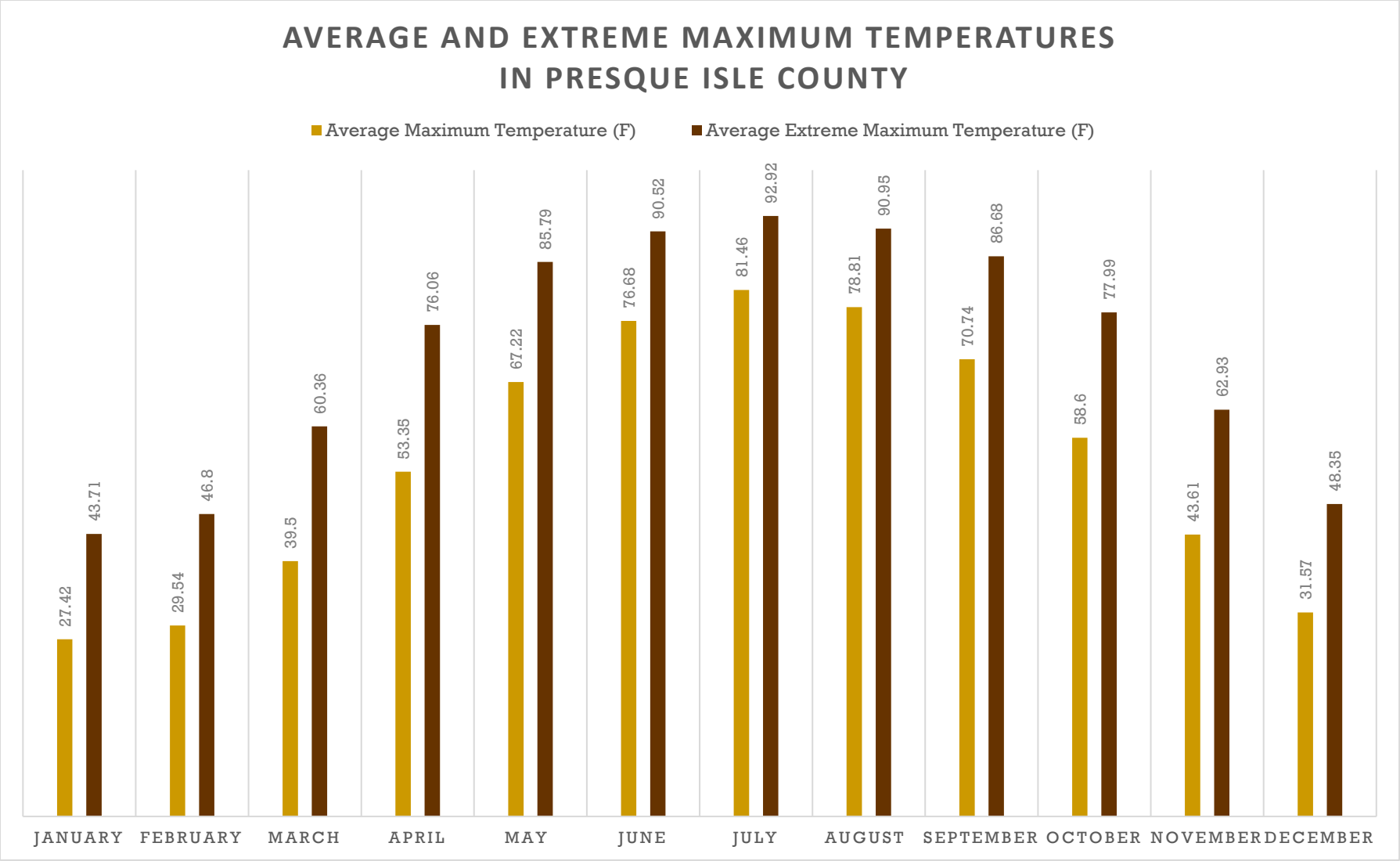


Figure 6-6 Average and Extreme Maximum Temperatures

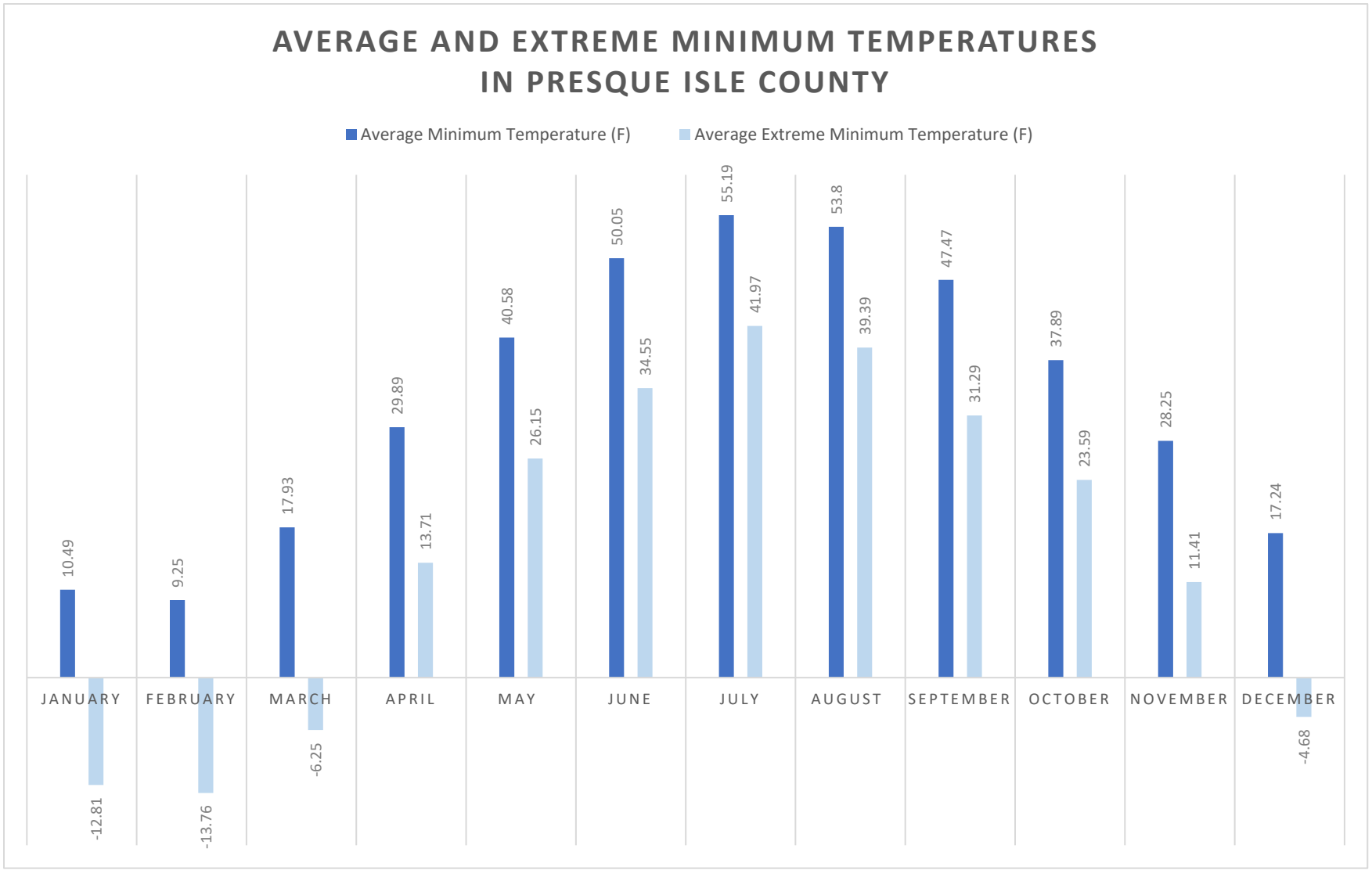


Figure 6-7 Average and Extreme Minimum Temperatures

Extent
Extreme heat temperatures can be defined by record highs and the National Weather Service Heat Index. On August 3, 1988, the highest recorded temperature was 100 degrees Fahrenheit in Rogers City, Michigan. This temperature correlates to danger and extreme danger of having a heat disorder from prolonged exposure or strenuous activity (Figure 6-4). On July 12, 1936, the highest recorded temperature was 106 degrees Fahrenheit in the City of Onaway, Michigan. This temperature correlates to danger and extreme danger of having a heat disorder from prolonged exposure or strenuous activity (Figure 6-4). However, it should be noted that hotter events are possible. In Presque Isle County, the City of Rogers City and the City of Onaway have the potential to produce a heat island effect since these cities are urbanized areas with buildings and roads that absorb and re-emit the sun's heat more than the more rural areas in the county.

Extreme cold temperatures can be defined by record lows and the National Weather Service Wind Chill Index. On February 18, 1979, the lowest recorded temperature was -37 degrees Fahrenheit in Rogers City, Michigan. This temperature correlates to frostbite exposure of 5-30 minutes (Figure 6-5). On February 17, 1979, the lowest recorded temperature was -35 degrees Fahrenheit in the City of Onaway, Michigan. This temperature correlates to frostbite exposure of 5-30 minutes (Figure 6-5). However, it should be noted that colder events are possible.

Vulnerability Assessment
All of Presque Isle County's existing and future buildings, population, and infrastructure are at-risk and vulnerable to extreme temperatures (extreme heat and extreme cold).

Extreme heat has little effect on buildings and infrastructure. However, in rare cases, buildings can collapse or buckle. Utility infrastructure can fail and cause power outages, or put stress on utility service due to an increase in the usage of air-conditioning units. Heat can also cause pavement to expand. Elderly adults, and young children are more susceptible to heat disorders since older adults are more likely to be on medications or have chronic illnesses that affect their body's ability to regulate heat, and young children rely on others to keep them cool and hydrated. Athletes and outdoor workers are also susceptible since they are more likely to become dehydrated. Low income populations are susceptible since they may not have or be able to afford an air conditioning system for their home. Extreme heat negatively impacts air quality by increasing the amount of pollutants in the air, which can aggravate existing respiratory illnesses, and can decrease lung function after long-term exposure to high temperatures. Water quality is impacted by heating up waterbodies or heating up the runoff that drains into them. This hotter water may degrade the water resources as well as kill fish, macroinvertebrates, and vegetation.

Extreme cold temperature events can cause pipes to freeze and burst in buildings, broken water mains, and stress to concrete and asphalt, which is costly to repair. After exposure to extreme cold temperatures, individuals may get frostbite or hypothermia, or they could die. Elderly, children, and individuals without access to an adequate heat source are considered to be at a higher risk to the impacts from extreme cold events. Additionally, extreme cold events could cause power outages and potentially result in carbon monoxide-related deaths due to the indoor usage of gas-powered furnaces and alternative heating sources. Risks for structural fires also increase with the use of alternative heating and power sources. Business and school operations would be disrupted since people are advised to remain indoors to reduce their exposure.

Great Lakes Shoreline Flooding and Erosion

Description

Flooding and erosion issues are natural processes that occur on the Great Lakes due to wind, waves, precipitation levels, water levels, seiches, and human activities. They have the potential to threaten life, health, and property. For example, the removal of soil from erosion activities may expose the foundations of structures or underground utility pipes, as well as cause roadways to become unstable and crack. Additionally, seiches, windstorms that tilt the surface of a lake, can cause lake water to travel inland over large areas. Unfortunately, humans build structures in flood prone areas along the shorelines that alter the natural landscape and increase the number of people and structures in hazard prone areas.

Michigan has over 3,200 miles of coastline with about 4.7 million people living in the counties along the shoreline. The State has developed a coastal management program to protect shoreline resources, identify development areas and hazardous areas, and improve public access to the coastline. The program is administered by the Department of Environment, Great Lakes & Energy (EGLE). EGLE estimates approximately 10% of the Great Lakes shoreline is prone to flooding and has identified 125 municipalities along the Great Lakes shoreline that have high-risk erosion areas where new permanent structures must comply with building setbacks to minimize the extent and magnitude of flooding and erosion issues.

In nearly every decade, high water levels on the Great Lakes have caused significant damage and impact to Michigan coastal communities (Figure 6-8). In the early 1950s and late 1960s, high water levels resulted in flooding that caused millions of dollars in damages to shoreline communities. Between 1972 and 1973, high water levels caused flooding in over 30 counties and resulted in an excess of $50 million in public and private damages since thousands of people were forced to evacuate their homes. Between 1985 and 1986, high lake levels culminated in a Governor's disaster declaration for 17 shoreline counties. The Army Corps of Engineers (USACE) implemented its Advance Measures Program, and the State implemented three shoreline flooding and erosion mitigation programs aimed at reducing future flood impacts. In 1997, the USACE implemented its Advance Measures Program to assist Michigan shoreline communities with their flood and erosion mitigation efforts. In 2019, record high water levels were recorded on the Great Lakes. The Army Corps of Engineers forecasts the water levels on Lake Michigan-Huron will begin reaching record highs between April 2020 and August 2020.

Figure 6-8 Lake Michigan-Huron Water Levels 1918-2020
Source: U.S. Army Corps of Engineers, Retrieved March 2020
Blue: Monthly Mean Level; Red: Long Term Annual Average

Location
Presque Isle County has approximately 72 miles of shoreline along Lake Huron. The City of Rogers City, and Bearinger, Ocqueoc, Rogers, Pulawski, Krakow, and Presque Isle Townships are at the greatest risk for Great Lakes flooding and erosion. In addition, the county has lakes, ponds, and rivers.

Previous Occurrences and Probability of Future Occurrences
According to Michigan Sea Grant's Great Lakes Current Incident database, Presque Isle County has not had any incidents since 2002. It should be noted the database was started in 2002, and it was more difficult to gather incident-related information, and rip currents were not recognized as occurring on the Great Lakes before the early 2000's. Therefore, incidents may not have been recorded in the database or were reported as different hazards. In the early 2000's, low water levels existed in Lake Huron (dropped about 5 feet). The water levels remained below the long-term annual average until 2014 when they began to rise above the long-term average.

Since the Great Lakes' water levels go through cyclical high and low water periods, the future occurrence of this hazard is not easy to predict. Additionally, seasonal water fluctuations due to water runoff can impact the future occurrence of this hazard. In Lake Huron, the average amount of seasonal runoff is about one foot.

Extent
Extent can be measured by the amount of damage caused to buildings and infrastructure. In Presque Isle County, the high waters from Lake Huron have contributed to major erosion issues, and infrastructure and shoreline damage. Erosion issues have undermined a 700ft. segment of the the Huron Sunrise Trail, has undermined the stability of US 23 south of Hoeft State Park, and has put residential homes in the position of falling into Lake Huron. High water levels in 2019 washed away the foundation of Rogers City's Smitka Park, which cost the city $4,000 to shore up the foundation and keep the park from sliding into Lake Huron. Rogers City officials are also concerned about how close the water is to two of the city's deep water wellhouses. High water has also pushed the Joseph S. Fay shipwreck inland and unearthed a 45 foot stretch of ribs and keel from an unidentified shipwreck at Hoeft State Park. In 2020, MDOT is planning to begin repairing US 23 with sizable toe stone and backfilled by medium-sized stone and does not plan to move US 23 landward. EGLE has been assisting communities with seawalls; however, there is not enough funding.

In January 2020, Rogers City joined other Michigan coastal communities in asking the state to seek federal disaster relief for its shoreline since local budgets are having difficulty covering the repair costs and unfunded mandates from the state. If the communities gain a federal disaster declaration, emergency funds would be made available for repairs and replacement of critical infrastructure and may provide assistance to shoreline property owners. Rogers City's Mayor gave testimony to the state House Appropriations Subcommittee on Natural Resources and Environmental Quality about how the high water levels have impacted the city's breakwall, Smitka Park, bike path, and shoreline. Rogers City is working with the City of Harrisville in Alcona County to address shoreline flooding issues. The Presque Isle County Emergency Services Coordinator is collecting information regarding coastal flooding along Lake Huron.

Extent can also be measured by the number of injuries or fatalities. According to the *2019 Hazard Analysis*, Presque Isle County has had between 0-1 incidents from 2002-2019. Additionally, the 2019 Hazard Analysis classified Presque Isle County as a low risk erosion hazard area and a low shoreline recession risk.

Vulnerability Assessment
The buildings and infrastructure in the City of Rogers City, and Bearinger, Ocqueoc, Rogers, Pulawski, Krakow, and Presque Isle Townships are most at-risk for Great Lakes shoreline flooding and erosion. The waves and winds from Lake Huron can remove sand or soil from buildings, which causes a loss in property, and exposes foundations and underground utilities. Structures and facilities (parks) can also become closer to the waters or become perched on bluffs, which could cause the structures to end up in Lake Huron. The foundations and utilities may experience water damage, water contamination, extreme temperatures, and become unstable. High water levels can also wash out roads and trails, and cause them to crack, become unstable, and slough. This damage has the potential to cause vehicles, bicyclists, hikers, or equipment to go into Lake Huron. Road closures have the potential to cause longer emergency response times. High water levels have also pushed shipwrecks inland and unearthed new shipwrecks. Low water levels on Lake Huron can impact shipping companies since they may be forced to lighten loads on their freighters to avoid running aground in channels and ports, and reducing drafts. Low water levels also have the potential to shut down ferry services, and call for more dredging projects that are expensive and cause an issue of where to appropriately dispose of contaminated sediments.

Riverine and Urban Flooding

Description
Riverine flooding occurs when rivers, streams, and lakes overflow into adjacent floodplains due to prolonged, intense rainfall, rapid snowmelt or ice jams. Flooding can damage or destroy property, disable utilities, destroy crops and agricultural lands, make roads and bridges impassable, and cause public health and safety concerns. Floods occur in the early spring, but also occur in the winter due to ice jams, and during the summer or fall from severe thunderstorms. Flooding caused by severe thunderstorms has a greater impact on watercourses with smaller drainage areas.

Urban flooding occurs when water flows into low-lying areas because it does not have a place to go. This flooding occurs from a combination of excessive rainfall, snowmelt, saturated ground, and inadequate drainage, and is becoming more common in Michigan. Since development is occurring in floodplains, the natural landscape is unable to properly disperse the water. Urban flooding also has the potential to overflow onto docks or other structures with electricity running to them, which increases the risk for an electric shock drowning. Additionally, storm and sanitary sewers are unable to handle the water flows associated with storm events.

According to the *2012 Michigan Hazard Analysis*, Michigan tends to have a major flood event every two years with minor local flood events occurring annually. The 2012 Plan also reports the annual flood-related damages are estimated to be between $60 and $100 million. From 1975-2010, Michigan experienced eleven flood disasters that resulted in both a Presidential Major Disaster Declaration and a Governor's Disaster Declaration, and nine that resulted only in a Governor's Disaster Declaration.

Location
FEMA has not developed flood insurance maps for Presque Isle County. Riverine and urban flooding events have not been documented in Presque Isle County. Figure 6-10 shows the location of the county's water resources and wetlands. Generally, the wetlands show where the floodplains are located and the wetlands function to prevent flooding by storing water.

Previous Occurrences and Probability of Future Occurrences
According to NOAA, Presque Isle County has not had any flood events between 1950 and 2020. However, the *2019 Michigan Hazard Analysis* reports that Presque Isle County has had one flood event with $200,000 in property damages. Based on NOAA's data, no flood events would occur in the county. The probability for a future event cannot be determined based on the 2019 Michigan Hazard Analysis since the date of the event is not included in the document. It should be noted that there may be a lack of reporting on flooding events, which means the number of flood events may be higher. Additionally, the number of events may increase due to the changing climate conditions.

Extent
Flood extent can be measured by the amount of property damage. The 2019 Michigan Hazard Analysis reports one event in the county with $200,000 of property damages. Unfortunately, specific information is unavailable (date, description of event, etc.). The county may see an increase in the number of flood events and the severity of flooding due to an increase in rain and snowfall due to climate change, the backwater effect from the current high water levels of the Great Lakes, and the soil moisture content. The lack of flood events in the county may also be attributable to the county's wetlands assisting in flood prevention through the collection and storage of stormwater and floodwaters.

Vulnerability Assessment
The riverine and urban flooding events analyzed in this section relate to the natural and built environments. Flooding due to a dam failure is analyzed in the dam failure section of this chapter. Existing buildings may experience flooding if they are located in the county's floodplains. These buildings have the potential to be damaged, destroyed, and compromised. After the flood event(s), they may develop mold, have foundation damage, and may rot. The presence of mold will increase the health risk for people with breathing conditions. Businesses may have to close to fix damages and potentially lay off employees. Floodwaters can conceal dangerous conditions, such as damaged electrical wires, debris, and diseases. Electrical wiring on docks may become damaged from a flood, which increases the risk for electric shock. The contaminants and pollutants in floodwaters can degrade watersheds, and cause diseases, infections, and injuries to people traversing or playing in the waters. Flooding can damage roads and bridges, overflow sewers, and cause vehicles to crash. Roads may be closed for extended periods of time, which would impact traffic flow and emergency response times. Floodwaters can also cause erosion along inland lakes and streams, which can degrade habitats. Depending on the severity of flooding, residents may be evacuated.

National Flood Insurance Program
In 1968, Congress created the National Flood Insurance Program (NFIP) to reduce the impact of flooding on private and public structures by providing affordable insurance. The program is administered by FEMA and requires participating communities to adopt and enforce floodplain management ordinances that meet or exceed the NFIP minimum requirements. In addition, if communities participate in the Community Rating System (CRS), residents and business owners can receive reduced flood insurance premiums.

When NFIP was created, it included discounted policies that paid at rates that do not reflect the true flood risk of the properties. The Biggert-Waters Flood Insurance Reform Act of 2012 (BW-12) required FEMA to eliminate certain subsidies and it set limits on the amount that rates may increase. However, the Homeowner Flood Insurance Affordability Act of 2014 repealed some of the provisions in BW-12 and included gradual rate increases to properties receiving subsidized rates until the premium reaches its full-risk rate, adding a surcharge to all policies, and having a Flood Insurance Advocate to advocate for fair treatment of NFIP policyholders.

According to the Federal Emergency Management Agency Community Status Book Report for Michigan, Presque Isle County does not participate in the National Flood Insurance Program and floodplain maps have not been developed for the County. Presque Isle County does not have any participating communities in the NFIP program, which means the county does not have any FEMA repetitive loss structures.

Karst Sinkholes (subsidence)

Description
Depressions, cracks, and sinkholes in the ground surface pose an immediate threat to people and property. The sudden collapse of the ground surface to form depressions and sinkholes can take many days to a few years to develop and range from several days to years until the ground movements stabilize. Subsidence depressions may damage structures with low strain tolerances, such as dams, nuclear reactors, and utility infrastructure. The populations that are most at risk from this hazard would be located in industrial areas, residential areas that have been constructed over active or abandoned mines that have underground cavities are near the surface, and areas where extensive amounts of groundwater have been withdrawn.

In Presque Isle County, the most prevalent subsidence features are the Karst sinkholes in the southern portion of the county. These sinkholes occur when the bedrock dissolves and the surface rock collapses into the cavity, which can cause tremors that may be reported as earthquakes. It takes several decades for new sinkholes to appear on the surface. Due to the moist terrain within the bedrock and the partially subterranean shaded location, the sinkholes host plant communities that are not found in the surrounding surface areas.

Location
Karst sinkholes are found in the Shoepac Lake area in Allis Township, Rainy Lake (Case Township), Sunken Lake (Posen Township), Mystery Valley (Posen Township), Trapp Lake (Krakow Township), the areas along the Sinkhole Pathway managed by Onaway State Park, and at the Rockport State Park in Presque Isle Township.

Previous Occurrences and Probability of Future Occurrences
Rainy Lake and Sunken Lake are sinkhole lakes in the lake basin that control the lake level. Rainy Lake is composed of five or six sinkholes that drain and fill the lake. In 1824, 1925, 1950, and 1980, the sinkholes became unplugged and Rainy Lake's water levels lowered. The 1980-1982 drainage event caused the water in Rainy Lake to drain at an estimated rate of 10 gallons per second, which caused the lake level to drop over 45 feet and the shoreline to recede over 500 meters in some places. In 1982, the Michigan DNR constructed a wildlife flooding dam in an attempt to bring lake levels up, but resulted in a minimal increase in lake levels and was only temporary. However, the sinkholes became plugged in Rainy Lake in 1982 and the water levels began increasing. Trapp Lake is a karst feature (solution lake) that developed along linear groundwater features in soluble bedrock. In 1976 and 1994, Shoepac Lake had active karst collapses on the eastern edge of the lake.

It is difficult to determine an exact probability or predict the future occurrence of Karst sinkholes in the county since multiple factors, such as bedrock composition, precipitation, snowfall, and drainage rates, influence when a sinkhole occurs. However, it should be noted there have been reports about collapses around some of the karst features despite no reports about new sinkholes.

Extent
The collapse of a sinkhole is a localized natural hazard that takes several decades to appear. In Presque Isle County, sinkholes range in size from 80 to 100 feet deep and have walls sloping up to 850. Researchers believe the sinkholes are connected by a subterranean drainage system that connects Sunken Lake, Shoepac Lake, Devil's Lake, and Misery Bay. Rainy Lake is the deepest sinkhole in Presque Isle County and has about 100 feet of water in it. The extent can also be measured by the amount of damage caused by the collapse of ground. Unfortunately, data is not available to quantify damages.

Vulnerability Assessment
Any area in Presque Isle County that has bedrock with Traverse Group (Devonian limestone and shale) over Detroit River Group (contains anhydrite and gypsum) are at risk of Karst sinkholes since the minerals in the Detroit River Group rocks erode and create a cavern that the Traverse Group collapses into. Exposed limestone bedrock at the calcite quarry in Rogers City provides an access point for rain and snow to erode the bedrock. Karst subsidence can expose groundwater to rapid contamination since geologists believe a hinge-line fault connects several sinkholes and sinkhole controlled lakes, and provides subterranean drainage to Lake Huron. Historically, the karst sinkholes were used as dump sites and may still be used in that manner today. For example, in one sinkhole clean-out project, there were eight automobiles, three snowmobiles, a 250-gallon fuel oil tank, several tons of other metal materials, and a large amount of household trash. Groundwater contamination from agricultural byproducts, nitrates, infectious disease, septic systems, and sediments have been documented in the county's karst sinkholes. Additionally, agricultural drainage from pastures, feedlots, bean, potato, corn, and small grain fields can enter the aquifers through karst produced swallow holes, sinkholes, and fractures. Protection and preservation of the County's karst features will also protect the groundwater. The populations most at risk from this hazard are located in the industrial areas, residential areas that have been constructed overactive or abandoned mines with underground cavities near the surface, and areas where extensive amounts of groundwater have been withdrawn. In the 1960s and 1970s, residential lots were built around Rainy Lake and are susceptible to Rainy Lake's high and low water levels. The Presque Isle Soil and Water Conservation District partnered with other agencies to develop the *Northeast Michigan Karst Aquifer Protection Plan* to protect the drinking water in Presque Isle County and parts of Alpena County. In 2008, the Michigan Nature Association and Michigan Karst Conservancy partnered to preserve and manage Mystery Valley (76 acre karst feature).

Technological Hazards

Infrastructure Failures

Description
Infrastructure provides essential services, such as electric power, heating, air conditioning, water, sewage disposal and treatment, storm drainage, communications, and transportation. Infrastructure failures occur when public or private utility infrastructure becomes temporarily disabled. These failures can occur at any time and last from a few seconds to weeks. Infrastructure failures also cause widespread economic losses to businesses and industries, limit security, and alter lifestyles. Generally, the elderly, children, impoverished individuals, and people in poor health are most impacted by infrastructure failures. For example, people unable to afford generators or have access to fireplaces will have more difficulty getting through the failure.

Since infrastructure is becoming more complex and interdependent, these failures can be large in scope and magnitude. For example, a power outage during extreme heat and cold events has the potential to cause a person to die in their homes which creates a public safety emergency, and it may cause water or wastewater treatment systems to become inoperable which may result in a public health emergency. Additionally, northern Michigan has fewer infrastructure networks than an urban area; however, a failure affects a larger geographical area since residences and businesses are spread out.

Michigan's infrastructure is aging, which is affecting maintenance funding and user demand. Additionally, Michigan's codes and standards for the design, construction, and operation of public and private utility infrastructure require a minimum level of structural integrity and operational performance, which is not adequate to protect infrastructure during a disaster. In 2018, the State of Michigan established the Michigan Infrastructure Council to develop a 30 year statewide strategic framework to address the need for infrastructure improvements in Michigan. For more information, see the following website: https://www.michigan.gov/mic.

Location
The entire county is susceptible to infrastructure failures since the population and businesses are spread out. Even though the county has a large number of forested areas, infrastructure does traverse these areas. Additionally, 43% of the population is located in the City of Rogers City (21%), Rogers Township (8%), and Presque Isle Township (14%). According to the U.S. Census Bureau, people are moving to Presque Isle, Rogers, and Krakow Township (6% of the county's population). Additionally, the clustered population in the City of Onaway (6%), the Village of Posen (2%), and the Village of Millersburg (2%) account for 10% of the county's population.

Previous Occurrences and Probability of Future Occurrences
Presque Isle County has not had a major infrastructure failure reported. However, the possibility for an event to occur exists depending on the age of the county's infrastructure and the availability of maintenance funding.

Extent
Since Presque Isle County is classified as rural, its infrastructure is spread over a large geographic area. If there is an infrastructure failure, a large area would be impacted. Additionally, if a failure occurred in the City of Rogers City, and Rogers, Presque Isle, and Krakow Township, 49% of the population would be affected.

Vulnerability Assessment
In Presque Isle County, the electrical system consists of above ground power transmission lines that traverse forested areas. Damage to these lines would cause a power outage over a large area since the county is rural in nature. A power outage would impact the population based on the time of year (winter would require heating stations to be set up and summer would require cooling stations to be set up), and if the population has any medical issues that require machines or refrigerated medicine. A water and sewer infrastructure failure would impact the businesses and residents in the City of Onaway, the City of Rogers City, the Village of Millersburg, the Village of Posen, and residents living in the Presque Isle Harbor Development. A failure may cause health issues (e.g. gastrointestinal illnesses and cancer) if contaminated water is ingested. Also, some areas in the county are not covered by cell phone service due to topography and lack of infrastructure. Businesses, residents, and visitors would not be able to reach out to family and friends, or call for emergency services if the existing communication infrastructure fails. Damage to

the roads would cause them to be closed until fixed. These road closures would increase drive times and emergency response times.

Structural Fires

Description
Structural fires occur when any fire ignites one or more structures of residential, commercial, industrial, institutional, or other type. These fires are considered to be the most common hazard with most incidents being limited in scale and not having the ability to threaten or harm an entire community. However, fires in facilities, such as hotels, entertainment venues, schools, and hospitals, pose a great risk due to the large number of persons involved.

According to the National Fire Protection Association and the U.S. Fire Administration, the U.S. had 499,000 structure fires and 3,400 civilian fire deaths in 2017 with a national average of 2.3 deaths and 9.3 injuries per 1,000 fires. Michigan generally matches the national trend for structure fires.

From 1975 to 2009, the number of reported fires in Michigan has trended downwards, with annual numbers fluctuating. In 2003, the Fire Marshal Division of the Michigan Department of Licensing and Regulatory Affairs reported nearly 19,000 structural fires occurred in Michigan resulting in 161 deaths, 624 injuries, and $230 million in estimated damages. In 2006, Michigan's fire death rate was 15.4 persons per million, which ranked it in the middle of all states. In 2017, the U.S. Fire Administration reported that Michigan reported 3.7 deaths and 15.6 injuries per 1,000 fires through the National Fire Incident Reporting System.

Location
All of the existing and future structures in Presque Isle County are at-risk for a structural fire.

Previous Occurrences and Probability of Future Occurrences
In 2003, there were 36 fires reported in Presque Isle County with a total property loss of $70,450. According to the National Fire Incident Reporting System for Michigan, Presque Isle County had 19 structural fire calls, 4 vehicle calls, and 23 other fire calls in 2018. There were no fire related injuries or deaths, and the total fire loss amount was $357,200. Dependent on age of housing stock, infrastructure, and distance between structures, all of the existing and future structures are at-risk for a structural fire. It is difficult to predict the future occurrence of a structural fire.

Extent
All existing and future structures in the county are at-risk for a structural fire with the total fire loss amounting to $357,200 in 2018.

Vulnerability Assessment
All of the existing and future buildings, populations, and infrastructure in Presque Isle County are at-risk to a structural fire. The county has aging housing stock and infrastructure that was built under building codes and rules for fire prevention that are no longer in effect today. Aged electrical lines increase a buildings risk for structural fires. Also, buildings without smoke and carbon monoxide detectors increase the risk for deaths. If not contained, the structural fires can turn into wildfires and cause secondary hazard events.

Presque Isle County relies on a combination of staff and volunteer fire departments. Since there is a lack of full-time firefighters in rural townships, there is little time to conduct fire inspections and take other preventive measures to lessen the threat of structural fires. Therefore, efforts in these

rural communities are directed towards fire suppression, which makes it challenging to maintain sustainable fire prevention and inspection programs. Additionally, some communities may not have fire prevention codes and rely on the State Rules for Fire Prevention, while other communities have developed local ordinances. However, the costs of compliance for existing buildings may be prohibitive for business owners, yet it would be beneficial for new construction to comply with both State building code and State Rules for Fire Prevention. Furthermore, the City of Onaway, North Allis Township and Allis Township will share the cost to maintain the city's water system for the Onaway Fire Department. The governments will pay $5 per hydrant per month for all hydrants 6 inches or larger (51 hydrants out of the 79 hydrants fit the criteria). Previously, the city paid for all maintenance expenses.

Transportation Accidents (air/land/water)

Description
Transportation crashes or accidents involve air, land or water-based commercial passenger carriers. These accidents can result in mass casualties and tremendous injuries due to large numbers of passengers, unpredictable weather, mechanical failures, and human error. These accidents have the potential to strain local response and medical services. Airplane accidents tend to occur either during take-off or landing according to the NTSB and airline industry. When responding to these accidents, it may be difficult to suppress the fires, rescue and provide first aid to survivors, establish a mortuary facility, detect the presence of explosive, radioactive, or other hazardous materials, and provide crash site security and crowd control. Water transportation accidents may require underwater rescue and recovery efforts. Vulnerable populations to these hazards include communities near airports, communities with railroad tracks through them, communities with commercial intercity passenger bus or local transit bus service, communities with school bus service, and communities with commercial marine passenger service or along water bodies.

Michigan has approximately 19 commercial passenger airports, more than 130 certified intercity carriers that provide passenger, charter, commuter, and special bus service to 220 Michigan communities with six offering regular route service, an intercity rail passenger system that consists of 568 route miles, along three corridors, serving 22 Michigan communities, 72 local bus transit systems serving 85 million passengers and 20 commercial marine passenger ferries.

Location
The entire county is susceptible to air, land, and water transportation accidents with the water accidents strictly occurring on all waterways (rivers, streams, lakes, etc.). The air transportation accidents have a greater chance of occurring at the Rogers City Airport (the City of Rogers City).

Previous Occurrences and Probability of Future Occurrences
Presque Isle County does not have any major air and land transportation accidents reported. However, smaller accidents have likely occurred. Air accidents would primarily occur around the airport. Land transportation accidents would primarily occur along the roadways and trail systems. Water transportation accidents would primarily occur on the county's major lakes (Black Lake (Bearinger Township, North Allis Township), Grand Lake (Presque Isle Township, Krakow Township), Long Lake (Presque Isle Township, Krakow Township), Lake Augusta (Pulawski Township), Lake Esau (Presque Isle Township), Big Trout Lake (Pulawski Township), Lake Nettie (Bismark Township), and Tomahawk Creek Flooding (Allis Township), Lake Huron, and the Thunder Bay River (Metz Township, Posen Township). There have been many shipwrecks on the Great Lakes due to sudden and severe storms, and reefs. The greatest concentration of shipwrecks

lies near Thunder Bay (Alpena County) on Lake Huron and the most significant accident was the sinking of the Edmund Fitzgerald in 1975.

Extent
All of Presque Isle County is at-risk for an air, land, or water transportation accident. The extent can be measured by the amount of property damages, deaths, and injuries. According to the University of Michigan Transportation Research Institute's *Societal Costs of Traffic Crashes and Crime in Michigan: 2017 Update*, Presque Isle County has had two fatal traffic crashes, 11 with serious injuries, and property damage for 541 out of 612 traffic crashes. The average cost of a traffic crash casualty was $50,412 with the total traffic crash cost for all 612 accidents equaling $30,852,000. Unfortunately, data is unavailable to quantify the extent of air and water transportation accidents.

Vulnerability Assessment
Presque Isle County does not have regular commercial air service, passenger rail service, or commercial marine passenger service. However, the county does have a scheduled bus service, school bus transportation, and specialized public transit that could result in loss of life and injuries if an accident occurred. An air transportation accident has the potential to cause deaths, injuries, and large amount of property damage if a plane hits the county's buildings, infrastructure, or year-round and/or seasonal populations. Land transportation accidents have the potential to cause damage to other vehicles, injuries, death, and a transportation hazardous material accident. Dependent on the severity of the accident, it can cause road closures that would impact the county's traffic flow patterns. Additionally, it could reduce emergency service response times. Additionally, there is a significant amount of private and commercial marine activity along Presque Isle County's Lake Huron shoreline. For example, there are large vessels that use the industrial ports of Calcite and Stoneport, and recreational marinas at Hammond Bay, Presque Isle Harbor, and Rogers City. Since conditions on Lake Huron change rapidly, the communication system between the boaters and mainland should be maintained and upgraded. Also, Carmeuse has a 3.3 million gallon gas tank on Lake Huron in Rogers City that has the potential of being hit by vessels that are pushed into shore from wave activity on Lake Huron. Since the 1800s, shipwrecks have decreased dramatically due to better weather prediction and communication abilities, radar technologies, lighthouses, ship lighting, shipping regulations, floating navigation aids, LORAN stations, improved ship designs and construction quality, and U.S. and Canadian Coast Guard stations around the lakes. Additionally, the U.S. Army Corps of Engineers and other agencies dredge the harbors and seaways.

Transportation Hazardous Material Accident

Description
A transportation hazardous material incident is an uncontrolled release of hazardous materials during transport that pose risks to health, safety, property, and the environment. All modes of transportation (highway, railroad, seaway, airway, and pipeline) are carrying thousands of hazardous material shipments on a daily basis through local communities. A transportation accident involving any of the hazardous material shipments could cause a local emergency that would affect the immediate vicinity of the accident site or a small portion of the surrounding community. The Pipeline and Hazardous Materials Safety Administration of the U.S. Department of Transportation regulates over 1 million daily shipments of hazardous materials in the United States.

All areas in Michigan are vulnerable to a hazardous material transportation incident with Southern Michigan being more vulnerable due to its highly concentrated populations. The State has

experienced numerous small scale incidents that are responded to by local fire departments and hazardous material team. Fortunately, Michigan has not experienced large scale incidents.

Location
The City of Rogers City, the City of Onaway, the Village of Posen, and Bearinger, North Allis, Allis, Ocqueoc, Case, Moltke, Rogers, Belknap, Posen, Pulawski, Krakow, and Presque Isle Townships are vulnerable to transportation hazardous material accidents (Figure 2-1). U.S. 23 runs through the City of Rogers City, and Bearinger, Ocqueoc, Rogers, Pulawski, Krakow, and Presque Isle Townships. M-65 runs through the Village of Posen, and Posen and Pulawski Townships. M-68 runs through the City of Onaway, the City of Rogers City, and Allis, Case, Ocqueoc, Moltke, and Rogers Townships. M-33 runs through Allis Township into the City of Onaway. M-211 runs from the City of Onaway into North Allis Township. Additionally, the county is vulnerable to transportation hazardous material accidents on Lake Huron from routine marine shipments.

Previous Occurrences and Probability of Future Occurrences
Presque Isle County has not had any significant accidents reported, but may have had minor accidents that were not reported. Since the transportation network is complex, there is the potential for an accident to occur on U.S. 23, M-65, M-68, M-33, M-211, and Lake Huron.

Extent
The extent of a transportation hazardous material accident can be measured by the amount and cost of property damages. However, data is unavailable to quantify the cost of past accidents. Another way extent can be measured is based on location of an accident. U.S. 23, M-65, M-68, M-33, M-211, and Lake Huron are the most vulnerable to a transportation hazardous material accident since these are the major thoroughfares through the county.

Vulnerability Assessment
Existing and future buildings, infrastructure, and populations located near U.S. 23, M-65, M-68, M-33, M-211, and Lake Huron are at-risk for a transportation hazardous material accident. An accident has the potential to leak material into the county's surface water and groundwater systems, which would impact wells. Additionally, an accident could cause damage to buildings near the road, and damage communication and utility infrastructure that could cause power outages and a loss of communication lines. Dependent on the severity of the incident, individuals may experience chemical burns, nausea, vomiting, poisoning, and disorders of the body's organ systems. Businesses may close and a spill could cause the soil around businesses and residences to become contaminated. The routine shipments of hazardous materials along the county's Lake Huron shoreline increases the risk for the Great Lakes to become contaminated, which could potentially degrade the aquatic habitat, kill vegetation and aquatic wildlife, make terrestrial wildlife sick from ingestion of the contaminated water, negatively impact real estate along Lake Huron near the accident site, negatively impact the recreational opportunities and community events (annual Salmon Tournament in Rogers City), and negatively impact the commercial fisheries.

Fixed Site Hazardous Material Accident

Description
Fixed site hazardous material incidents occur when there is an uncontrolled release of hazardous materials from a fixed site that pose risks to health, safety, property, and the environment. Due to technological advances, hazardous materials are present in quantities of concern in business and industry, agriculture, universities, hospitals, utilities, and other facilities. These materials include corrosives, explosives, flammable materials, radioactive materials, poisons, oxidizers, and

dangerous gases. Federal and state agencies regulate hazardous materials and many communities have plans and procedures to immediately respond to an incident.

Location
According to the TIER II Manager, there are two SARA Title III sites in Presque Isle County:

- Frontier Communications at 126 4th Street, Rogers City, Michigan
- Viegela HN Sales at 3364 Sect. 12 Hwy, Rogers City, Michigan

Previous Occurrences and Probability of Future Occurrences
Presque Isle County does not have any recorded fixed site hazardous material accidents. However, there is the potential for an accident. Emergency Plans are on file with the Presque Isle County Emergency Management Office.

Extent
The extent can be measured by the amount of damage incurred from a fixed site hazardous material accident. However, the county has not had an accident in the past fifteen years and the emergency plans are annually reviewed and updated, if necessary.

Vulnerability Assessment
The county's infrastructure, existing and future buildings, and populations near the fixed sites are at-risk for a fixed site hazardous material accident. An accident could impact air quality. Individuals affected by the hazardous material may experience chemical burns, nausea, vomiting, disorders of the lungs, kidneys, or liver, and poisoning. An accident could also cause the area to be evacuated and require a need for emergency shelters. It would cause businesses to close and owners may have to pay for repairs caused by the accident. The hazardous material also has the potential to leak into the county's drinking and natural water systems as well as causing communication and utility infrastructure to fail.

Scrap Tire Fires

Description
Scrap tires end up in either dumps or recycling facilities, some of which have more than several hundred thousand tires. The tires provide fuel for fires since the shape of a tire allows air to flow into the interior of a pile of tires, which renders standard firefighting practices nearly useless. Scrap tire fires impact the air, soil and water quality since the burning tires release hazardous compounds into the air, and the tires' oily residue can seep into the ground and water system. Sometimes, the burning oil can spread the fire to adjacent areas and burn for months. These fires can cause an area to become a Superfund site.

Although infrequent, scrap tire fires can become a major hazard affecting entire communities due to the difficulty in extinguishing them and the expensive cleanup. Scrap tires differ from conventional fires since small scrap tire fires can require significant resources to control and extinguish, the costs of fire management are beyond what local governments can absorb, the environmental consequences are significant, and the Rubber Manufacturers Association reports that a fire can convert a standard passenger vehicle tire into about two gallons of oily residue.

According to the EPA and the Rubber Manufacturers Association, approximately 290 million tires are discarded in the United States each year, with approximately 80% of the tires being reused or recycled. As of 2017, Michigan generates approximately 10 million scrap tires annually according

to the Michigan Department of Environment, Great Lakes, and Energy (EGLE). At the time of the 2014 update, Michigan had more than 24 million scrap tires at disposal sites throughout the state.

Location
The collection of scrap tires can occur throughout Presque Isle County. The county does not have any known tire collection sites.

Previous Occurrences and Probability of Future Occurrences
There are no recorded occurrences of scrap tire fires in Presque Isle County. Based on this data, Presque Isle County will not have scrap tire fires in the future. However, there may be scrap tire collection sites in the county that few people know about. Therefore, there is a possibility for a scrap tire fire in the county.

Extent
Extent can be measured by the number of acres burned and the cost of property damages. Since Presque Isle County has not had a reported scrap tire fire, data is unavailable to determine the number of acres burned, property damage costs, and the costs to fight the fire. However, there is a potential for an event to occur in an area of the county that few people know has a stockpile of tires.

Vulnerability Assessment
If a scrap tire fire were to occur in the county, all of the county's infrastructure, existing and future buildings and populations would be at-risk. Additionally, neighboring counties would also be at-risk since the fires are difficult to control and can spread across political and geographical boundaries. Depending on the location of a scrap tire fire, it has the potential to cause a wildfire, infrastructure failure, and an oil and gas accident (well and pipeline). Scrap tire fires burn property and structures, and have the potential to cause death and injuries for people who become trapped in the fire or are fighting the fire. Scrap tire fires also have high costs due to property damage and firefighting needs. Scrap tire fires can cause a loss in timber production and agricultural revenue from the fire damaging timber supplies and agricultural products, and killing livestock. Communication and power infrastructure can be damaged by the fires resulting in power outages, reduced/loss of warning notifications to the public, and the inability to call for emergency services. Also, residents and businesses may have to evacuate and find shelter.

Oil and Gas Accidents (well and pipeline)

Description
An oil and gas accident occurs when there is an uncontrolled release of oil or gas, or the poisonous by-product hydrogen sulfide, from production wells or from a pipeline that causes property damage, environmental contamination, injuries, and loss of life. Michigan is a major consumer and producer of oil and natural gas products that are transported and stored throughout the state. The State has the greatest underground natural gas storage capacity in the nation and supplies natural gas to its residents and neighboring states. However, these underground pipelines have the potential to leak, rupture, and explode, which puts many communities at risk. In Michigan, oil and natural gas wells are located in 63 counties in the Lower Peninsula. Between 1927 and 2009, there have been 56,525 oil and natural gas wells drilled in Michigan with about half of them producing oil and gas. As of 2012, Michigan wells have produced approximately 1.4 billion barrels of crude oil and 6 trillion cubic feet of gas. Despite being highly regulated and having a fine safety record, the threat of oil and gas well accidental releases, fires, and explosions still exists. Additionally, unplugged abandoned wells impact the health and safety of surrounding communities since they

have the potential to allow natural gas to flow underground and accumulate in nearby buildings, contaminate nearby water wells, and leak into soils and the water system.

In addition, pipeline accidents have the potential to release hydrogen sulfide, which is a poisonous gas that explodes when mixed with air temperatures of 500 degrees or above. Hydrogen sulfide gases can be found around oil and gas wells, pipeline terminals, storage facilities, and transportation facilities where the gas or oil have a high sulfur content. Hydrogen sulfide has a "rotten egg" odor in concentrations from .03 parts per million (ppm) to 150 ppm, while in larger concentrations it paralyzes the olfactory nerves, so the odor is no longer an indicator of the hazard. Over 1,300 wells in Michigan have been identified as having hydrogen sulfide levels exceeding 300 ppm. At concentrations of 700 ppm, one breath of hydrogen sulfide can kill. Hydrogen sulfide can cause the failure of high-strength steels and other metals, which requires all company and government responders to be familiar with the emergency procedures and the kind of materials safe for use when responding to sour gas wells.

Location
The majority of the oil and gas wells and pipelines are located in Allis, Case, Bismark, Belknap, and Pulawski Townships.

Previous Occurrences and Probability of Future Occurrences
Presque Isle County has not had any major accidents reported. Even though the county has not had any significant accidents, the possibility for an oil and gas well and pipeline accident does exist.

Extent
The majority of the oil and gas wells and pipelines are concentrated in the central region of Presque Isle County (Figure 6-9). In 2017, Presque Isle County had 493 oil and gas wells with 1 active, 456 plugging approved and 36 producing according to EGLE. Buried pipelines connect the wells to the processing facilities within the county.

Vulnerability Assessment
The existing and future buildings and populations near the oil and gas wells and pipelines are at-risk if there is an oil and gas well and/or pipeline accident. These accidents consist of accidental releases, fires, and explosions that would cause damage and/or destruction to the buildings, infrastructure, and natural areas around the event. Oil and gas well and pipeline accidents have the potential to contaminate water wells and spread into the surface water and groundwater systems. These accidents can also negatively impact air quality through the release of hydrogen sulfide that can accumulate in oil and gas wells, pipeline terminals, storage facilities, transportation facilities, and nearby buildings. Hydrogen sulfide can cause paralysis of the olfactory nerves, burns, death, and the failure of high strength metals. Additionally, oil and gas wells and pipelines located in high risk wildfire areas are at greater risk for an accident.

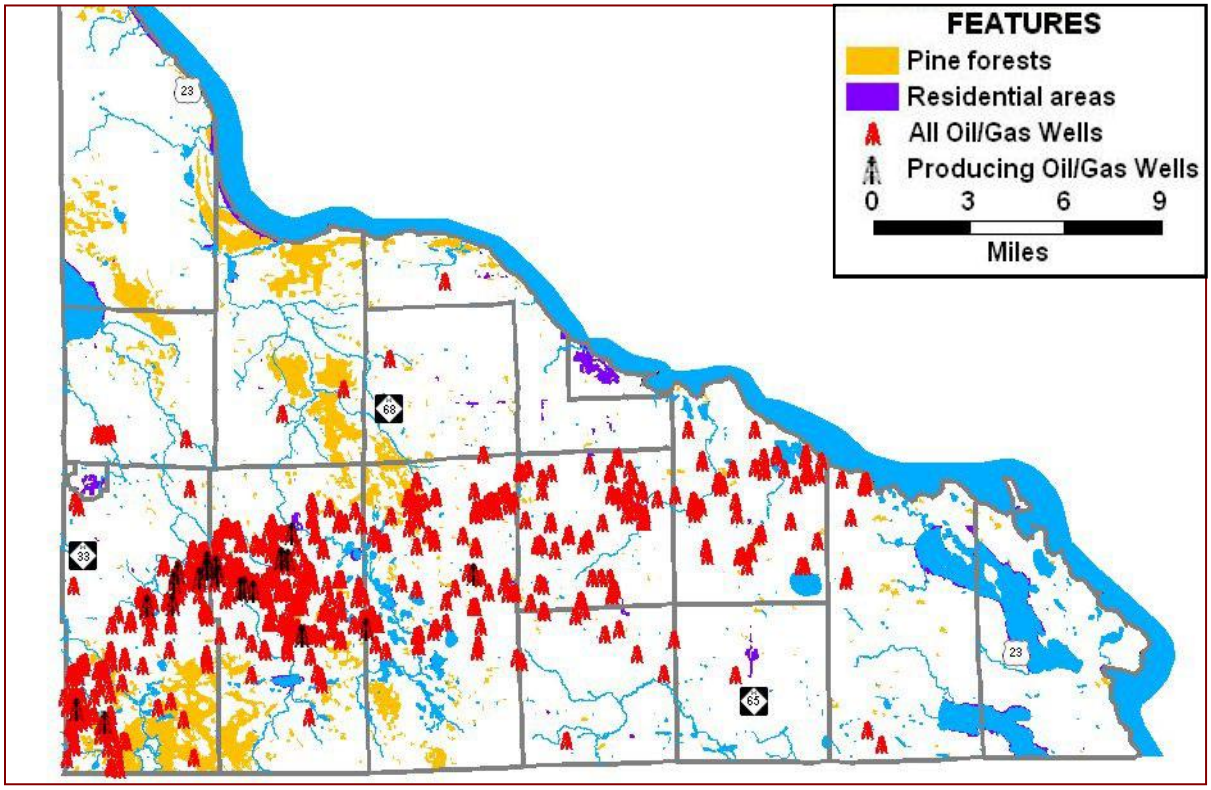


Figure 6-9 Presque Isle County Oil and Gas Wells

Dam Failure

Description

A dam is either man-made or constructed by wildlife, and controls the flow of water for agriculture, flood-control, artificial lakes, municipal water supplies, and energy generation. A dam failure occurs when an impoundment either collapses or fails which results in flash flooding downstream or water pouring over the top of the dam during a flood event. This failure may be due to poor operation, lack of maintenance, or vandalism of the dam. Dam failures can result in loss of life and extensive damage to property and natural resources since they occur unexpectedly.

According to the Michigan Department of Environment, Great Lakes, and Energy (EGLE), there are 2,500 dams in Michigan with 813 regulated by Part 307, Inland Lake Levels, and 235 regulated by Part 315, Dam Safety of The Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The dams regulated by Part 307 have a court issued order that establishes the level at which the lake is to be maintained; while the dams regulated by Part 315 are over 6 feet in height and over 5 acres are impounded during the design flood. Additionally, the Federal Energy Regulatory Commission (FERC) regulates 99 hydroelectric dams under the Federal Power Act. Since 1888, EGLE has documented approximately 302 dam failures in Michigan with an estimated average annual property and crop damage of $0.3 million.

Part 315 requires EGLE staff to determine the hazard potential classification for each dam according to the potential downstream impact the dam would have if it failed and to establish an inspection schedule. Dam inspections are required every three to five years for state regulated dams based on their hazard potential rating. For dams classified with a high or significant hazard potential, dam owners are required to prepare and maintain emergency action plans. Additionally,

owners are required to have the local emergency management coordinators review the plans for consistency with local emergency operations plans before the owners submit the emergency action plan to EGLE.

The FERC licenses and inspects private, municipal, and state hydropower projects. The FERC requires every applicant to develop and file an emergency action plan with the Regional Engineer unless granted a written exemption. The plan describes the actions that will be taken to moderate or alleviate a problem at the dam and the actions that will occur to respond to dam incidents or emergencies. It also includes inundation maps that identify critical infrastructure and at-risk populations. A yearly comprehensive review of the emergency action plan is conducted, which may include a functional exercise with local emergency management officials.

Location

Presque Isle County has low hazard potential dams located in the City of Rogers City, and Case, Allis, Belknap, Posen, Pulawski, and Rogers Townships (Figure 6-10). These dams are located in remote areas.

Previous Occurrences and Probability of Future Occurrences

Presque Isle County has not had any previous reported dam failures. According to the National Inventory of Dams, Presque Isle County has seven dams with an average age of 50 years (Table 6-6). Based on the aging infrastructure, there is a potential for a dam failure. Proper dam maintenance may predict and prevent the possibility of a future event. Since all of the dams have a low hazard potential and are not required to have an emergency action plan, dam failure will not be further analyzed at this time.

Extent and Vulnerability Assessment

The extent of a dam failure can be measured by the amount of damage that occurs and the number of deaths and injuries. Since Presque Isle County has not had any reported dam failures, data is unavailable to quantify the extent. If a dam failure occurred, there would be environmental impacts from the release of sediments from behind the dam. The Presque Isle Conservation District is seeking grant funding to rehabilitate the Trout Creek Dam. The proposed project will rebuild the dam in a new way to allow seasonal adjustments to river flow and pond storage, and install interpretive signs. Originally the conservation district tried to repair the dam and put it back to its original state; however, EGLE would not approve the permit due to existing environmental problems (increased water temperatures in the impoundments that cause fish kill).

Table 6-6 Presque Isle County's Dams									
	Name	**Height (ft)**	**Storage (acre-feet)**	**Location**	**Regulatory Agency**	**Dam Type**	**Year Completed**	**Dam Purpose**	**Hazard Potential**
1	Wolszyk Dam	14	180	Thunder Bay River	-	Private	1962	Recreation	Low
2	Francis Dam/ Croman Dam	9	150	Healy Creek	-	Private	1962	Recreation	Low
3	Tomahawk Creek Flooding Dam	25	8,060	Tomahawk Creek	State	State	1965	Recreation	Low
4	Klees Pond Dam	8	115	Tributary to Trout River	State	Private	1950	Recreation	Low
5	Trout Creek Dam/Rogers City Sportsman Dam	10	330	Trout Creek	State	Private	1971	Recreation	Low
6	Clymers Basin Dam/Michigan Limestone	65	2,275	Tributary to Lake Huron	State	Private	1999	Tailings	Low
7	Michigan Limestone Tailings Dam	50	6,800	Off of Little Lake	State	Private	1969	Tailings	Low
Source: National Inventory of Dams, Retrieved July 2019									

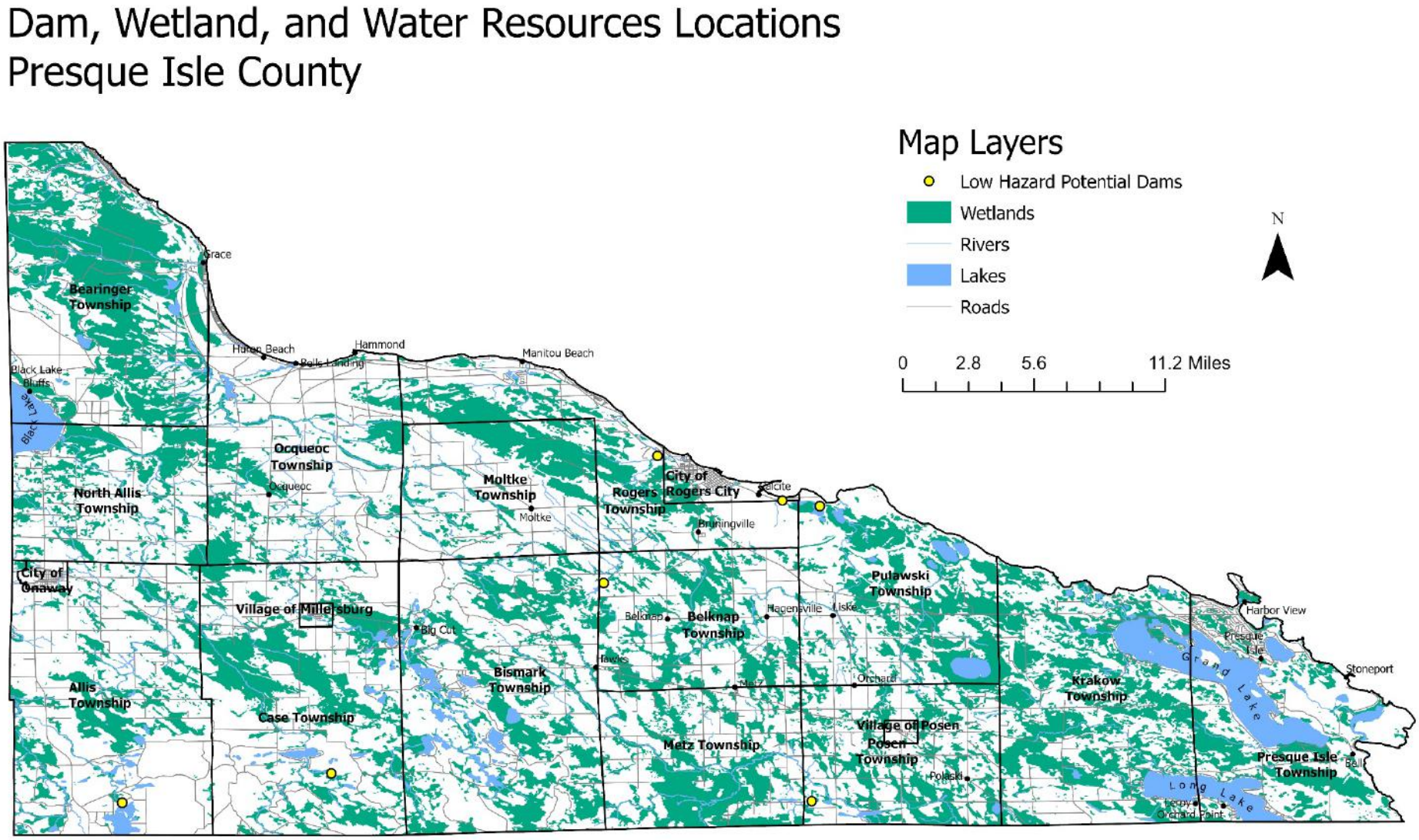


Figure 6-10 Dam, Wetland, and Water Resources

Human-Related Hazards

Public Health Emergency

Description
Public health emergencies occur when there is a widespread and/or severe epidemic, contamination incident, bioterrorist attacks, or other situation that negatively impacts the health and welfare of the public. These emergencies include disease epidemics, large-scale food or water contamination incidents, extended periods without adequate water and sewer services, harmful exposure to chemical, radiological or biological agents, and large-scale infestations of disease-carrying insects or rodents. A common characteristic of public health emergencies is that they impact or have the potential to impact a large number of people either statewide, regionally, or locally in scope and magnitude. These health emergencies can occur as primary events or as secondary events from another hazard or emergency (e.g. flood, tornado, or hazardous material incident).

Throughout the years, there have been many pandemics. For example, there was an outbreak of severe acute respiratory syndrome (SARS) in 2003. This virus was a new coronavirus that resulted in over 8,000 infections and a 10% mortality rate around the world. Additionally, a new strain of H1N1 was detected in 2009, which had approximately 300,000 deaths. Older people were less likely to get sick from this disease since they had derived immunity from a flu strain that had circulated in the mid-20th century. Since 2012, Middle East respiratory syndrome (MERS), a coronavirus, has been reported in 27 countries where there have been approximately 2,494 people infected and 858 deaths. In 2017, the World Health Organization (WHO) put SARS and MERS on its priority pathogen list to spur further research into coronaviruses.

On March 11, 2020, the WHO declared the SARS-CoV-2 (COVID-19) outbreak a pandemic. The new coronavirus had not been previously identified in humans and does not have a vaccine or treatment. It was first reported in China on December 31, 2019. In early 2020, COVID-19 began impacting numerous countries around the globe. In response, countries and some states in the U.S. instituted bans and restrictions on travel, instituted nationwide lockdowns, closed schools and businesses, requested study abroad students return to their countries, transitioned from in-person to online classrooms, cancelled/postponed events (e.g. conferences, concerts, sporting events, commencement ceremonies, etc.), requested people call before arriving at hospitals, instituted bans on the number of people that can gather in one area, instituted social distancing of six feet between individuals, and some churches temporarily suspended services. Some citizens responded by purchasing supplies en masse, which caused some supply shortages. On March 13, 2020, the U.S. declared COVID-19 a national emergency and began developing a sweeping relief package, which was signed by President Trump on March 27, 2020. On March 23, 2020, Michigan announced an order for all Michigan businesses and operations to temporarily suspend in-person operations that are not necessary to sustain or protect life, and to stay home unless they are part of the critical infrastructure workforce, engaging in outdoor activities, or performing necessary tasks (e.g. going to the grocery store). On March 28, 2020, President Trump approved Governor Whitmer's request for a Major Disaster declaration in Michigan, which allows Michigan to participate in FEMA programming.

Additionally, Bovine Tuberculosis has impacted the personal, social, and economic health of the residents and visitors of Presque Isle County. Government regulations and enforcement actions have affected the County's agriculture and tourism (e.g. hunting) industries.

Location
Public health emergencies do not have geographic boundaries and affect all of Presque Isle County.

Previous Occurrences and Probability of Future Occurrences
As of December 12, 2020, there have been 430,780 confirmed COVID-19 cases and 10,662 deaths in Michigan, and 377 confirmed cases and three deaths in Presque Isle County. It is impossible to predict when a major event will occur or how severe it will be. However, a pandemic has a higher probability of occurring in areas where there are high population concentrations and during colder weather.

Extent
The extent of a public health emergency can be determined by the number of cases and deaths, and the amount of money spent to prepare for and respond to public health threats. In Presque Isle County, District Health Department #4 works with local, state, and federal agencies to prepare for and respond to public health threats. It has developed emergency operations plans for the four counties it serves, and provides training to health department employees and other agencies to become NIMS compliant Incident Command Management systems. Additionally, District Health Department #4 is a member of the Region 7 Healthcare Coalition, which coordinates efforts to develop a comprehensive all-hazards medical preparedness plan. Between March 10, 2020 and December 11, 2020, Presque Isle County administered 5,992 tests for COVID-19 with 354 positive tests.

Vulnerability Assessment
A public health emergency will have a severe impact over a large geographic area or in densely populated areas. Additionally, the hazard will have a serious financial impact on residents and businesses. In extreme cases, travel may be prevented, and businesses and schools will be closed. If businesses close for extended periods of time, employees will lose wages and the ability to pay their bills, and the businesses will lose revenue, which may cause them to go out of business and employees to lose their jobs. At risk-populations include individuals who are at higher risk of severe complications from infectious diseases (older adults, pregnant women, children, people with pre-existing medical conditions), individuals with limitations that impact their ability to receive and respond to information, individuals who rely on personal care assistance, individuals with transportation needs, and individuals who have difficulty coping in new environments.

Sabotage/Terrorism/Nuclear Attack

Description
Sabotage and terrorism involve an intentional, unlawful use of force or violence against persons or property to intimidate or coerce a government or the civilian population to further political, social, or religious objectives. Since sabotage/terrorism objectives are widely varied, the potential targets are also varied. Any public facility, infrastructure, controversial business, assembly place, large computer systems operated by government agencies, financial institutions, healthcare facilities and colleges/universities can be considered a potential target. Regardless, terrorists seek the greatest possible media exposure to frighten as many people as possible. Sabotage/terrorism techniques include bombings, assassinations, organized extortion, use of nuclear, chemical and/or biological weapons, information warfare, ethnic/religious/gender intimidation (hate crimes), state and local militia groups that advocate to overthrow the U.S. Government, eco-fanaticism (destruction or disruption of research or resource-related activities), and narcotics smuggling and distribution organizations.

A nuclear attack is any hostile action taken against the United States that involves nuclear weapons and results in property destruction and/or loss of life. Nuclear weapons are powerful explosive devices that can devastate an area. The entire United States is subject to the threat of a nuclear attack; however, the strategic importance of military bases, population centers and certain types of industries place these areas at a greater risk. With the end of the Cold War, the threat of a nuclear attack against the U.S. diminished slightly with the dismantling of nuclear warheads aimed at U.S. targets. However, the number of countries capable of developing nuclear weapons continues to grow despite the ratification of an international nuclear non-proliferation treaty. Additionally, nuclear weapons have the potential to be acquired and/or developed by terrorist organizations.

Even though a nuclear attack is unlikely in Michigan, the extent of destruction and casualties from a nuclear weapon still make this hazard a possibility. Unfortunately, there is no way to assess the probability of a nuclear attack and most mitigation strategies would originate from and be prompted by federal initiatives and defense priorities. However, some things should be considered, such as the ability to shelter or evacuate people, maintain government functions and social services, protect critical computer and communications systems, and create redundancies in infrastructure and critical services.

Location
The limestone quarry in Rogers City is at-risk for a sabotage/terrorism/nuclear attack since it is deemed the world's largest limestone quarry. The quarry is owned by the Michigan Limestone & Chemical Company, and there is a park and several places the quarry can be viewed from. The quarry transports limestone on freighter ships that travel on Lake Huron.

Previous Occurrences and Probability of Future Occurrences
In the last 15 years, Presque Isle County has not had any recorded incidents of sabotage/terrorism/nuclear attack. Based on this information, Presque Isle County would not have a sabotage/terrorism/nuclear attack in the future. However, an event has the potential to occur depending on political, social, and religious interests. Unfortunately, it is impossible to predict when an event will occur and how severe it will be.

Extent
The extent of a sabotage/terrorism/nuclear attack can be measured by the amount of damage that occurs. Since an event has not occurred in the county, no injuries, deaths, or damages have been reported.

Vulnerability Assessment
A sabotage/terrorism/nuclear attack at the limestone quarry in Rogers City would have financial and economic impacts in Presque Isle County. An event may cause the quarry to close, which would cause the company to lose revenue, spend money to rebuild depending on the severity of the event, may cause a shortage in limestone, and employees may lose their jobs. An event at the limestone quarry in Rogers City would impact about 29% of the county's population that are located in Rogers Township and Rogers City.

Civil Disturbance

Description
Civil disturbances occur from collective behavior that results in lawbreaking, a perceived threat to public order, or the disruption of essential functions. Large portions of a community may be

encompassed by civil disturbances and require the involvement of multiple community agencies to respond to the disturbance. Some facilities that may be adversely impacted by civil disturbances include government buildings, military bases, colleges/universities, businesses, hospitals, and police and fire facilities. There are four types of civil disturbances:

- Protests: Formal organization of demonstrations to achieve collective goals that are threatening, disruptive, and malicious (e.g. political protests, labor disputes, etc.). Sometimes these events result in property destruction, service interruptions, and interference with law-abiding citizens and emergency responders.
- Hooliganism: Unorganized, unlawful acts by either an individual or a collective that are inspired by crowds (e.g. disorder following sporting events and college parties, "block parties," etc.). These acts cause property destruction, assaults, disorderly conduct, and criminal victimization. Sometimes hooliganism can include elements of protest.
- Riots: A disorganized, violent gathering of people that involves assaults, intimidation, and property destruction. Sometimes, individuals attempt to exploit the disorder (e.g. looting, arson, etc.).
- Insurrection: A deliberate effort to disrupt or replace the established government or its representatives (e.g. prison uprisings, political conflicts, ethnic conflicts, etc.).

Large-scale civil disturbances rarely occur; however, they are usually an offshoot of labor disputes with a high degree of animosity between two dissenting parties, high profile/controversial judicial proceedings, the implementation of controversial laws or other governmental actions, resource shortages caused by a catastrophic event, disagreements between special interest groups over a particular issue or cause, or a perceived unjust death or injury to a person held in high esteem by a particular segment of society.

Location
The City of Rogers City, Rogers Township, and Presque Isle Township would be at-risk for civil disturbances since the majority of the population lives in these jurisdictions (21%, 8%, and 14%, respectively). However, it should be noted an event may occur at community events in any of the county's jurisdictions.

Previous Occurrences and Probability of Future Occurrences
Presque Isle County has not had any recorded incidents of civil disturbances. Based on this information, the county would not have any civil disturbances in the future. However, an event has the possibility of occurring depend on political, social, and religious interests. Unfortunately, it is impossible to predict when an event will occur and how severe it will be.

Extent
The extent of a civil disturbance can be measured by the amount of damage that occurs. Since an event has not occurred in the county, no injuries, deaths, or damages have been incurred.

Vulnerability Assessment
Civil disturbance events will have minimal impacts and financial burdens on residents and businesses since the county is not an area that provides high profile media coverage. However, during community events, large crowds may be attracted to county. Dependent on the severity of the civil disturbance event, businesses may be damaged or looted, and injuries and deaths may occur.

Presque Isle County and Its Local Jurisdictions

The Presque Isle County Base Map indicates the county's infrastructure, facilities, public lands, and natural features, while its hazard map shows infrastructure, oil and gas wells, areas of high wildfire risk in red (pine forests) and yellow (oak-pine forests and aspen-birch forests), and waterways that have a high potential for springtime flooding in dark green (wetlands from the Natural Wetlands Inventory data) (Figure 6-11 to Figure 6-12). The local jurisdictions have base and hazard maps. The base maps show the community's infrastructure, facilities, public lands, and oil and gas wells, while the hazard maps show infrastructure, oil and gas wells, areas of high wildfire risk in red (pine forests) and yellow (oak-pine forests and aspen-birch forests), and waterways that have a high potential for springtime flooding in dark green (wetlands from the Natural Wetlands Inventory data) (Figure 6-13 to Figure 6-48).

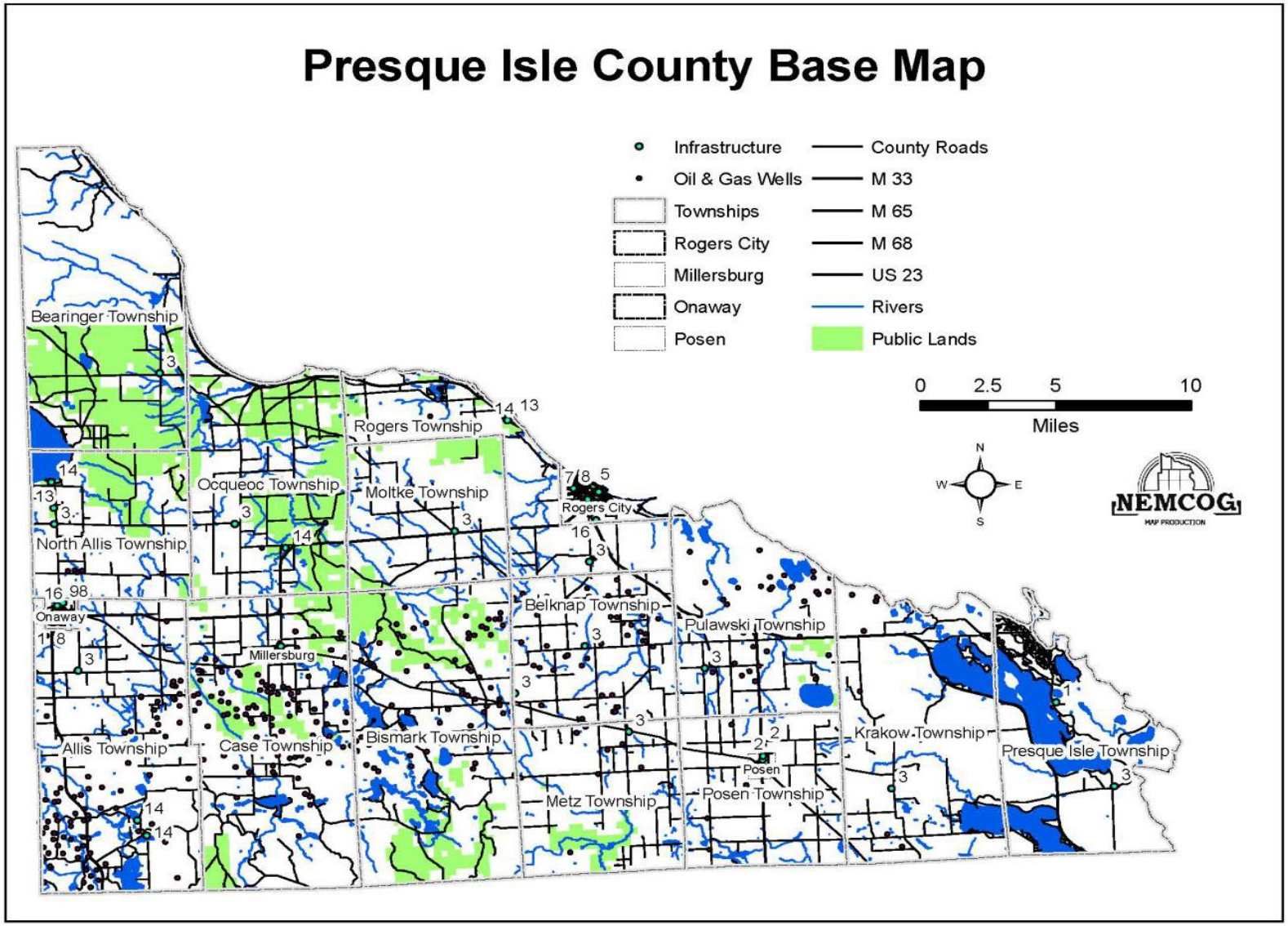


Figure 6-11 Presque Isle County Base Map

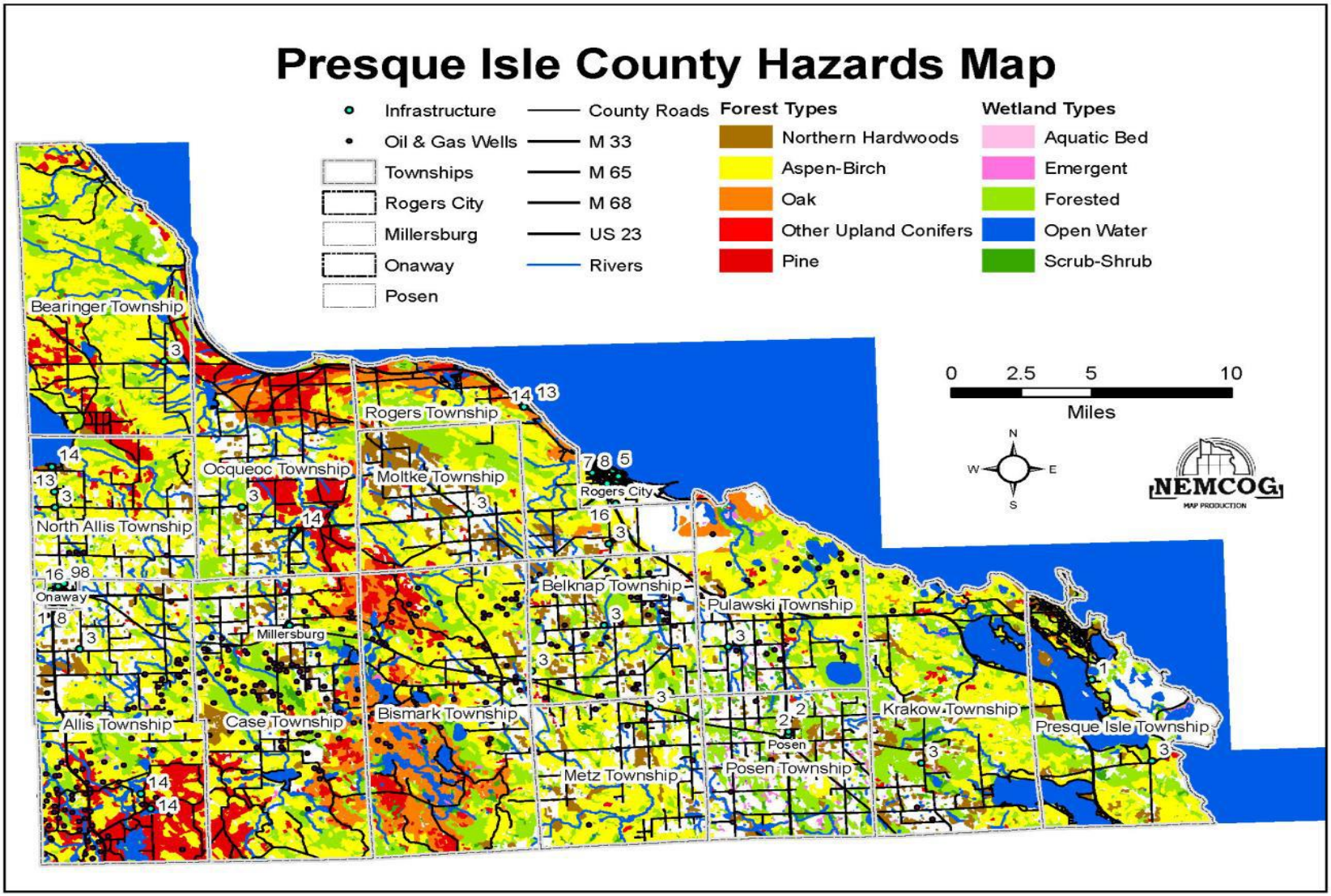


Figure 6-12 Presque Isle County Hazards Map

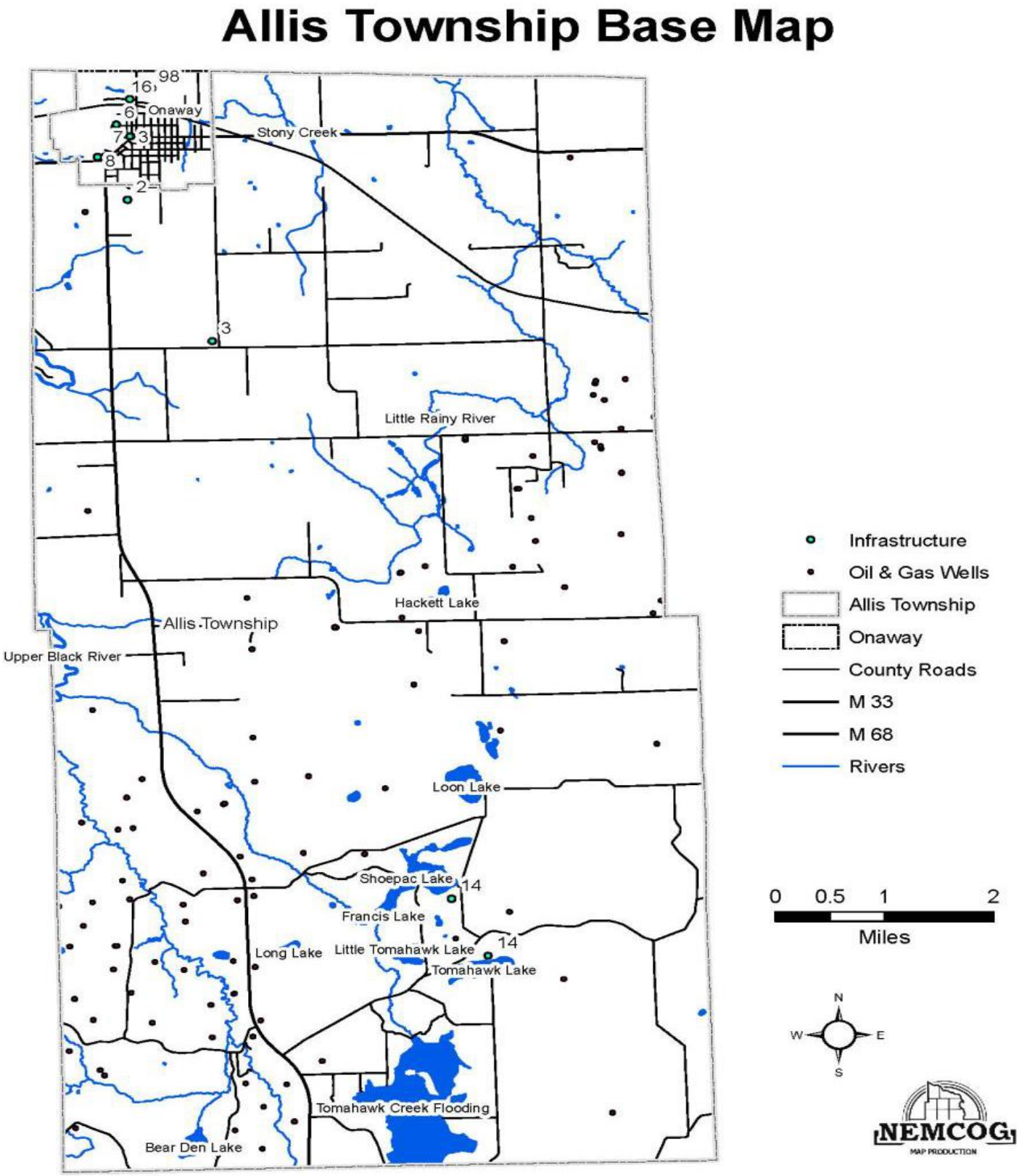


Figure 6-13 Allis Township Base Map

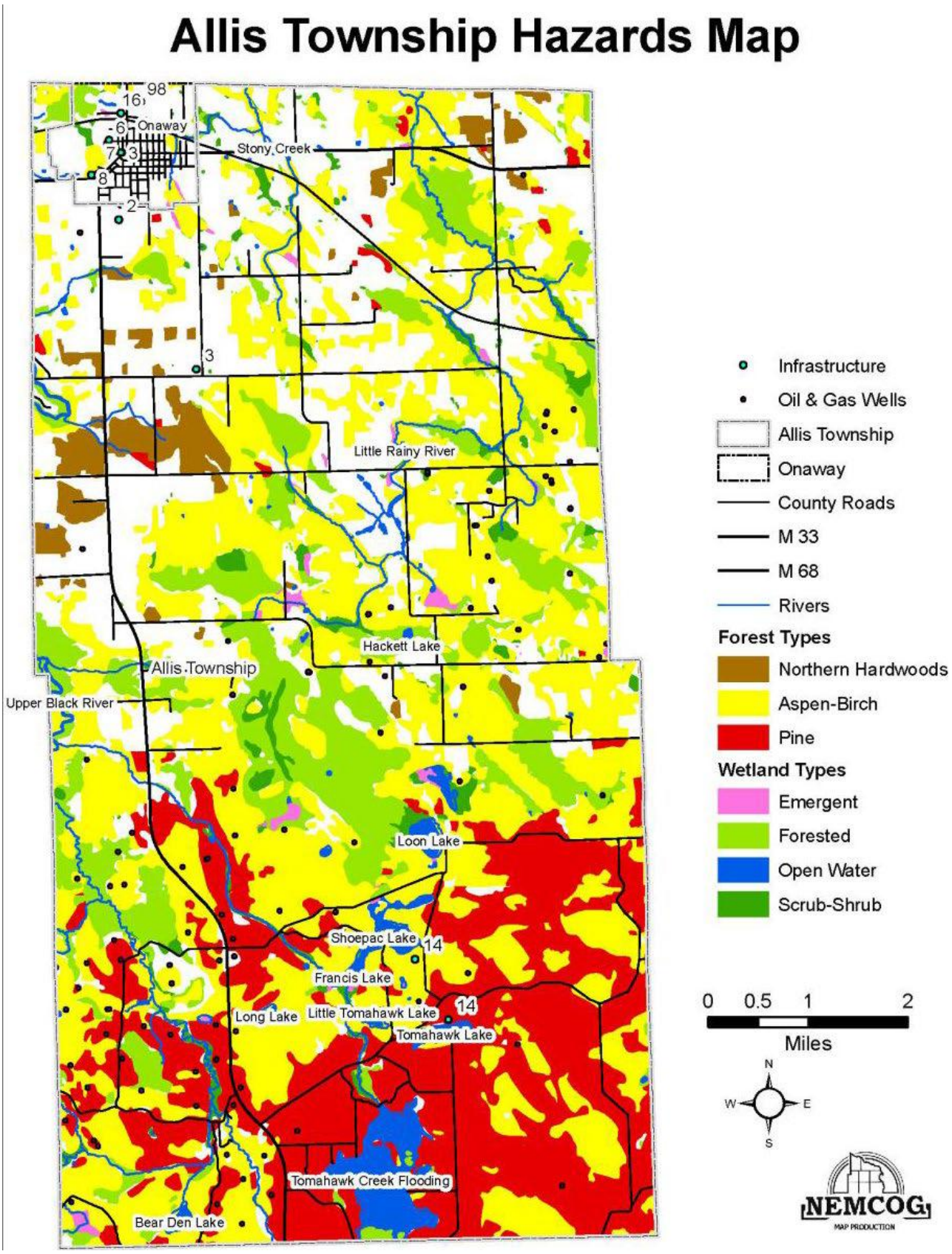


Figure 6-14 Allis Township Hazards Map

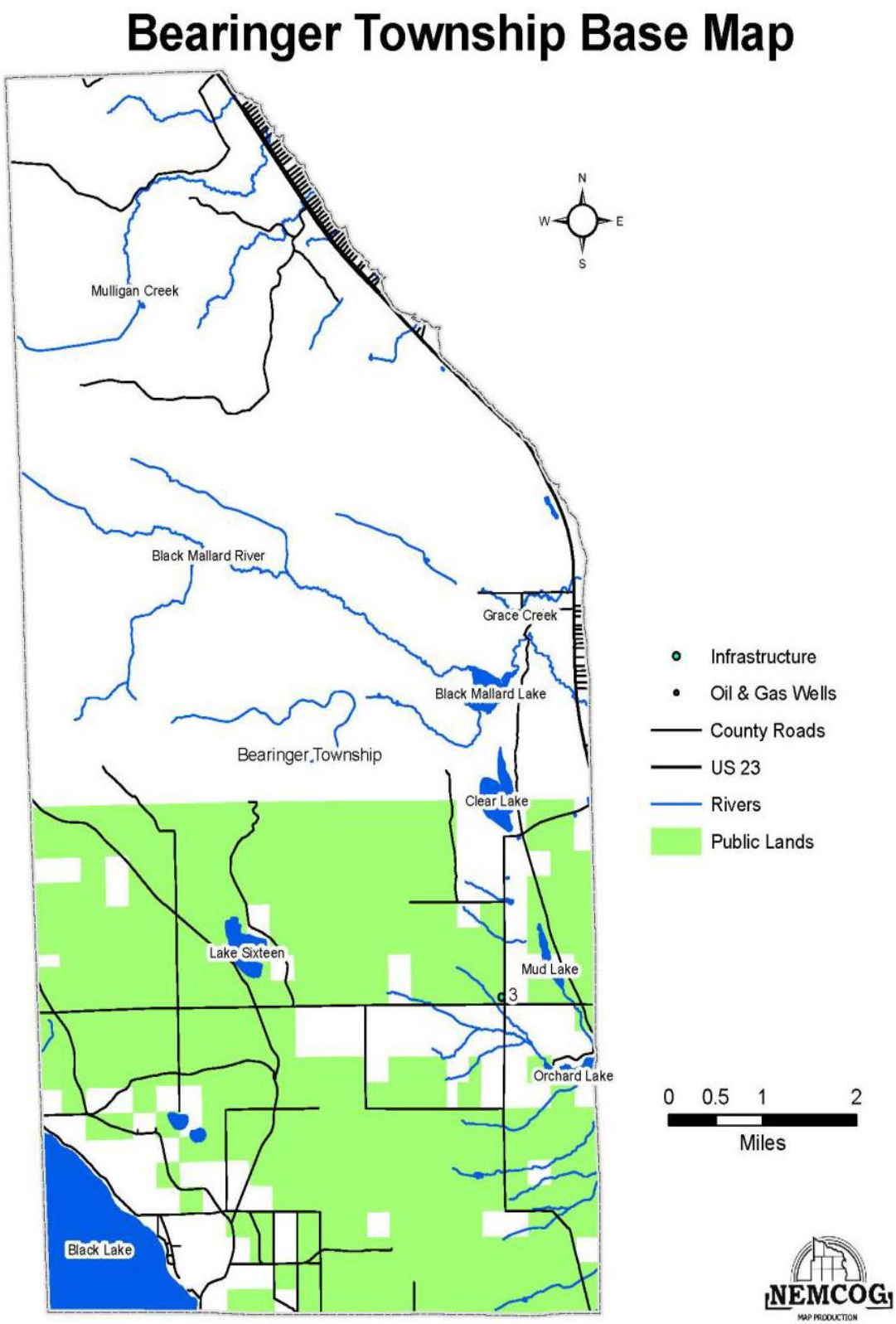


Figure 6-15 Bearinger Township Base Map

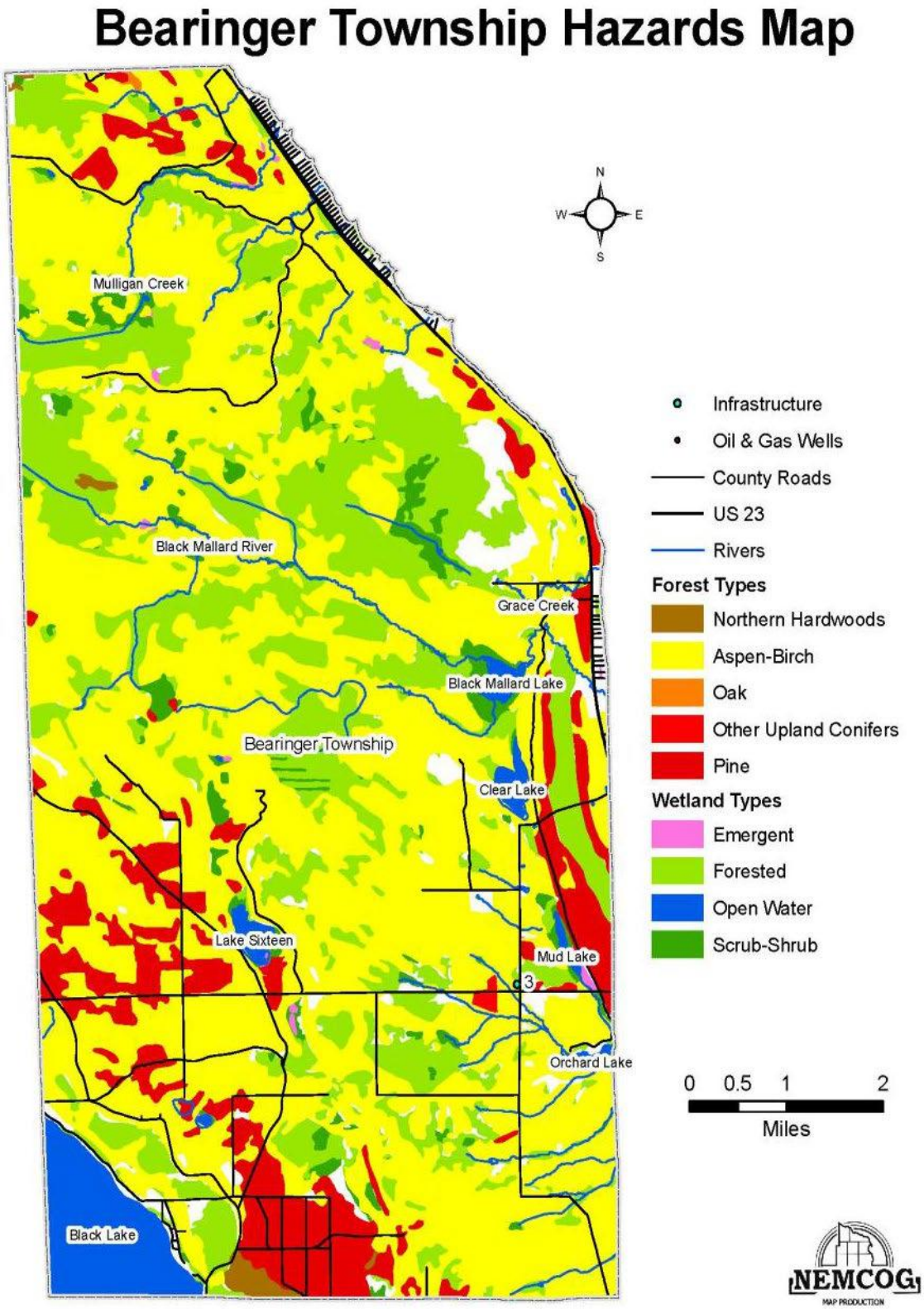


Figure 6-16 Bearinger Township Hazards Map

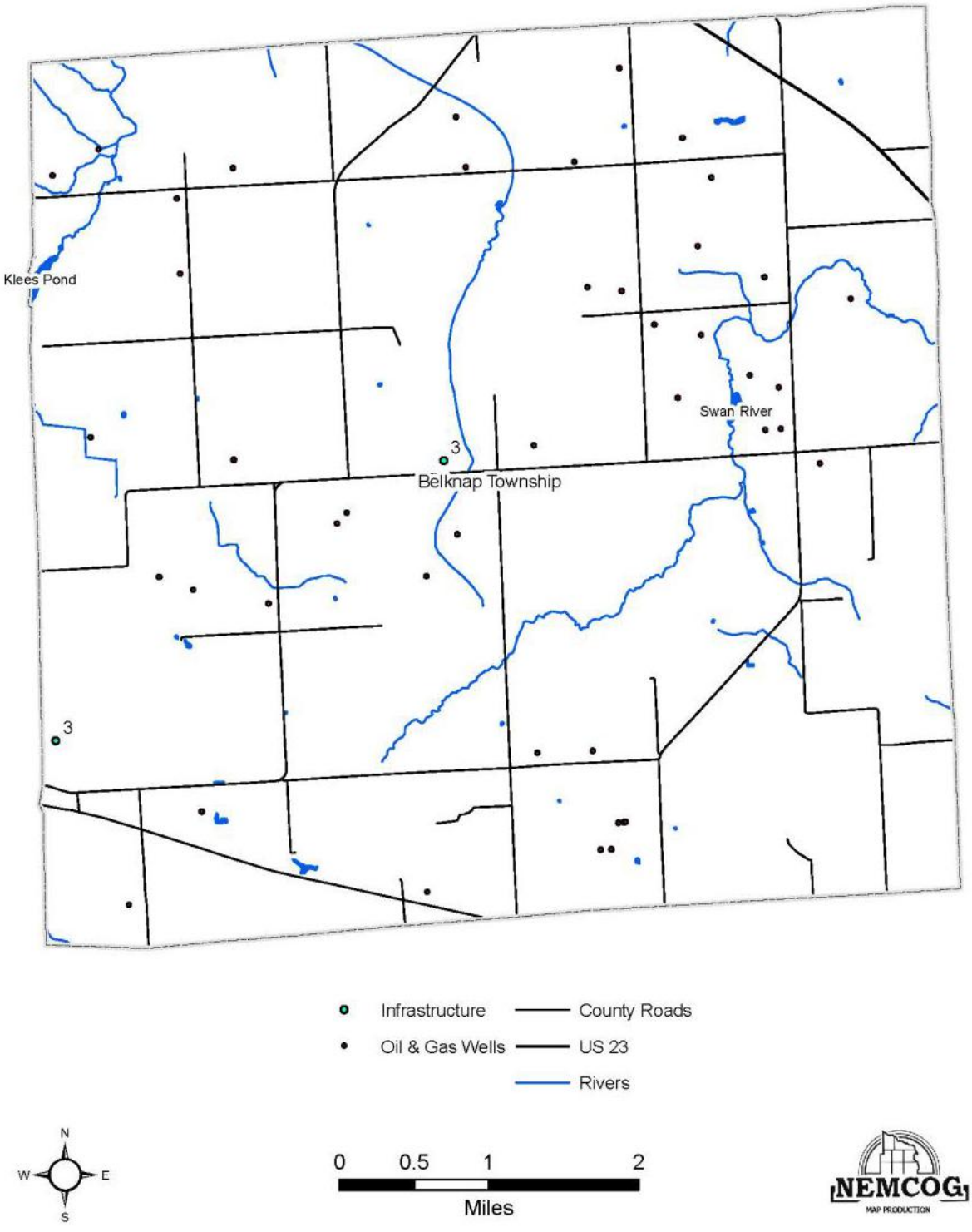


Figure 6-17 Belknap Township Base Map

Belknap Township Hazards Map

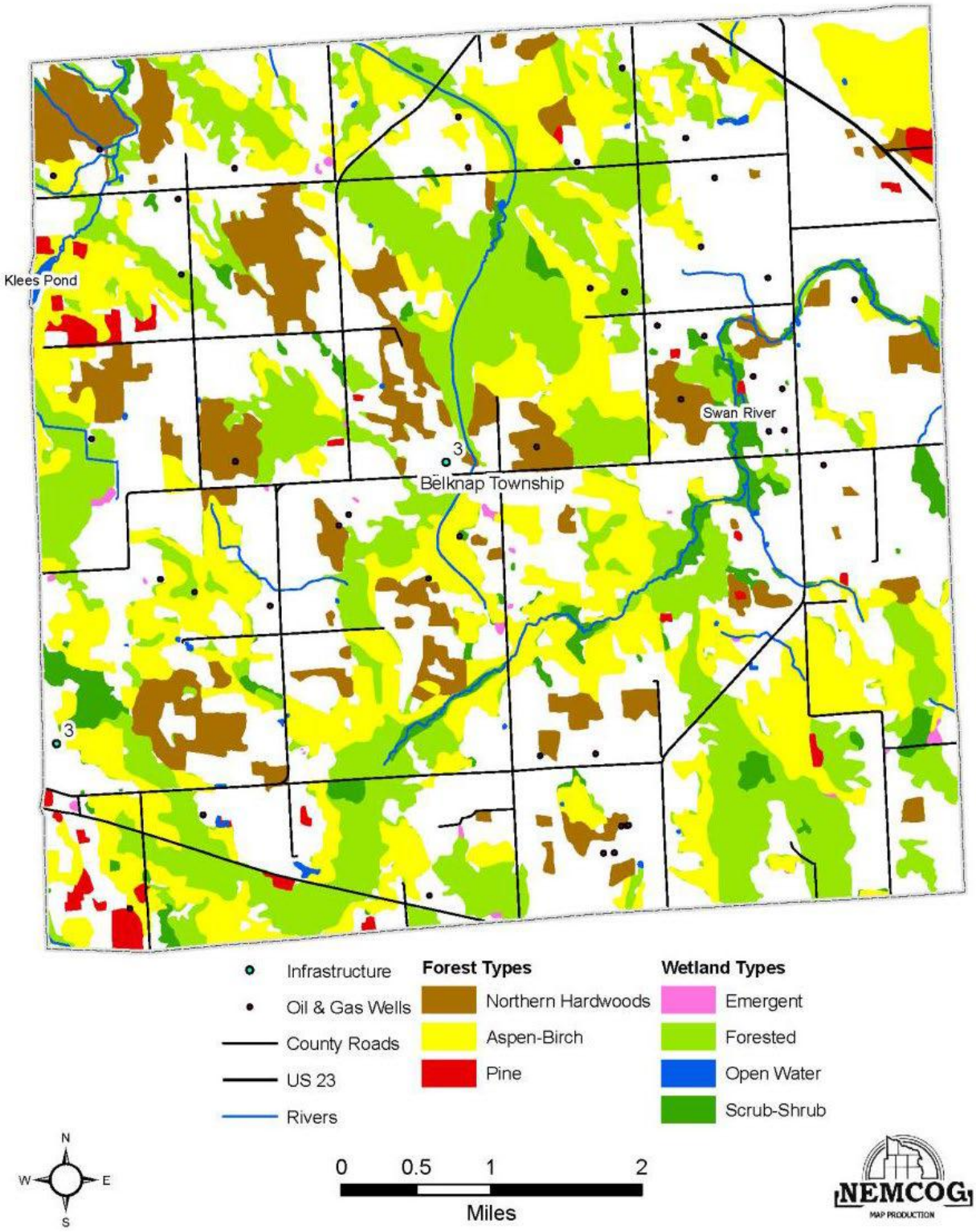


Figure 6-18 Belknap Township Hazards Map

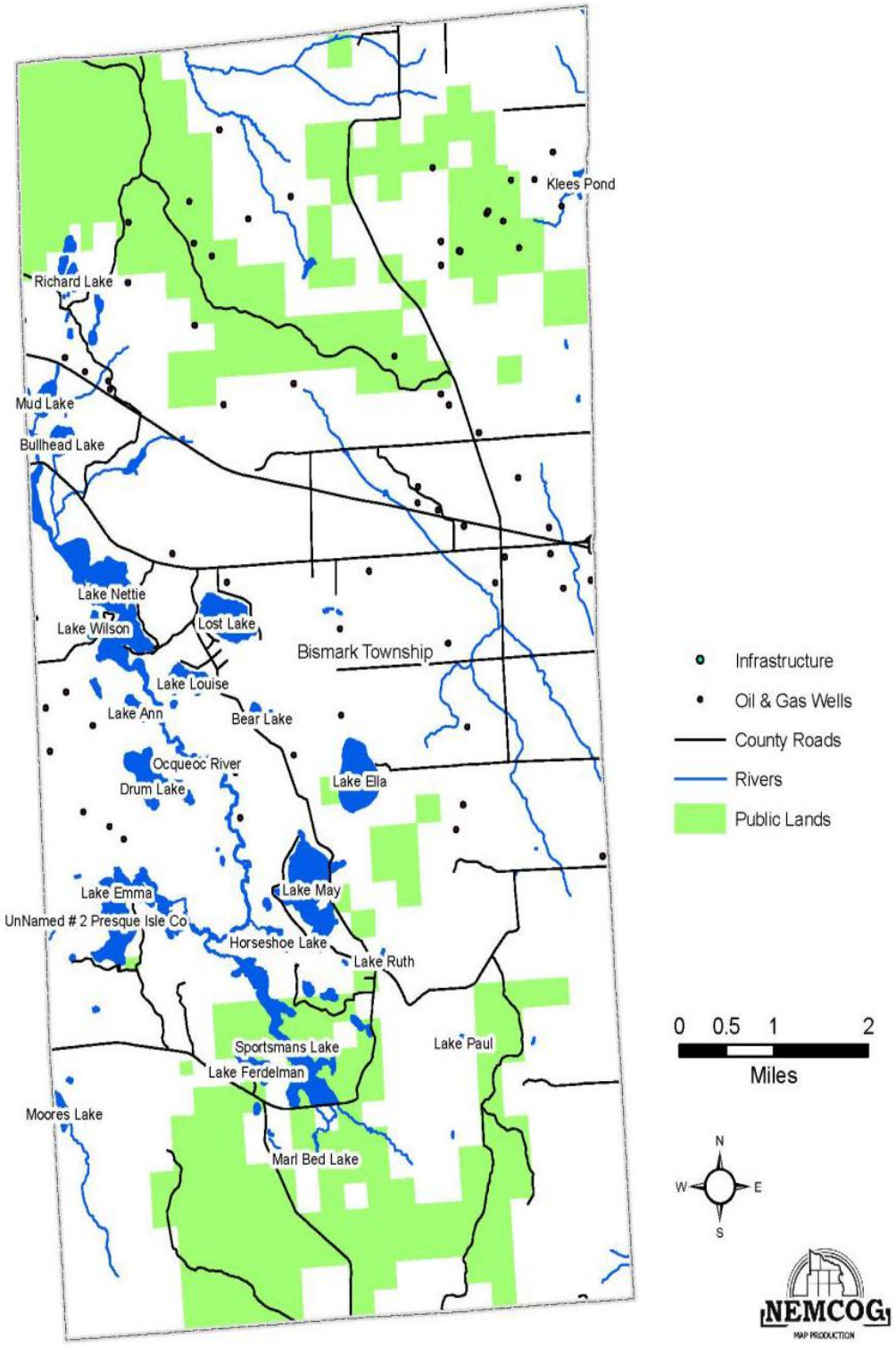


Figure 6-19 Bismark Township Base Map

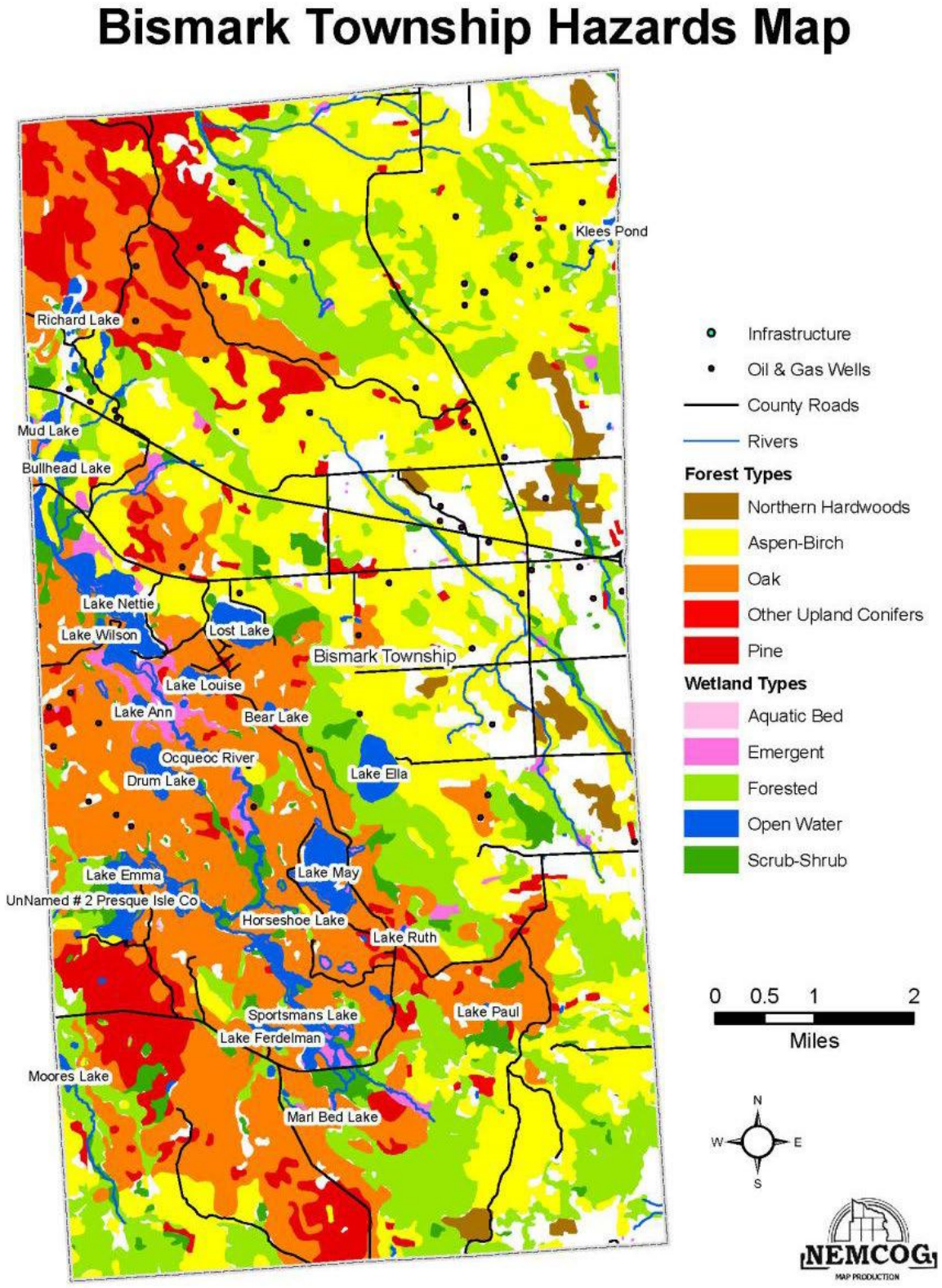


Figure 6-20 Bismark Township Hazards Map

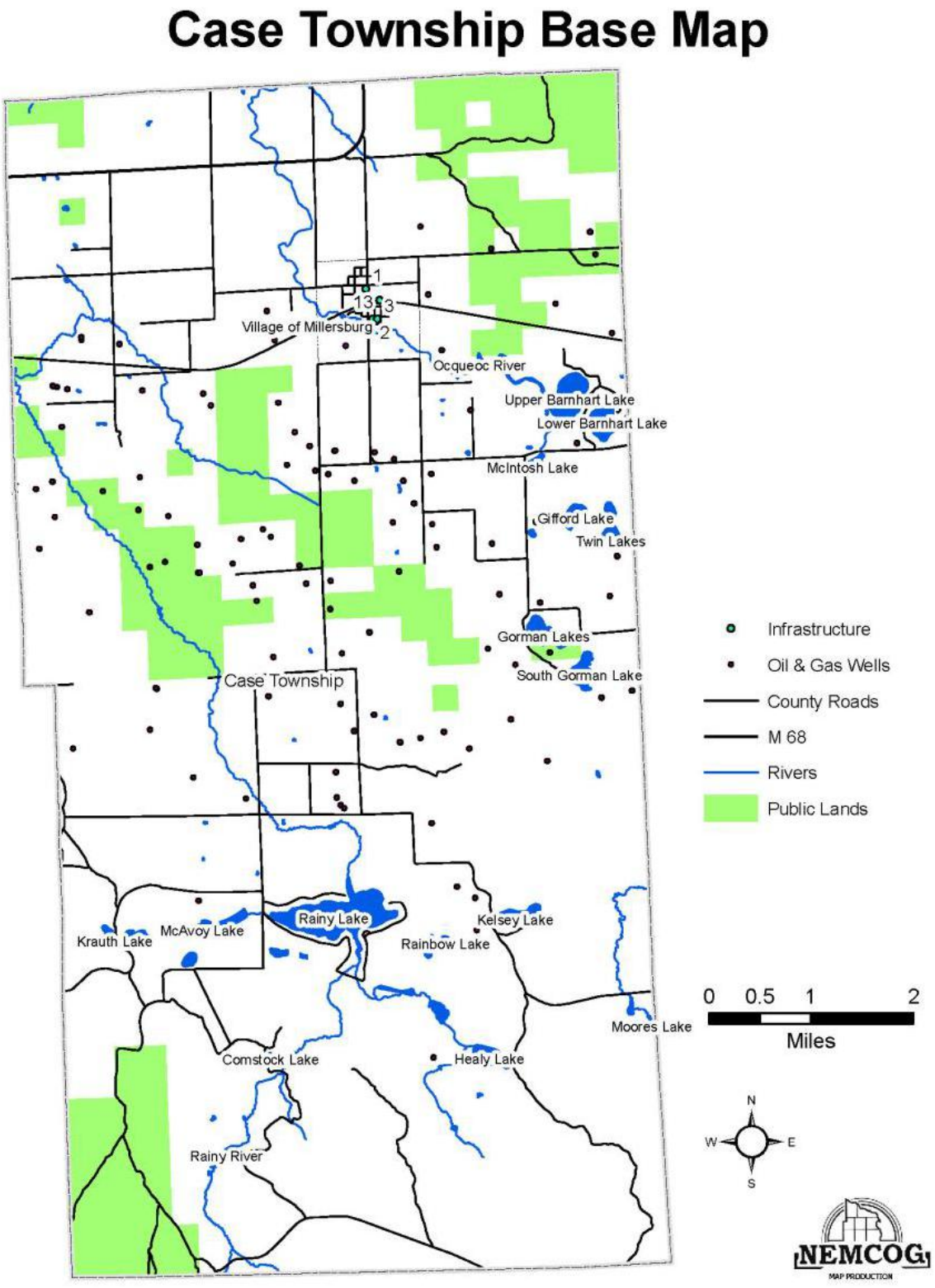


Figure 6-21 Case Township Base Map

Case Township Hazards Map

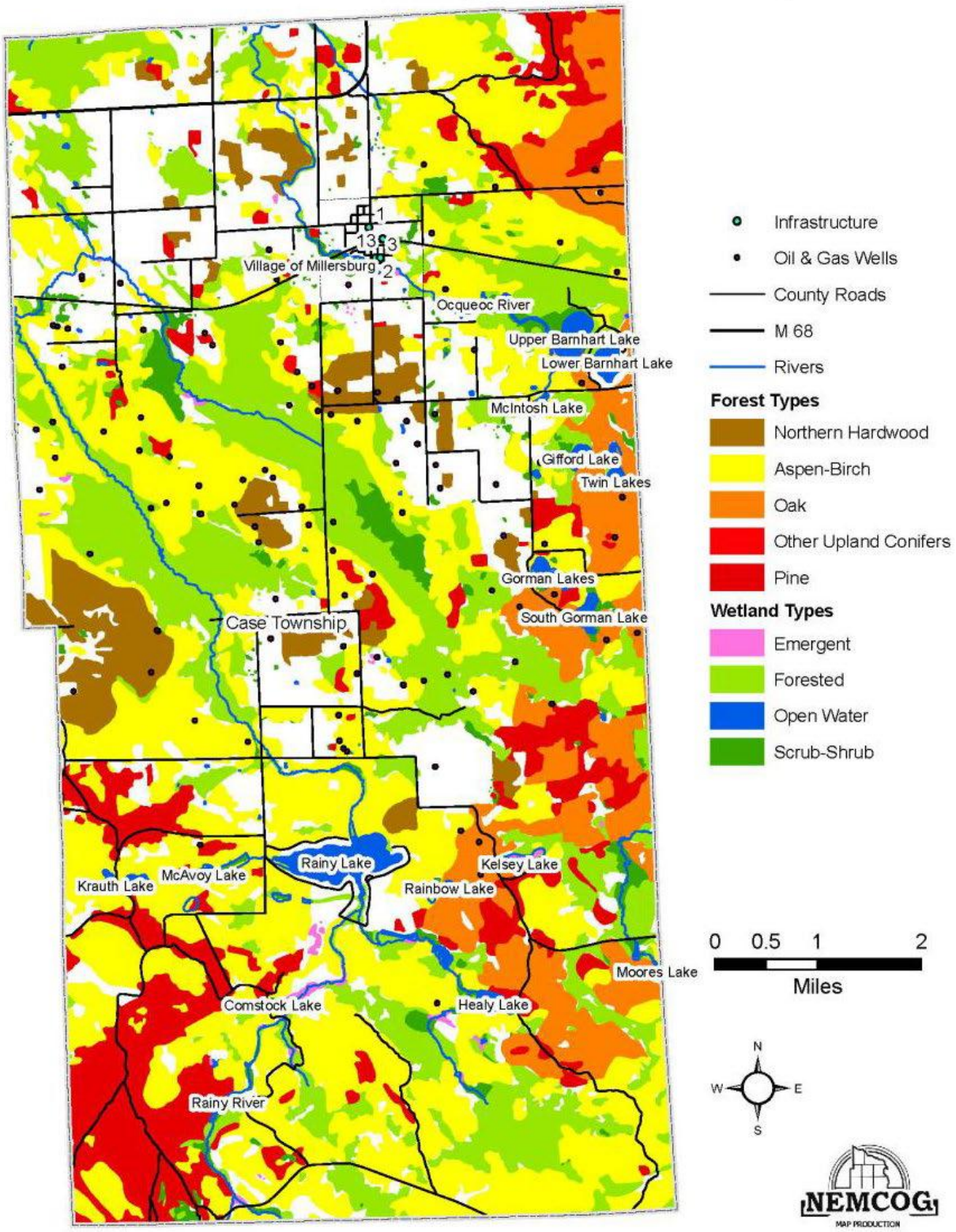


Figure 6-22 Case Township Hazards Map

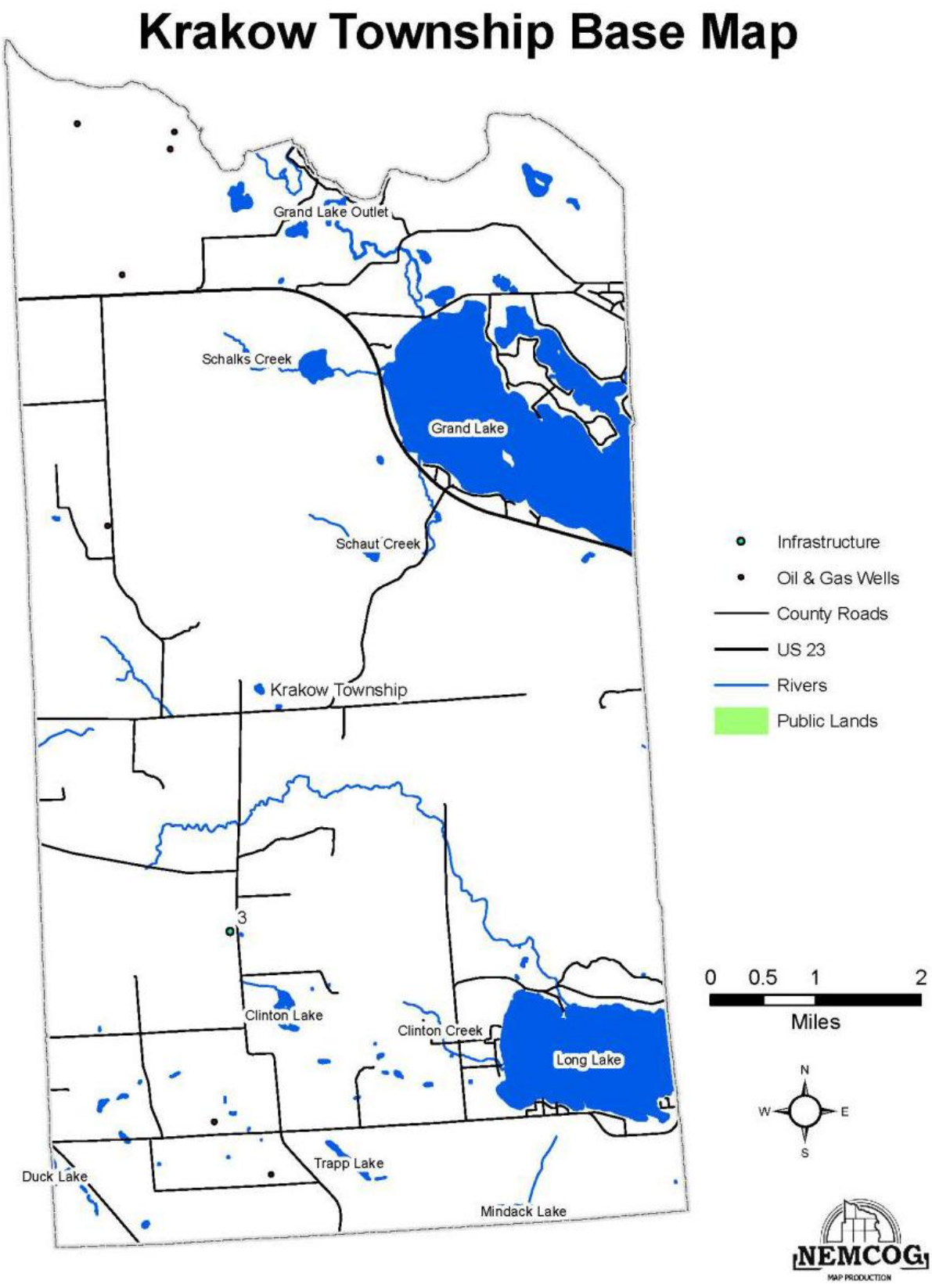


Figure 6-23 Krakow Township Base Map

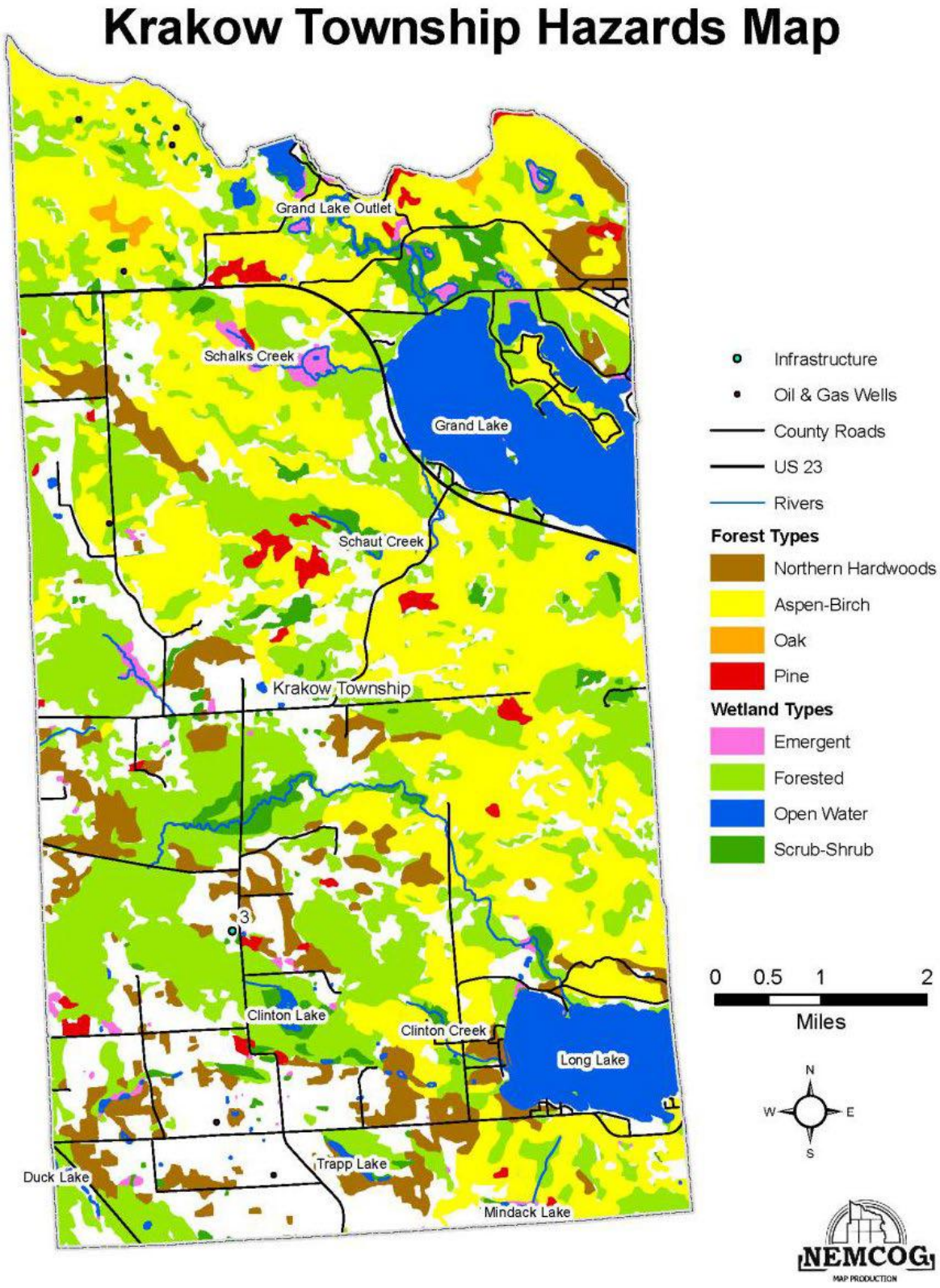


Figure 6-24 Krakow Township Hazards Map

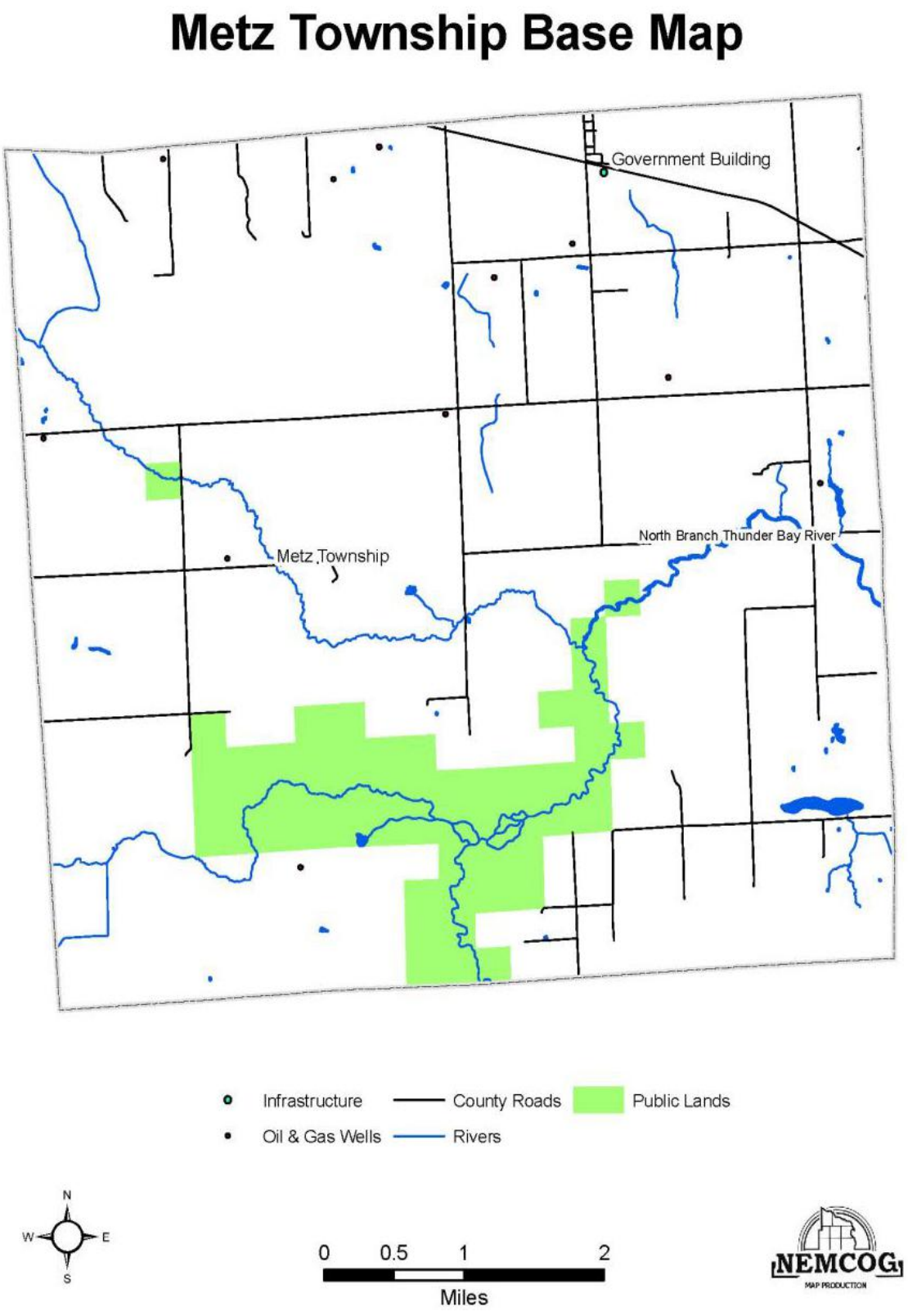


Figure 6-25 Metz Township Base Map

Metz Township Hazards Map

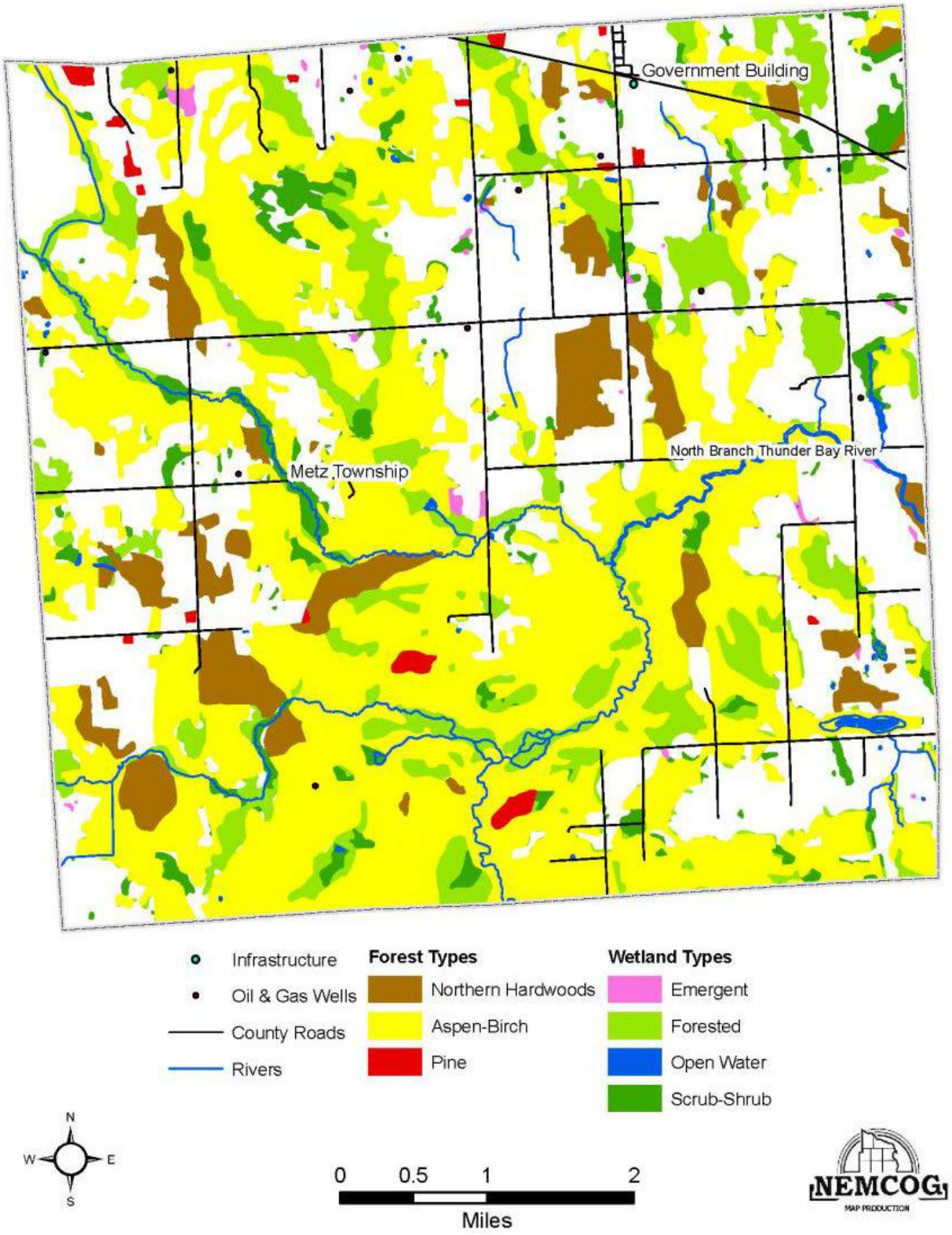


Figure 6-26 Metz Township Hazards Map

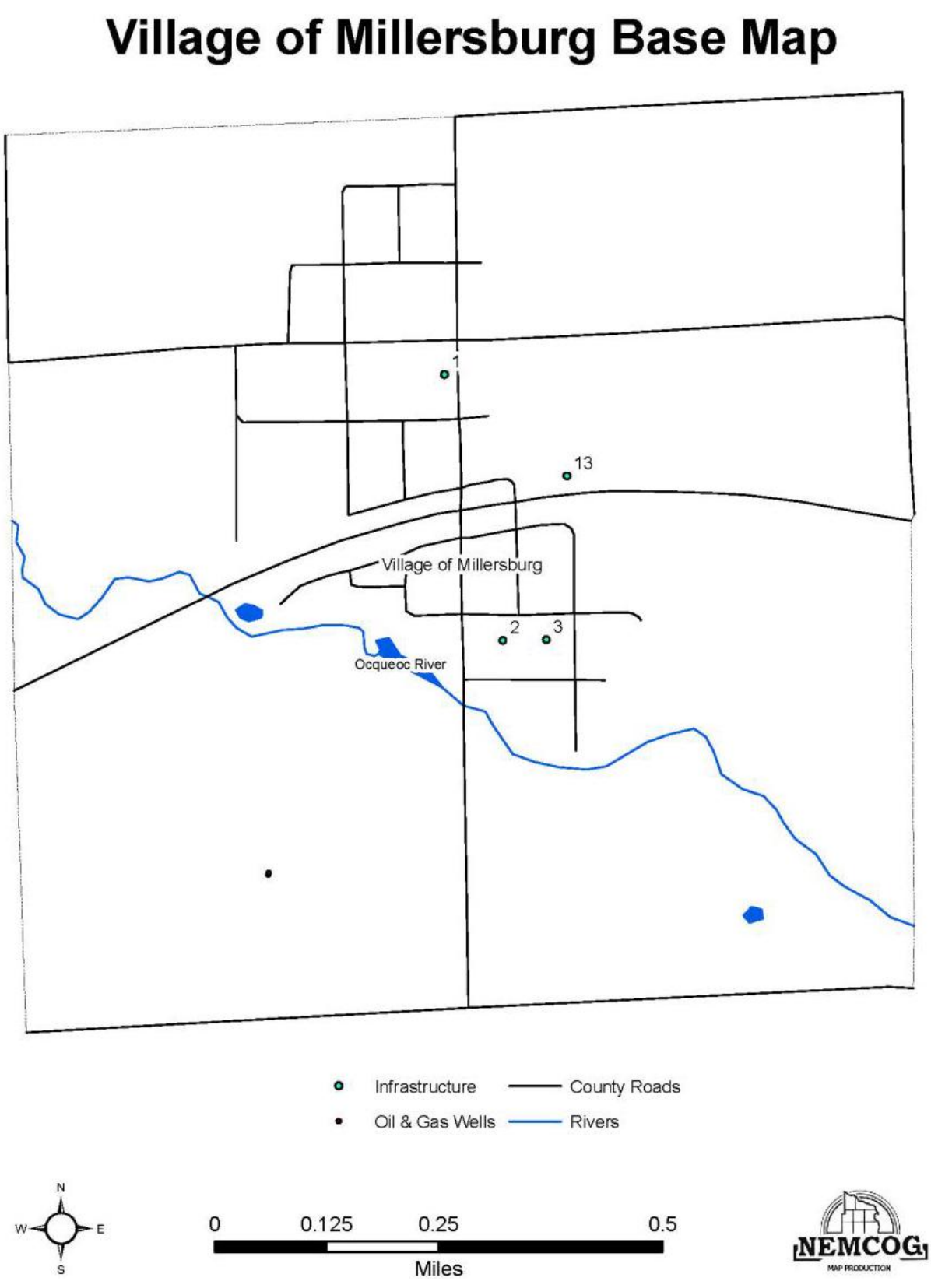


Figure 6-27 Village of Millersburg Base Map

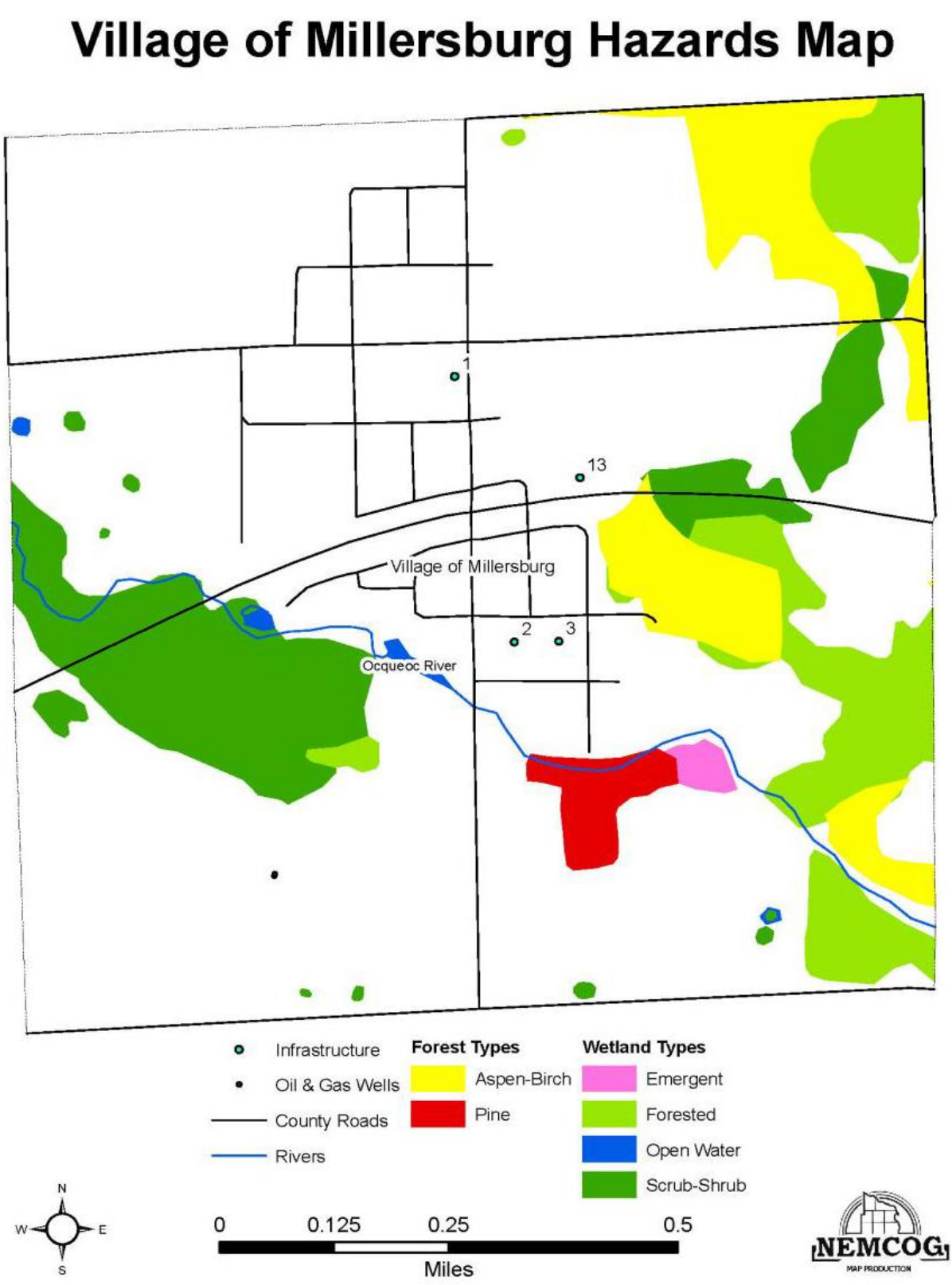


Figure 6-28 Village of Millersburg Hazards Map

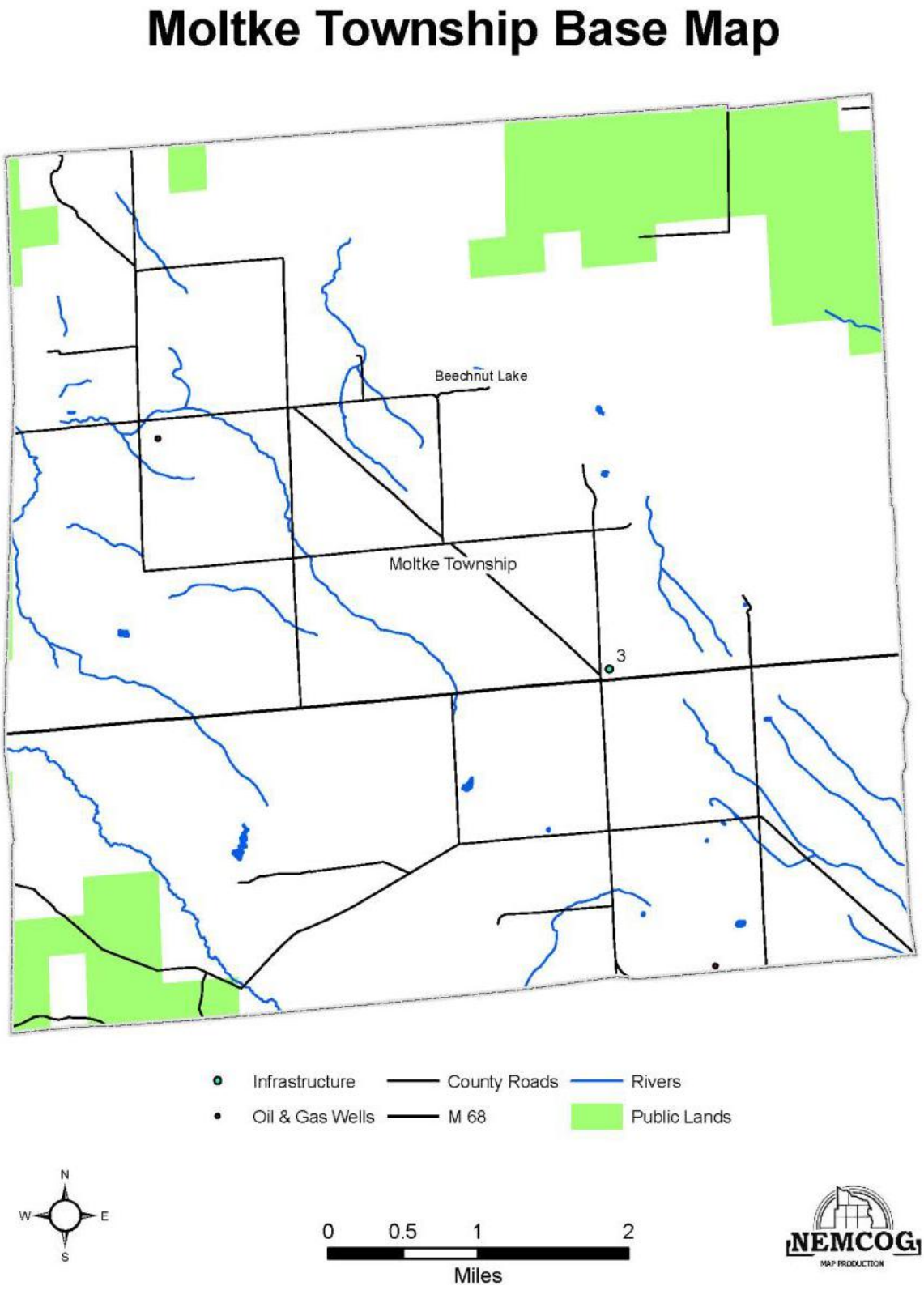


Figure 6-29 Moltke Township Base Map

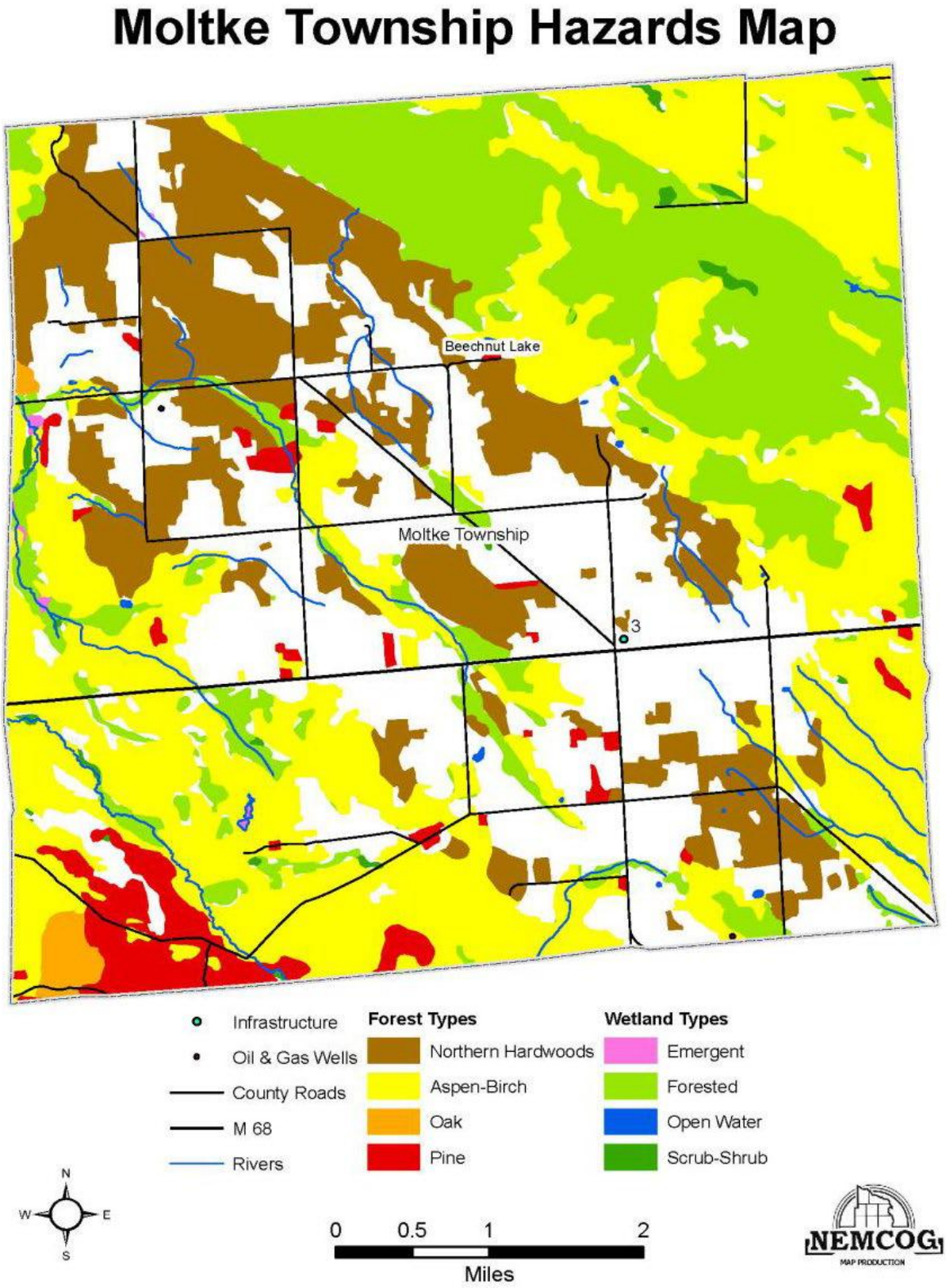


Figure 6-30 Moltke Township Hazards Map

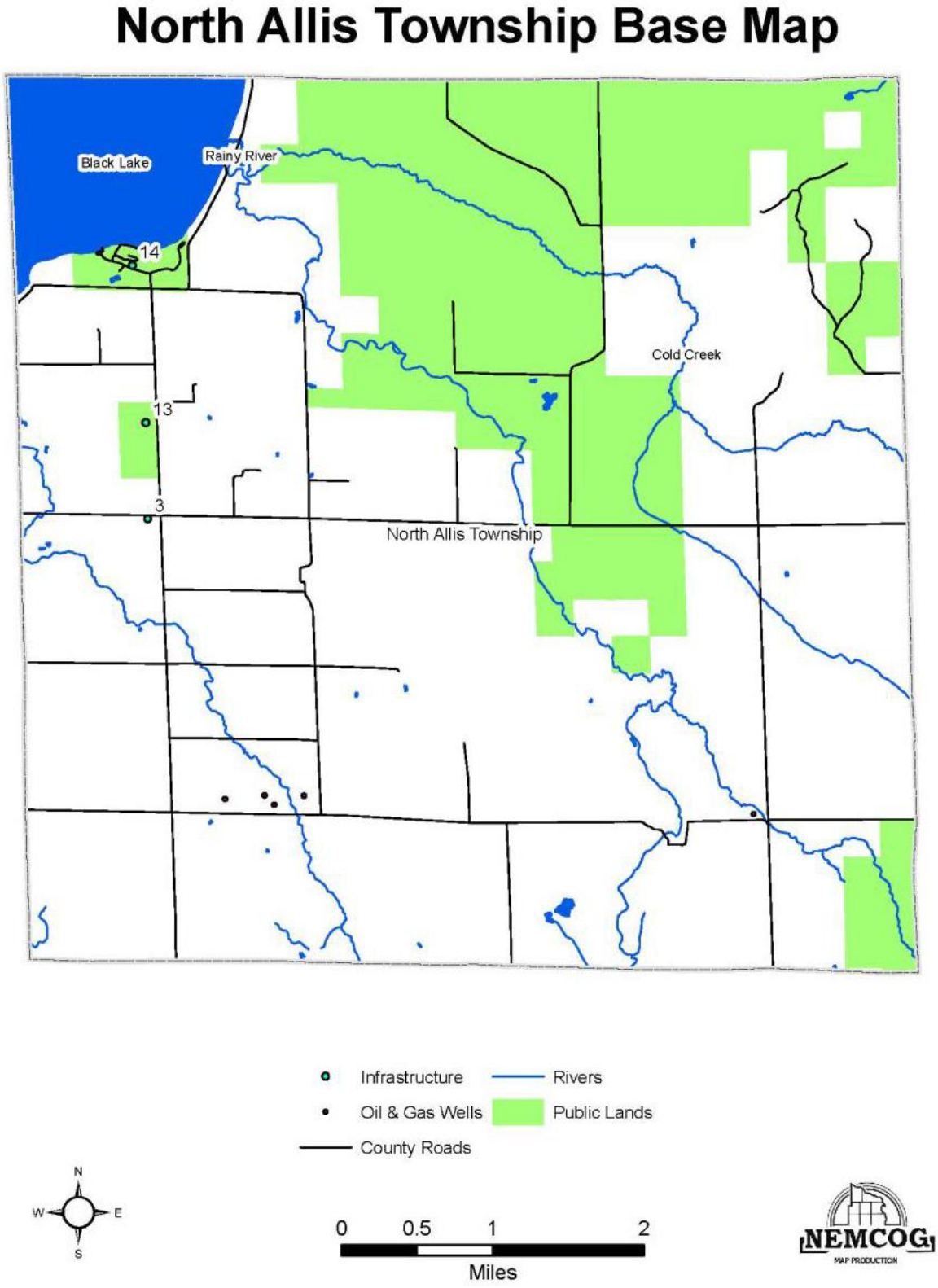


Figure 6-31 North Allis Township Base Map

North Allis Township Hazards Map

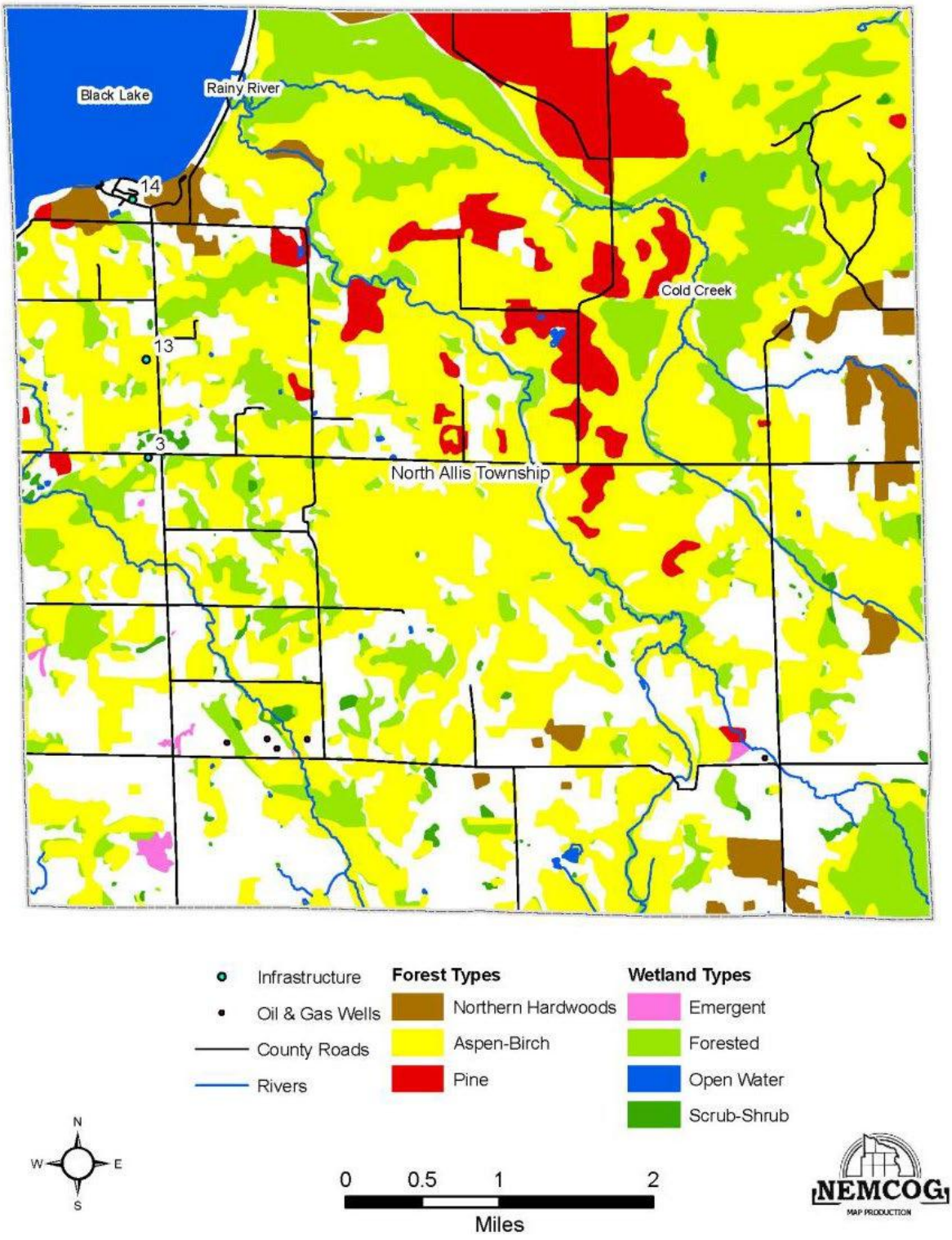


Figure 6-32 North Allis Township Hazards Map

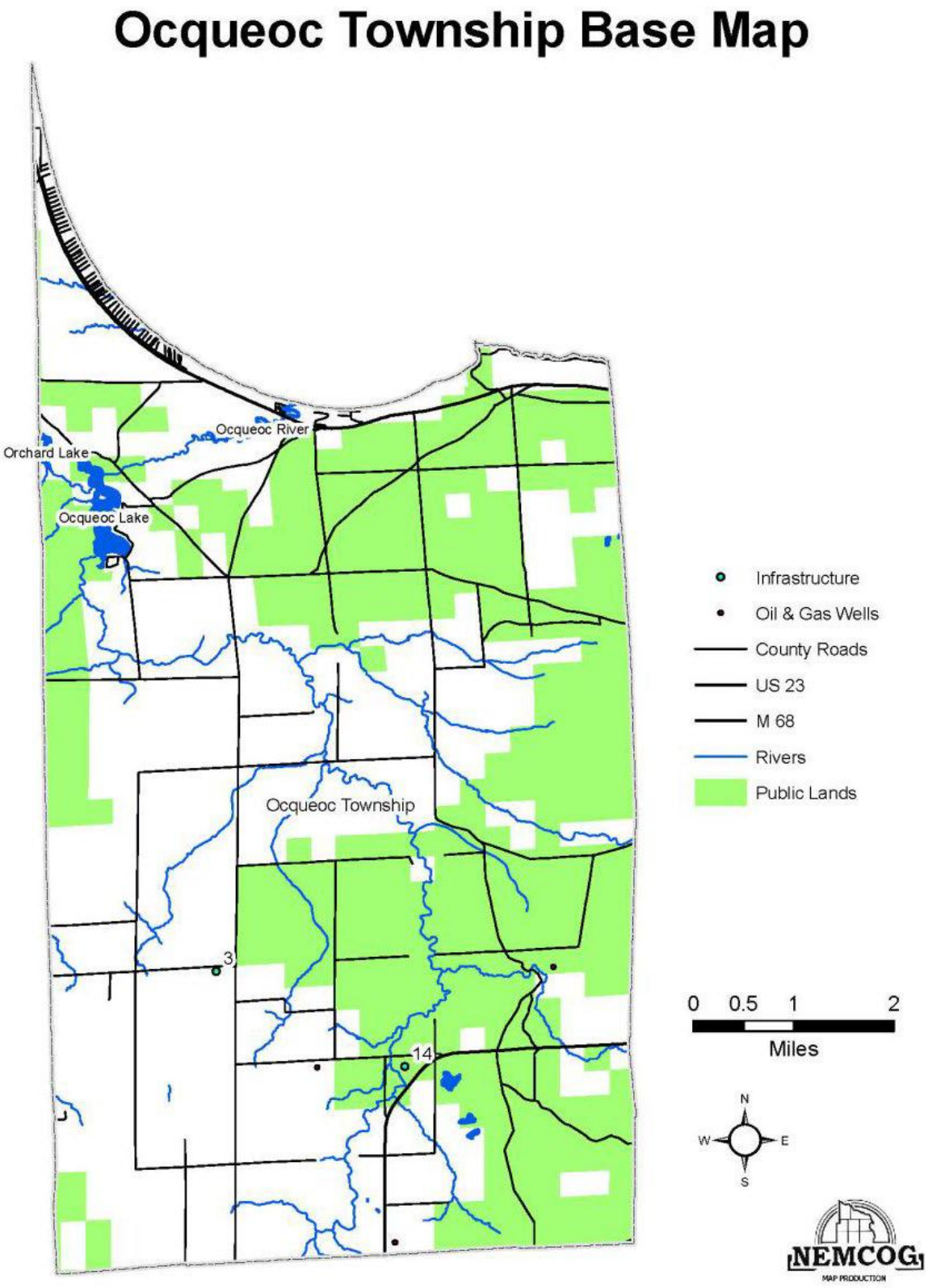


Figure 6-33 Ocqueoc Township Base Map

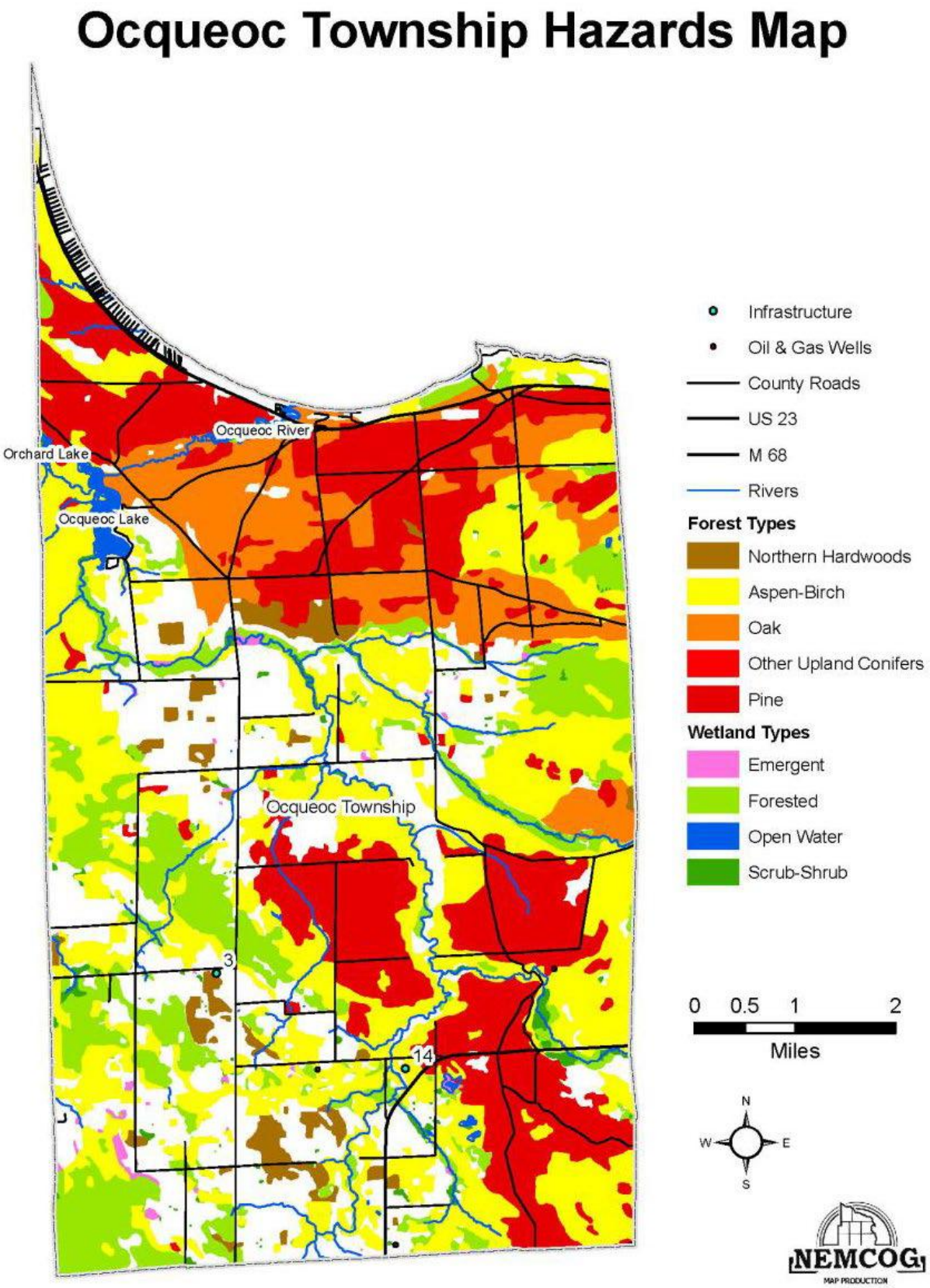


Figure 6-34 Ocqueoc Township Hazards Map

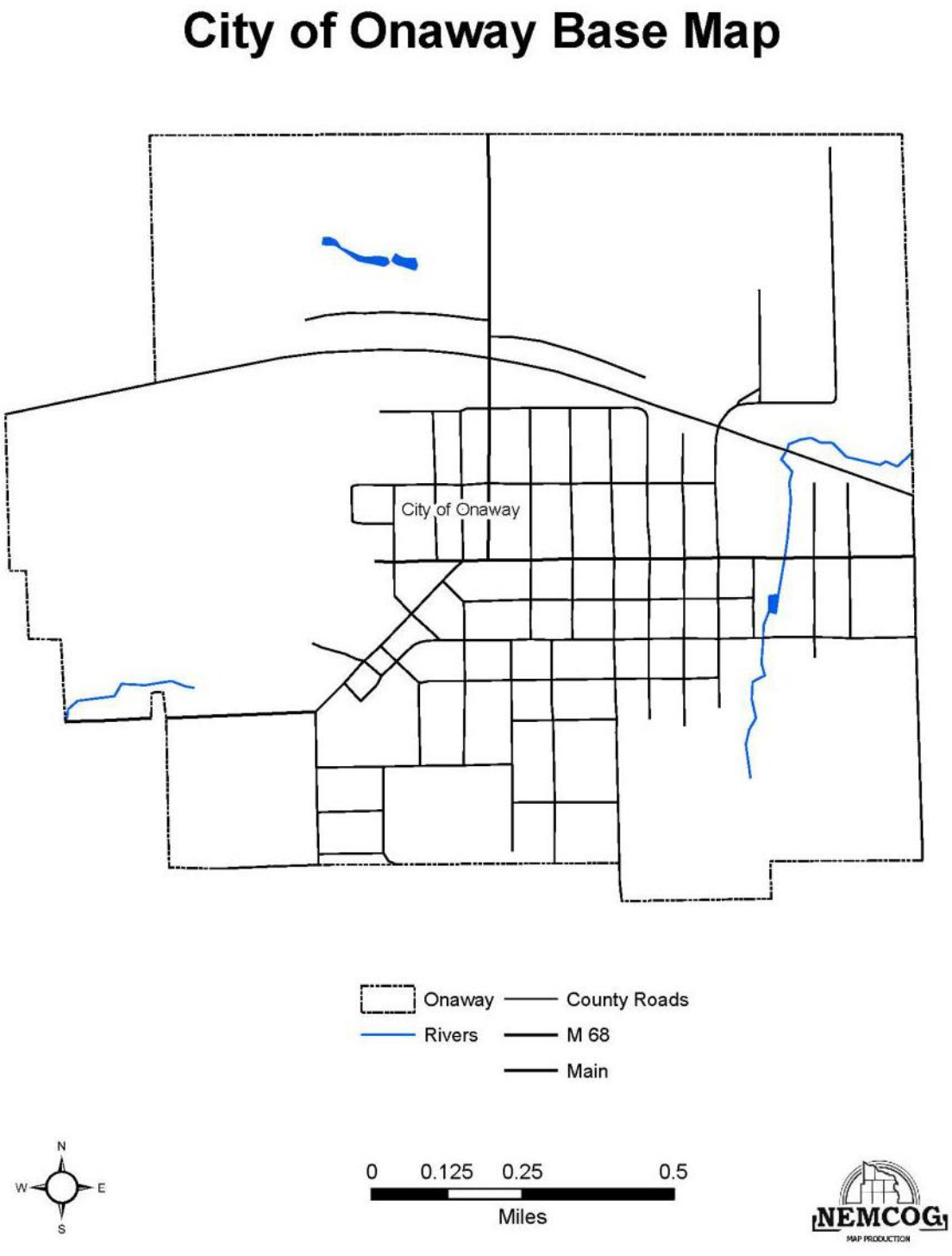


Figure 6-35 City of Onaway Base Map

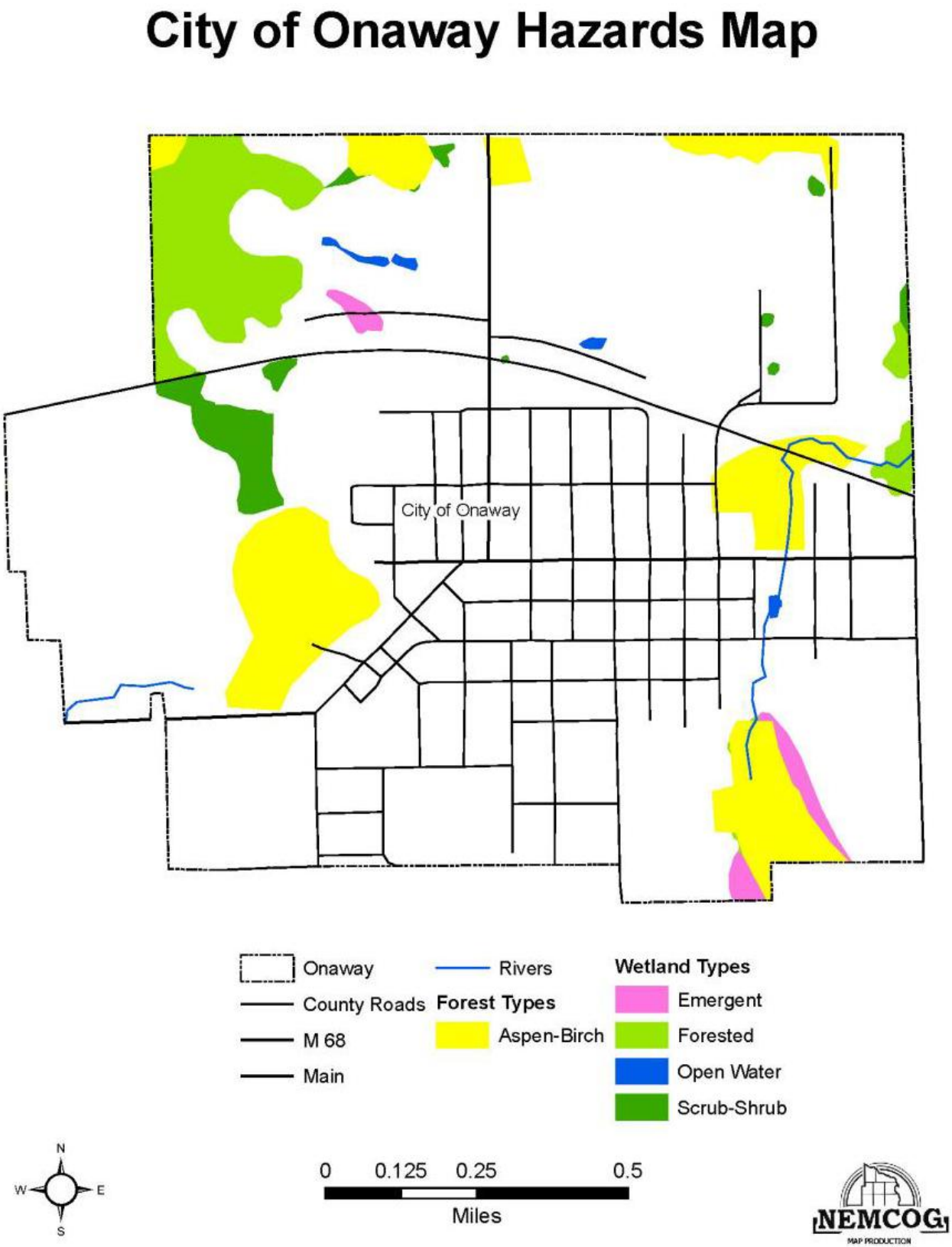


Figure 6-36 City of Onaway Hazards Map

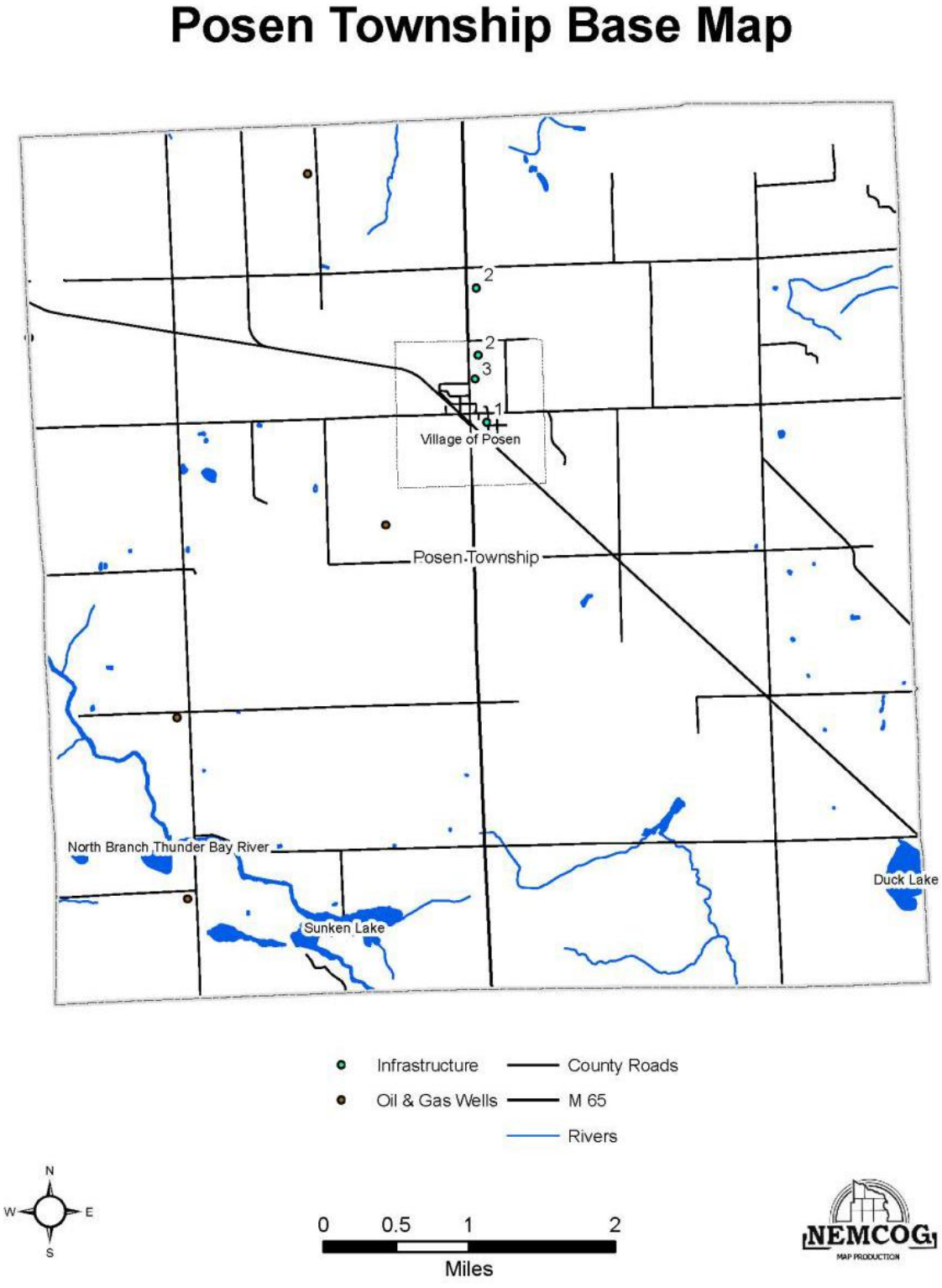


Figure 6-37 Posen Township Base Map

Posen Township Hazards Map

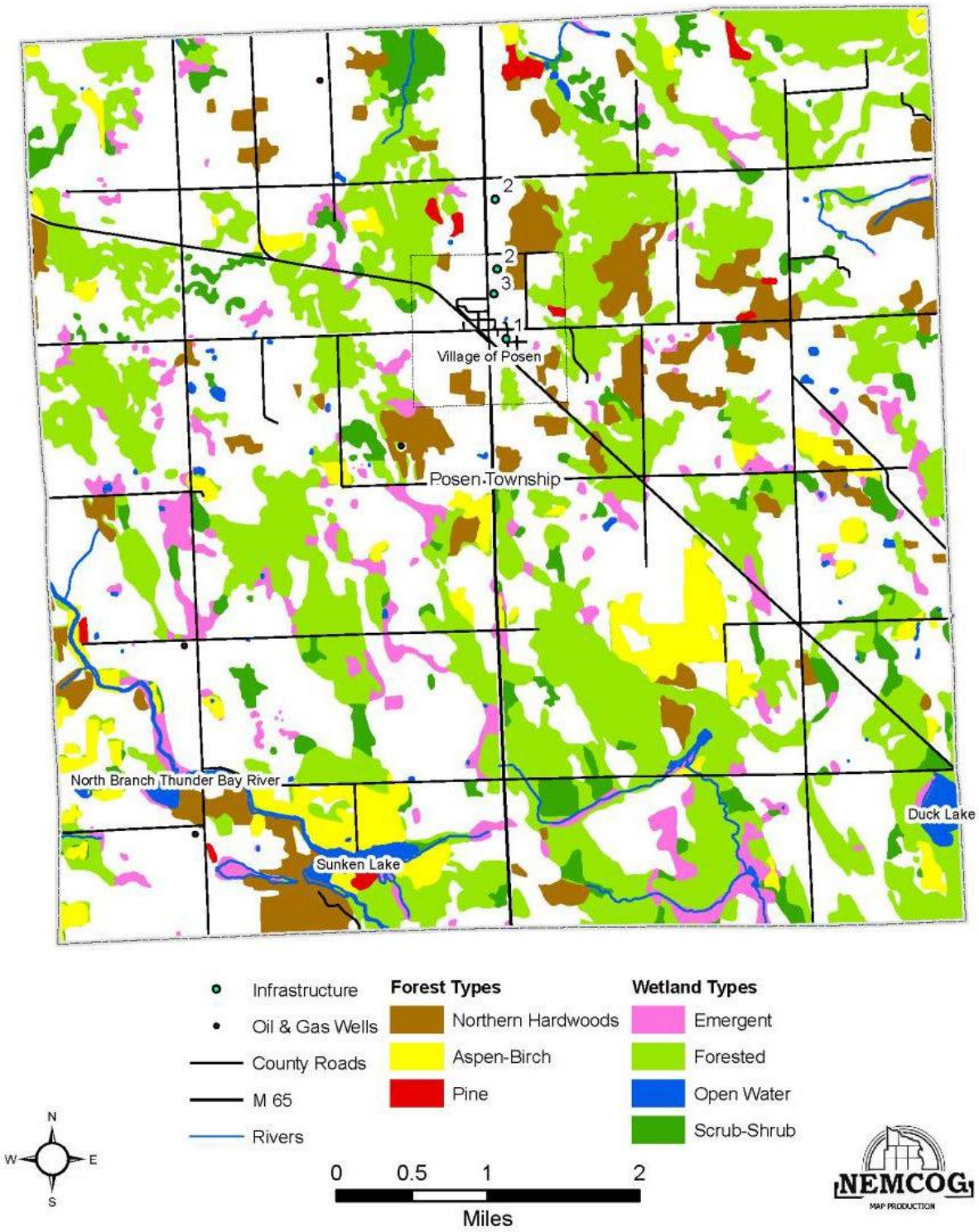


Figure 6-38 Posen Township Hazards Map

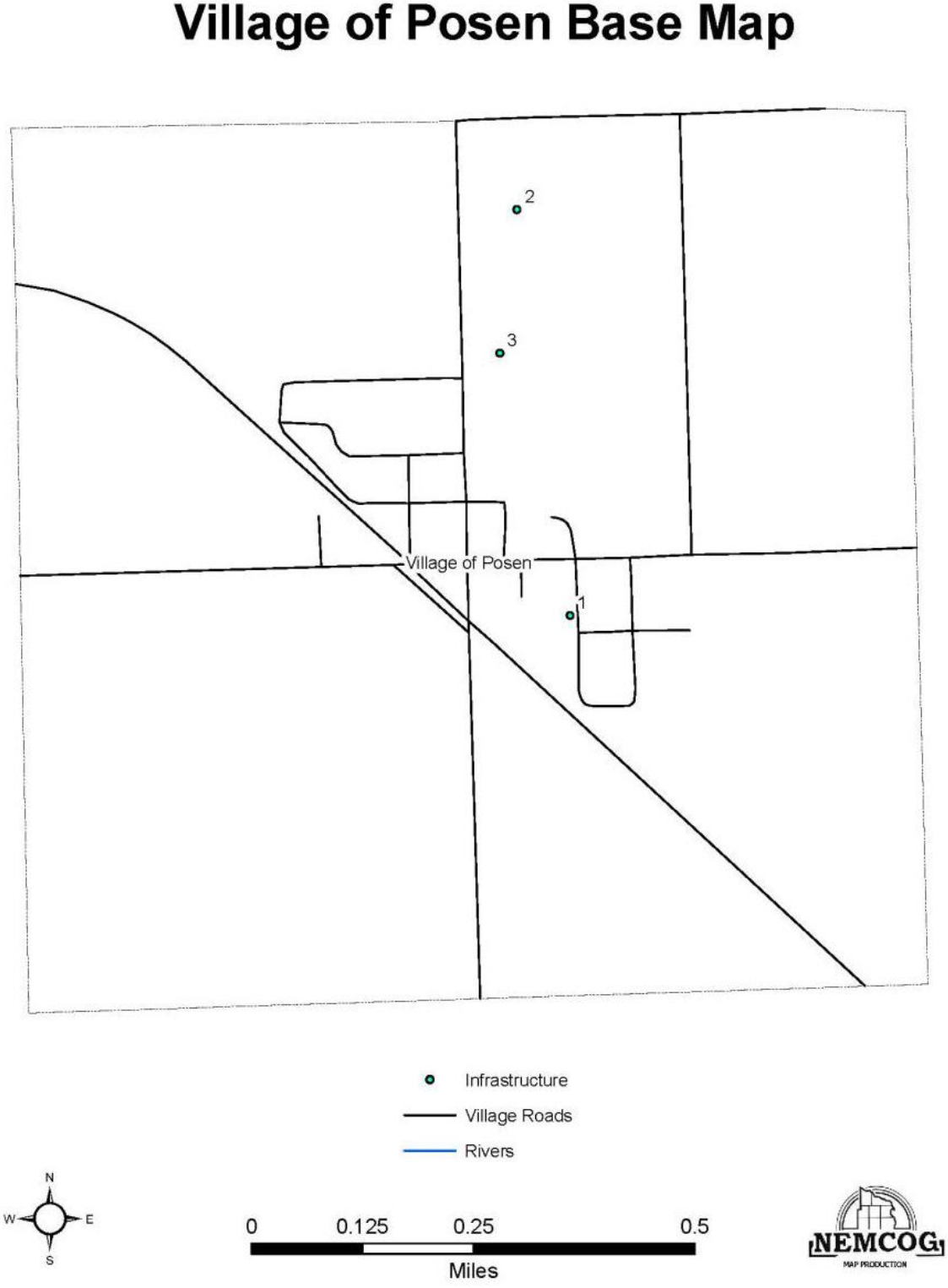


Figure 6-39 Village of Posen Base Map

Village of Posen Hazards Map

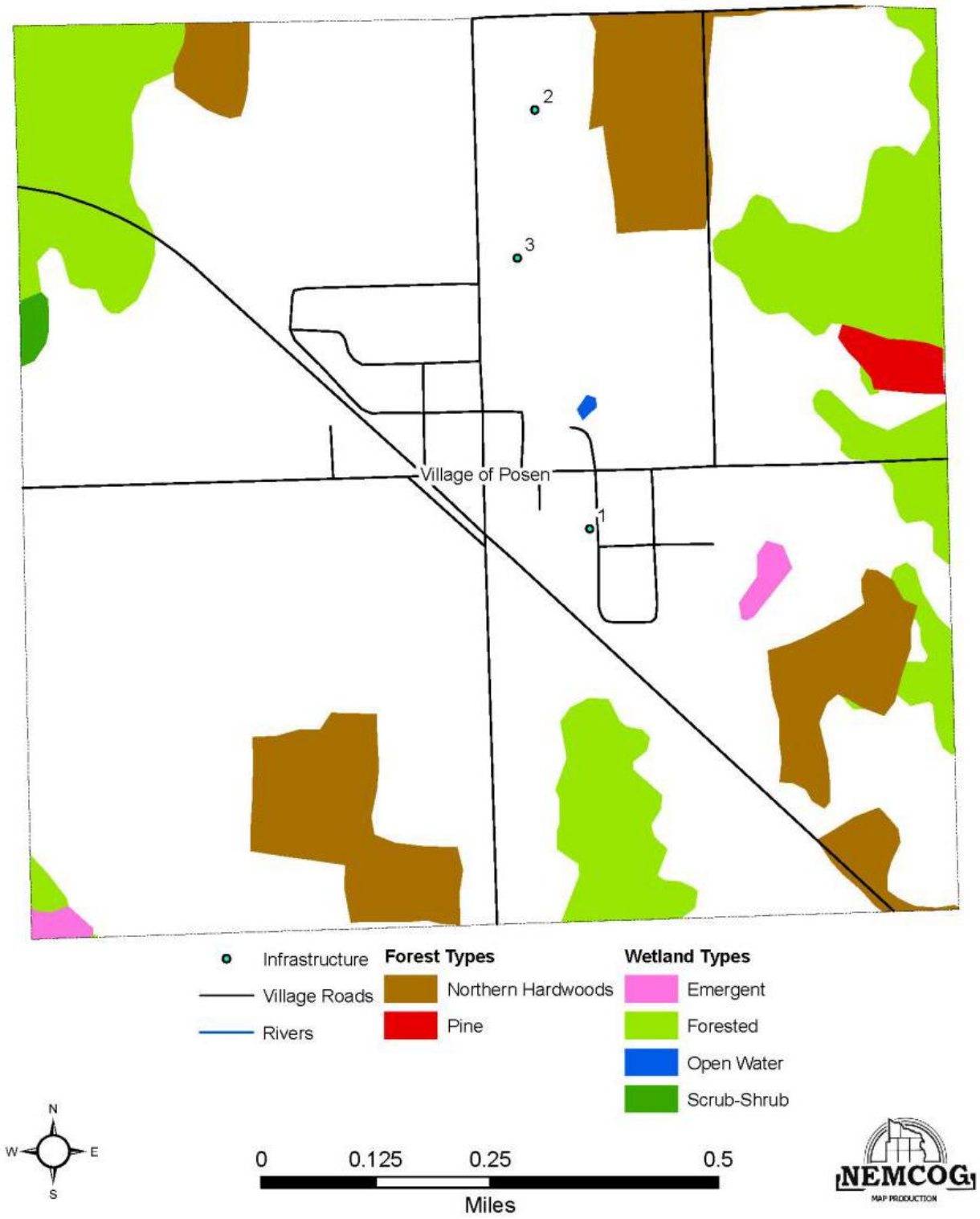


Figure 6-40 Village of Posen Hazards Map

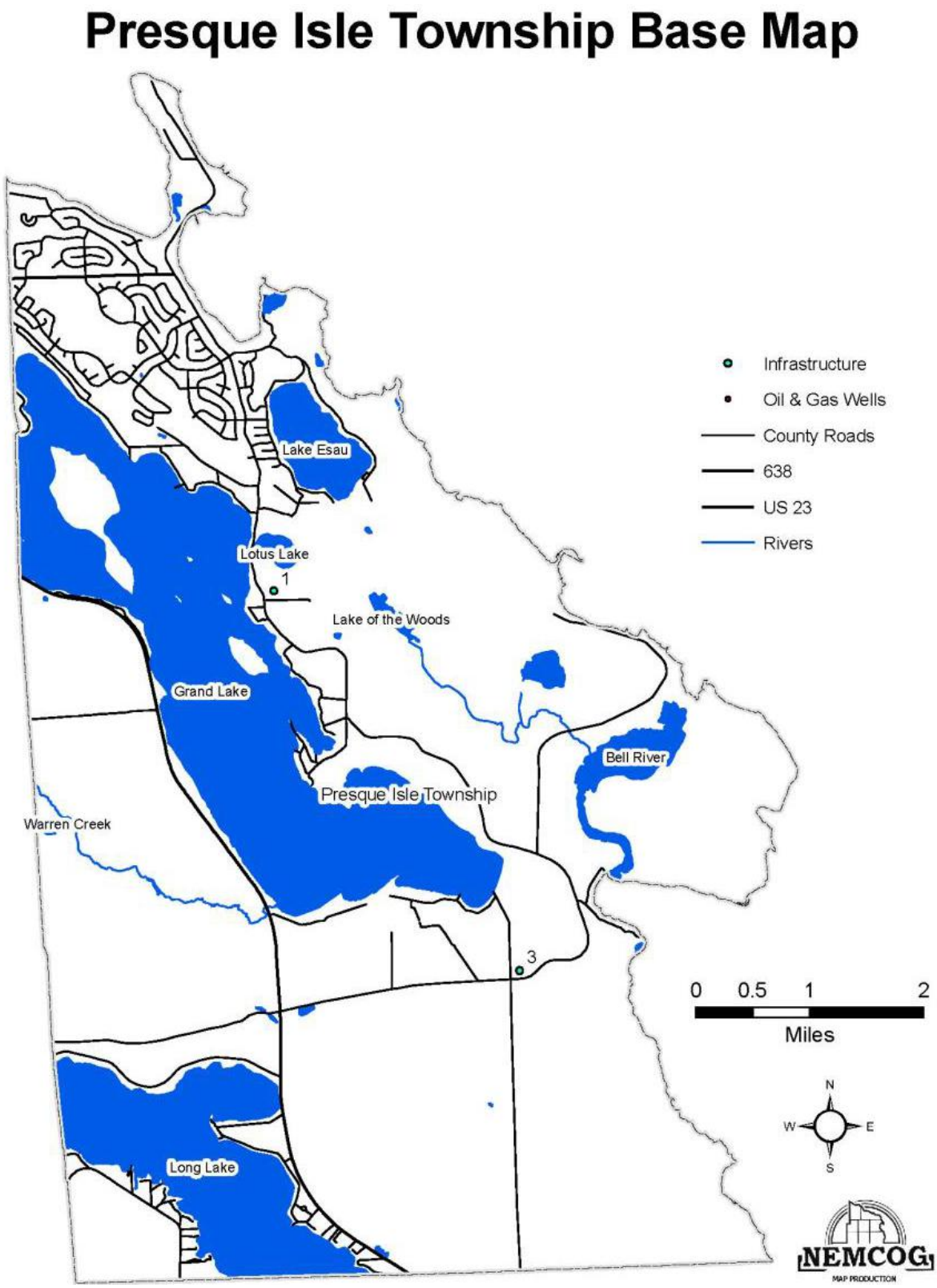


Figure 6-41 Presque Isle Township Base Map

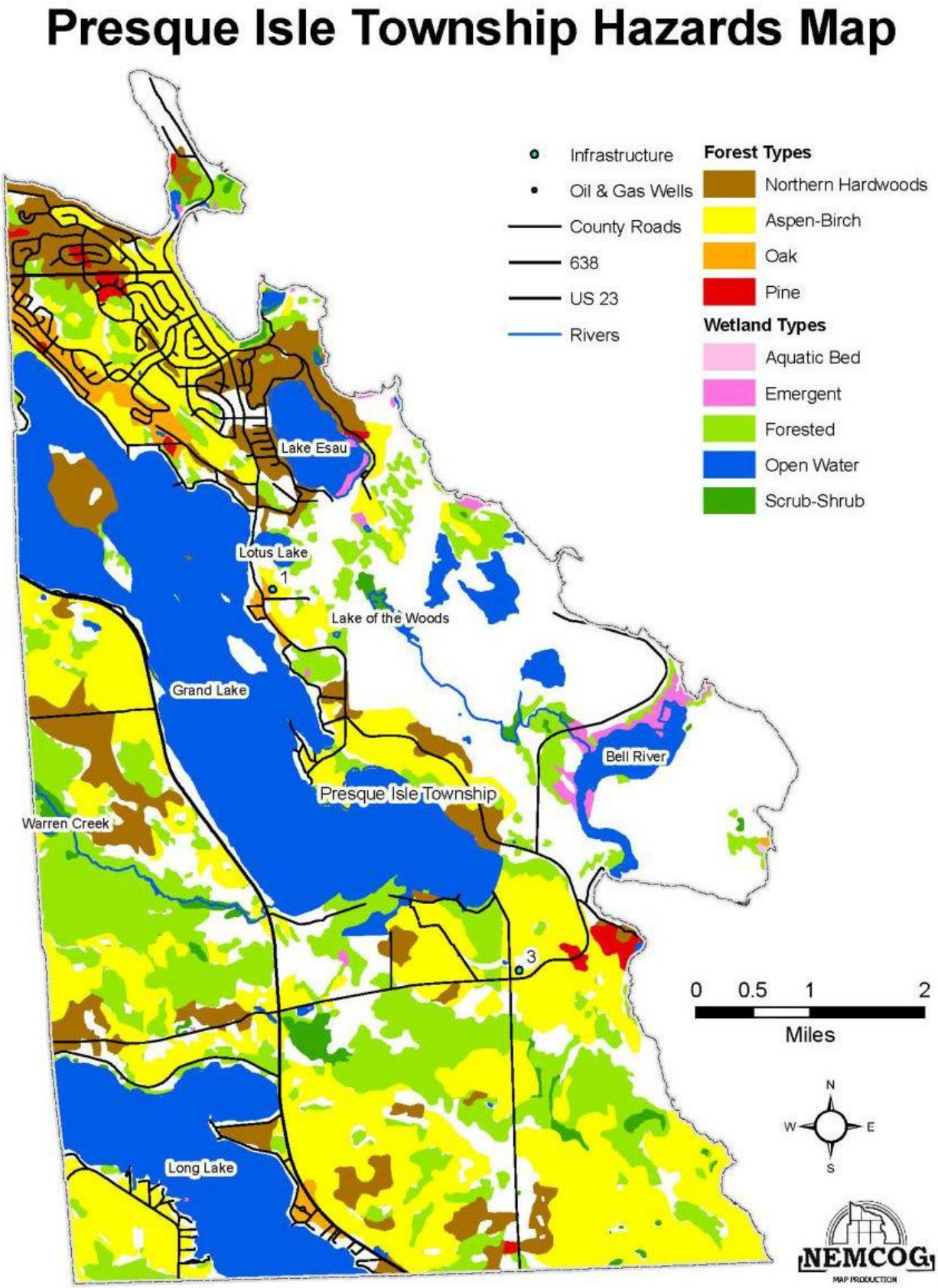


Figure 6-42 Presque Isle Township Hazards Map

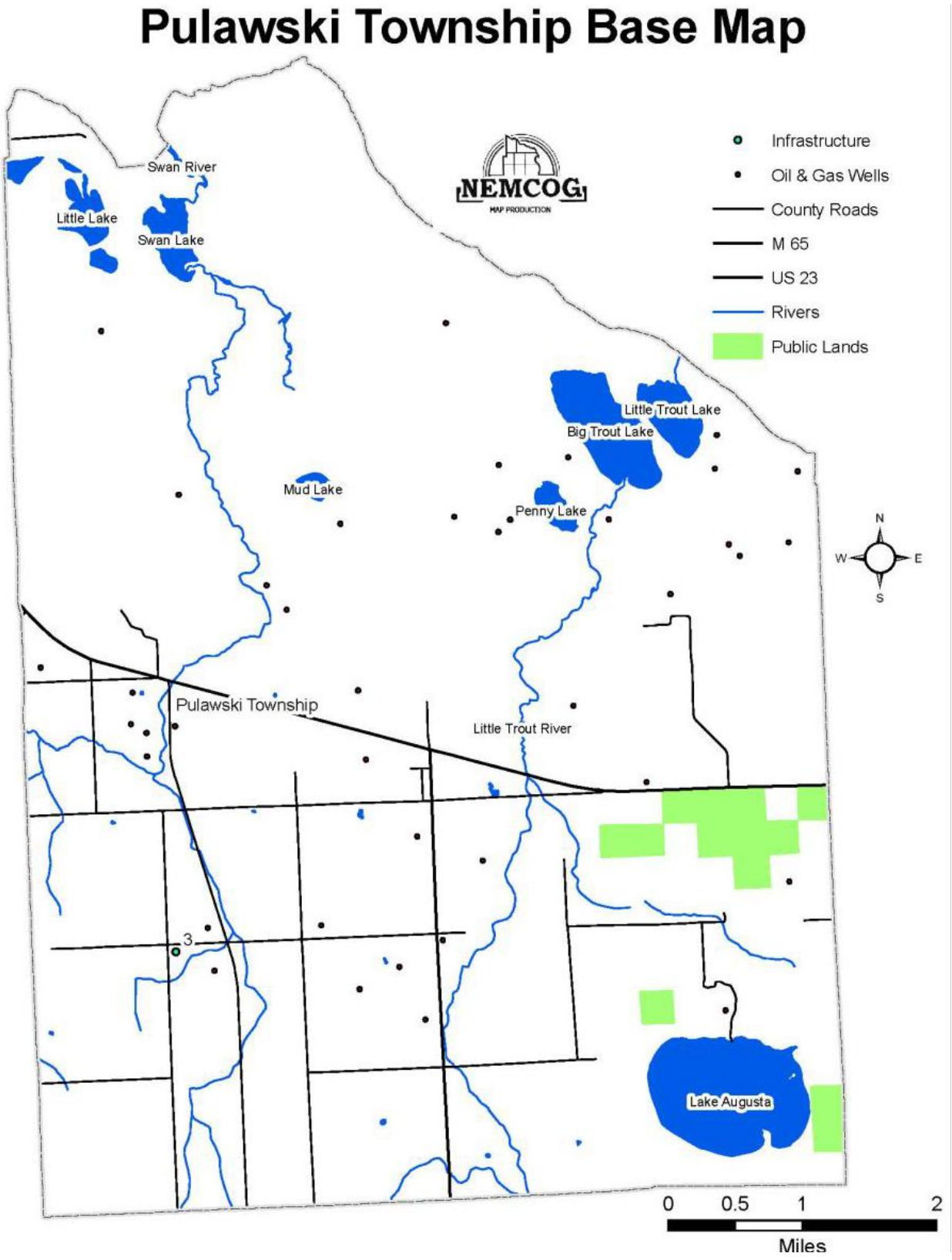


Figure 6-43 Pulawski Township Base Map

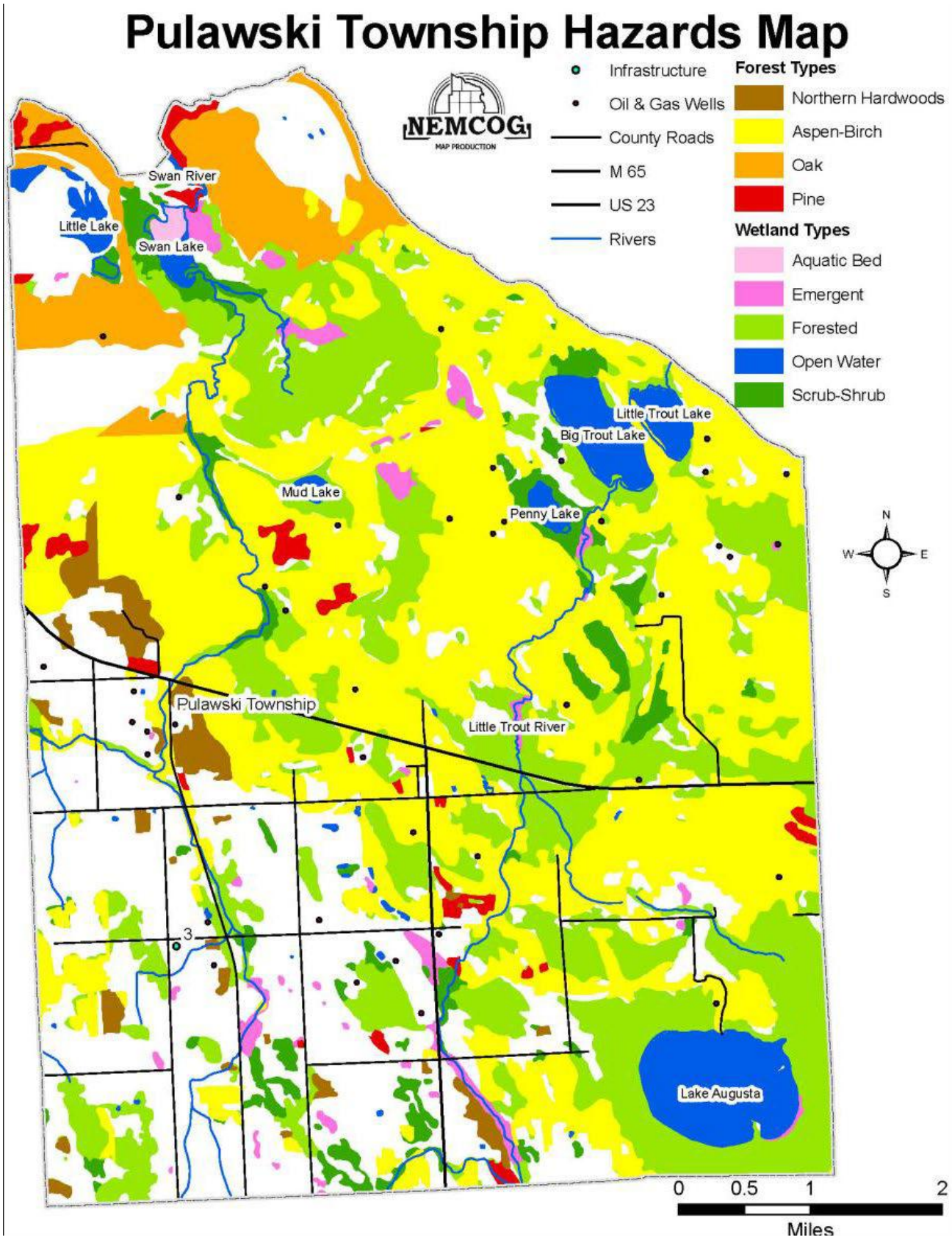


Figure 6-44 Pulawski Township Hazards Map

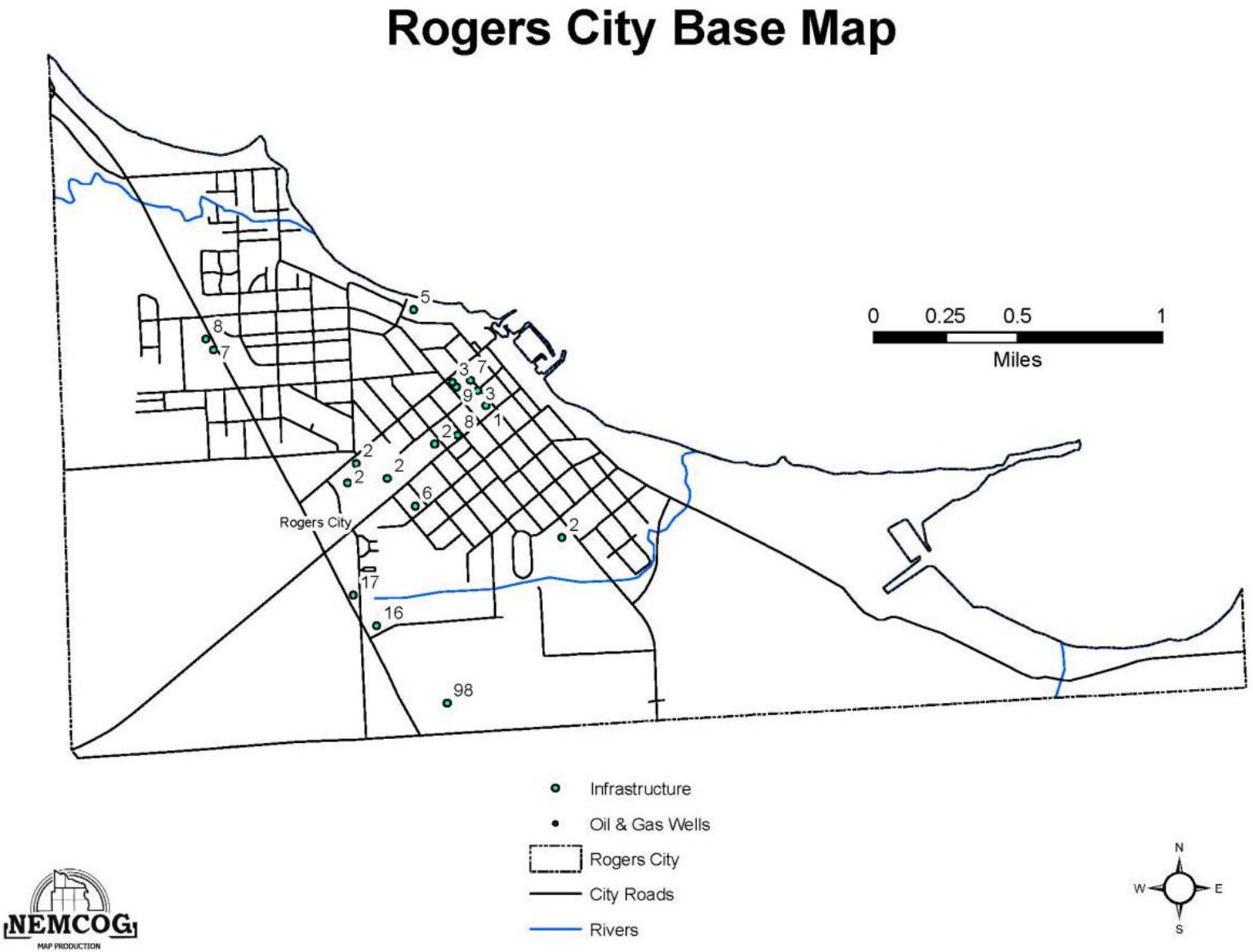


Figure 6-45 Rogers City Base Map

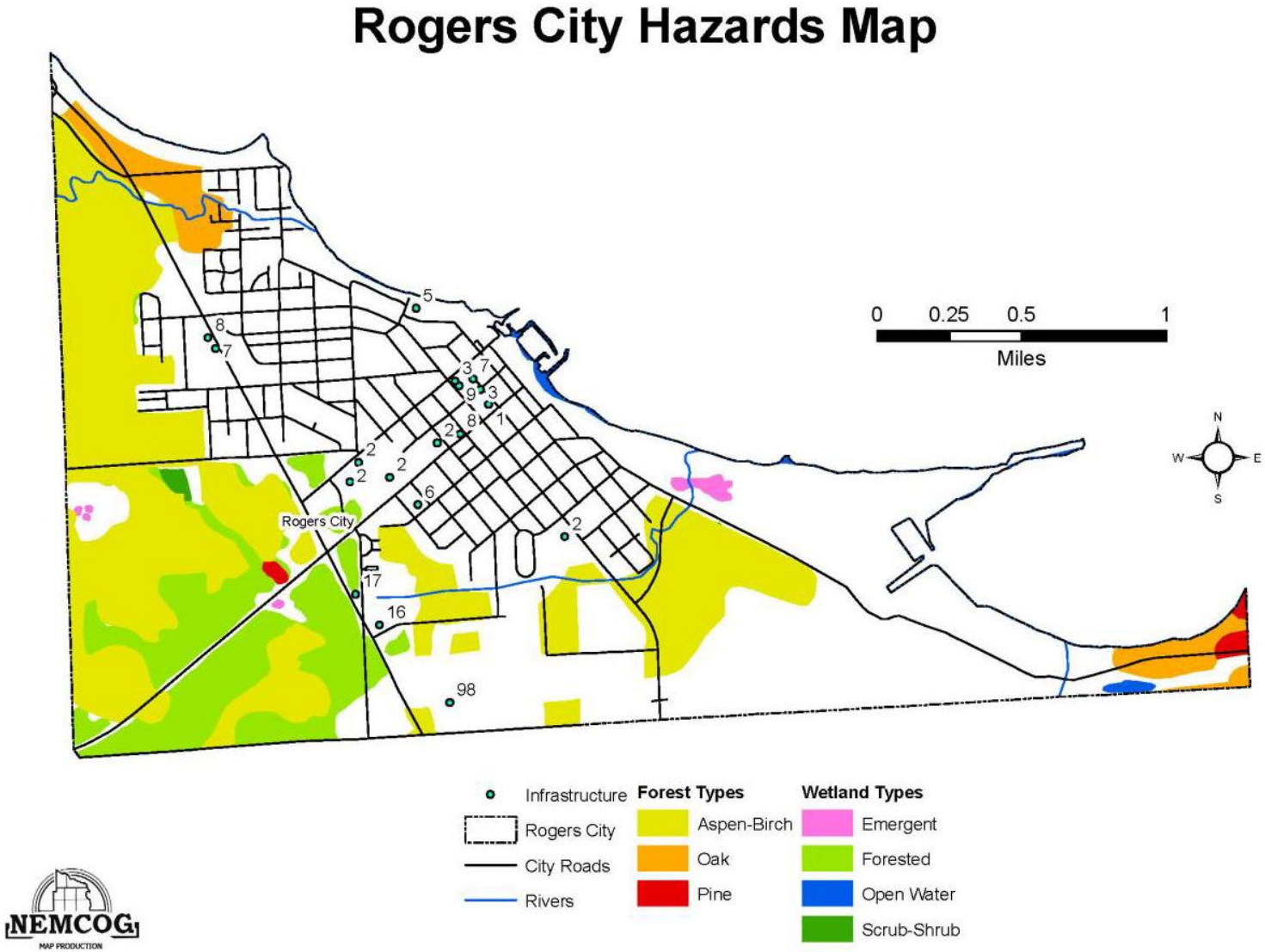


Figure 6-46 Rogers City Hazards Map

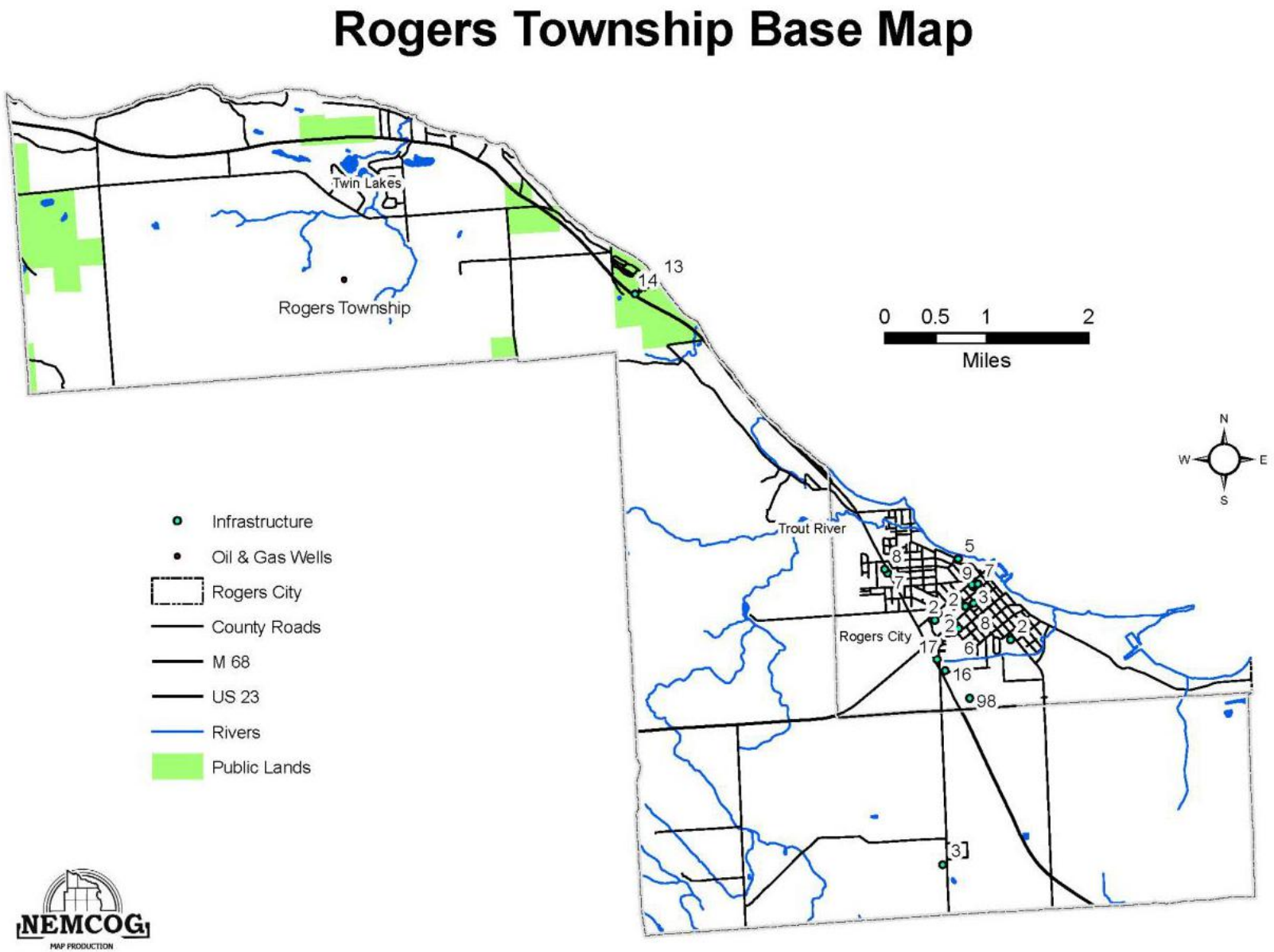


Figure 6-47 Rogers Township Base Map

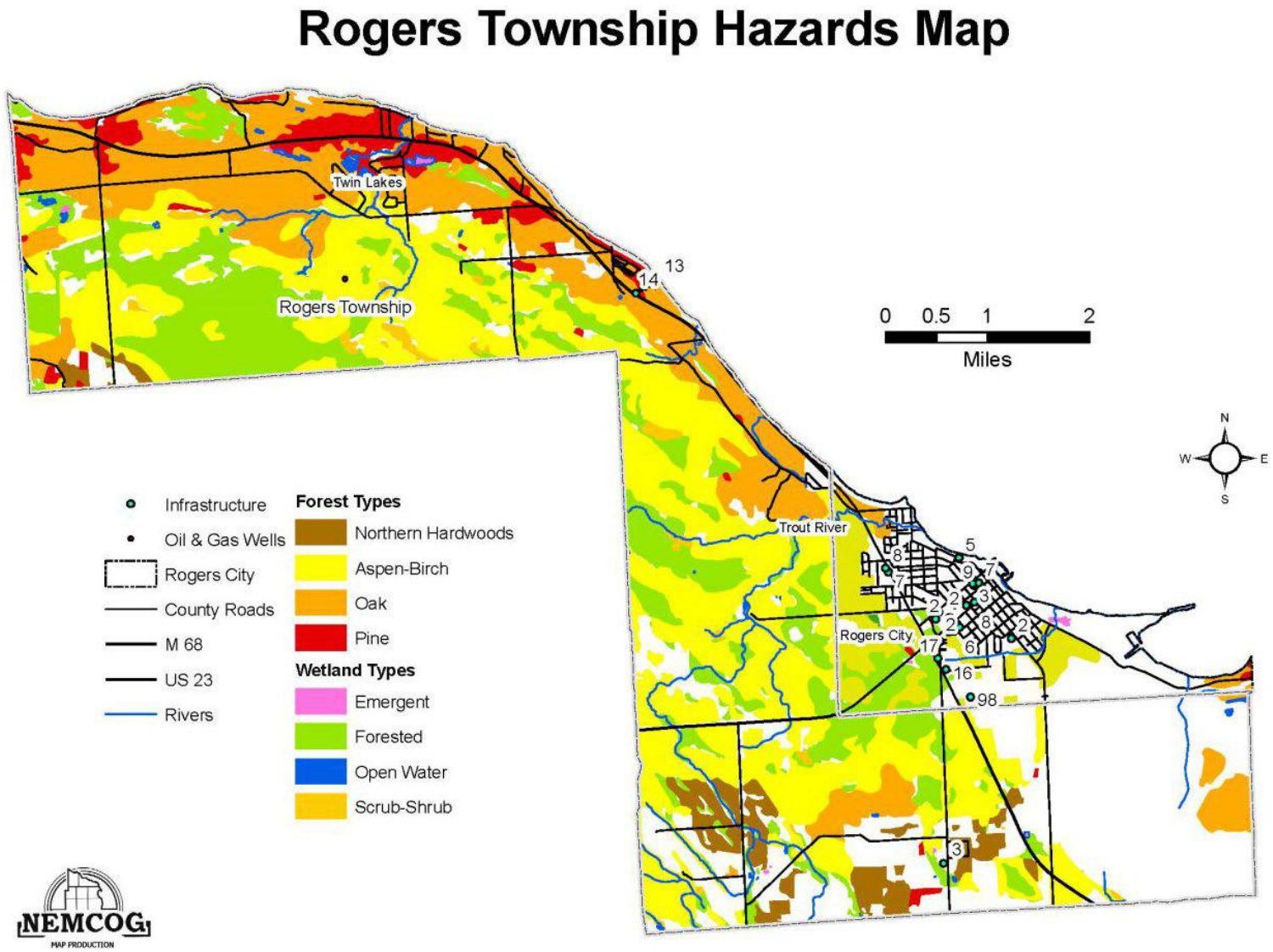


Figure 6-48 Rogers Township Hazards Map

Risk and Vulnerability Assessments

After identifying which hazards pose a risk in Presque Isle County, the LEPC ranked the hazards based on the Priority Risk Index to determine which hazards pose the greatest threat to the county (Table 6-7). Then, the LEPC evaluated the ranked hazards based on their risk and vulnerabilities. It should be noted the sleet and ice storm events, and snowstorm events are displayed as winter weather hazard in the Priority Risk Index

To begin the hazard ranking process, the LEPC selected evaluation criteria by determining which aspects were of most concern to the community. The LEPC assigned a level of importance ranging from "Always Important to "Not Worth Considering" for each aspect. The following evaluation criteria were considered: likelihood of occurrence, size of affected area, speed of onset, population impact, economic effects, duration of threat, seasonal risk pattern, predictability of hazard, collateral damage, availability of warning systems, ability to mitigate, environmental impact, damage capacity, and public awareness. The LEPC rated likelihood of occurrence, population impact, collateral damage, availability of warning systems, ability to mitigate, environmental impact, and damage capacity as "always very important." The LEPC rated size of affected area, economic effects, and public awareness as "usually important." The LEPC rated the predictability of a hazard as "sometimes important" and the LEPC rated speed of onset, duration of threat, and seasonal risk pattern as "rarely of importance." After the rating process for the evaluation criteria, the LEPC selected the following seven evaluation criteria:

- **Likelihood of Occurrence:** The frequency a particular hazard event occurs. The more frequent the event occurs, the greater potential there will be damage and a negative impact on the community.

- **Damage Capacity:** The destructive capacity of the hazard. While the destructive capacity of some hazard events (e.g. floods and tornadoes) is immediate and readily apparent, some hazards may have significant destructive capacities that are less obvious since they occur over an extended period of time (e.g. extreme temperatures and drought).

- **Population Impact:** The percent of the county's population that may be affected directly or indirectly by a hazard event.

- **Availability of Warning Systems:** The relative ease at which the public can be warned about a hazard. This criterion addresses the overall warning system capability for a hazard and does not address the availability of warning systems in a community. For example, the public may be warned about a flood, but not warned about a structural fire. Hazards that have little or no availability of warning systems tend to have a greater hazard potential in a community.

- **Ability to Mitigate:** The relative ease a particular hazard event can be mitigated through the application of structural and/or non-structural mitigation strategies. The easier it is to mitigate a hazard event, the less likely the hazard event will pose a threat (e.g. loss of life and property damage) to the community in the future.

- **Collateral Damage:** The potential for a hazard event to cause secondary damage and impacts. The more collateral damage a hazard event causes, the greater the hazards threat potential is to the community. For example, blizzards and ice storms can cause power outages, which lead to the loss of heat and the potential for persons to get hypothermia, become injured, or die.

- **Environmental Impact:** The environmental damage caused by a hazard event. For example, a flood may overwhelm a sewage treatment plant, which may discharge raw sewage into the environment and contaminate the water supply.

Then, the LEPC assigned relative weights to each evaluation criteria to express the criterion's level of important in analyzing the hazard. The relative weights were converted into percentages since the sum of the weights must equal 100%. After determining the impact each evaluation criterion has on each hazard, the LEPC created evaluation scales for each evaluation criterion. The point values on the scales ranged between 1 and 10 and were assigned based on the criterion's relative severity and negative impacts. These scales can be found below.

Finally, the LEPC used a spreadsheet to rank the county's hazards based on the evaluation scales for each criterion (Table 6-7). The spreadsheet calculated the hazard's score, and the scores were ranked from highest to lowest to determine the hazard's ranking in the Priority Risk Index Table. The LEPC elevated the county's risk for extreme temperatures (extreme heat and extreme cold), Great Lakes shoreline flooding and erosion, and riverine and urban flooding, while reducing the county's risk for sabotage/terrorism/nuclear attack and civil disturbance. The committee added a biomass fire hazard since the Hillman Power Company is set to be decommissioned in May 2022 and the local sawmills currently take their wood waste to that facility.

The following evaluation criterion point values were used to evaluate each hazard:

Likelihood of Occurrence	
Excessive Occurrence (Occurs one or more times per year)	10 pts
High Occurrence (Occurs every 2-3 years)	7 pts
Medium Occurrence (Occurs every 5 years)	4 pts
Low Occurrence (Potential yearly occurrence)	1 pt
Unable to be Determined	0 pts

Damage Capacity	
High Capacity	10 pts
Medium Capacity	7 pts
Low Capacity	4 pts
No Capacity	1 pt
Unable to be Determined	0 pts

Population Impact	
75% to 100% of the population impacted	10 pts
50% to 74% of the population impacted	7 pts
25% to 49% of the population impacted	4 pts
1% to 24% of the population impacted	1 pt
No Population Impact	0 pts

Ability to Mitigate

Easy to Mitigate (Variety of structural/non-structural measures)	10 pts
Possible to Mitigate (Some structural/non-structural measures)	7 pts
Difficult to Mitigate (Limited structural/non-structural measures)	4 pts
Impossible to Mitigate (Impossible to mitigate future events)	1 pt

Availability of Warning Systems

Warning systems are in place and operational	10 pts
Some warning systems are in place and operational	7 pts
Warning systems are in place, but are not operational	4 pts
No warning systems are available	1 pt

Collateral Damage

High possibility to cause a secondary hazard	10 pts
Medium possibility to cause a secondary hazard	7 pts
Small possibility to cause a secondary hazard	4 pts
No possibility to cause a secondary hazard	1pt
Unable to be determined	0 pts

Environmental Impact

High amount of environmental damage	10 pts
Medium amount of environmental damage	7 pts
Low amount of environmental damage	4 pts
No environmental damage	1pt
Unable to be determined	0 pts

Table 6-7 Presque Isle County Priority Risk Index									
		Evaluation Criteria							
Rank	Hazard	Likelihood of Occurrence (20%)	Damage Capacity (20%)	Population Impact (35%)	Availability of Warning Systems (10%)	Ability to Mitigate (5%)	Collateral Damage (5%)	Environmental Impact (5%)	Score
1	Severe Winds (derecho)	10	10	7	7	10	7	7	8.35
2	Infrastructure Failures	8	10	8	7	10	10	4	8.30
3	Winter Weather Hazard (ice and sleet storms, and snowstorms)	10	4	10	10	7	10	2	8.25
4	Great Lakes Shoreline Flooding and Erosion	4	10	7	7	7	10	5	7.05
5	Extreme Temperatures (Extreme Heat and Extreme Cold)	4	4	10	7	7	10	4	6.85
6	Hailstorms	7	2	10	7	7	4	4	6.75
7	Structural Fires	10	10	3	7	8	5	6	6.70
8	Riverine and Urban Flooding	4	7	7	7	7	10	5	6.45
9	Public Health Emergency	7	1	10	7	7	4	1	6.40
10	Tornadoes	1	10	5	10	4	7	8	5.90
11	Transportation Hazardous Material Accident	1	10	4	7	4	7	10	5.35
12	Wildfires	4	7	4	7	4	4	10	5.20
13	Transportation Accidents (air/land/water)	10	7	1	7	4	4	4	5.05
14	Biomass Fires	1	7	4	7	7	4	10	4.75
15	Drought	4	5	4	7	1	7	7	4.65
16	Fixed Site Hazardous Material Accident	1	7	3	7	4	10	10	4.55
17	Scrap Tire Fires	1	10	1	7	10	4	10	4.45
18	Sabotage/Terrorism/Nuclear Attack	0	8	4	7	1	7	7	4.45
19	Oil and Gas Accidents (well and pipeline)	1	7	2	10	7	4	10	4.35
20	Lightning	1	4	1	7	4	4	4	2.65
21	Civil Disturbance	0	4	1	7	7	4	0	2.40
22	Karst Sinkholes (subsidence)	1	0	1	7	1	1	4	1.55

Risk and Vulnerability Assessment Summaries

The county's risk and vulnerability assessments can be found in Table 6-8. The goal of the risk assessment is to determine where the hazard exists, its frequency, and its impact. The county's risk was determined by the likelihood of occurrence, damage capacity, the availability of warning systems, collateral damage, environmental impact, and the ability to mitigate the hazard. The risk is classified as follows:

- **High Probability/High Impact:** The hazard will most likely happen and has a high potential to affect existing and future buildings and populations.
- **Low Probability/High Impact:** The hazard has a small chance of happening and has a high potential to affect existing and future buildings and populations.
- **High Probability/Low Impact:** The hazard will most likely happen and has a low potential to affect existing and future buildings and populations.
- **Low Probability/Low Impact:** The hazard has a small chance of happening and has a low potential to affect existing and future buildings and populations.

The vulnerability assessment determines where the population and critical facilities overlap with the hazards. This assessment evaluated the county's population concentrations, age-specific populations, development pressures, housing types, agricultural presence, sprawl, and other issues that may increase the county's vulnerability to specific hazards. The county's vulnerability was evaluated based on the population impact. The vulnerability is classified as follows:

- **Severe:** The hazard event will have severe impacts over a large geographic area or in densely populated areas and will have a serious financial impact on residents and businesses.
- **Noticeable:** The hazard event will have confined impacts and financial burdens on residents and businesses.
- **Minor:** The hazard event will have minimal impacts and financial burdens on residents and businesses.

Table 6-8 Presque Isle County Risk and Vulnerability Assessments			
Rank	Hazard	Risk Assessment	Vulnerability Assessment
1	Severe Winds (derecho)	High Probability/High Impact	Severe
2	Infrastructure Failures	High Probability/High Impact	Severe
3	Winter Weather Hazard (ice and sleet storms, and snowstorms)	High Probability/Low Impact	Noticeable
4	Great Lakes Shoreline Flooding and Erosion	High Probability/High Impact	Severe
5	Extreme Temperatures (Extreme Heat and Extreme Cold)	High Probability/Low Impact	Noticeable
6	Hailstorms	Low Probability/High Impact	Noticeable
7	Structural Fires	High Probability/High Impact	Noticeable
8	Riverine and Urban Flooding	High Probability/High Impact	Noticeable
9	Public Health Emergency	High Probability/High Impact	Severe
10	Tornadoes	Low Probability/High Impact	Noticeable
11	Transportation Hazardous Material Accident	Low Probability/High Impact	Noticeable
12	Wildfires	Low Probability/High Impact	Severe
13	Transportation Accidents (air/land/water)	High Probability/Low Impact	Minor
14	Biomass Fires	Low Probability/High Impact	Noticeable
15	Drought	Low Probability/High Impact	Noticeable
16	Fixed Site Hazardous Material Accident	Low Probability/High Impact	Noticeable
17	Scrap Tire Fires	Low Probability/High Impact	Minor
18	Sabotage/Terrorism/Nuclear Attack	Low Probability/High Impact	Noticeable
19	Oil and Gas Accidents (well and pipeline)	Low Probability/High Impact	Noticeable
20	Lightning	Low Probability/Low Impact	Minor
21	Civil Disturbance	Low Probability/Low Impact	Minor
22	Karst Sinkholes (subsidence)	Low Probability/Low Impact	Minor

Chapter 7 Goals and Objectives

Overview

The goals and objectives were developed through the analysis of Presque Isle County's existing social and economic conditions, critical services and facilities, environmental conditions, existing land use, hazard analysis, and vulnerability assessment. The local communities are encouraged to incorporate the hazard mitigation goals and objectives into their other planning activities, such as their master plans and capital improvement plans.

Goals and Objectives

The following goals and objectives will be used to guide the hazard mitigation efforts within Presque Isle County. The goals are broad in nature with slightly more specific objectives. Detailed action items can be found in Chapter 8: Mitigation Strategies and Priorities.

Goal 1: Protect Public Health and Safety

Objectives

- Provide community-wide hazard warning systems.
- Provide information and resources to increase hazard awareness and education.
- Maintain existing resources and provide necessary training.
- Identify and obtain necessary resources and equipment to prevent or minimize hazard effects.

Goal 2: Minimize Damage to Public and Private Property

Objectives

- Apply proactive mitigation measures to prevent hazard damage.
- Obtain necessary equipment, resources and training to protect property if a hazard event occurs.
- Adopt policies to make property less vulnerable.
- Conduct training sessions and scenarios to prepare for possible hazards.

Goal 3: Maintain Essential Services

Objectives

- Inspect, maintain and upgrade all critical infrastructure and facilities.
- Repair or replace critical infrastructure and facilities that are damaged or degraded.
- Protect critical infrastructure and facilities from hazard damage.
- Obtain necessary resources and equipment to ensure essential services are maintained during a hazard event.

Goal 4: Coordinate hazard mitigation with growth and development planning

Objectives

- Develop hazard resistant growth policies.
- Prevent development in high hazard areas.
- Integrate hazard mitigation planning into land use planning.
- Encourage sustainable development.
- Protect natural resources.

Goal 5: Build partnerships to support emergency response services and hazard mitigation activities on a regional basis

Objectives

- Continue to work cooperatively with agencies and communities in Presque Isle County.
- Continue to work cooperatively with agencies and communities in Northern Michigan.
- Develop regional grant applications for hazard mitigation implementation.
- Continue to participate in the Region 7 Homeland Security Board.

Goal 6: Develop, update, and maintain geographic information system (GIS) data sets

Objectives

- Develop GIS data sets for usage by county officials, the emergency management office, and 911 staff.
- Evaluate data sets annually and update, if necessary.

Chapter 8 Mitigation Strategies and Priorities

Overview

After determining Presque Isle County's goals and objectives, hazard mitigation actions were developed based on the following categories: prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects. The mitigation action and implementation strategies were prioritized and evaluated to determine the effect they will have on the goals and objectives. During the prioritization process, each action was evaluated based on its social impact, technical feasibility, administrative potential, political impact, legal ramification, environmental impact, overall benefit, and cost effectiveness. The Presque Isle County LEPC, county, and local governments considered their budgets, available technical resources, and current visions to assess each action item's priority, and current and future progress.

Mitigation Action and Implementation Strategies

In the previous hazard mitigation plan, the mitigation actions and implementation strategies were categorized based on the hazard(s) they addressed (Appendix D). When the LEPC reviewed the strategies, they moved many action items to the all-hazard mitigation table, twenty-one action items were deemed no longer relevant in the county (and will be removed from future plans), and many items were determined to be ongoing/long-term projects. The Fall 2020 FEMA review determined this categorization was not adequate since it did not provide a purpose for each mitigation action item. To rectify this issue, the mitigation actions and implementation strategies were re-categorized based on the categories used to develop the action items: prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects. Additionally, a line item was added under each action item to address which hazard(s) the action item mitigates.

Prevention Action and Implementation Strategies

The purpose of the prevention action and implementation strategies is to address the strategies related to government administrative or regulatory actions and processes that influence how land is developed and buildings are constructed. Also, public activities that reduce hazard losses are included in this category. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulations. For each mitigation strategy in this category, the strategies are designed to reduce deaths and injuries, reduce structural damage and deterioration, prevent the interruption of businesses, prevent insurance losses, reduce capital costs for repairs, and reduce the degradation of cultural and natural resources.

1. Review and improve mutual aid assistance for utility and communication systems failures. Ensure there are redundancies in the utility and communication systems.

Priority Level: High

Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Drought, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning, Civil Disturbance, Karst Sinkholes (subsidence)

Responsible Agencies: County Emergency Management Office, County, Local Fire Departments, Police, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, State, Utility Companies, Police

Financial and Technical Resources: County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township, State, Federal Government, Local Businesses, Police, Local Fire Departments, Utility Companies

Progress/Status: Ongoing/Long term throughout the entire county. Fire Department has a portable communication system. If central dispatch goes down, calls go to Alpena County Dispatch. Established RACES program.

Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a high priority. The priority has not changed since the strategy is continually evaluated and updated.

2. Conduct annual planning with the U.S. Forest Service, Michigan Department of Natural Resources, and fire departments.

Priority Level: High

Hazards Addressed: Wildfires, Biomass Fires, Scrap Tire Fires, Structural Fires

Responsible Agencies: County Emergency Management Office, Local Fire Departments, U.S. Forest Service, Michigan Department of Natural Resources

Financial and Technical Resources: Federal Government, Local Fire Departments, State

Progress/Status: Ongoing/Long term throughout the entire county.

Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a high priority. The priority has not changed since the strategy is continually implemented.

3. Develop contingency plans for oil and gas industry employees and the public that include rescue and evacuation procedures.

Priority Level: High

Hazards Addressed: Oil and Gas Accidents (well and pipeline)

Responsible Agencies: County Emergency Management Office, Local Fire Departments, State, Utility Company, Local Businesses

Financial and Technical Resources: Federal Government

Progress/Status: Ongoing/Long term throughout the entire county. Continual responder training.

Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a high. The priority has not changed since the plans are reviewed and updated.

4. Develop and maintain a system for mass vaccination and prophylaxis.

Priority Level: High
Hazards Addressed: Public Health Emergency
Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, District Health Department, Schools, Federal Government, Salvation Army, Police, American Red Cross, Medical
Financial and Technical Resources: District Health Department, Federal Government
Progress/Status: Ongoing/Long term throughout the entire county. Health Department has a system in place.
Previous Plans: This item has been added to the 2021 hazard mitigation plan.

5. Develop evacuation plans that include community outreach efforts to increase public awareness about evacuation procedures.

Priority Level: High
Hazards Addressed: Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Riverine and Urban Flooding, Wildfires, Biomass Fires, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline)
Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, County Road Commission, Police, Local Fire Departments, U.S. Forest Service, Michigan Department of Natural Resources
Financial and Technical Resources: Federal Government, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township, County Emergency Management, County Road Commission, State, Local Fire Departments
Progress/Status: Ongoing/Long term throughout the entire county. Routes identified and reviewed. Outreach program in place.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is continually implemented.

6. Coordinate with the health department and local communities to assure proper location, installation, cleaning, monitoring, and maintenance of septic tanks.

Priority Level: Medium
Hazards Addressed: Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Riverine and Urban Flooding, Public Health Emergency, Karst Sinkholes (subsidence)
Responsible Agencies: District Health Department, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc

Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, County Road Commission
Financial and Technical Resources: Federal Government, Alpena Township (technical; assessing, building and DPW departments),
Progress/Status: Ongoing/Long term throughout the entire county. Implemented within software.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has changed since the strategy has become more of a focus.

7. Increase the Health Department's staffing and support function levels.

Priority Level: Medium
Hazards Addressed: Public Health Emergency
Responsible Agencies: District Health Department, Federal Government, State
Financial and Technical Resources: District Health Department, Federal Government, State, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Posen Township, Krakow Township, Presque Isle Township
Progress/Status: Ongoing/Long term throughout the entire county. Seeking funding.
Previous Plans: This item has been added to the 2021 hazard mitigation plan.

8. Review site emergency plans for schools, public transportation (regional ride and commercial bus providers), factories, office buildings, shopping malls, hospitals, correctional facilities, marinas, campgrounds, etc.

Priority Level: Medium
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Drought, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning, Civil Disturbance, Karst Sinkholes (subsidence)
Responsible Agencies: County Emergency Management Office, County, Local Fire Department, Police, Medical, Schools, Local Businesses, State, Federal Government
Financial and Technical Resources: Federal Government, Schools, Medical, State, Local Businesses
Progress/Status: Ongoing/Long term throughout the entire county. Plans are in place and annually reviewed.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

9. Review security and anti-terrorism/sabotage/civil disturbance procedures.

Priority Level: Medium
Hazards Addressed: Infrastructure Failure, Sabotage/Terrorism/Nuclear Attack, Civil Disturbance
Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Police, Civic Groups and Churches

Financial and Technical Resources: State, Federal Government
Progress/Status: Ongoing/Long term throughout the entire county. Response procedures are in place.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

10. Encourage the continuation of house numbering program.

Priority Level: Medium
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Tornadoes, Wildfires, Biomass Fires, Oil and Gas Accidents (well and pipeline), Lightning, Karst Sinkholes (subsidence)
Responsible Agencies: County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township
Financial and Technical Resources: Federal Government, County
Progress/Status: Ongoing/Long term throughout the entire county. Social media education program is in place.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

11. Develop an emergency response plan for festivals and events that includes how to inform the public about 'safe areas' and storm shelter locations in campgrounds, fairgrounds, parks, and outdoor recreational facilities.

Priority Level: Medium
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Tornadoes, Transportation Accidents (air/land/water), Drought, Civil Disturbance
Responsible Agencies: County Emergency Management Office, Local Fire Departments, Police, Medical, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, , Krakow Township, County, County Road Commission, Civic Groups and Churches, Schools
Financial and Technical Resources: Federal Government, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township, Local Fire Departments, Police, Medical, County Emergency Management Office, County
Progress/Status: Ongoing/Long term throughout the entire county. Continually evaluating and updating protocols.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has changed since the strategy is currently being reviewed and updated.

12. Identify electrical systems that will fail due to overload and develop a "rolling blackout" strategy.

Priority Level: Medium
Hazards Addressed: Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Extreme Temperatures (Extreme Heat and Extreme Cold)
Responsible Agencies: Utility Companies
Financial and Technical Resources: Utility Companies
Progress/Status: Ongoing/Long term throughout the entire county. In Progress, liaison with the Utility Company.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually reviewed and updated.

13. Organize a program to provide a woodchipper for residents to properly dispose of woody debris. Hold the program in conjunction with composting programs and spring clean-up days.

Priority Level: Medium
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Hailstorms, Tornadoes, Biomass Fires
Responsible Agencies: City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Departments, Landowners
Financial and Technical Resources: Federal Government, Local Governments
Progress/Status: Ongoing/Long term throughout the entire county. No available funding.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a medium priority. The priority has not changed since the strategy is continually reviewed and implemented.

14. Identify water supplies and develop an integrated water supply system using multi-tankers and well water supply locations with year round access. Develop a strategy to construct water sources in areas that lack water supplies.

Priority Level: Medium
Hazards Addressed: Wildfires, Structural Fires, Scrap Tire Fires, Biomass Fires, Public Health Emergency
Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Departments, State, District Health Department
Financial and Technical Resources: State, Federal Government
Progress/Status: Ongoing/Long term throughout the entire county. Sources identified. Water supply system in place with ongoing training.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

15. Enforce open burning regulations.

Priority Level: Medium
Hazards Addressed: Wildfires, Biomass Fires, Drought, Scrap Tire Fires
Responsible Agencies: Local Fire Departments, U.S. Forest Service, Michigan Department of Natural Resources
Financial and Technical Resources: City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township, Local Fire Departments, State, Federal Government, Michigan Department of Natural Resources
Progress/Status: Ongoing/Long term throughout the entire county. Implemented by local DNR and law enforcement. Program to inspect campsites in public forests is in place.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a medium priority. The priority has not changed since the strategy is continually enforced.

16. Meet with area industries to determine the type of products that are transported over county roads and provide information to the local fire departments and to the Alpena Combat Readiness Training Center (CRTC), if necessary. Discuss industry transport times and the potential to avoid school transport times.

Priority Level: Medium
Hazards Addressed: Transportation Hazardous Material Accident, Transportation Accidents (air/land/water), Fixed Site Hazardous Materials Accident
Responsible Agencies: County Emergency Management Office, Local Fire Department, Police, Schools
Financial and Technical Resources: Federal Government, Local Businesses, County Emergency Management Office
Progress/Status: Ongoing/Long term throughout the entire county. CRTC handles large scale hazardous materials events.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a high priority. The priority has changed since the strategy is has been implemented and is maintained.

17. Maintain a community public health system with sufficient disease monitoring and surveillance capabilities to protect the population from large-scale outbreaks.

Priority Level: Medium
Hazards Addressed: Public Health Emergency
Responsible Agencies: District Health Department, Federal Government, State, Medical
Financial and Technical Resources: District Health Department, Federal Government
Progress/Status: Ongoing/Long term throughout the entire county. Health Department has a system in place.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a high priority. The priority has not changed since the strategy is implemented and maintained.

18. Enforce USDOT and MDOT hazardous material transport compliance regulations.

Priority Level: Medium
Hazards Addressed: Transportation Hazardous Material Accident, Transportation Accident (air/land/water)
Responsible Agencies: County Emergency Management Office, State, Police
Financial and Technical Resources: State, County Road Commission, Police
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

19. Enforce community and operator compliance with oil and gas industry safety regulations and standards.

Priority Level: Medium
Hazards Addressed: Oil and Gas Accident (well and pipeline)
Responsible Agencies: Local Fire Departments, U.S. Forest Service, Michigan Department of Natural Resources
Financial and Technical Resources: Federal Government, State
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually evaluated and implemented.

20. Build the county GIS program's capabilities through the creation/update of datasets, such as parcels, ownership, location of structures, driveways, and roads, forest types, floodplains, utilities (power, gas, and water lines), wetlands, water resources, bridges, culverts, water supply locations, gas and oil wells, and SARA Title III sites.

Priority Level: Low
Hazards Addressed: Infrastructure Failure, Great Lakes Shoreline Flooding and Erosion, Riverine and Urban Flooding, Wildfires, Oil and Gas Accidents (well and pipeline), Scrap Tire Fires, Biomass Fires, Fixed Site Hazardous Material Accident
Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, NEMCOG
Financial and Technical Resources: Federal Government, County, NEMCOG, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township
Progress/Status: Ongoing/Long term throughout the entire county. NEMCOG is updating parcels. SARA Title III sites are sent to the emergency manager. GIS system in place.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is continually implemented.

21. Regularly check and maintain critical equipment.

Priority Level: Low

Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Drought, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning, Civil Disturbance, Karst Sinkholes (subsidence)

Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, State

Financial and Technical Resources: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township

Progress/Status: Ongoing/Long term throughout the entire county. Equipment maintained by individual departments.

Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is continually reviewed, updated, and maintained.

22. Meet with the County Building Inspector(s) to discuss how hazard mitigation can be incorporated into building and fire codes.

Priority Level: Low

Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Hailstorms, Structural Fires, Riverine and Urban Flooding, Wildfires, Biomass Fires, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Oil and Gas Accidents (well and pipeline)

Responsible Agencies: County Emergency Management Office, County, County Road Commission, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township

Financial and Technical Resources: Federal Government, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township

Progress/Status: Ongoing/Long term throughout the entire county. Annual meetings.

Previous Plans: This strategy was added to the 2021 hazard mitigation plan.

23. Review and update the Regional EMS mass casualty response plan.

Priority Level: Low

Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil

and Gas Accidents (well and pipeline)
Responsible Agencies: County Emergency Management Office, County, American Red Cross, Medical, Schools
Financial and Technical Resources: Federal Government
Progress/Status: Ongoing/Long term throughout the entire county. Annual reviews of plan.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy has been completed and is continually reviewed and updated.

24. Develop a debris management plan that includes the location of staging and storage areas.

Priority Level: Low
Hazards Addressed: Severe Winds (derecho), Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Riverine and Urban Flooding, Tornadoes, Wildfires, Biomass Fires, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Karst Sinkholes (subsidence)
Responsible Agencies: County Emergency Management Office, County, County Road Commission, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township
Financial and Technical Resources: Federal Government, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is continually reviewed and updated.

25. Develop a plan to elevate mechanical and utility devices above predicted flood levels.

Priority Level: Low
Hazards Addressed: Great Lakes Shoreline Flooding and Erosion, Rivering and Urban Flooding
Responsible Agencies: County Emergency Management Office, County, Bearinger Township, Ocqueoc Township, City of Rogers City, Krakow Township
Financial and Technical Resources: Federal Government, State, Bearinger Township, Ocqueoc Township, Rogers Township, City of Rogers City, Pulawski Township, Krakow Township, Presque Isle Township
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been added to the 2021 hazard mitigation plan.

26. Conduct an annual review of available sand, sandbags and other related materials based on long range flood forecasts.

Priority Level: Low
Hazards Addressed: Great Lakes Shoreline Flooding and Erosion, Riverine and Urban Flooding
Responsible Agencies: County Emergency Management Office
Financial and Technical Resources: Federal Government, State
Progress/Status: Ongoing/Long term throughout the entire county.

Previous Plans: This item has been added to the 2021 hazard mitigation plan.

27. Encourage open space preservation along the Lake Huron Shoreline.

Priority Level: Low
Hazards Addressed: Infrastructure Failure, Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Riverine and Urban Flooding
Responsible Agencies: County, State, Bearinger Township, Ocqueoc Township, City of Rogers City, Krakow Township
Financial and Technical Resources: County, Bearinger Township, Ocqueoc Township, Rogers Township, City of Rogers City, Pulawski Township, Krakow Township, Presque Isle Township
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been added to the 2021 hazard mitigation plan.

28. Determine and understand port locations.

Priority Level: Low
Hazards Addressed: Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Sabotage/Terrorism/Nuclear Attack
Responsible Agencies: County Emergency Management Office, Police, Local Fire Departments, Medical, Local Businesses
Financial and Technical Resources: Federal Government
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a low priority. The priority has not changed since the strategy is continually implemented. However, the strategy has been modified from determining where ships can be off-loaded or boarded in response to fires.

29. Enforce the highway speed.

Priority Level: Low
Hazards Addressed: Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water)
Responsible Agencies: Police
Financial and Technical Resources: Federal Government, Police
Progress/Status: Ongoing/Long term throughout the entire county. Coordination between police agencies.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a medium priority. The priority has changed since the strategy is in place and is continually implemented.

30. Meet with agencies responding to Lake Huron accidents.

Priority Level: Low
Hazards Addressed: Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water)
Responsible Agencies: County Emergency Management Office, Local Fire Departments, Police
Financial and Technical Resources: Federal Government
Progress/Status: Ongoing/Long term throughout the entire county. Annual meeting.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a low priority. The priority has not changed since annual meetings are held.

31. Encourage separating and buffering between industrial land uses, primary hazardous material transportation routes, and other land uses and facilities (schools, residential areas, hospitals, etc.).

Priority Level: Low

Hazards Addressed: Infrastructure Failure, Structural Fires, Transportation Hazardous Material Accident, Transportation Accidents (air/land/water), Biomass Fires, Fixed Site Hazardous Materials Accident, Oil and Gas Accidents (well and pipeline)

Responsible Agencies: County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Landowners, Schools

Financial and Technical Resources: Federal Government, State, NEMCOG (technical)

Progress/Status: Ongoing/Long term throughout the entire county.

Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is continually implemented.

Property Protection Action and Implementation Strategies

The purpose of the property protection action and implementation strategies is to address the strategies related to actions involved in the modification of existing buildings or structures to protect them from a hazard or remove them from a hazardous area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass. For each mitigation strategy in this category, the strategies are designed to reduce structural damage and deterioration, prevent the interruption of businesses, prevent insurance losses, and reduce capital costs for repairs.

1. Improve the location, design, and maintenance of water and sewer systems, including the insulation of critical components to prevent damage from ground freeze.

Priority Level: High

Hazards Addressed: Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Riverine and Urban Flooding, Public Health Emergency, Transportation Hazardous Material Accident, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline)

Responsible Agencies: Utility Company, City of Onaway, City of Rogers City

Financial and Technical Resources: State, Federal Government

Progress/Status: Ongoing/Long term in the entire county. City of Onaway and Rogers City are the primary responsible agencies.

Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a high priority. The priority has not changed since the strategy is continually reviewed and implemented.

2. Encourage residents to keep roads and driveways accessible for fire equipment.

Priority Level: Medium

Hazards Addressed: Structural Fires, Wildfires, Biomass Fires, Scrap Tire Fires

Responsible Agencies: Local Fire Departments, Landowners, Local Businesses

Financial and Technical Resources: State, Landowners, Federal Government, Local Businesses

Progress/Status: Ongoing/Long term throughout the entire county. Education through social media. Community Service Groups assist in snow removal.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

3. Encourage wind-resistant building designs. Incorporate wind-resistant construction techniques into existing public and private structure designs.

Priority Level: Medium
Hazards Addressed: Severe Winds (derecho), Winter Weather Hazard (ice and sleet storms, and snowstorms), Hailstorms, Tornadoes
Responsible Agencies: County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township
Financial and Technical Resources: Federal Government, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

4. Promote the creation of defensible space around structures in fire prone areas.

Priority Level: Medium
Hazards Addressed: Wildfires, Biomass Fires, Scrap Tire Fires
Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Departments, U.S. Forest Service, Michigan Department of Natural Resources, Landowners
Financial and Technical Resources: County, Local Fire Departments, State, Federal Government
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

5. Promote and implement fuel management techniques through thinning and selective thinning of vegetation, creating fuel breaks, and using fire-retardant materials and vegetation.

Priority Level: Low
Hazards Addressed: Wildfires, Biomass Fires, Scrap Tire Fires
Responsible Agencies: Local Fire Departments, U.S. Forest Service, Michigan Department of Natural Resources, County
Financial and Technical Resources: State, County

Progress/Status: Ongoing/Long term throughout the entire county. Conducted by State fire service.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a low priority. The priority has not changed since the strategy is continually implemented.

6. Maintain public rights-of-way through tree trimming and maintenance efforts to safeguard utility lines.

Priority Level: Low
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Hailstorms, Tornadoes, Wildfires, Biomass Fires, Scrap Tire Fires
Responsible Agencies: County Road Commission, Utility Companies
Financial and Technical Resources: Federal Government, Utility Companies, County Road Commission
Progress/Status: Ongoing/Long term throughout the entire county. Agencies monitor the county to schedule tree trimming and maintenance.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is continually reviewed and maintained.

7. Identify appropriate sites and bury power and utility lines when feasible and cost effective.

Priority Level: Low
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Hailstorms, Structural Fires, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Oil and Gas Accidents (well and pipeline), Lightning
Responsible Agencies: Utility Companies
Financial and Technical Resources: Utility Companies
Progress/Status: Ongoing/Long term in the entire county. In Progress.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a low priority. The priority has not changed since the strategy is dependent on funding.

Public Education and Awareness Action and Implementation Strategies

The purpose of the public education and awareness action and implementation strategies is to address the strategies related to actions that inform and educate citizens, elected officials, and property owners about hazards and the potential ways to mitigate them. Examples include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs. For each mitigation strategy in this category, the strategies are designed to reduce deaths and injuries, reduce structural damage and deterioration, prevent the interruption of businesses, prevent insurance losses, reduce capital costs for repairs, and reduce the degradation of cultural and natural resources.

1. Maintain the public outreach program that includes maintaining a list of residences and facilities with vulnerable residents (elderly, infirmed, disabled, etc.).

Priority Level: High

Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Drought, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning, Civil Disturbance, Karst Sinkholes (subsidence)

Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, District Health Department, Civic Groups and Churches, American Red Cross, Schools

Financial and Technical Resources: County Emergency Management Office, District Health Department, County, Civic Groups and Churches, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township, Federal Government, American Red Cross

Progress/Status: Ongoing/Long term throughout the entire county. List is reviewed and updated. Outreach program is in place.

Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a high priority. The priority has not changed since the strategy is continually reviewed and updated.

2. Continue introducing the Firewise program into at-risk communities, including developing Firewise demonstration projects.

Priority Level: High

Hazards Addressed: Wildfires, Biomass Fires, Scrap Tire Fires

Responsible Agencies: County Emergency Management Office, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Departments, U.S. Forest Service, Michigan Department of Natural Resources, Landowners

Financial and Technical Resources: Federal Government, State

Progress/Status: Ongoing/Long term throughout the entire county. Firewise Program is in place and reviewed. Annual education workshops.

Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a high priority. The priority has changed since staff time is more efficiently used to address public awareness action items.

3. Produce and distribute emergency preparedness information and conduct workshops to encourage residents to develop a Family Disaster Plan, including the preparation of a Disaster Supplies Kit.

Priority Level: High

Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Drought, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning, Civil Disturbance, Karst Sinkholes (subsidence)

Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Department, Medical, Schools, Local Businesses, State, Federal Government, MSU Extension

Financial and Technical Resources: Federal Government, Schools, Medical, State, Local Businesses, County

Progress/Status: Ongoing/Long term throughout the entire county. Outreach at festivals and educational events. Educational materials are available at senior centers. Emergency telephone numbers distributed through Code Red, websites, and social media.

Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

4. Develop and implement a public education program for hazards that threaten the county, including incorporation of information into school curriculums and driver education classes, and classroom presentations.

Priority Level: Medium

Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Drought, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning, Civil Disturbance, Karst Sinkholes (subsidence)

Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Departments, Schools, American Red Cross, U.S. Forest Service, Michigan Department of Natural Resources

Financial and Technical Resources: County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township, Federal Government, Local Fire Departments, State

Progress/Status: Ongoing/Long term throughout the entire county. In Progress. Pillowcase project is in place. Wildfire presentations target third graders.

Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has changed since the strategy is continually reviewed, updated, and implemented.

5. Promote media broadcasts of fire weather and warnings.

Priority Level: Medium
Hazards Addressed: Wildfires, Biomass Fires, Scrap Tire Fires
Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Departments, U.S. Forest Service, Michigan Department of Natural Resources
Financial and Technical Resources: Federal Government
Progress/Status: Ongoing/Long term throughout the entire county. Social media postings, NWS alerts and use of warning sirens.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

6. Increase public awareness about the causes, symptoms, and protective actions for disease outbreaks and other potential public health emergencies. Encourage residents to receive immunizations against communicable diseases.

Priority Level: Medium
Hazards Addressed: Public Health Emergency
Responsible Agencies: District Health Department, Schools, Medical, Civic and Church Groups, County Emergency Management Office, American Red Cross, State
Financial and Technical Resources: District Health Department, Federal Government
Progress/Status: Ongoing/Long term throughout the entire county. Health Department has a system in place.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a high priority. The priority has not changed since the strategy is implemented and maintained.

7. Acquire portable signs to inform motorists about hazards on major highways.

Priority Level: Medium
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Scrap Tire Fires
Responsible Agencies: County Emergency Management Office, State, County Road Commission
Financial and Technical Resources: Federal Government, State, County Road Commission
Progress/Status: Ongoing/Long term throughout the entire county. Weather Station with camera located at US 23 and County Road 638. No MDOT message boards on US 23 in Presque Isle County.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

8. Work with insurance companies to provide wildfire information to residents, improve ISO ratings, and consider reducing insurance premiums if homes meet "Firewise" criteria.

Priority Level: Low
Hazards Addressed: Wildfires, Biomass Fires, Scrap Tire Fires
Responsible Agencies: County Emergency Management Office, Local Fire Departments, Insurance Companies, Landowners, U.S. Forest Service, Real Estate Companies, Michigan Department of Natural Resources, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township
Financial and Technical Resources: State, Federal Government, Local Fire Departments
Progress/Status: Ongoing/Long term throughout the entire county. Program in place.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a medium priority. The priority has changed since staff time is more efficiently used to address public awareness action items.

9. Increase public awareness about the need for permits (Part 31 of NREPA) to build in floodplain areas.

Priority Level: Low
Hazards Addressed: Great Lakes Shoreline Flooding and Erosion, Riverine and Urban Flooding
Responsible Agencies: County Emergency Management Office, County, State, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township
Financial and Technical Resources: Federal Government, State
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been added to the 2021 hazard mitigation plan.

10. Provide information to the public about identifying and eliminating neighborhood drug labs.

Priority Level: Low
Hazards Addressed: Public Health Emergency, Fixed Site Hazardous Materials Accident
Responsible Agencies: Police
Financial and Technical Resources: Federal Government, State
Progress/Status: Ongoing/Long term throughout the entire county. Annual training for police, fire, and ems personnel.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is continually implemented.

11. Provide information to the public about pollution control, the proper disposal of chemicals and scrap materials, and enforcement and clean up methods.

Priority Level: Low
Hazards Addressed: Public Health Emergency, Tornadoes, Fixed Site Hazardous Materials Accident, Scrap Tire Fires
Responsible Agencies: State, Federal Government, MSU Extension, County Emergency Management Office

Financial and Technical Resources: Federal Government, State
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is continually evaluated and implemented.

12. Increase public awareness about radioactive soils and radon dangers and the prevention efforts taken to reduce radon concentrations in homes and buildings.

Priority Level: Low
Hazards Addressed: Public Health Emergency, Fixed Site Hazardous Materials Accident
Responsible Agencies: District Health Department
Financial and Technical Resources: Federal Government, District Health Department, State
Progress/Status: Ongoing/Long term throughout the entire county. Health Department has a system in place.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is continually implemented.

13. Provide information about securing loose yard and patio items, and not storing items in floodplains (e.g. gasoline, propane tanks, paint, chemical barrels, etc).

Priority Level: Low
Hazards Addressed: Severe Winds (derecho), Great Lakes Shoreline Flooding and Erosion, Riverine and Urban Flooding, Public Health Emergency, Tornadoes,
Responsible Agencies: County Emergency Management Office, State, Federal Government, insurance companies
Financial and Technical Resources: Federal Government, State
Progress/Status: Ongoing/Long term throughout the entire county. Social media education campaign.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually evaluated and implemented.

14. Provide information to the public about sheltering in place during a hazardous material accident.

Priority Level: Low
Hazards Addressed: Transportation Hazardous Material Accident, Fixed Site Hazardous Material Accident
Responsible Agencies: County Emergency Management Office, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Departments
Financial and Technical Resources: Federal Government, State
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is in place and maintained.

15. Encourage the public to install and maintain smoke detectors, heating systems, and fire extinguishers. Provide training to residents about how to use fire extinguishers. Develop education programs related to the use of stoves, heaters, fireworks, electric, and space heaters, matches/lighters, etc.

Priority Level: Low
Hazards Addressed: Structural Fires, Wildfires, Biomass Fires, Scrap Tire Fires
Responsible Agencies: County Emergency Management Office, County, Local Fire Departments
Financial and Technical Resources: State, Federal Government, Local Fire Departments, Insurance Companies
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a low priority. The action item has been modified to combine multiple action items from the previous plans. The priority has not changed since the program is in place.

Natural Resource Protection Action and Implementation Strategies

The purpose of the natural resource protection action and implementation strategies is to address the strategies related to actions that minimize hazard losses and preserve or restore the functions of natural systems. Examples include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation. For each mitigation strategy in this category, the strategies are designed to reduce deaths and injuries, reduce structural damage and deterioration, prevent the interruption of businesses, prevent insurance losses, reduce capital costs for repairs, and reduce the degradation of cultural and natural resources.

1. Seek support and funding to clean up environmental contamination sites, including but not limited to brownfield sites.

Priority Level: Medium
Hazards Addressed: Public Health Emergency
Responsible Agencies: County, Federal Government, Local Businesses, State, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township
Financial and Technical Resources: District Health Department, Federal Government, State, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township
Progress/Status: Ongoing/Long term throughout the entire county. Funding assistance from EGLE.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

2. Identify and obtain support to improve critical road and stream crossings.

Priority Level: Medium

Hazards Addressed: Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Riverine and Urban Flooding, Transportation Hazardous Material Accident, Transportation Accidents (air/land/water)

Responsible Agencies: County, Local Governments, County Road Commission

Financial and Technical Resources: State, Federal Government, NEMCOG, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township, County Road Commission

Progress/Status: Ongoing/Long term in the entire county. Roadways reviewed annually.

Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a medium priority. The priority has not changed since the strategy is dependent on funding.

3. Identify floodplains with assistance from the Federal Emergency Management Agency (FEMA).

Priority Level: Low

Hazards Addressed: Infrastructure Failure, Great Lakes Shoreline Flooding and Erosion, Riverine and Urban Flooding, Fixed Site Hazardous Materials Accident, Oil and Gas Accidents (well and pipeline)

Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township

Financial and Technical Resources: Federal Governments

Progress/Status: Ongoing/Long term throughout the entire county. County is a non-designated area (unmapped).

Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is continually implemented.

Emergency Services Action and Implementation Strategies

The purpose of the emergency services action and implementation strategies is to address the strategies related to actions that protect people and property during and immediately after a disaster or hazard event. Services include warning systems, emergency response services, and protection of critical facilities. For each mitigation strategy in this category, the strategies are designed to reduce deaths and injuries and reduce the interruption of businesses.

1. Provide trained, equipped, and prepared search and rescue teams.

Priority Level: High

Hazards Addressed: Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Wildfires, Biomass Fires, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Civil Disturbance, Karst Sinkholes (subsidence)

Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis

Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Departments, Police
Financial and Technical Resources: Federal Government, State, County, American Red Cross, Civic and Church Groups, Local Fire Departments, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township
Progress/Status: Ongoing/Long term throughout the entire county. Mutual aid program in place.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a high priority. The priority has not changed since the strategy is continually implemented.

2. Continue developing the Emergency Response Team program.

Priority Level: High
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Drought, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning, Civil Disturbance, Karst Sinkholes (subsidence)
Responsible Agencies: County Emergency Management Office, Police, Local Fire Departments, Medical
Financial and Technical Resources: County Emergency Management Office, Federal Government, Local Fire Departments, Police, Medical
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a high priority. The priority has not changed since the strategy is continually implemented.

3. Conduct training, planning, and preparedness exercises to respond to hazard events, including but not limited to conducting multi-agency, inter-county emergency management response exercises for fire suppression.

Priority Level: High
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Drought, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning, Civil Disturbance, Karst Sinkholes (subsidence)
Responsible Agencies: County Emergency Management Office, County, Local Fire Departments, Police, Schools, Medical, Central Dispatch, Emergency Medical Services, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Michigan Department of Natural Resources, U.S. Forest Service
Financial and Technical Resources: Federal Government, Local Fire Department, Police, Medical, Central Dispatch

Progress/Status: Ongoing/Long term throughout the entire county. Biennial exercises. The local fire department responds to hazardous material accidents. The county does not have a hazardous materials emergency response team.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a high priority. The priority has not changed since the strategy is in place and continually implemented.

4. Seek support and funding to provide more training and exercises for the Health Department's staff.

Priority Level: High
Hazards Addressed: Public Health Emergency, Sabotage/Terrorism/Nuclear Attack
Responsible Agencies: County Emergency Management Office, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, District Health Department, Police, Local Fire Departments,
Financial and Technical Resources: District Health Department, Federal Government, State
Progress/Status: Ongoing/Long term throughout the entire county. Seeking funding.
Previous Plans: This item has been added to the 2021 hazard mitigation plan.

5. Continue updating Central Dispatch's standard operating procedures and equipment.

Priority Level: High
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Drought, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning, Civil Disturbance, Karst Sinkholes (subsidence)
Responsible Agencies: County Emergency Management Office, County, Police, Central Dispatch
Financial and Technical Resources: Federal Government, Central Dispatch
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a high priority. The priority has not changed since the strategy is continually implemented.

6. Ensure the county and communities have adequate equipment, staff, and training to respond to emergency situations.

Priority Level: High
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Drought, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning, Civil Disturbance, Karst Sinkholes (subsidence)
Responsible Agencies: County Emergency Management Office, County, Police, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township,

Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Departments, Medical
Financial and Technical Resources: Federal Government, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township, County, Local Fire Departments, Medical, Police
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a high priority. The priority has not changed since the strategy is continually implemented.

7. Enhance the public early warning system. Identify feasible sites, determine cost options, and seek installation funding to install a siren system across the county.

Priority Level: High
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Drought, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning, Civil Disturbance, Karst Sinkholes (subsidence)
Responsible Agencies: County Emergency Management Office, County, Local Fire Departments, Police, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, County Road Commission
Financial and Technical Resources: Federal Government, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township, County
Progress/Status: Ongoing/Long term throughout the entire county. Functioning siren systems are in downtown Rogers City and the Village of Posen. An inactive siren is at the old, unmanned police station in Onaway. Code Red Alert System is in place. Looking into cost options for an all-encompassing alert system.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a high priority. The priority has not changed since the strategy is continually implemented.

8. Establish heating and cooling centers and shelters for vulnerable populations.

Priority Level: High
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Extreme Temperatures (Extreme Heat and Extreme Cold), Tornadoes, Wildfires, Biomass Fires, Scrap Tire Fires, Oil and Gas Accidents (well and pipeline)
Responsible Agencies: County Emergency Management Office, County, Local Governments, Local Fire Departments, American Red Cross, Schools

Financial and Technical Resources: Federal Government, Local Governments
Progress/Status: Removed from the entire county. List reviewed and updated.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a high priority. The priority has not changed since the strategy is continually reviewed and updated.

9. Encourage all fire agencies to mandate S-130, S-190, and S-250 wildland firefighter training and any necessary refresher training updates. Increase fire training opportunities at ACC.

Priority Level: High
Hazards Addressed: Structural Fires, Wildfires, Biomass Fires, Scrap Tire Fires
Responsible Agencies: County Emergency Management Office, County, Local Fire Departments, U.S. Forest Service, Michigan Department of Natural Resources
Financial and Technical Resources: Federal Government, County Emergency Management Office, U.S. Forest Service, Michigan Department of Natural Resources, State
Progress/Status: Ongoing/Long term throughout the entire county. Full partnership with ACC in place. Alpena CRTC Regional Fire Training Center has training resources, but ACC is the regional training center. Fire Departments are working with ACC to increase fire training in the county. Program in early development stages.
Previous Plans: This item has been added to the 2021 Hazard Mitigation Plan.

10. Standardize fire equipment, so all county firefighters can operate the equipment.

Priority Level: High
Hazards Addressed: Structural Fires, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline)
Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Departments
Financial and Technical Resources: Federal Government, State, Local Fire Departments
Progress/Status: Ongoing/Long term throughout the entire county. In place with ongoing training.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a high priority. The priority has not changed since the strategy is continually implemented.

11. Inventory, maintain, and provide back-up generators to maintain community infrastructure at acceptable operating levels during extended power failures (water, wastewater, communications, healthcare, shelters, etc.). Acquire generators, as needed. Develop a strategy to deploy generators to critical facilities.

Priority Level: Medium
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Riverine and Urban Flooding, Tornadoes, Wildfires, Biomass Fires, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning

Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Departments, Police, American Red Cross, Utility Companies
Financial and Technical Resources: Local Businesses, State, Federal Government, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township
Progress/Status: Ongoing/Long term throughout the entire county. Schools have generators. Working on acquiring two generators for Onaway and Posen. Rogers City has a generator.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a high priority. The priority has changed since the strategy has been implemented and is continually reviewed, updated, and maintained.

12. Train and increase the use of weather spotters.

Priority Level: Medium
Hazards Addressed: Severe Winds (derecho), Winter Weather Hazard (ice and sleet storms, and snowstorms), Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Tornadoes, Drought, Lightning
Responsible Agencies: County Emergency Management Office, National Weather Service, Landowners
Financial and Technical Resources: National Weather Service
Progress/Status: Ongoing/Long term throughout the entire county. Annual training events.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

13. Pre-arrange shelters for stranded motorists, travelers, and others.

Priority Level: Medium
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Tornadoes, Transportation Hazardous Material Accident, Transportation Accidents (air/land/water), Fixed Site Hazardous Materials Accident
Responsible Agencies: County Emergency Management Office, County, Local Governments, Local Fire Departments, American Red Cross
Financial and Technical Resources: Federal Government, Local Governments
Progress/Status: Removed from the entire county. System in place.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented on an as-need basis.

14. Develop a recruitment and retention program for volunteer, paid and part-paid firefighter and emergency medical services personnel.

Priority Level: Medium
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Drought, Fixed Site Hazardous

Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning, Civil Disturbance, Karst Sinkholes (subsidence)
Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Departments
Financial and Technical Resources: Federal Government, Local Fire Departments, Emergency Medical Services
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a medium priority. The priority has not changed since the strategy will be continually implemented.

15. Improve road closure and traffic control capabilities.

Priority Level: Medium
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Riverine and Urban Flooding, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline)
Responsible Agencies: County Road Commission, Local Fire Departments, Police
Financial and Technical Resources: State, County Road Commission
Progress/Status: Ongoing/Long term throughout the entire county. Procedures are in place.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

16. Research and evaluate methods to improve radio reception throughout the county for NOAA radios. Encourage the installation of NOAA radios in new constructions.

Priority Level: Low
Hazards Addressed: Severe Winds (derecho), Winter Weather Hazard (ice and sleet storms, and snowstorms), Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Tornadoes, Lightning
Responsible Agencies: County Emergency Management Office, National Weather Service, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, Local Fire Departments, Road Commission, Police, Central Dispatch, Civic Groups and Churches, State, Local Businesses, Insurance Companies
Financial and Technical Resources: Federal Government, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township, State
Progress/Status: Ongoing/Long term throughout the entire county. In Progress.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is continually reviewed.

17. Ensure key gasoline stations have the capacity and ability to pump gasoline during power outages.

Priority Level: Low

Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Riverine and Urban Flooding, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Lightning, Karst Sinkholes (subsidence)

Responsible Agencies: County Emergency Management Office, County, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township

Financial and Technical Resources: Federal Governments, Local Businesses

Progress/Status: Ongoing/Long term throughout the entire county. Resources are available. One gas station can order a truck to distribute gasoline during disaster events.

Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is continually reviewed, updated, and maintained.

18. Inventory the heavy equipment, wreckers, and jaws units within the county.

Priority Level: Low

Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Structural Fires, Riverine and Urban Flooding, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Karst Sinkholes (subsidence)

Responsible Agencies: County Emergency Management Office

Financial and Technical Resources: Federal Government

Progress/Status: Ongoing/Long term throughout the entire county. Annual reviews.

Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a medium priority. The priority has changed since the strategy is complete and is maintained.

19. Use Rogers City Airport as a regional base for air firefighting support.

Priority Level: Low

Hazards Addressed: Wildfires, Biomass Fires, Scrap Tire Fires

Responsible Agencies: County Emergency Management Office, U.S. Forest Service, Michigan Department of Natural Resources, Local Fire Departments

Financial and Technical Resources: State, Federal Government

Progress/Status: Ongoing/Long term throughout the entire county. In Place.

Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a low priority. The priority has changed since the strategy has the potential to reduce wildfire impacts.

20. Develop and conduct exercises for site emergency plans, community response plans, and airfield emergencies.

Priority Level: Low
Hazards Addressed: Severe Winds (derecho), Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Extreme Temperatures (Extreme Heat and Extreme Cold), Hailstorms, Structural Fires, Riverine and Urban Flooding, Public Health Emergency, Tornadoes, Transportation Hazardous Material Accident, Wildfires, Transportation Accidents (air/land/water), Biomass Fires, Drought, Fixed Site Hazardous Materials Accident, Scrap Tire Fires, Sabotage/Terrorism/Nuclear Attack, Oil and Gas Accidents (well and pipeline), Lightning, Civil Disturbance, Karst Sinkholes (subsidence)
Responsible Agencies: County Emergency Management Office, Police, Local Fire Departments, Emergency Medical Services, Central Dispatch, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, County, Police, Medical
Financial and Technical Resources: Federal Government, State
Progress/Status: Ongoing/Long term throughout the entire county. The Emergency Management Office is working with local officials to develop and conduct exercises.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a priority 5. The priority was changed to streamline the plan.

21. Provide training about how on-site hazardous material products are manufactured, handled, stored, transported, used, and disposed of. Emphasize safety policies.

Priority Level: Low
Hazards Addressed: Oil and Gas Accidents (well and pipeline), Transportation Hazardous Material Accident, Fixed Site Hazardous Material Accident
Responsible Agencies: State, Federal Government, County Emergency Management Office, Local Fire Departments, County Road Commission, Police, Schools
Financial and Technical Resources: Federal Government, State, Local Fire Departments
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a low priority. The priority has not changed since the strategy is continually evaluated and implemented.

22. Encourage the use of ITS (intelligent transportation system) technology.

Priority Level: Low
Hazards Addressed: Transportation Hazardous Material Accident, Transportation Accidents (air/land/water)
Responsible Agencies: State, Central Dispatch, Police
Financial and Technical Resources: State
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually implemented.

Structural Projects Action and Implementation Strategies

The purpose of the structural projects action and implementation strategies is to address the strategies related to actions involving the construction of structures to reduce the impact from a hazard. Examples include dams, levees, floodwalls, seawalls, retaining walls, and safe rooms. For each mitigation strategy in this category, the strategies are designed to reduce deaths and injuries, reduce structural damage and deterioration, prevent the interruption of businesses, prevent insurance losses, reduce capital costs for repairs, and reduce the degradation of cultural and natural resources.

1. Identify critical roadways affected by hazards. Install snow fences or stone, and plant vegetation.

Priority Level: Medium
Hazards Addressed: Infrastructure Failure, Winter Weather Hazard (ice and sleet storms, and snowstorms), Great Lakes Shoreline Flooding and Erosion, Riverine and Urban Flooding, Transportation Hazardous Material Accident, Transportation Accidents (air/land/water)
Responsible Agencies: County Road Commission, State
Financial and Technical Resources: Federal Government, County Road Commission, State, City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Rogers Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Pulawski Township, Posen Township, Krakow Township, Presque Isle Township
Progress/Status: Ongoing/Long term throughout the entire county.
Previous Plans: This item has been retained from the 2005 and 2014 plan, in which it was classified as a medium priority. The priority has not changed since the strategy is continually reviewed and maintained.

2. Seek funding to provide the necessary crowd control measures for a public health emergency and the necessary storage when the equipment is not in use.

Priority Level: Medium
Hazards Addressed: Public Health Emergency
Responsible Agencies: City of Rogers City, City of Onaway, Village of Posen, Village of Millersburg, Bearinger Township, North Allis Township, Allis Township, Ocqueoc Township, Case Township, Moltke Township, Bismark Township, Belknap Township, Metz Township, Krakow Township, District Health Department, Federal Government, State
Financial and Technical Resources: District Health Department, Federal Government, State, County, Police, Long Rapids Township
Progress/Status: Ongoing/Long term throughout the entire county. Seeking funding.
Previous Plans: This item has been added to the 2021 hazard mitigation plan.

Removed Mitigation Action and Implementation Strategies from the 2021 Plan

1. Develop housing/landlord codes to enforce heating requirements.

Priority Level: High
Responsible Agencies: County, Local Governments, State
Financial and Technical Resources: State
Progress/Status: Removed for the entire county. Strategy falls under State jurisdiction with county and local governments enforcing state codes.

Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a high priority.

2. Improve and/or enact landlord/tenant ordinances.

Priority Level: Medium
Responsible Agencies: Local Governments, State, County
Financial and Technical Resources: State, Local Governments, County
Progress/Status: Removed for the entire county. Strategy falls under State jurisdiction with county and local governments enforcing state codes.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a medium priority.

3. Require new mobile home parks to have tornado and wind shelters.

Priority Level: Low
Responsible Agencies: State, County, Local Governments
Financial and Technical Resources: State
Progress/Status: Removed for the entire county. Strategy falls under State jurisdiction with county and local governments enforcing state codes.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a low priority.

4. Amend building codes to require installation of weather radios in new structures.

Priority Level: Low
Responsible Agencies: County, Local Governments
Financial and Technical Resources: County, State
Progress/Status: Removed for the entire county. Strategy falls under State jurisdiction with county and local governments enforcing state codes.
Previous Plans: This item had been retained from the 2005 and 2014 plan, in which it was classified as a low priority.

5. Amend building codes to require anchoring of manufactured homes and exterior structures, such as carports and porches.

Priority Level: Low
Responsible Agencies: Local Governments, State, County
Financial and Technical Resources: State, County, Local Governments
Progress/Status: Removed for the entire county. Strategy falls under State jurisdiction with county and local governments enforcing state codes.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a low priority.

6. Develop, promote, and implement a program to inform the public about free or reduced expense community clinics and health services.

Priority Level: High
Responsible Agencies: District Health Department, Medical, Schools
Financial and Technical Resources: District Health Department, Federal Government
Progress/Status: Removed for the entire county. Strategy has been implemented in the county.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a high priority.

7. Research locations for the placement of computerized weather kiosks at major Lake Huron marinas in conjunction with U.S. Power Squadron.

Priority Level: Low
Responsible Agencies: Civic Groups and Churches
Financial and Technical Resources: Federal Government, Civil Groups and Churches
Progress/Status: Removed for the entire county. Weather channels, radios, and phone apps. are available.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a low priority.

8. Develop a strategy to provide more mass casualty medical equipment to handle 100-220 survivors of a heavy jet transport or marine accident.

Priority Level: Low
Responsible Agencies: County Emergency Management Office, Local Fire Departments, Local Governments, Police, Medical
Financial and Technical Resources: Federal Government, State
Progress/Status: Removed for the entire county. Strategy is already include in the mass casualty response plan and in the airfield emergency training exercises.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a low priority.

9. Reduce congestion on arterial roads through ling-term planning efforts that provide more connector routes.

Priority Level: Low
Responsible Agencies: Local Governments, State, County Road Commission
Financial and Technical Resources: Local Businesses, County Road Commission, County
Progress/Status: Removed for the entire county. Road congestion is not an issue in the county.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a low priority.

10. Research and develop a plan to airlift persons involved in airplane accidents.

Priority Level: Low
Responsible Agencies: County Emergency Management Office, Local Fire Departments, Police, Medical
Financial and Technical Resources: Local Fire Department, Medical
Progress/Status: Removed for the entire county. Strategy is included in the mass casualty response plan and in the airfield emergency training exercises.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a low priority.

11. Conduct a scenario involving a heavy jet.

Priority Level: Low
Responsible Agencies: County Emergency Management Office, County, Local Governments, Local Fire Departments, Police, National Weather Service, Schools
Financial and Technical Resources: Federal Government
Progress/Status: Removed for the entire county. Included in the mass casualty response plan and in the airfield emergency training exercises.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a low priority.

12. Develop and implement a response strategy for terrorist acts.

Priority Level: Medium
Responsible Agencies: County Emergency Management Office, Police
Financial and Technical Resources: Federal Government, State
Progress/Status: Removed for the entire county. Strategy is incorporated into another strategy. No significant targets in the county.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a medium priority.

13. Develop an implementation strategy to distribute NOAA radios throughout the county.

Priority Level: Low
Responsible Agencies: County Emergency Management Office, County, Local Governments, Local Fire Department, County Road Commission, District Health Department, MSU Extension, American Red Cross
Financial and Technical Resources: Federal Government, County
Progress/Status: Removed for the entire county. No funding available.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a medium priority.

14. Re-institute "Farm Safety Programs."

Priority Level: Low
Responsible Agencies: Local Businesses, MSU Extension, Civic Groups and Churches
Financial and Technical Resources: Federal Government, State
Progress/Status: Removed for the entire county. Not cost effective.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a low priority.

15. Develop program to demolish and clear vacant, condemned structures to prevent rodent infestations.

Priority Level: Low
Responsible Agencies: Local Governments
Financial and Technical Resources: Local Governments
Progress/Status: Removed throughout the entire county. Program in place.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a low priority.

16. Develop an exercise for gasoline and propane accidents.

Priority Level: Low
Responsible Agencies: County Emergency Management Office
Financial and Technical Resources: Federal Government
Progress/Status: Removed for the entire county. Included in the emergency training exercises.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a low priority.

17. Develop an exercise for a 60-person accident involving a bus and logging truck.

Priority Level: Low
Responsible Agencies: County Emergency Management Office, Local Fire Departments, Police, Schools

Financial and Technical Resources: Federal Government
Progress/Status: Removed for the entire county. Included in the emergency training exercises.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a low priority.

18. Develop an exercise for site emergency plans and community response plans per SARA Title III.

Priority Level: Low
Responsible Agencies: N/A
Financial and Technical Resources: Federal Government, State
Progress/Status: Removed for the entire county. Included in the emergency training exercises.
Previous Plans: This item had been retained from the 2005 and 2014 plans, in which it was classified as a low priority.

19. Use CAMEO to develop pre-evacuation plans by material type.

Priority Level: Low
Responsible Agencies:
Financial and Technical Resources:
Progress/Status: Removed from the plan. The county no longer uses the program.
Previous Plans: This item has been retained from the 2014 plans, in which it was classified as a low priority.

20. Explore enlisting aid of insurance companies to provide evacuation information.

Priority Level: Low
Responsible Agencies: Local Governments, Local Fire Departments, Landowners
Financial and Technical Resources: Federal Government, Local Governments
Progress/Status: Ongoing/Long term throughout the entire county. Not applicable.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a low priority. The item has been removed from the 2021 plan since it was deemed not applicable during the 2014 update.

21. Develop a program to form a Wildfire Safety Coalition to develop neighborhood watch program to instruct others about escape routes, sprinkler systems, power lines, etc.

Priority Level: Low
Responsible Agencies: Local Fire Departments, Michigan Department of Natural Resources
Financial and Technical Resources: Local Fire Departments, Michigan Department of Natural Resources
Progress/Status: Ongoing/Long term throughout the entire county. Not applicable.
Previous Plans: This item has been retained from the 2005 and 2014 plans, in which it was classified as a low priority. The item has been removed from the 2021 plan since it was deemed not applicable during the 2014 update.

Chapter 9 Plan Maintenance

Implementation, Monitoring, and Evaluation

The Presque Isle County Board of Commissioners (BOC) and the Presque Isle County Office of Emergency Management (EM) are the primary entities responsible for implementing the Presque Isle County Hazard Mitigation Plan. The BOC will need to evaluate funding and staffing required to implement the hazard mitigation plan since the current resources, both staff and financial, may not accommodate the expanded role of the EM and the Local Emergency Planning Committee (LEPC). GIS data sets and maps will be updated and maintained by the local governments for future use in the implementation and monitoring of hazard mitigation activities.

The LEPC is organized under the Michigan SARA Title III Program and meets on a regular basis to carry out its duties. A Hazard Mitigation Committee (HMC) was formed from the members of the LEPC. Since the HMC is a sub-committee of the LEPC, it will function under the BOC. The HMC and the Emergency Services Coordinator will be responsible for monitoring and overseeing the implementation of the hazard mitigation plan. Involvement in the HMC will be determined by the available emergency management staff time and resources. Staff support will be provided by the EM and will coordinate with the BOC. The Emergency Services Coordinator will provide program administration and project oversight on an ad-hoc basis.

The roles related to the HMC may be defined/re-defined by the committee. The HMC will develop a five year project list from the mitigation strategies identified in the Presque Isle County Hazard Mitigation Plan, and will perform an annual review of the hazard mitigation plan to determine what projects have been accomplished and to add new projects to the five year action list. The HMC may also assist other agencies in accomplishing projects, such as determining overall costs and funding sources, identifying the staff and agencies required to complete the project, and determining timelines. The HMC may also support grant writing to seek funding to complete projects, address specific issues and circumstances arising from an event that caused a disaster declaration, evaluate the need for new projects and amend the hazard mitigation plan, review reports from agencies involved in implementing mitigation projects, prepare an annual mitigation activity report for the BOC, and function as a clearinghouse for mitigation grant applications. During the hazard mitigation plan update process, the HMC will advertise and facilitate two public meetings to obtain input from the general public, businesses, townships, and agencies. A notice will be posted to advertise any meeting of the HMC where the committee will be reviewing and/or updating the mitigation plan.

Additionally, the HMC and the EM will be responsible for evaluating the effectiveness of the plan during the five year update or more often, if necessary. The evaluation will keep the hazard mitigation plan current and will include an assessment about whether the goals and objectives address current and expected conditions, the risks have changed in nature, magnitude or type, there are implementation issues, the current resources are appropriate for plan implementation, there have been favorable outcomes, and other agencies and stakeholders have participated as expected.

Local governments, county departments, and local, state and federal agencies will have the ability to propose projects and/or sponsor projects identified in the hazard mitigation plan.

Partnerships with the following agencies and organizations will strengthen the County's hazard mitigation program to efficiently leverage available resources:

- Presque Isle County Departments
- Krakow Township
- Bearinger Township
- North Allis Township
- Allis Township
- Ocqueoc Township
- Case Township
- Rogers Township
- Moltke Township
- Bismark Township
- Belknap Township
- Metz Township
- Pulawski Township
- Posen Township
- Presque Isle Township
- City of Rogers City
- City of Onaway
- Village of Posen
- Village of Millersburg
- Township, City, and Village Fire Departments
- Presque Isle County Conservation District
- Presque Isle County Road Commission
- Northeast Michigan Council of Governments
- Michigan Department of Natural Resources
- Michigan Department of Environment, Great Lakes, and Energy
- U.S. Forest Service
- Michigan State University Extension
- Michigan Department of Agriculture and Rural Development
- Natural Resource Conservation Service
- District Health Department
- American Red Cross
- Insurance Companies
- Real Estate Companies
- Local Businesses
- Civic Groups and Churches

Integration

Presque Isle County, Rogers City, Onaway, Posen, Millersburg, all townships in Presque Isle County, and local and state agencies will consider integrating information from the hazard mitigation plan into their comprehensive and operations plans. When jurisdictions update their master plans, they will consider incorporating appropriate hazard mitigation information. All communities in the county are encouraged to adopt zoning regulations to minimize the effect of hazards.

Five Year Plan Review and Update

The Stafford Act, as amended by the Disaster Mitigation Act of 2000, requires the Presque Isle County Hazard Mitigation Plan to be updated, adopted, and re-submitted to the Federal Emergency Management Agency (FEMA) for approval every five years. The plan will be reviewed by the HMC every five years in alignment with federal regulations. The update will include determining changes in the county, such as changes in development, an increase in exposure to hazards, an increase or decrease in the communities' capability to address hazards, addition and/or removal of mitigation actions and strategies, reviewing goals, and a change in federal or state legislation. Upon plan review and update completion, the plan will be sent to the State Hazard Mitigation Officer at the Michigan State Police for final review and approval in coordination with FEMA. When the plan has received an "approved pending adoption" status from FEMA, the County Board of Commissioners and local jurisdictions will review, approve, and adopt the plan. In order to properly update the plan, Presque Isle County will need to seek funding from appropriate state and federal agencies.

Continued Public Involvement

Presque Isle County is committed to keeping the public involved in the implementation and update of the hazard mitigation plan. Copies of the plan will be available at the county libraries, county clerk's office, and all township offices. It will also be posted on community websites and/or the regional planning agency website. The Office of Emergency Management will be responsible for keeping a record of public comments regarding the plan.

Appendix A
Regional Public Participation Survey

The survey results for individuals residing in Presque Isle County are included within this appendix and are represented with graphs, tables, and dated comments. The results for the regional survey can be viewed at:
http://www.discovernortheastmichigan.org/downloads/regional_survey_results.pdf.

Fourteen respondents indicated they lived within Presque Isle County and 78.57% indicated they have not received information about how to make their household safer from natural, technological, or human-related hazards. The respondents who had received information indicated it came from the American Red Cross, FEMA, and the Alpena County Emergency Management Office. The majority of respondents indicated the internet was the most effective way to distribute information, followed by the mail, newspaper, television, and public workshops/meetings. About 64.29% of respondents reported they have not experienced a hazard event in the last five years. The respondents who had experienced a hazard event indicated they had experienced a snowstorm or winter storm.

Natural Hazards

Respondents are very concerned or somewhat concerned about the following hazards:

- Snow/ice storm: 71.42%
- Extreme cold, wildfire, and windstorm/high wind: 57.14%

Respondents are not very concerned or not concerned about the following hazards:

- Flood and tornado: 57.14%
- Extreme heat: 52.86%
- Drought: 50.0%
- Thunderstorms: 42.86%

Respondents feel Presque Isle County is best prepared to handle snow/ice storms (64.29%), extreme cold (50%), and thunderstorms (50%). Approximately 38.46% of respondents feel the county is least prepared to handle a flood (38.46%). Respondents were unsure how prepared the county is to handle drought (61.54%), tornadoes (57.14%), windstorm/high winds (57.14%), extreme heat (53.85%), and wildfire (50.0%).

Technological Hazards

Respondents are very concerned or somewhat concerned about the following hazards:

- Communications Failure: 85.72%
- Structural fire: 78.57%
- Hazardous Material Spill, oil and gas accidents, and power failures: 71.43%
- Road accident: 64.28%
- Water or wastewater treatment system failure: 50.0%

Respondents are not very concerned or not concerned about the following hazards:

- Railroad accidents: 85.71%
- Terrorism/sabotage: 64.29%
- Air transportation accident: 57.14%

Respondents are split on their concern level for the following hazard:

- Water transportation accidents: 35.72% are very concerned or somewhat concerned, while 35.72% are not very concerned or not concerned.

Respondents feel Presque Isle County is best prepared to handle road accidents (92.86%), structural fires (69.23%), and power failure (64.29%). Respondents feel the county is least prepared to handle terrorism/sabotage events (78.57%), air transportation accidents (71.43%), hazardous material spills (53.85%), water transportation accidents (50.0%), and oil and gas accidents (38.46%). Respondents are unsure how prepared the county is to handle water or wastewater treatment system failures (78.57%), dam failure (64.29%), railroad accidents (61.54%), and communications failure (50.0%).

Human-Related Hazards

Respondents are very concerned or somewhat concerned about the following hazard:

- Cyber-attacks: 38.46%

Respondents are not very concerned or not concerned about the following hazard:

- Chemical or biological attacks: 57.14%

Respondents feel the county is least prepared to handle chemical or biological attack (71.43%) and cyber-attacks (64.29%).

Community Assets

Respondents ranked the following community assets from the most vulnerable to the least vulnerable to the hazard impacts:

1. Infrastructure (damage or loss of bridges, utilities, schools, etc.)
2. Human (death/injuries)
3. Economic (business closures, job losses, etc.)
4. Environmental (damage or loss of forests, waterways, etc.)
5. Governance (ability to maintain order and/or provide public amenities and services)
6. Cultural/Historic (damage or loss of libraries, museums, fairgrounds, etc.)

Regulatory Approaches

Respondents supported the following approaches to reduce risk and loss associated with disasters:

- Improving the disaster preparedness of local schools (100%)
- Taking steps to safeguard the local economy following a disaster (92.86%)
- Creating an inventory of at-risk buildings and infrastructure (92.86%)
- Disclosing natural hazard risk on real estate transactions (92.86%)
- Policies to prohibit development in areas subject to natural hazards (85.71%)
- Making their home more disaster-resilient (85.71%)
- Protecting historical or cultural structures (71.43%)
- The use of tax dollars to reduce risk and losses from natural disasters (71.43%)
- Non-regulatory approaches (64.29%)
- Regulatory approaches (57.14%)

Respondents recommended improving wildfire protection, increasing public education and workshops about mitigation strategies, increase community involvement on planning and operations during a disaster, reasonable and consistent fire code enforcement, increased funding to enhance essential public safety services, developing a rapid marine response for boaters in danger on Lake Huron.

Appendix B
Planning Process Supporting Documents

Regional Public Participation Survey Publicity

LOCAL NEWS
New stories updated daily on-line at www.weeklychoice.com

Cheboygan and Gaylord riders Ride for Life

Leah Striefel

Gaylord and Cheboygan Right to Life riders met in Topinabee

By Jim Rutkowski

Gaylord Right to Life held their annual "Ride for Life" fundraiser on Saturday, August 3rd. The Gaylord contingent of 22 riders were met in Topinabee by 16 riders from the Cheboygan Right to Life. Each year riders solicit donations which are used by each affiliate to educate their communities and promote pro-life causes. The benefactor this year for the Gaylord RTL Chapter is "Michigan Values Life", a non-profit organization working to ban the practice of dismemberment abortion in the State.

At the rally following the bike ride, Leah Striefel, former president of Teens for Life and Michigan Right to Life's Teen of the Year, shared her winning speech from this year's Gaylord RTL Oratory Contest. She shared information about how pro-choice groups mislead women when they compare abortion to 'having a tooth removed at the dentist's office'. She also shared statistics showing that as many as 45% of women battle depression and other mental health problems after an abortion.

This year's donations have yet to be tabulated.

Five counties are updating their Hazard Mitigation Plans

Crawford, Montmorency, Oscoda, Otsego, and Presque Isle Counties are in the process of updating their Hazard Mitigation Plans with assistance from Northeast Michigan Council of Governments. The counties prepared their first Hazard Mitigation plans in 2005 and updated them in 2014. This update will amend the 2014 Hazard Mitigation plans.

The plan update will inventory the county's potential hazards, assess the county's risks and vulnerabilities from the hazards, and develop mitigation strategies to reduce and prevent losses from future disasters. The counties and Northeast Michigan Council of Governments are conducting a survey to gain input from residents and businesses about their perceptions and opinions regarding natural hazards, and the preferred methods and techniques used to reduce the risks and losses from these hazards. The responses will be used to inform the plans' update.

The survey will be available online at www.surveymonkey.com/r/NEMCOGhazardsurvey or may be downloaded from http://www.discovernortheastmichigan.org/hazardmitigation.asp. The completed paper copy can be mailed to NEMCOG, PO Box 457, 80 Livingston Blvd, Suite U-108, Gaylord, MI 49734. The deadline for completing the survey is September 23, 2019.

In the upcoming months, the draft Hazard Mitigation Plans will be available for review and comment.

Sofia Messinis is 2019 Otsego County Fair Queen!

From left; Otsego County Fair Princess 1st Runner Up – Isabel Messins, Otsego County Fair Princess – Ashley Cook, Otsego County Fair Queen; Sofia Messins,Otsego County Fair Queen 1st Runner Up – Holly Kussrow and Otsego Fair Queen 2nd Runner Up – Rileigh Parrett.

PHOTO BY IMPOSSIBLE PHOTOGRAPHY

Congratulations to all of the 2019 Otsego County Fair Queen and Princess contestants. They all did amazing and truly shined on stage.

The results of the annual Fair Queen and Princess contest, held on Sunday evening, August 10, were:

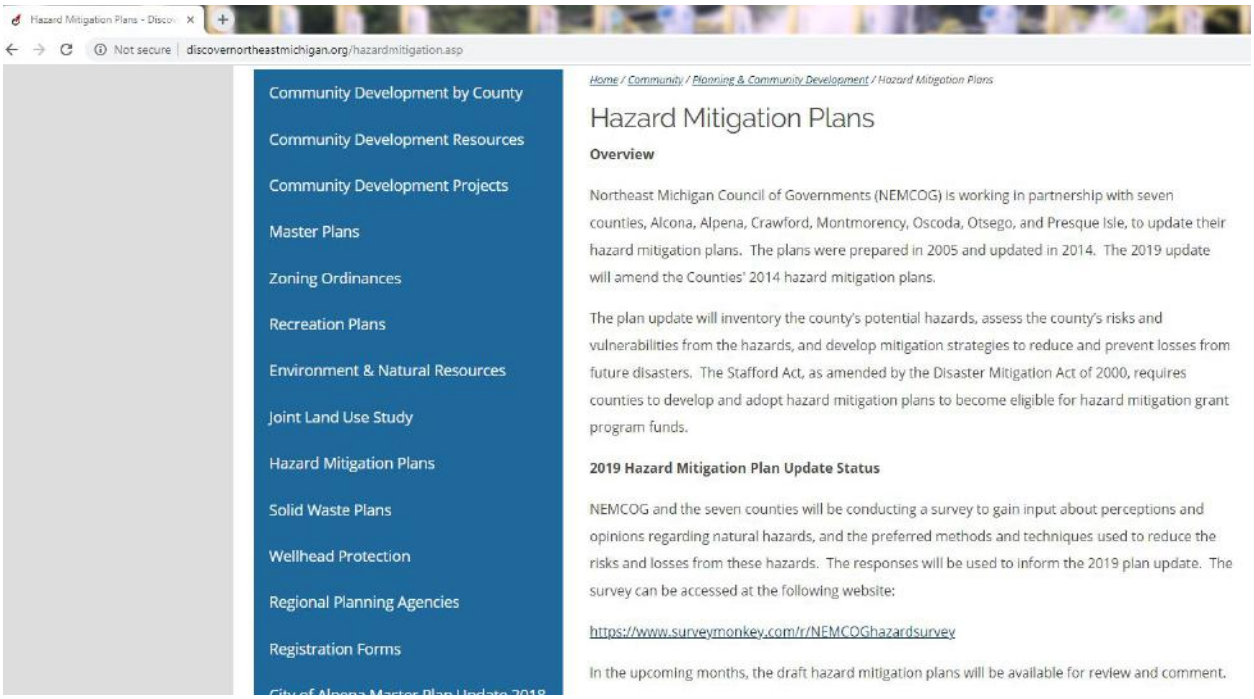
Your 2019 Otsego County Fair Queen: Sofia Messinis!
- 1st Runner up: Holly Kussrow
- 2nd Runner up: Rileigh Parrett
- 2019 Otsego County Princess: Ashley Cook
- 1st Runner up: Isabel Messinis

Special Award Winners were:

Queens Pageant
- Congeniality: Holly Kussrow
- Talent: Sofia Messinis
- Evening Gown Winner: Sofia Messinis

Princess Pageant
- Congeniality: Ashley Cook
- Evening Gown: Isabel Missinis

Congratulations and welcome to the Otsego County Fair royalty!


Hazard Mitigation Plans - Discov
Not secure | discovernortheastmichigan.org/hazardmitigation.asp
Community Development by County
Community Development Resources
Community Development Projects
Master Plans
Zoning Ordinances
Recreation Plans
Environment & Natural Resources
Joint Land Use Study
Hazard Mitigation Plans
Solid Waste Plans
Wellhead Protection
Regional Planning Agencies
Registration Forms
Home / Community / Planning & Community Development / Hazard Mitigation Plans
Hazard Mitigation Plans
Overview
Northeast Michigan Council of Governments (NEMCOG) is working in partnership with seven counties, Alcona, Alpena, Crawford, Montmorency, Oscoda, Otsego, and Presque Isle, to update their hazard mitigation plans. The plans were prepared in 2005 and updated in 2014. The 2019 update will amend the Counties' 2014 hazard mitigation plans.
The plan update will inventory the county's potential hazards, assess the county's risks and vulnerabilities from the hazards, and develop mitigation strategies to reduce and prevent losses from future disasters. The Stafford Act, as amended by the Disaster Mitigation Act of 2000, requires counties to develop and adopt hazard mitigation plans to become eligible for hazard mitigation grant program funds.
2019 Hazard Mitigation Plan Update Status
NEMCOG and the seven counties will be conducting a survey to gain input about perceptions and opinions regarding natural hazards, and the preferred methods and techniques used to reduce the risks and losses from these hazards. The responses will be used to inform the 2019 plan update. The survey can be accessed at the following website:
https://www.surveymonkey.com/r/NEMCOGhazardsurvey
In the upcoming months, the draft hazard mitigation plans will be available for review and comment.

Meeting Agendas, Minutes, and Sign-in Sheets

Northeast Michigan Council of Governments
80 Livingston Blvd Suite U-108 | PO Box 457 | Gaylord, MI 49734 | Voice: 989.705.3730 | Fax: 989.705.3729 | nemcog.org

MINUTES
OF THE
NORTHEAST MICHIGAN COUNCIL OF GOVERNMENTS
BOARD OF DIRECTORS' MEETING

April 18, 2019

University Center
Gaylord, MI

Call to Order
The Northeast Michigan Council of Governments (NEMCOG) Board of Directors Meeting was called to order by Robert Heilman, Board President, at 10:02 a.m.

A quorum was declared.

Roll Call

Board Members Present:	Dan Gauthier, Dave Karschnick, John Wallace, James Kargol, Kyle Yoder, Robert Pallarito, Carl Altman, Adam Poll, Marisue Moreau, Robert Heilman, Doug Baum, Dave Post, Bill Wishart and Norman Brecheisen
Staff Present:	Diane Rekowski, Theresa Huff and Karen Cole

Approval of Minutes
R. Heilman presented the Minutes of the March 21, 2019 meeting. R. Pallarito moved, seconded J. Wallace to approve the minutes as presented. Yes all, motion carried.

Financial Report
K. Cole reviewed the March, 2019 financial statements. D. Baum moved, seconded by A. Poll to receive and file the March, 2019 Financial Report as presented. Yes all, motion carried.
K. Cole informed the Board that the FY2018 Audit is still in progress and expects one more meeting with the auditors.

Presentation: Lindsey Miller, MEDC
Lindsey introduced herself to the board as MI Economic Development Corporation's (MEDC's) Community Assistance Team (CAT) staff for the NEMCOG region. She also covers the three counties below (Roscommon, Ogemaw and Iosco) and three counties in the Upper Peninsula. Information on Community Assistance programs offered by MEDC was then reviewed along questions taken from the Board.

President's Report

Regional Project Review: R. Heilman stated there were (6) Federal Grant projects for regional review; (0) Other projects for regional review and (1) public notice. D. Baum moved, seconded by M. Moreau to approve all the Projects as presented. Yes all, motion carried.

MI Association of Regions (MAR): D. Rekowski informed the Board that funding for the Regional Prosperity Initiative (RPI) was not included in the Governor's Budget. MAR is working with Legislators to restore funding.

Director's Report

RPI: D. Rekowski updated the Board on the RPI Mini-grant program. 34 Mini-Grant applications were received. Program is very popular within the Region. The Resolution the NEMCOG Board approved last meeting has been sent to the Region's Representatives. Meetings have been organized to discuss in detail the success of the RPI in the region. The resolution will be sent to the board members for possible action from local boards.

Small Business Development Center (SBDC) Update: D. Rekowski will be meeting with Marisue Moreau, SBDC and Kirtland Community Colleges to discuss possible collaboration to ensure small business counseling services continue in the region. May be a good topic that the new Executive Committee for the RPI Council could explore.

Staff Program Highlight: Hazard Mitigation

Christina McEmber was introduced to the board as a new staff member at NEMCOG. She gave a brief status update of the Hazard Mitigation process, includes 7 counties and is in the early stage of planning and meeting with Emergency Managers in the region.

Coming Events: D. Rekowski provided a handout of coming events including May 1, 2019, Solid Waste/Sustainable Materials Workshop in Hillman, MSUE- Opportunity Zones Workshop, May 13th, Munetrix, May 16 NEMCOG Board meeting and Coastal Resiliency Workshop, May 21st at NOAA.

Committee Reports

RPI Committee: D. Baum stated there was not a meeting last month; too many members were out of town due to Spring Break.

Previous Business

None

New Business

None

County Updates

Alcona Co.: Sheriff is retiring May 1st. The Under Sheriff will fill the Sheriff's position. Have a new Emergency Manager. Union staff got a wage increase, now having to look at non-union staff wage increase.

Alpena Co.: New jail at $12 million, funded by a millage. New Airport Terminal moving along fast.

Cheboygan Co.: New jail expansion is complete. Jail increased from 80 to 105 beds. Meijer is a possibility as a review of a 425 agreement is underway

City of Alpena: Finishing first CRP grant. Lots of interest in rental rehab program.

City of Gaylord: Approved Elmer's for street construction projects this summer. Pilot program-55 town houses behind Family Fare. Project on East Side of town will have 228 apartments coming in. T-Mobile is opening a store. Will be ripping out Shell Station/Schnapps and Hopps parking lot. Lucky's will be going in by Meijer's and south Townline.

City of Grayling: Approved Construction Manager to work with Architect on the Hub project. Working on site plan review. Arauco had their grand opening this week. Board will tour in the fall. Arauco is a 520,000 square foot facility with full technology. Northern Michigan Law Enforcement Training Group is still having problems with the Camp Grayling and they no longer have an office on the base. Blake Davis was hired for marketing and scheduling the training with area police departments.

Emmet Co.: City of Petoskey Pit/Hole has been sold and there are plans to construct a building at the site.

Livingston Township: Approved right of way with Consumers to increase lines to grow facilities.

MI Works!: Career Fairs are going on. The next one will be in Alpena next Tuesday. 3 have been completed. Have done well, except low number in Mackinaw. Career Quest is fast approaching. 1,600 students, 4 quadrants with several employers. Have VIPs, can stop by, let Marisue know. Volunteers are welcome. If anyone wants to volunteer, let Marisue know.

Mackinaw City: Lawsuit back to ZBA. "Suer" back to Circuit Court. 3 businesses in town have had their roofs collapse due to the heavy snow and have been condemned. Straits pretty much free of ice.

Oscoda Co.: Court house update – meeting with contractor for estimate and design for the build. Hope to start in near future. Interested in learning more about Dark Skies. Oscoda County dismissed from State Law Suite. Having some road issues near airport to residents who leave near there.

Otsego Co.: Approved second round of Recycling RFP. Had issues with 1st round with American Waste vs. Emmet County. Goes to board for approval next week. Otsego County transit having funding issues. Will go to vote in August for a significant millage.

Presque Isle Co.: It's fairly quiet, looking for bids for jail roof. RFP has been released for the sale of the Onaway Airport.

Village of Hillman: A test well for water was completed and didn't go very well, back to the drawing board. Redoing plumbing to see if that'll help. Doing storm drain work, gearing up for summer. Dark Skies event last week, did very well. Hillman Community Radio website has a Dark Skies section and there are several amazing photos displayed. Hillman Airport 5k Run and Walk on July 6th. Will have planes and restaurants there.

Presque Isle County

Office of Emergency Management

NOTICE OF PUBLIC MEETING of the Presque Isle County LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)

DAY: Wednesday
DATE: September 25, 2019
TIME: 2:00 PM
PLACE: Medilodge Conference Room
555 N. Bradley Hwy (Rehab Hospital entrance facing US 23)
Rogers City, MI

LEPC (Local Emergency Planning Committee)
Meeting Agenda

1. Call to Order
2. Pledge of Allegiance
3. Introductions
4. Approval of Agenda
5. Public Comment
6. LEPC Overview
6. NEMCOG Hazard Mitigation Plan Updates
7. Next Meeting Date: January 22, 2020
8. Public Comment
9. Adjourn

The public is invited to comment on and discuss any topic that is relevant to the Local Emergency Planning Committee. In order for members of the public to participate in the Committee's consideration of an agenda item, the Committee strongly encourages members of the public to comment on an agenda item during the item itself. No action may be taken on a matter raised under public comment unless the item has been specifically included on the agenda as an item upon which action may be taken. Comments may be limited to three minutes per person or topic. Persons may not allocate unused time to other speakers. If your comment requires extended discussion, please request the Chairperson to schedule the matter for a future meeting.

LPT (Local Planning Team) meeting will follow immediately after LEPC.

Northeast Michigan Council of Governments
80 Livingston Blvd, Suite U-108
PO Box 457
Gaylord, MI 49734
Direct: 989-705-3730 Fax: 989-705-3729
www.discovernortheastmichigan.org

Sign in Sheet

Project Name:	**Hazard Mitigation**
Project Number:	**340**
County:	**Presque Isle**

Date	Name and Title	Agency/Jurisdiction/Organization	Hourly Rate	Signature: I verify the hourly rate associated with my name is accurate.
9/25/2019	SCOTT McLENNAN, MAYOR	CITY OF ROGERS CITY		Scott McLennan
9/25/2019	Lee Gapczynski County Comm.	PRESQUE ISLE COUNTY		Lee Gapczynski
9/25/2019	Kelly Robinette	Regional Agency NEMCSA Area Agency on Aging N. MI 10 counties		Kelly Robinette
9/25/2019	Debra Greene	American Red Cross		Debra Greene
9/25/2019	Jerry Smigelski	Presque Isle County Rd Comm.		Jerry Smigelski
9/25/2019	SARAH MELCHIOR	PIOO EM		Sarah Melchior
9/25/2019	Wesley Repke System Engineer	Presque Isle Electric & Gas Co-op		Wesley R. Repke
9/25/2019	MATT TOPP MSP Trooper	Michigan State Police		
9/25/2019	AnnMarieMain, County Clerk	Presque Isle Co.	23.98	AnnMarie Main

Appendix B

9/25/2019	ALAN STILLER	ROGERS City–PRESQUE ISLE CO AIRPORT MANAGER		
9/25/2019	John Kielisz ewski	Modi lodge of Rogers City, Maintenance Supervison		
9/25/2019	Chuck Abshager Abshagen	City of Onaway Mayor Onaway, MI		
9/25/2019	RON Horrocks	City of Onaway		
9/25/2019	JIM Fleury	CISS		
9/25/2019	MIKE HORN	RACES		
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Appendix B

DISCOVER Northeast Michigan EAST OF EXPECTED

Northeast Michigan Council of Governments
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MINUTES
OF THE
NORTHEAST MICHIGAN COUNCIL OF GOVERNMENTS
BOARD OF DIRECTORS' MEETING

December 19, 2019

University Center
Gaylord, MI

Call to Order

The Northeast Michigan Council of Governments (NEMCOG) Board of Directors Meeting was called to order by Robert Heilman, President, at 10:00 a.m.

Roll Call

Board Members Present:	Dan Gauthier, Dave Karschnick, Daryl Peterson, Kyle Yoder, Robert Pallarito, Carl Altman, Adam Poll, Marisue Moreau, Robert Heilman, Bruno Wojcik, Scott McLennan, Doug Baum, Dave Post and Norm Brecheisen
Staff Present:	Diane Rekowski, Theresa Huff, Karen Cole, Steve Schnell, Nico Tucker, Christina McEmber and Denise Cline (by videoconference)
Public Present:	None

Approval of Minutes

R. Heilman presented the Minutes of the October 17, 2019 meeting. C. Altman moved, seconded by D. Karschnick to approve the minutes as presented. Yes all, motion carried.

Financial Report

K. Cole reviewed the November, 2019 financial statements. C. Altman moved, seconded by D. Post to receive and file the November, 2019 Financial Report as presented. Yes all, motion carried.

K. Cole stated that the FY19 Audit is going very well, expectations this year should be better than last year.

Special Presentation: Tom Stephenson/Connect Michigan

T. Stephenson gave an update on the broadband status and progress within the region. Also provided an overview of the new tool for Internet Service Providers, NE MI's Vertical Asset Inventory developed to help improve high-speed internet access in Northeast Michigan.

President's Report

Regional Project Review: R. Heilman stated there were (0) Federal Grant project for regional review; (0) other projects for regional review and (2) public notices.

MI Association of Regions (MAR): D. Rekowski reported that MAR is in the strategic planning process with the Final Plan expected in January.

Director's Report

D. Rekowski – EDA has invited NEMCOG to submit a three (3) year grant proposal, has a short deadline. The proposal requires a resolution of Financial Commitment for NEMCOG's Regional Economic Development Planning Grant and also a resolution for Contract Signatory.

D. Baum moved to waive the reading of the Resolution for Financial Commitment for NEMCOG's Regional Economic Development Planning Grant, seconded by D. Karschnick. Yes all, motion carried. B. Wojcik moved to approve the resolution, seconded by D. Karschnick, A roll call vote was taken. Yes all, motion carried.

A. Poll moved to waive the reading of the Resolution for Contract Signatory, seconded by R. Pallarito. Yes all, motion carried. D. Baum moved to approve the resolution, seconded by B. Wojcik, A roll call vote was taken. Yes all, motion carried.

Staff Updates:

S. Schnell: Project Updates were provided on the following: Northeast Regions Entrepreneurial Network, new website, currently waiting for URL; YouTube video: Rising Tide of Food and Farming in Northeast Michigan, created to promote small Agriculture; YouTube video: Youth Entrepreneurial-ship; Census 2020 and Local Area Unemployment Statistics for Northeast Lower Michigan Region for 2018 and 2019.

C. McEmber: Provided a status of County Hazard Mitigation Plan updates and explained the process for approval.

N. Tucker: Updated the Board on the Rural Task Force, Road Projects and Integrated Asset Management Plans.

D. Cline: Updated the Board on the following: writing/revising 14 Zoning Ordinances; presented an example of a recent interactive Zoning Ordinance; involved with Master Plans; Camp Grayling/Alpena JMTC Joint Land Use Study; Redevelopment Ready Communities; US23 Heritage Route; Up North Trails; US23 Byways brochures and atlases.

Committee Reports

Finance Committee: None

RPI Collaborative: D. Baum stated that RPI was not funded for2020. The Regional Prosperity Collaborative will continue to meet on Regional Economic and Community Development and oversee the RPI and Comprehensive Economic Development Strategy (CEDS). Funding for projects will continue to be pursued.

Previous Business
None

New Business
None

Public Comment
None

County Updates

Alcona Co.: Busy with year-end; adopted 2020 budget; committees are working on broadband. Brownfield project is going on, has been delayed a little.

Alpena Co.: Alpena County will have a grand opening ceremony for the renovated airport in May 2020. Jail project is progressing, should be enclosed by Mid-February, work is running 3-4 weeks behind. No Circuit Judge yet. 911 Center received $800,000 in new equipment.

City of Alpena: Greg Sundin has retired and Rachel Smolinski was hired as the new city manager. The Yearend resulted in black!

City of Grayling: No report.

Livingston Township: No report.

MI Works!: Unemployment is at an all-time low. Anything less than 4% is considered full employment. Governor reinstated funds that were removed for at- risk youth program, Going Pro, etc. Effective January 1, 2020, Medicaid recipients work requirement begins at 80 hours a month. MI Works is partnering with Health Agencies to assist with the program.

Montmorency County: County negotiation's meeting with the Union ended shortly and will need mediation services. Hired a new board secretary and waiting for the Governor to appoint a new Circuit Court Judge, in replacement for Judge Mack. Budget is completed; with about a $2,000 fund balance. Working on bonding and health insurance changes and promoting the census.

Oscoda Co.: Government building nearly completed; will be moving staff in January. Will be open to the public by February.

Otsego Co.: Finished budget; will amend after they get word from Governor. Had some renovations this past fall to the County building that have been completed. Jail is the next project. 1/6/2020 will have a presentation from the Consultants on the Jail Study.

Presque Isle Co.: Electrical Inspector is retiring. Considering sharing Plumbing Inspector with Montmorency County. Onaway received funding for a trail head and will also use a place for the Farmers Market. Presque Isle County sold the Onaway Airport to Presque Isle Electric & Gas for $1.00, now dealing with tax abatement issues.

Rogers City: Lake Huron shoreline and trail have experienced severe damage from high water issues. Rogers City will receive Redevelopment Ready Community Certification status in the 1st quarter of 2020. Pension liability issues have been resolved.

Village of Hillman: Dealing with housing shortage and the high cost of building.

Village of Mackinaw City: Experiencing some high water issues. Damage has occurred around Mackinac Island. Some others are experiencing flooding.

Adjournment

The meeting was adjourned at 11:30 a.m. The next Board Meeting will be held on Thursday, January 16, 2020 at the University Center in Gaylord.

Presque Isle County

Office of Emergency Management

NOTICE OF PUBLIC MEETING of the Presque Isle County
LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)

DAY: Tuesday
DATE: January 21, 2020
TIME: 2:00 PM
PLACE: Medilodge Conference Room
555 N. Bradley Hwy (Rehab Hospital entrance facing US 23)
Rogers City, MI

LEPC (Local Emergency Planning Committee)
Meeting Agenda

1. Call to Order
2. Pledge of Allegiance
3. Introductions
4. Approval of Agenda
5. Public Comment
6. LEPC Overview
7. FirstNet Presentation
6. NEMCOG Hazard Mitigation Plan Updates
7. Next Meeting Date: April 22, 2020
8. Public Comment
9. Adjourn

The public is invited to comment on and discuss any topic that is relevant to the Local Emergency Planning Committee. In order for members of the public to participate in the Committee's consideration of an agenda item, the Committee strongly encourages members of the public to comment on an agenda item during the item itself. No action may be taken on a matter raised under public comment unless the item has been specifically included on the agenda as an item upon which action may be taken. Comments may be limited to three minutes per person or topic. Persons may not allocate unused time to other speakers. If your comment requires extended discussion, please request the Chairperson to schedule the matter for a future meeting.

LPT (Local Planning Team) meeting will follow immediately after LEPC.

Appendix B

DeCastro	Lt.	Michigan State Police			DecastroM@michigan.gov		
Fleury	Jim	Ambualnce	MANAGER Jim Fleury	989-306 1425	jimfleuryrc@yahoo.com	X	X
Flewelling	Chris	PICO Sheriff Dept.	Undersheriff		cflewelling@presqueislesheriff.com		
Forbush	Bill	Presque Isle Twnshp	Fire Chief		billf@alpena.mi.us		
Fournier	Ron	East Grand Lake Fire Dept.	Chief		rfournier24@live.com		
Fox	Paul	DNR	Conservation Officer				
Gapczynski	Lee	PICO	Commissioner		lgap@picounty.org		
Greene	Deb	Red Cross			Mike Tuck debbygreene@gmail.com	X Mi.	
Horn	Mike	R.A.C.E.S.			mikeandlaura@frontier.com		
Horrocks	Ron	City of Onaway	Commissioner				
Hyde	Dallas	Ambulance			cheboyganlife@sbcglobal.net		
Jarema	Brian Y BRYAN	Michigan State Police	Trooper	Brad	jaremab@michigan.gov	X	X
Kieliszewski	Chuck	City of Rogers City	Water Superintendent		ckieliszewskiz@rogerscity.com		
Kroll	Mike	Rogers City	Fire Chief		firechief@rogerscity.com		
Main	Ann	PICO	County Clerk		piclerk@picounty.org	X	

Appendix B

Mansfield	Jennifer	Rc Area Senior & Comm. Ctr.	Director		srogerscity@yahoo.com		
McEmber	Christina	NEMCOG	Assist. Comm. Planner		cmcember@nemcog.org	✓	
McLennan	Scott	City of Rogers City	Mayor		samgbm@hotmail.com	✓	
Melching	Sarah	PICO Emergency Mgmt.	EM Coordinator	590-7811	picoesc@picounty.org	X	X
Morgan	Mac	Onaway Waste Water			onawaywwtp@src-milp.com		
Nash	Roger	Onaway Fire Dept.	Fire Chief		rsnash2@hotmail.com		
Northrup	Steve	Case Twnshp	Fire Chief		casechiefsteve@gmail.com		
Parrott	Denise	PICO Council on Aging			info@piccoa.org		
Quaine	Matt	City Police	Chief of Police		mquaine@rogerscity.com		
Rabineau	Carol	Red Cross			carol.rabineau@redcross.org		
Radocy	Matt	DHD No. 4	EM Coord.		mradocy@dhd4.org	X	
Repke	Wesley	PIE & G			wrepke@pieg.com		
Robinette	Kelly	NEMSCA	Coordinator		robinnettek@nemsca	X	
Sauer	Laurie	NEMSCA	Director		sauerl@nemcsa.org	✓	
Shutes	Nancy	PICO	BOC		shutesn@picounty.org		

Presque Isle County Emergency Management

LEPC & LPT SIGN IN Sheet

DATE: Janaury 21, 2020

LAST NAME	FIRST NAME	COMPANY	JOB TITLE	PHONE NO.	EMAIL	LEPC	LPT
Darden	Terry	Firstnet		248 556-6801	td487c@att.com	X	
DUP. ~~[illegible]~~	~~Bryan~~	~~MSP~~	~~Trooper~~	~~[illegible]-7037~~	~~[illegible]@Michigan.Gov.~~	X	X
Meyer	Jamie	RCPD	Chief of Police	255-7055	jmeyer@rogerscity.com	X	X
Kieliszewski	John	Medilodge	Main Supv	989 734 2151		X	
DUP. ~~[illegible]~~	~~Jill~~	~~CCSS~~	~~Manager~~	~~989 306 1425~~	~~[illegible]@YAHOO.com~~	X	X
JENSEN	NICOLE	AT&T		231-409-9138	NC0060@att.com	X	

2:30p-3:45p

Sign In Sheet

Project Name: Presque Isle County Hazard Mitigation

Date	Name and Title	Agency/Jurisdiction/Organization	Hourly Rate	Signature: I verify the hourly rate associated with my name is accurate.
1-21-20	Bryan Jaremko Trooper	MSP		
1-21-20	Jamie Meyer (Chief of Police)	Rogers City Police		
1-21-20	Matthew Radocy Emergency Preparedness Coordinator	OHSP		
1-21-20	SCOTT MCLENNAN MAYOR	CITY OF ROGERS CITY		
1-21-2020	Ann Marie MAIN County Clerk	County of Presque Isle		
1-21-2020	Mike Tuck American Red Cross	Presque Isle		
1/21/20	Jim Flory	SISS		
1-21-2020	Laurie Sauer, Director	Region 9 Area Agency on Aging		
1-21-2020	Kelly Robinette	Region 9 Area Agency on Aging		
1/21/20	SARAH MELCHING	PRESQUE ISLE COUNTY		

Presque Isle County

Office of Emergency Management

NOTICE OF PUBLIC MEETING of the Presque Isle County LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)

DAY: Wednesday
DATE: September 2, 2020
TIME: 2:00 PM
PLACE: via ZOOM

LEPC (Local Emergency Planning Committee)
Meeting Agenda

1. Call to Order
2. Pledge of Allegiance
3. Introductions
4. Approval of Agenda
5. Public Comment
6. Hazardous Materials Emergency Preparedness (HMEP) Grant Award
   -Training
   -Exercises
   -Tier II Manager License
7. Notification of Storm Damage
   -County Assessments
8. NWS Gaylord-Pat Bak (tentative)
9. NEMCOG Hazard Mitigation Plan Updates
10. Next Meeting Date: November 18, 2020
11. Public Comment
12. Adjourn

The public is invited to comment on and discuss any topic that is relevant to the Local Emergency Planning Committee. In order for members of the public to participate in the Committee's consideration of an agenda item, the Committee strongly encourages members of the public to comment on an agenda item during the item itself. No action may be taken on a matter raised under public comment unless the item has been specifically included on the agenda as an item upon which action may be taken. Comments may be limited to three minutes per person or topic. Persons may not allocate unused time to other speakers. If your comment requires extended discussion, please request the Chairperson to schedule the matter for a future meeting.

LPT (Local Planning Team) meeting will follow immediately after LEPC.

Presque Isle County

Office of Emergency Management

NOTICE OF PUBLIC MEETING of the Presque Isle County
LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)

DAY: Wednesday
DATE: November 18, 2020
TIME: 2:00 PM
PLACE: via ZOOM

LEPC (Local Emergency Planning Committee)
Meeting Agenda

1. Call to Order
2. Introductions
3. Approval of Agenda
4. Public Comment
5. 2021 Meeting Schedule
   -4th Wednesday of the month at 2:00 p.m.
6. Hazardous Materials Emergency Preparedness (HMEP) Grant Award
   -Update of Funds
   -Tier II Manager License Software
7. Presque Isle Co. Emergency Notification System Discussion
   -City Water Outage
8. NEMCOG Hazard Mitigation Plan Updates
9. Next Meeting Date: January 27, 2021
10. Public Comment
11. Adjourn

The public is invited to comment on and discuss any topic that is relevant to the Local Emergency Planning Committee. In order for members of the public to participate in the Committee's consideration of an agenda item, the Committee strongly encourages members of the public to comment on an agenda item during the item itself. No action may be taken on a matter raised under public comment unless the item has been specifically included on the agenda as an item upon which action may be taken. Comments may be limited to three minutes per person or topic. Persons may not allocate unused time to other speakers. If your comment requires extended discussion, please request the Chairperson to schedule the matter for a future meeting.

LPT (Local Planning Team) meeting will follow immediately after LEPC.

Presque Isle County

Office of Emergency Management

LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)
Meeting Minutes for Wednesday, November 18, 2020

1. Call to Order
2. Introductions
   Attendance: Ann Marie Main, Deb Greene, Sarah Melching, Mary Grace Graham with Hyper-reach and Lt. DeCastro-District 7 Coordinator
   Notified of Absence: Mike Horn, Jerry Smigelski, Terry Buczkowski
3. Approval of Agenda
4. Public Comment
   None
5. Hyper-reach Presentation
   Presented by Mary Grace Graham through GoToMeeting. Hyper-reach estimated cost is $4,500 to include IPAWS. Ann Marie and Sarah to get more information on references etc. Application seems to be very user friendly unlike CodeRED. No contract.
6. 2021 Meeting Schedule
   -4th Wednesday of the month at 2:00 p.m.
   New schedule emailed to everyone
7. Hazardous Materials Emergency Preparedness (HMEP) Grant Award
   -Update of Funds *(see attached excel worksheet) Balance of $1,288.69 for hazmat related training/exercises.*
   -Tier II Manager License Software
   We have not received any instructions on being able to access the software yet. Check was sent in September. Sarah keeps reaching out to them and the response on 11/18 at 1221 pm was that the state has the update and is applying it.
   -The Response Group purchase includes ICS 201 wall charts to be used for training/exercises and real-life events.
8. Presque Isle Co. Emergency Notification System Discussion
   -City Water Outage
   CodeRED enrollment flyer to be included in December water bills.
   CodeRED costs $8,888 + $1,000 for IPAWS. CodeRED is auto renewal in October.

9. NEMCOG Hazard Mitigation Plan Updates
   Sarah to meet with Christina 11/20. There are (4) townships that have not been included in the plan in the past, most recent plan was from 2014. Will need to communicate with each to see if they would like to be added. The goal is to have all townships included.
10. Next Meeting Date: January 27, 2021
11. Public Comment
    None
12. Adjourn

Public Notice for the availability of the draft plan for review and the public meeting

Presque Isle County Advance • 989-734-2105

CLASSIFIEDS

small ads BIG deals

Happy Ads

HAPPY VALENTINE'S Birthday Jason Vincent.
Love,
Mom

PATIENCE.

In Memoriam

In Memoriam
In loving memory of Bob Centala who left us 4 years ago on Feb. 13, 2017 to go to his heavenly home to sing with the angels in the heavenly choir. We love you and miss you. Always in our hearts.
Your loving family

Special Notices

INVITATION TO bid: Sealed bids will be accepted at the office of the Presque Isle County

Special Notices

A SPECIAL Meeting of the Krakow Township zoning board of appeals will be held on Wednesday, March 3, 2021 at 6:30 pm at the Krakow Township Hall on Bolton Road in Posen, MI. The appeal will be heard regarding a variance for property located at 7042 Grand Point Road, Presque Isle, Michigan. Submitted by Donna Couture, secretary of the board of appeals
6k

NOTICE OF availability and public meeting for the Presque Isle County Draft Hazard Mitigation Plan. Presque Isle County is in the process of updating its Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000. There will be a public meeting following the public review period February 24, 2021 at 2 p.m. Meeting information will be posted on the county website under the Emergency Management page (https://presqueislecounty.org/) as this meeting will be held via Zoom. Public comments are requested either in person or by representative at the public meeting, or mailed to P.O. Box 457, Gaylord, MI 49734 or by email at cmcember@nemcog.org. The draft plan is available for review on the county website and NEMCOG's website.
6n

General Services

Voss Tax Service
Roger & Pearlie Voss
282 N. Sixth St.,
Rogers City, MI 49779
Phone for appointments
734-7830
PERSONAL, FARMS & SMALL BUSINESSES
e-filing
Due to the pandemic no-face-to-face contact, mail and drop-off only

DAN'S DIRECT TV and Antenna, Satellite Sales & Service on all mini dishes. Direct TV or Dish Network: Installation of phone jacks & TV Antennas, for local Networks NBC, ABC, PBS, CBS, FOX. Great prices, 231-625-8504.
Tfn

Food

GINGERICH GENERAL 7802 Leer Road. Now open Mon., Wed - Sat. 9 a.m. - 5 p.m. Closed Tuesday until May 1. Wed: pies. Thurs: cinnamon rolls. Fri: donuts. Fresh bread every day, bulk foods, cheese, meats, maple syrup, jams, pick-

Miscellaneous For Sale

WE REBUILD starters and alternators. 35 years in business. Specializing in domestic, industrial, farm, ATV, snowmobile and marine. Many units in stock including foreign. New or reconditioned batteries, auto and commercial. Northern Michigan Battery in Onaway. Call Kermit at 989-733-8866.
49-07n

Rooms & Apartments

2-BEDROOM DOWNSTAIRS apartment with storage room and garage includes some utilities. Close to public schools and shopping. No pets. No smoking. $550 a month, plus $550 security deposit, 989-619-2875.
4-6m

HILLTOP MANOR-come join our family! The Rogers City Housing Commission, 643 W. Erie St., is accepting elderly/disabled and near elderly applications for independent living apartments. Prospective residents are selected from the waiting list. Rent based on 30 percent of adjusted gross income. Water, electricity, heat and trash included in monthly

MICHIGAN Ad Network Solutions
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Miscellaneous
GENERAC Standby Generators provide backup power during utility power outages, so your home and family stay safe and comfortable. Prepare now. Free 7-year extended warranty ($695 value!). Request a free quote today! Call for additional terms and conditions. 1-877-378-0097

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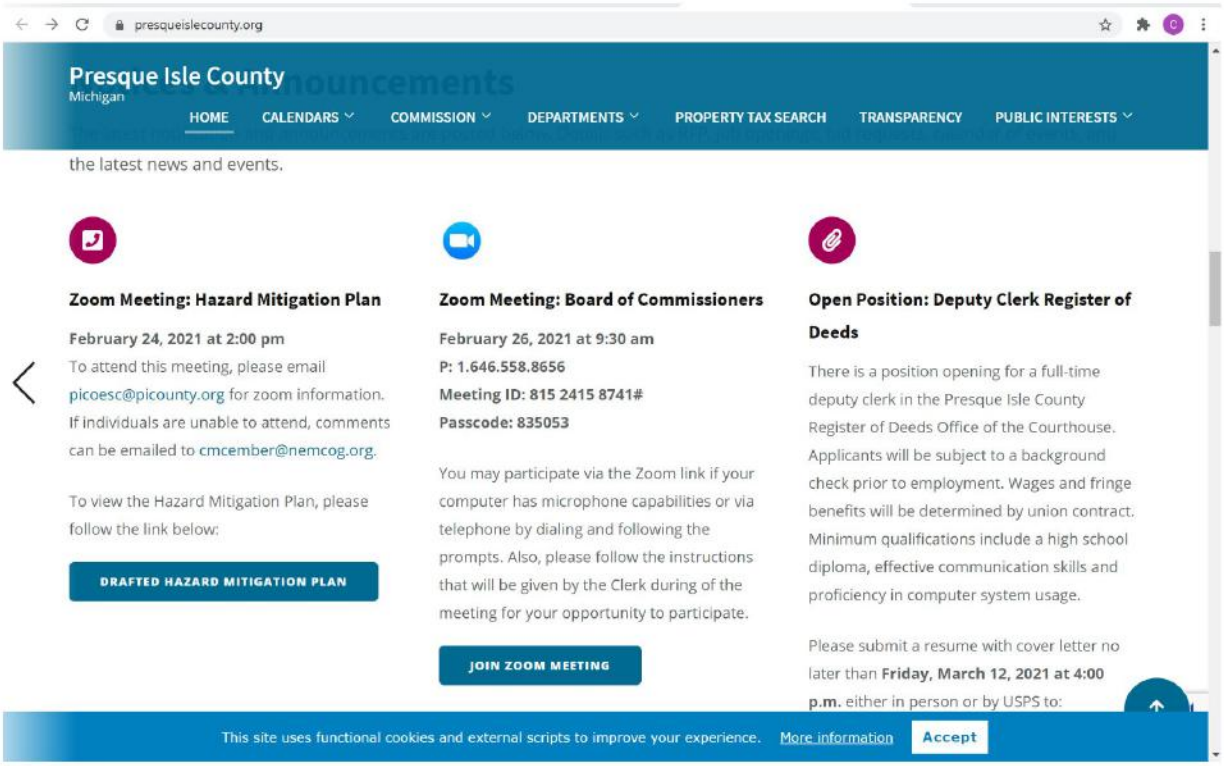
presqueislecounty.org
Presque Isle County
Michigan
HOME
CALENDARS
COMMISSION
DEPARTMENTS
PROPERTY TAX SEARCH
TRANSPARENCY
PUBLIC INTERESTS
the latest news and events.
Zoom Meeting: Hazard Mitigation Plan
February 24, 2021 at 2:00 pm
To attend this meeting, please email picoesc@picounty.org for zoom information. If individuals are unable to attend, comments can be emailed to cmcember@nemcog.org.
To view the Hazard Mitigation Plan, please follow the link below:
DRAFTED HAZARD MITIGATION PLAN
Zoom Meeting: Board of Commissioners
February 26, 2021 at 9:30 am
P: 1.646.558.8656
Meeting ID: 815 2415 8741#
Passcode: 835053
You may participate via the Zoom link if your computer has microphone capabilities or via telephone by dialing and following the prompts. Also, please follow the instructions that will be given by the Clerk during of the meeting for your opportunity to participate.
JOIN ZOOM MEETING
Open Position: Deputy Clerk Register of Deeds
There is a position opening for a full-time deputy clerk in the Presque Isle County Register of Deeds Office of the Courthouse. Applicants will be subject to a background check prior to employment. Wages and fringe benefits will be determined by union contract. Minimum qualifications include a high school diploma, effective communication skills and proficiency in computer system usage.
Please submit a resume with cover letter no later than Friday, March 12, 2021 at 4:00 p.m. either in person or by USPS to:
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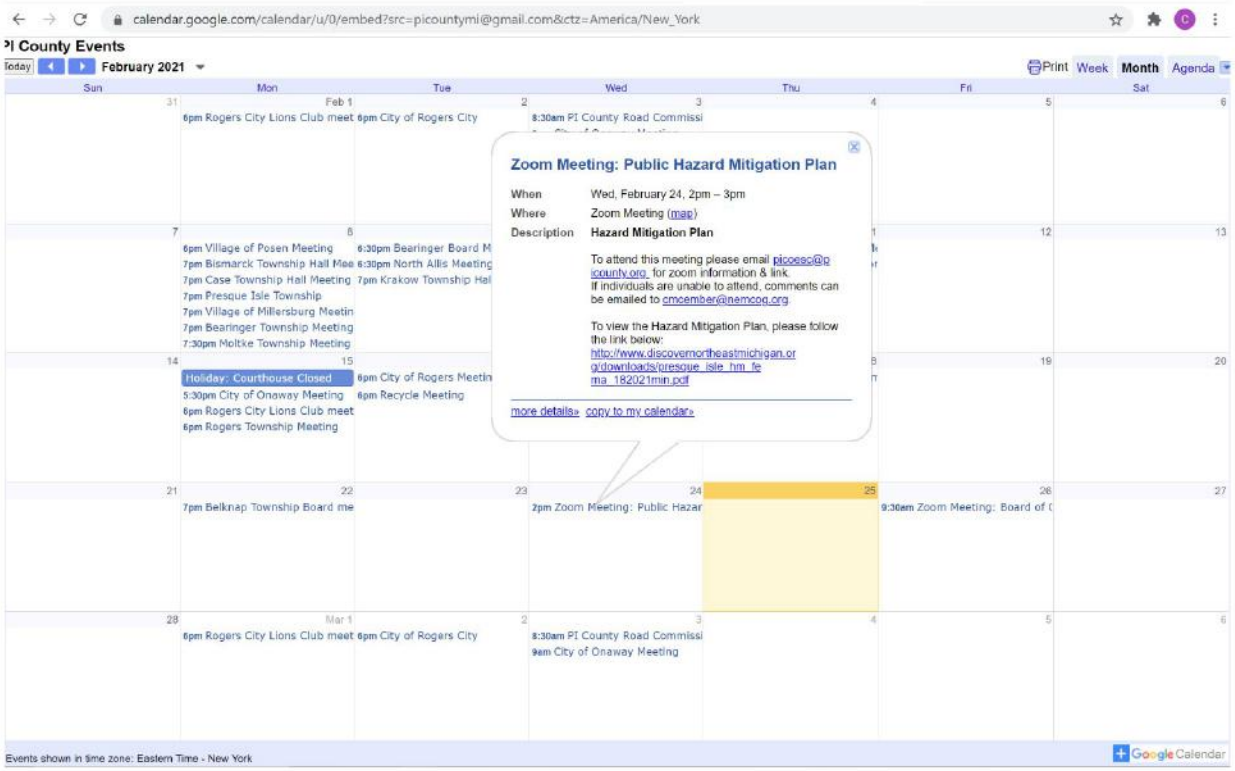
More information
Accept


calendar.google.com/calendar/u/0/embed?src=picountymi@gmail.com&ctz=America/New_York
PI County Events
Today
February 2021
Print
Week
Month
Agenda
Sun
Mon
Tue
Wed
Thu
Fri
Sat
Zoom Meeting: Public Hazard Mitigation Plan
When Wed, February 24, 2pm – 3pm
Where Zoom Meeting (map)
Description Hazard Mitigation Plan
To attend this meeting please email picoesc@picounty.org for zoom information & link.
If individuals are unable to attend, comments can be emailed to cmcember@nemcog.org.
To view the Hazard Mitigation Plan, please follow the link below:
http://www.discovernortheastmichigan.org/downloads/presque_isle_hm_fema_182021min.pdf
more details» copy to my calendar»
Holiday: Courthouse Closed
Events shown in time zone: Eastern Time - New York
Google Calendar

Public Meeting Minutes (Meeting held over Zoom due to COVID-19 pandemic)

LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)
Meeting Minutes for Wednesday, February 24, 2021

1. Call to Order
2. Introductions
   Attendance: Ann Marie Main, Kelli Stockwell, Sarah Melching, Mike Horn, Terry Buczkowski, Christina McEmber (NEMCOG), Scott McLennan
   Notified of Absence: Matt Radocy (DHDno4), Joe & Joyce Demski (Salvation Army)
3. Approval of Agenda
4. Public Meeting for County Hazard Mitigation Plan
   Christina McEmber reviewed the reason for the plan and public meeting. No public comments, no emails received with comments or questions on County Hazard Mitigation Plan. This document can be a live document, we can continue to update after FEMA approval. Presque Isle County appreciates all of the work that Christina has done with helping the County complete this document…it wouldn't get done without her.
5. 2021 Meeting **Schedule**
   -4th Wednesday of the month at 2:00 p.m.
   Reviewed schedule, we are always willing to change day of the week and time if something works better for everyone.
6. Hazardous Materials Emergency Preparedness (HMEP) Grant
   -Submission of 2021 Application
   Application has been submitted, Deb Greene signed off on before she headed south a few weeks ago.
   -Online Tier II Reporting software available for emergency and hazardous chemical inventory.
   The county license did not go active until around February 1, 2021 so many did not utilize this year. All facilities reporting this year will be contacted and notified moving forward they can do online in the future.
   -Income/Expenses
   There is money in the budget to provide training. Would like to have the 2020-2021 money spent no later than September 30, 2021.
7. Hazard Response Plan Update (2) Discussion
   (2) new plans were created last year. They include Frontier Communications at 126 4th St. in Rogers City and Viegelahn Sales at 3364

Sect. 12 Hwy in Rogers City. We will as a group need to review these plans or create a sub-committee to review and update plans within the next 6 months.

8. Training

   We have approximately $1,200 in the budget for training. We may want to consider holding an ICS 300 or 400 level course. Terry Buczkowski thought maybe the Fire Chiefs training budget could share the cost in one of these courses. Awaiting a quote from Frank Post for ICS 300/400. I believe it is $50/hour with overnight accommodations. Ann Marie Main suggested doing a MICIMS course as there are only 2-3 currently with permission to use in our county. NWS out of Gaylord has offered a weather spotting course which we may do down the road. Sarah Melching will put together a small exercise to help the LEPC understand ICS 200 forms with our new training posters purchased.

9. Public Comment

   Scott McLennan requested an update on CodeRED. Last Fall Rogers City had a water main break and when the Sheriff's Department called in the notification request there was a misunderstanding of the location and the CodeRED representative inaccurately put out the location which residents not in the area were notified and some that needed to be notified were not and some were not registered in the CodeRED system. In an effort to fix, a CodeRED registration flyer and directions were included in the city water bills however the link on the County website was not there in time. It has been corrected, the link is now there (under the Emergency Management Department page) and Sarah Melching is inputting the 70+ some paper registrations into CodeRED. She hopes to have done in the next few weeks. Encouragement of LEPC members to help us utilize the system more…it is not just for full blown emergency. It is our county wide mass notification system.

10. Next Meeting Date: April 28, 2021
11. Adjourn

Appendix C
Adoption Resolutions

The adoption resolutions for Presque Isle County and the participating local jurisdictions are included in this appendix.

Insert Adoption Resolutions

Appendix D
Previous Plans' Mitigation Actions and Strategies

The following tables present the mitigation actions and strategies that were included in the 2014 hazard mitigation plan. Updated inclusion and priority information can be found in Chapter 9: Mitigation Strategies and Priorities.

Mitigation Actions & Implementation Strategies **A. Multi-Hazard Actions, #1**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Continue to develop Emergency Response Team program to help prepare for all hazard events in the county.	High	A, D, W	A, H, T	Countywide	Good team development/training in place	On going	On going
2. Provide trained, equipped, and prepared search and rescue teams.	High	A, D, W	C, H, T	Countywide	Several teams available for deployment	Short-term	Short-term
3. Promote need and implement study re-installation of siren system across county	High	A, D, W	T	Countywide	Continue to assess		
4. Identify feasible sites for public early warning systems and networks and seek funding to install.	High	A, D	T	Rogers City, Onaway, Posen	EAS and LP-1 and 2 in place	Short-term	Short-term
5. Ensure that the County and individual communities have adequate equipment, staff, and training to respond to transportation-related accidents specific to their needs.	High	A, D, W	C, T	Countywide	Good structure in place for fire and ems	Ongoing	Ongoing
6. Communities will acquire and maintain an adequate level of emergency power generators to supply emergency water needs, wastewater processing, emergency communications, emergency health care, and shelters.	Medium	A, D, W	C, Q, T	Countywide	Good progress, and ongoing	Mid-term	Mid-term
7. Review current status and provide back-up generators to maintain community infrastructure at acceptable operating levels during extended power failures.	Medium	A, B	C, T	Countywide	Continuing to address and improve	Mid-term	Mid-term
8. Develop and enhance security and anti-terrorist/sabotage/civil disturbance measures.	Medium	A	Q, T	Countywide	Ongoing	Long-term	Long-term
9. Develop and implement strategy to provide more planning for response to terrorist acts.	Medium	A, W, F	Q, T	Countywide	Ongoing	Long-term	Long-term
10. Review and develop site emergency plans for schools, factories, office buildings, shopping malls, hospitals, correctional facilities, etc. to cover all potential hazards.	Medium	A, R, D, W	T	Rogers City, Onaway, Posen	Ongoing	Ongoing	Ongoing
11. Organize outreach program to vulnerable populations during and after hazard events, including wildfires, extreme winter and summer weather events, periods of extreme temperatures, public health emergencies, and other hazards that can impact the community.	Medium	A, H	C, T, I	Countywide	Utilize 211 and volunteer agencies	Short-term	Short-term
12. Encourage residents to develop a Family Disaster Plan that includes the preparation of a Disaster Supplies Kit.	Medium	A	C, H, T I, N	Countywide	Ongoing	Mid-term	Mid-term
13. Promote and implement solutions for keeping roads and driveways accessible to vehicles and fire equipment.	Medium	D	Q, T	Countywide	Ongoing	Ongoing	Ongoing
14. Encourage continuation of house numbering program	Medium	B	T	Countywide	Ongoing	Ongoing	Ongoing
15. Conduct workshops at community gatherings to encourage residents to develop a Family Disaster Plan, which includes the preparation of a Disaster Supplies Kit.	Low	A, I	C, H, T I, N	Countywide	Ongoing	Mid-term	Mid-term
16. Build the capabilities of the county GIS program to function as a tool to address multiple hazards. This effort would require the creation/updating of datasets such as parcels/ownership, location of all structures, driveways with ingress/egress conditions, roads, forest types, ownership types, floodplains, utilities (power lines, gas lines and water lines), wetlands, water features, bridges and culverts, (SARA III sites)	Low	B	C, T, I	Countywide	New GIS system in place with continued upgrades	Long-term	Long-term
17. Increase usage of NOAA Weather Radio by subsidizing purchase and distribution of radios to county residents, organizations and businesses. Use NOAA radios as a community emergency alert system to information on hazard events.	Low	M, K	T	Countywide	Working with the NWS to improve reception	Mid-term	Mid-term

A. County Emergency Management Office	**G.** MSU Extension	**M.** Local Businesses	**S.** Medical
B. County	**H.** District Health Dept.	**N.** Civic Gr.& Churches	**T.** Federal Government
C. Local Units of Gov.	**I.** American Red Cross	**O.** National Weather Service	**U.** landowners
D. Local Fire Dept.	**J.** USFS & MDNR	**P.** Utility Company	**V.** Salvation Army
E. County Road Commission	**K.** Insurance Companies	**Q.** State	**W.** Police
F. NEMCOG	**L.** Real Estate Co.	**R.** Schools	

Mitigation Actions & Implementation Strategies **A. Multi-Hazard Actions, #2**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
18. Study and evaluate methods to improve NOAA Weather radio reception in county.	Low	O	T	Countywide	Working with the NWS for additional towers	Mid-term	Mid-term
19. Explore and implement plan for distribution of NOAA radios throughout community	Low	A – I	T, B	Countywide	Ongoing	Short-term	Short-term
20. Develop an all hazards education and awareness program in schools, which includes classroom presentations and incorporating wildfire and weather hazard preparedness into school curriculums.	Low	A, B, C, R,	B, T	Rogers City, Onaway, Posen	Ongoing	Mid term	Mid term
21. Produce and distribute family emergency preparedness information relating to all natural hazards affecting County.	Low	A, B, C, I, R	B, C, Q	Countywide	Available at County offices and website	Ongoing	Ongoing
22. To address multiple hazards in the county improve tree trimming and maintenance efforts to prevent limb breakage and safeguard nearby utility lines. The end goal is to create and maintain a disaster-resistant landscape in public rights-of-way.	Low	P	P	Countywide	Ongoing	Ongoing	Ongoing
23. Study and implement development of public information to cover hazards effecting county.	Low	A, B, C, Q, T	B, C, T	Countywide	Ongoing	Ongoing	Ongoing
24. Where feasible and cost effective (more densely populated areas) bury and protect power and utility lines.	Low	P	P	Countywide	Continue to encourage	Long-term	Long-term
25. Review and improve program to provide regular maintenance and equipment checks of all critical equipment.	Low	A, B, C, Q	A, B, C	Countywide	Ongoing	On going	On going
26. Study and promote installation of automatic NOAA radio systems in new residential construction.	Low	B, Q	B, Q	Countywide	None	Long-term	Long-term
27. Explore methods to provide NOAA radios at cost or as reward for completing "Family disaster Plan"	Low	A – I	T, B	Countywide	Ongoing	Mid-term	Mid-term
28. Develop plan to identify and inform residents of "Safe Areas" during festivals/events. (include signs and directions to shelters)	Low	B	A, B, C	Countywide	In development	Mid-term	Mid-term
29. Communities will work with the Federal Emergency Management Agency (FEMA) to identify flood plains.	Low	A, B, C	T	Countywide	Ongoing	Short-term	Short-term
30. Ensure key gasoline stations have the capacity to pump gasoline during power outages.	Low	B, C	M, T	Rogers City, Onaway, Posen Countywide	Some in place… Ongoing	Mid term	Mid term
31 Pre-planning for debris management staging and storage areas …	~~Low~~	~~B, C~~	~~B, C~~	~~Countywide~~	~~COMBINED WITH SUMMER WEATHER~~	Mid term	Mid term
32. Expand community awareness of evacuation plans.	Low	A, B, C	B, C	Countywide	Ongoing	Mid term	Mid term
33. Identify escape routes and emergency snow routes.	Low	A, E	A, E	Countywide	Protocol in place	Mid term	Mid term
34. Review and improve strategy for providing public with emergency telephone numbers	Low	A	B, C, Q	Countywide	EAS and Radio	Mid term	Mid term

A. County Emergency Management Office	**G.** MSU Extension	**M.** Local Businesses	**S.** Medical
B. County	**H.** District Health Dept.	**N.** Civic Gr.& Churches	**T.** Federal Government
C. Local Units of Gov.	**I.** American Red Cross	**O.** National Weather Service	**U.** landowners
D. Local Fire Dept.	**J.** USFS & MDNR	**P.** Utility Company	**V.** Salvation Army
E. County Road Commission	**K.** Insurance Companies	**Q.** State	**W.** Police
F. NEMCOG	**L.** Real Estate Co.	**R.** Schools	

Mitigation Actions & Implementation Strategies B. Severe Winds	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Review regulations and implement necessary changes to insure proper anchoring of manufactured homes and exterior structures…	High	B, C, K	T	Countywide	Ongoing	Mid-term	Mid-term
2. Encourage securing loose materials, yard and patio items indoors or where winds cannot blow them about.	High	A, K	T	Countywide	Ongoing	Short-term	Short-term
3. Review current and proposed improvements to wind engineering measures and construction techniques to strengthen public and private structures against severe wind damage	Medium	B	T	Countywide	Ongoing	Mid-term	Mid-term
4. Acquire portable signs to inform motorists of high wind area, lake effect snow area and road glazing area on major highways.	Medium	A, O	O	Countywide	In Place	Long-term	Long-term

Mitigation Actions & Implementation Strategies C. Infrastructure Failure	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Review and improve mutual aid assistance for failures in utility and communications system.	High	A, B, D, W	B, C, Q	Countywide	In place	Long-term	Long-term
2. Review and develop strategies to identify and employ generators for backup power at critical facilities.	High	A, B, C	M, T	Rogers City, Onaway, Posen	Ongoing… funding issues	Mid-term	Mid-term
3. Review and develop strategies to insure redundancies in utility and communications systems, especially "lifeline" systems.	Medium	A	M, T	Countywide	Ongoing	Long-term	Long-term
4. Identify electrical systems that will fail due to overload and develop "Rolling blackout" strategy	Medium	P	P	Countywide	Ongoing	Long-term	Long-term
5. Identify sites and obtain support to improve critical road/stream crossings.	Medium	C, E, N,	C, E, N	Countywide	In place	Mid-term	Mid-term

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Mitigation Actions & Implementation Strategies D. Structural Fire	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Develop strategy to standardize equipment sot all firefighters in County system can operate any piece of equipment.	High	A,B, C,D	Q, T	Countywide	In place with ongoing training	Mid-term	Mid-term
2. Increase use of CRTC Regional Fire Training Center for County Fire Departments.	High	A,D,	T	Countywide	Full partnership in place	Mid-term	Mid-term
3. Identify adequate water supplies for emergency firefighting, areas lacking adequate water supplies and develop strategy to construct dry hydrants.	Medium	C , D, U	Q, T	Countywide	In place	Mid-term	Mid-term
4. Develop integrated water supply system using multi-tankers to well-located water supplies, with easy year around access.	Medium	A, D, U	Q, T	Countywide	In place with ongoing training	Mid-term	Mid-term
5. Increase volunteer recruitment, and study offering paid training.	Medium	A,B,C,D	T	Countywide	Ongoing	Mid-term	Mid-term
6. Develop program to encourage landlords and families to install and maintain smoke detectors and fire extinguishers. Train residents in use a fire extinguisher.	Low	D	Q, K	Countywide	Ongoing	Ongoing	Ongoing
7. Develop public education and school programs related to use of stoves, heaters, fireworks, matches/lighters, etc.	Low	D	Q, K	Countywide	In place, ongoing	Ongoing	Ongoing
8. Develop information and programs about safe and responsible use of electric and "space" heaters.	Low	D	Q, K	Countywide	Ongoing	Ongoing	Ongoing
9. Review and develop programs to raise community awareness on proper installation and maintenance of heating systems.	Low	D	Q, K	Countywide	Ongoing	Ongoing	Ongoing
10. Communicate to residents information related to handy household items that can be used as fire	Low	D	D	Countywide	Ongoing	Ongoing	Ongoing

Mitigation Actions & Implementation Strategies E. Winter Weather Hazards	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Establish heating centers/shelters for vulnerable populations	High	A, I , R	C, H, T	Countywide	In place and expanding	Short-term	Short-term
2. Compile a listing of homes and facilities with vulnerable residents such as elderly, infirmed and disabled individuals; and establish outreach procedures for assisting residents after severe winter storm events	High	A, H , I	C, H, T	Countywide	Ongoing	Short-term	Short-term
3. Prearrange for shelters for stranded motorists/travelers and others	Medium	A - I	C, H, T	Rogers City, Onaway, Posen	In place	Short-term	Short-term
4. Complete and inventory problem sections of roads. Place snow fences or "living snow fences" (rows of trees or vegetation) to limit blowing and drifting of snow over critical roadway segments	Medium	E	C, H, T	Countywide	System in place	Short-term	Short-term

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Mitigation Actions & Implementation Strategies F. Transportation Accident, #1	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Provide more training for fireman, police and first responders to school bus and commercial bus accidents.	High	A, D, W	T	Countywide	Ongoing	Short-term	Short-term
2. Meet local industries from surrounding counties to determine type of products transported over county highways, and provide local HAZ/MAT team and fire agencies with this information.	High	A	T	Countywide	Ongoing	Short-term	Short-term
3. Continue upgrade protocols in Central Dispatch.	High	A, W,B	T	Countywide	Ongoing	Ongoing	Ongoing
4. Encourage strict enforcement of trucking y highway speed	Medium	W	T	Countywide	Ongoing	Short-term	Short-term
5. Inventory current heavy equipment, wreckers and jaws units within 30 minutes of county locations.	Medium	A	T	Countywide	In place, ongoing	Short-term	Short-term
6. Promote and conduct annual review of school buses and emergency exits, plus new features.	Medium	A, R	T	Rogers City, Onaway, Posen	In place, ongoing	Short-term	Short-term
7. Review and/or develop Regional EMS response plan to assist county's mass casualty plan.	Low	A, R, I, S	T	Countywide	In place, ongoing	Mid-term	Mid-term
8. Provide training, planning, and preparedness for mass-casualty incidents involving all modes of public transportation.	Low	A,W,S	T	Countywide	In place, ongoing	Mid-term	Mid-term
9. Provide for exercise gasoline or propane accidents.	Low	A	T	Countywide	In place, ongoing	Mid-term	Mid-term
10. Arrange and conduct meeting with all local bus providers and review their emergency plans.	Low	E,R,W,	T	Countywide	Ongoing	Short-term	Short-term
11. Exercise a 60-person accident involving a bus and logging truck.	Low	A – D – W – R	T	Countywide	In planning stages now	Mid-term	Mid-term
12. Arrange and conduct meeting with all agencies responding to Lake Huron accidents to determine roles.	Low	A, B, C, D, M	T	Rogers City, Presque Isle Twp	Regular meetings with USCG	Mid-term	Mid-term
13. Study location where ships could be off-loaded or boarded to respond to fire.	Low	D, M	T	Countywide	Plans in place with USCG	Mid-term	Mid-term

Mitigation Actions & Implementation Strategies F. Transportation Accident, #2	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Provide more training for airfield emergencies involving all county fire departments.	Low	A, D,S,W	D, Q	Rogers City & Onaway	Ongoing	Mid-term	Mid-term
2. Meet with trucking industry to coordinated transport times to avoid school transport times.	Low	A , D, R, W	A, M	Countywide	Ongoing	Mid-term	Mid-term
3. Encourage strict highway speed enforcement during school transport times.	Low	W	W	Countywide	Ongoing	Mid-term	Mid-term
4. Explore placement of computerized weather kiosks at major Lake Huron marinas in conjunction with U.S. Power Squadron.	Low	N	T	Bearinger & Presque Isle Twp & Rogers City	Ongoing	Short-term	Short-term
5. Hold annual meeting with trucking industry and local fire and law enforcement agencies.	~~Low~~	~~N/A~~		~~Countywide~~		~~Mid-term~~	Mid-term
6. Encourage long-term planning that provides more connector roads for reduced congestion of arterial roads.	Low	C, E, Q	B, C, E	Countywide	Detour routes identified	Long-term	Long-term
7. Develop strategy to provide more mass casualty medical equipment to handle 100 to 220 survivors of heavy jet transport or marine accident.	Low	S, W	Q, T	Countywide	In place with regional assets	Long-term	Long-term
8. Research and develop medical airlift plan for plane accidents.	Low	A, D, S	D, S	Countywide	Ongoing		
9. Arrange for heavy jet training event to provide full sense of situation.	~~Low~~	~~N/A~~		~~Countywide~~			
10. Program load type into CAMEO and develop pre-evacuation plans by material type.	~~Low~~	~~N/A~~		~~Countywide~~			

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Mitigation Actions & Implementation Strategies G. Hazardous Material Transportation Incidents	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Maintain and enhance trained, equipped and prepared local hazardous materials emergency response teams	High	A, B,C, D	C, T	Countywide	Three regional response teams in place	Short-term	Short-term
2. Provide for trained, equipped, and prepared search and rescue teams	High	A, B, C, D	C, T	Countywide	In place, ongoing	Short-term	Short-term
3. Develop evacuation plans and community awareness of them	Medium	A	C, T	Countywide	Ongoing	Mid-term	Mid-term
4. Improve capability of agencies to carry-out road closures and to provide traffic control in accident areas	Medium	E	E, Q	Countywide	Ongoing	Mid-term	Mid-term
5. Increase coverage and use of NOAA Weather Radio (which can provide notification to the community during any period of emergency, including large scale hazardous material incidents)	Low	A, N, O	Q, T	Countywide	NWS issues remain. EAS and radio used	Mid-term	Mid-term

Mitigation Actions & Implementation Strategies H. Summer Weather Hazards Actions	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Compile a listing of homes and facilities with vulnerable residents such as elderly, infirmed and disabled individuals. Establish outreach procedures for assisting residents after severe summer storm events	High	A, C, H, R	C, H, T	Countywide	In place, ongoing	Short-term	Short-term
2. Develop or update emergency response plans for schools, campgrounds, fairgrounds, parks, community events and marinas	High	A, B, R, S	C, T	Countywide	Ongoing	Short-term	Short-term
3. Continue training and increased use of weather spotters.	Medium	A, O, U	O	Countywide	Ongoing classes in place	Short-term	Short-term
4. Identify campgrounds, fairgrounds, parks, and outdoor recreational facilities that lack and need "Safe Areas." Where necessary construct safe areas and storm shelters.	Medium	A	C, T	Countywide	In place, ongoing	Mid-term	Mid-term
5. Increase usage of NOAA Weather Radio by subsidizing purchase and distribution of radios to county residents, organizations and businesses	Low	A, N	T	Countywide	Ongoing despite signal issues	Mid-term	Mid-term
6. Include safety strategies for severe weather events in driver education classes and materials	Low	R	T	Rogers City, Onaway, Posen	Ongoing	Mid-term	Mid-term
7. Continue pre-planning efforts for debris management staging and storage areas	Low	A, E	B, C, T	Countywide	In place, ongoing	Mid-term	Mid-term
8. Amend building codes to require anchoring of manufactured homes and exterior structures such as carports and porches	Low	C	B, Q	Countywide	Ongoing	Long-term	Long-term
9. Amend building codes to require installation of weather radios in new structures, similar to smoke detectors	Low	C	B, Q	Countywide	Ongoing	Long-term	Long-term
10. Require new mobile home parks to have tornado/wind shelters	Low	A, B, C	A, B, C	Countywide	No new parks	Long-term	Long-term

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Mitigation Actions & Implementation Strategies **I. Fixed Site Hazmat**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Review and/or implement strategy to train, equip, and prepare site and local hazardous material emergency response teams.	High	A,D	D, T	Onaway, Rogers City	Regional teams in place	Mid-term	Mid-term
2. Provide annual training to County Fire Departments related to on site products, and how they are handled.	High	C,D	D, T	Countywide	Ongoing	Short-term	Short-term
3. Research and develop contingency plans for worker and public protection, including inclusion of rescue and evacuation procedures for well hazard areas in emergency plans.	High	D,J	T	Countywide	Ongoing	Mid-term	Mid-term
4. Enforce community and operator compliance with Oil/gas industry safety regulations and standards	Medium	D, J	Q, T	Countywide	In place, ongoing	Short-term	Short-term
5. Develop and/or expand public warning systems and networks for hazardous material releases.	Medium	A, C	T	Onaway, Rogers City	In place, ongoing	Short-term	Short-term
6. Provide training in and compliance with all safety procedures and systems related to the manufacture, storage, transport, use, and disposal of hazardous materials.	Low	A, J, Q	Q, T	Countywide	In place, ongoing	Mid-term	Mid-term
7. Continue emphasis on policies and training stressing importance of safety above other considerations.	Low	A-D-E-W-R	Q, T	Countywide	In place, ongoing	Ongoing	Ongoing
8. Educate public and implement steps to encourage "shelter in place" response to Hazmat incidents.	Low	A,C,D	Q, T	Onaway, Rogers City	In place, ongoing	Short-term	Short-term
9. Emphasize locating industrial areas away from schools, nursing homes, hospitals, in future planning.	Low	B,C	Q, T	Countywide	In place, ongoing	Long-term	Long-term
11. Inform public and support pollution control, enforcement and cleanup; proper disposal of chemicals and scrap materials.	Low	A,G,J	Q, T	Countywide	In place, ongoing	Mid-term	Mid-term
12. Provide inventory and secure debris, yard items or stored objects (including oil, gasoline and propane tanks, and paint and chemical barrels) in flood plain that might pose hazard.	Low	N/A	Q, T	Countywide	Ongoing	Long-term	Long-term
13. Develop and exercise site emergency plans and community response plans as required under SARA Title III.	Low	N/A	Q, T	Countywide	In place, ongoing	Mid-term	Mid-term
14. Protect public contact with contaminated sites or waters (including flood waters)	~~Low~~	~~N/A~~	~~Q, T~~	Countywide		~~Long-term~~	~~Long-term~~
15. Continue brownfield cleanup activities.	Low	Q, T	Q, T	Rogers City, Onaway	Ongoing	Mid-term	Mid-term
16. Identification of radioactive soils and high-radon areas.	Low	N/A	Q, T	Countywide	Ongoing	Long-term	Long-term
17. Provide public education to help identify and eliminate clandestine neighborhood drug labs in the County.	Low	N/A	Q, T	Countywide	Annual training for law/fire/ems	Mid-term	Mid-term
18. Reinforce planning emphasis on proper separation and buffering between industrial areas and other land uses.	Low	N/A	Q, T	Countywide	Ongoing	Ongoing	Ongoing

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Mitigation Actions & Implementation Strategies J. Public Health	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Encourage residents to receive immunizations against communicable diseases.	High	H,I,S	H, T	Countywide	Ongoing	Ongoing	Ongoing
2. Review and maintain public health system with sufficient disease monitoring and surveillance capabilities …	High	H,S	H, T	Countywide	In place, ongoing	Ongoing	Ongoing
3. Develop and implement program to inform public and increase support of free or reduced-expense community clinics and school health services.	High	H,R,S	H, T	Countywide	Ongoing	Ongoing	Ongoing
4. Increase public awareness of causes, symptoms and protective actions for disease outbreaks and other potential public health emergencies.	High	A,H,I	H, T	Countywide	In place, ongoing	Ongoing	Ongoing
5. Review and insure community water and sewer infrastructure is maintained at acceptable operating standards.	Medium	C,E,H	H, Q, T	Countywide	In place, ongoing	Ongoing	Ongoing
6. Protect public contact with contaminated sites or waters (including flood waters)	Medium	D,H	T	Countywide	In place, ongoing	Ongoing	Ongoing
7. Review location, installation cleaning, monitoring and maintenance of septic systems	Low	H,C,E	C, Q	Countywide	Ongoing	Ongoing	Ongoing
8. Increase public awareness of radon dangers and prevention efforts….	Low	H	T	Countywide	Ongoing	Ongoing	Ongoing
9. Re-institute "Farm Safety Programs"	Low	A,G,S	C	Countywide	Ongoing	Short-term	Short-term
10. Explore methods to provide free mailing of Radon kits to public.	Low	B, H, Q	H, Q, T	Countywide	Ongoing	Mid-Term	Mid-Term
11. Develop program to demolition and clear vacant condemned structures to prevent rodent infestations.	Low	B, C	B, C	Countywide	In place, ongoing	Mid-Term	Mid-Term

Mitigation Actions & Implementation Strategies K. Extreme Temperatures	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Study and improve location and design and maintenance of water and sewer systems (to include insulation of critical components to prevent damage from ground freeze)	High	C,F,G,P	Q, T	Onaway, Rogers City, Posen	In place, ongoing	Long term	Long term
2. Develop housing/landlord codes to enforce heating requirements.	High	B, C	Q	Countywide	In place, ongoing	Mid-term	Mid-term
3. Improve and/or enact landlord/tenant ordinances.	Medium	B, C	B, C	Countywide	Ongoing	Mid-term	Mid-term
4. Identify location and organize outreach to vulnerable populations during periods of extreme temperatures…	Medium	A, B, C, N	A, B, C, N	Countywide	In place, ongoing	Mid-term	Mid-term

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Mitigation Actions & Implementation Strategies **L. Wildfire, #1**	Priority	Responsible Agency	Funding Sources	Application	Progress	Original Status	New Status
1. Conduct annual wildfire planning with all fire departments and MDNR.	High	A,D,J,Q	Q, T	Countywide	In place	Ongoing	Ongoing
2. Develop a program to instruct residents on proper procedures for wildfire evacuation, …	High	A,D,J,Q	C, D, Q, T	Countywide	In place through DNR	Short-term	Short-term
3. Conduct multi-agency, inter-county emergency management response exercises for fire suppression	High	A,B,C,D.	T	Countywide	In place	Short-term	Short-term
4. Identify communities or neighborhoods to develop "Firewise" demonstration projects.	High	A,C,D,J,U	Q, T	Countywide	Annual education offered	ASAP	ASAP
5. Develop and implement strategy to introduce "Firewise" program in risk communities.	Medium	A,C,D,J,U	Q, T	Countywide	In place	Short-term	Short-term
6. Coordinate countywide wildfire education program: distribution of materials via direct mailings, school presentations;	Medium	A,D,J R,	C, Q, T	Onaway, Rogers City, Posen	Ongoing	Mid-term	Mid-term
7. Work with insurance companies to provide wildfire safety information to area residents, and consider reduction of insurance premiums if homes meet "Firewise" criteria.	Medium	A,B,C,D,K,L,Q, U	Q, T	Countywide	Ongoing	Mid-term	Mid-term
8. Community Chipper Days – Organize a program to provide a chipper for properly disposing of woody debris,in conjunction with composting programs and spring clean-up days.	Medium	C,D,U	C, T	Countywide	Funding issues	Mid-term	Mid-term
9. Distribute wildfire education materials to homeowners and businesses through tax bill receipts.	Medium	B C	C, D, Q, T	Countywide	Not yet in place	Mid-term	Mid-term
10. Review and strict enforcement of open burning regulations.	Medium	A,B,C,D,J,W	C, D, Q, T	Countywide	In place with local law/DNR	Ongoing	Ongoing
11. Promote creation of defensible space around structures in fire-prone wildland areas.	Medium	A,B,C,D,K	T	Countywide	Ongoing	Mid-term	Mid-term
12. Promote media broadcasts of fire weather and fire warnings	Medium	A,B,C,D,J	T	Countywide	In place	Mid-term	Mid-term
13. Develop Countywide solution for funding fire service.	~~Low~~	n/a		~~Countywide~~			
14. Organize neighborhood wildfire safety coalitions to plan how to work together to prevent wildfire	~~Low~~	n/a		~~Countywide~~			
15. Develop program to inspect campsites in public forest areas to insure safe open fires, where allowed.	Low	D, Q	D, Q	Countywide	In place	Mid-term	Mid-term
16. Promote and implement fuel management by thinning of flammable vegetation, creation of fuel breaks, use of fire-retardant materials/vegetation and selective thinning….	Low	B, Q	B, Q	Countywide	Ongoing	Mid-term	Mid-term
17. Review and develop a regional base for air-firefighting wildfire support at Rogers City Airport.	Low	A,D,J,Q	Q, T	Countywide	In place	Long Term	Long Term
18. Study and develop GIS layers to include water supply location, Tier II sites, gas and oil wells.	Low	B	B	Countywide	GIS now in place	Mid-term	Mid-term
19. Explorer enlisting aid of insurance companies to provide evacuation information.	~~Low~~	n/a		~~Countywide~~		Mid-term	Mid-term
20. Develop program to form Wildfire Safety Coalition to develop neighborhood watch program to instruct others about escape routes, sprinkler systems, power lines, etc…	~~Low~~	n/a		~~Countywide~~		Mid-term	Mid-term

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