



Wexford County

BOARD OF COMMISSIONERS

Gary Taylor, Chair

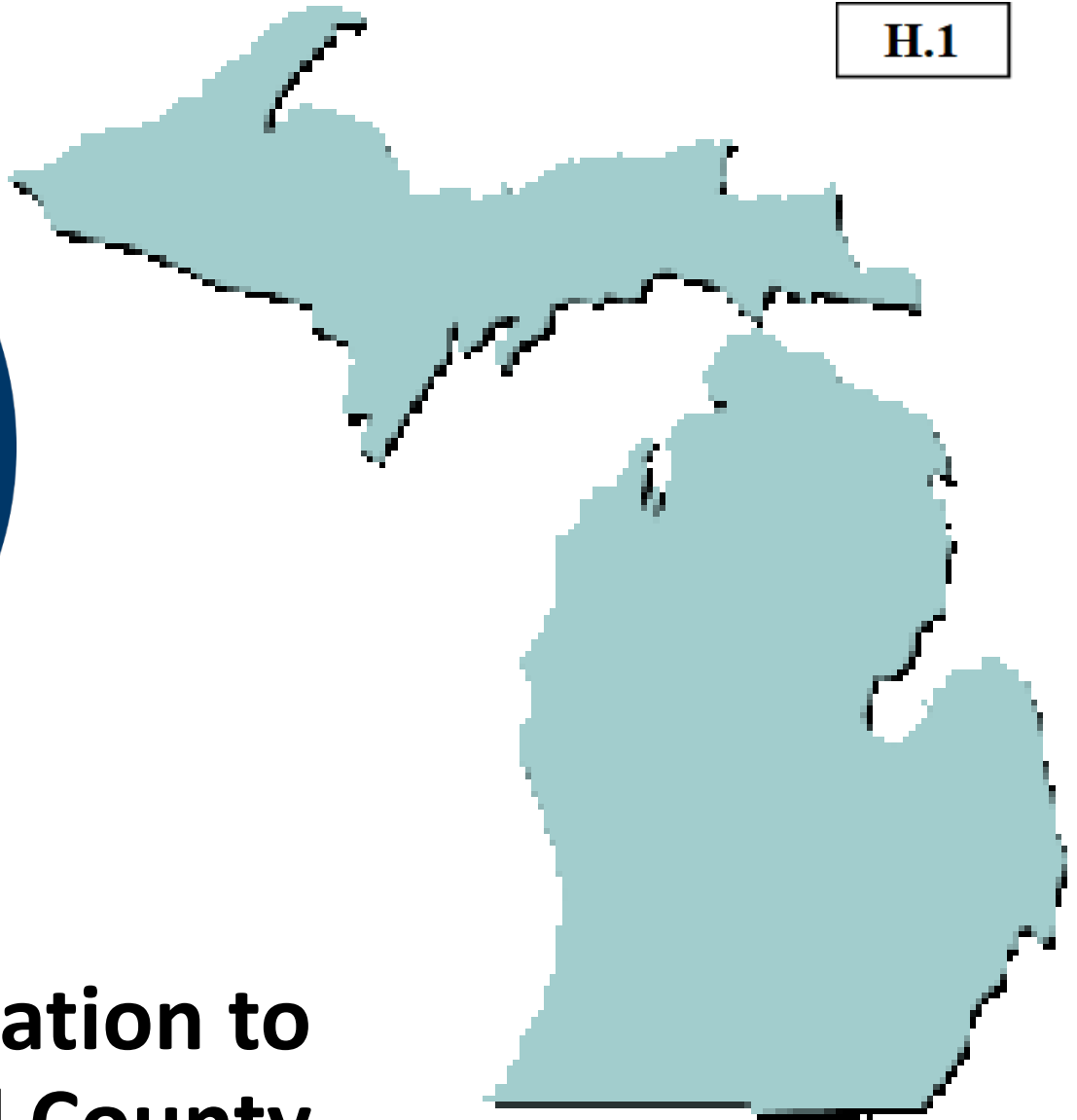
NOTICE OF MEETING

The Wexford County Board of Commissioners will hold a regular meeting on Wednesday, April 19, 2023, beginning at 4:00 p.m. in the Commissioners Room, third floor of the Historic Courthouse, located at 437 E. Division St., Cadillac, Michigan.

TENTATIVE AGENDA

- A. CALL TO ORDER
- B. ROLL CALL
- C. PLEDGE OF ALLIEGIANCE
- D. ADDITIONS/DELETIONS TO THE AGENDA
- E. APPROVAL OF THE AGENDA
- F. PUBLIC COMMENT
Designated for topics on the agenda only.
- G. EMPLOYEE RECOGNITION
- H. PRESENTATION AND REPORTS
 - 1. Michigan Association of Counties – Steve Currie, Executive Director1
- I. CONSENT AGENDA
The purpose of the consent agenda is to expedite business by grouping non-controversial items together to be dealt with by one Commission motion without discussion. Any member of the Commission may ask that any item on the consent agenda be removed therefrom and placed elsewhere for full discussion. Such requests will be automatically respected. If any item is not removed from the consent agenda, the action noted on the agenda is approved by motion of the Commission to adopt the consent agenda.
 - 1. Approval of the April 05, 2023 Regular Meeting Minutes
 - 2. Approval of the April 11, 2023 Special Meeting Minutes.....18
- J. AGENDA ITEMS
 - 1. Public Hearing20
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 - 2. Northern Lakes Community Mental Health Authority Enabling Agreement *(Executive 04/11/2023)*.....109
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- K. ADMINISTRATOR’S REPORT
- L. CORRESPONDENCE
 - 1. Prosecuting Attorney Monthly Report *(March 2023)*152
- M. PUBLIC COMMENT
Open for any public comments.
- N. LIAISON REPORT
- O. BOARD COMMENTS
- P. CHAIR COMMENTS
- Q. ADJOURN

In compliance with the Americans with Disabilities Act, persons with physical limitations that may tend to restrict access to or participation in this meeting should contact the County Administrator’s office (231-779-9453) at least twelve (12) hours prior to the scheduled start of the meeting.



Presentation to Wexford County



About MAC: 125th Birthday!

- **Formed on Feb. 1, 1898, as State Association of Supervisors of Michigan**
- **Oldest association representing local government units in Michigan**
- **Renamed as Michigan Association of Counties in 1968**
- **Service expansions:**
 - 1955 – 1st Executive Director
 - 1979 – Workers' Comp Fund
 - 1986 – Service Corp.



1898-2023



About MAC: Purpose

- **Advocacy:** To be the voice of Michigan counties at the state and federal level
- **Education:** To provide educational opportunities to county commissioners to ensure they can do their jobs to the best of their abilities
- **Services:** To make available services that counties can take advantage of that save their staff time and money





About MAC: Leadership



Stan Ponstein
President



Jim Storey
First Vice President



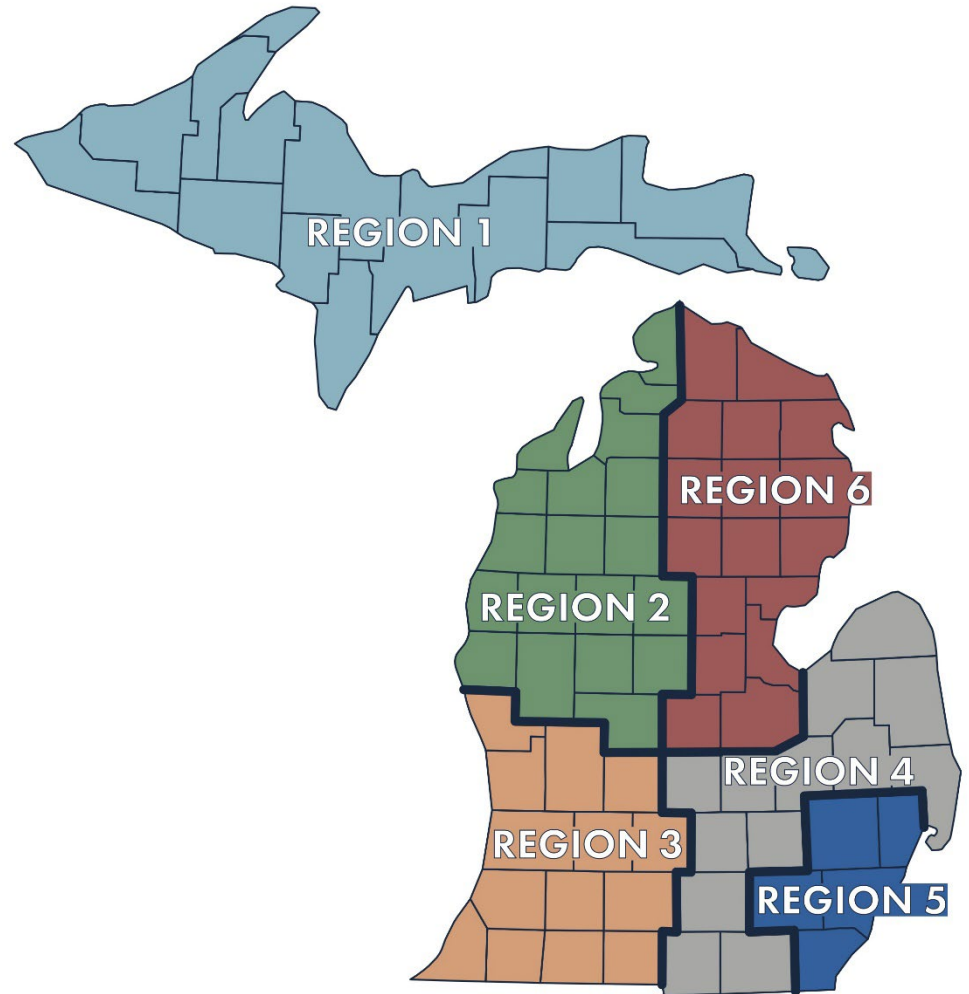
Stephan W. Currie
Executive Director
scurrie@micounties.org





About MAC: Leadership

- **Board of 16 members elected by commissioners**
- **Two seats from each of six regions ensure broad representation**
- **MAC Board meets four times a year: Legislative Conference, June, Annual Conference, November**
- **Elections held in August/September at Annual Conference**





About MAC: Policy Development

Internal Committees

- **Appointed by President**
- **Member participation from across state**
- **Areas of focus**
 - Finance and General Government
 - Environmental and Regulatory Affairs
 - Judiciary and Public Safety
 - Health and Human Services
 - Transportation and Infrastructure
 - Agriculture, Tourism and Natural Resources





Legislative Update: 2023 Priorities

- Revising the Open Meetings Act to Meet the Demands of the 21st Century
- Creating a Fair Revenue Sharing System for Counties
- Enacting Reforms to Ensure Proper Funding of Local Courts
- Increasing Resources for Juvenile Justice Services
- Compensating Local Governments for Funds Diverted by the Veterans Property Tax Exemption
- Revamping the PPT Exemption to Provide Annual Reimbursement to Locals





2023 Priority

Revising the Open Meetings Act (OMA)

- Prior changes to OMA in 2020, members of a public body could attend, participate and vote remotely at county board sessions, so long as a quorum of the public body was physically present
- Statutory change to allow for full board meetings to be held remotely due to the pandemic expired Dec. 31, 2021, and impacted the pre-pandemic rules by now barring remote participants from voting, even if a quorum is physically present in the meeting room
- **MAC supports revisiting the OMA to allow for remote participation and, at minimum, to allow for pre-pandemic meeting options for county boards**



2023 Priority

Creating a Fair Revenue Sharing System for Counties

- Revenue Sharing is the most flexible form of state aid to counties, which makes it the most effective method to fund generational investments
- **MAC supports the creation of a Revenue Sharing Trust Fund (RSTF) through a statutory earmark of the state sales tax (SBs 229-230):**
 - Money in fund would stay in the fund for distribution to locals
 - Money in fund would be even split: 50% to counties; 50% to CVTs
 - Method of carving out a percentage of sales tax for the fund is what revenue sharing was originally designed to do — share in the state's revenue



2023 Priority

Enacting Funding Reforms for Local Courts

- Local court funding remains caught in a looming statutory sunset (May '24) and is subject of litigation before MI Supreme Court
- To ensure our local courts do not face a financial emergency, MAC supports the enactment of many of the Trial Court Funding Commission's recommendations
- **MAC supports the creation of the Trial Court Fund to distribute funding to trial courts based on operational requirements while maintaining local discretion over trial court operational decisions**
- **MAC supports establishment of uniform assessments and centralized collections for trial courts through State Court Administrator's Office**



2023 Priority

Increasing Resources for Juvenile Justice

- A lack of staff, training and facilities has left a critical shortage of resources to house those in the juvenile justice system
- **MAC supports an increase in funding for staff recruiting, retention and training, plus direct funding for additional facilities and an increase in the per diem rate for foster care parents**





2023 Priority

Compensation for Funds Diverted by Veterans Property Tax Exemption

- Since the enactment of the Disabled Veterans Property Tax exemption in 2013, counties have sought reimbursement from the state for the lost local revenues, a hit of tens of millions of dollars each year
- **MAC supports continuing the exemption — but with the state making up those local losses through a refundable income tax credit payable to local governments**





2023 Priority

Revamping PPT Exemption for Annual Reimbursements

- As part of the economic development deal struck in 2021, Legislature and governor enacted an increase for the Personal Property Tax (PPT) exemption for small business, thereby reducing revenue to local governments by approximately \$75 million each year
- This exemption begins this year without a defined method for reimbursement for local governments that receive PPT fund
- **MAC supports a system to provide full reimbursements to locals each year that is outside the annual appropriations process**



About MAC: Advocacy



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About MAC: Advocacy



- Provides financial support to incumbent state legislators who are friends of county government
- 24 former county commissioners now serving in the Michigan Legislature (MAC County Caucus)

Donate at www.micounties.org



About MAC: Events

Conferences

Legislative Conference (spring)

- April 24-26, 2023

Annual Conference (summer/fall)

- Oct. 1-3, 2023

MAC conferences provide top speakers, intensive policy workshops and plenty of opportunities to network with county leaders



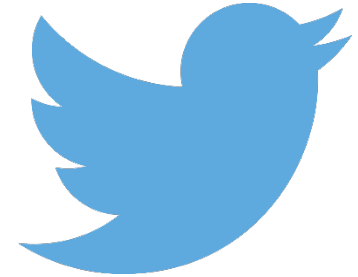


About MAC: Communications

- Full suite of social media channels
- Podcast 83 is MAC's video briefing on news and trends in county government
- Website has county resolutions database; digital advocacy tools; conference archives



**Facebook.com/
MIcounties**



@MIcounties



Podcast 83



@MIcounties

www.micounties.org

WEXFORD COUNTY BOARD OF COMMISSIONERS

Special Meeting * Wednesday, April 11, 2023

Meeting called to order at 3:00 p.m. by Chairman Taylor.

Roll Call: Present- Commissioners Jason Mitchell, Michael Musta, Ben Townsend, Kathy Adams, Michael Bush, Julie Theobald, Brian Potter and Gary Taylor.

Absent- Commissioner Jason Baughan

Pledge of Allegiance.

Additions/Deletions to the Agenda- *None*

Approval of the Agenda

MOTION by Comm Musta, seconded by Comm Adams to approve the agenda.

All in Favor.

Public Comment- *None.*

Employee Recognition- *None.*

Presentation and Reports- *None.*

Agenda Items

1. L-4024 Reports

MOTION by Comm Theobald and seconded by Comm Bush to approve the 2023 Equalization Reports, Form L-4024 and 4037, and authorize the Chairman, Clerk, and Equalization Director to sign Form L-4024 and Form 4037.

Equalization Director Porterfield stated that these reports are due annually. Report 4037's shows that all townships come in at 49% - 50% assessed value, to true cash value in every class. There was no need to apply any factors to the assessment rolls. The 4024 breaks it down more by class and total value across each township, in a blanket form. This form goes to the State of Michigan. Form 4037 goes to each local township, in their assessment rolls.

Roll Call: Motion passed 8-0.

Correspondence- *None.*

Public Comments- *None*

Board Comments- *None.*

Chairman's Comments-

Thanked everyone for attending the meeting.

Adjourn

MOTION by Comm Theobald, seconded by Comm Bush to adjourn at 3:03 p.m.

All in favor.

Gary Taylor, Chairperson

Ashley Hackert, Deputy Clerk



***Wexford County
Notice to the Public
Public Meeting for Input on the Wexford County 2023 Draft Hazard Mitigation Plan***

Wexford 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 on April 19, 2023 at 4:00 PM. The meeting will be at the Historic Wexford County Courthouse, 3rd Floor, Board of Commissioners Room, 437 E. Division St, Cadillac, MI, 49601. Public comments are requested either in person or by a representative at the public meeting; via mail to PO Box 506, Traverse City, MI 49685; or by email to stephanie.marchbanks@networksnorthwest.org. The draft plan is available for review on Wexford County's website and at nwm.org/hazardplan.

Wexford County, Michigan Natural Hazard Mitigation Plan

2023

FEMA LETTER OF APPROVAL

ACKNOWLEDGEMENTS

The Wexford County Natural Hazard Mitigation Plan is prepared for Wexford County, Michigan and all the jurisdictions within it. Each jurisdiction is invited to be a continuing participant in future regular review and updates of the Plan. This plan is the culmination of an interdisciplinary and interagency planning effort that required the time, technical assistance and expertise of individuals within the following organizations:

PARTICIPATING ENTITY	REPRESENTATIVE	TITLE
Wexford County Board of Commissioners	Jason Mitchell	District 1 (Greenwood, Liberty, Manton, Cedar Creek (N. of 37 Rd.))
	Michael Musta	District 2 (Colfax, Hanover, Antioch, Boon (minus the Village of Harietta))
	Ben Townsend	District 3 (Wexford, Slagle, South Branch, Springville, Village of Harietta)
	Kathleen Adams	District 4 (Cherry Grove (W. of 52 Rd.), Henderson, Selma)
	Michael Bush	Vice Chair, District 5 (Cadillac Precinct 1)
	Julie A. Theobald	District 6 (Cadillac Precinct 2)
	Gary Taylor	Chair, District 7 (Cadillac Precinct 3)
	Jason Baughan	District 8 (Haring (minus Cadillac City), Cedar Creek (S. of 37 Rd.))
	Brian Potter	District 9 (Clam Lake, Cherry Grove (E. of 52 Rd.))
	Mike Bengelink	County Commissioner (former)
Wexford Joint Planning Commission (WJPC)	Richard Harvey	Planning Commissioner, Boon Twp.
	Beverly Monroe	Planning Commissioner, Liberty Twp.
	Paul Osborne	Planning Commissioner, Antioch Twp.
	Marli Wendel	Planning Commissioner, Slagle Twp.
	Donna Taylor	Planning Commissioner, South Branch Twp.
	Benedict Fleis	Planning Commissioner, Wexford Twp.
	Randy Brewer	Planning Commissioner, Springville Twp.
	Christina Vipond	Planning Commissioner, Hanover Twp.
	Robert Hall	WJPC Planning & Zoning Administrator
Heather O'Connor	WJPC Recording Secretary	
Wexford County	Joe Porterfield	County Administrator/Equalization Director
	Jami Bigger	Deputy County Administrator / Human Resources Director
	Randy Boike	Emergency Management Coordinator (current) / Wexford County Sheriff's Office
	Travis Baker	Emergency Management Coordinator (former) / Wexford 911
	Trent Taylor	Wexford County Sheriff
	Richard Doehring	Wexford County Sheriff's Office
	Karl Hanson	Road Commission Engineer/Manager
	Sarah Merz	GIS Analyst
	Duane Alworden	911 Director
Brian Draper	Wex Express Transportation	
City of Cadillac	Marcus Peccia	City Manager
	Antoinette (Tiyi) Schippers	Mayor Pro-Tem
	John Wallace	Community Development Director
	Mike Coy	Zoning Administrator
	Adam Ottjepka	Director of Public Safety
City of Manton	Jake Paddock	DPW Supervisor
	Jessica Schisser	Clerk
	Sam Cronkhite	Mayor
	Bill Bates	City Commissioner
PARTICIPATING ENTITY	REPRESENTATIVE	TITLE

Village of Buckley	Michael Guernsey	Buckley Fire Chief/ DPW Supervisor
Village of Harrietta		
Village of Mesick		
Antioch Township (WJPC)	Paul Osborne	WJPC
Boon Township (WJPC)	Richard Harvey	WJPC
Cedar Creek Township		
Cherry Grove Township (WJPC)	Ben Pearson	Supervisor
Clam Lake Township		
Colfax Township (WJPC)	Jason Nelson	Colfax-Greenwood Fire Dept.
	Rebecca Stoddard	Clerk
Greenwood Township	Alan Mohler	Township Supervisor
	Jason Nelson	Colfax-Greenwood Fire Dept.
Hanover Township (WJPC)	Christina Vipond	WJPC
Haring Charter Township		
Henderson Township		
Liberty Township (WJPC)	Beverly Monroe	WJPC; Township Supervisor
Selma Township (WJPC)	Mike Boyd	Township Supervisor
Slagle Township (WJPC)	Marli Wendel	WJPC
South Branch Township (WJPC)	Donna Taylor	WJPC
	Julie Cieslak	Clerk
Springville Township (WJPC)	Randy Brewer	WJPC
Wexford Township (WJPC)	Benedict Fleis	WJPC
	David Fox	Treasurer
Wexford Conservation District / North Country Cooperative Invasive Species Management Area (NC CISMA)	Tiffany Jones	District Manager
	Vicki Sawicki	NC CISMA Program Coordinator
Wexford Council on Aging	Erin Brotherton	Supervisor of Health Care Services
Cadillac Area Land Conservancy	Chris Gentry	Executive Director
District Health Department #10	Bret Haner	Emergency Preparedness Coordinator
Michigan State Police	Trooper Travis Thenikl	
	F/Lt. Matthew McCaul	Cadillac Post
	Mike Sobocinski	Hazard Mitigation Planning Analyst
Michigan Department of Natural Resources	Breton Baker	Forest Fire Supervisor – Cadillac Management Unit
US National Forest Service - Huron-Manistee National Forest	Ben Wagner	Deputy Fire Staff Officer
	Scott Peedle	USFS District Ranger, Cadillac/Manistee Ranger District
Buckley Community Schools	Jessica Harrand	Superintendent
Wexford-Missaukee Intermediate School District	Dave Cox	Superintendent

Prepared for: Wexford County Board of Commissioners

Prepared by: Wexford County Department of Emergency Management with assistance from:



**Networks
Northwest**
Talent / Business / Community

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I. INTRODUCTION

Hazard mitigation is defined as any action taken before, during, or after a disaster or emergency to permanently eliminate or reduce the long-term risk to human life and property from natural, technological and human-related hazards. Mitigation is an essential element of emergency management, along with preparedness, response and recovery.

Mitigation allows repairs and reconstruction to be completed after an incident occurs in such a way that does not just restore the damaged property as quickly as possible to pre-disaster conditions. It also ensures that such cycles are broken, that post-disaster repairs and reconstruction take place after damages are analyzed, and that sounder, less vulnerable conditions are produced. Through a combination of regulatory, administrative, and engineering approaches, losses can be limited by reducing susceptibility to damage. When successful, hazard mitigation will lessen the impact of a disaster on people, property, the environment and economy, and continuity of services through the coordination of available resources, programs, initiatives, and authorities.

A *hazard*, in the context of this plan, is an event or physical condition that has potential to cause fatalities; injuries; damage to personal property, infrastructure, or the environment; agricultural product loss; or interruption of business or civic life. The Wexford County Natural Hazard Mitigation Plan focuses on *natural* hazards such as heat, drought, wildfires, flooding, severe thunderstorms, high winds, tornado, hail, extreme winter weather, and invasive species. An exception is that it will also consider these technological and human-related hazards: potential dam failure and public illness outbreak. The following natural hazards were not included in the analysis for this Hazard Mitigation Plan: earthquakes, space weather, and subsidence. According to the information presented about these hazards in the Michigan State Police's 2019 Michigan Hazard Analysis report, there is very little risk of these events occurring in the Northwest Michigan area.

The main objective of the Wexford County Natural Hazard Mitigation Plan is to permanently eliminate or reduce long-term risks to people and property from natural hazards so that county assets such as transportation, infrastructure, commerce, and tourism can be sustained and strengthened. This can be accomplished through collaborative efforts/activities amongst agencies within the county to protect the health, safety, and economic interests of the residents and businesses through planning, awareness, and implementation.

Through the development of this Plan, a broad perspective was taken in examining multiple natural hazard mitigation activities and opportunities in Wexford County. Each natural hazard was analyzed from a historical perspective, evaluated for potential risk, and considered for possible mitigation.

Since the 2015 plan's adoption period, the county and municipalities have achieved the following key endeavor to address their priority mitigation strategy areas:

- Public education and awareness activities: Wexford County now participates in the CodeRED Emergency Communications Network, which is an electronic high-speed outbound notification service available to the general public. The system notifies a participant via their mobile phone (via text message) or land-line phone of public safety alerts.

Progress on the following hazard mitigation strategies from the 2015 plan has been "ongoing" by the county and municipalities:

- Wildfire
 - Acquire appropriate fire suppression equipment for responses
 - Consider wildland fire hazard reduction in building and zoning requirements
 - Acquire appropriate fire suppression equipment for response
- Extreme Winter Weather
 - Work with utility companies to clear vegetation near power lines and infrastructure
 - Continue enforcement of building code regarding snow load limits through the permitting process
- Severe Weather
 - Promote the anchoring of trailers and modular homes
- Flooding
 - Continue enforcement of building codes and soil erosion regulations
 - Promote flood-proofing of structures and damage reduction techniques

- Various
 - Incorporating the Plan’s natural hazards mitigation concepts, strategies and policies into existing elements of local Master Plans
 - Public education and awareness activities

Section VI of this plan provides a list of hazard mitigation strategies for each natural hazard identified. Strategies were developed based on discussions with local officials, stakeholders and a review of FEMA best practices for hazard mitigation. Appendix C provides a review of mitigation strategies included in the 2015 plan and their current status. Mitigation strategies are intended to be action items completed during the 5-year timeframe in which the plan is active.

Wexford County recognizes the importance of reducing community vulnerability to natural hazards by developing and implementing this plan. This process will help ensure that Wexford County remains a vibrant, safe, enjoyable place in which to live, raise a family, continue to conduct business, and maintain a tourist base. The Plan serves as the foundation for natural hazard mitigation activities and actions within Wexford County, and will be a resource for building coordination and cooperation within the local communities for future mitigation and community preparedness based upon the following:

Natural Hazards Mitigation Planning Goals

Goal 1: Increase local awareness and participation in natural hazards mitigation
Goal 2: Integrate natural hazards mitigation considerations into local planning processes
Goal 3: Utilize available resources and apply for additional funding for natural hazards mitigation projects
Goal 4: Develop and complete natural hazards mitigation projects in a timely manner

II. PLANNING PROCESS

The Stafford Act, as amended by the Disaster Mitigation Act of 2000, shifted the Federal Emergency Management Agency's (FEMA) scope of work to promoting and supporting prevention, or what is referred to as hazard mitigation planning. FEMA requires government entities to have a natural hazards mitigation plan in place and updated on a 5-year cycle as a condition for applying for grant funding related to natural hazard mitigation and remediation. Wexford County has a history of mitigation planning and adopted past Natural Hazard Mitigation Plans in 2007 and 2015. The local and county-government adoptions of the 2023 plan, along with FEMA approval, will reaffirm the eligibility of the county, as well as those local municipalities who participated in the planning process and adopted the county's plan, for federal funding.

The update of the County's plan was led by the Natural Hazards Task Force comprised of the County's Local Planning Team (LPT), which is facilitated by the Wexford County Emergency Management Coordinator. Team members consist of first responders and local, regional, and state public entities that ensure the readiness of County entities by recommending equipment purchases, training and exercises, and public education on preparedness issues. Networks Northwest staff assisted with the creation of the updated plan by providing meeting facilitation, conducting an online survey, and writing the plan. The Task Force generally met on a quarterly basis, with additional in-person public input meetings. All meetings were open to the public; notifications were made via postings on the Networks Northwest project page and via email invitations. The following is an outline of events for the development of the 2023 Wexford County Natural Hazard Mitigation Plan:

- On July 1, 2021, Travis Baker (former Wexford County Emergency Manager) attended a project kick-off meeting with regional county and tribal emergency managers, Networks Northwest, and Michigan State Police.
- An online public survey was made available from December 1, 2021 to March 31, 2022 to obtain input on community experiences, concerns and priorities regarding natural hazard mitigation in Wexford County. A total of 24 persons participated in the survey, as described in Table 1.

Table 1: Community Survey Participation

Survey Participant	Representative (if indicated in the survey)
Boon Township	Richard Harvey, Wexford Joint Planning Commission member
Charter Township of Haring	Elected Official
Cherry Grove Township	Supervisor
Colfax Township	Clerk
Liberty Township	Beverly Monroe, Supervisor
South Branch Township	Clerk
Springville Township	Administrator at Mesick Consolidated School District
Village of Buckley	Fire Chief/DPW Supervisor
City of Cadillac	City Manager, Public Safety Director, Mayor ProTem, Zoning Administrator, Community Development Director
City of Manton	City Clerk
Wexford County Government	County Administrator
Wexford County Sheriff's Office	Sheriff
Wexford County Road Commission	Engineer Manager
Wexford County Council on Aging	
MMR EMS Service	
Michigan State Police	
District Health Department #10	Bret Haner, Emergency Preparedness Coordinator

- LPT meetings where the Natural Hazard Mitigation Plan update work was discussed:
 - January 20, 2022 - Networks Northwest provided an introduction and timeline for the project, and presented the community profile information
 - April 21, 2022 – Networks Northwest held a public input meeting (combined with an LPT meeting) to present the hazard analysis, provide a summary of survey results, and engage community stakeholders in hazard identification
 - September 15, 2022 – Networks Northwest presented a partial draft plan, goals and objectives, and draft maps
 - November 17, 2022 and January 19, 2023 – discussion at the LPT meetings included the Hazard Mitigation Plan draft and next steps

- Networks Northwest staff and the Wexford County Emergency Management Coordinator also attended the Wexford Joint Planning Commission meeting on October 24, 2022 to explain the Hazard Mitigation Plan progress to date and obtain feedback on hazards of concern and the draft plan and strategies.
- On December 6, 2022, Networks Northwest staff and the Wexford County Emergency Management Coordinator held an additional community input session at the Wexford County Sheriff's Office Training Center to obtain feedback from community stakeholders to review and modify draft goals, objectives and strategies.

Additionally, county and regional agencies that share borders with Wexford County were invited to participate in the planning meetings and sent a copy of the plan in its draft form and again the approved plan. Those agency staff members are:

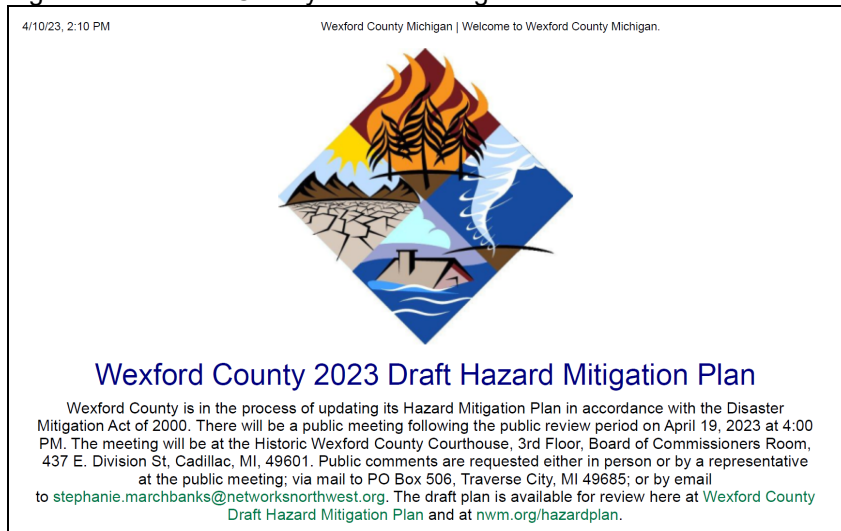
- Gregg Bird, Emergency Management Coordinator, Grand Traverse County
- Mike Thompson, Emergency Management Coordinator, Kalkaska County
- Linda Hartshorne-Shafer, Planning and Emergency Management Director, Missaukee County
- Mark Watkins, Emergency Management Director, Osceola County
- Patrick Maddox, Emergency Management Director, Lake County
- Alvin Rishel, Emergency Management Coordinator, Manistee County
- Rebecca Hubers, Emergency Management Coordinator, Benzie County
- Robert Carson, Regional Director of Community Development, Networks Northwest

During development of the plan, all Wexford County municipalities were provided the opportunity to participate in the online community survey as well as comment on plan drafts and other related materials. The draft plan was published openly on the Wexford County Emergency Management website, as well as the project page on Networks Northwest's website. The public was encouraged to review the draft plan and invited to submit suggestions and ideas for updates, changes to be considered during updates. Documentation of formal comment received via email is included in Appendix D.

Additionally, the public was notified of the draft plan availability through a direct mailing (to local government offices) and through published notices in the *Cadillac News* on March 25 and April 15, 2023 that the County's draft Natural Hazard Mitigation Plan was available for review and comment and that a public hearing would be held on plan at the County Board of Commissioner's Meeting on April 19, 2023.

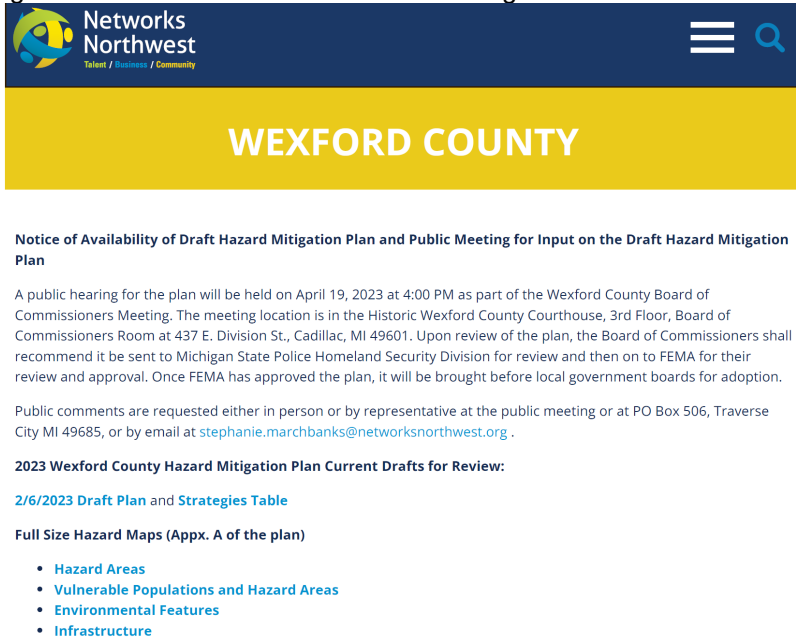
Figures 1 – 3 are images of websites indicating availability of the draft plan, as well as a copy of the newspaper notice.

Figure 1. Wexford County Website Image



Source: Wexford County, <https://wexfordcounty.org/> 4/10/2023

Figure 2. Networks Northwest Website Image



Source: Networks Northwest, <https://www.networksnorthwest.org/community/natural-hazard-mitigation/wexford-county.html> 4/10/2023

Figure 3. Notice for Public Hearing on Draft Plan

Source: Cadillac News, published March 25 and April 15, 2023

III. COMMUNITY PROFILE

Land Use/ Land Cover

Wexford County is located in Northwest Lower Michigan, and is bordered by Grand Traverse County to the north, Kalkaska County to the northeast, Missaukee County to the east, Osceola and Lake Counties to the south, Manistee County to the west, and Benzie County to the northwest. Refer to the “Infrastructure” map in Appendix A illustrating the county’s main roads, water bodies and jurisdictions.

The county consists of 565 square miles of land area and is the 48th largest county in Michigan by total area.¹ Approximately 1.99% of the county area, or 11.44 square miles, consists of open water (Table 1).

About 50% of Wexford County is made up of rolling to steep glacial moraines, with most of the remainder undulating or nearly level glacial outwash plains. The highest point in Wexford County is *Briar Hill* at 1,706 feet elevation in Antioch Township, located east of the Village of Mesick.

Wexford County is served by six state/federal highways including US-131, Old US-131/Business US-131, M-115, M-55, M-37, and M-42. The Cadillac/Wexford Transit Authority, or WexExpress, is a door-to-door public transit service for residents and visitors of Wexford County. Additionally, the Wexford County Airport, owned by the City of Cadillac and Wexford County, is open to the public and is a general aviation airport. It is located two miles north of the City of Cadillac. Wexford County is also serviced by the Great Lakes Railway Company from Clare, Mt. Pleasant, Midland and points north to Traverse City, Yuma, and toward Petoskey. The railway north of Yuma (a settlement in Springville Township within Wexford County) has been removed.

The natural resources of Wexford County are vital to the economic health and quality of life of area residents. The abundance of quality public forest land and water resources make this area a popular tourism destination, particularly for hunting, fishing, skiing and snowmobiling.

Wexford County hosts a number of both motorized and non-motorized trail systems. Snowmobiles and off-road vehicles (ORVs) are authorized to use road shoulders on County road rights-of-way, and a number of motorized trails are available on the County’s public land. Trail opportunities for ORVs were expanded with Public Act 288 of 2016, which opens state forest roads to ORV use unless posted.

The County is divided between two major watersheds, or drainage areas: the Big Manistee River and the Muskegon River (Clam River/Lakes Cadillac/Mitchell). Much of the County is within the watershed of the Big Manistee River/Pine River. The Big Manistee River runs through the northern portion of the county. The Hodenpyl Dam, a hydroelectric dam owned and operated by Consumers Energy, constricts the flow of the river and forms the Hodenpyl Dam Pond in Springville Township. The dam structure is located just outside Wexford County, in westerly adjoining Manistee County. The streams in Wexford County are quality trout streams because of abundant groundwater discharge into the surface water resulting in cold water streams. The protection of groundwater and riparian zones is therefore important for maintaining and protecting the County’s fisheries. The Manistee has had a long standing reputation for being a top-quality trout stream, and provides cold water habitat for over 75 species of fish, including trout and salmon. There are a large number of named and unnamed feeder creeks to the Big Manistee River in the north central part of Wexford County, which represents artesian flow from groundwater moving north from the glacial hills toward the river.

The Pine River, a federally-designated Wild and Scenic River, runs through southwest Wexford County in South Branch Township. The lower 26-miles of the Pine River was designated a National Scenic River in 1992, has the fastest average flow of any river in lower Michigan, and is considered a premier top-quality stream (which Michigan once classified as a “Blue Ribbon Trout Stream”).

¹ https://data.census.gov/cedsci/profile/Wexford_County,_Michigan?q=0500000US26165

Major lakes in Wexford County include:

- Lake Mitchell (Cherry Grove and Selma Townships)
- Lake Cadillac (City of Cadillac)
- Hodenpyl Dam Pond (Springville Township)
- Long Lake (Haring Charter Township)
- Lake Gitchegumee (Village of Buckley & Hanover Township)
- Pleasant Lake (Selma Township)
- Stone Ledge Lake (Clam Lake Township)
- Lake Meauwataka /“Dayhuff Lake” (Colfax Township)
- Berry Lake (Clam Lake Township)
- Woodward Lake (Selma Township)
- Round Lake (Haring Township)

The forests of Wexford County include hemlock and other coniferous trees, such as red and white pine, spruce and fir, and deciduous trees, such as birch, beech, maple, basswood, and oak. Swamp and wetland vegetation patterns are also found along with a multitude of shrubs. As a result of intensive lumbering in the past, most of these forested areas are second growth and, to some degree, the original forest habitat patterns have been altered. Forest cover types represent the largest land cover in Wexford County. The three principal segments are the United States Manistee National Forest, the Michigan Pere Marquette State Forest and the large tracts of land owned by Consumers Energy along the Manistee River. All of these areas are under some type of woodland-wildlife-recreation management plan. ²

The largest concentrations of people and businesses are located near the cities of Cadillac and Manton, followed by the Villages of Harrietta, Mesick and Buckley, and along major roadways.

According to the [2017 USDA Census of Agriculture](#), the county had 40,208 acres of land in farms for a total of 304 farms. This represents a 15% drop in the number of farms since the 2012 Census of Agriculture, which reported 357 farms in Wexford County. However, the average size of a farm in Wexford County was 132 acres, which represents a 17% increase since the 2012 Census of Agriculture.

About 48% of the market value of agricultural products sold in the county as of 2017 was from crops, with the remaining 52% from livestock, poultry and other animal products. Wexford County ranks 2nd out of 76 counties in the state for sales of Christmas trees and short rotation woody crops. Total crop sales for the county accounted for \$8,704,000, coming primarily from grains, oil seeds, dry beans and pea crops and Christmas tree/short rotation woody crops. Total animal product sales accounted for \$9,445,000, coming primarily from milk from cows and cattle/calves.

Per Table 2, the predominant land cover type in Wexford County is “Forested”, which is comprised of deciduous forest, evergreen forest and mixed forest types. The second most prevalent land cover type is “Herbaceous and Shrub/Scrub”, followed by “Wetlands” and “Agriculture” (a combination of cultivated crops and hay/pasture lands) at 9.32% and 9.31%, respectively. Developed land cover is found primarily in and around the cities of Cadillac and Manton; the villages of Harrietta, Mesick and Buckley; and along the primary roads.

Table 2: Wexford County Land Cover by Type

Land Cover Classification	Acres	Percent
Developed, High Intensity	767.84	0.21%
Developed, Medium Intensity	2,190.21	0.59%
Developed, Low Intensity	6,845.62	1.86%
Developed, Open Space	17,798.62	4.83%
Forested	209,684.98	56.93%
Herbaceous & Shrub/Scrub	54,259.25	14.73%
Wetlands	34,330.78	9.32%
Agriculture	34,299.38	9.31%
Open Water	7,324.55	1.99%
Barren Land	766.78	0.21%
TOTAL	368,268.01	

Source: Networks Northwest

The 2015 Wexford County Hazard Mitigation Plan indicated that 281,700 acres, or 76%, of the county was comprised of forested lands. Current data shows that 209,685 acres, or 57% of Wexford County is forested. While growth in the county

² Wexford County Recreation Plan 2019-2023 <https://wexfordcounty.org/wp-content/uploads/2019/10/Wexford-CO-Rec-Plan-2019-FINAL-with-appendices.pdf>

has remained steady, it has been noted that the type of growth is changing. Office and industrial development has largely stopped, commercial development has slowed, but residential development is occurring as quickly as plans can be approved. Housing of all types and prices is in demand, but many communities desire smaller units and multiple family units. This type of housing is especially important for the senior population and will likely be in demand for many years. The *Environmental Features* Map in Appendix A shows the intensity of development in the county in relation to natural features.

Population

Wexford County is the 2nd most populated county in the ten county region of Northwest Lower Michigan (Table 3) and is the ranked 46 out of 83 counties in the state by population estimates.³ The 2019 American Community Survey (ACS) estimated the county population to be 33,256 people. A comparison of the 2010 and 2019 ACS data indicates the population of Wexford County grew slightly between 2010 and 2019 by an estimated 1.8% (Table 3). The 2019 estimated population per square mile is approximately 58.9 persons.

Table 3: 2019 Estimated Regional Population by County, State

Jurisdiction	Population
Missaukee County	15,028
Kalkaska County	17,585
Benzie County	17,615
Leelanau County	21,652
Antrim County	23,206
Manistee County	24,457
Charlevoix County	26,188
Emmet County	33,104
Wexford County	33,256
Grand Traverse County	92,181
State of Michigan	9,965,265

Source: US Census, 2019 ACS 5-year Estimates

Wexford County is comprised of sixteen (16) townships, three (3) villages and two (2) cities. All communities - with the exception of the Village of Mesick, the City of Manton, and the Townships of Cherry Grove, Clam Lake, Slagle, South Branch, and Springville - experienced population increases between 2010 and 2019 (Table 4). The most populated community is the City of Cadillac, at an estimated 10,419 persons. Note that the population estimates for the villages are shown separately for informational purposes; however, those population count estimates are incorporated into the totals for the respective township in which the Village is located.

The second most populated community, at an estimated 3,530 persons, is Haring Township, located just north of the City of Cadillac. The township contains portions of the US-131 highway corridor, M-55 and BR/Old US-131.

The third most populated community is Cherry Grove Township, at 2,433 persons, located southwest of the City of Cadillac and contains portions of Lake Mitchell and M-55. Closely following is Clam Lake Township, at an estimated 2,427 persons. Clam Lake Township adjoins the City of Cadillac to the south and contains portions of US-131, BR-131, M-115, and M-55.

Figure 4 illustrates the locations of the communities in Wexford County and their associated population levels.

³ https://www.michigan-demographics.com/counties_by_population

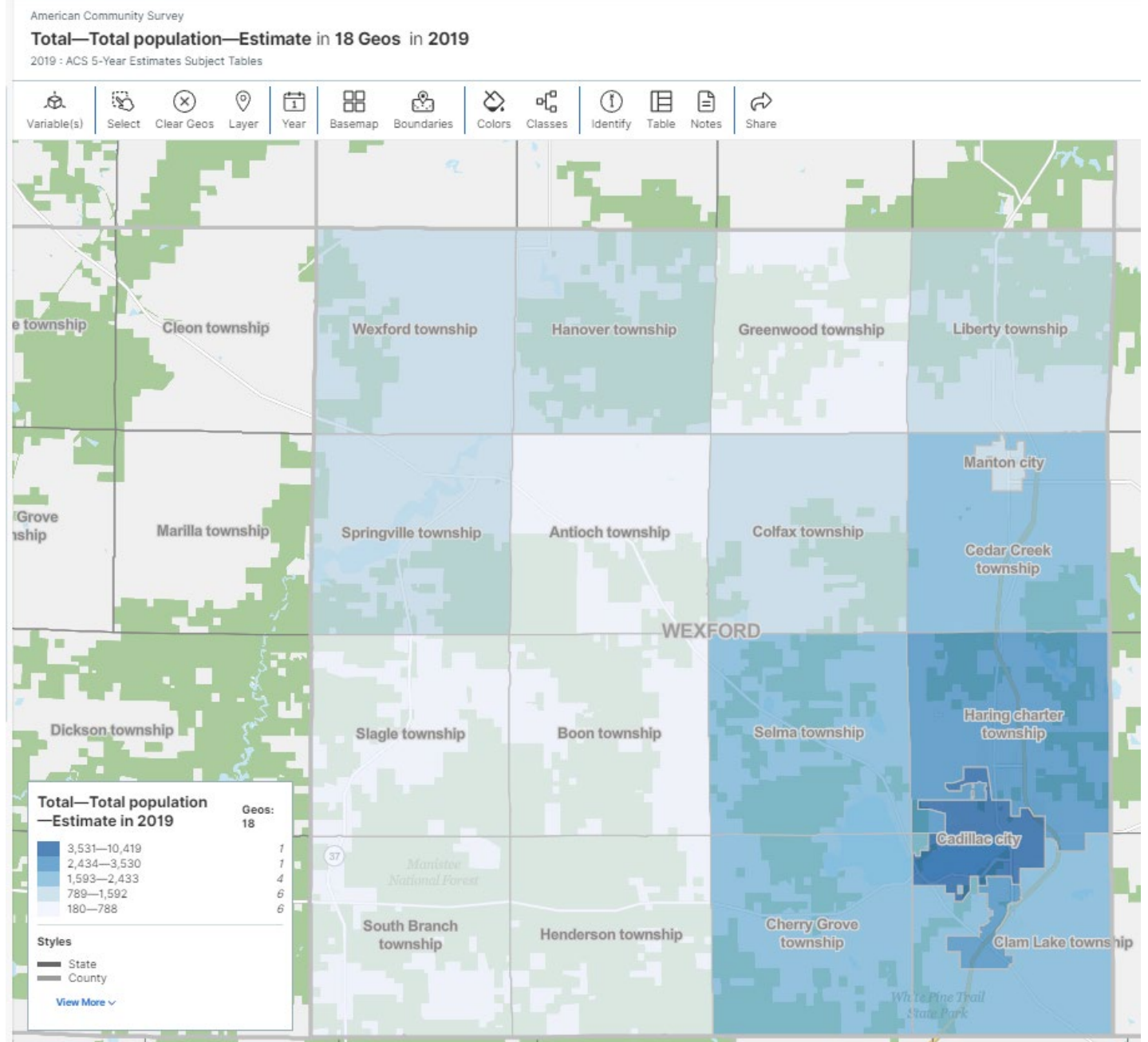
Table 4: Population Estimates and Change by Municipality, 2010 and 2019

Municipality	2010 Est. Population	2019 Est. Population	Numeric Change	Percent Change	Jurisdiction Status
Village of Buckley	580	759	179	30.9%	P
Village of Mesick	454	366	-88	-19.4%	N
Village of Harrietta	113	154	41	36.3%	N
City of Cadillac	10,384	10,419	35	0.30%	P
Haring Township	3,167	3,530	363	11.50%	N
Cherry Grove Township	2,488	2,433	-55	-2.20%	P
Clam Lake Township	2,593	2,427	-166	-6.40%	N
Selma Township	2,196	2,202	6	0.30%	P
Cedar Creek Township	1,644	1,811	167	10.20%	N
Hanover Township	1,364	1,592	228	16.70%	P
Springville Township	1,780	1,583	-197	-11.10%	P
City of Manton	1,456	1,123	-333	-22.90%	P
Colfax Township	897	1,071	174	19.40%	P
Wexford Township	934	983	49	5.20%	P
Liberty Township	891	935	44	4.90%	P
Antioch Township	660	788	128	19.40%	P
Boon Township	571	744	173	30.30%	P
Greenwood Township	562	620	58	10.30%	P
Slagle Township	595	515	-80	-13.40%	P
South Branch Township	303	300	-3	-1.00%	P
Henderson Township	168	180	12	7.10%	N
WEXFORD COUNTY	32,653	33,256	603	1.8%	

Source: US Census, 2010 and 2019 ACS 5-year Estimates

* 2023 Hazard Mitigation Plan Participation Status: P = a participant; N = a non-participant

Figure 4. Population by Municipality, 2019



Source: US Census, 2019 5-Year ACS Estimates

Like many northwest Michigan communities, Wexford County experiences an influx of seasonal residents and tourists throughout the year. However, the decennial Census and the American Community Survey only consistently and comprehensively track the permanent population. Networks Northwest’s *2022 Seasonal Population Study for Northwest Lower Michigan* analyzed the 2020 seasonal population for the ten counties in northwest Michigan: Antrim, Benzie, Charlevoix, Emmet, Grand Traverse, Kalkaska, Leelanau, Manistee, Missaukee, and Wexford. The study collected data for permanent and part-time residents and overnight visitors in accommodations and short-term rentals (STRs) by county. Northwest Lower Michigan’s permanent base population is 310,802 and expands to include its largest amount of part-time residents and overnight visitors in July at an estimated total of 676,052 persons, a 118% increase.

Wexford County is the least-seasonal county in the region, with the total population change of 42% between 40,879 in the month of February and 58,168 in July. The permanent population represents roughly 78% of the total population in the off-season and 61% of the total population in the on-season. The seasonal growth of the county is driven by people staying in traditional accommodation businesses (hotels, motels, bed & breakfasts, campgrounds, etc.). Table 5 illustrates the monthly estimated differences between the permanent population and seasonal residents/overnight visitors for the county.

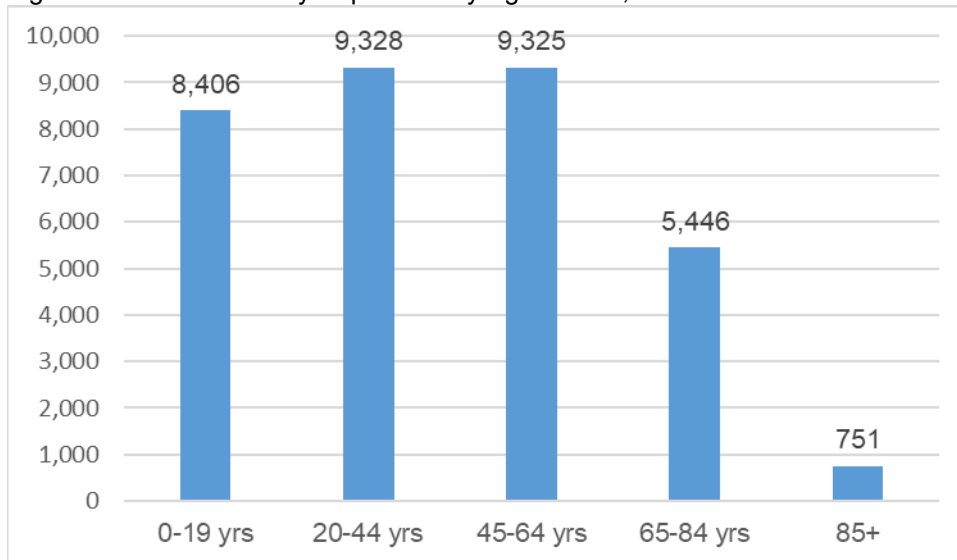
Table 5: Wexford County Seasonal Population Change by Month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg.
Permanent Population	33,673	33,673	33,673	33,673	33,673	33,673	33,673	33,673	33,673	33,673	33,673	33,673	
Part-Time & Overnight Population	7,799	7,206	10,952	11,196	19,258	22,637	24,495	24,388	19,273	13,028	11,297	7,737	14,939
Total Population	41,472	40,879	44,625	44,869	52,931	56,310	58,168	58,061	52,946	46,701	44,970	41,410	48,612
Percent Change	23%	21%	33%	33%	57%	67%	73%	72%	57%	39%	34%	23%	44%

Age, Race & Disability

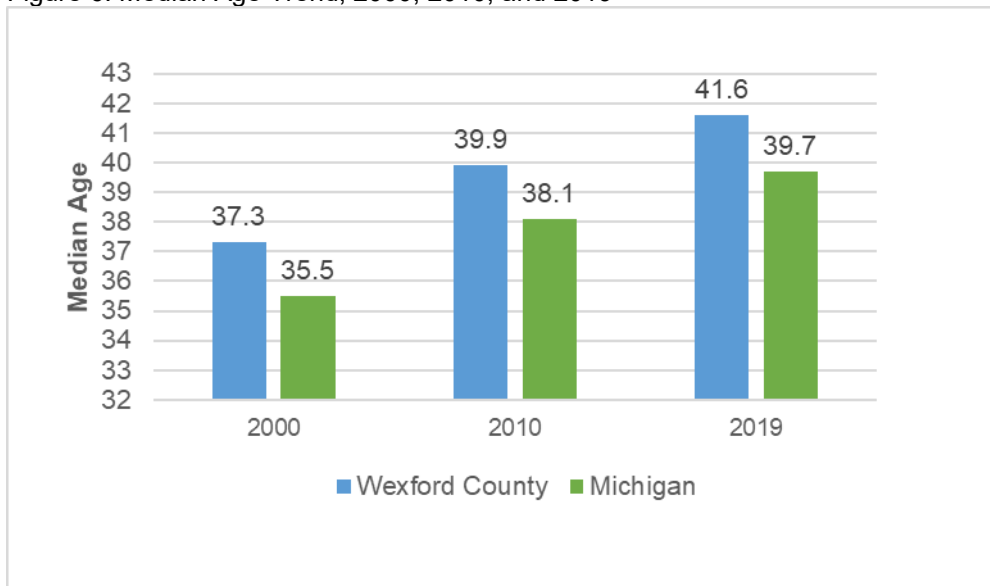
Understanding the age distribution and median age of Wexford County can help identify social, economic, and public service needs in the community. The county's total 2019 population is broken into age cohorts (analyzing which proportions of a municipality's population are in which stages of life). This gives a nuanced view of the makeup of a community. Figure 5 indicates the largest population cohorts are almost equal in size; the 20 to 44 year old group, at an estimated 9,328 persons, is followed very closely by the 45 to 64 age group at 9,325 persons. As shown in Figure 6, the median age (the midpoint where half the population is younger and half the population is older) of Wexford County is 41.6 years, which is slightly older than the State of Michigan (39.7 years). The youngest community in Wexford County is Colfax Township with a median age of 35.1 years; the oldest community in the county is Henderson Township with a median age of 55 years (Figure 7). US Census data indicates that the populations of Wexford County and the State of Michigan are in an aging trend since 2000 (Figure 6).

Figure 5: Wexford County Population by Age Cohort, 2019



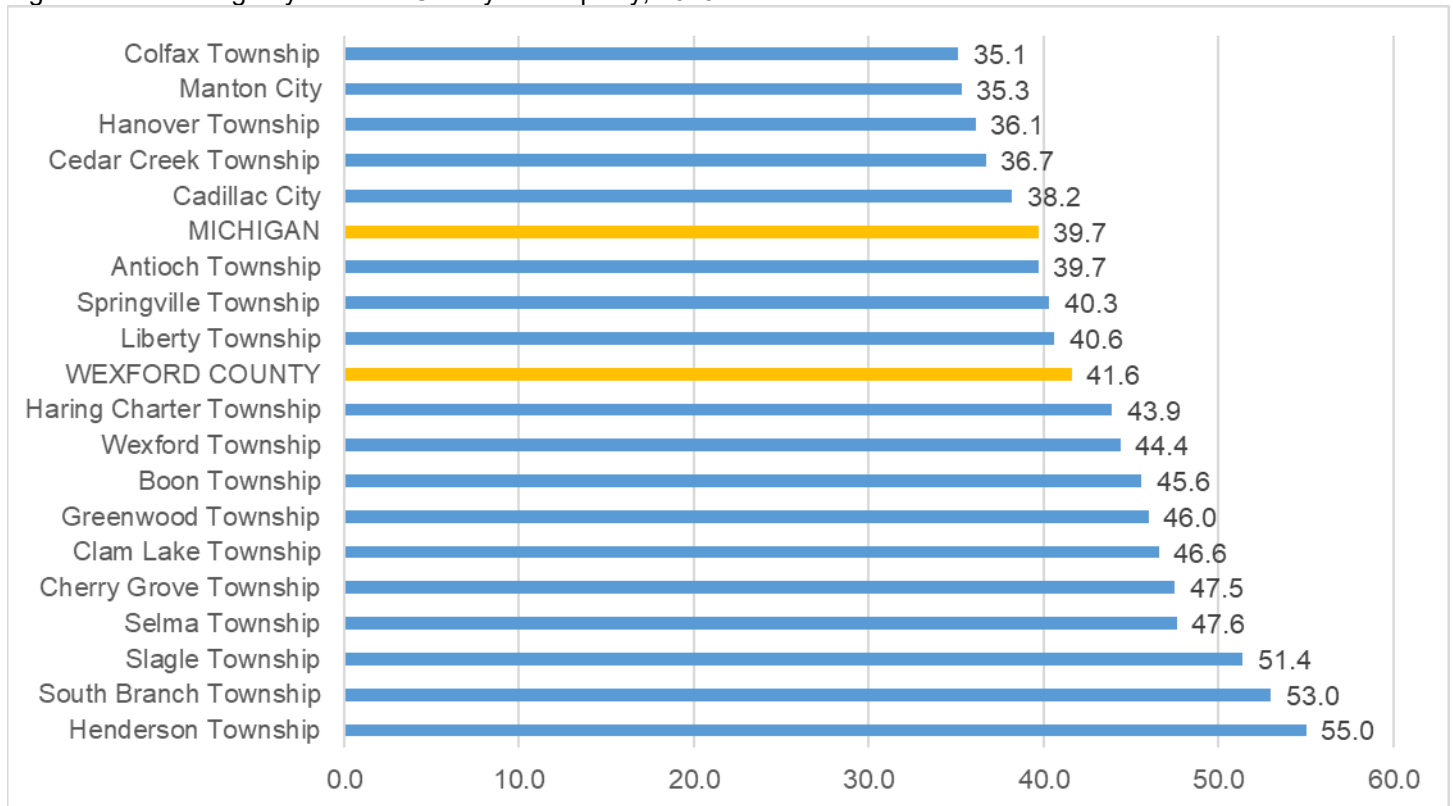
Source: U.S. Census Bureau, 2019 ACS 5-yr Estimates

Figure 6: Median Age Trend, 2000, 2010, and 2019



Source: U.S. Census Bureau, 2019 and 2010 ACS 5-yr Estimates; 2000 Decennial Census

Figure 7: Median Age by Wexford County Municipality, 2019



Source: U.S. Census Bureau, 2019 ACS Estimates

The US Census ACS 2019 ACS estimates indicate that the racial makeup of Wexford County is predominantly white (94.5%). 2.0% of the population is Hispanic or Latino; 2.0% is of two or more races; 0.5% is Black or African American; 0.5% is Asian; 0.4% is American Indian and Alaska Native; and 0.1% is Native Hawaiian and Other Pacific Islander.

Table 6 represents the number of persons with a disability by age group. An estimated 16.1% of Wexford County residents, or 5,325 persons, have one or more type of disability. An estimated 42% of all persons with a disability are of age 35-64. An estimated 50.2% of persons aged 75 years and over have a disability.

Table 6: Estimated Wexford County Persons with a Disability, 2019

Total Civilian Noninstitutionalized Population	33,062 persons
With one or more disability	16.1% (5,325 persons)
Age 0-17 with a disability	6.6%* (375 persons)
Age 18-34 with a disability	7.4%* (463 persons)
Age 35-64 years with a disability	17.5%* (2,263 persons)
Age 65-74 with a disability	26.8%* (968 persons)
Age 75+ with a disability	50.2%* (1,256 persons)

Source: US Census, 2019 ACS Estimates

* Percentages are representative of estimates for each specific age cohort

Housing Characteristics and Development Trends

The average household size for Wexford County residents is 2.54 persons, which is slightly higher than the State's average of 2.46. Wexford County has an estimated 12,963 total households as reported in the 2019 ACS 5-Year Estimates (Table 7). The Census defines a household as all the people who occupy a single housing unit, regardless of their relationship to one another. In 2019, an estimated 76.4% of those housing units were occupied (indicating physically occupied, principal residence housing units; Table 8). The City of Cadillac has the largest percentage of housing units of all municipalities in the county (29.4%) (Table 7).

The 2019 ACS also estimates that 74.7% of the county's household units are 1-unit, detached structures, which are commonly referred to as single-family homes. An estimated 14.6% are mobile homes, which can be at risk for damage/destruction from high wind storms and tornadoes. Furthermore, an estimated 55% of the County's residential units were built before 1980 (Table 8). Older homes that have not been renovated to meet modern building and zoning codes may also be more at risk to damages from severe weather, such as high winds, heavy snow events and flooding.

Table 7: Housing Units by Municipality, 2019

Municipality	2019 Housing Units (ACS)	Percent of Total
Wexford County	16,960	
Buckley Village*	285	1.7%
Mesick Village*	173	1.0%
Harrietta Village *	100	0.6%
City of Cadillac	4,987	29.4%
Haring Township	1,506	8.9%
Cherry Grove Township	1,379	8.1%
Selma Township	1,193	7.0%
Springville Township	1,039	6.1%
Clam Lake Township	1,006	5.9%
Hanover Township	786	4.6%
Cedar Creek Township	776	4.6%
City of Manton	585	3.4%
Colfax Township	564	3.3%
Liberty Township	494	2.9%
Wexford Township	477	2.8%
South Branch Township	463	2.7%
Slagle Township	425	2.5%
Antioch Township	415	2.4%
Boon Township	412	2.4%
Greenwood Township	317	1.9%
Henderson Township	136	0.8%

Source: US Census, 2019 ACS Estimates;

* The number of housing units for each village is incorporated into the totals for the respective township in which each village is located

Table 8: Year Housing Structure Built

Year Built	Housing Units	Percentage of Units
Built 2010 or later	350	2%
Built 2000 to 2009	2,594	15%
Built 1980 to 1999	4,792	28%
Built 1960 to 1979	4,217	25%
Built 1940 to 1959	2,337	14%
Built 1939 or earlier	2,670	16%
Total Housing Units	16,960	

Source: US Census, 2019 ACS Estimates

Housing Tenure, Table 9, summarizes the status of housing units, whether occupied or vacant, as well as the median housing value (\$108,300) and the median gross rent (\$706). Of the 16,960 total housing units, 9,858 (87.1%) are occupied; the 23.6% of “vacant” housing units are homes that are either not occupied year-round, or were abandoned or unoccupied at the time of the Census survey.

Table 9: Housing Tenure, 2019

Total housing units	16,960	%
Occupied housing units	12,963	76.4%
Owner-occupied	9,958	87.1%
Median Housing Value	\$108,300	
Renter-occupied	3,005	12.9%
Median Gross Rent	\$706	
Vacant housing units	3,997	23.6%

Source: US Census, 2019 ACS Estimate

Economic Profile

The 2021 Comprehensive Economic Development Strategy (CEDS) prepared by Networks Northwest is the product of a locally-based, regionally-driven economic development planning process to identify strategies for economic prosperity. The plan was prepared for the ten county region of northwest Lower Michigan. Table 10 provides a comparison of annual average wage for each county in the CEDS planning area for 2018. The average annual wage is represents that of workers within each county, not the residents in the county. Wexford County has the 4th highest average annual wage at \$40,586. Kalkaska County has the highest average annual wage, at \$50,971, followed by Grand Traverse County at \$44,562. It is likely that some residents of Wexford County travel to adjoining Grand Traverse County or Kalkaska County for work.

Table 10: Average Annual Wage by County, 2018

County	Average Annual Wage
Antrim	\$33,081
Manistee	\$33,821
Benzie	\$33,908
Missaukee	\$35,917
Leelanau	\$36,833
Emmet	\$40,258
Wexford	\$40,586
Charlevoix	\$44,558
Grand Traverse	\$44,562
Kalkaska	\$50,971

Source: 2021 Comprehensive Economic Development Strategy (CEDS) prepared by Networks Northwest

The Economic Profile of Antrim County is further described in Table 11. The table provides the county's industry makeup divided into 20 different North American Industry Classification Sectors (NAICS) as well as industry's establishments, jobs, percent distribution, and annual average wage. The industry with the largest percent distribution is "Other (includes private, utilities, management of business, and unallocated)" at 36.9% of jobs (no average annual wage data available), followed by "Manufacturing" at 19.4% (\$45,158 average annual wage), and "Retail Trade" at 10.3% (\$31,562 average annual wage). The industry with the highest annual average wage is "Finance and Insurance" at \$49,629.

Table 11: Wexford County Economic Distribution by Industry, 2018

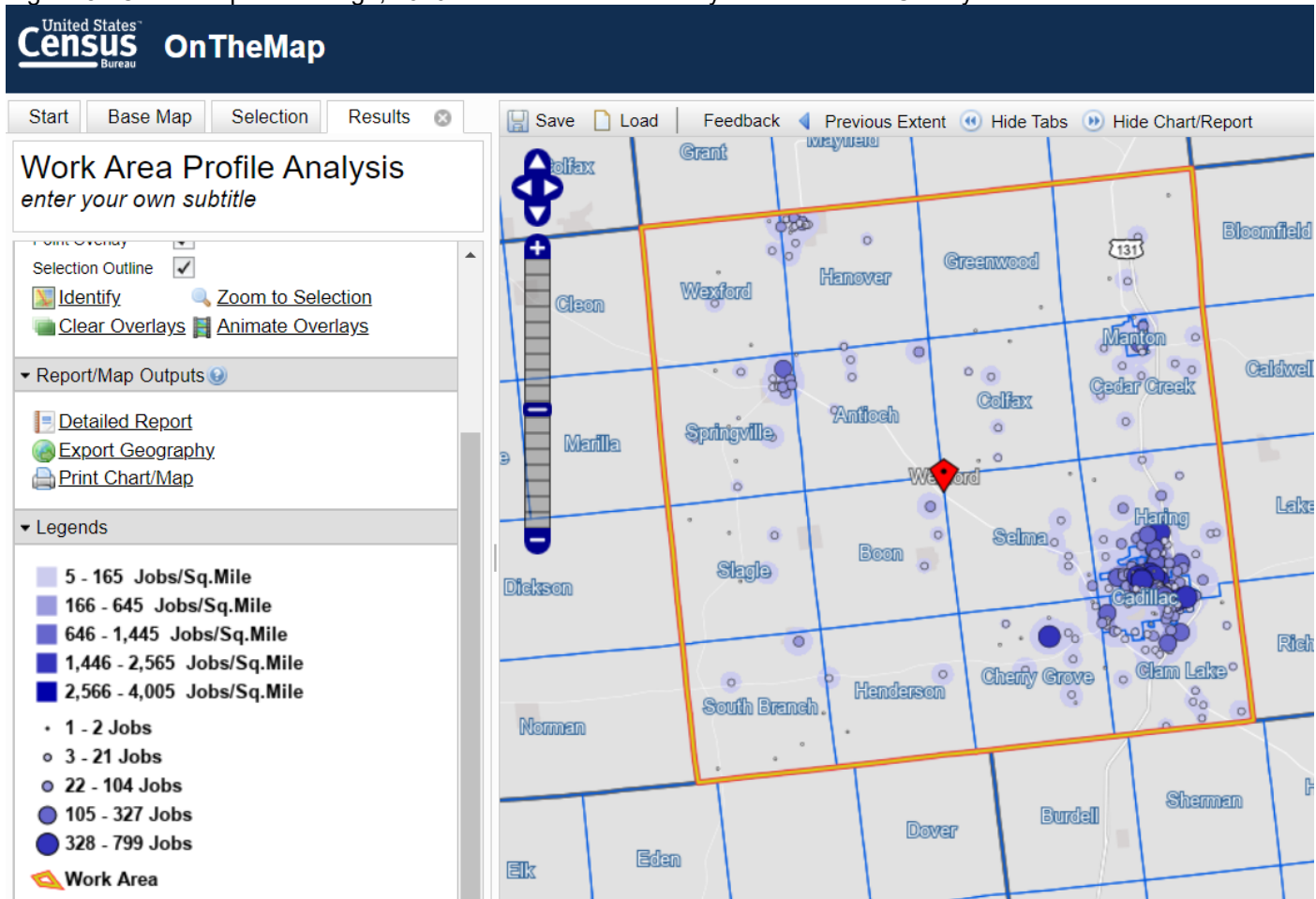
Industry Description	Establishments	Jobs	Percent Distribution	Annual Average Wage
Total Covered Employment	342	3,301	100.0%	\$35,917
Agriculture, forestry, hunting	46	D	D	D
Mining	2	D	D	D
Construction	56	179	5.4%	\$37,107
Manufacturing	25	642	19.4%	\$45,158
Wholesale trade	9	101	3.1%	\$46,705
Retail trade	30	341	10.3%	\$31,562
Transportation, warehousing	26	245	7.4%	\$42,242
Information	5	7	0.2%	\$24,672
Finance and insurance	11	107	3.2%	\$49,629
Real estate, rental, leasing	6	9	0.3%	\$23,409
Professional, technical services	16	65	2.0%	\$38,753
Administrative, waste services	7	20	0.6%	\$19,026
Educational services	5	N/A	N/A	N/A
Health care, social assistance	34	N/A	N/A	N/A
Arts, entertainment, recreation	4	15	0.5%	\$13,908
Accommodation and food services	15	110	3.3%	\$13,518
Other services, excluding public admin.	31	94	2.8%	\$27,678
Public administration	14	151	4.6%	\$31,066
Other (includes private, utilities, management of business, and unallocated)	0	1,215	36.9%	N/A

Source: 2021 Comprehensive Economic Development Strategy, Networks Northwest

*D means limited industries of a sector that would disclose confidential information

Additionally, OnTheMap, an online interactive tool available from the US Census Bureau, allows for viewing of estimated job density within the county. This website is useful for emergency preparedness planning as related to response and potential impact to local economic activity areas. Figure 8 is a screenshot of the interactive map when completing an area profile analysis for all workers with primary jobs in the county in 2020. It appears the greatest density of jobs occurs in and around the City of Cadillac, including Haring Charter Township, Clam Lake Township and Cherry Grove Township. Other key areas of employment are in the Villages of Mesick and Buckley, and the City of Manton.

Figure 8. OnTheMap Web Image, 2020 Work Area Profile Analysis for Wexford County



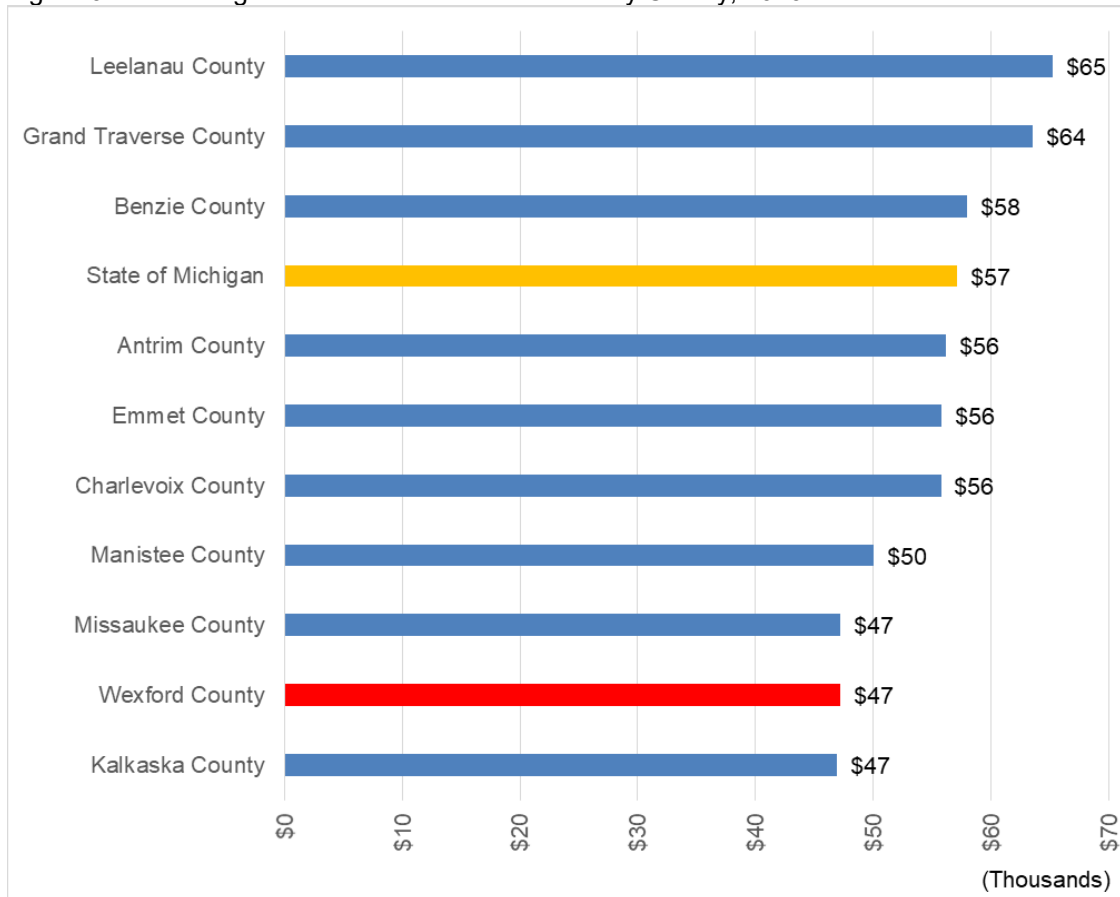
Source: US Census Bureau, OnTheMap

Figures 9 and 10 present a comparison of the median household income (MHI) across the ten county region, the State of Michigan, and local jurisdictions. Wexford County has the second lowest median household income (\$47,193) in the region, just ahead of Kalkaska County (\$46,898). The economic profile can be further described by considering the cost of housing, transportation, and other goods and services. The budgeting rule of thumb has been that a household should spend no more than 30 percent of its income on housing costs. Considering the MHI of Wexford County over twelve months, a household is earning \$3,933 per month. The US Census 2019 5-year ACS estimates that the median gross monthly rent is \$706 in Wexford County, which equates to 18 percent of the estimated median monthly household income.

However, according to the 2019 Northwest Michigan Target Market Analysis (conducted by LandUseUSA on behalf of Housing North and Networks Northwest), rents are far higher in Wexford County than what many renters can afford.⁴ While the affordable rent for a renter earning the mean wage is \$753, the affordable rent for a full-time minimum wage worker is \$491. Anecdotally, post-COVID pandemic, the demand for housing is driving prices higher still. Home prices are also increasing where the cost to purchase a home is often as much as \$200/square foot or more.

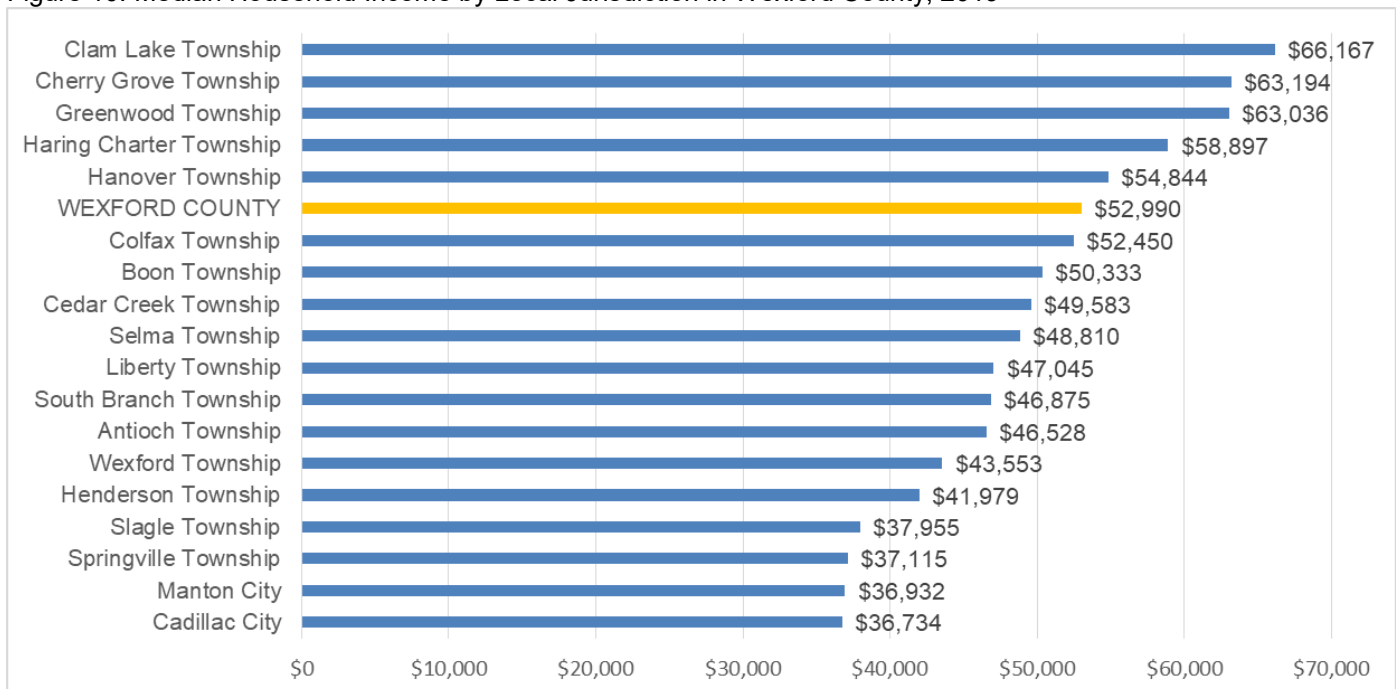
⁴ [Wexford County 2020 Target Market Analysis Fact Sheet](#)

Figure 9: NW Michigan Median Household Income by County, 2019



Source: US Census Bureau, 2019 ACS 5-yr Estimates

Figure 10: Median Household Income by Local Jurisdiction in Wexford County, 2019



Source: US Census Bureau, 2019 ACS 5-yr Estimates

The following tables describe the population with the lowest incomes. It is estimated that 14.2% of all persons in the county are living at or below the poverty level (Table 12). The Census describes poverty thresholds differently based on the size of the family and the number of related children living together, as illustrated in Table 13.

Table 12: Wexford County Poverty Estimates, 2019

Poverty	Statistics
All persons in poverty	14.2% (4,665 persons)
All families in poverty	9.9% (873 families)
Families with related children under age 18, in poverty	19% (718 families)

Source: US Census, 2019 ACS 5-yr Estimates

Table 13: 2019 Federal Poverty Level Guidelines **For those with more than 8 persons, add \$4,420 for each additional person.*

Persons in family/household	Poverty guideline
1	\$12,490
2	\$16,910
3	\$21,330
4	\$25,750
5	\$30,170
6	\$34,590
7	\$39,010
8*	\$43,430

Financial hardship is further described in the United Ways of Michigan report entitled *ALICE in Michigan: A Financial Hardship Study*. ALICE, which is an acronym for Asset Limited, Income Constrained, Employed, are those households with income above the Federal Poverty Level, but below the basic cost of modern living, such as housing, child care, food, health care, technology and transportation. The ALICE threshold is described as, “*the average income that a household needs to afford the basic necessities... for each county in Michigan. Households earning below the ALICE Threshold include both ALICE and poverty-level households*” (ALICE, 2019). Table 14 identifies the percentage of households that are estimated to be considered ALICE and living below poverty thresholds for each county subdivision. These households likely would not have reserve savings to cover an emergency, such as impacts from a natural hazard event.

Table 14: 2019 Estimated Households in Poverty and ALICE⁵ (No data is available for Henderson Township)

Wexford County Subdivision*	Total Households	% of HH in Poverty and ALICE
Greenwood Twp.	207	27%
South Branch Twp.	133	45%
Boon Twp.	268	34%
Colfax Twp.	349	33%
Antioch Twp.	293	42%
Slagle Twp.	232	54%
Liberty Twp.	356	44%
Wexford Twp.	368	45%
Clam Lake Twp.	868	21%
Hanover Twp.	584	35%
Cedar Creed Twp.	628	39%
Manton City	470	54%
Cherry Grove Twp.	948	30%
Springville Twp.	618	51%
Haring Charter Twp.	1,237	27%
Selma Twp.	884	44%
Cadillac City	4,433	53%
WEXFORD COUNTY	12,876	39.9%

⁵ Michigan Association of United Ways. *ALICE in Michigan: A Financial Hardship Study*. 2021. <https://www.uwmich.org/alice-report>

IV. Hazard Identification and Assessments

Vulnerability Assessment

Natural hazard impact on the community can be understood by evaluating vulnerabilities for commonly agreed upon assets. A community's assets are defined broadly to include anything that is important to the character and function of a community and can be described very generally in the following categories:

- People
- Economy
- Built environment
- Natural environment

Vulnerable populations include the economically disadvantaged, elderly, homeless, and persons with a disability. Those that live unsheltered or in homeless encampments, assisted living facilities, mobile homes, or isolated residences are more susceptible to hazardous events. Vulnerable populations are represented on the Vulnerable Populations and Hazard Areas Map in Appendix A. Those locations included on the map were specifically discussed during public input sessions. There may be additional locations of vulnerable populations that are not listed.

The natural environment is the primary reason people choose to live and vacation northwest Michigan. Wexford County is home to plentiful forest lands, inland lakes, rivers and streams and all of the wildlife within them that are integral to the identity of the community. While natural resources are abundant, they are also vulnerable to many types of natural hazards. Northwest Lower Michigan has many sensitive wildlife and plant populations that require specific climates and habitats to survive. Damaged, destroyed, or changing natural environments may decrease the chances for certain species' survival.

Additionally, countywide critical infrastructure is represented on the Critical Infrastructure Map, shown in Appendix A. Wexford County Office of Emergency Management and community stakeholders identified the critical facilities and infrastructure on the base map. Table 15 lists critical infrastructure points in Wexford County.

Table 15: Critical Facilities and Infrastructure

Source: Wexford County Office of Emergency Management

52	<p>Commercial</p> <ul style="list-style-type: none"> • Agriculture and Food Production Distribution (29) • Agriculture Processing, Packaging and Production (2) • Agriculture and Food Product Storage and Distribution Warehouse (1) • Agricultural Supply (1) • Wexford Civic Center in Cadillac • Banking Services (15 in Cadillac; 1 in Buckley; 1 in Manton; 1 in Mesick)
49	<p>Communications (cellular, radio, broadband, television broadcasting, landline telephone, etc.)</p>
41	<p>Industry</p> <ul style="list-style-type: none"> • Manufacturing (26 in Cadillac) • Chemical/Hazardous Materials Storage/Use (13 in Cadillac; 2 in Buckley; 1 in Manton)
35	<p>Energy</p> <ul style="list-style-type: none"> • Petroleum product sales (25) • Propane storage (1) • Electricity (7 Consumer Power/Solar Plants) • Natural Gas (2 DTE Natural Gas Lines in Cadillac)
29	<p>Emergency Services</p> <ul style="list-style-type: none"> • County (Emergency Mgmt., Sheriff’s Office, Jail) • City of Cadillac and City of Manton Police Departments • Michigan State Police Post #71 • Mobile Medical Response (3) • Buckley Rescue and Mesick Rescue Squad • Local Fire Depts. (12) <ul style="list-style-type: none"> ○ City of Cadillac ○ City of Manton ○ Village of Buckley ○ Selma Township ○ Cedar Creek Township ○ Haring Charter Township ○ Colfax-Greenwood Township ○ Springville Township ○ Slagle Township – Village of Harrietta ○ Boon Township ○ South Branch Township ○ Cherry Grove Township ○ Cadillac YMCA (emergency shelter site) ○ Senior Centers in Manton and Cadillac (emergency shelter sites)
11	<p>Healthcare</p> <ul style="list-style-type: none"> • Munson Hospital in Cadillac • Health practitioner/clinic (7 in Cadillac; 1 in Manton) • Homeless/safe house shelters (2 in Cadillac)
9	<p>Government</p> <ul style="list-style-type: none"> • Public water supply/storage (Buckley, Mesick, Manton, Cadillac, Haring Charter Twp.) • Wastewater facilities (Cadillac, Manton, Mesick, Haring Charter Twp.)
5	<p>Dams</p> <ul style="list-style-type: none"> • Hodenpyl Hydroelectric Dam in Mesick • Lake Billings Dam in Manton • Lakewood on the Green Dam in Cadillac • Lake Gitchegumee Dam in Buckley • Slagle Creek Dam in Harrietta
4	<p>Transportation</p> <ul style="list-style-type: none"> • Airports (Wexford County Airport; Eagles Landing in Harrietta) • Mass Transit (Indian Trails Bus Lines; Wex Express)

Historical Analysis

The Historical Analysis of Wexford County weather-related hazards uses information on impacts and losses from previous hazard events to predict potential impacts and losses during a similar event. Because of the frequency of these events, communities are more likely to have experience with and data on impacts and losses. Additionally, there have been seven federal- or state-declared disaster events that have involved Wexford County (Table 16). These events are included in the hazard analysis for individual event types.

Table 16: Presidential and Governor Declared Disasters / Emergencies for Wexford County

Date Declaration	Type of Incident	Affected Area	Type of Declaration/ Fed ID #
March 2020	COVID-19; Pandemic	Statewide & National	State of Emergency, National Emergency (3455), and Governor and Presidential Declared Major Disaster (4494)
1/29/2019	Extreme Cold	Statewide	Governor Declared Emergency
4/12/2014	Flooding	Isabella, Mecosta, Missaukee, Muskegon, Newaygo, Osceola, Roscommon and Wexford Co.	Governor Declared Disaster
7/14/2008	Thunderstorms, flooding	12 counties: Allegan, Barry, Eaton, Ingham, Lake, Manistee, Mason, Missaukee, Osceola, Ottawa, Saginaw, and Wexford.	Presidential Declared Major Disaster (1777) and Governor Declared Emergency
9/4/2005 and 9/7/2005	Hurricane (Katrina) Evacuation	Statewide (Declared due to the emergency conditions in the State of Michigan, resulting from the influx of evacuees from states impacted by Hurricane Katrina beginning on August 29, 2005.)	Governor Declared Disaster and Presidential Declared Emergency (3225)
1/26-27/1978	Blizzard, Snowstorm	Statewide	Presidential Declared Emergency (3057); Governor Declared Disaster
3/2/1977	Drought	Wexford and 43 other counties	Presidential Declared Emergency (3035)

Sources: FEMA <https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties> and Michigan State Police [2019 Michigan Hazard Analysis \(MHA\) pub. 103](#)

Hazard Descriptions

Wexford County is vulnerable to a wide range of natural hazards. Hazard events have the potential to impact local residents, economic drivers in the community, critical infrastructure and the built environment, and the natural environment. The Wexford County Emergency Services Department is challenged with managing these threats to protect life and property. This plan includes a profile for each natural hazard event the county is likely to face. Each profile includes the location, extent, previous occurrences, probability of future events, and vulnerability assessment.

- Location is the geographic areas within the planning area that are affected by the hazard, such as a floodplain. The entire planning area may be uniformly affected by some hazards, such as drought or winter storm. Location may be described in narrative and or through map illustrations.
- Extent is the strength, severity, or magnitude of the hazard. Extent can be described in a combination of ways depending on the hazard.
- Previous occurrences describe the history of previous hazard events within the county. This information helps estimate the likelihood of future events and predict potential impacts. The extent of historic events may be included when the data is available. Data is collected from the National Oceanic and Atmospheric Administration's (NOAA's) National Centers for Environmental Information (NCEI) online storm events database.
- Probability of future events is the likelihood of the hazard occurring in the future and can be described in a variety of ways. Probability may be defined using historical event frequencies or statistical probabilities.
- Vulnerability assessment accounts for the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas and provides an estimate of the dollar losses to vulnerable assets identified. Recorded injuries and deaths attributed to events are also noted.

Data for natural hazard events in Wexford County was compiled from several different sources. Weather event data was collected primarily from the National Centers for Environmental Information through the National Oceanic and Atmospheric Administration's (NOAA) website utilizing the following sections:

- Climate <https://www.weather.gov/wrh/Climate?wfo=apx> – Historical local observed weather data; Climate prediction and variability; local high impact event summaries
- NOAA Storm Event Database <https://www.ncdc.noaa.gov/stormevents/> - Data on record from January 1, 1950 to May 31, 2022; however, information for various events is limited and non-contiguous throughout the decades. The database provides local storm reports, damage reports, and recorded event descriptions. The event types on record for Wexford County include: Drought (*Drought*); Heat (*Heat*); Flooding (*Flood*, *Flash Flood*); Hail (*Hail*); Extreme Winter Weather (*Blizzard*, *Extreme Cold/Wind Chill*, *Heavy Snow*, *Ice Storm*, *Lake-effect Snow*, *Winter Storm*, *Winter Weather*); Tornado (*Tornado*); Thunderstorm and High Wind (*Thunderstorm Wind*, *High Wind*, *Strong Wind*) and Lightning (*Lightning*) events that resulted in a reported fatality, injury, and/or property or crop damage.

The [Michigan Hazard Analysis](#), completed by the Michigan Department of State Police in 2019, was used to collect data on wildfires that occurred on State of Michigan owned land between 1981 and 2018. Additionally, the 2021 USDA/USFS publication [Spatial Wildfire Occurrence Data for the United States, 1992-2018 \[FPA FOD 20210617\]](#) was used to collect data on wildfires that occurred on state/private or federally-owned land within the county.

The websites for the [National Inventory of Dams](#) and [MI-EGLE's Michigan Dam Inventory](#) were used to collect information on dams in the county.

Additionally, FEMA's webpage on [Disaster Declarations for States and Counties](#) was referenced for the most up-to-date data on Presidential- and Governor-Declared emergencies and disasters in Wexford County.

The NOAA Storm Events database is updated on a rolling basis (approximately every three months), and thus the database is always being added to. Search results indicate a total of 205 severe weather events were reported between 01/01/1950 and 12/31/2022 in Wexford County (22,663 days). There was a total of 176 days with an event; 1 day with an event and injury (the result of a tornado in 1974); and 46 days with an event and property damage. There were no days on record with "an event and crop damage" or "an event and a death". Those events, as well as the emergency declaration events, are included in the hazard analysis. The hazard analysis groups the events into the following categories, as shown in Table 17.

Table 17: Reported Wexford County Natural Hazard Event by Type

Type of Event	# of Events	Event Location	Time Interval or Year Event Recorded
Wildfire	510	476 On MDNR land in the county	1983-2018
		34 On Federal land in the county	1992-2018
Extreme Winter Weather	77	Countywide	1978*, 1997 - December 2022
Thunderstorm Wind/High Wind	70	Countywide	1956-2022 (* in 2008)
Hail	33	Countywide	1984-2022
Flood/Flash Flood	11	Countywide, City of Cadillac, City of Manton, Lake Cadillac, and areas along the Manistee River and its tributaries	2000-2014 (* in 2008 and 2014)
Tornado	8	Clam Lake Twp.; Haring Charter Twp., Cherry Grove Twp.; Liberty Twp.; Selma Twp., Village of Buckley	1963, 1968, 1974, 1976, 1980, 1989, 2006, 2010
Extreme Cold / Wind Chill	4	Countywide	2007, 2014, 2015, 2019*
Drought	2	Countywide	1977*, 2001
Heat/Excessive Heat	2	Countywide	2001, 2018
Lightning	1	Countywide	2000
Public Health Emergency (COVID-19 Pandemic)	1	Countywide	2020*

Sources: NOAA National Centers for Environmental Information Storm Events Database; MDNR; Michigan State Police-Dept. of Homeland Security; FEMA.

Note: * indicates a state or federal event designation

Economic Impact Analysis

The estimated economic impact of the previously described Wexford County natural hazard events that were *reported* to NOAA is \$2,492,000 in property damages and \$0 in crop damages (Table 18). It should be noted that many events, such as hail, likely cause numerous small amounts in property damage, but such damages often go unreported. The damages and impacts to property and life from hazard events recorded for Wexford County are as follows:

Table 18: Deaths, Injury/Illness and Damage Estimates by Event Type

Wexford County	Deaths	Injuries /Illness	Property Damage Estimate	Crop Damage Estimate
Wildfire	N/A	N/A	N/A	N/A
Thunderstorms with Wind and Severe/High Winds	0	0	\$406,500	\$0
Extreme Winter Weather	0	0	\$283,000	\$0
Hail	0	0	\$0	\$0
Riverine and Urban Flood/Flash Flood	0	0	\$982,000	\$0
Tornado	0	1	\$820,500	\$0
Extreme Cold / Wind Chill	0	0	\$0	\$0
Drought	0	0	\$0	\$0
Heat/Excessive Heat	0	0	\$0	\$0
Lightning	0	0	\$0	\$0
Public Health Emergency (Pandemic)*	124	8,587	N/A	N/A
TOTAL	124	8,588	\$2,492,000	\$0

Sources: NOAA's National Centers for Environmental Information; State of MI <https://www.michigan.gov/coronavirus/stats>

* As of record on January 10, 2023.

Table 19 provides an overview of each potential hazard's impact on the permanent population and the estimated impact on the State Equalized Values (SEV) for real and personal property (residential and commercial). By law, SEV is equal to approximately one-half of the property's true market value. Population data is collected from the US Census, 2019 ACS data. Based on data from the 2022 Season Population Study for NW Lower Michigan, add an average of a 44% increase in the base population estimates to account for the seasonal population in the county throughout the year.

Table 19: Geographic and Economic Impact by Event

Hazard Event	Geography	Population Estimates	State Equalized Value
Extreme Winter Weather, Thunderstorm, Wind, Hail, Lightning, Tornado, Extreme Temperatures, Drought, Public Health Emergency	Wexford County	33,256	\$1,356,823,400
Riverine and Urban Flooding	Manistee River, Clam River, Pine River, Lake Mitchell, Lake Cadillac [Antioch, Springville, Wexford, Hanover, Greenwood, Liberty Haring, South Branch, Cherry Grove and Selma Townships; Cities of Cadillac and Manton; Village of Mesick]	26,508	\$232,677,805.80
Wildfire	Areas with pine forest – scattered throughout every community	33,256	\$239,862,486.90

Sources: 2019 ACS Estimates from the U.S. Census Bureau; Wexford County Equalization

Furthermore, mobile homes and campgrounds are areas where concentrations of people and property can be particularly vulnerable during a severe winter weather, thunderstorm, high wind, lightning, hail, tornado, wildfire, extreme temperatures, or public health incident. Their approximate locations in the county are indicated on the *Vulnerable Populations & Hazard Areas Map* in the Appendix. Table 20 lists the communities in Wexford County where these areas are located and the SEV for those properties

Table 20: Geographic and Economic Impact of Severe Weather on Vulnerable Population Areas

Vulnerable Population Areas	Geography	State Equalized Value
Campgrounds	Cities of Cadillac and Manton; Townships of Cedar Creek, Cherry Grove, Clam Lake, Greenwood, Haring, Liberty, Springville and South Branch	\$4,883,440
Mobile/Modular Homes	Cities of Cadillac and Manton; Townships of Clam Lake, Hanover, Haring, South Branch and Springville	\$39,798,403

Extreme Winter Weather

National Weather Service defined as: *phenomenon (such as snow, sleet, ice, wind chill) that impacts public safety, transportation, and/or commerce*. The Extreme Winter Weather category includes the following subcategories: winter weather, winter storm, ice storm, heavy snow, blizzard, frost/freeze, and lake effect snow. 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.

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 101 inches in Traverse City in the northwest region of the Lower Peninsula.

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

Extreme winter weather events 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 Wexford County is at risk to the occurrence and impacts from extreme winter weather; the county is more susceptible to lake-effect snow due to proximity to Lake Michigan.

One of the highest-impact snowstorms in recent memory pounded Northern Michigan on the night of March 2, 2012. Low pressure tracked from Missouri, to southern Lower Michigan, and on to eastern Canada, while rapidly strengthening. Precipitation surged northward into the region on the evening of the 2nd. This was primarily snow, except in parts of east central Lower Michigan (especially near Lake Huron), where temperatures were mild enough for rain. Snow wound down on the morning of the 3rd, and though somewhat blustery winds occurred behind the system on the 3rd, blowing snow was limited because the snowfall was so wet. Snow totals ranged from 6 to 14 inches across most of Northern Michigan. Higher amounts fell near and west of Grand Traverse Bay, with a maximum amount of 20 inches near Lake Ann. With relatively warm temperatures, the snow was very wet; Traverse City saw around a foot of snow during the night, with a low temperature of 33 degrees. The snow stuck to everything, with the weight of the snow downing many, many trees and power lines. Power outages were widespread, with an outright majority of Northern Michigan residents losing power at some time during or after the storm. In Benzie County, 95 percent of residents lost power. Outages lasted up to a week in some spots. Great Lakes Energy described it as the worst snowstorm (in regards to power outages) in 30 years. A number of counties and communities opened shelters to aid those without power or heat. Also included in the tree damage was substantial damage to fruit trees in the Grand Traverse Bay region, particularly cherry trees. These events accounts for \$600,000 in reported damages.

Extent

Snowstorms can be measured based on snowfall accumulations or damages. The average total snowfall in Wexford County is 76.1 inches.⁶ The most damage from a winter weather event in Wexford County occurred on March 2, 2012 with a reported \$250,000 in property damages caused by heavy snow. Extreme winter weather events have resulted in a total of \$283,000.

⁶ Source: Western Regional Climate Center, records from 1909-2016 <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?mi1176>

Previous Occurrences

Since 1978, there have been 77 extreme winter weather events, including heavy snowstorms, ice storms, blizzards, winter weather, and winter storms reported in Wexford County (Table 21). In 1978, the State of Michigan received a Presidential Emergency Declaration for a snowstorm and blizzard. In recent years, the more common events are winter storms with moderate snowfall of 5-10 inches. Heavy snow, blizzards, and lake-effect snows have been less common. Nonetheless, extreme winter weather events are the most frequent recorded event with the potential to impact the entire county and cause widespread damage. Considering property damages, winter weather events are also the most costly events to occur in the county.

Table 21: Extreme Winter Weather Previous Occurrences in Wexford County

Event Type	Number of Events	Property Damage	Crop Damage	Event Year(s)
Winter Storm	41	\$ 23,000	\$ -	1997 - 2022
Heavy Snow	23	\$ 250,000	\$ -	1999 - 2012
Blizzard	5	\$ -	\$ -	*1978, 1997-1999, 2019
Ice Storm	5	\$ -	\$ -	2001, 2002, 2005, 2022
Winter Weather	1	\$ 10,000	\$ -	2006
Lake-Effect Snow	2	\$ -	\$ -	1997, 2010
TOTAL	77	\$ 283,000	\$ 0	

* indicates a Governor- or Presidential-declared emergency or disaster

Source: NOAA - National Centers for Environmental Information; FEMA; Michigan State Police.

Probability of Future Events and Vulnerability Assessment

Between the years 1997 and 2022, Wexford County has had 76 extreme winter weather events. This averages to about to about 3 events every year. Therefore, the probability of an extreme winter weather event occurring in future years is 100 percent. Heavy snow events have the potential of shutting down towns and businesses for a significant period of time. Blowing and drifting snow with blizzard conditions cause driving hazards. Ice damage may occur when high winds push lake and river water and ice past the shoreline, causing damage to public infrastructure and residential property.

During the winter months, the population is largely made up of the base permanent residents. However, there is increasing demand from seasonal residents to purchase property and retire or work remotely from highly desirable northern and coastal communities like those in Wexford County. Many aspects of the county, including natural wooded areas and proximity to lakes/ivers, are attractive to prospective buyers and the permanent population is expected to continue to grow. New residents, especially those locating in remote areas, increase the chance of risk to life and property. Winter-related events cause difficult driving conditions and in the event of an emergency, can make travel increasingly difficult for emergency personnel who may be more frequently dispatched to rural areas.

The public online community survey results indicated that extreme winter weather (i.e., blizzard, heavy snow, ice storm) as the fifth most likely type of natural hazard event that would have a major impact on the county's communities.

Thunderstorms and Severe Winds

The National Weather Service defines a “Thunderstorm Wind” event as having winds, arising from convection (occurring within 30 minutes of lightning being observed or detected), with speeds of at least 50 knots (58 mph), or winds of any speed (non-severe thunderstorm winds below 50 knots) producing a fatality, injury, or damage. These storms can also produce lightning, heavy rain (that could cause flash flooding), hail (at least 3/4” diameter), or tornadoes. Severe thunderstorms can occur at any time in Michigan, although they are most frequent during the warm spring and summer months from May through September.

“Strong Wind” and “High Wind” events on record with the NWS are considered severe wind events. Strong Winds are non-convective winds gusting less than 50 knots (58 mph), or sustained winds less than 35 knots (40 mph), resulting in a fatality, injury, or damage. High Winds are sustained non-convective winds of 35 knots (40 mph) or greater lasting for 1 hour or longer, or gusts of 50 knots (58 mph) or greater for any duration (or otherwise locally/regionally defined).

Long-lived wind events associated with fast-moving severe thunderstorms are known as a *derecho* (pronounced similar to "deh-REY-cho"). According to the National Weather Service, a derecho is a widespread, long-lived wind storm that is associated with a band of rapidly moving showers or thunderstorms. Although a derecho can produce destruction similar to the strength of tornadoes, the damage typically is directed in one direction along a relatively straight swath. As a result, the term "*straight-line wind damage*" sometimes is used to describe derecho damage. By definition, if the wind damage swath extends more than 240 miles (about 400 kilometers) and includes wind gusts of at least 58 mph (93 km/h) or greater along most of its length, then the event may be classified as a derecho. A derecho often occurs during the spring or summer; however, it can occur any time of the year.

Severe windstorms can cause damage to homes and businesses, power lines, trees and agricultural crops, and may require temporary sheltering of individuals without power for extended periods of time.

Location

Thunderstorms and severe wind 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 Wexford County is at risk to the occurrence and impacts from thunderstorms and severe winds.

The most damaging event occurred on August 2, 2015. A historic severe weather outbreak in northern Michigan, as multiple waves of severe thunderstorms crossed the region. A passing cold front would finally end the activity during the evening hours. This episode featured widespread straight-line wind damage in parts of northwest Lower Michigan, and the largest hail on record in northern Michigan in Ogemaw County. This event resulted in \$600,000 in property damages.

Extent

Thunderstorms can be measured based on wind speed or damages. The average wind speed for wind events in Wexford County with a recorded wind speed in Wexford is 52 knots. Wexford County had a reported \$399,000 in property damages caused by thunderstorms and severe winds since 1990 (Table 22).

Previous Occurrences

Since 1990, there have been a total of 62 thunderstorm/wind and high wind events reported in Wexford County. This is the second-most frequently occurring type of severe weather event in the county.

Table 22: Wexford County Thunderstorm and Wind Events Previous Occurrences

Event Type	Number of Events	Property Damage	Crop Damage	Event Year(s)
Thunderstorm Wind	7	\$0	\$0	1956-1985
Thunderstorm Wind	54	\$281,500	\$0	1990-2022
High Wind/Strong Wind	9	\$125,000	\$0	1998-2021
TOTAL	70	\$406,500	\$0	1956-2022

Source: NOAA: National Centers for Environmental Information

Probability of Future Events and Vulnerability Assessment

Since 1956, Wexford County has had a total of 70 recorded “thunderstorm wind”, “high wind” or “strong wind” events. However, seven (7) of those 70 events occurred on record in 1956, 1960, 1964, 1965, 1976, and 1985 (2 events). After 1990, recorded events of this type on record occurred more consistently in the NOAA NCEI database. Due to the time span of these seven events over the 34 years prior to 1990, they are not considered in the probability estimate.

Since 1990, Wexford County has had 63 thunderstorm/wind and high wind events. This averages to about 1.97 events every year. The probability of an event occurring in a given future year is 100 percent. Additionally, the online community survey results indicate that high winds (or a tornado) was the second most likely type of natural hazard event that would have a major impact on the county’s communities.

Damage from straight line winds usually affects multiple counties through the loss of electricity from trees/tree limbs downing power lines; causing widespread property damage; and potentially exposing the public to severe injury or fatality due to flying debris. The magnitude and severity depend on the county population, seasonal activity, and the spread of development. During the summer months, the base population expands by as much as 73% due to the peak presence of seasonal homeowners and overnight visitors. Residents and visitors are attracted to both rural, sparsely populated natural areas as well as village and city centers throughout the year for outdoor recreation (motorized & non-motorized trails; year-round camping, hunting, swimming/boating) and festivals/special events.

Mobile homes and campgrounds were identified as specific areas of concern; their approximate locations in the county are indicated on the *Vulnerable Populations & Hazard Areas Map* in the Appendix. These are areas where concentrations of people and property can be particularly vulnerable during a severe winter weather, thunderstorm, high wind, lightning, hail, tornado, wildfire, extreme temperatures, or public health emergency.

Additionally, wind damage to trees and resulting road blockages/power outages is a specific hazard concern in heavily forested, rural communities in Wexford County, such as Greenwood Township.

Hail

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 hail storms, 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. the 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.

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 Wexford County is at risk to the occurrence and impacts from hailstorms. According to the National Weather Service, Wexford County is in an area of the United States that has on average two days of hailstorm events per year.

Extent

According to the NOAA National Centers for Environmental Information, the approximate size of hail is described as follows in Table 23. If a thunderstorm produces hail that is 1 inch in diameter (quarter size) or larger, it is considered to be a severe thunderstorm.

Table 23: NOAA Hail Size Description

Diameter	Size Description
1/4"	Pea Size
1/2"	Mothball Size
3/4"	Penny Size
7/8"	Nickel Size
1" (Severe Criteria)	Quarter Size
1 1/4"	Half Dollar Size
1 1/2"	Walnut or Ping Pong Ball Size
1 3/4"	Golf Ball Size
2"	Hen Egg Size
2 1/2"	Tennis Ball Size
2 3/4"	Baseball Size
3"	Teacup Size
4"	Grapefruit Size
4 1/2"	Softball Size

The greatest extent hail reported in Wexford County was 2 inches diameter on July 25, 2012 during a hailstorm between Manton and Missaukee JCT, and on September 7, 2021 in Cadillac. According to the scale, hailstones of this size are equivalent to a hen egg.

Previous Occurrences

Between 1984 and September 2022, Wexford County had 33 hailstorms reported to NOAA (Table 24). There are no reported property damages, crop damages, injuries or deaths attributed to hail in Wexford County.

Table 24: Wexford County Hail Events

Begin Location	Date	Magnitude (in.)
	6/17/1984	0.75
	7/23/1988	0.88
	3/27/1991	1.75
Cadillac	8/3/1993	0.75
S WEXFORD COUNTY	5/18/1996	0.75
CADILLAC	6/10/1996	0.88
BUCKLEY	4/6/1997	0.75
MANTON	7/16/1997	1.5
CADILLAC	8/23/1998	0.75
CADILLAC	8/23/1998	1
CADILLAC	5/12/2000	0.75
CADILLAC	6/8/2003	0.75
CADILLAC	6/8/2003	0.75
MANTON	5/24/2004	0.88
CADILLAC	6/27/2006	1.5
CADILLAC	7/9/2006	0.75
CADILLAC	10/2/2006	0.75
BAXTER	5/9/2007	0.88
CADILLAC	10/18/2007	0.75
MESICK	6/12/2008	1.75
MANTON	6/12/2008	0.75
CADILLAC	6/12/2008	0.88
LAKE CADILLAC	6/22/2008	0.75
CADILLAC	7/18/2010	0.75
LAKE CADILLAC	4/10/2011	0.75
MANTON	5/29/2011	0.88
MANTON	7/25/2012	2
CADILLAC	4/7/2020	1
CADILLAC	4/7/2020	0.75
MANTON	4/7/2020	1.25
CADILLAC	9/7/2021	2
CADILLAC	9/7/2021	1
YUMA	9/21/2022	0.75

Source: NOAA: National Centers for Environmental Information

Probability of Future Events and Vulnerability Assessment

With 33 hail events reported between 1984 and 2022, Wexford County has an 87% chance of a hailstorm event in a given year. 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. Manufactured homes and campground populations located throughout the county and are more susceptible to hail damage (refer to the Vulnerable Populations and Hazard Areas map in Appendix A). 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.

The magnitude and severity depend on the county population, seasonal activity, and the spread of development. During the summer months, the base population expands by as much as 73% due to the peak presence of seasonal homeowners and overnight visitors. Residents and visitors are attracted to both rural, sparsely populated natural areas as well as village and city centers throughout the year for outdoor recreation (motorized & non-motorized trails; year-round camping, hunting, swimming/boating) and festivals/special events.

Riverine and Urban Flooding

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, which can result in sewer overflows and affect the water quality of nearby lakes and rivers, as well as structures with basements or shallow groundwater tables.

According to the 2019 Michigan Hazard Analysis, the most damaging hazard in Michigan, based upon estimated physical damages and known response/recovery costs, appears to be floods. The MSP reports that flooding events have a statewide expected annual loss estimated at more than \$100 million (\$25.69 million had previously been estimated in the 2014 Michigan Hazard Mitigation Plan, but Federal Disaster 4195 confirmed a higher magnitude more in line with earlier MDEQ estimates, as that Metro Detroit flood event was quite similar to Federal Disaster 1346 during the previous decade).

The MSP's 2019 Michigan Hazard Analysis indicates that the Northern Lower Peninsula averages 0.3 annual flooding events, with average annual property and crop damages of \$2,591,244 due to flooding.

Location

The Manistee River flows through the northern portion of the county and is constricted at the Hodenpyl Dam in Springville Township. The Townships of Liberty, Greenwood, Hanover, Wexford and particularly Springville, as well as the Village of Mesick, are at risk from potential flooding along the Manistee River.

According to the National Inventory of Dams and EGLE's Michigan Dam Inventory, there are 10 major dams located in Wexford County, and 21 other minor dams in the county. The appended Wexford County Infrastructure Map illustrates the location of dams and their reported condition status. The details of the 10 major dams are provided in Table 25.

Table 25. Dams in Wexford County

Dam Name	Other Names	Location	Downstream Hazard Potential Class	Emergency Action Plan	EAP Updated	Inspection Date	Inspection Status	Owner Name
Hodenpyl		Springville Twp.	High	Yes	10/11/2019	9/30/2020	Not Available	Consumers Energy
Lake Billings Dam	aka Manton Upper Power Dam	City of Manton	Significant	Yes	2/24/2009	10/12/2021	Fair	City of Manton
Wheeler Creek Dam	Buckley Shores Inc. Dam	Hanover Twp.	Significant	Yes	8/8/2018	5/30/2018	Satisfactory	Lake Gitchegumee Property Own Assn
Archie Castle's Dam		Boon Twp.	Low	Not Required		1/1/1901	Failed	Mark Platz
Brandy Brook Dam		Selma Twp.	Low	Not Required		10/7/2019	Dam has not been inspected	Huron-Manistee National Forests
Clam River Control Dam	Cadillac-Mitchell Lake Level Control	City of Cadillac	Low	Not Required		4/11/2018	Satisfactory	Wexford County
Kerr Upper Dam		Hanover Twp.	Low	Not Required		8/24/1977		Marlin Kerr
Manton Millpond Dam	Millpond Dam	City of Manton	Low	Not Required		9/16/2011	Removed	City of Manton
Norman Smith Dam		Cherry Grove Twp.	Low	Not Required		10/21/2011		SAKK Investments LLC
White Lake Dam	Barnes Dam	Antioch Twp.	Low	Not Required		8/29/2016		Ronald White

The Hodenpyl hydroelectric dam is located in Springville Township in Wexford County, near the border with westerly adjoining Manistee County. The dam was commissioned in 1925, is owned by Consumers Energy (CE) and is considered a “High Hazard” potential dam, meaning that failure or dam misoperation will probably result in loss of human life. CE is required to maintain an Emergency Action Plan on file with the Federal Energy Regulation Commission (FERC). The hydro operating license issued by FERC to CE for the dam will expire in 2034. Future potential options for the dam include: 1) Relicense the dam, meeting all the new regulatory requirements, and continue to generate power; 2) Surrender the license and sell the dam to a third-party owner, who could maintain the dam structure and impoundment; 3) Remove the dam and return the river to its natural state; or 4) Replace the dam with an alternative structure.

From August – October 2022, CE and Public Sector Consultants held a local public engagement session regarding input on potential future plans for the dam; they also surveyed property owners located within 100 feet of CE property lines to obtain their feedback as well. In 2023, CE intends to provide their long-term hydro strategy, and between 2023 and 2034, the relicensing and/or retiring process will be underway, which will continue to include community engagement efforts. Refer to CE’s website for updated information about planning for the future of hydroelectric dams in Michigan: <https://www.consumersenergy.com/company/electric-generation/renewables/hydroelectric/hydro-future>

The Wheeler Creek Dam on Lake Gitchegumee in the Village of Buckley/Hanover Township is considered a “Significant Hazard” potential dam, as well as the Lake Billings Dam on Billings Lake in the City of Manton. An Emergency Action Plan and regular 3-year inspections by Michigan Dept. of EGLE are required for these dams. The most recent inspection for the Lake Billings Dam from 2021 indicates that the dam is in fair conditional overall, but there are several recommendations for monitoring and repair of deficiencies that do not currently pose an immediate threat to the safety of the dam but should be completed. The report provided the following recommendations listed in order of importance:

- Broken concrete along spillway walls should be removed, the underlying material and sheet pile wall inspected, backfill any areas disturbed, compact fill, and resurface areas with concrete. Monitor sheet piling walls for further seepage after work has been performed. This work should be completed by December 31, 2022.
- Annually review the Emergency Action Plan (EAP) with the Emergency Services Coordinator for Wexford County and update it as appropriate. In accordance with Part 315, provide a copy of the findings of the EAP review and any updates to the plan to the Dam Safety Program and the Wexford County Emergency Management Coordinator by December 31, 2022.
- Create an Operation and Maintenance Plan (O&M Plan). This should include routine maintenance, address repair procedures when required, and include operation of the spillway gates during flood conditions by June 30, 2022.
- Monitor cracks on concrete cap of sheet piling for further deterioration and consider resurfacing concrete where hairline cracks are visible.
- Routinely monitor embankments for wave erosion and animal burrows. Sloughs and burrows should be filled, compacted and seeded or ripped as needed.

The City of Cadillac is most at risk for urban flooding, due to the high amount of impervious surfaces in the City. The City of Cadillac, along with adjoining Clam Lake Township, Cherry Grove Township, Selma Township and Haring Charter Township are also at risk from riverine flooding due to the presence of Lake Mitchell, Lake Cadillac and the Clam River.

During the public input process for developing this plan, the following concerns were identified regarding flooding and/or erosion concerns. These areas are also indicated on the appended hazard area maps.

- The aging Clam River Control Dam, located where Lake Cadillac feeds into the Clam River in the City of Cadillac, is in need of a major retrofit within the next ten years. This infrastructure upgrade will aid in alleviating flooding and shoreline erosion issues that have occurred on the land surrounding the lake and the Clam River (affecting areas in the City of Cadillac, Clam Lake Twp., and Haring Charter Twp.)
- Shoreline erosion concerns along Lake Mitchell as well (affecting Cherry Grove Twp. and Selma Twp.)
- Properties located in the City of Cadillac, between Lake Street and the railroad, with Haynes St. bordering to the north and Pine St. to the south, have experienced seasonal flooding/ basement flooding. Activities from a former lumber mill northeast of Lake Cadillac resulted in sawdust/lumber waste deposited in the soil. This area includes property public and private commercial/office and residential property.
- Land that surrounds Lake Mitchell in Cherry Grove and Selma Township, much of which contains Part 303 State regulated wetlands
- Land along Slagle Creek (in Slagle and Boon Townships, including the Village of Harrietta), the Manistee River (in Liberty, Greenwood, Hanover, Wexford, and Springville Townships), and the Pine River (South Branch Twp.)
- Land near the Lake Billings Dam in the City of Manton/Cedar Creek Twp.
- Roads in Wexford Twp.
 - W4 Rd., located NE of N7 Rd.
 - N9 Rd. between W. County Line Rd. and W4 Rd.
 - Around the intersection of W. 2 ½ Rd. and N11 Rd.
 - N11 Rd. between W. 12 Rd. & W. 12 ½ Rd.
- Roads in Greenwood Twp.
 - Manistee River surrounded by the following roads: N 27 ½ Rd., E 2 ½ Rd., N 29 ½ Rd., and River Rd.
- Cedar Creek Twp. and Colfax Twp.
 - Road intersection of N37 Rd and E16 Rd.

Extent/Previous Occurrences

There have been 11 flooding events that have occurred between 2000 and 2021 (Table 26), resulting in a total of \$980,000 of property damage. Nine of these events were flash floods; two were flooding events. Many of the events have occurred within the City of Cadillac, as well as in communities along the Manistee River in the northern portion of the county, and around Lake Cadillac/Lake Mitchell to the west of the City of Cadillac. Flooding is the most costly type of natural hazard event in Wexford County.

The most damaging event on record occurred between June 12 and 17, 2008, when heavy rainfall caused widespread flooding in southern Wexford County, with isolated flooding in the north, after to three to six inches of rainfall in a few hours either side of midnight. Numerous roads were washed out, especially on the northwest side of Lake Cadillac, and near and north of Mesick. One hundred and fifty homes were impacted by flood water. The flooding lingered for several days after the heavy rain event ended, mainly on the Manistee River and its larger tributaries. The Manistee River at Sherman established a new flood of record on the 14th, reaching 16.4 feet. Several homes just above Hodenpyl Dam Pond had to be evacuated. As a result of the flooding, the Governor declared a state of emergency for Manistee and Wexford Counties, along with other counties downstate. This flash flood event resulted in \$790,000 in reported property damages in Wexford County.

The second most damaging flood event occurred on April 14, 2014. A tardy spring thaw was enhanced by a widespread 1 to 2 inches of rain that fell on the 13th and 14th. Two areas of concentrated flooding occurred in Wexford County, with a number of road closures. One was along Lake Mitchell, just west of Cadillac. The other was along the Manistee River in far northern sections of the county. Water entered multiple homes at both location, along with properties along the Manistee River in the north section of the county. This flood event resulted in a reported \$110,000 in property damage.

Table 26: Wexford County Flood Events

Event Type	Begin Date	Begin Location	End Location	End Date	Property Damage
Flash Flood	5/12/2000	Cadillac	Cadillac	5/12/2000	\$0
Flash Flood	4/12/2001	Countywide	Countywide	4/16/2001	\$0
Flash Flood	5/15/2001	Countywide	Countywide	5/15/2001	\$0
Flash Flood	5/19/2001	West portion	West portion	5/20/2001	\$0
Flash Flood	5/9/2004	Cadillac	Cadillac	5/9/2004	\$20,000
Flash Flood	6/12/2008	Hoxeyville	Harlan	6/13/2008	\$750,000
Flood	6/13/2008	Harrietta	Meauwataka	6/17/2008	\$40,000
Flash Flood	7/25/2012	Haring	Sherman	7/25/2012	\$40,000
Flash Flood	7/27/2012	Cadillac	Lake Cadillac	7/27/2012	\$12,000
Flash Flood	11/17/2013	Lake Mitchell	Lake Cadillac	11/17/2013	\$10,000
Flood	4/14/2014	Lake Cadillac	Manton	4/15/2014	\$110,000

Source: NOAA: National Centers for Environmental Information

Probability of Future Events and Vulnerability Assessment

Floods can damage or destroy public and private property, disable utilities, make roads and bridges impassable, destroy crops and agricultural lands, cause disruption to emergency services, and result in fatalities. People may be stranded in their homes for several days without power or heat, or they may be unable to reach their homes at all. Long-term collateral dangers include the outbreak of disease, widespread animal death, broken water or sewer lines causing water supply pollution, downed power lines, broken gas lines, fires, and the release of hazardous materials.

Since 2000, Wexford County has had eleven flash flood or flood events, which equates to a 52% chance that a flood event would occur in a given year. The magnitude and severity of a heavy rainfall event also depends on the population densities, seasonal activity, and the spread of development. During the warm or summer months, the population expands to include both the permanent resident base population and the seasonal short- and long-term population. The seasonal population is attracted to both rural, sparsely populated rural areas and urban activity centers.

Specific flood hazard areas were identified during public meetings and are identified on the Hazard Areas Map provided in Appendix A. The public online community survey results indicated that flooding was the third most likely type of natural hazard event that would have a major impact on the county’s communities. Additionally, when survey participants were asked what types of infrastructure failures they were most concerned about being able to withstand a natural hazard event, all responses were related to the possibility of flooding:

- Utility/Electrical Outage (7) (Lake Mitchell may overflow if water level control dam is not powered)
- Failing bridges/culverts/roads (7)
- Failing dams (3)
- Water contamination (1)

Flood hazard information may be obtained from the Flood Rate Insurance Maps (FIRM) available for jurisdictions. In order to delineate potential flood plain areas (seasonal floodplains) for each jurisdiction, the appended hazard maps show surface water bodies, rivers and streams, State-regulated (Part 303) wetlands, watershed boundaries and areas with slope exceeding 30%. Digital Elevation Model data are from the Center for Geographic Information, Michigan Department of Information Technology.

NFIP Participation Status

FEMA’s online National Flood Hazard Layer (NFHL) is a geospatial database that contains current effective flood hazard data, which support the National Flood Insurance Program (NFIP). Flood Insurance Rate Maps, or FIRMs, can be viewed for participating areas in the U.S. through the NFHL. The FIRMs aid in better understanding a property’s level of flood risk and type of flooding in the area. The maps show the delineation of the 1% Annual Chance Floodplain Boundary (the “100-Year Flood Boundary”) and the 0.2% Annual Chance Floodplain Boundary (the “500-Year Flood Boundary”).

For a particular river, USGS collects river streamflow data over time, determines the largest flood in each year, and then calculate statistical data for that river. The more years of data available, the more accurate the estimates for the various

flood quantiles. As more years of data become available, the estimates become more refined, which can result in revisions to the quantiles and thus revised floodplain boundaries.⁷ Urban development and installation of flood controls can also result in changes in streamflow data over time.

The NFIP provides flood insurance to property owners, renters and businesses, and having this coverage helps them recover faster when floodwaters recede. The NFIP also works with communities required to adopt and enforce floodplain management regulations that help mitigate flooding effects. There is no cost for communities to participate. NFIP information for Wexford County communities is provided in Table 27. Digital Flood Insurance Rate Maps are not currently available for NFIP participating communities in Wexford County. (Will they be available in the next 5 years?). Are there any residential properties that have suffered repetitive flood losses? (A NFIP-insured structure that has had at least 2 paid flood losses greater than \$1,000 each in any 10-year period since 1978.)

Table 27: Wexford County NFIP Participation Status and Related Information

Municipality	NFIP Participant	Floodplain Management Adoption*	FIRM Map Adoption	Current Effective Map Date	Reg-Emerg Date**	Community ID #	Implementation Method***	Appointed Designee****	Implementation of Damage Provisions*****
City of Cadillac	Y	Y	Y	8/3/1998	3/18/1996	260247#			
City of Manton	N								
Village of Buckley	N								
Village of Harrietta	N								
Village of Mesick	N								
Antioch Township	N								
Boon Township	N								
Cedar Creek Township	Y			NSFHA	9/26/2016	260935#	N/A		
Cherry Grove Township	Y			8/3/1998	7/28/1999	260938#			
Clam Lake Township	N			8/3/1998	8/3/1999	260939#			
Colfax Township	N								
Greenwood Township	Y			NSFHA	6/30/1997	260947#	N/A		
Hanover Township	N								
Haring Charter Township	N			8/3/1998	8/3/1999	260928#			
Henderson Township	N								
Liberty Township	N								
Selma Township	Y			8/3/1998	9/30/1998	260757#			
Slagle Township	N								
South Branch Township	N			8/3/1998	8/3/1999	260944#			
Springville Township	N								
Wexford Township	N								

Source: FEMA Community Status Book, accessed 4/6/2023

Notes:

* Adoption of NFIP minimum floodplain management criteria via local regulation.

** The date the community first joined the NFIP.

*** How local floodplain management regulations are implemented and enforced in Special Flood Hazard Areas.

**** The designee or agency that is appointed to implement the addressed commitments and requirements of the NFIP.

***** How participants implement the substantial improvement/substantial damage provisions of their floodplain management regulations after an event.

A Non-Special Flood Hazard Area (NSFHA) is an area that is in a moderate-to-low risk flood zone (Zones B, C, X Pre- and Post-FIRM). An NSFHA is not in any immediate danger from flooding caused by overflowing rivers or hard rains. However, it's important to note that structures within a NSFHA are still at risk. In fact, nearly 1 in 4 NFIP flood claims occur in these moderate- to low-risk areas! (www.fema.gov)

⁷ <https://www.usgs.gov/faqs/why-do-values-100-year-flood-seem-change-every-flood>

Additionally, Michigan State Police's *2019 Michigan Hazard Analysis* provides the following National Flood Insurance Statistics for Wexford County (Table 28):

Table 28: NFIP Statistics for Wexford County

Total Premium	Policies	A-Zone Policies	Total Coverage	Claims since 1978	Total Paid since 1978
\$38,792	39	22	\$7,372,300	7	\$20,098

Lightning

Lightning is a random and unpredictable 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.

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 Wexford County is at risk to the occurrence and impacts from lightning.

Extent/Previous Occurrences

There has been one lightning event reported to NOAA for Wexford County. There were no injuries or fatalities.

On September 1, 2000 a series of evening thunderstorms across the northwest Michigan region produced lightning that was nearly continuous. One man was killed by the lightning (not in Wexford County) when he and his 9 year old son climbed a small hill behind a shopping mall to view the approaching lightning. The 40 year old father was struck and killed by a lightning bolt. His son was thrown to the ground, but only sustained minor injuries. Lightning that Friday night also disrupted numerous high school football games. Many games were cancelled or postponed until the following Saturday morning. Many of the schools which began play had lengthy delays and many waited an hour or more before fans and players could return to the field. This was widely covered by area newspapers and television stations. The cost of postponed games is not known.

Additionally, public input received as part of this plan development included instances of a communications tower in Wexford Township that has been repeatedly struck by lightning.

Probability of Future Events and Vulnerability Assessment

Since there has been one lightning events that have occurred on record in the last 22 years, there is a 4.5% chance that a damaging lightning event would occur in a given year. However, 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 are likely higher.

All existing and future buildings, exposed infrastructure, 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.

The magnitude and severity depend on the county population, seasonal activity, and the spread of development. During the summer months, the base population expands by as much as 73% due to the peak presence of seasonal homeowners and overnight visitors. Residents and visitors are attracted to both rural, sparsely populated natural areas as well as village and city centers for outdoor recreation (motorized & non-motorized trails; year-round camping, hunting, swimming/boating) and festivals/special events.

The approximate locations of campgrounds in the county are indicated on the *Vulnerable Populations & Hazard Areas Map* in the Appendix. These are areas where concentrations of people and property can be particularly vulnerable during a severe winter weather, thunderstorm, high wind, lightning, hail, tornado, wildfire, extreme temperatures, or public health emergency.

Tornado

A tornado is a violently rotating column of air that extends from a thunderstorm to the ground, and can occur anytime during the day and throughout the 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% below the surrounding atmosphere's pressure. The length of a tornado path has been reported up to 200 miles. Tornado path widths are generally less than one-quarter mile wide. These storms 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 Hazards 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% as EF0 (weak) or EF1 (moderate), 38.9% reported as F0 or F1 (weak), 6.7% as EF2 (significant) or EF3 (severe), and 1.6% as F2 (strong). In Northern Michigan, tornados are most likely in the summer months, although some have occurred in the spring and fall.

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 Wexford 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.

The eight tornadoes described in Table 30 have impacted different communities in Wexford County. The appended *Hazard Areas* map and *Vulnerable Populations and Hazard Areas* map show the estimated trajectories of the reported tornado events in the county.

Extent

The Fujita Scale (Table 29) categorizes tornado severity based on observed damage. The six-step scale ranges from F0 (light damage) to F5 (incredible damage). As of February 2007, the National Weather Service uses the Enhanced Fujita Scale (EF Scale). This new scale ranges from EF0 to EF5. Based on the Enhanced Fujita Scale, Wexford County's most damaging tornados occurred on July 31, 1963 and June 7, 1974 with winds ranging from 110-137 mph, with damages totaling \$275,000. One injury occurred as a result of the 1974 tornado. No deaths were reported.

Table 29: Fujita and Enhanced Fujita Scale Comparison

Fujita Scale		EF Scale	
Fujita Scale	3-Second Gust Speed (mph)	EF Scale	3-Second Gust Speed (mph)
F0	45-78	EF0	65-85
F1	79-117	EF1	86-109
F2	118-161	EF2	110-137
F3	162-209	EF3	138-167
F4	210-261	EF4	168-199
F5	262-317	EF5	200-234

Source: FEMA

Previous Occurrences

Since 1963, Wexford County has had 8 reported tornadoes, causing a total of \$820,500 in property damages and one injury (Table 30).

Table 30: Wexford County Tornado Events

Location	Date	Deaths	Injuries	Scale	Property Damage	Crop Damage
Haring Charter Twp, Clam Lake Twp.	7/31/1963	0	0	F2	\$250,000	-
Clam Lake Twp.	8/4/1968	0	0	F1	\$2,500	-
Cherry Grove Twp.	6/7/1974	0	1	F2	\$25,000	-
Liberty Twp.	6/15/1976	0	0	F1	\$25,000	-
Selma Twp.	7/7/1980	0	0	F0	\$0	-
Village of Buckley	10/15/1989	0	0	F1	\$250,000	-
Cherry Grove Twp.	10/4/2006	0	0	F0	\$260,000	-
Clam Lake Twp.	7/18/2010	0	0	EF0	\$8,000	-
TOTAL	8 Tornadoes	0	1	F0 – F2	\$820,500	\$0

Source: NOAA: National Centers for Environmental Information

Probability of Future Events and Vulnerability Assessment

Since there have been eight tornado events reported in the last 58 years, this indicates a 13.8% chance a tornado would occur in a given year. While the chance for a tornado is low, if an event occurs, there is potential for a higher magnitude tornado to touch down. Many of the reported historic events have caused property damage. Additionally, the public online community survey results indicate that high winds/ tornado was the second most likely type of natural hazard event that would have a major impact on the county’s communities.

The magnitude and severity depend on the county population, seasonal activity, and the spread of development. During the summer months, the base population expands by as much as 73% due to the peak presence of seasonal homeowners and overnight visitors. Residents and visitors are attracted to both rural, sparsely populated natural areas as well as village and city centers throughout the year for outdoor recreation (motorized & non-motorized trails; year-round camping, hunting, swimming/boating) and festivals/special events.

The approximate locations of mobile homes and campgrounds in the county are indicated on the *Vulnerable Populations & Hazard Areas Map* in the Appendix. These are areas where concentrations of people and property can be particularly vulnerable during a severe winter weather, thunderstorm, high wind, lightning, hail, tornado, wildfire, extreme temperatures, or public health emergency.

The county utilizes the “Code Red” mass notification system for notification of tornado warnings and watches, along with other severe weather alerts. The system notifies a participant via their mobile or land-line phone. The National Weather Service may concurrently utilize their notification system when deemed necessary in severe weather event situations to send phone notifications to all users within signal of a cellular tower. Tornado sirens are no longer utilized in the county as they are not as effective or efficient as the Code Red system.

Cellular phone reception has been known to go down during wind storms, lightning strikes to cellular towers or as a result of high system demand in the peak summer tourism season. With this loss of communication, a backup system for communications is recommended, such as battery or solar powered NOAA weather radios. Additionally, local governments should pursue discussions with cellular utility providers regarding improvements to the cellular communications grid, such as additional towers or generator installation.

Wexford County Emergency Management Department maintains contracts with the eleven local fire stations in the county so that they may be utilized as temporary shelters in the event of an emergency. Additionally, the American Red Cross (ARC) can set up temporary shelters within 12-24 hours after an emergency event occurs; usually this is done within an existing structure. The Wexford County Senior Centers in Manton and Cadillac, as well as the Cadillac YMCA, can be utilized during the day hours for temporary heating/cooling shelters.

The ARC can also assist with organizing long-term shelters to house large amounts of people overnight; the Wexford Civic Center can hold about 4,000 people for this purpose if necessary. The Cadillac-Wexford Transportation Authority can be utilized for transporting people to shelters after an emergency.

Extreme Temperatures

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, heat exhaustion, and fatigue. It is hazardous to livestock and agricultural crops, causes water shortages, exacerbates fire hazards, exacerbates respiratory problems, prompts excessive electrical 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.

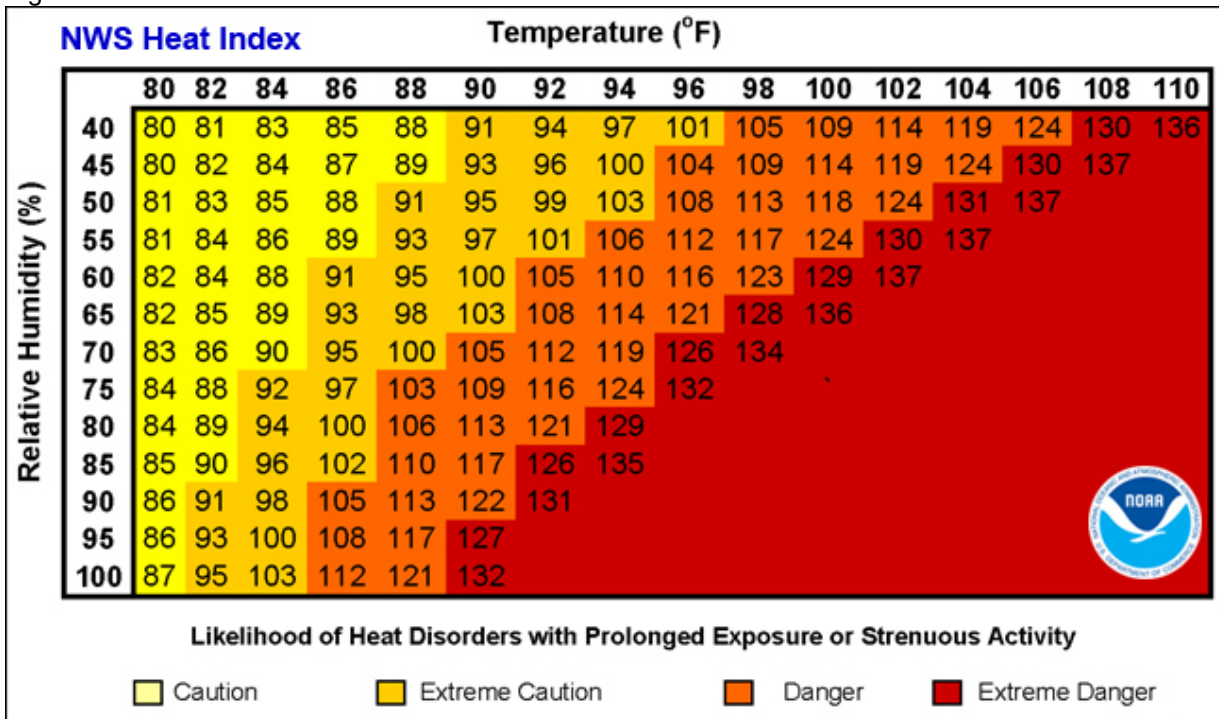
According to the 2019 Michigan Hazard Mitigation Plan, Michigan has 11 average annual extreme heat events with 0.4 average annual deaths and 41 average annual injuries.

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. Exposure to extreme cold temperatures can be life threatening and can cause 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 12). 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.

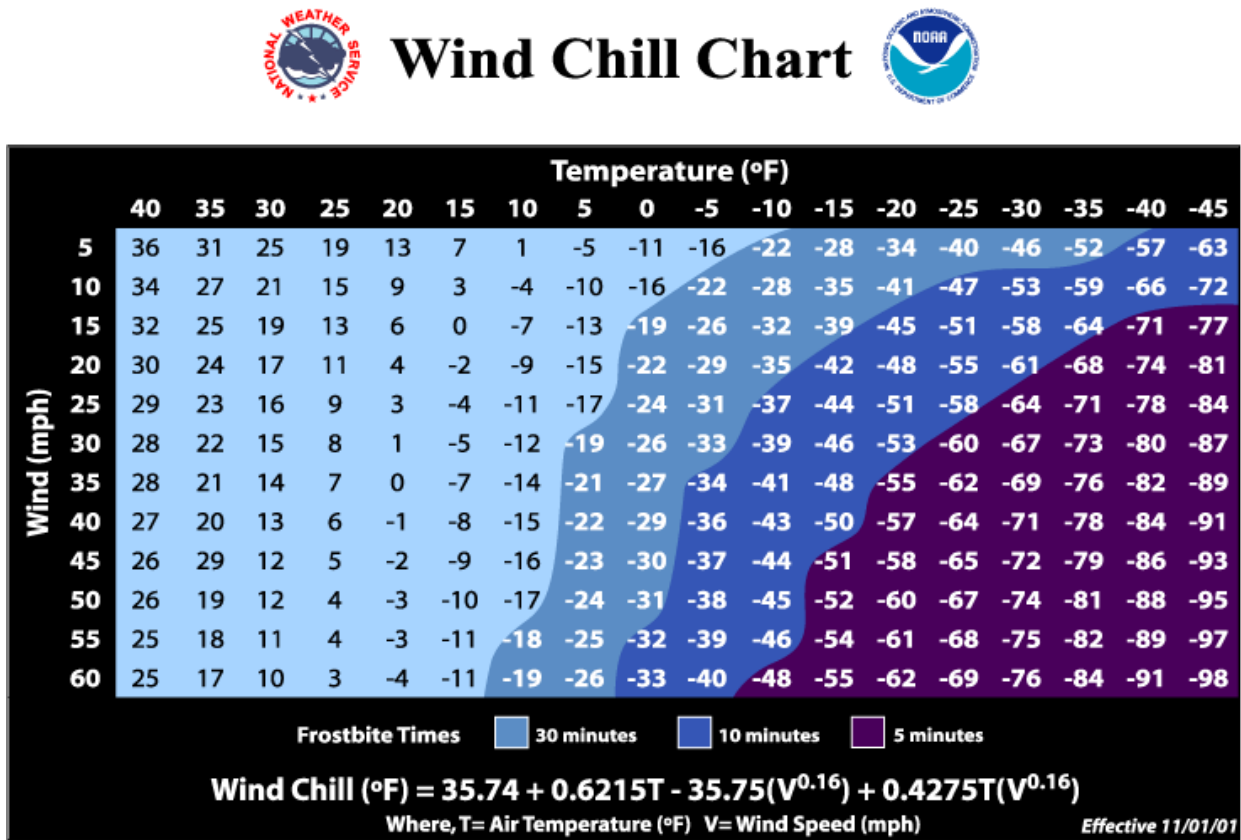
Figure 12: National Weather Service Heat Index



Source: National Weather Service

Extreme cold is measured with the wind chill 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 13 shows the NOAA Wind Chill Chart as it corresponds to various temperatures and wind speeds.

Figure 13: National Weather Service Wind Chill Chart



Source: National Weather Service

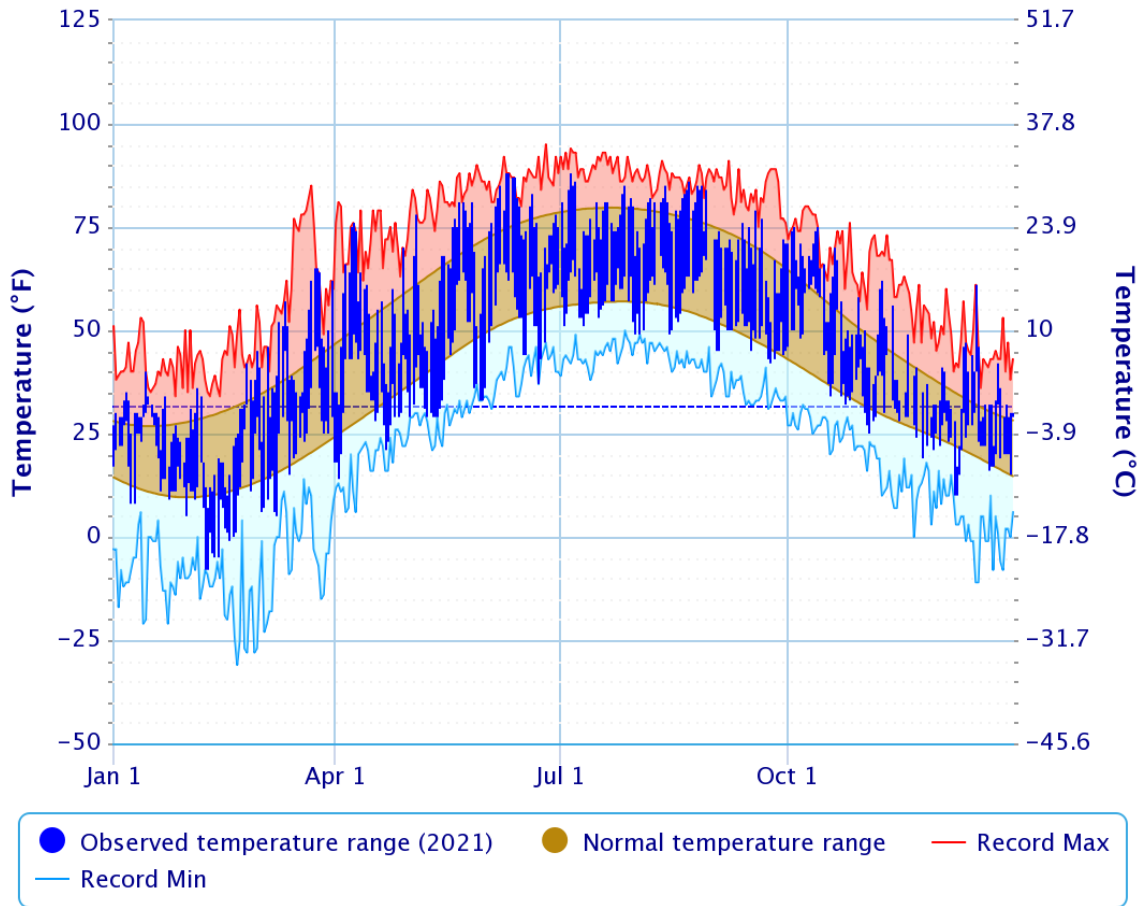
Figure 14 illustrates the observed daily temperature ranges at the Cadillac 9&10 news station for 2021. The dark blue line shows temperatures recorded between January 1 2021 and December 21, 2021. The red line above shows record high temperatures for that day, and the light blue line below indicates record low temperatures for that day on record since 1991. Several record temperatures were reached in 2021 for the following days:

- January 14: 40 degrees F.
- February 7: -8 degrees F. (record low)
- March 4: 46 degrees F.
- March 11: 57 degrees F.
- March 24: 65 degrees F.
- March 25: 64 degrees F.
- April 8: 76 degrees F.
- April 9: 74 degrees F.
- June 9: 88 degrees F.
- June 10: 88 degrees F.
- June 11: 87 degrees F.
- June 22: 37 degrees F. (record low)
- October 13: 75 degrees F.
- October 20: 70 degrees F.
- December 16: 61 degrees F.

Figure 14: Daily Temperature Data:

Daily Temperature Data – CADILLAC 9&10 NEWS, MI

Period of Record – 2009-06-24 to 2022-09-12. Normals period: 1991-2020. Click and drag to zoom chart.



Powered by ACIS

Source: NOAA Climate Data Online

Location, Extent and Previous Occurrences

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

Wexford County has had two extreme heat events in 2001 and 2018. The events did not have any deaths, injuries, or property/crop damages. The heat events consisted of hot and humid conditions that caused outdoor events to be modified and attendance at outdoor events to be lower than normal.

The first instance of reported excessive heat occurred on August 1, 2001. Excessive Heat was also a problem the first two weeks in August across all of northern Michigan. Temperatures reach the mid to upper 90s, on average, a few days each year; however, for a 5 day (8/5 - 8/9) stretch overnight low temperatures failed to fall below the lower 70s in most areas. This very humid air mass was unusual for northern Michigan, an area which typically sees cool nighttime temperatures and for this reason has very few homes with air conditioners. No heat related deaths or injuries were reported; however, most outdoor events were modified due to the forecasts of hot and humid conditions. County fairs sent animals home, yet still there were livestock losses at fairs in Otsego and Alcona counties. Attendance at county fairs was well below normal and this was attributed to the heat. This period of excessive heat also brought on a drought event at the same time.

The second instance of reported excessive heat occurred on June 30, 2018. The month of June closed with one of the hottest days in recent memory. Highs were well into the 90s, including 99 at Alpena, and 98 at Traverse City and Gaylord. The National Weather Service office near Gaylord also hit 98; that was (by several degrees) the warmest reading

recorded at that location since observations began there in the late 1990s. Heat indices exceeded 105 degrees across most of northern Lower Michigan, and some locations exceed 110. The warmest reported heat index on the day was 114 near Indian River. An estimated 25 to 30 individuals visited local hospitals due to heat-related illnesses.

There have been three extreme cold events/wind chill events on record with NOAA for Wexford County - in 2007, 2014 and 2015 - as well as one Governor-declared statewide emergency for extreme cold in 2019. However, it should be noted that since cold temperatures typically occur during winter months, many events may have gone unrecorded.

The first reported event occurred on February 4, 2007. Exceptionally cold air surged into Northern Michigan. High temperatures on the 4th (Super Bowl Sunday) were around zero, with low temperatures that night from five to ten below zero. Gusty northwest winds produced hazardous wind chills of 20 to 30 below zero, along with blowing and drifting snow. Many area schools closed on the 5th, due to the extreme cold and poor road conditions.

The second instance of extreme cold/wind chill in the Great Lakes Region was in 2014 was the coldest since at least January 1994. Near- to below-zero temperatures were accompanied by blustery northwest winds. Away from the warming influence of Lake Michigan, wind chills sunk to 30 below zero or colder. The coldest wind chills observed were -44 near Cedarville, -39 near Engadine, -36 at Sault Ste Marie, and -33 at West Branch and Houghton Lake. All of these were reached in the morning hours of the 7th; school closings were widespread across northern Michigan on the 7th.

The third instance of extreme cold/wind chill occurred on February 19, 2015. Wind chills reached 30 to 40 below zero across part of northern Michigan, bottoming out at -43 near Cadillac early in the morning on the 19th.

The fourth instance of extreme cold/wind chill was the Governor Declared Emergency that occurred on January 29, 2019. Wind chills of 15 to 30 below zero were common in northern Lower Michigan. Wind chills were much colder in the UP, including -51 at Kinross, and -42 at Sault Ste Marie and Mackinac Island. The low temperatures caused schools to close.

Probability of Future Events and Vulnerability Assessment

There have been two extreme heat events on record with NOAA in Wexford County over the past 20 years: one in 2001 and one 2018. This indicates that there is 10% chance of another extreme heat occurring in a given year.

There have been four extreme cold/wind chill events on record for Wexford County between 2007 and 2021. This indicates that there is a 28.6% chance of another extreme cold event occurring in a given year. Since extreme cold events tend to occur during the winter months and are coupled with blustery winds and snowstorms, these events may have been reported as other hazards or not at all, which means there may have been more extreme cold events in the county.

Extreme heat and cold events are most likely to impact unsheltered populations (i.e., people at campgrounds, participating in outdoor recreation activities, and the homeless) as well as the elderly or disabled and persons living in poorly insulated structures. There are two homeless/safe house shelter sites in the county, located in Cadillac: New Hope Center and Oasis Family Resource Center.

Furthermore, the *Northwest Lower Michigan Coastal Resilience Atlas*, produced by the Land Information Access Association (LIAA), includes a Heat Vulnerability Assessment⁸ of coastal communities. A community's vulnerability is their exposure to the hazard (determined by tree canopy and impervious surface coverage) + their sensitivity. Sensitivity is determined by the following factors:

- Persons > 65 years old
- Persons living alone
- Minority (non-white) persons
- Persons living below the poverty threshold
- People > age 25 with less than a high school education
- Disability status (i.e., ambulatory difficulty, mental disability)

While LIAA's study did not include Wexford County communities as they do not adjoin Lake Michigan, these demographic factors should be considered when developing future mitigation planning efforts to protect vulnerable populations in Wexford County from extreme temperature events.

⁸ Land Information Access Association. (2019). *Northwest Lower Michigan Coastal Resilience Atlas*. http://www.resilientmichigan.org/nw_atlas.asp

Drought

Drought is a normal part of the climate cycle. It is a slow-moving hazard, which causes people to underestimate the damage it can do, but losses from drought are as substantial as those from hurricanes, tornadoes and other faster-moving disasters. Drought causes losses to agriculture; affects domestic water supply, energy production, public health, and wildlife; and contributes to wildfire, to name a few of its effects.

Location

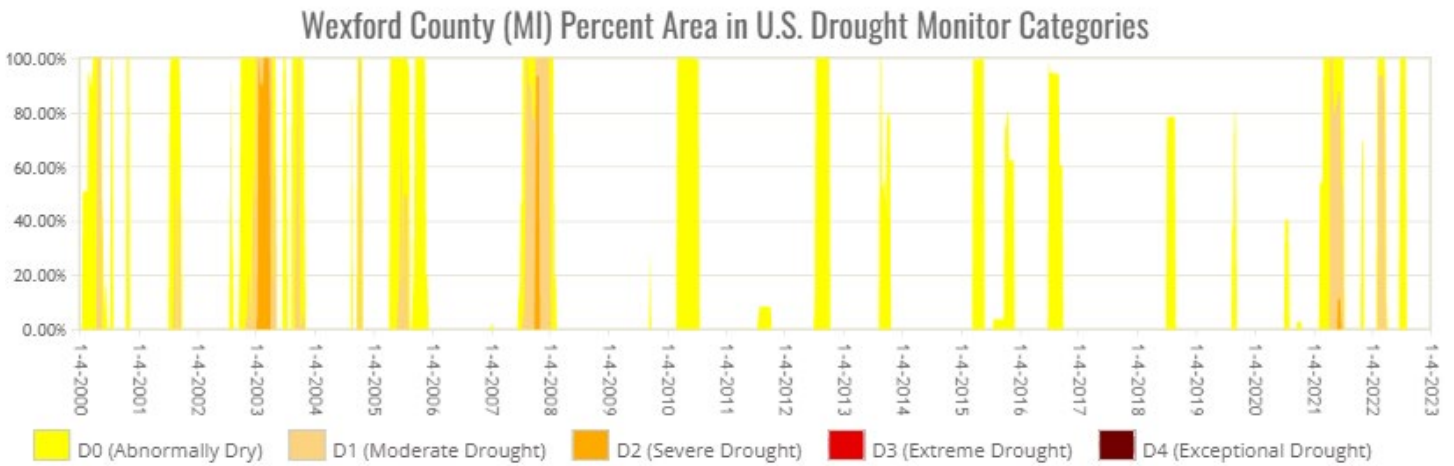
Drought is a regional event that is not confined to geographic boundaries and range in severity across the affected areas. All of Wexford County is at risk to the occurrence and impacts from drought.

Extent

The Palmer Drought Severity Index (PDSI) uses readily available temperature and precipitation data to estimate relative dryness. It is a standardized index that generally spans -10 (dry) to +10 (wet). Maps of operational agencies like NOAA typically show a range of -4 to +4, but more extreme values are possible. The PDSI has been reasonably successful at quantifying long-term drought.

The U.S. Drought Monitor (Figure 15) combines several input sources including the PDSI and the Standardized Precipitation Index to prepare a weekly map showing parts of the U.S. that are in drought. The map uses five classifications: abnormally dry (D0), showing areas that may be going into or are coming out of drought, and four levels of drought: moderate (D1), severe (D2), extreme (D3) and exceptional (D4) (Figure 16).

Figure 15: Wexford County Historical Drought Levels



Source: [US Drought Monitor](#)

Figure 16: U.S. Drought Categories and Historically Observed Impacts

Michigan

Category	Historically observed impacts
D0	Grass fires increase
	Lawns are brown; landscape and gardens are watered more frequently
D1	Most crops and vegetation are stressed; farmed Christmas trees are stressed
	Well levels decline
D2	Corn and soybean yields are low
	Mature trees are stressed
	Streamflow is extremely low, potentially too low to irrigate

Source: [US Drought Monitor](#)

Previous Occurrences

There have been two instances of drought in Wexford County. The first was a Presidential Declared Emergency for drought problems in the State was enacted in 1977 and included Wexford County. The second occurred on August 1, 2001. It was preceded by a warmer than usual July 2001 with less than an inch of rainfall recorded in some areas. This lack of rain and warm conditions became serious during the first two weeks of August when little if any rain fell and temperatures jumped into the 90s. The stress on the crops was most noted in northern Michigan corn, but also hit hay crops to a lesser extent. As a result of the drought, the U.S.D.A. declared several counties disaster areas and granted farmers in counties where the crop losses were 30% or greater, special low interest loans.

Probability of Future Events and Vulnerability Assessment

Between 1977 and May 2022 (45.4 years), there have been two drought events on record. This equates to a 4.4% annual chance for a drought event in Wexford County. In Northern Michigan's forested regions, drought can adversely impact timber production, agricultural production (particularly tree farms and animal farms) and some tourism and recreational enterprises. This can also cause a drop in income, which impacts other economic sectors.

Drought conditions also increase the risk for wildfire. Many portions of Wexford County are heavily forested and can be vulnerable to drought-related wildfire threats. Unpaved roads may also require applications to control dust, an expensive and short-term solution provided by County Road Commission. Additionally, the threat to water sources should also be considered. Many county residents rely on ground water wells for drinking water. Even drought events in category D1 experience water well level decline. Drought events combined with excessive heat can have severe impacts on vulnerable populations, such as the elderly and lower income populations.

Wildfire

A wildfire is an unplanned, uncontrolled fire in grassland, brushland, or forested areas. Wildfires can occur in any forest or grassland 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, as they dependent on fire to provide all the right conditions for regeneration, while aspen 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 injuries 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.

Approximately 55% (20.4 million acres) of Michigan's total land area is forest cover. The vast forests provide Michigan with the largest state-owned forest system in the United States. In addition, Michigan has the fifth largest quantity of timberland acreage, with 19.3 million acres (including hardwoods and softwoods). That vast forest cover is a boon for both industry and recreation, and these areas have been gradually increasing in recent years. However, it also means that many areas of Michigan are vulnerable to wildfires.

Michigan's fire season starts in early spring, when leaves and grasses remain dry from fall and winter and trees are not yet green. Wildfires are often accompanied by drought where dry conditions increase the potential to burn. Often a thunderstorm will roll through and lightning will strike causing sparking of dry leaves and dead wood. High winds can then spread wildfire. Wildfires can become unpredictable in windy conditions or when the wind changes direction suddenly. Cooler nighttime temperatures often help suppress wildfires and the potential for wildfire; however Michigan has had several major fire events.

According to MDNR and U.S. Forest Service records, between 1910 and 1949, over 5.8 million acres of forest were burned in Michigan, an average of 145,000 acres per year. By comparison, it was reported that between 1950 and 1996, the MDNR and U.S. Forest Service were involved in suppressing over 46,100 wildfires that burned 390,000 acres of forest, which averages only 8,300 acres burned per year. This drastic reduction in the acres of timber burned was largely the result of (1) increased use of specialized equipment to suppress the fires, and (2) intensified efforts toward fire prevention.

However, lightning strikes are not the primary cause of wildfires in Michigan. Recently, only about 4% of all wildfire in Michigan were caused by lightning strikes, and most other causes have been attributed to human activity. Outdoor debris burning is the leading cause of wildfires in Michigan. Most Michigan wildfires occur close to where people live and recreate, which puts both people and property at risk. The immediate danger from wildfires is the destruction of property, timber, wildlife, and injury or loss of life of persons who live in the affected area or who are using recreational facilities in the area.

Location

All of the county's communities and developed areas are vulnerable to wildfires since the community centers and rural residential developments interface with the high risk forest types (e.g. Red Pine, Eastern White Pine, and Jack Pine). Approximately 279,956 acres or 76% of Wexford County is forested. Red Pine comprises 32.9% of the county's forested land; Jack Pine comprises 3.39% and Eastern White Pine comprises 0.03%. Refer to the locations of pine forest shown on the *Hazard Areas Map* and *Environmental Features Map* in Appendix A.

Extent and Previous Occurrences

Extent can be measured by the number of acres burned and the cost of property damage. Approximately 41% of the county's total acreage is managed by the National Forest Service and the Michigan Department of Natural Resources.

According to the *2019 Michigan Hazard Analysis* from the Michigan State Police, between 1981 and 2018 there were 467 reported wildfires on lands in Wexford County under MDNR jurisdiction. This is equal to 31.6 acres burned and 12.3 wildfires per year on MDNR land. Additionally, in the 10-county NW MI Region, Wexford is ranked second in the state for MDNR wildfire frequency (Kalkaska County is #1).

The MDNR responded to the "Bond Mill Pond Fire" on May 1, 2018 in Haring Twp., about 5 miles N/NW of Cadillac. An estimated 79 acres were burned, mostly involving state forest lands. The USFS provided helicopter support for fire suppression with a water drop. (Source: MSP's 2019 Michigan Hazard Analysis).

According to the 2021 USDA/USFS publication *Spatial Wildfire Occurrence Data for the United States, 1992-2018 [FPA_FOD_20210617]*, there were 34 fires that occurred on federal lands in Wexford County between 1992 and 2018, comprising about 141 acres of land burned.

Furthermore, the online community survey results received for this hazard mitigation plan update indicate that wildfire is the top natural hazard event that would have the largest impact on Wexford County. From a survey respondent in Cherry Grove Township: *“Large parcels of federal lands are forested in our township and could create a large fire.”* Additional public input received from communities as a part of the planning process included concerns about un-attended campfires and unpermitted bonfires as a wildfire risk factor on state and federal recreation lands.

Probability of Future Events and Vulnerability Assessment

There is a 100% chance in any given year that there will be a wildfire on MDNR or USFS lands, and a small chance there will be a wildfire on lands outside of these areas. Forest types (Red Pine, Eastern White Pine, and Jack Pine) within Wexford County are most susceptible to wildfires. With the exception of the City of Cadillac and Clam Lake Township, the remaining jurisdictions in Wexford County are heavily forested with pine and are therefore highly vulnerable to wildfire threats.

Additional factors that increase fire risk include dead or dying Ash trees as a result of disease/invasive species, invasive species itself, lightning strikes, and human factors such as falling power lines or the number of persons residing, camping, or traveling through the County. 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. Local fire departments have mutual aid agreements in order to provide additional coverage for rural, sparsely populated, or difficult to reach areas. Residential development in rural Wexford County is often isolated from town centers and emergency services. Many of these areas interface with public lands and local emergency services coordinate fire services with State and Federal fire protection agencies.

Public Health Emergency (Infectious Disease)

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).

Location

Public Health Emergency can be a worldwide, national, state or regional event that is not confined to geographic boundaries and range in severity across the affected areas. All of Wexford County is at risk to the occurrence and impacts from an infectious disease. Depending on the type of disease, different sectors populations are more susceptible.

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 Wexford County, the District Health Department #10 works with local, state, and federal agencies to prepare for and respond to public health threats. It developed a comprehensive emergency preparedness program capable of responding to a variety of emergency situations with funds from the Centers for Disease Control. Additionally, according to the State of Michigan, as of January 10, 2023, there have been 8,587 cumulative cases of COVID-19 and 124 confirmed deaths due to COVID-19 in Wexford County. Those 80 years and older have the most deaths of any age group.⁹

Previous Occurrences

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 illnesses worldwide. Of these, 774 died. 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. In March 2020, the State of Michigan fell under declarations for a State of Emergency, National Emergency (3455), and Governor and Presidential Major Disaster (4494) for the COVID-19 Pandemic.

Probability of Future Events and Vulnerability Assessment

Naturally occurring pandemics may result in widespread precautions around the world. The Michigan District Health Department #10 that serves Wexford County created a pandemic plan that serves as a template for responding to a large-scale outbreak of influenza and other highly infectious respiratory diseases. That plan is being tested currently since COVID-19 appeared in January 2020. The response is ongoing to this pandemic. The elderly, immune-compromised, and low income populations are most vulnerable to public health emergencies.

The public online community survey results indicated an illness outbreak/pandemic (i.e., blizzard, heavy snow, ice storm) as the fourth most likely type of natural hazard event that would have a major impact on the county's communities.

⁹ <https://www.michigan.gov/coronavirus/stats>

Invasive Species

The National Invasive Species Council defines an invasive species as, “A species that is not native and whose introduction causes, or is likely to cause, economic or environmental harm or harm to human health.” The Council was formed under Presidential Executive Orders 13112 and 13751 to prevent the introduction and spread of invasive species, and to support efforts to eradicate and control invasive species that are established throughout the United States. NOAA’s National Ocean Service identifies invasive species as “capable of causing extinctions of native plants and animals, reducing biodiversity, competing with native organisms for limited resources, and altering habitats.” There are a wide variety of species considered invasive. Known and monitored species include:

- Mammals
- Birds
- Insects
- Fish
- Crustaceans
- Mollusks
- Worms
- Plants
- Diseases

Invasive species harmful to Michigan and Wexford County may be either terrestrial invasive species (TIS) or aquatic invasive species (AIS). Terrestrial invasive include non-native, land-based plants, insects, animals and diseases that harm Michigan’s environment, economy, and human health. Aquatic invasive include non-native, water-dwelling plants, animals, and other organisms that have evolved to live primarily in water (aquatic habitats) rather than on land. Aquatic habitats are habitats that are covered with water all or part of every year. Michigan State Departments cooperated to prepare the Terrestrial Invasive Species State Management Plan and the 2013 Aquatic Invasive Species State Management Plan Update: *Prevention, Detection, and Management in Michigan Waters*. Each plan outlines a statewide strategy to reduce the environmental and economic damages caused by either TIS or AIS.

Non-native terrestrial and aquatic species are introduced to Michigan and the Great Lakes both intentionally and unintentionally. Aquatic invasive species are the result of unwanted fish and aquatic plants released from home aquariums, travelled across the ocean in ballast water carried by freighters, or entered from the ocean through human-built channels such as the Welland Canal. There are 32 AIS specifically listed in the State Management Plan. The State TIS Management Plan lists fourteen species including insects, mollusks, plants, mammals, a shrub, and a bird.

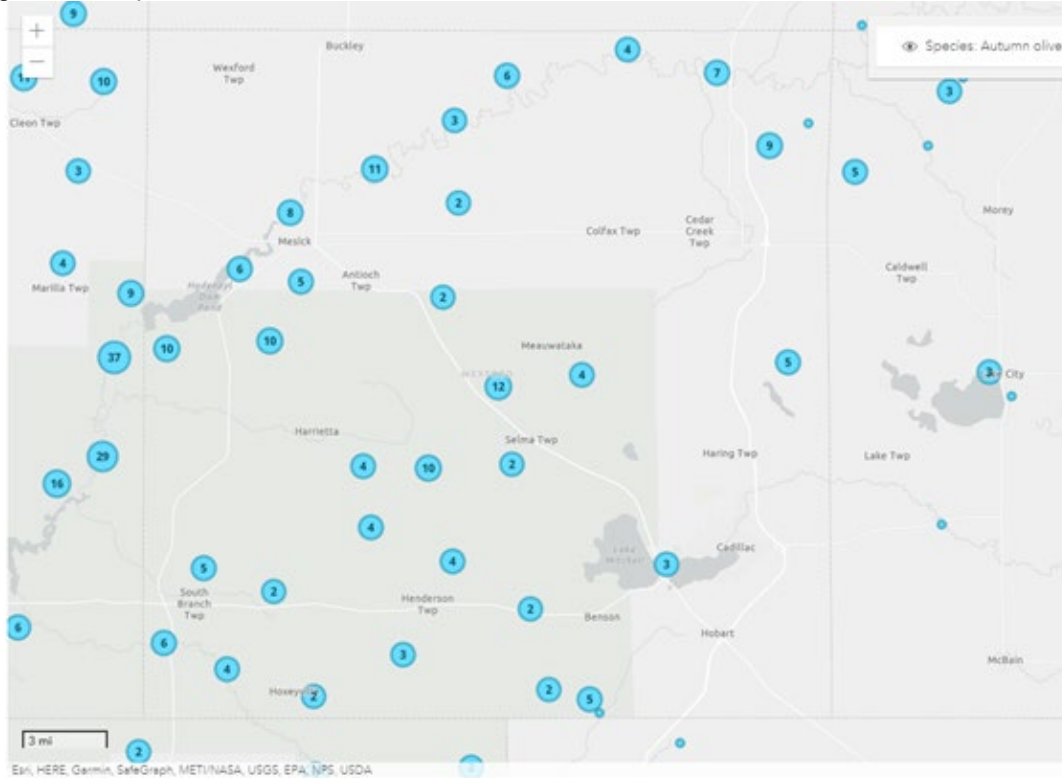
The Midwest Invasive Species Network (MISIN) is a regional effort to develop and provide early detection and response resources for invasive species. Among many tools and resources, the website (misin.msu.edu) provides a catalog of species information and a report of occurrences submitted within each state. Animals, plants, and diseases are included in the catalog. The top five reported species in Michigan are: phragmites (invasive) with 63,018, garlic mustard with 18,368, autumn olive with 16,042, spotted knapweed with 15,436, and brown marmorated stink bug with 13,351.

Location

Invasive species threaten those sensitive ecosystems and may be present in all Wexford County forest, wetland, farmland, grassland, aquatic, and urban environments. TIS and AIS designation generally applies, however, several upland species appear to be spreading to wetland and aquatic areas. Regular monitoring and reporting introductions detected is the only way to know where an invasive species has infested. The MISIN Species Observations shares reported detections by species name (common and scientific) and family type. Figure 17 below identifies reported Autumn Olive cases throughout the county. Many of the reported cases are along the Manistee River or Pine River.

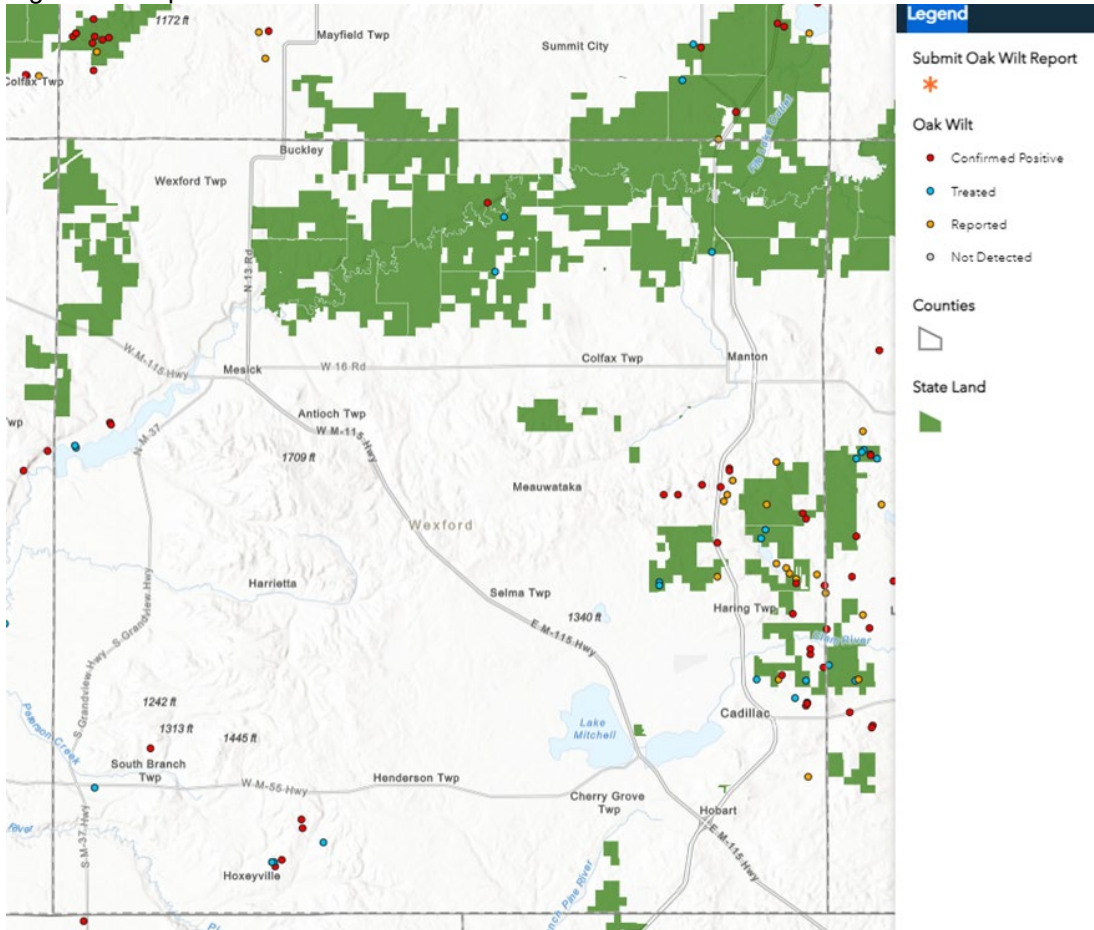
Figure 18 presents the MDNR interactive mapping resource “Look For Oak Wilt”, which allows users to submit and Oak Wilt Report throughout Michigan. Multiple numbers of Oak Wilt cases have been reported throughout Wexford County. These include trees confirmed positive for the disease, trees that have been treated, and reported cases. The reports of Oak Wilt disease are largely found in heavily forested areas and public lands in the northern, eastern and southwest portions of the county.

Figure 17: Reported Autumn Olive Cases



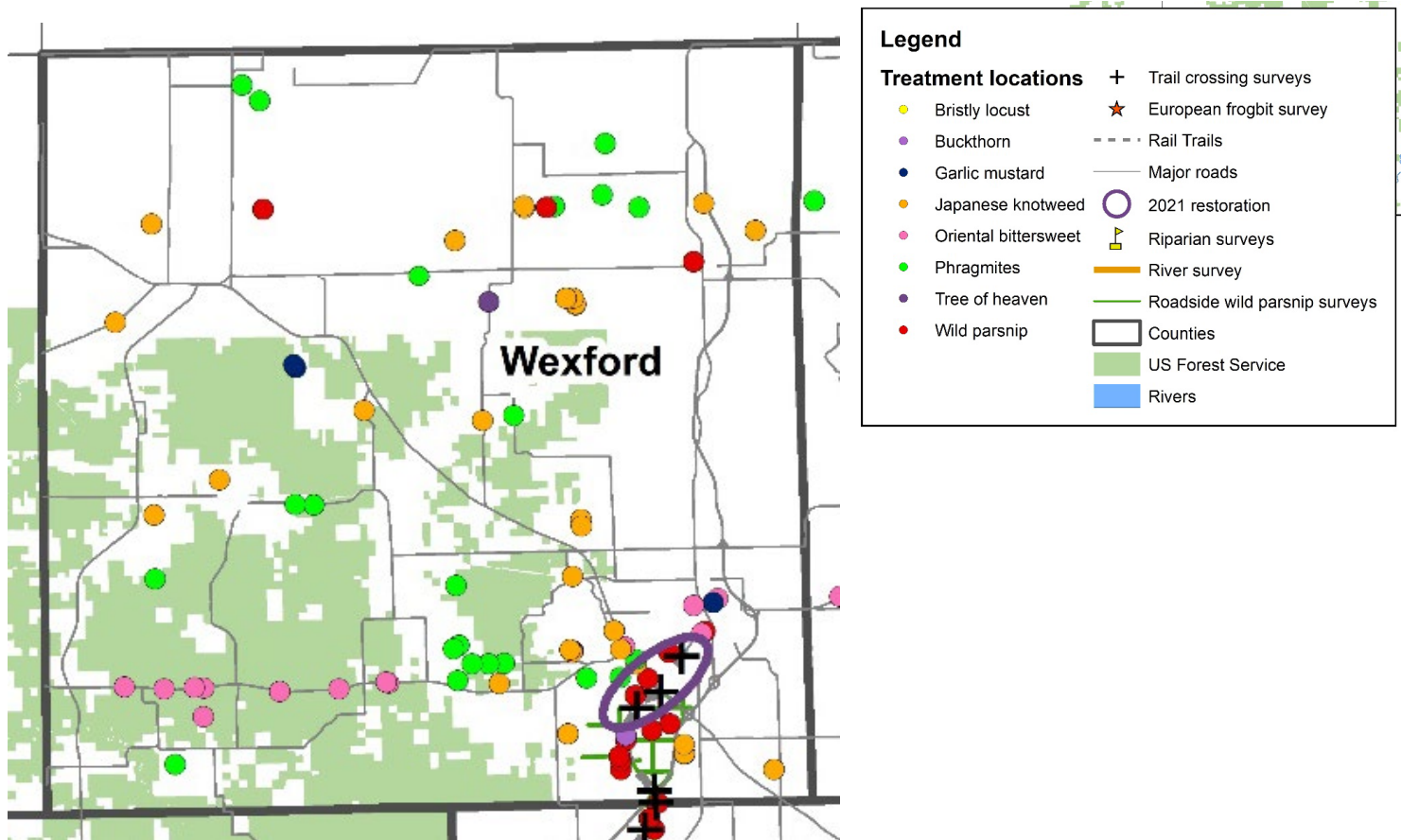
Source: MISIN Species Observations

Figure 18: Reported Oak Wilt Cases



Source: Michigan Department of Natural Resources, Look For Oak Wilt

Additionally, the North Country Cooperative Invasive Species Management Area (NC-CISMA) covers the six counties of Lake, Mason, Mecosta, Missaukee, Osceola, and Wexford. NCCISMA and its partners are committed to managing invasive species in northern Michigan through education, prevention, control, and restoration. The images below are excerpts from NC-CISMA’s 2021 Annual Report, indicating invasive species treatment locations, surveying and restoration work in Wexford County.



Extent

Invasive species impact on the county can be measured by its damaging effects. TIS cause billions of dollars in damage annually, are extremely costly to control, and often have irreversible ecological effects. Native habitats, agriculture lands and livestock, and the outdoor recreation economy are threatened or damaged by invasive species. *Michigan’s Terrestrial Invasive Species State Management Plan* lists these state impacts:

- The State of Michigan estimates 42% of threatened or endangered species are considered at risk due to non-native species.
- Visitors spent over \$22 billion dollars in Michigan in 2014, supporting nearly 327,000 jobs (Tourism Economics 2014). Invasive species impact the use and beauty of Michigan’s shorelines, trails and parks, which may result in a reduction in visitor spending and citizen enjoyment
- Michigan’s Forest Products Industry supports 96,000 jobs and contributes more than \$20 billion to the state’s economy each year (Michigan DNR 2015). Invasive forest pests including emerald ash borer, oak wilt and beech bark disease kill trees and significantly impact the value of urban properties, forests and timber resources. The estimated cost of treating or removing dead ash within developed land in Michigan’s communities due to emerald ash borer was \$230 million in 2009¹⁰. A map of oak wilt cases in Wexford County is shown as Figure 18.

¹⁰ Kovacs, K.F., R.G. Haight, D.G. McCullough, R.J. Mercader, N.W. Siegert and A.M. Liebhold. 2010. Cost of potential emerald ash borer damage in U.S. communities, 2009–2019. *Ecological Economics* 69: 569-578.

Previous Occurrences

The Department of Environment, Great Lakes, and Energy oversees invasive species programs for the State. The State has produced prohibited and restricted species lists, watch lists, and state management plans for terrestrial and aquatic species. Many of the species listed in this plan are also listed as a prohibited or restricted species: it is unlawful to possess, introduce, import, sell, or offer that species for sale as a live organism, except under certain circumstances. A full list of prohibited and restricted species can be found at [Michigan.gov/invasives](https://www.michigan.gov/invasives).

The NC-CISMA and Wexford Conservation District are focused on habitat-specific management: planning to manage for the resource (the natural area), and restoration therefore will remove and control anything that is not supposed to be there. Additionally, maintaining awareness and proactively preparing for the spread of invasive species from southern geographies is an ongoing task.

Since 2006, the City of Cadillac has administered a milfoil management program on Lake Cadillac. In 2010, voters approved a three-year citywide millage to fund the program, which is designed to help improve recreational use in the lake while preserving the fragile balance that is required to keep the lake healthy. Lake Improvement Boards in the county, which are provided direction from the County Drain Commissioner, are charged with managing the water quality of highly used and valued inland lakes in Wexford County. The Lake Mitchell Improvement Board's proposed 2022-2023 budget for invasive species management (PLM Lake Management, Restorative Lake Science, and weed pickup & processing) is \$81,000. Eurasian milfoil treatment and management remains an ongoing issue for these lakes.

The following terrestrial species are causing significant harm:

- Japanese Knotweed, Giant knotweed and Bohemian knotweed, *Polygonaceae*, can be a concern to homeowners, and municipalities because of these plants' ability to grow into a structure's foundation, through sidewalks and road surfaces. These plants can also be spread by root fragments and stem sections. It can create monocultures that shade out desirable vegetation, creating poor habitats for native species. This is of particular concern along water bodies and has been shown to be extremely detrimental to waterways in the Eastern US.
- (Invasive) Phragmites is a large-scale clonal grass that rapidly colonizes wetlands. Phragmites crowds out native plants and alters habitat for native fauna. In doing so, Phragmites also alters human access to water resources and has adverse economic effects, including decreasing property value, inhibiting recreational use, and limiting populations of game species. It can become a fire hazard when it dries down
- Cypress Spurge is an erect, herbaceous to semi-woody perennial with bright yellow-green flowers that turn to purple-red as they mature. Cypress Spurge is toxic to horses and cows.
- Black Swallow Wort is a rapidly growing, herbaceous perennial in the Milkweed family. However, Black Swallow Wort is toxic to animals and the monarch butterfly.
- Oriental Bittersweet is a vine plant that can strangle a tree and causes tree mortality. This impacts ecosystem health and economic health that is associated with trees' health.
- Autumn olive is very widespread in Michigan. It is spread by birds and is recolonizing old farm fields. Its value to wildlife is relatively low (low in protein and other nutrients compared to our natives). It also is known for its nitrogen-fixing abilities.
- Oak wilt is an infectious vascular disease which affects all species of oak. Red oaks get the disease more frequently and succumb more readily than white oak. The disease is spread via root grafts and by sap-feeding beetles.
- Beech bark disease is caused by the combination of the *Neonectria* fungus and beech scale. Beech scales are yellow, soft-bodied insects that are 0.5 to 1.0 mm long as adults. The insects, found on the tree trunk and branches, feed on sap in the inner bark. The minute wounds caused by the scale insects eventually enable the Nectria fungus to enter the tree. The Nectria kills areas of woody tissue.

The following aquatic species are causing significant harm:

- Didymo or "rock snot" is an aquatic diatom that is brown, tan, or yellow in color. Unlike most algae, it feels like wet cotton and is not slimy. Grows in rivers, streams, and lakes. It occurs particularly in cool, oligotrophic, clear water
- Purple loosestrife is an herbaceous wetland perennial reaching 5 feet with reddish-purple flowers with five to seven petals are held in dense terminal cluster. Grows in moist soils, in wet meadows and prairies, shallow marsh, ditches, waste areas, and along lakes, ponds, streams, and rivers.
- Garlic mustard is an aquatic, herbaceous biennial, up to 4 feet in height. Forms round basal rosette the first year, flowers the second year and dies. Grows in forests, particularly floodplain forest, open wetlands, parking lots, campgrounds, paths, and roadsides.
- Eurasian watermilfoil is a submergent, aquatic perennial that reached 3-10 feet or more in length. Grows in ponds, lakes, and low-energy zones in rivers and streams.

- New Zealand mudsnail is an aquatic mollusk with an elongated shell 1/8 inch long with 7-8 whorls. Shell color varies from gray and dark brown to light brown. Grows in flowing freshwater with silt/sand to very brackish rivers; lives in water as deep as 60 feet in lakes or reservoirs.
- Red swamp crayfish is an aquatic crustacean with a dark red body and claws with spiky, bright red bumps, and black wedge-shaped stripe on underside. Grows in flowing to non-flowing freshwater or salt water; permanent ponds; areas of streams and ditches with organic debris; agricultural areas; wetlands.
- Zebra mussel is an aquatic mollusk with striped shells or dark or light shells with no stripes. Attach to objects (pipe, boats, etc) causing major damage as colonies can block pipes, affecting power plants and water-treatment facilities.

Many of the species listed here are monitored and managed by NC CISMA. However, the list of invasive species impacting the county is extensive and many established species are treated on a case-by-case basis. Other species of concern include:

- Honeysuckle (non-native)
- Glossy buckthorn
- Common buckthorn
- Wild parsnip
- Multiflora rose
- Periwinkle

Probability of Future Events and Vulnerability Assessment

The State TIS Management Plan provides a list of eleven terrestrial species on the watch list. The invasive species included on the watch list are priority species that have been identified as posing an immediate and significant threat to Michigan's natural resources. These species have either not been confirmed in Michigan, have very limited distribution or are localized. Early detection and timely reporting of occurrences of these species is crucial for increasing the likelihood of stopping an invasion and limiting negative ecological and economic impacts. This list is reviewed and updated periodically, and the most current list is available at www.michigan.gov/invasives.

Common Name Scientific Name Category

1. Asian longhorned beetle *Anoplophora glabripenni* Insect
2. Asiatic sand sedge *Carex kobomugi* Plant
3. Balsam woolly adelgid *Adelges piceae* Insect
4. Chinese yam* *Dioscorea oppositifolia* Plant
5. Hemlock woolly adelgid* *Adelges tsugae* Insect
6. Himalayan balsam* *Impatiens glandulifera* Plant
7. Japanese stiltgrass* *Microstegium vimineum* Plant
8. Kudzu* *Pueraria montana* Plant
9. Mile-a-minute weed *Persicaria perfoliata* Plant
10. Nutria *Myocastor coypus* Mammal
11. Thousand Cankers Disease *Geosmithia morbida Pityophthorus juglandis* Tree Disease

The [Michigan Watch List: Aquatic Invasive Plants](#) and CAKE CISMA are also monitoring for additional species:

- Spotted lantern fly which impacts fruit and winery production. Winery and fruit production issues can impact agri-tourism.
- Hydrilla is an aquatic, perennial plant that forms dense mats in slow-moving water of lakes, ponds, stream, and rivers.
- European frog-bit is an aquatic, floating, herbaceous annual that forms large colonies, creating dense mats. Grows in open, still waters.
- Parrot feather water-milfoil is an aquatic, herbaceous perennial that can grow 6.5-16.5 feet in length and forms monotypic stands. Grows in lakes, ponds, slow streams, and mudflats, where the emergent form is found.
- Starry stonewort is an aquatic microalga which forms dense mats that cover lake bottoms. Grows in still or slow moving waters.
- Asian Carp (bighead, black, grass, and silver carp) are in direct competition with native aquatic species for food and habitat. Their rapid population increase is disrupting the ecology and food web of the large rivers of the Midwest.
- Beech leaf disease causes dark stripes or banding between leaf veins. A nematode (microscopic worm) is associated with symptoms. Ongoing research is investigating the possibility of other contributing microorganisms.

The North Country Cooperative Invasive Species Management Area (NCCISMA) and other partners protect, enhance, and promote Northwest Michigan's natural resources through invasive plant management, education, and outreach. Additionally, MSU Extension serves as an educational resource for agricultural pest and disease prevention and treatment, and Wexford Conservation District employs a Forester that can educate citizens about forest disease and pest prevention and treatment. Wexford County's natural resources are highly vulnerable to invasive animals, plants, and diseases. Significant natural features include forested areas such as the Pere Marquette State Forest and the Manistee National Forest, and water bodies such as Lake Cadillac, Lake Mitchell, the Manistee River and Pine River. The impact of the species listed on watch lists could be catastrophic for Wexford County's natural resources, agriculture, recreation, tourism, and economy.

Impacts from Climate Change

Climate describes the average weather conditions for a particular location and over a long period of time. The changing climate impacts society and ecosystems in a broad variety of ways. For example, climate change can alter rainfall, influence crop yields, affect human health, cause changes to forests and other ecosystems, and even impact our energy supply. Climate-related impacts are occurring across the country by increasing the severity of storms and weather-related events. Natural disasters then have a direct impact on our economy.

According to a new comprehensive report from the World Meteorological Organization (WMO), “A disaster related to a weather, climate or water hazard occurred every day on average over the past 50 years – killing 115 people and causing \$202 million (US \$) in losses daily. The number of disasters has increased by a factor of five over the 50-year period, driven by climate change, more extreme weather and improved reporting. But, thanks to improved early warnings and disaster management, the number of deaths decreased almost three-fold¹¹” (World Meteorological Organization, 2021).

The impacts of climate change already are, and continue to be, deep and widespread in the Great Lakes Region and Michigan as a whole. The National Climate Assessment (NCA) assesses the science of climate change and variability and its impacts across the United States, now and throughout this century. Chapter 21 of the NCA *Fourth National Climate Assessment Volume II: Impacts Risks, and Adaptation in the United States* reports, the Great Lakes influence regional weather and climate conditions and impact climate variability and change across the region. The lakes influence daily weather by:

- 1) Moderating maximum and minimum temperatures of the region in all seasons,
- 2) Increasing cloud cover and precipitation over and just downwind of the lakes during winter, and
- 3) Decreasing summertime convective clouds and rainfall over the lakes.

The Great Lakes Integrated Sciences and Assessments (GLISA) is one of 11 NOAA Regional Integrated Sciences and Assessments teams that focus on helping the nation prepare for and adapt to climate variability and change. A summary of findings from NCA and the GLISA report, *Climate Change in the Great Lakes Region*¹², are provided to show the impacts of climate change throughout the state of Michigan.

Temperature

Warm-season temperatures are projected to increase more in the Midwest than any other region of the United States.¹³ Since 1951, annual average air temperatures have increased by 2.3°F (1.3°C) in the U.S., Great Lakes region. By mid-century (2050), average air temperatures are projected to increase by 3°F to 6°F (1.7°C to 3.3°C). By end of century (2100), average air temperatures are projected to increase by 6°F to 11°F (3.3°C to 6.1°C).

The frost-free season is projected to increase 10 days by early this century (2016–2045), 20 days by mid-century (2036–2065), and possibly a month by late century (2070–2099) compared to the period 1976–2005 according to the higher scenario (RCP8.5).¹⁴

Precipitation

Since 1951, total annual precipitation has increased by 14% in the U.S., Great Lakes Region. Future projections suggest more precipitation on average, but not necessarily during all seasons (summer to be drier) and not for all locations depending on which model is used. Reduced lake ice cover and enhanced evaporation may lead to increased lake-effect snowfall in the near-term, but rising temperatures will cause more winter precipitation to fall as rain as opposed to snow across the region by late century.

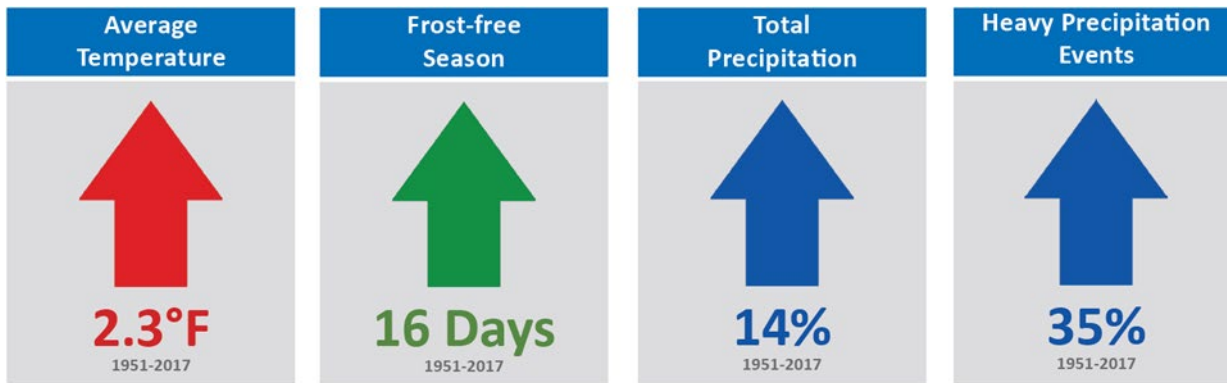
From 1951-2017, the United States, Great Lakes Region, overall, has seen increases in average temperature, frost-free season, total precipitation, and heavy precipitation events.

¹¹ World Meteorological Organization. (2021, August 31). Retrieved from Weather-related disasters increase over past 50 years, causing more damage but fewer deaths: <https://public.wmo.int/en/media/press-release/weather-related-disasters-increase-over-past-50-years-causing-more-damage-fewer>

¹² (2/4/2019). Retrieved from Climate Change in the Great Lakes Region: <https://glisa.umich.edu/wp-content/uploads/2021/04/GLISA-2-Page.pdf>

¹³ Vose, R. S., D. R. Easterling, K. E. Kunkel, A. N. LeGrande, and M. F. Wehner, 2017: Temperature Changes in the United States. *Climate Science Special Report: Fourth National Climate Assessment, Volume I*. Wuebbles, D. J., D. W. Fahey, K. A. Hibbard, D. J. Dokken, B. C. Stewart, and T. K. Maycock, Eds., U.S. Global Change Research Program, Washington, DC, USA, 185–206. doi:10.7930/JON29V45.

¹⁴ Hibbard, K. A., F. M. Hoffman, D. Huntzinger, and T. O. West, 2017: Changes in Land Cover and Terrestrial Biogeochemistry. *Climate Science Special Report: Fourth National Climate Assessment, Volume I*. Wuebbles, D. J., D. W. Fahey, K. A. Hibbard, D. J. Dokken, B. C. Stewart, and T. K. Maycock, Eds., U.S. Global Change Research Program, Washington, DC, USA, 277–302. doi:10.7930/J0416V6X.



Snow, Ice Cover and Lake Temperature

Summer lake surface temperatures have been increasing faster than the surrounding air temperatures, with Lake Superior increasing by 4.5°F between 1979 and 2006. Annual average ice cover on the Great Lakes shifted from higher amounts prior to the 1990s to lower amounts in recent decades. There remains strong year-to-year variability, and high ice years are still possible. Lake-effect snowfall has increased in northern areas and may continue to increase through mid-century.

Extreme Weather

The frequency and intensity of severe storms has increased. This trend will likely continue as the effects of climate change become more pronounced. The amount of precipitation falling in the heaviest 1% of storms increased by 35% in the U.S. Great Lakes region from 1951 through 2017. More severe storms may have a negative economic impact due to resulting damages and increased costs of preparation, clean up, and business disruption.

The NCA *Fourth National Climate Assessment Volume II: Impacts Risks, and Adaptation in the United States* reports, “Climate change is transforming where and how we live and presents growing challenges to human health and quality of life, the economy, and the natural systems that support us. Risks posed by climate variability and change vary by region and sector and by the vulnerability of people experiencing impacts. Social, economic, and geographic factors shape the exposure of people and communities to climate-related impacts and their capacity to respond. Risks are often highest for those that are already vulnerable, including low-income communities, some communities of color, children, and the elderly” ([Ch. 14: Human Health, KM 2](#); [Ch. 15: Tribes, KM 1–3](#); [Ch. 28: Adaptation, Introduction](#)).

A vulnerability assessment can be found in the two-page report: *Climate Change in the Great Lakes Region* by GLISA. The report identifies key challenges from climate change such as:

- **Public Health**
 - Increased risk of heat waves and increased humidity may amplify the number of heat-related deaths and illnesses.
 - More storm activity and flooding, resulting in increased point- and non-point source pollution, will likely increase watershed contamination and water-borne illnesses, while warmer surface waters amplify the risk of toxic algal blooms and fish contamination.
- **Tourism and Recreation**
 - *Winter recreation/tourism are likely to suffer* due to reduced snow cover and shorter winters. Reduced lake ice cover and enhanced evaporation may lead to increased lake-effect snowfall in the near-term, but rising temperatures will cause more winter precipitation to fall as rain as opposed to snow across the region by late century.
 - Increasing temperatures and a longer summer season may *increase the demand for lake and beach use*.
 - Overall, *summer tourism may grow before temperature rise becomes unfavorable* for outdoor recreation.
 - *The fishing industry* (commercial and recreation) is likely to be impacted by the *decline of coldwater species of fish, such as lake trout and whitefish*.
- **Natural Environment**
 - Despite increasing precipitation, land surfaces in the region are expected to become drier overall due to increasing temperatures and evaporation rates.
 - More frequent summer droughts could affect soil moisture, surface water, and groundwater supply.
 - Increased evaporation rates and sustained levels of high or low water levels may change wetland areas in the region.
 - The rate of warming may *outpace the rate at which ecosystems are able to migrate and adapt*.

- *Wildlife populations better adapted to cold temperatures will continue to decline* as competing species migrate into the region with rising air and surface water temperatures.
- *Forest productivity will likely increase in the short term*, until other impacts of climate change such as increased drought, fire and invasive species present additional stressors to forests.

V. Goals and Objectives

The mission of the Wexford County Natural Hazards Mitigation Plan is to protect the health and safety of the public and property in the County which includes prevention of injury, loss of life, property damage, breakdown in vital services like transportation and infrastructure, economic slumps, maintain tourist base, and liability issues. This is done by taking action to permanently eliminate or reduce the long-term risks from natural hazards.

Specific goals and objectives have been established based upon the community's natural hazards analysis, as well as input from the Task Force participants and the public through meetings, request for comments on the draft plan, and the presentation of the plan to local governments and the Local Emergency Planning Team.

Goal 1: Increase local awareness and participation in natural hazards mitigation strategies

- Encourage cooperation and communication between planning and emergency management officials
- Encourage additional local governmental agencies to participate in the natural hazards mitigation process
 - Include Memorandum of Understanding (MOUs) between local government and county agencies
- Encourage public and private organizations to participate, *including organizations who advocate for individuals with functional or access needs (vulnerable populations)*

Goal 2: Integrate natural hazards mitigation considerations into the community's comprehensive planning process

- Enforce and/or incorporate natural hazards mitigation provisions in building code standards, ordinances, and procedures
- Create or update ordinances to reflect building codes, shoreline protection rules, etc.
- Incorporate natural hazards mitigation into basic land use regulation mechanisms
- Develop community education programs and public warning systems
- Strengthen the role of the Local Emergency Planning Committee in the land development process
- Integrate natural hazards mitigation into the capital improvement planning process so that public infrastructure does not lead to development in natural hazards areas
- Encourage county agencies to assess local roads, bridges, dams, and related transportation infrastructure for natural hazards vulnerability

Goal 3: Utilize available resources and apply for additional funding for natural hazards mitigation

- Provide a list of desired community mitigation measures to the State for possible future funding
- Encourage the application for project funding from diverse entities

Goal 4: Develop and complete natural hazards mitigation projects in a timely manner

- Encourage public and business involvement in natural hazards mitigation projects

VI. Mitigation Strategies and Priorities

Types of Mitigation Strategies

The mitigation planning regulations requires that each participating jurisdiction identify and analyze a comprehensive range of specific mitigation actions and projects to reduce the impacts of the hazards identified in the risk assessment. The emphasis is on the impacts or vulnerabilities identified in the risk assessment, not on the hazards themselves. The types of mitigation actions can be classified into the following types:

- Local Plans and Regulations
- Building and Infrastructure Projects
- Natural Systems Protection
- Education and Awareness Programs

Furthermore, a set of evaluation criteria was developed to determine which mitigation strategies were best suited to address the identified problems in Wexford County.

- The measure must be technically feasible.
- The measure must be financially feasible.
- The measure must be environmentally sound and not cause any permanent, significant environmental concerns.
- The measure must be acceptable to those participating in the strategy and/or primarily affected by the strategy.

By anticipating future problems, the County can reduce potential injury, structure losses, loss of utility services such as electric and internet connectivity, and prevent wasteful public and private expenditures. The County Infrastructure, Vulnerability, and Hazard Maps in Appendix A can assist with the determining future problem areas.

Emergency Warning System Coverage

Integrated Public Alert & Warning System (IPAWS): FEMA's national system for local alerting that provides authenticated emergency and life-saving information to the public through mobile phones using Wireless Emergency Alerts, to radio and television via the Emergency Alert System, and on the National Oceanic and Atmospheric Administration's Weather Radio.

Mobile warning system: Wexford County uses the CodeRED Emergency Communications Network, which is an electronic high-speed outbound notification service available to the general public. The system notifies a participant via their mobile or land-line phone. The National Weather Service may concurrently utilize their mobile warning notification system when deemed necessary in severe weather event situations to send phone notifications to all users within signal of a cellular tower.

Radio warning system: Wexford County uses radio channels 580 AM and 103.5 FM for emergency weather alerts. Additionally, NOAA Weather Radio All Hazards is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service office. NWR broadcasts official Weather Service warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week.

Tornado/Severe Weather Systems: The IPAWs and Code Red notification systems are primarily used to notify the public in the event of a potential or current severe weather event. The City of Cadillac also operates a tornado siren.

Flood warning system: For dam failures/flooding downstream an active warning system is pre-determined utilizing geographic boundary information and the CodeRED Emergency Communications Network and IPAWS alerts.

- The Federal Energy Regulatory Commission requires hydroelectric facilities to be able to quickly notify residents and visitors of any developing emergency at the plants. As westerly adjoining communities in Manistee County are located downriver of the Hodenpyl Dam, sirens are located in Manistee County near: the Tippy Dam (downstream of the Hodenpyl Dam in Manistee County), the High Bridge U.S. Forest Service boat launch, the Hodenpyl Dam, and the Red Bridge U.S. Forest Service boat launch. In an emergency, the sirens would only be used if the threat of a dam failure is imminent at one of the facilities. At that time, anyone on or near the river should evacuate at once to high ground. Additional information would be provided on local radio and television stations. The siren systems are tested each August and December.

Wexford County Emergency Management Department maintains agreements with following facilities in the county so that they may be utilized as public shelters in the event of an emergency (Table 31).

Table 31. Emergency Shelter Sites in Wexford County

Emergency Shelter Site Name	Street Address	City	ZIP	Generator?	Overnight Accommodations?
Boon Township Fire	204 Myrtle ST	Boon	49618	No	No
Buckley Fire	106 S Industrial DR	Buckley	49620	No	No
Cadillac Fire Department	200 N Lake ST	Cadillac	49601	No	No
Haring Township Fire	505 Bell AVE	Cadillac	49601	No	No
Selma Township Fire	4299 S 35 RD	Cadillac	49601	No	No
Cherry Grove Township Fire	4830 E M-55 HWY	Cadillac	49601	No	No
YMCA	9845 Campus DR	Cadillac	49601	Yes	Yes
Cadillac Senior Center	601 Chestnut ST	Cadillac	49601	Yes	No
The Wexford Civic Center “The Wex”	1320 N Mitchell ST	Cadillac	49601	Yes	Yes
USFS - Huron-Manistee National Forest Headquarters	1755 S Mitchell ST	Cadillac	49601	No	No
Slagle-Harrietta Fire	108 W Gatson AVE	Harrietta	49638	No	No
Cedar Creek Fire	2530 N 41 1/2 RD	Manton	49663	No	No
City of Manton Fire	402 N Michigan AVE	Manton	49663	No	No
Colfax-Greenwood Fire	4950 N 31 RD	Manton	49663	No	No
Manton Senior Center	302 W Main St	Manton	49663	Yes	No
Springville Township Fire	4785 N M-37 HWY	Mesick	49668	No	No
South Branch Fire	10510 E M-55 HWY	Wellston	49689	No	No

Mitigation Strategies

Strategies were developed based on discussions with local officials and a review of FEMA best practices for hazard mitigation. The strategies table is grouped according to purpose. Purpose types include: Awareness & Preparation, Shelters, Building & Development, Utilities & Technology, and Environment & Natural Resources. The table also includes: a description of each strategy; what natural hazards they address; where the strategy applies; who is responsible for implementing the strategy; how the strategy will be implemented (what resources are available to apply the strategy); when the strategy could feasibly begin; the level of priority; and what type of strategy it is. Strategies are intended to be action items completed during the 5-year timeframe in which the plan is active. Some long-term strategies extend beyond the 5-year timeframe due to feasibility or level of difficulty. Appendix C provides a review of mitigation strategies included in the 2016 plan and their current status.

Funding the Implementation of the Strategies

To assist with the funding of the proposed natural hazards mitigation strategies, a list of potential financial assistance entities and programs to help fund the implementation projects of the Plan is provided. Other general informational resources are also provided to assist with education and outreach efforts. Each potential entity, program, and resource is assigned a letter code, and the appropriate letter(s) is listed on under the Resources column of the strategies table. The resources table for how the strategies may be implemented is included following the Mitigation Strategies table below.

See the strategies table included as a separate document

VII. Implementation

Hazard mitigation is any action taken before, during, or after a disaster to permanently eliminate or reduce the long-term risk to human life and property from natural and technological hazards. Mitigation is an essential element of emergency management, along with preparedness, response, and recovery. Emergency management includes four phases: actions to mitigate a disaster, a community prepares for a disaster; responds when it occurs; and then there is a transition into the recovery process. The process is cyclical and mitigation measures are evaluated and adopted constantly. The evaluation improves the preparedness posture of the County for the next incident, and so on. When successful, mitigation will lessen the impacts of natural hazards to such a degree that succeeding incidents will remain incidents and not become disasters.

Plan Review, Monitoring, and Evaluation

This Plan is intended to be a resource for building coordination and cooperation within a community for local control of future mitigation and community preparedness. The County Board will lead the implementation of the Natural Hazards Mitigation Plan with assistance from the Emergency Management Coordinator and the Administration. The LPT is an inter-agency partnership and will collaborate to accomplish the goals and objectives of the Plan. The LPT meets on a regular basis to carry out its duties and has expanded its role to function as the Natural Hazards Task Force. The Natural Hazards Task Force will be responsible for monitoring and implementing the mitigation plan. Staff support will be provided by the Wexford County Emergency Management Office and will coordinate with the County Board of Commissioners.

Natural Hazards Task Force will perform an annual review of the Wexford County Hazard Mitigation Plan and consider the list of mitigation strategies identified in the plan. The Task Force will identify projects that have been completed and identify new projects to be completed. The following agencies have been encouraged to actively participate in revising, updating, and maintaining the plan.

- Wexford County Government Staff
- Township, city and village governments
- Wexford Conservation District
- Wexford County Drain Commissioner
- Wexford County Road Commission
- District Health Department #10
- North Country Cooperative Invasive Species Management Area
- Cadillac Area Land Conservancy
- Networks Northwest
- Michigan State University Extension
- Michigan Department of Environment, Great Lakes, and Energy
- Michigan Department of Natural Resources
- Federal Emergency Management Agency
- U.S. Forest Service
- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- U.S. Department of Agriculture Natural Resources Conservation Service
- Insurance Companies
- Real Estate Companies

In addition, the local communities have indicated to the county emergency manager that they will follow the county's lead in identifying mitigation projects and developing grant applications to fund those projects. Land use issues associated with those projects will be handled by each jurisdiction that have an adopted Master Plan and regulate zoning in the project area. Community planning services are provided by the professional staff of each municipality within the county that provide planning and zoning. The respective planners assist communities in developing plans and zoning ordinances, provides resource information and technical assistance, and convenes communities to address land use issues of common interest.

The Wexford County Building Department issues construction code permits (building, electrical, mechanical, and plumbing permits) for all areas of Wexford County except for Cedar Creek Township, the City of Cadillac, and the City of Manton; those communities issue their own building permits. Additionally, the County Building Department administers and enforces the Soil Erosion and Sedimentation Control program for Wexford County, pursuant to Part 91 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Except for the City of Cadillac).

Plan Integration

Wexford County, all townships, cities, and villages in Wexford County, as well as local and state agencies will consider integrating information from the hazard mitigation plan into their comprehensive and operations plans. The Wexford Joint Municipal Planning Commission is in the process of updating their Master Plan in 2023.

All natural hazards mitigation planning could be pursued using Michigan Public Act 226 of 2003, the Joint Municipal Planning Act. This Act provides for joint land use planning by cities, villages, and townships, and allows two or more municipalities' legislative bodies to create a single joint planning commission to address planning issues. This tool helps with planning for the "big picture" issues such as natural hazards that cross jurisdictional boundaries.

The intent of this legislation is for local governments to consider the following:

- Individual units of government modifying their ordinances simultaneously to include language that would incorporate aspects of protection
- Developing an overlay zoning district that would cross jurisdictional boundaries which would be incorporated into existing independent units of government's zoning ordinances
- Forming a new joint (multi-jurisdictional) planning commission or zoning board
- Sharing zoning administration and enforcement activities

The Wexford Joint Planning Commission was created to provide planning and zoning to the following ten participating municipalities: Antioch Township, Boon Township, Cherry Grove Township, Greenwood Township, Hanover Township, Liberty Township, Selma Township, Slagle Township, South Branch Township, Springville Township, and Wexford Township.

The following communities provide planning and zoning services for their respective communities: the City of Cadillac, Village of Buckley, Village of Harrietta, Village of Mesick, Cedar Creek Township, Clam Lake Township, and Haring Charter Township.

There is no zoning in Colfax, Greenwood, or Henderson Townships. Wexford County does not administer planning and zoning services for local governments, nor does it have a County Planning Commission.

As part of the education and outreach aspect of the hazard mitigation effort, communities with planning and zoning in the county will be encouraged to adopt zoning regulations that minimize the effect of natural hazards.

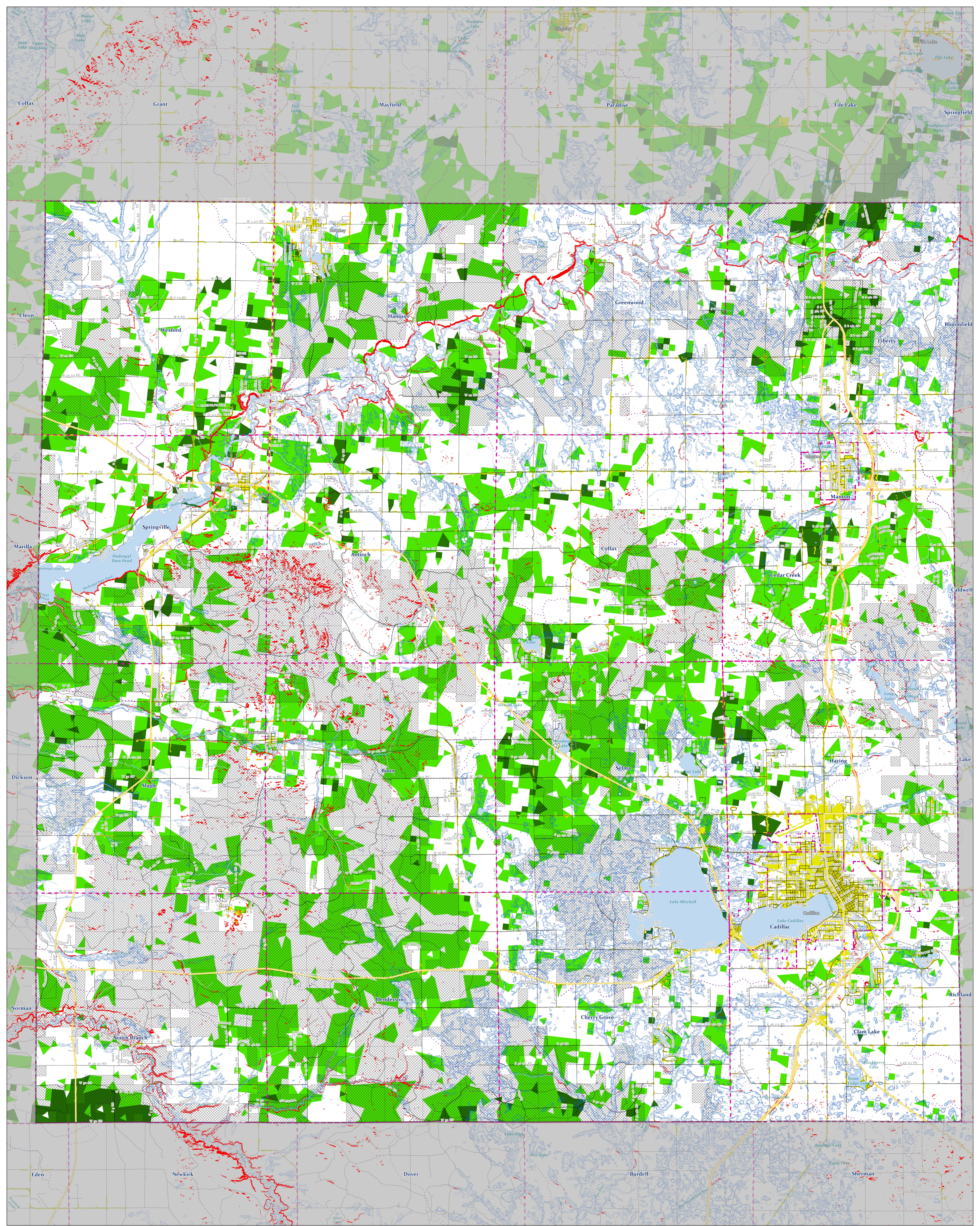
Five Year Plan Review and Update

The Stafford Act, as amended by the Disaster Mitigation Act of 2000, requires the Wexford County Hazard Mitigation Plan to be updated, adopted, and re-submitted for Federal Emergency Management Agency (FEMA) approval every five years. The plan will be reviewed by the Natural Hazards Task Force 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 Wexford County Board of Commissioners can review, approve, and adopt the plan. In order to properly update the plan, Wexford County will need to seek funding from appropriate state and federal agencies.

Continued Public Involvement

Wexford 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, and will be posted on the community websites and/or regional planning agency website. The Emergency Management Office will be responsible for keeping a record of public comments on the plan.

APPENDIX A. Maps

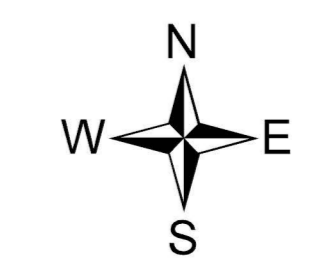


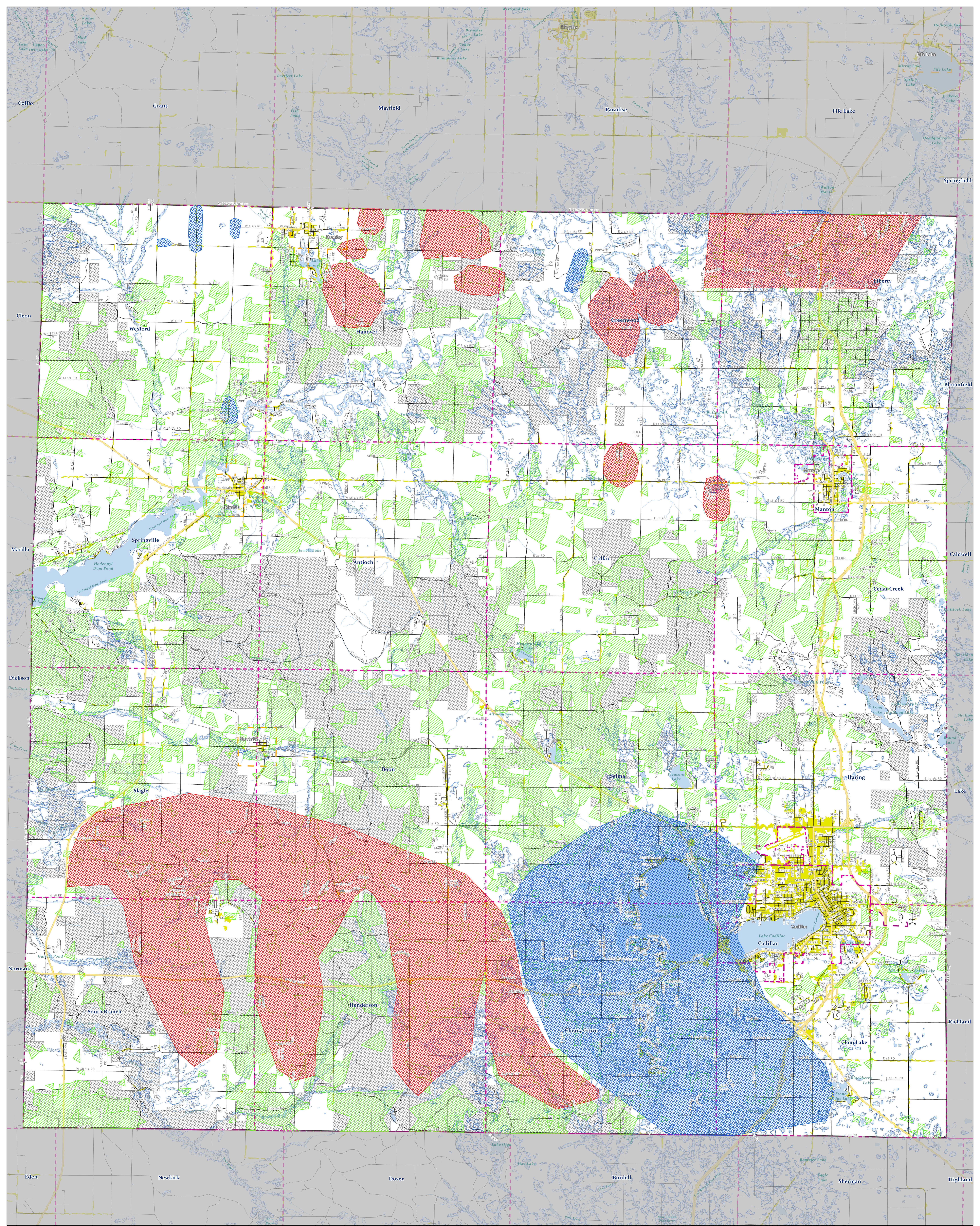
Wexford County Environmental Features

2022 Hazard Mitigation Plan

- | | | | |
|--|---|--|---|
| <ul style="list-style-type: none"> Highways Roads Railroad Rivers/Streams Water Bodies Part 303 Wetlands Watershed Boundary 12 Digit | <ul style="list-style-type: none"> Slope 30% or Greater Developed Land High, Medium & Low Intensity | <ul style="list-style-type: none"> Pine Forest Jack Pine Red Pine; Eastern White Pine Public Lands | <ul style="list-style-type: none"> Villages Cities Township Boundary Wexford County Adjacent Counties |
|--|---|--|---|

Note:
The State of Michigan has not identified High Risk Erosion or Critical Dune locations in Wexford County.
The Federal Government has not mapped Floodplains within Wexford County.



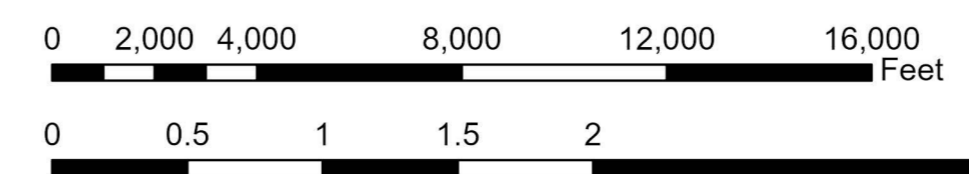


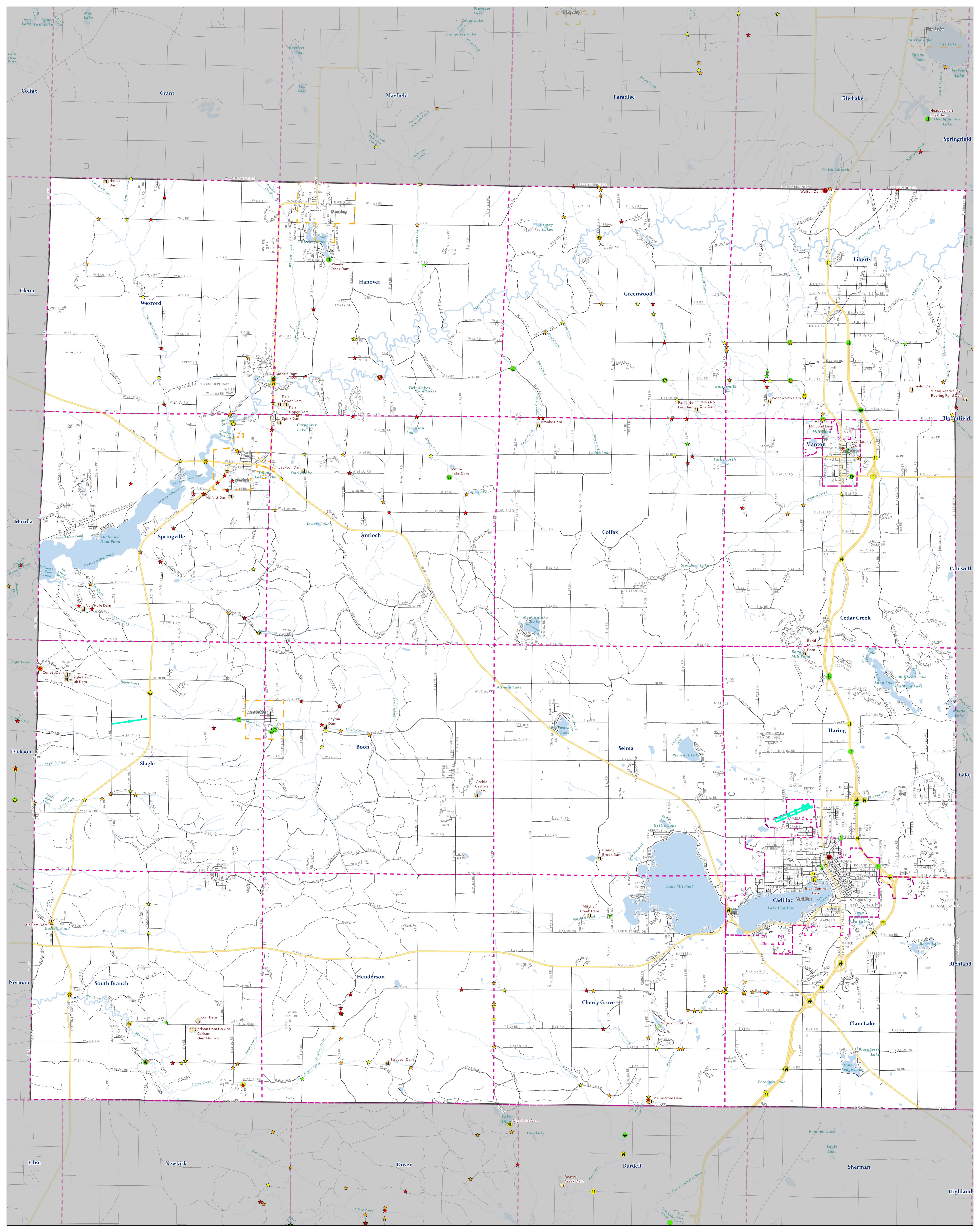
Wexford County Hazard Areas

2022 Hazard Mitigation Plan

Legend

Hazard Areas Type	Fire	Flood	Pine Forest Hazard Area	Developed Land
	Highways	Water Bodies	Public Lands	High, Medium & Low Intensity
	Roads	Part 303 Wetlands	Villages	Township Boundaries
	Railroad	Wexford County	Adjacent Counties	

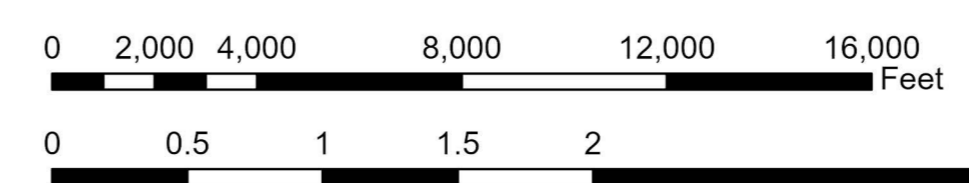




Wexford County Infrastructure

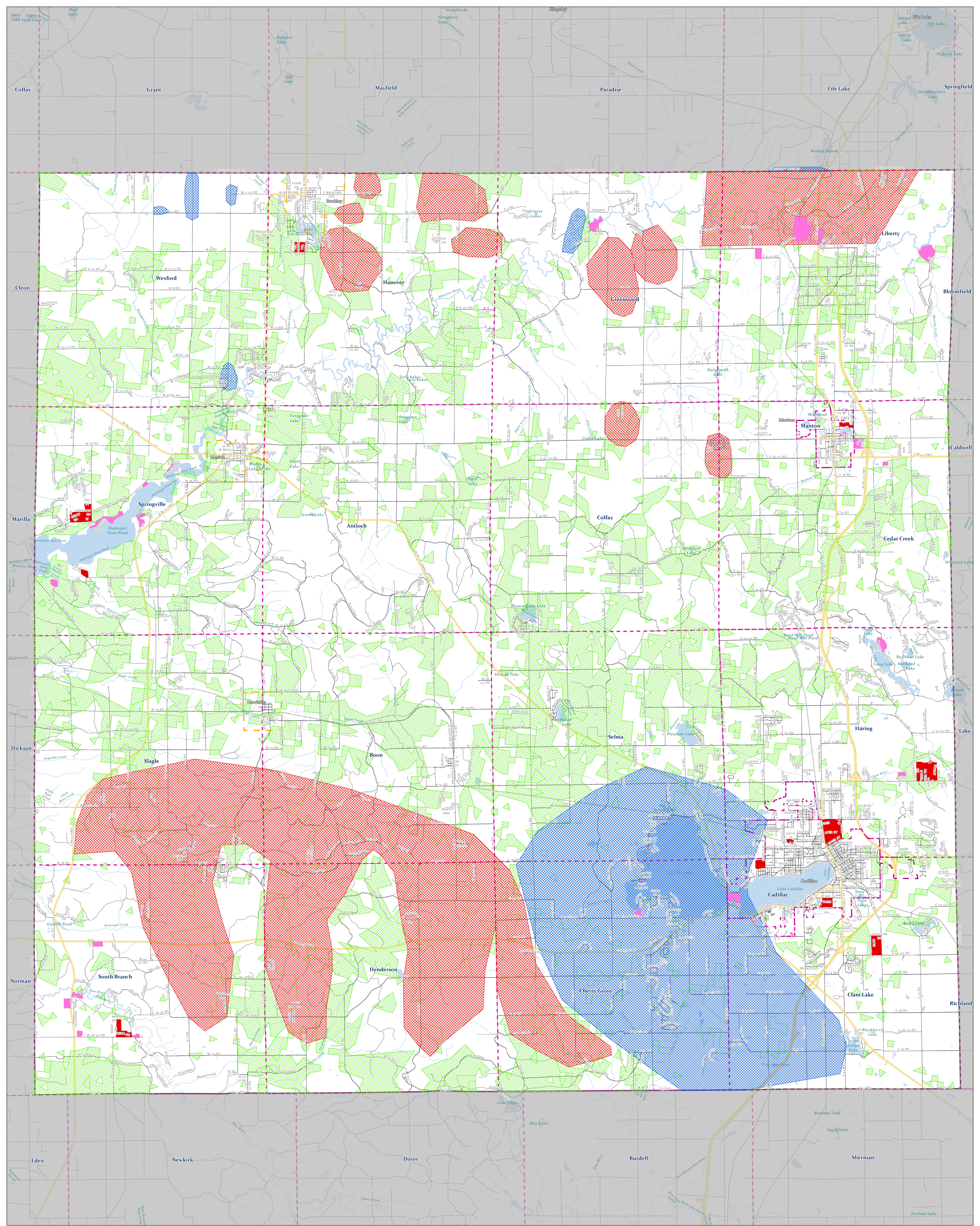
2022 Hazard Mitigation Plan

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|--|--|---|--|---|
| <ul style="list-style-type: none"> Highways Roads Railroad Rivers/Streams Water Bodies | <p>Stream Crossings (CRA)</p> <ul style="list-style-type: none"> Restored Minor Moderate Severe Unknown | <p>Bridge Condition Rating</p> <ul style="list-style-type: none"> Good Fair Poor Serious Critical Closed | <p>Legend</p> <p>MI Dam Inventory Condition</p> <ul style="list-style-type: none"> Satisfactory Fair Poor Unsatisfactory Not Rated | <ul style="list-style-type: none"> Villages Cities Township Boundaries Wexford County Adjacent Counties |
|--|--|---|--|---|



Wexford County Hazard Mitigation Planning Process.
Map produced by Networks Northwest Community Development 2022.
Map data sources: State of Michigan, ESRI, NRCS, USDA, USGS, CRA, MDT

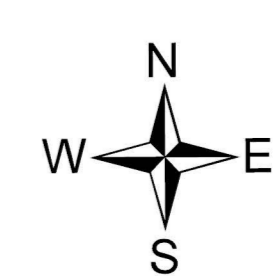
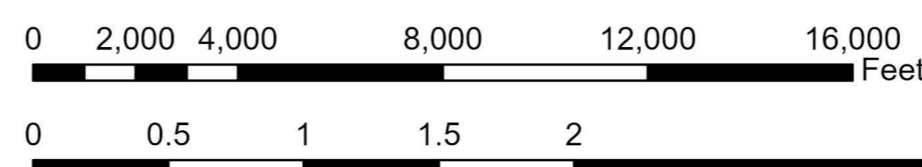




Wexford County Vulnerable Populations & Hazard Areas

2022 Hazard Mitigation Plan

- | | | |
|---|---|--|
| Vulnerable Populations | Hazard Areas | Legend |
| <ul style="list-style-type: none"> Campground Mobile Home | <ul style="list-style-type: none"> Fire Flood Pine Forest | <ul style="list-style-type: none"> Highways Roads Railroad Rivers/Streams Water Bodies Villages Cities Township Boundaries Wexford County Adjacent Counties |



APPENDIX B. Community Survey Results

APPENDIX C. Previous Plan Strategies and Comments

APPENDIX D. Meeting and Plan Input Documentation

STRATEGY TYPES

1	Local Planning & Regulations
2	Building & Infrastructure Projects
3	Natural Systems Protection
4	Education & Awareness Efforts

PRIORITY LEVEL

High
Medium
Low

Goal 1: Increase local awareness and participation in natural hazards mitigation strategies

- a Encourage cooperation and communication between planning and emergency management officials
- b Encourage additional local governmental agencies to participate in the natural hazards mitigation process
- c Include Member of Understanding (MOUs) between local government and county agencies
- d Encourage public and private organizations to participate, including organizations who advocate for individuals with functional or access needs (vulnerable populations)

Goal 2: Integrate natural hazards mitigation considerations into the community's comprehensive planning process

- a Enforce and/or incorporate natural hazards mitigation provisions in building code standards, ordinances, and procedures
- b Create or update ordinances to reflect building codes, shoreline protection rules, etc.
- c Incorporate natural hazards mitigation into basic land use regulation mechanisms
- d Develop community education programs and public warning systems
- e Strengthen the role of the Local Emergency Planning Committee in the land development process
- f Integrate natural hazards mitigation into the capital improvement planning process so that public infrastructure does not lead to development in natural hazards areas
- g Encourage county agencies to assess local roads, bridges, dams, and related transportation infrastructure for natural hazards vulnerability

Goal 3: Utilize available resources and apply for additional funding for natural hazards mitigation

- a Provide a list of desired community mitigation measures to the State for possible future funding
- b Encourage the application for project funding from diverse entities

Goal 4: Develop and complete natural hazards mitigation projects in a timely manner

- a Encourage public and business involvement in natural hazards mitigation projects

WEXFORD COUNTY HAZARD MITIGATION STRATEGIES	HAZARD TYPE							WHERE - Affected Locations or Groups	WHO - Responsible Parties	HOW - Resources	WHEN - Timeframe	PRIORITY TYPE (High, Med, or Low)	STRATEGY TYPE				
	Severe Winter Weather	T-Storm, High Winds, Hail, Tornado, Lightning	Wildfire	Flooding and Erosion	Extreme Temperatures	Drought	Invasive Species						Public Health Emergency	1	2	3	4
1	Continue to proactively inform the public about emergency events and available shelter sites via utilization and promotion of the Code Red mass notification system, NWS weather radios (as a good backup plan) and social media (Facebook).	X	X	X	X	X	X	Countywide; See Appx. for a map indicating locations of campgrounds and modular home/mobile home developments, which are vulnerable to impacts from severe storms, flooding, hail, wind, tornado and lightning.	County EM, NWS		Ongoing		X				X
2	Continue operation of local tornado siren(s) for notification of severe, non-winter storm events.	X						City of Cadillac	City of Cadillac		Ongoing		X				X
3	Continue the preparedness practice of conducting the annual statewide tornado drill.	X						Countywide	County EM		Annual		X				X
4	Continue to promote participation in Storm Spotter Training - preferably in person - via partnership with the NWS.	X						Countywide	County EM		Annual		X				X
5	Continue and strengthen partnerships with local government agencies and non-profits to provide education on individual emergency preparedness.	X	X	X	X	X	X	Countywide	Wexford County government, DHD #10, USFS, MDNR		Ongoing		X				X
6	Promote public awareness of the locations of emergency shelters.	X	X	X	X	X		Countywide	County EM				X				X
7	Ensure that communities have a good snow removal plan and share this with the County Road Commission	X						Villages of Mesick and Buckley (?); Cities of Manton and Cadillac	Villages of Mesick, Buckley; Cities of Manton and Cadillac; RC				X				X
8	Continue to offer Wexford County Council on Aging's reduced cost snow plow program and their "telephone reassurance" call service to check on homebound seniors regularly.	X	X	X	X	X	X	Countywide	Wexford County Council on Aging		Ongoing		X				X
9	Ensure that County residents, particularly vulnerable populations, have access to healthy, affordable food options.					X	X	Countywide					X	X	X	X	X
9a	Create community gardens in urban locations and/or school locations to promote learning about growing local food and native pollinating plants.					X	X	School Districts; Cities of Cadillac and Manton; Villages of Buckley, Mesick and Harrietta	MSU Extension programs, YMCA, local Churches				X	X	X		
9b	Continue to provide and improve food assistance programs and emergency food programs to help communities prepare for unanticipated pandemics, but also increase food accessibility.						X	Countywide			Ongoing		X				X
9c	Food rescue programs, involving public/private partnerships between restaurants, hotels and other venues of large food production, can partner with local food pantries to make good food more widely available.						X	Countywide	NMCAA; local food pantries; School Districts (school meal programs)	State grant funds; Groundwork's 10-cents a meal program			X				X
10	Continue programs and services offered by the District Health Dept. #10 and MDHHS, such as: immunizations; community clinics; school health services; permitting processes for proper location and installation of water wells and septic systems; education about cleaning, monitoring and maintaining septic systems; septic or well repair financial assistance, and the inspection and licensing of food service establishments.			X			X	Countywide	DHD #10; MDHHS		Ongoing		X	X			X
11	Continue to coordinate with the MDHHS for guidance via their State Pandemic Plan and information about new or emerging disease threats.						X	Countywide	DHD #10; MDHHS; County EM; Munson Hospital		Ongoing		X				X
12	Improve communication amongst County Dispatch, Road Commission, law enforcement and EMS about road closures as quickly as possible to improve emergency response arrival time.	X	X	X	X	X	X	Countywide	RC, County EM, MSP, County Sheriff				X				X
13	Evaluate additional designated sites to utilize to temporarily store cleanup debris from downed trees after storm events.	X	X	X				Countywide	Community DPWs, EM, RC				X				
14	Provide outreach to all communities in the County that contain concentrations of people living in floodplain areas to participate in FEMA's Flood Insurance Program, and the benefits of doing so. (The NFIP provides flood insurance to property owners, renters and businesses, and having this coverage helps them recover faster when floodwaters recede. The NFIP also works with communities required to adopt and enforce floodplain management regulations that help mitigate flooding effects. There is no cost for communities to participate.)			X				(City of Cadillac, and the Townships of Cedar Creek, Cherry Grove, Selma and Greenwood.)	Drain Commissioner, EM, MI EGLE				X				X
15	Identify flood-prone areas and areas that have reported repetitive loss damages due to flooding on FIRMs and pursue FEMA hazard mitigation assistance grants related to flood mitigation, such as innovative stormwater management solutions, property acquisition, structure demolition or relocation, dry flood proofing, structure elevation, or project scoping (engineering, environmental, feasibility, and/or benefit-cost analysis)			X				Communities in the Muskegon River watershed (Lake Mitchell/Lake Cadillac/Clam River) and Manistee watershed, and the Pine River watershed; particularly areas with identified "Special Flood Hazard Areas" on FIRMS	Drain Commissioner, EM, MI EGLE	Flood Mitigation Assistance (FMA) Grants can be used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program.; BRIC grants			X	X	X	X	X
16	Continue notification of MDNR/NFS Fire Danger Status online and via Code RED.		X					Countywide	County EM, USFS, MDNR		Ongoing		X				X
17	Install a Fire Danger Level sign along a major road on the north end of Cadillac.		X					City of Cadillac, Haring Township	County EM, MDOT or RC, MDNR, City of Cadillac, Haring Twp.				X				X
18	Maintain proper levels of PPE for local first responders.						X	Countywide; Local fire stations and EMS services.	County EM; local fire/EMS		Ongoing		X				
19	Continue to pursue interdepartmental cooperation and coordination of police, fire, rescue and EMS services to achieve community-wide coverage availability.	X	X	X	X	X	X	Countywide	County Sheriff and EM		Ongoing		X				
20	Incorporate the County Hazard Mitigation Plan's strategies into elements of local community master plans.	X	X	X	X	X	X	Wexford Joint Planning Commission; Villages of Mesick and Buckley; Cities of Manton and Cadillac; Townships of Greenwood, Clam Lake, Haring, and Cedar Creek			Ongoing		X	X	X	X	X
21	Continue to regularly assess fire suppression access points and equipment and pursue improvements as needed.		X		X			Countywide	Local fire departments; MDNR Wildfire Mgmt; USFS;		Ongoing		X	X			
22	Annually update the County's basic Wildfire Operations Plan (coordinate with MDNR/USFS)		X					Countywide	County EM, Local Fire Depts/First Responders, MDNR, USFS		Annual review		X				
23	Identify communities with the county that have an interest in becoming a recognized Firewise USA® community. Each applicant must create a board/committee, complete a community wildfire risk assessment with a 3-year action plan to reduce ignition risk to homes, and complete annual educational and risk reduction actions identified in the plan.		X		X			Consider areas with Jack Pine forest (every community except City of Manton and Villages of Mesick and Buckley) particularly where it is near developed areas, tree farms, and campgrounds.	County EM, Local Fire Depts/First Responders, MDNR, USFS				X				X
24	Continue to promote (via social media, etc.) awareness of vegetation/fuel management for fire prevention around homes and other structures.		X					Countywide	County EM, County Building Dept., Local Fire Depts/First Responders, MDNR, USFS		Ongoing		X				X
25	Continue to provide campgrounds (Private, MDNR and USFS) with information on fire safety and establish evacuation routes.		X						County EM		Ongoing		X				X
26	Consider developing a drought communication plan and early warning system to facilitate timely communication of local drought conditions/outlook to officials, decision makers, emergency responders, and the general public.					X		Countywide	County EM, WCD/USDA-NRCS				X				X
27	Support the Wexford Conservation District's provision of free technical assistance (in partnership with the USDA-NRCS and MAEAP) such as resource assessment, practice design, resource monitoring, and determination of financial assistance for local farmers, ranchers and forest managers after a natural disaster.					X		Countywide	WCD/USDA-NRCS		Ongoing		X				X

	WEXFORD COUNTY HAZARD MITIGATION STRATEGIES	HAZARD TYPE							WHERE - Affected Locations or Groups	WHO - Responsible Parties	HOW - Resources	WHEN - Timeframe	PRIORITY TYPE (High, Med, or Low)	STRATEGY TYPE				
		Severe Winter Weather	T-Storm, High Winds, Hail, Tornado, Lightning	Wildfire	Flooding and Erosion	Extreme Temperatures	Drought	Invasive Species						Public Health Emergency	1	2	3	4
Shelters	28	Maintain an accurate inventory of emergency shelter sites (overnight vs. daily use types) within the service area; review annually and update as needed.	X	X	X	X	X	X	Countywide	County EM; American Red Cross				X				
	29	Increase collaboration between the Wexford County Office of Emergency Management with local communities and non-profits to increase the number of emergency shelters available to the public for heating/cooling during extreme temperature days and when power outages occur.	X	X	X	X	X	X	Countywide	County EM; American Red Cross; Local Fire Depts.; Senior Centers; Municipal Offices				X	X			
	29a	Install a generator(s) to enable the facility's use as an emergency shelter.	X	X	X	X	X	X	Countywide	County EM; Local Fire Depts.; Senior Centers; Municipal Offices (Selma Twp., City of Manton)					X			
	30	Evaluate the feasibility of constructing additional community storm shelters, such as concrete "safe rooms", at campgrounds and mobile/modular home communities.	X	X	X	X	X		See hazard map for locations of campgrounds and mobile homes	County Building Dept., EM; local govts; private and public campground managers					X			
	31	Continue to establish areas of refuge and evacuation routes from campgrounds and other sites of large outdoor events.	X	X	X	X	X	X		County EM; private and public campground managers; local fire depts.		Ongoing		X			X	
	32	Create a communications plan, similar to Code Red and what Charlevoix County uses, to communicate to the public where shelters are during an emergency event.	X	X	X	X	X	X	Countywide	County EM				X			X	
	33	Maintain procedures to create quarantine areas in group living quarters, such as overnight shelters or assisted living facilities.							X	ARC, Munson Hospital, Health Dept.		Ongoing		X			X	
Building & Development	34	Continue enforcement of State building codes and soil erosion regulations (Soil Erosion and Sedimentation Code is applicable if the project involves earth change that disturbs one or more acre, or is within 500 feet of a lake, stream or wetland) with new construction through local permitting processes.				X			Countywide	County and Local Governments		Ongoing		X	X	X		
	35	Improve the ability of public buildings to shed or hold snow load.	X						County and Local Government Buildings	County and Local Governments				X				
	36	Investigate solutions to mitigate persistent flooding issues on property located northeast of Lake Cadillac. Properties located in the City of Cadillac, between Lake Street and the railroad, with Haynes St. bordering to the north and Pine St. to the south, have experienced seasonal flooding/ basement flooding. Activities from a former lumber mill northeast of Lake Cadillac resulted in sawdust/lumber waste deposited in the soil. This area includes property public and private commercial/office and residential property.				X			City of Cadillac, property owners	City of Cadillac, property owners				X	X		X	
	37	Consider revising building and zoning requirements to include wildland fire risk mitigation practices (i.e., a 25 foot cleared space/defensible space between houses and other structures.)			X				All township excluding the villages of Buckley, Mesick and Harietta	All township excluding the villages of Buckley, Mesick and Harietta				X			X	
	38	Improve ventilation techniques in areas, facilities, or vehicles that are prone to crowding or that may involve exposure to contagion or noxious atmospheres.						X	Gymnasiums, theatres, stadiums, public transportation, The Wex Civic Center.	Wexford County				X	X			
	39	Continue to pursue opportunities for brownfield and blight clean-up activities, including demolition and clearance of vacant, condemned structures, to remove actual and potential sources of land, water and air contamination.						X	City of Cadillac, City of Manton	City of Cadillac, City of Manton	City of Cadillac Brownfield Redevelopment Authority	Ongoing		X	X	X	X	
	40	Continue to regularly clean up river debris and clean out plugged culverts (due to beaver activity, sediment deposits, invasive species, etc.) and/or upgrade to larger sized replacement culverts to better accommodate high volume streamflows.				X		X	Countywide	RCRC, MDOT, City of Cadillac, City of Manton, Villages of Buckley, Mesick and Harietta		Ongoing		X	X	X		
	41	Consider the development of a reduced-cost program to install air conditioning in the homes of low-income senior citizens.		X			X		Countywide	Wexford County Council on Aging					X			
	42	Promote the availability of residential weatherization and home improvement programs.	X	X			X		Countywide	NMCAA, Habitat for Humanity					X		X	
	Utilities & Technology	43	Continue work amongst the utility companies and the Wexford County Road Commission to clear vegetation (particularly diseased or dead trees, i.e., from Emerald Ash Borer infestations) along various road and utility right-of-ways to minimize power outages and road blockages from storms damage.	X	X					Countywide	RC, utility companies		Ongoing		X			
44		Continue to maintain effective communications practices between electric utility companies regarding power restoration after storms. (County EM to post and promote the electrical outage map on social media account.)	X	X					Countywide	Consumers E., Cheryland Electric, or Great Lakes Energy and the County Emergency Mgmt.	Outage map	Ongoing		X				
44a		A communications tower have been struck by lightning in the past; meet with the utility company to discuss backup power options		X					Wexford Township	Wexford Township; land lessee & lessor								
45		Investigate opportunities to bury overhead utilities, such as during new construction or in areas regularly prone to power outages.	X	X	X				Countywide	Electric utility providers					X			
46		Install electrical controls with a back-up generator system and plan for eventual replacement of the Clam River outlet control dam to ensure water levels on Lake Cadillac and Lake Mitchell remain at safe levels.	X	X	X			X	City of Cadillac, Clam Lake Twp., Haring Twp., Cherry Grove Twp., Selma Twp.	City of Cadillac; Wexford County Drain Commissioner	FEMA BRIC Grant; City of Cadillac funds; County Funds	0-5 years for generator; 5-10 for replacement of dam		X	X			
47		Identify the locations of where backup generators on sewer pump chambers are needed to alleviate manual pumping/hauling in the event of a power outage, and apply for funding.	X	X	X			X	Clam Lake, Haring, Cherry Grove and Selma Townships; Villages of Mesick and Buckley; Cities of Manton and Cadillac	Clam Lake, Haring, Cherry Grove and Selma Townships; Villages of Mesick and Buckley; Cities of Manton and Cadillac					X			
48		Install check valves on stormwater discharge locations as needed.	X	X	X			X	Manton and Cadillac						X			
49		Continue to maintain community water and/or sewer infrastructure at acceptable operating standards.				X		X				Ongoing			X			
49a		Continue efforts to secure funding for the sanitary sewer system replacement project along the shoreline of Lake Mitchell (sanitary sewer overflow incidents after high rainfall events; concern of backflow into water supply).				X		X	Selma Twp., Cherry Grove Twp., City of Cadillac	Lake Mitchell Property Owners Inc., Lake Mitchell Sewer Authority; County Drain Commissioner					X	X		
50	Maintain Continuity of Operations (COOP) plans and alternative "remote work" schedules.						X	County Government and Local Government Agencies; Public Schools	County Government and Local Government Agencies; Public Schools		Ongoing		X					
51	Expand availability of high-speed internet service to allow for widely available remote work/learning.						X	Countywide; Colfax Twp. has specifically expressed need	Local service providers; Connected Nation MI	https://connectednation.org/michigan/	Ongoing		X	X		X		

Environment & Natural Resources

WEXFORD COUNTY HAZARD MITIGATION STRATEGIES	HAZARD TYPE							WHERE - Affected Locations or Groups	WHO - Responsible Parties	HOW - Resources	WHEN - Timeframe	PRIORITY TYPE (High, Med, or Low)	STRATEGY TYPE					
	Severe Winter Weather	T-Storm, High Winds, Hail, Tornado, Lightning	Wildfire	Flooding and Erosion	Extreme Temperatures	Drought	Invasive Species						Public Health Emergency	1	2	3	4	
52								County Government; Springville Township; Village of Mesick	County Government; Springville Township; Village of Mesick		0 - 10 years				X	X		
53								Countywide	WCD, NC-CISMA, USDA-NRCS, MSUE, MDARD		Ongoing		X	X	X	X		
53a								Countywide	NC-CISMA, Wexford Conservation District		Ongoing				X	X		
53b								Countywide	NC-CISMA, Wexford Conservation District		Ongoing				X	X		
53c	Utilize the Michigan Invasive Species Grant Program to submit proposals for projects that will: prevent the introduction or spread of invasive species by engaging the public in prevention practices and reducing the risk of moving invasive species into high-risk areas; or aid in early detection and response efforts for species on Michigan's Watch List; or increase regional or statewide response preparedness for new or emerging invasive species; or develop or improve tools, such as risk assessments and prioritization models, to inform management and control decisions.								NC-CISMA, Wexford Conservation District	https://www.michigan.gov/invasives/grants/misgp			X		X	X		
53d	Utilize MSUE's "Clean Boats, Clean Waters" comprehensive aquatic invasive species boater outreach program resources; apply for grant funding to communicate aquatic invasive species prevention information through outreach materials and in-person educational events to boaters.								NC-CISMA, Wexford Conservation District	https://www.canr.msu.edu/clean_boats_clean_waters/index			X		X	X		
53e	Utilize EGLE's "NotMISpecies" webinars and resources on invasives control and management								NC-CISMA, Wexford Conservation District	https://www.michigan.gov/invasives/lake-action					X	X		
53f	Continue participation in the annual Great Lakes Aquatic Invasive Species "Landing Blitz" event, emphasizing the need to Clean, Drain, Dry boats whenever they come out of the water, and Dispose of any unwanted bait in the trash.								NC-CISMA, Wexford Conservation District		Ongoing				X	X		
53g	Provide boat wash stations and signage at all public boat launch sites.							See appended list of boat launches	USFS, MDNR, local governments; see appended list of boat launch locations and owners				X		X	X		
53h	Install boot-cleaning and/or equipment cleaning facilities at popular trailheads (non-motorized, equestrian, and ORV/Motorcycle) to reduce the spread of invasives species.								All communities except Slagle, Wexford, Cherry Grove, Colfax, and Selma Twp.; City of Cadillac, City of Manton, Village of Buckley and Village of Harrietta.	USFS, MDNR	https://wexfordcounty.org/wp-content/uploads/2019/10/Wexford-CO-Rec-Plan-2019-FINAL-with-appendices.pdf				X	X	X	
54	Continue to manage inland lake aquatic invasive species with treatment programs and public awareness of invasive species management.								City of Cadillac, Clam Lake Twp., Cherry Grove Twp., Selma Twp.	Lake Cadillac Invasive Species Control Program - City of Cadillac; Lake Mitchell Improvement Board - City of Cadillac, Selma Twp., Cherry Grove Twp.; Pleasant Lake Association - Selma Twp.; Stone Ledge Lake Association - Clam Twp; County Drain Commissioner; County BOC				X		X		
55	Consider adoption of local ordinances that regulate activities to prevent the introduction of or the contribution to the spread of invasive species, such as prohibiting the use of invasive species in landscaping and/or vegetative riparian buffers.								WJPC; Cities of Cadillac and Manton	WJPC; Cities of Cadillac and Manton	https://crystallakewatershed.org/ordinances/			X		X	X	
56	Implement nature-based solutions to mitigate stormwater runoff in construction projects.								Countywide	Local governments				X	X	X		
57	Continue to identify and prioritize sites for open space protection/preservation, green infrastructure and/or stormwater management.								Countywide	Wexford Conservation District, Cadillac Area Land Conservancy, and the NC-CISMA				X		X	X	
58	Support implementation of Forestry Management Plans that include mitigation efforts for invasive species.								Countywide	MDNR, USFS, County EM	MDNR or USFSI grants for ISM.			X		X	X	
59	Continue to conduct wildfire management such as prescribed burns and surface fuels management projects on open space/public land (this also encourages regeneration of native plant species).								All townships in Wexford County	MDNR, USFS, Cadillac Regional Land Conservancy, Wexford Conservation District				X		X		
60	Continue efforts to regularly clean up river and lake debris.								Countywide	City of Manton (clean up of Manton Creek between the mill pond and the dam.) Pine River Association, Upper Manistee River Association, Cadillac Area Land Conservancy, Wexford Conservation District, Conservation Resource Alliance, Muskegon River Watershed Assembly, Pleasant Lake Association, Stoneledge Lake Property Owners Association, MDNR, USFS		Ongoing				X		
61	Implement soil erosion mitigation techniques along the shorelines of Lake Mitchell and Lake Cadillac.							X	X	X	X	City of Cadillac; Cherry Grove Twp., Selma Twp.	City of Cadillac; Cherry Grove Twp., Selma Twp.	WCD			X	X

ID	Resource	Description	Hazard Type	Website
A	Wexford County staff	Wexford County staff as appropriate	All hazards	https://wexfordcounty.org/
B	Local government staff	All local units of government; Wexford Joint Planning Commission members: Antioch Township - Boon Township - Cherry Grove Township - Hanover Township - Liberty Township - Selma Township - Slagle Township - South Branch Township - Springville Township - Wexford Township	All hazards	http://www.wexfordjpc.org/
C	Local Emergency Services and Fire Departments	Boon; Buckley; Cedar Creek; Cherry Grove; Colfax-Greenwood; Haring; Manton; Springville; Selma; Slagle-Harrietta; South Branch, USFS, MDNR	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Wildfire; Flooding; Extreme Temperatures; Public Health Emergency	
D	Wexford County Council on Aging	The Wexford County Council on Aging provides resources and support for residents aged 60 and older. Some services include homemaking services, personal care, adult day care and low-cost snow removal program. The COA RN Supervisor also calls to check in with clients on a regular basis.	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures; Public Health Emergency	https://wexfordcoa.org/
E	District Health Department #10	DHD #10 serves 10 counties in Michigan; those in the NW MI region include Kalkaska, Manistee, Missaukee, and Wexford counties. Their mission is to promote and enhance the health of our communities and environment through protection, prevention, and intervention. DHD #10 provides programs and services such as: immunizations; communicable disease reporting; issuing public health notifications; school health services; permitting processes for proper location and installation of water wells and septic systems; education about cleaning, monitoring and maintaining septic systems; septic or well repair financial assistance, and the inspection and licensing of food service establishments.	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures; Public Health Emergency	https://www.dhd10.org/
F	Northern Michigan Community Action Association (NMCAA)	NMCAA serves the counties of Antrim, Benzie, Charlevoix, Emmet, Grand Traverse, Kalkaska, Leelanau, Missaukee, Roscommon and Wexford. They provide the Weatherization Assistance Program and Emergency Home Repair Program for low- to moderate-income households. They also provide food distribution via the following USDA programs: monthly food package to low-income senior citizens via the Commodity Supplemental Food Program (CSFP), and The Emergency Food Assistance Program (TEFAP) to low-income persons through a quarterly distribution. NMCAA also operates the Meals on Wheels program for seniors.	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures; Public Health Emergency	https://www.nmcaa.net
G	"MI HOPE" Grants (Michigan Housing Opportunities Promoting Energy Efficiency)	Program for up to \$25K to repair or replace roofs, doors, windows, insulation, heating/cooling systems, water heaters, security lighting, Energy Star appliances and electrical systems for eligible low-income residents.	Severe winter weather; Thunderstorm, High Winds, Hail, Tornado, Lightning; Flooding; Extreme Temperatures; Public Health Emergency	www.michigan.gov/mi-hope
H	Cadillac Area Community Foundation	The primary mission of the Cadillac Area Community Foundation is to develop a community-wide vehicle for permanent endowments to enhance the quality of life in the area and to establish and manage worthwhile endowed funds for the benefit of our community.	All hazards	https://cadillacfoundation.org/
I	Groundwork Center for Resilient Communities	With roots firmly embedded in the pro-health, pro-environment, and pro-economy principles of a local food system, the Groundwork Food and Farming team creates markets for local farmers, and helps connect locally grown food to school children, food pantry clients and families across the state.	Public Health Emergency	https://www.groundworkcenter.org/food-farming/
J	Midwest Agriculture Climate Team	MAC-T members are Extension specialists and state climatologists from many of the states represented in the Midwest Climate Hub, and NOAA NWS climate and weather specialists. The goal of this team is to share expertise regionally, discuss impacts and opportunities as it relates to agriculture and outlooks, and maintain an open line of communication so when weather/climate events do occur, the Midwest agriculture community is set to respond. The team meets monthly during the growing season regularly, and as needed during the winter season.	Drought, Extreme Temperatures, Flooding, Severe Winter Weather, High Winds, Hail	https://www.climatehubs.usda.gov/hubs/midwest/topic/midwest-agriculture-climate-team-mac-t
K	NWS Climate Prediction Center	The U.S. Drought Monitor is a map released every Thursday, showing parts of the U.S. that are in drought. The map uses five classifications: abnormally dry (D0), showing areas that may be going into or are coming out of drought, and four levels of drought: moderate (D1), severe (D2), extreme (D3) and exceptional (D4).	Drought	https://www.cpc.ncep.noaa.gov/products/Drought/
L	National Fire Protection Association Firewise USA Program	Firewise USA Program: Each applicant must create a board/committee, complete a community wildfire risk assessment with a 3-year action plan to reduce ignition risk to homes, and complete annual educational and risk reduction actions identified in the plan.	Wildfire, Drought	https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA
M	NFPA Community Wildfire Defense Grants	Communities can use these grants from the USFS in a variety of ways to reduce the wildfire risk to people and property. One key use is capacity building for wildfire mitigation. For example, communities can use the grants to support the implementation and enforcement of wildfire-related codes and standards; to train people to assess wildfire risk and implement effective mitigation measures; and to perform outreach to community members through programs like Firewise USA®. Communities that build these fundamentals—sound land use and building practices, a skilled workforce, and an educated public—will be better prepared for sustained and effective risk reduction and better equipped to take advantage of future federal grants that prioritize communities with codes in place.	Wildfire, Drought	https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire
N	Consumer's Energy Hydro Planning	Information on planning processes and documents related to the future of hydropower dams in Michigan.	Flooding	www.consumersenergy.com/hydrofuture
O	Consumer's Energy Utility Services	Consumers Energy provides electrical and natural gas utility services. Energy through renewable energy sources is available. A power outage map is available to track outage locations.	All hazards.	https://www.consumersenergy.com/outage-map
P	Great Lakes Energy Utility Services	GLE provides electric and high-speed fiber internet and voice services. GLE provides an online power outage map to track outage locations. Also, Trustream's Status Map indicates where fiber internet is available or is being explored in the region.	All hazards.	https://www.gtlakes.com/power-outages/ https://www.trustreamfiber.com/status-map/
Q	Connected Nation Michigan	Connected Nation develops and provides the tools, resources, and methods that help states and communities create and implement solutions to their broadband and digital technology gaps. They assess and plan for the expansion of broadband access, adoption, and use. They empower people with technology skills and resources to improve their quality of life, and we develop public-private partnerships to bring technology access to targeted geographies and population.	All hazards.	https://connectednation.org/michigan/
R	EGLE's Michigan Oil, and Gas and Minerals Division Data Explorer	Interactive mapping tool to search for oil and gas well facilities and associated records throughout Michigan; list of oil and gas well types and status codes.	Flooding, Lightning, Tornado, Severe Winter Weather, High Winds	https://www.egle.state.mi.us/dataminer/ https://www.michigan.gov/egle/about/organization/oil-gas-and-minerals/oil-and-gas/oil-and-gas-well-type-and-status
S	National Pipeline Mapping System - Public Map Viewer	The National Pipeline Mapping System (NPMS) Public Map Viewer is a web-based mapping application designed to assist the general public with displaying and querying data related to: gas transmission and hazardous liquid pipelines, liquefied natural gas plants, and breakout tanks under Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) jurisdiction. This application does not contain distribution or gas gathering pipelines. Basic information about gas or hazardous liquid pipeline incidents is also available.	Extreme temperatures, flooding, and soil erosion.	https://www.npms.phmsa.dot.gov/
T	EGLE's Wetlands Map Viewer	The WMV application was created for the Department of Environment, Great Lakes, and Energy to provide the public with quick and easy access to wetland spatial data.	Flooding, Drought, Extreme Temperatures	https://www.mcgi.state.mi.us/wetlands/mcgiMap.html
U	FEMA Floodplain Management Resources for Local Government Officials	How to participate with the NFIP and tools and resources to provide higher standards for floodplain management.	Flooding	https://www.fema.gov/floodplain-management/manage-risk/local

ID	Resource	Description	Hazard Type	Website
V	FEMA Flood Mitigation Assistance (FMA) Grant Program	FMA is a non-disaster, competitive grant program that provides funding to states, local communities, federally recognized tribes. Funds can be used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program. • \$800 million available in funding for FY22 • Application Period: September 30, 2022, to January 27, 2023 • Period of Performance: 3 Years • Cost-share: 25% non-federal • Severe Repetitive Loss (up to 100% federal) • Repetitive Loss (up to 90% federal) • Priorities are set each fiscal year	Flooding	https://www.fema.gov/grants/mitigation/floods
W	FEMA Building Resilient Infrastructure and Communities (BRIC) Grant Program	BRIC is a non-disaster grant program, which provides funds on an annual basis for hazard mitigation planning and the implementation of mitigation projects prior to a disaster. The BRIC program guiding principles are supporting communities through capability- and capacity-building; encouraging and enabling innovation; promoting partnerships; enabling large projects; maintaining flexibility; and providing consistency. Funding has doubled for BRIC to \$2.295 billion for FY21. • Caps: States/Territories Allocation and Activities: \$2 million; Tribal set-aside: \$2 million; National Competition: \$2.133 billion • Application Period: September 30, 2022 to January 27, 2023 • Period of Performance: 3 year from start date on Recipient's federal award • Cost-share: 25% non-federal • Economically disadvantaged rural communities are eligible for 10% non-federal • Priorities are set each fiscal year	All hazards	https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities
X	FEMA Hazard Mitigation Grant Program (HMGP)	HMGP is a post-disaster grant program, where funding is only made available under a Presidential major disaster declaration, in the areas of the State requested by the Governor. Federally-recognized tribes may also submit a request for a Presidential major disaster declaration within their impacted areas.	All hazards	https://www.fema.gov/grants/mitigation/hazard-mitigation
Y	HMGP Post-Fire Assistance (PFA) grant program	This grant funds projects that make a community more resilient after a designated wildfire disaster. States and federally-recognized tribes affected by fires resulting in a Fire Management Assistance Grant (FMAG) declaration on or after October 5, 2018, are eligible to apply.	Wildfire, Drought	https://www.fema.gov/grants/mitigation/post-fire
Z	State of MI: Resources and Best Practices to prevent and manage invasive species	Prevention tips and action steps to control or remove invasive species.	Invasive Species	https://www.michigan.gov/invasives/take-action
AA	Michigan Invasive Species Grant Program	The Departments of Natural Resources, Environmental Quality and Agriculture and Rural Development work together to address strategic issues of prevention, detection, eradication, and control for both terrestrial and aquatic invasive species in Michigan. This program is designed to address strategic issues of prevention, detection, eradication and control for both terrestrial invasive species (TIS) and aquatic invasive species (AIS) in Michigan.	Invasive Species	www.michigan.gov/invasives/grants/misgd
BB	EGLE's "NotMISpecies" webinar series	This webinar series explores how agencies, universities and locally led organizations are working together to protect Michigan's natural resources through the Michigan Invasive Species Program. If you are concerned about the impacts of invasive species or interested in the techniques used to control them, join us as we examine species-specific actions, innovations in research and technology, and programs designed to help communities prevent and manage harmful invasive species.	Invasive Species	https://www.michigan.gov/invasives/take-action
CC	Clean Boats, Clean Waters Program	Funding from the Michigan Department of Environment, Great Lakes, and Energy and the Great Lakes Restoration Initiative has enabled Clean Boats, Clean Waters to grow into a comprehensive aquatic invasive species boater outreach program. The program's mission is to prevent new aquatic invasive species introductions and limit their dispersal from water recreation activities through outreach and engagement. The program promotes understanding of boat cleaning practices and regulations through the distribution of educational materials, an online resource library, boat washing demonstrations, grants and partnerships.	Invasive Species	www.canr.msu.edu/clean_boats_clean_waters/index
DD	Michigan State University Extension (MSUE)	Resources available for: training elected and appointed officials, agriculture and food support programs, and natural resources protections.	All hazards	https://www.canr.msu.edu/outreach/
EE	USDA Natural Resources Conservation Service (NRCS)	The NRCS helps America's farmers, ranchers, and landowners conserve our nation's resources through voluntary programs and science-based solutions.	Drought; Extreme Temperatures; Invasive Species; Public Health Emergency	https://www.nrcs.usda.gov/
FF	Wexford Conservation District (WCD)	The mission of the WRC is to enable the citizen of Wexford County to be stewards of their natural resources. By providing services such as tree sales, plant sales, workshops, and the Michigan Forestry Assistance Program (FAP). We also partner and work with USDA-NRCS, Missaukee Conservation District, and the North Country Cooperative Invasive Species Management Area (NCCISMA).	Flooding & Erosion; Invasive Species; Wildfire; Drought; Extreme Temperatures; Public Health Emergency	https://www.wexfordconservationdistrict.org/
GG	North Country Cooperative Invasive Species Management Association (NC-CISMA)	North Country Cooperative Invasive Species Management Area (NCCISMA) acts as an umbrella organization, bringing together a diverse group of partners to collaborate on programs and projects designed to combat invasive species. The organization serves in the counties of Missaukee, Wexford, Lake, Mason, Mecosta, and Osceola. NCCISMA empowers people to address invasive species on their own property through: - Assistance in identifying invasive species - Guidance on treating invasive species and buying herbicides - Invasive species treatment demonstrations - Strike Team for hire to control high priority invasive species on private property - Outreach and educational events	Invasive Species; Flooding and Erosion	https://www.northcountryinvasives.org/
HH	Conservation Resource Alliance	Current projects include: Wild Roots, a cost-share program offering native plants to property owners at a greatly reduced rate; and The River Care Program, which ensures that natural resource professionals maintain a consistent and prioritized action plan for each river in the organization's region. River Care professionals not only find and repair physical problems before they become worse, they also team with local agencies, residents, and interest group representatives for fact-based conversations. These cross-functional teams can speak openly and affect change in an agile, efficient and transparent way. CRA works in the 10-county northwest MI region, along with the southerly adjoining counties of Mason, Lake, Osceola, Oceana and Newaygo.	Flooding & Erosion; Invasive Species; Drought; Extreme Heat; Public Health Emergency	https://www.rivercare.org/
II	Muskegon River Watershed Assembly	The Muskegon River Watershed Assembly is dedicated to the preservation, protection, restoration, and sustainable use of the Muskegon River, the land it drains, and the life it supports, through educational, scientific and conservation initiatives. Projects have included watershed clean-up events; lake and river evaluation, monitoring and restoration; rain gardens; shoring-up workshops; and habitat improvement.	Flooding & Erosion; Invasive Species; Public Health Emergency, Drought, Extreme Heat	https://mrwa.org/
JJ	Upper Manistee River Association	The purpose of this Association is to preserve and protect for future generations the Upper Manistee River system and its drainage as a world class natural resource. MRA consists largely, but not exclusively, of riparian property owners who share river related interests on that part of the Manistee River system, reaching from its head waters in southern Antrim and Otsego Counties downstream, 147 river miles, through Crawford, Kalkaska and Missaukee counties to highway US-131 in Wexford County.	Flooding & Erosion; Extreme Heat; Invasive Species; Public Health Emergency, Drought	http://www.umrasite.org/
KK	MSUE's Michigan Inland Lakes Partnership	The purpose of the Michigan Inland Lakes Partnership (Partnership) is to engage state and local agencies, Native American Nations, outreach institutions (universities and other educational institutions), non-governmental organizations (NGOs), businesses, industries and citizens in a collaborative effort to ensure the quality, sustainability and ecological diversity of lakes, while considering society's needs. The Partnership will promote communication and cooperation between partners, communities and citizens interested in the management of Michigan's inland lakes, educating leaders, and strengthening stewardship efforts.	Inland flooding, shoreline erosion; Invasive Species	https://www.canr.msu.edu/michiganlakes/convention/
LL	Lake Mitchell Improvement Board	The Lake Mitchell Improvement Board collects special assessments from benefiting properties for approved lake improvements. Virtually all assessment monies are spent to control invasive and nuisance native vegetation as well as monitor water quality and protect the fishery. The lake board membership includes a riparian representative who is elected for a four-year term, appointed representatives from Selma Township, Cherry Grove Township, the city of Cadillac, a Wexford County Commissioner, and the Wexford County Drain Commissioner. Township, County Commission and City Commission representatives are appointed for indefinite terms. The Drain Commissioner who is elected in a county election.	Flooding & Erosion; Extreme Heat; Invasive Species; Public Health Emergency, Drought	https://www.lakemitchell.org/mib-duties/

ID	Resource	Description	Hazard Type	Website
MM	Lake Mitchell Property Owners Inc.	Efforts are focused on lake water quality, lake levels, dam management, sewer, the health of fish and wildlife, and all questions related to property owners on the lake.	Flooding & Erosion; Extreme Heat; Invasive Species, Public Health Emergency, Drought	https://lakemitchellpo.com/
NN	Lake Cadillac - City of Cadillac Milfoil Management Program	Since 2006, the City of Cadillac has administered a milfoil management program on Lake Cadillac. In 2010, voters approved a three-year citywide millage to fund the program, which is designed to help improve recreational use in the lake while preserving the fragile balance that is required to keep the lake healthy.	Invasive Species	https://www.cadillac-mi.net/383/Milfoil-Management-Program
OO	Cadillac Area Land Conservancy	The Cadillac Area Land Conservancy protects significant natural, scenic, and farm lands for current and future generations and fosters an appreciation for the environment in Missaukee, Osceola, Wexford, and northern Lake and Mason counties. Efforts include: - Working with property owners to protect natural, scenic and farm lands through conservation easements so they remain undeveloped forever. - Conducting annual monitoring and stewardship of easement properties. - Building coalitions with state and federal agencies to identify priority "wildlife corridors" for establishing future easements. - Conducting community outreach for education and advancing land stewardship now and for future generations.	Flooding & Erosion; Invasive Species; Public Health Emergency; Wildfire; Drought; Extreme Heat	https://calc-landtrust.org/
PP	Great Lakes Stream Crossing Inventory	Previously, individual inventories were conducted by partnership agencies, watershed organizations, and road agencies but were not readily accessible to stakeholders and did not contain comparable information. The newly developed protocol and datasheet are intended to promote consistent data collection, selection criteria for improvement projects, and selection of appropriate Best Management Practices for each project to benefit all stakeholders. Information gathered on the datasheet can and has been used to prioritize structure replacement and successfully seek funding.	Flooding & Erosion	https://great-lakes-stream-crossing-inventory-michigan.hub.arcgis.com/
QQ	Boat Launch Inventories for Wexford County	State of MI website and Wexford County 2019 Rec Plan	Invasive Species	https://www.mcgi.state.mi.us/mrbis/https://wexfordcounty.org/wp-content/uploads/2019/10/Wexford-CO-Rec-Plan-2019-FINAL-with-appendices.pdf

BOARD OF COMMISSIONERS AGENDA ITEM

FROM: Executive Committee
FOR MEETING DATE: April 19, 2023
SUBJECT: NLCMH Enabling Agreement

SUMMARY OF ITEM TO BE PRESENTED:

For the last several months the Administrators and some Commissioners of the six counties involved in Northern Lakes Community Mental Health have held monthly meetings to revise the enabling agreement.

Each county held a listening session in order to gain valuable input from community members who utilize NLCMH. A report of the listening session was shared with commissioners. A summary report of all the county's listening sessions is being drafted and will be shared once it is received.

The following is the final version of the updated agreement. It has been sent to county legal counsel for review. Any concerns that legal counsel presents will be brought to the committee.

RECOMMENDATION:

The Executive Committee forwards a recommendation to the full board to approve the updated enabling agreement as it is presented.

**UPDATED RESOLUTION &
AGREEMENT**

By and Between

**Crawford, Grand Traverse, Leelanau,
Missaukee, Roscommon & Wexford
Counties**

for the Oversight of the

**Northern Lakes Community
Mental Health Authority**

April 5, 2023

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UPDATED RESOLUTION & AGREEMENT BETWEEN

Crawford, Grand Traverse, Leelanau, Missaukee, Roscommon & Wexford Counties

for the Oversight of the

Northern Lakes Community Mental Health Authority

WHEREAS, Act 290 of the Public Acts of 1995, as amended, provides that any combination of counties may elect to establish a Community Mental Health Authority (hereinafter referred to as "CMH Authority" or "Authority", "if it is approved by a majority of the commissioners elected and serving in each county creating the Authority" (MCL § 330.1205, (1)), and

WHEREAS, MCL § 330.1205 requires an enabling resolution adopted by the Board of Commissioners of each creating county establishing the CMH Authority and

WHEREAS, Crawford, Grand Traverse, Leelanau, Missaukee, Roscommon and Wexford Counties between 2002-2003 each conducted three (3) separate public hearings on the issue of creating a Community Mental Health Authority, with notice of the hearings given pursuant to the Open Meetings Act, being MCL § 15.261 et seq., and

WHEREAS, Crawford, Grand Traverse, Leelanau, Missaukee, Roscommon and Wexford Counties commit to maintain an Agreement that describes and confirms that they are regional partners in the Northern Lakes Community Mental Health Authority (NLCMHA). The NLCMHA will function as an independent and separate public legal entity serving the public behavioral health needs of persons in Crawford, Grand Traverse, Leelanau, Missaukee, Roscommon and Wexford Counties, hereinafter sometimes referred to as the "Authority" or "NLCMHA," and to specify the powers and duties under which the Authority will operate; and,

WHEREAS, the Counties of Crawford, Grand Traverse, Leelanau, Missaukee, Roscommon and Wexford merged the previous Community Mental Health Service Providers formerly known as the Great Lakes CMH Authority and the North Central CMH Authority;

THEREFORE, for and in consideration of the mutual covenants hereinafter contained, each of the participant Counties hereby approves the Enabling Resolution creating a joint Community Mental Health Authority and enters into this Agreement as follows:

I.

Establishment

Pursuant to the Mental Health Code, PA 258 of 1974, as amended, Section 205 (MCL § 330.1205) and pursuant to the Michigan Constitution of 1963, Article 7, Section 28, the duly elected legislative bodies of the Counties of Crawford, Grand Traverse, Leelanau, Missaukee, Roscommon and Wexford, State of Michigan, through this Agreement confirm the structure and legal purpose of the NLCMHA, as a separate legal and administrative public governmental entity distinct from the counties that established it to operate as a Community Mental Health Authority.

The NLCMHA was established in 2003 as a merger of the Great Lakes CMH Authority (oversight for the counties of Grand Traverse and Leelanau), and the North Central CMH Authority, (with oversight for the counties of Crawford, Missaukee, Roscommon and Wexford). The merger was completed in accordance with MCL § 330.1219. By this action of the counties created this new Authority (aka NLCMHA), the prior Authorities are hereby merged.

To the extent required by law, the Authority, as a public governmental body, is subject to the Open Meetings Act, 1976 PA 267, MCL § 15.261 to 15.275, and the Freedom of Information Act, 1976 PA 442, MCL § 15.231 to 15.246, except for those documents produced as a part of the Peer Review Process required in MCL § 330.1143a and made confidential by MCL § 330.1748(9).

II.

Definitions

The following terms for this Agreement shall have the meanings attached to them:

- **"Authority"** or **"NLCMHA"** refers to the Northern Lakes Community Mental Health Authority which serves the counties of Crawford, Grand Traverse, Leelanau, Missaukee, Roscommon and Wexford for services to residents with severe and persistent mental health (SPMI), substance use disorders (SUD), children with severe emotional disturbance (SED), and/or intellectual/developmental disability (I/DD) conditions .
- **"Chief Executive Officer"** refers to the Chief Executive Officer (CEO) of the NLCMHA.
- **"Behavioral Health Service"** means a mental health, substance use disorder, and intellectual/developmental disability service.

- **"Department"** or **"MDHHS"** refers to the Michigan Department of Health and Human Services.
- **"Director"** refers to the Director of the Michigan Department of Health and Human Services.
- **"Priority"** means preference for and dedication of a major proportion of resources to specified populations or services. Priority does not mean serving or funding the specified populations or services to the exclusion of other populations or services.
- **"Serious emotional disturbance"** means a diagnosable mental, behavioral, or emotional disorder affecting a minor that exists or has existed during the past year for a period of time sufficient to meet diagnostic criteria specified in the most recent Diagnostic and Statistical Manual of Mental Disorders published by the American Psychiatric Association and approved by the department and that has resulted in functional impairment that substantially interferes with or limits the minor's role or functioning in family, school, or community activities.
- **"Serious mental illness"** means a diagnosable mental, behavioral, or emotional disorder affecting an adult that exists or has existed within the past year for a period of time sufficient to meet diagnostic criteria specified in the most recent Diagnostic and Statistical Manual of Mental Disorders published by the American Psychiatric Association and approved by the department and that has resulted in functional impairment that substantially interferes with or limits 1 or more major life activities. Serious mental illness includes dementia with delusions, dementia with depressed mood, and dementia with behavioral disturbance but does not include any other dementia unless the dementia occurs in conjunction with another diagnosable serious mental illness.
- **"Substance use disorder"** means chronic disorder in which repeated use of alcohol, drugs, or both, results in significant and adverse consequences. Substance use disorder includes substance abuse.

III.

Purpose of the Authority

The purpose of NLCMHA or the Authority, is to provide a comprehensive array of behavioral health services appropriate to the conditions of individuals who are located within the six-county geographic service area, regardless of an individual's ability to pay as required by and permitted under PA 258, of 1974, as amended, and hereinafter referred to as the Mental Health Code (MCL § 330.1001 et seq.). The array of behavioral health services shall include, at a minimum, all of the following, unless otherwise amended by statute.

- Crisis stabilization and response including a 24-hour, 7-day per week, crisis emergency service that is prepared to respond to persons experiencing acute emotional, behavioral, or social dysfunctions, and the provision of inpatient or other protective environment for treatment.
- Identification, assessment, and diagnosis to determine the specific needs of the recipient and to develop an individual plan of services.
- Planning, linking, coordinating, follow-up, and monitoring to assist the recipient in gaining access to services.
- Specialized behavioral health recipient training, treatment, and support, including therapeutic clinical interactions, targeted case management, supports coordination, socialization, and adaptive skill building and training, health and rehabilitative services, workforce training and supported workforce pre-vocational and vocational services.
- Recipient rights services.
- Advocacy and referrals.
- Peer Support and Peer Recovery Services.
- Prevention activities that serve to inform and educate with the intent of reducing the risk of severe recipient dysfunction.
- Services designed to assess, divert as is possible, provide in facility services, and participate in case management and discharge planning for persons with SPMI, SUD, SED, and/or intellectual/developmental disability from possible jail incarceration when appropriate. See **Attachment II, Adult Jail Diversion Requirements**. (Page 30)
- Any other service approved by MDHHS, or authorized by statute.
- All Attachments referred to in this Agreement are part of the requirements and expectations incorporated herein.

Services shall promote the best interests of the individual and shall be designed to increase independence, improve quality of life, and support community integration and inclusion.

Services for children and families shall promote the best interests of the individual receiving services and shall be designed to strengthen and preserve the family unit if appropriate. The Authority shall deliver services in a manner that demonstrates they are based upon recipient choice and involvement, and shall include wrap-around services when appropriate.

The Authority shall carry out the applicable provisions of the Mental Health Code, subject to the rules designated by MDHHS that shall be directed to individuals who meet priority population criteria in that they have a condition that meets SMI, SED, SUD, or I/DD severity criteria.

Services provided pursuant to this Agreement may be directed to individuals who have behavioral health disorders that meet criteria specified in the most recent Diagnostic and Statistical Manual of Mental Health Disorders, Fifth Edition, published by the American Psychiatric Association and may also be directed to the prevention of a behavioral health diagnosis/disability and the promotion of behavioral health. Resources that have been specifically designated to CMH service providers for services to individuals with qualifying behavioral health conditions or for the prevention, early intervention, or promotion/awareness of behavioral health conditions consistent to the state requirements.

Priority shall be given to the provision of services to individuals with the most severe forms of serious mental illness, serious emotional disturbance, and developmental disability. Priority shall also be given to the provision of services to individuals with a serious mental illness, serious emotional disturbance, or developmental disability in urgent or emergency situations.

The Authority shall continue to provide, upon its creation and thereafter, behavioral health services to all the county correctional facilities, at no cost to the counties, appropriate to the needs of the inmates or any other qualified recipient, consistent with the statutory mandates.

IV.

Area Served

The Authority shall ensure the provision of services set forth herein to persons located in Crawford, Grand Traverse, Leelanau, Missaukee, Roscommon and Wexford Counties and as otherwise provided by law (see MCL 330.1306 (2)).

V.

Composition of the Authority Board

The Counties reconfirm that they have established the NLCMHA board composition as follows: Two (2) Board members respectively from Crawford, Leelanau, Missaukee, Roscommon, and Wexford Counties as appointed by those participant counties. Grand Traverse County will have six (6) Board members given its significantly larger proportion of population served in the region. Each County will

reconfirm and appoint/reappoint their Board Members as part of this Agreement. Each of those appointed/reappointed Board Members shall fulfill the duration of the term previously established for each position. As of the signing of this Agreement, the NLCMHA Board will consist of sixteen (16) members, as permitted by law, to serve for the term and upon the conditions set forth in Article VI.

NLCMHA Representative Counties	Board Membership
Crawford	2
Grand Traverse	6
Leelanau	2
Missaukee	2
Roscommon	2
Wexford	2
Total	16

A number of sixteen (16) Board members would be in accordance with current law MCL § 330.1222 (2), which states that when a Board represents five (5) or more counties, the Board membership shall be increased by number of County Commissioners serving on the Board that exceeds four (4). This allows for one (1) commissioner from each county. At such time as this requirement is modified by the Department, the parties to this agreement reserve the right to adjust the board composition accordingly.

Further, the NLCMHA Counties approved a sixteen (16) member Board to accomplish this. The enabling legislation allows that when five (5) or more counties join together, the membership of the Board for each of the Counties shall be divided among the Counties in proportion to each County's population, except that each County shall be entitled to at least two (2) Board memberships, which would allow, in this case, a sixteen (16) member board. The members of the Authority from each County shall be approved by simple majority vote of the Boards of Commissioners of the participant Counties.

NLCMHA Population by County

County	2000	2020*	% Population changes from 2000-2020 (per County)	Change in % of the population of NLCMH by County	Number of NLCMHA board members per County**
Crawford	14273	12988	-9.003%	6.4%	2
Grand Traverse	77654	95238	22.64%	46.9%	6
Leelanau	21119	22301	5.59%	11%	2
Missaukee	14478	15052	3.96%	7.4%	2
Roscommon	25469	23459	-7.89%	11.5%	2
Wexford	30484	33673	10.46%	16.6%	2
Total	183477	202711	10.5%	100%	16

* Population based on 2020 Census

** Minimum of two (2) Members per County; one (1) Commissioner per County

The allocation of Board members by county shall be reestablished, if necessary, subsequent to each decennial census, with each county assured at least two (2) representatives. All provisions established herein regarding board composition are consistent with prevailing requirements as of the execution of this Agreement. Therefore, any changes in statute may obligate the parties to re-evaluate and make modifications as needed.

VI.

Term of Board Membership, Vacancies, Removal from Office

The term of office of a Board member shall be up to three (3) years consistent with each of the NLCMHA counties' appointment policies. The board appointment begins at the point each vacancy is filled by the appointing NLCMHA county. Vacancies shall be filled for unexpired terms in the same manner as original appointments. A Board member may be removed from office by the appointing Board of Commissioners for either neglect of official duty or misconduct in office after being given a written statement of the reasons and an opportunity to be heard thereon. Each of the NLCMHA County Boards of Commissioners will appoint Board members to the NLCMHA, who shall serve staggered terms, under the terms and conditions previously set forth in the original Enabling Agreement. In accordance with MCL § 330.1219 (4). The Authority will maintain Board membership to sixteen (16), unless at such time that statute changes. Each NLCMHA County has the right to revise/reappoint board membership as needed consistent with this Agreement, with each counties' policies, and as required by the Department. The following is illustrative of appointments by County.

NLCMHA Counties	New Board Member Appointment Dates												
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Crawford		1	1		1	1		1	1		1	1	
Grand Traverse	2	2	2	2	2	2	2	2	2	2	2	2	2
Leelanau		1	1		1	1		1	1		1	1	
Missaukee	1	1		1	1		1	1		1	1		1
Roscommon	1		1	1		1	1		1	1		1	1
Wexford		1	1	1		1	1		1	1	1		1
Total Per Year	4	6	6	5	5	6	5	5	6	5	6	5	5

VII.

Qualifications for Board Members

The composition of the NLCMHA shall be representative of primary or secondary consumers of mental health, addiction, or I/DD services, County Administrators from each of the NLCMHA counties, agencies and occupations having a working involvement with behavioral health services, and the general public. Six (6) of the Board members shall be primary consumers or family members, and of those five (5) Board members at least three (3) of the Board members shall be primary consumers. All Board members shall be 18 years old or older. Additional requirements for board membership include the following:

- Not more than six (6) members of the Authority Board may be County Commissioners. Not more than one (1) County Commissioner may serve from each of the NLCMHA Counties. No more than half of the total Board members may be state, county or local public officials. For purposes of this section, public officials are defined as individuals serving in an elected or appointed public office or employed more than 20 hours per week by an agency of federal, state, city or local government.
- A Board member shall have his or her primary place of legal residence in the county he or she represents.
- An individual shall not be appointed to and shall not serve on the Board if he or she is one or more of the following:
 - Employed by MDHHS or the Authority.

- A party to a contract with the Authority or administering or benefiting financially from a contract with the Authority.
- Serving in a policy-making position with an agency under contract with the Authority.
- The Authority will notify each county of their respective vacancies on the NLCMHA Board within thirty (30) days' of receiving notification of a board member's departure. NLCMHA will also confirm to that county what type of vacancy needs to be filled, e.g., primary or secondary consumer, county commissioner, etc. The intent is to allow the rotation of the required types of appointments among the participant counties consistent with MDHHS requirements.
- If a Board member is an employee or independent contractor in other than a policy-making position with an agency with which the Authority is considering entering into a contract, the contract shall not be approved unless all of the following requirements are met:
 - The Board member shall promptly disclose his or her interest in any contract presented to the Board.
 - **Conflict Resolution Protocol:** The conflicted contract shall be approved by a vote of not less than eleven (11) of the membership of the Board in an open meeting without the vote of the Board member in question.
 - The official minutes of the meeting at which the contract is approved shall contain the details of the contract, including but not limited to the names of all parties and the terms of the contract, and the nature of the Board member's interest in the contract.

VIII.

Compensation & Expenses for Board Members

Authority Board members shall be paid per diems for meetings attended in an amount established by said Board pursuant to the Mental Health Code, as amended (see MCL § 330.1224). Said Board members shall receive a mileage reimbursement at a rate not in excess of the rate determined by the State Officers' Compensation Commission. A Board member shall not receive more than one per diem payment per day, regardless of the number of meetings attended relating to Authority business.

The Authority Board members shall be eligible for necessary other expenses and reimbursements as are authorized for the County Boards of Commissioners with respect to conferences, seminars and other related activities. (See MCL § 330.1224)

IX.

NLCMHA CEO and Board Member Duties

The Authority shall:

- Annually conduct a needs assessment to determine the behavioral health needs of the residents of the counties it represents and identify public and nonpublic services necessary to meet those needs. Information and data concerning the mental health needs of individuals with developmental disability, serious mental illness, and serious emotional disturbance shall be reported to the Department in accordance with procedures, and at a time, established by the Department, along with plans to meet identified needs. It is the responsibility of the Authority to involve the public and private providers of behavioral health services located in the counties served by the Authority in this assessment and service identification process. The needs assessment shall include information gathered from all appropriate sources, including community mental health waiting list data and school districts providing special education services.
- Annually review and submit to the Department a needs assessment report, annual plan, and request for new funds for the Authority. The standard format, minimum standards, and documentation of the needs assessment, annual plan, and request for new funds shall be specified by the Department. The participating counties in the NLCMHA reserve the right to request an expanded community needs assessment every three years. The content of the needs assessment will be agreed to by at least four of the NLCMHA counties.
- Provide a copy of each needs assessment, annual plan, and request for new funds to the Board of Commissioners of each participating county in the NLCMHA.
- Submit the needs assessment, annual plan, and request for new funds to the MDHHS by the date specified by the Department. This combined submission constitutes the NLCMHA's official reapplication for new state funds.
- Provide and advertise a public hearing on the needs assessment, annual plan, and request for new funds before providing them to each of the County Boards of Commissioners.
- Submit to each Board of Commissioners for its approval an annual request for county funds to support the program. The request shall be in the form and at the time determined by the Boards of Commissioners.
- Annually approve the Authority's operating budget for the year.
- Take those actions it considers necessary and appropriate to secure private, federal, and other public funds to help support the Authority.
- Approve and authorize all contracts for the provision of services.

- Review and evaluate the quality, effectiveness, and efficiency of services being provided by the Authority. The NLCMHA participating counties shall periodically identify and update specific evaluation criteria and standards to be used to determine adequate performance—current evaluation requirements are documented in this Agreement under **Section XVI, Transparency, Performance, and Quality Assurance**. These performance documents shall be in writing to each of the NLCMHA member counties. The NLCMHA Board and representative counties reserve the right to update performance and evaluation requirements on an annual basis.
- Appoint a Chief Executive Officer of the Authority to supervise and administer the Authority's community mental health services program who shall meet standards of training and experience established by the Department,
- Establish general policy guidelines within which the Chief Executive Officer shall execute the community mental health services program.
- Require the Chief Executive Officer to select a physician, a registered professional nurse with a specialty certification issued under section 1721O of the Public Health Code, Act No. 368 of the Public Acts of 1978, being MCL § 333.17210, or a licensed psychologist to advise the Chief Executive Officer on treatment issues.
- Deposit directly State and local contributions and all other funds, which the Authority has the duty to ensure are banked and accounted for consistent with requirements of the laws for local governmental units.
- Invest when appropriate surplus funds or proceeds of grants, gifts or bequests in generally accepted depositories or investments and account to the counties in accordance with the Fiscal Accountability section (Article XX).

X.

NLCMHA Board Attendance

It is required that all appointed NLCMHA Board members be available for the regular monthly meetings of the Board. All members of the NLCMHA governing board, including elected officers, shall be permitted three absences of regular Board meetings every twelve (12) successive months. Each member shall notify the NLCMHA Chair of the Board or his/her designee prior to the called meeting of a proposed absence. Absences will be recorded by the Secretary in the minutes of the meeting. The Secretary shall maintain an attendance record for each meeting.

If a Board Member anticipates an extended absence, this will be submitted in writing or documented during a regular board meeting (as part of the minutes) so that the Board may plan for and manage

the work assigned to that member. If there is an excess of three absences in a twelve-month (12) period, the NLCMHA Board Chair or his/her designee will notify the applicable county to determine if a new appointment should occur.

XI.

Powers of the Authority

In addition to other powers of a Community Mental Health Services Program (CMHSP) as set forth in the Mental Health Code, the Authority has all of the following powers (MCL § 330.1205 (4)),

- To fix and collect charges, rates, rents, fees, or other charges and to collect interest.
- To make purchases and contracts.
- To transfer, divide, or distribute assets, liabilities, or contingent liabilities. During the interim period between notification by a county under MCL § 330.1220 of its intent to terminate participation in a multi-county Authority and the official termination of that participation, the Authority's power under this subdivision is subject to any Agreement between the Authority and the county that is terminating participation, if that Agreement is consistent with the enabling resolution that created the Authority.
- To accept gifts, grants, or bequests and determine the manner in which those gifts, grants, or bequests may be used consistent with the donor's request.
- To acquire, own, operate, maintain, lease, or sell real or personal property. Before taking official action to sell residential property, however, the Authority shall do all of the following:
 - Implement a plan for alternative housing arrangements for recipients residing on the property.
 - Provide the recipients residing on the property or their legal guardians, if any, an opportunity to offer their comments and concerns regarding the sale and planning alternatives.
 - Respond to those comments and concerns in writing.

Additionally, the Authority has the authority to do the following in its own name:

- Enter into contracts and Agreements.
- Employ staff.
- Acquire, construct, manage, maintain, or operate buildings or improvements.
- Subject to subdivision 5, above, acquire, own, operate, maintain, lease, or dispose of real or personal property During the interim period between notification by a county under MCL § 330.1220 of its intent to terminate participation in a multi-county Authority and the official

termination of that participation, the Authority's power under this subdivision is subject to any Agreement between the Authority and the county that is terminating participation, if that Agreement is consistent with the enabling resolution that created the Authority.

- Incur debts, liabilities, or obligations that do not constitute the debts, liabilities, or obligations of the creating county or counties.
- Commence litigation and defend itself in litigation.
- To invest funds in accordance with statutes regarding investments.
- To set up reserve accounts, utilizing state funds in the same proportion that state funds relate to all revenue sources, to cover vested employee benefits including but not limited to accrued vacation, health benefits, the employee payout portion of the accrued sick leave, if any, and worker's compensation. In addition, the Authority may set up reserve accounts for depreciation of capital assets and for expected future expenditures for an organizational retirement plan.
- To develop a charge schedule for services provided to the public and utilize the charge schedule for first and third-party payers. The charge schedule may include charges that are higher than costs for some service units by spreading non-revenue service unit costs to revenue-producing service unit costs with total charges not exceeding total costs. All revenue over cost generated in this manner shall be utilized to provide services to priority populations.
- To be responsible for all executive administration, personnel administration, finance, accounting, and management information system functions. The Authority may discharge this responsibility through direct staff or by contracting for services.
- To borrow money:
- The Authority may borrow money to finance or refinance the purchase of real property or tangible personal property of the Authority. These contractual obligations shall be secured by a mortgage on the real property or a security interest or other lien on the tangible property. MCL § 330.1205 (10).
- The Authority may enter into an installment purchase agreement for the purchase or refinancing of personal property for public purposes. The installment purchase agreement for the purchase of personal property shall not be for a longer term than the useful life of the tangible personal property. MCL § 330.1205 (11)
- The Authority may borrow money and issue notes by resolution of a simple majority vote of its governing board, which notes shall not exceed 20% of the previous year's annual income and shall mature not more than 18 months from the date of their issuance. Notes shall be issued for the purposes of meeting expenses of the Authority, including the expenses of

operation and maintenance of its facilities, and payments due to its contracted service providers. Moneys borrowed under this section must conform to MCL § 330.1205 (13).

- To engage in or perform all other functions as authorized by statute or rule consistent with the function and purpose of the Authority.
- **Additional Powers:** All powers, duties, obligations, rights and protections not mentioned herein but otherwise provided by the Mental Health Code are included herein by reference.

XII.

Assets and Liabilities

The Authority is a Community Mental Health Authority and by MCL § 330.1100a, (13); MCL § 330.1204; is a separate legal and administrative public governmental entity from the county or counties that established it and created it under MCL § 300.1205; to operate as a community mental health program. The Authority as a public governmental body corporate has those powers herein defined and defined in the Mental Health Code, PA 258 of 1974, as amended, as well as those generally applicable to a separate legal entity, including the power to sue and be sued in its own name.

The participating counties creating the Authority are not liable for any intentional, negligent, or grossly negligent act or omission, for any financial affairs, or for any obligation of the Authority, its Board, employees, representatives, or agents.

All the privileges and immunities from liability and exemptions from laws, ordinances, and rules that are applicable to county Community Mental Health Agencies or Community Mental Health Organizations and their Board members, officers, and administrators, and county elected officials and employees of county government are retained by the Authority and the Board members, officers, agents, and employees of the Authority created under Section 205 of PA 290 of 1995, as amended. (MCL § 330:1205)

The Authority shall not levy any type of tax or issue any type of bond in its own name or financially obligate any unit of government other than itself. The Authority is precluded from using the word "county" or "counties" in its name or in any contracts, letter or other written document. The revenues and full faith and credit of the counties are not pledged or available for any liability of the Authority.

NLCMHA shall procure and maintain all risk insurance in the amount of ten million dollar (\$10,000,000) liability limit, workers compensation, errors and omissions and any other insurance coverage

appropriate or necessary for proper coverage of the Authority, its Board, Employees, and Agents to properly insure the Authority, considering its nature, purpose and function.

The value of NLCMHA's fixed assets is established in the Audited Financial Statements annually and confirmed by independent audit. The documentation of individual asset valuations may be obtained at the NLCMHA's Administrative Offices. The property owned by NLCMHA includes, but is not limited to, the following:

- Property at 2715 Townline Road, Houghton Lake, Michigan.
- Property at 1620 Wright Street, Cadillac, Michigan.
- Property at 204 Meadows Drive, Grayling, Michigan.
- Property at 527 Cobbs Street, Cadillac, Michigan.
- Property at 200 Topher Road, Houghton Lake, Michigan.
- Property at 3137 Cedar Valley Dr., Traverse City, Michigan.
- Property at 1265 Harvest West, Traverse City, Michigan.
- Property at 2105 6th Street, Cadillac, Michigan.

All current and future leases held by NLCMHA are the liability of the Authority and the NLCMHA member counties are similarly held harmless and indemnified from those contracts, and all related financial and legal obligations. This includes but is not limited to the lease with the Foundation for Mental Health for the property at 105 Hall St., Traverse City, Michigan.

XIII.

Personnel

The employees and contractors of the NLCMHA are not county employees or contractors. The NLCMHA is the employer with regard to all laws pertaining to employee and employer or contractor rights, benefits and responsibilities. NLCMHA employees will continue to accrue retirement and other benefits consistent to those documented in the NLCMHA policies.

XIV.

Funding

The Counties agree to annually fund the Authority's program at the amount of funds as appropriated by the Counties in calendar year 2003, at the funding level prescribed by MCL§ 330.1308, (2)):

- Crawford County: \$35,600
- Grand Traverse County: \$682,200
- Leelanau County: \$139,700
- Missaukee County: \$35,272
- Roscommon County: \$57,425
- Wexford County: \$76,543

The County funds will be payable to the Authority on a quarterly basis, in the first week of the quarter. The Authority will then be responsible for all county charges for public mental health services.

If the Department reduces its annual contribution to the Authority more than 10% below the base year funding for fiscal year 2002-2003, then the Counties may consider their termination of the counties' participation in the Community Mental Health program, in accordance with MCL § 330.1220.

XV.

Transfer of Assets & Liabilities

Upon the effective date of the establishment of the new Authority all assets, debts, liabilities and obligations of the two pre-existing Authorities are transferred to the new Authority. This transfer includes, but is not limited to, equipment, furnishings, supplies, cash, investments and other personal property, which shall be transferred to the Authority. The Authority shall indemnify and hold harmless the counties from any and all liability in regard thereto.

All the leases are legally held by the Authority. All contracts and agreements including contracts for behavioral health services have been transferred and assigned to the Authority. The Authority, where necessary, will obtain a novation of contracts.

XVI.

Transparency, Performance, and Quality Assurance

The NLCMHA CEO shall provide Crawford, Grand Traverse, Leelanau, Missaukee, Roscommon and Wexford Counties Board of Commissioners, separately, the following documents:

- An Annual Report to be provided in the first quarter of the calendar year covering the prior fiscal year,
- Quarterly and annual electronic copies of the Michigan Mission-Based Performance Indicator System Reports (MMBPIS) outlining the performance of all of the Michigan CMH entities,

- A monthly Key Performance Indicator Report (Attachment III) and, as requested,
 - Any information provided by the Northern Michigan Regional Entity (NMRE) pertaining to the NLCMHA region (e.g., outcomes, audits, etc.) will be provided to all of the NLCMHA counties.
 - Any and all information related to the operations of the Authority, within thirty (30) days of formal written request from any of the NLCMHA counties. Information requested from any county in the NLCMHA region will be provided to all member counties of the NLCMHA region. Refer also to Article XX. Fiscal Accountability, page twenty-one (21).

Additionally, the NLCMHA CEO will notify Crawford, Grand Traverse, Leelanau, Missaukee, Roscommon and Wexford Counties Board of Commissioners within 30 days of any of the following circumstances:

- Loss of insurance.
- Qualified opinion on financial audit or financial review.
- Pending or successful litigation claim against Provider.
- Any state or federal corrective action plans.
- Loss of substance use disorder (SUD) treatment, prevention, or Drug Enforcement Administration (DEA) license.
- Any change in state licensure or certification, including but not limited to termination, revocation, suspension or investigation.
- Loss of accreditation (if applicable).

XVII.

NLCMHA Dispute Resolution Process

Occasionally disputes may arise between NLCMHA, the NLCMHA member counties, and/or NMRE that cannot be resolved through amicable discussion. Any dispute related to the Bylaws of the NLCMHA or to this Enabling Agreement must be resolved in accordance with this Enabling Agreement which is also outlined in the NLCMHA Board Bylaws. Any other disputes between NLCMHA, the NLCMHA member counties, and/or the NMRE will be resolved as follows:

The Chief Executive Officer of the NLCMHA will attempt to resolve the dispute through discussion with the NLCMHA Board Members first.

If the dispute remains unresolved, one or more of the following parties may present the dispute to the NLCMHA Dispute Resolution Committee:

- The Board Chair or CEO of the NLCMHA,
- The Board Chair or CEO of the Northern Michigan Regional Entity (NMRE), and/or
- Any of the County Administrators and/or the Board Chairs of the NLCMHA member counties Boards of Commissioners.

The NLCMHA Dispute Resolution Committee will have seven voting members and an ex-officio, non-voting member appointed by the NMRE. The composition of the voting membership will consist of one designee from each of the participating NLCMHA counties with the exception of Grand Traverse County which will be allowed two voting members. The Dispute Resolution Committee will select a Chair and a Vice Chair by simple majority vote of the seven voting members annually in January. Decisions regarding disputes that are rendered by the NLCMHA Dispute Resolution Committee require a super majority vote of five of the Dispute Resolution Committee members. The NLCMHA Dispute Resolution Committee will discuss the documented dispute presented and render a written decision within thirty (30) days of receiving the (written) dispute.

If the dispute continues to be unresolved to the satisfaction of the Board Chairs and/or CEOs of NLCMHA and/or NMRE, and/or the County Chairs or Administrators of the NLCMHA member counties, those afore-mentioned parties are allowed to provide an alternative written description of a possible solution to the NLCMHA Dispute Resolution Committee. The NLCMHA Dispute Resolution Committee will have thirty (30) calendar days to review the alternative documented solution. Another vote of the NLCMHA Dispute Resolution Committee will be conducted consistent to the parameters described in the previous paragraph. The NLCMHA Dispute Resolution Committee may elect to provide the same written decision or provide a documented revision. The decisions rendered by the NLCMHA Dispute Resolution Committee will be final unless superseded by state or federal law. Notices of the meeting will be posted by each of the members of the NLCMHA Dispute Resolution Committee in their respective counties. The Dispute Resolution Committee meetings will be subject to the Open Meetings Act and will be open to public attendance.

XVIII.

Duration of Agreement and Rights Upon Termination

The duration of this Agreement shall be perpetual, unless dissolved as hereinafter provided. Any of the Counties participating pursuant to this Agreement may accomplish a termination by a resolution passed by a simple majority of their respective County Board of Commissioners with official notice from said County Board of Commissioners to the MDHHC, the Authority, and the other NLCMHA participant County Boards of Commissioners (MCL 330.1220). The date of termination shall be one (1) year following the receipt of such notification by the MDHHS, unless the Director of MDHHS

consents to an earlier termination. In the interim between notification and official termination, all Counties participation in the NLCMHA pursuant to this Agreement shall be maintained in good faith. Upon the termination of participation by any County, the Authority shall be dissolved on the effective date of termination.

Upon the termination or dissolution of the Authority, all assets net of liabilities shall be transferred to the successor Community Mental Health Services Program or Programs that replace the Authority. (MCL § 330.1205 {2} (c)).

Upon the termination or dissolution of the Authority and in the event that there is no successor organization or organizations providing mental health services, all other remaining assets net of liabilities shall be transferred to the Counties in proportion to the county population. The real property of the Authority, to the extent that it is not needed to satisfy any liabilities, will be transferred to the Counties in which the property is located.

XIX.

Amendment Procedures

This Agreement may be amended only by the mutual Agreement of all the contracting counties pursuant to a resolution authorized by all of the County Boards of Commissioners and entered into in writing.

XX.

Certification of Authority to Sign this Agreement

The persons signing this Operating Agreement on behalf of the parties hereto certify by said signatures that they are duly authorized to sign this Operating Agreement on behalf of said parties, and that this Operating Agreement has been authorized by said parties pursuant to formal resolution(s) of the appropriate governing body(is).

XXI.

Fiscal Accountability

The NLCMHA shall provide fiscal accountability to the participating NLCMHA counties and to the MDHHS in the following manner:

- An annual statement of revenue and expenses; and a report that indicates the amounts and cost of services provided to residents of each participating county.

- Provide to each participating NLCMHA counties, and to the MDHHS a copy of an annual independent audit performed by a certified public accountant in accordance with governmental auditing standards issued by the comptroller of the United States.
- A summary document of the general fund balance for NLCMHA annually including what funds were used and what is unspent.

XXII.

Conflict of Provisions

If there is any conflict between this Agreement and the Michigan Mental Health Code, as existing or as subsequently amended, the Mental Health Code shall prevail, and those provisions of this Agreement inconsistent therewith shall be deemed of no effect.

XXIII.

Effectuation of Agreement

This Agreement shall not take effect until approved by the Counties of Crawford, Grand Traverse, Leelanau, Missaukee, Roscommon and Wexford, and the Michigan Department of Health and Human Services (MDHHS) as provided for in MCL § 330.1205. Upon receipt of certification by the MDHHS (MCL § 330.1232a), this Agreement shall become effective on the first day of January, April, July, or October immediately following the date of final approval (MCL § 330.1219 (1)), after it has been filed with the Secretary of State and with the County Clerk of each participating county in the NLCMHA region.

The administrative business address of the Authority is as follows:

Northern Lakes Community Mental Health Authority
105 Hall Street, Suite A
Traverse City, Michigan 49684

Any subsequent change thereof by the Authority shall be reported in writing to the forming Counties, the MDHHS, and the Secretary of State.

NOTE: Signatures, following pages.

Crawford County

The persons signing this Agreement hereby verify by their signatures that they are authorized to execute this this Agreement pursuant to the appropriate County Boards of Commissioners resolutions.

IN THE PRESENCE OF:

CRAWFORD COUNTY:

By: _____
Chairperson, Crawford County
Board of Commissioners

County Seal

Date: _____

By: _____
Crawford County Clerk

Date: _____

Date Approved by the County: _____

FILED WITH:

Michigan Department of Health and Human Services
Elizabeth Hertel, Director
Date: _____

Crawford County Clerk
Sandra Moore, Crawford County Clerk and Register of Deeds
Date: _____

Secretary of State
Jocelyn Benson, Secretary of State
Date: _____

Grand Traverse County

The persons signing this Agreement hereby verify by their signatures that they are authorized to execute this Agreement pursuant to the appropriate County Boards of Commissioners resolutions.

IN THE PRESENCE OF:

County Seal

GRAND TRAVERSE COUNTY:

By: _____
Chairperson, Grand Traverse County
Board of Commissioners

Date: _____

By: _____
Grand Traverse County Clerk

Date: _____

Date Approved by the County: _____

FILED WITH:

Michigan Department of Health and Human Services
Elizabeth Hertel, Director
Date: _____

Grand Traverse County Clerk
Bonnie Scheele, Grand Traverse County Clerk and Register of Deeds
Date: _____

Secretary of State
Jocelyn Benson, Secretary of State

Date: _____

Leelanau County

The persons signing this Agreement hereby verify by their signatures that they are authorized to execute this Agreement pursuant to the appropriate County Boards of Commissioners resolutions.

IN THE PRESENCE OF:

LEELANAU COUNTY:

By: _____
Chairperson, Leelanau County
Board of Commissioners

County Seal

Date: _____

By: _____
Leelanau County Clerk

Date: _____

Date Approved by the County: _____

FILED WITH:

Michigan Department of Health and Human Services
Elizabeth Hertel, Director
Date: _____

Leelanau County Clerk
Michelle Crocker, Leelanau County Clerk
Date: _____

Secretary of State
Jocelyn Benson, Secretary of State
Date: _____

Missaukee County

The persons signing this Agreement hereby verify by their signatures that they are authorized to execute this Agreement pursuant to the appropriate County Boards of Commissioners resolutions.

IN THE PRESENCE OF:

MISSAUKEE COUNTY:

By: _____
Chairperson, Missaukee County
Board of Commissioners

County Seal

Date: _____

By: _____
Missaukee County Clerk

Date: _____

Date Approved by the County: _____

FILED WITH:

Michigan Department of Health and Human Services
Elizabeth Hertel, Director
Date: _____

Missaukee County Clerk
Jessica Nielsen, Missaukee County Clerk and Register of Deeds
Date: _____

Secretary of State
Jocelyn Benson, Secretary of State
Date: _____

Roscommon County

The persons signing this Agreement hereby verify by their signatures that they are authorized to execute this this Agreement pursuant to the appropriate County Boards of Commissioners resolutions.

IN THE PRESENCE OF:

ROSCOMMON COUNTY:

By: _____
Chairperson, Roscommon County
Board of Commissioners

County Seal

Date: _____

By: _____
Roscommon County Clerk

Date: _____

Date Approved by the County: _____

FILED WITH:

Michigan Department of Health and Human Services
Elizabeth Hertel, Director
Date: _____

Roscommon County Clerk
Michelle Stevenson, Roscommon County Clerk and Register of Deeds
Date: _____

Secretary of State
Jocelyn Benson, Secretary of State
Date: _____

Wexford County

The persons signing this Agreement hereby verify by their signatures that they are authorized to execute this Agreement pursuant to the appropriate County Boards of Commissioners resolutions.

IN THE PRESENCE OF:

County Seal

WEXFORD COUNTY:

By: _____
Chairperson, Wexford County
Board of Commissioners

Date: _____

By: _____
Wexford County Clerk

Date: _____

Date Approved by the County: _____

FILED WITH:

Michigan Department of Health and Human Services
Elizabeth Hertel, Director
Date: _____

Wexford County Clerk
Alaina Nyman, Wexford County Clerk
Date: _____

Secretary of State
Jocelyn Benson, Secretary of State
Date: _____

Attachment I

Schedule of Board Appointments by County

The following Schedule of Appointments is intended to stagger appointments, so that one third of appointments expire each year unless otherwise required due to board member resignations, terminations, or loss of eligibility due to change of residence, no longer an active commissioner, etc.).

- All appointments are consistent to each NLCMHA member counties policies and procedures. If a replacement board member is needed that (replacement) board member will fulfil the remainder of the departing board member’s term unless specified differently in that appointing NLCMHA member county’s policies and procedures.
- The ongoing target is to maintain a board that will not exceed 16 members with the following composition:

Types of Appointments to the NLCMHA Board

Board Member Types / Qualifications	Min/Max
Commissioners (one per county required)	6
Primary and Secondary Consumers (30% of board composition is required to be consumers per Michigan Mental Health Code)	2-3 (primary) + 2-3 (secondary) = 5 or more total members
Behavioral health Professionals; General Public; Public Officials	4-5
Total Members	16

- The intent is to have a balanced board having all different board member qualifications and backgrounds represented.
- Board appointments should not exceed the maximum number within each category of representation.
- For those types that have a minimum, appointments should have at least that number.
- Due to the larger population size, Grand Traverse County will have 6-seats on the NLCMHA Board.
- Each of the NLCMHA member counties are required to have one county commissioner representative serve on the NLCMHA board. If a NLCMHA member county cannot fulfill this specific placement that position will be held open on the NLCMHA board until it can be assigned. (MCL § 330.1222)

- In the event that a county commissioner appointee to the NLCMHA board does not continue to be an active commissioner, that individual will be required to step down from the NLCMHA board and that involved county will appoint a new, active commissioner to the NLCMHA board.

Attachment II

Adult Jail Diversion Practice Requirements

Statement of Purpose

The following are the Michigan Department of Health and Human Services (MDHHS) jail diversion requirements for Community Mental Health Services Programs (CMHSPs). The below summary is provided as required under the authority of the Michigan Mental Health Code, PA 258 of 1974, Sec. 330.1207 - Diversion from jail incarceration (Add. 1995, Act 290, Effective March 28, 1996).

330.1207 Diversion from jail incarceration. Sec. 207

The Michigan Mental Health Code states: “Each community mental health service program shall provide services designed to divert persons with serious mental illness, serious emotional disturbance, or developmental disability from possible jail incarceration when appropriate. These services shall be consistent with policy established by the department.” (Michigan Department of Health and Human Services)

Definitions

Arraignment: The stage in the court process where the person is formally charged and enters a plea of guilty or not guilty.

Booking: The stage in the law enforcement custody process following arrest, when the individual is processed for formal admission to jail.

CMHSP: Community Mental Health Services Program. A program operated under Chapter 2 of the Mental Health Code as a county mental health agency, a community mental health organization or a community mental health authority.

Co-Occurring Disorder: A dual diagnosis of a mental health disorder and a substance disorder.

MDHHS: Michigan Department of Health and Human Services.

GAINS Center: The National GAINS Center for People with Co-Occurring Disorders in the Justice System is a national center for the collection and dissemination of information about effective mental health and substance abuse services for people with co-occurring disorders who come in contact with the justice system. The GAINS Center is operated by Policy Research Inc. (PRI), through a

cooperative agreement administered by the National Institute of Corrections (NIC). (GAINS Center website at www.gainsctr.com).

In-jail Services: Programs and activities provided in the jail to address the needs of people with serious mental illness, including those with a co-occurring substance disorder, or a developmental disability. These programs or activities vary across the state and may include crisis intervention, screening, assessment, diagnosis, evaluation, case management, psychiatric consultation, treatment, medication monitoring, therapy, education and training. Services delivered are based on formal or informal agreements with the justice system.

Jail Diversion Training: Cross training of law enforcement, court, substance abuse and mental health personnel on the diversion system and how to recognize and treat individuals exhibiting behavior warranting jail diversion intervention.

Jail Diversion Program: A program that diverts individuals with serious mental illness (and often co-occurring substance disorder) or developmental disability in contact with the justice system from custody and/or jail and provide linkages to community-based treatment and support services. The individual thus avoids or spends a significantly reduced time period in jail and/or lockups on the current charge. Depending on the point of contact with the justice system at which diversion occurs, the program may be either a pre-booking or post-booking diversion program. Jail diversion programs are intended for individuals alleged to have committed misdemeanors or certain, usually non-violent, felonies and who voluntarily agree to participate in the diversion program.

Post-booking Diversion program: Diversion occurs after the individual has been booked and is in jail, out on bond, or in court for arraignment. Often located in local jails or arraignment courts, post-booking jail diversion programs staff work with stakeholders such as prosecutors, attorneys, community corrections, parole and probation officers, community-based mental health and substance abuse providers and the courts to develop and implement a plan that will produce a disposition outside the jail. The individual is then linked to an appropriate array of community-based mental health and substance abuse treatment services.

Pre-booking Diversion Program: Diversion occurs at the point of the individual's contact with law enforcement officers before formal charges are brought and relies heavily on effective interactions between law enforcement officers and community mental health and substance abuse services. Most pre-booking programs are characterized by specialized training for law enforcement officers.

Some model programs include a 24-hour crisis drop-off center with a no-refusal policy that is available to receive persons brought in by the law enforcement officers. The individual is then linked to an appropriate array of community-based mental health and substance abuse treatment services.

Screening: Evaluating a person involved with the criminal justice system to determine whether the person has a serious mental illness, co-occurring substance disorder, or a developmental disability, and would benefit from mental health services and supports in accordance with established standards and local jail diversion agreements.

330.1207a Persons entering criminal justice system; collaborative program to provide mental health treatment and assistance; interagency agreement; rules; funds. Sec. 207a.

(1) Each county shall have a written interagency agreement in place for a collaborative program to provide mental health treatment and assistance, if permitted by law and considered appropriate, to persons with serious mental illness who are considered at risk for 1 or more of the following:

- (a) Entering the criminal justice system.
- (b) Not receiving needed mental health treatment services during a period of incarceration in a county jail.
- (c) Not receiving needed mental health treatment services upon release or discharge from incarceration in a county jail.
- (d) Being committed to the jurisdiction of the department of corrections.

(2) Parties to the interagency agreement referenced in subsection (1) shall include, at a minimum, all of the following:

- (a) The county sheriff's department.
- (b) The county prosecutor's office.
- (c) The community mental health services program that provides services in that county.
- (d) The county board of commissioners.
- (e) A district court judge who serves in that county or, if there is more than 1 district in the county, a district court judge who serves in the county who is designated either by the chief judge of a district court within that county or a chief judge with authority over a district court in that county.
- (f) A circuit court judge who serves in that county who is designated either by the chief judge of the circuit court or by a chief judge with authority over the circuit court in that county.

(3) The interagency agreement referenced in subsection (1) shall, at a minimum, cover all of the following areas:

- (a) Guidelines for program eligibility.
- (b) Interparty communication and coordination.
- (c) Day-to-day program administration.
- (d) Involvement of service consumers, family members, and other stakeholders.
- (e) How the program shall work with local courts.
- (f) How the program shall address potential participants before and after criminal charges have been filed.
- (g) Resource sharing between the parties to the interagency agreement.
- (h) Screening and assessment procedures.
- (i) Guidelines for case management.
- (j) How the program described in subsection (1) will work with county jails.
- (k) Criteria for completing the program described in subsection (1).
- (l) Mental health treatment services that are available through the program described in subsection (1).
- (m) Procedures for first response to potential cases, including response to crises.
- (n) How the administrators of the program described in subsection (1) will report the program's actions and outcomes to the public.

(4) A county that has a written interagency agreement referenced in subsection (1) in place on the effective date of the amendatory act that added this section may maintain that interagency agreement but must ensure that its interagency agreement contains all of the provisions described in subsection (3).

(5) The department, the state court administrative office, and parties to the interagency agreement may establish additional policies and procedures to be included in the county interagency agreement required under this section.

(6) The department may promulgate rules to implement this section according to the administrative procedures act of 1969, 1969 PA 306, MCL 24.201 to 24.328.

(7) A county is not required to provide funds for the program described in subsection (1). In implementing the provisions of this section, a county is required to expend funds for the program described in subsection (1) only to the extent appropriated annually by the legislature for the program.

330.1207b Provision of mental health services to county jail inmates; use of state general fund/general purpose dollars by community mental health services program.

Sec. 207b. If a community mental health services program has entered into an agreement with a county or county sheriff to provide mental health services to the inmates of the county jail, the department shall not prohibit the use of state general fund/general purpose dollars by community mental health services programs to provide mental health services to inmates of the county jail.

Attachment III

Northern Lakes CMH Authority Key Performance Indicators (to be reported to the NLCMHA Member Counties Quarterly)

NLCMHA Mission: To improve the overall health, wellness, and quality of life of the individuals, families, and communities that we serve.

❖ Strategic Objectives

Objective	Strategic Objective
1	Transform the NLCMHA's behavioral health services into a nationally recognized, results-based model of care by promoting a common vision, accountable collective action, transparency, and innovative programs.
2	Ensure individuals served at NLCMHA receive quality services to meet their unique needs.
3	Ensure individuals and families receive quality services to meet their unique needs, resulting in access to the right services, at the right time, in the right amount.
4	Build and support a community that promotes recovery and resilience to help individuals and families thrive.
5	Promote behavioral health wellness through prevention and early intervention services and supports.
6	Strengthen community partnerships to better integrate and coordinate services towards a sustained shared vision of excellence
7	Create and maintain a highly efficient, transparent, and responsive organization.

❖ Key Performance Indicators

Measure	Prior Quarter Results	FY 22-23 Target	FY 22-23 Actual
Ensure individuals served at NLCMHA receive quality services to meet their unique needs. (5 Measures)			
Percent of consumers at NLCMHA readmitted to psychiatric inpatient services within 90 days		<20%	
Percent of consumers who were diverted from psychiatric inpatient admission		>30%	
Number of substantiated Recipient Rights' Complaints.		<5	
Number of Upheld Appeals		<5	
Number of Upheld Grievances		<5	
Ensure individuals and families receive quality services to meet their unique needs, resulting in access to the right services, at the right time, in the right amount. (6 Measures)			
Percent of adults newly enrolled in Mental Health services who had their first clinical service within 14 days of enrollment		>80%	

Percent of children newly enrolled in Mental Health services who had their first clinical service within 14 days of enrollment		>80%	
Percent of adults newly enrolled in Substance Abuse services who had their first clinical service within 14 days of enrollment		>80%	
Percent of adults newly enrolled in developmental disability services who had their first clinical service within 14 days of enrollment		>80%	
Percent of children newly enrolled in developmental disability services who had their first clinical service within 14 days of enrollment		>80%	
Percent of Substance Use Disorder (SUD) clients successfully discharged who re-entered services within 90 days		<25%	
Build and support a community that promotes recovery and resilience to help individuals and families thrive. (2 Measures)			
Number of certified peers employed during the quarter		>8	
Percent of consumers surveyed in the Behavioral Health Satisfaction Survey who were satisfied with the person-centered planning process		>85%	
Strengthen community partnerships to better integrate and coordinate services towards a sustained shared vision of excellence (1 Measure)			
Percent of consumers who were discharged from a psychiatric hospital and had a follow-up service within 30 days		>90%	

Workload Measures

Measure	Last Quarter Results	FY 2023 Target	FY 2023 Actual
Peer Specialists and Recovery Coaches (2 Measures)			
Number of new Certified Peer Specialists to include those in specialty tracks of family and youth		>2	
Number of people trained in Recovery Coaching		>5	
Communication (2 Measures)			
Number of public outreach events per quarter		>3	
Number of hits to the NLCMHA website		>100	
Outreach Services (1 Measure)			
Number of interventions from Crisis Response Team		>24	
Operational/Legal Matters (2 Measures)			
Staff turnover per quarter		<10%	
Claims filed with Michigan Municipal Risk Management Authority		<3	



COMPLETELINK® 2.0
AT&T ILEC Confirmation of Service Order
Provided Pursuant to Standard Service Publication Rates and Terms

Customer	AT&T
WEXFORD COUNTY Street Address: 437 E DIVISION ST City: CADILLAC State/Province: MI Zip Code: 49601 Country: USA	The applicable AT&T ILEC Service-Providing Affiliate
Customer Contact (for Notices)	AT&T Contact (for Notices)
Name: JOE PORTERFIELD Title: COUNTY ADMINISTRATOR Street Address: SAME City: State/Province: MI Zip Code: Country: USA Telephone: 231 779-9453 Fax: Email: administration@wexfordcounty.org	Name: VERNON WILLIAMS Street Address: 1628 VINCENNES AV City: CHICAGO HEIGHTS State/Province: IL Zip Code: 60411 Country: USA Telephone: 7083046210 Fax: Email: vw1297@att.com Sales/Branch Manager: RYAN ADDISON SCVP Name: Sales Strata: LED Sales Region: EAST With a copy (for Notices) to: AT&T Corp. One AT&T Way, Bedminster, NJ 07921-0752 ATTN: Master Agreement Support Team Email: mast@att.com
AT&T Solution Provider or Representative Information (if applicable) <input type="checkbox"/>	
Name: Company Name: Agent Street Address: City: State: Zip Code: Telephone: Fax: Email: Agent Code	

Customer agrees to subscribe to the CompleteLink® 2.0 discount program, in accordance with this Confirmation of Service Order ("CSO") subject to the following, which are incorporated by reference: (a) THE TERMS OF THE APPLICABLE TARIFF, IF THE SERVICE IS OFFERED PURSUANT TO TARIFF; OR (b) THE AT&T BUSINESS SERVICES AGREEMENT (BSA) FOUND AT <http://www.corp.att.com/agreement/> IF THE SERVICE IS NOT OFFERED PURSUANT TO TARIFF. The applicable AT&T Service Publication(s) are identified in Section 1. The terms and conditions provided in this CSO are provided herein for convenience only and do not supersede or modify any applicable Service Publication. In the event of a change to the applicable Service Publication, such change shall be incorporated by reference herein.

The Effective Date of this CSO is the date signed by the last party.

AT&T California currently provides billing and collections services to third parties, which may place charges that Customer authorizes on its bill. To the extent that AT&T California makes blocking of such charges available, Customer may block third-party charges from its bill at no cost.

Customer (by its authorized representative)	AT&T (by its authorized representative)
By:	By:
Printed or Typed Name:	Printed or Typed Name:
Title:	Title:
Date:	Date:

For AT&T internal use only	
Is this CompleteLink 2.0 associated with ABN Complete?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Sales must submit to Contract Management (CM): 1) Customer executed CSO, and 2) a duplicate of this CSO as a Word document, not a PDF file, OR an Excel list of the BTN's.	

COMPLETELINK® 2.0
AT&T ILEC Confirmation of Service Order
Provided Pursuant to Standard Service Publication Rates and Terms

1. DISCOUNT PROGRAM, SERVICE PROVIDER AND SERVICE PUBLICATION

Discount Program	CompleteLink® 2.0*
Customer must separately order services to which CompleteLink 2.0 applies.	

Service Provider (Select all that apply.)	Service Publication (incorporated by reference)	Service Publication Location
<input type="checkbox"/> AT&T Arkansas	AT&T Arkansas Guidebook, including Part 4, Section 5	http://cpr.att.com/guidebook/ar/index.html
<input type="checkbox"/> AT&T California	AT&T California Guidebook, including Part 9, Section 3	http://cpr.att.com/guidebook/ca/index.html
<input type="checkbox"/> AT&T Illinois	AT&T Illinois Guidebook, including Part 4 Section 5	http://cpr.att.com/guidebook/il/index.html
<input type="checkbox"/> AT&T Indiana	AT&T Indiana Guidebook, including Part 4, Section 2	http://cpr.att.com/guidebook/in/index.html
<input type="checkbox"/> AT&T Kansas	AT&T Kansas Guidebook, including Part 4, Section 5	http://cpr.att.com/guidebook/ks/index.html
<input checked="" type="checkbox"/> AT&T Michigan	AT&T Michigan Guidebook, including Part 4, Section 5	http://cpr.att.com/guidebook/mu/index.html
<input type="checkbox"/> AT&T Missouri	AT&T Missouri Guidebook, including Part 4, Section 5	http://cpr.att.com/guidebook/mo/index.html
<input type="checkbox"/> AT&T Ohio	AT&T Ohio Guidebook, including Part 4, Section 2	http://cpr.att.com/guidebook/oh/index.html
<input type="checkbox"/> AT&T Oklahoma	AT&T Oklahoma Guidebook, including Part 4, Section 5	http://cpr.att.com/guidebook/ok/index.html
<input type="checkbox"/> AT&T Texas	AT&T Texas Guidebook, including Part 4, Section 5	http://cpr.att.com/guidebook/tx/index.html
<input type="checkbox"/> AT&T Wisconsin	AT&T Wisconsin Guidebook, including Part 4, Section 2	http://cpr.att.com/guidebook/wg/index.html

2. TERM and EFFECTIVE DATES

Term:	2 years
Start Date of Term:	Upon initial implementation of Discount Program in the applicable AT&T systems
Effective Date of Rates and Discounts:	Start Date of Term
Rates Following Termination or Expiration of the Term:	Service Publication rates for Eligible services (as described in the applicable Service Publication) in effect at time of termination or expiration of the Term

3. MINIMUM ANNUAL REVENUE COMMITMENT (MARC) / MAXIMUM ANNUAL DISCOUNT

MARC* / Maximum Annual Discount	\$ 1200 MAD 240
* Contributory Services, as described in the applicable Service Publication, billed under BTNs in section 7 before the application of discounts and credits.	

4. RATES and DISCOUNTS

The rates and discounts below are listed for convenience only. If there is conflict between any rate or discount below and the corresponding Service Publication rate or discount in effect on the Effective Date, the Service Publication will control.

MARC Volume Discount (applies to Eligible services and may not exceed the Maximum Annual Discount)			
1 Year Term	1 Year Term	2 Year Term	2 Year Term
2% – MARC \$1,200	6% – MARC \$50,000	3% – MARC \$1,200	7% – MARC \$50,000
2% – MARC \$3,000	7% – MARC \$75,000	3% – MARC \$3,000	8% – MARC \$75,000
3% – MARC \$7,000	8% – MARC \$100,000	4% – MARC \$7,000	9% – MARC \$100,000
4% – MARC \$12,000	8% – MARC \$125,000	5% – MARC \$12,000	9% – MARC \$125,000
4% – MARC \$18,000	9% – MARC \$150,000	5% – MARC \$18,000	10% – MARC \$150,000
5% – MARC \$25,000	10% – MARC \$200,000	6% – MARC \$25,000	11% – MARC \$200,000
5% – MARC \$35,000		6% – MARC \$35,000	

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AT&T ILEC Confirmation of Service Order
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Business Access Line Rates:

State	Monthly Recurring Rate, per Line
AR, IN, KS, MO, OK, TX	\$44.00
KS - EAS	\$51.00
CA, IL, MI, OH, WI	\$33.00

PBX Analog Trunk Discounts:

State	1 Year	2 Year
AR, KS, MO, OK, TX	10%	10%

Optional Features:Optional Features Discount (applies to Central Office Optional Features as described in the applicable Service Publication)	Discount
	40%

Local Usage Rates/Discounts:

State	Per Minute Rate	
	1 Year	2 Year
CA - Zone 1	\$0.019	\$0.019
CA - Zone 2	\$0.019	\$0.019
CA - Zone 3	\$0.024	\$0.024
IL - Band A	\$0.016	\$0.016
IL - Band B	\$0.034	\$0.034
IL - Band C	\$0.055	\$0.051

State	Per Message Rate	
	1 Year	2 Year
MI	\$0.090	\$0.090
OH	\$0.070	\$0.070
WI	\$0.110	\$0.110

Local Usage Service Level Discount: For BTNs listed in section 7 that include a combination of Exchange Access Lines and/or Centrex with ISDN PRI and PBX Trunks. (Does not apply to per message rate listed above.)

State	Discount
MI	35%
OH	15%
WI	30%

Rates – IntraLATA/Local Toll Per Minutes of Use (MOU) - Intrastate:

State	1 Year	2 Year
IL, IN, MI, OH, WI	\$0.055	\$0.054
AR, KS, MO, OK, TX	\$0.100	\$0.100
CA	\$0.060	\$0.060

Rates – IntraLATA Long Distance Usage Per Minutes of Use (MOU) - Interstate:

State	1 Year	2 Year
IL, IN, MI, OH, WI	\$0.120	\$0.115

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5. SHORTFALL CHARGE

Shortfall Charge:	if Customer fails to meet the MARC in any completed year of the Term, the difference between the MARC and the actual billings for Contributory Services
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6. EARLY TERMINATION CHARGE

Main BTN State	Early Termination Charge
AR, CA, KS, IN, MI, MO, OH, OK, TX, WI	<p>With No IL BTNs</p> <ul style="list-style-type: none"> • 50% of the unsatisfied MARC (after application of any Shortfall Charges) for the balance of the Term <p>With IL BTNs</p> <ul style="list-style-type: none"> • MARC is prorated for amount of MARC Eligible Charges in IL and outside IL <ul style="list-style-type: none"> ○ For IL BTNs, IL MARC Termination Charge; plus ○ For non-IL BTNs, 50% of the unsatisfied MARC (prorated after application of any Shortfall Charges) for the balance of the Term
IL	<ul style="list-style-type: none"> • the amount of unearned discounts for the 12-month period immediately preceding Customer's early termination ("IL MARC Termination Charge"). Unearned discounts are calculated by subtracting the discounted charges for Eligible services actually incurred during the twelve months immediately preceding termination from the discounted charges for those Eligible services that Customer would have incurred during that period under the longest CompleteLink 2.0 term for which the Customer would have actually qualified based upon the actual term of service (or Service Publication month-to-month rates for those Eligible services if the Customer would not have qualified for any CompleteLink 2.0 term)

7. BILLING TELEPHONE NUMBER (BTN) LIST

Eligibility: (max. of 1,000 BTNs)	<p>All BTNs listed below or in an attachment:</p> <ul style="list-style-type: none"> • must be valid business lines; • may not be Consolidated or Special Bill Numbers; • may not include Bill-Under, Working Telephone Numbers (WTNs), Account Telephone Numbers (ATNs), Cross Reference, Pager, Cell Phone, Pay Phone, Directory Advertising, Toll Free (800, 866, etc.) or Residential Numbers • are all of the BTNs intended by Customer to be included on Effective Date <p>To qualify as an Eligible or Contributory Service, a service must be billed under one of the listed BTNs or under a BTN added by Customer through Customer's AT&T Sales Contact.</p>
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BTN List follows



**MARCH 2023 MONTHLY REPORT TO
WEXFORD COUNTY BOARD OF COMMISSIONERS**



WEXFORD COUNTY PROSECUTING ATTORNEY

COREY J. WIGGINS

COURTHOUSE

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CADILLAC, MI 49601
(231) 779-9505



Johanna C. Carey
Chief Assistant Prosecutor

Cathy Wright
Office Administrator

Nathanael S. Karnes
Assistant Prosecutor

April 10, 2023

Wexford County Board of Commissioners
437 E. Division St.
Cadillac, MI 49601

Re: March 2023 Monthly Report

Greetings:

During the month of March our office received and reviewed 150 police reports for charges. The reports resulted in the issuance of 101 new criminal files. The breakdown of the files are:

28	Adult Felony files
72	Adult Misdemeanor files
1	Juvenile Misdemeanor files

The three attorneys in our office prepared for and attended 364 court hearings for the month. Of those 364, more than 21 that we prepared for did not run for various reasons (including pleas being entered, the hearing being waived or adjournments).

In addition to the criminal files, our office also had over 30 child support files open, and our IV-D director met with 11 new potential cases.

Our victim advocate had 148 contacts with victims in the month of March. Those contacts consist of the following:

124	telephone calls
14	accompaniments to court hearings with victims
10	meetings with prosecutors and victims

No applications were received during the month for the open assistant prosecutor position that has been vacant since November.

As some of you are aware, prosecutors across the state are in the position of having to update our case management systems. At the February PAAM (Prosecuting Attorney Association of Michigan) Mid-

STEVE SCHRYER
Child Support Specialist
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CHERI SPRIK
Victim Advocate
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Winter conference there were several options presented. In March, a vote was taken amongst the members as to what program will replace our current program. The program selected by the members will cause a substantial increase in our PAAM association dues. Currently, we are paying \$104 per user per year. Our office has nine users. The new program is expected to increase to \$1,400 per user per year. Currently, PAAM is looking at some funding sources to help offset the cost of the program.

Additionally, I have had a couple of meetings with various legislators in hopes of finding some state funding for prosecutor offices across the state. The current prosecutor shortage in Michigan and in other regions of the country is very concerning. As I said during a recent finance meeting, money is not the fix-all to the problem, but increased funding will certainly help.

As always, please feel free to contact about any questions or concerns that you may have regarding our office.

Best Regards,



Corey J. Wiggins
Wexford County Prosecuting Attorney