OUTAGAMIE COUNTY

HAZARD MITIGATION PLAN

2024 - 2029

Prepared by :
Emerga LLC,
Christina Muller

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1. PLANNING PROCESS

This section provides a comprehensive account of the planning methodology employed to devise the Plan Update. It delves into the preparation phase of the plan, the key stakeholders involved in the process, and outlines the public's involvement in the initiative.

PURPOSE

This plan delivers detailed information on the level and magnitude of risk at the county and municipal level, along with effective strategies to minimize the impact of these risks. The county has addressed various issues related to safeguarding lives, protecting critical facilities, and reducing community and taxpayer costs associated with disaster relief and rescue efforts. The successful completion and approval of this plan ensures Outagamie County's eligibility to apply for future FEMA disaster relief and mitigation project funds, which will help the county implement effective mitigation strategies.

FUNDING

Outagamie County received a Building Resilient Infrastructure and Communities (BRIC) Grant from the Federal Emergency Management Agency (FEMA) to update the Hazard Mitigation plan. Through the grant, FEMA provided 75 percent of the funds ($25,126) for the plan update process. Outagamie County provided a required 25 percent match ($8,375) toward the plan. Outagamie County entered a contract with Christina Muller of Emerga, LLC to complete the update of the Hazard Mitigation plan.

FACILITATION OF PLAN UPDATE

The planning process was led by Outagamie County Emergency Management and Emerga LLC to oversee plan implementation, review, and updating. Emergency Management served as the fiscal agent and administered all aspects of the FEMA BRIC Grant.

To help facilitate the plan update process, the consultant:

- Completed the contract of services for the planning process, compilation of data, meeting facilitation, and draft plan update.
- Facilitated meetings and other coordination activities between the County and all participating municipalities.

OUTAGAMIE COUNTY HAZARD MITIGATION PLANNING TEAM

Outagamie County Emergency Management invited partners at the local, county, regional, and federal levels to participate in the Planning Team. The team met monthly in various locations to complete the plan update. Public review and input were encouraged at all meetings and through public meetings to present the plan goals, mitigation strategies, and mapped hazard

areas. Table 1 identifies the Planning Team of federal, state, county, municipal, and partner representatives that provided input to the Outagamie Plan Update process.

Table 1 County Hazard Mitigation Planning Team

Agency	Name | Title | Department
Outagamie County	Kara Homan, Development & Land Services (DLS) Director Sadie DiNatale Burda, Principal Planner/Acting DLS Director Traci Meulemans, GIS Specialist, DLS Emma Dziengeleski, DLS Intern Paula Van De Leygraaf, Emergency Management Director, Emergency Management (EM) Melissa Hackl, Deputy Director, EM Chrissi Lowery, Emergency Management Specialist, EM Rob Olson, Emergency Management Specialist, EM Amie Bastian, Aging & Long Term Support Manager, Health and Human Services (HHS) JP Heim, Public Health Emergency Preparedness Planner, HHS Natalie Oostenbrug, Diversity, Equity and Inclusion Officer, Administration Dean Steingraber, Highway Commissioner, Highway Department Mike Joosten, Engineering Technician, Highway Department Greg Baneck, Land Conservation Director/Conservationist Sarah Kussow, Watershed Planner/GIS Specialist, Land Conservation Ryan Carpenter, Captain, Sheriff Department
City of Appleton	Cassidy Walsh, Emergency Management Coordinator, Public Health Mike Stanonik, Safety/Operations, Public Works
City of Kaukauna	Zach Moureau, Compliance Manager, Kaukauna Utilities Dave Pahl, Manager General Substation, Kaukauna Utilities
Town of Ellington	Jim Bentle, Chief, Fire Department
State of Wisconsin	Lt. Chris Shea, Law Enforcement Supervisor, Department of Natural Resources
Wisconsin Hospitals	Tracey Froiland, Coordinator, Fox Valley HealthCare Emergency Readiness Coalition
We Energies	Scott Sheppard, Principal Representative – Government/Local Affairs
Federal	Kurt Kotenberg, Warning Coordination Meteorologist, National Weather Service: Green Bay
Consultant	Christina Muller, Emerga LLC

Note: Various regional, county, and local agencies, partners, and the public have participated in and contributed to the development of this Plan, as identified in the following sections.

PLANNING PARTNERSHIPS AND ACTIVITY

PARTICIPATING MUNICIPALITIES

The planning area for the Outagamie County Hazard Mitigation Plan 2023-2028 covers all of Outagamie County including the municipalities in the following tables. During 2022, Outagamie County Emergency Management invited the municipalities within the County to participate in the plan update process through emails and at the Towns Association meeting. Each participating municipality completed the Agreement to Participate form which designated a primary and alternate planning point of contact for plan development and coordination (see Table 5 for participating municipal contacts).

Below is the status of cities participating in the Hazard Mitigation Plan. The City of New London is participating in Shawano County's plan.

Table 2 Cities Participation in the Hazard Mitigation Process

City	Agreement to Participate	Risk & Vulnerability Assessment	Capability Assessment	Mitigation Strategies	Approved Plan
Appleton	x	x	x	x	
Kaukauna	x	x	x	x	
Seymour	x	x	x	x	

Below is the status of villages participating in the Hazard Mitigation Plan. The Villages of Howard and Wrightstown are participating in Brown County's plan.

Table 3 Villages Participation in the Hazard Mitigation Process

Village	Agreement to Participate	Risk & Vulnerability Assessment	Capability Assessment	Mitigation Strategies	Approved Plan
Bear Creek	x	x	x	x	
Black Creek	x			x	
Combined Locks	x				
Greenville	x				
Hortonville	x	x	x	x	
Kimberly	x	x	x	x	
Little Chute	x				
Nichols	x	x	x	x	
Shiocton	x	x	x	x	

Table 4 Towns Participation in the Hazard Mitigation Process

Town	Agreement to Participate	Risk & Vulnerability Assessment	Capability Assessment	Mitigation Strategies	Approved Plan
Black Creek	x				
Bovina	x	x	x		
Buchanan	x	x	x		
Center	x	x	x	x	
Cicero	x	x	x	x	
Dale	x				
Deer Creek					
Ellington	x				
Freedom					
Grand Chute	x	x	x	x	
Hortonia					
Kaukauna	x				
Liberty	x	x	x		
Maine	x				
Maple Creek	Declined	-	-	-	-
Oneida	x				
Osborn	x				
Seymour	x	x	x	x	
Vandenbroek	x	x	x	x	

MUNICIPAL PLANNING CONTACTS

Municipalities completing the form, agreed to work with the Emergency Management to update the Hazard Mitigation Plan to meet FEMA guidelines by:

1. Coordinate the municipality's agencies input to complete a risk assessment.
2. Track hours spent completing the plan update for the grant match.
3. Provide input on local mitigation strategies and complete assessments for community hazards.
4. Participate in public outreach activities to gain public input on the draft plan.
5. Review and approve draft plan documents.
6. Adopt the final draft of the plan through a formal resolution.

Table 5 Primary and Alternate Municipal Planning Contacts

Municipality	Title	Name
Appleton	EM Coordinator	Cassidy Walsh
Appleton	EM Deputy Coordinator	Ethan Kroll
Bear Creek - Village	Trustee	Julie Miller
Bear Creek - Village	Clerk	Ashley Janke
Black Creek - Town	Chairman/ Zoning Administrator	Dan Knutsen
Black Creek - Town	Supervisor	Tom Neubert
Black Creek - Village	EM Director	Ryan Schomisch
Black Creek - Village	Assistant Fire Chief	Paul Sassman
Bovina	Chairman	Doug Pahlow
Bovina	Clerk/Treasurer	Charles Pluger
Buchanan	Fire Chief	Ray Mohr
Buchanan	Town Administrator	Maggie Mahoney
Center	Clerk/Treasurer	Amy Olson
Center	Town Board Supervisor	Steve Schmeichel
Cicero	Chairman	Steve Hackl
Cicero	Supervisor	Kelly Seitz
Combined Locks	Administrator	Racquel Shampo-Giese
Combined Locks	Fire/EMS Chief	Ken Wiedenbauer
Dale	Town Chairperson	Douglas Wunderlich
Dale	Fire Chief	Chad Degal
Ellington	Fire Chief	James Bentle
Ellington	Chairman	Joe Schumacher
Grand Chute	Assistant Fire Chief	Matthew Kasriel
Grand Chute	Assistant Fire Chief	Kelly Hanink
Greenville	EM Director	Chris Schlechta
Greenville	Fire Chief	Tim Lambie
Hortonville	Police Chief	Chris Brownson
Hortonville	Administrator	Nathan Treadwell
Kaukauna - Town	EMS Chief/ Town Supervisor	Shane Robley
Kaukauna - Town	Town Chair	Mike Van Asten
Kaukauna - City	Fire Chief/Emergency Management	Jake Carrel
Kaukauna - City	Assistant Fire Chief	Craig Schneider
Kimberly	Village Administrator	Margaret Mahoney
Kimberly	Director of Operations	Greg Ulman
Liberty	Chairman	Scott Retzlaff
Liberty	Supervisor	Scott Wright
Little Chute	Village Administrator	Beau Bernhoft
Little Chute	Police Chief	Dan Meister

Municipality	Title	Name
Maine	Chairman	Cory Demerath
Maine	Supervisor	Harley Griesbach
Nichols	President	Terry Scheller
Nichols	Clerk	Linda Hoes
Oneida - Town	Clerk/Treasurer	Kelly Hill
Oneida - Town	Chairperson	Scott Schaumberg
Osborn	Chairman	Al Timm
Osborn	Supervisor	Dennis Hoffman
Seymour - City	Police Chief	Issac Schultz
Seymour - City	City Administrator	Sean Hutchison
Seymour – Town	Town Chair	Michael Barclay
Seymour – Town	First Supervisor	Aaron Melchert
Shiocton	Fire Chief/ Village Trustee	Butch Bunnell
Shiocton	Village President	Terri James
Vandenbroek - Town	Clerk	Cory Swedberg
Vandenbroek - Town	Town Chair	Jason Wegand

PLANNING PARTNERSHIP ACTIVITIES

All municipalities were provided with an Agreement to Participate to begin the update process with municipalities. Once the agreement was completed, the following documents were distributed in sequential order:

- Hazard Risk and Vulnerability Assessment
- Capability Assessment
- Mitigation Strategies Worksheet

Table 6 presents a summary of the planning partnership efforts implemented during the development process for this Plan, key milestones in the Plan's development and if the meeting location is on a Valley Transit bus route. Details regarding participants listed in attendance are in Table 1.

Table 6 Planning Partnership Activities

Date	Activity	Participants
May 2, 2022	OCEM department and consultant began pre-planning by discussing the plan's purpose, requirements, timeline, and logistics. Also reviewed invitation of planning team members.	Outagamie County Emergency Management: Director, Deputy Director, and EM Specialist Consultant

Date	Activity	Participants
May 5, 2022	Invitation to participate sent to all municipalities in Outagamie County. Included an agreement of participation and expected actions.	Municipalities listed in Tables 2, 3 and 4
May 2022 – August 2023	Consultant completed outreach with local municipalities on the update process and coordinate information gathering of: • Agreement to Participate • Hazard Risk & Vulnerability Assessment • Capability Assessment • Mitigation Strategies	Municipalities listed in Tables 2, 3 and 4
May 24, 2022 County Emergency Management Office, City of Appleton Valley Transit Routes 2 and 9	Initial Hazard Mitigation Planning Team Meeting: Planning process overview, the team purpose, public outreach discussion and data needs. Requested partner plans for documenting capabilities.	Outagamie County Emergency Management: Director, Deputy Director, and EM Specialist Development & Land Services: Principal Planner Sheriff: Captain. Highway: Commissioner Land Conservation: Conservationist/Director WI DNR Law Enforcement Supervisor Appleton EM Coordinator Kaukauna Utilities Compliance Manager and Manager General Substation WE Energies Principal Representative – Government/Local Affairs National Weather Service Warning Coordination Meteorologist Consultant
June 13, 2022 County Sheriff's Department, City of Appleton	Public Input on Hazard Perception and Risk: possible survey questions, survey methods and languages.	Outagamie County Administration: Diversity, Equity, and Inclusion Officer Emergency Management Director, Deputy Director, EM Specialist Develop Land Services: Director and GIS Specialist Highway: Commissioner Land Conservation: Conservationist/Director

Date	Activity	Participants
1 block from Valley Transit Route 16		Sheriff: Captain WI DNR Law Enforcement Supervisor Consultant Appleton Public Works Safety/Operations Kaukauna Utilities Compliance Manager and Manager General Substation WE Energies Principal Representative – Government/Local Affairs Consultant
September – October 2022	Public Outreach to the public and partners servicing vulnerable and underserved groups.	Outagamie Emergency Management Planning Team Members Consultant
August 10, 2022 Highway Department, Village of Little Chute	Discuss the draft public participation plan and draft resident survey questions.	Outagamie County Emergency Management: Director, Deputy Director, and EM Specialists Develop Land Services: Director and GIS Specialist Highway: Commissioner Land Conservation: Watershed Planner/GIS Specialist Sheriff: Captain WI DNR Law Enforcement Supervisor WE Energies Principal Representative – Government/Local Affairs Consultant
September 15, 2022 County Emergency Management, City of Appleton Valley Transit Routes 2 and 9	Update on Public Survey process. Discuss partner capabilities and plans, reviewed previous natural and manmade hazards for assessment. Discuss which community assets, critical facilities, identifying vulnerable populations and lifelines for plan inclusion. Reviewing and documenting community capabilities. Discuss Risk and vulnerability assessment format.	Outagamie County Emergency Management: Director, Deputy Director, and EM Specialists Develop Land Services: Director Land Conservation: Watershed Planner/GIS Specialist Appleton EM Coordinator WI DNR Law Enforcement Supervisor WE Energies Principal Representative – Government/Local Affairs Consultant
October 17, 2022	Outagamie County Towns Association Meeting: Hazard	Outagamie County Emergency Management: Director Towns: Elected officials

Date	Activity	Participants
Town of Oneida	Mitigation planning process, requirements, and benefits. Handout provided.	
October 20, 2022 Appleton Fire Department, Station 6 Valley Transit Route 16	Public survey results reviewed and discussed. Complete Risk and Vulnerability Assessment.	Outagamie County Emergency Management: Director, Deputy Director, and EM Specialist Development & Land Services: Principal Planner Land Conservation: Watershed Planner/GIS Specialist Appleton EM Coordinator WI DNR Law Enforcement Supervisor National Weather Service: Warning Coordination Meteorologist Consultant
December 6, 2023 National Weather Service - Green Bay	Reviewed and discussed completed natural hazard risk and vulnerability assessment. Finish Manmade Risk and Vulnerability Assessment.	Outagamie County Emergency Management: Deputy Director and EM Specialist Highway: Engineering Technician Appleton EM Coordinator WE Energies Principal Representative – Government/Local Affairs National Weather Service: Warning Coordination Meteorologist Consultant
January 9, 2023 Town of Ellington	Local Planning Support Meeting – Town of Ellington Discuss the wildland/vegetation grassfire risk and mitigation strategies for rural and recreational areas.	Outagamie County Emergency Management: EM Specialist Ellington Fire Chief/EM Coordinator and Assistant Fire Chief Consultant
January 19, 2023 Virtual Meeting (due to weather)	Manmade Risk and Vulnerability Assessment, Discussed Future Weather Impacts on Hazard Risks	Outagamie County Emergency Management: Director and Deputy Director Land Conservation: Watershed Planner Development & Land Services: DLS Intern Appleton EM Coordinator Ellington Fire Chief/EM Coordinator and Assistant WI DNR Law Enforcement Supervisor

Date	Activity	Participants
		WE Energies Principal Representative – Government/Local Affairs National Weather Service Warning Coordination Meteorologist Consultant
February 23, 2023 Virtual Meeting (due to weather)	Review and update previous mitigation strategies. Add new county mitigation strategies.	Outagamie County Emergency Management: Director, Deputy Director, and Emergency Management Specialist Health and Human Services: Aging and Long Term Support Manager and Preparedness Planner Highway: Engineering Technician Land Conservation: Watershed Planner/GIS Specialist WE Energies Principal Representative – Government/Local Affairs National Weather Service Warning Coordination Meteorologist Appleton EM Coordinator WI Hospitals Fox Valley HealthCare Emergency Readiness Coalition Coordinator WI DNR Law Enforcement Supervisor Consultant
March – May 2023	Gather data and map development	Development & Land Services: GIS Specialist
March 23, 2023 Appleton Fire Department, Station 6 Valley Transit Route 16	Reviewed ranked risk assessments and vulnerabilities from local municipalities. Discussed new natural hazards mitigation strategies.	Outagamie County Emergency Management: Director, Deputy Director, and Emergency Management Specialist Health and Human Services: Preparedness Planner Highway: Commissioner and Engineering Technician Land Conservation: Watershed Planner/GIS Specialist Appleton EM Coordinator WE Energies Principal Representative – Government/Local Affairs Consultant

Date	Activity	Participants
April 13, 2023 Airport Public Safety Building – Village of Greenville	Discussed new natural hazards mitigation strategies, underserve populations and plan maintenance procedures.	Outagamie County Emergency Management: Director, Deputy Director, and Emergency Management Specialist Health and Human Services: Aging and Long Term Support Manager and Preparedness Planner Highway: Engineering Technician Appleton EM Coordinator WE Energies Principal Representative – Government/Local Affairs Consultant
April 19, 2023 Appleton City Hall	Local Planning Support Meeting – City of Appleton Reviewed past municipal mitigation strategies and discussed new mitigation strategies and funding opportunities.	Appleton Emergency Management: EM Coordinator Public Works: Director, City Engineer, and Deputy - Operations Community Development: Director Risk Management: Risk Manager Consultant
May 11, 2023 City of Kaukauna Public Library	EM discussed incorporating Integrated Preparedness Plan workshops into hazard mitigation planning and vice versa. Reviewed mitigation plan goals, and reviewed maps for 2023 Plan. Discussed plan maintenance and integration of procedures and feedback for the draft plan. Reassessed identified critical facilities based on social vulnerability and underserved communities.	Appleton Emergency Management: EM Coordinator Outagamie Emergency Management: Deputy Director and Emergency Management Specialist Health and Human Services: Public Health Emergency Preparedness Planner Development & Land Services: Principal Planner WI DNR Law Enforcement Supervisor Consultant
March – September 2023	Reviewing policy documents, documenting the planning process and draft plan development	Consultant
September 28, 2023	Planning Team reviewed and updated the Draft Plan as necessary.	

Date	Activity	Participants
Town of Freedom Fire Department		
October 2023	Draft plan available for public comment.	Outagamie County, municipalities, and the public
November 2023	Draft plan submitted to Wisconsin Emergency Management/FEMA for review and approval.	Outagamie County Emergency Management Consultant
2024	Comments reviewed by the Planning Team and appropriately incorporated Plan development was completed with the adoption of the plan by resolution at the Outagamie County Board meeting on Month XX, 2024.	Outagamie County Emergency Management

STAKEHOLDER OUTREACH AND INVOLVEMENT

Efforts were made throughout the plan update process to assure broad regional, county, and local representation and participation. Stakeholder outreach was performed early on and continually throughout, the planning process. Several stakeholders and neighboring jurisdictions attended planning committee meetings or were engaged in the information collection process.

The following is a list of the various stakeholders invited to participate in the development of this Plan, along with a summary of their participation and contribution to the Plan.

FEDERAL

FEMA Region V: provided plan update guidance through Wisconsin Emergency Management including the updated planning standards.

National Weather Service - Green Bay: provided input to Emergency Management through meetings and correspondence on severe weather storm summaries, climate data, and explanations of weather phenomena.

STATE

Wisconsin Emergency Management: The WEM hazard mitigation planners provided guidance on updating the plan, including detailed guidance and a review of the draft plan documents.

Wisconsin DNR: Attended planning meetings through the update process and provided details on risk, vulnerability, and mitigation strategies for the community.

REGIONAL

Wisconsin Hospitals: Provided input to the plan update process through meetings held including information on vulnerable infrastructure and potential mitigation projects.

NEIGHBORING COMMUNITIES

Oneida Nation Emergency Management: Director was invited to the meeting, received meeting minutes to summarize activities and contacted regarding any hazard mitigation concerns. This is an important relationship as portions of eastern Outagamie County are within Oneida Nation.

Border Counties: The Emergency Management Office of Brown, Calumet, Shawano, Waupaca, and Winnebago counties were contacted regarding any hazard mitigation concerns.

LOCAL MUNICIPALITIES

City of Appleton: Attended planning meetings through the update process and provided details on risk, vulnerability, and mitigation strategies for their community. Also completed a local planning support meeting for the coordination of municipality efforts.

City of Kaukauna: Attended planning meetings through the update process and discussed risk and vulnerability for their community.

Town of Ellington: Attended planning meetings through the update process and provided details on risk, vulnerability, and mitigation strategies for their community. Also completed a local planning support meeting to discuss vegetation/peat moss fire risk and vulnerability for Ellington surrounding rural areas, and recreational spaces in Outagamie County.

Outagamie County Fire Chiefs Association: Most of the participating municipalities had direct input from their local fire departments. Many of the Chiefs were the municipality contacts for the plan. The President of the Fire Chief Association assisted with the update of county-level mitigation strategies regarding county-wide fire activities.

Outagamie County Towns Association: During the October 17, 2022, Town Association meeting, the Emergency Management Director presented the process to update the plan, planning requirements and information flyer (Appendix D).

NONPROFIT ORGANIZATIONS

Leaven (Limited Emergency Assistance Valley Ecumenical Network): Connected with the Client Services Director on the purpose of the Hazard Mitigation process. The organization was invited to attend meetings and was given meeting minutes to summarize the activities.

Multicultural Coalition, Inc: Dispersed public surveys in English, Hmong, and Spanish to their partner agencies for distribution.

Hmong American Partnership (HAP): Met with the President of HAP to discuss the Hmong community's perspective and response to disasters. The President also assisted in the Hmong translation of the survey.

PRIVATE ORGANIZATIONS

We Energies: Provided input through meetings and correspondence on utility risks, capabilities, vulnerabilities, and mitigation strategies.

COUNTY

Outagamie County Development & Land Services: Provided county and local data and information including maps, future, and ongoing project information, and provided mapping services.

Outagamie County Emergency Management: Applied and facilitated the grant, managed, and facilitated the plan update process, provided county and local data and information, updated relevant county-level mitigation strategies, and reviewed the draft plan.

Outagamie County Health and Human Services: Represented the residents from the aging, disability, and vulnerable populations. Provided input to the plan update process via meetings on risk/vulnerability assessments and mitigation strategies.

Outagamie County Highway: Provided input to the plan update process through meetings held including information on vulnerable infrastructure and potential mitigation projects.

Outagamie County Sheriff's Department: Provided input to the plan update process through meetings held including information on vulnerable communities and infrastructure.

AGENCIES REGULATING DEVELOPMENT

Outagamie County Development & Land Services: Provided input during meetings, in addition to data support, county capabilities, analysis, and GIS mapping.

Outagamie County Land Conservation: Provide input on risk, vulnerability, and mitigation strategies for agricultural and farmland communities.
City of Appleton: Community Development and Public Works Directors participated in a local planning support meeting for the coordination of municipality efforts.

PUBLIC OUTREACH AND PARTICIPATION

An Outreach Plan (listed in Appendix E) was created in conjunction with the Hazard Mitigation Planning Team to solicit public input on hazard perception, concerns, and preparedness. Along with required public input, resources were allocated to solicit feedback from the Hmong and Hispanic/Latino communities.

The Planning Team developed a public survey to gather the concerns regarding hazards' impact and the communities' main priorities after a disaster. The survey questions are included in Appendix F. The survey was translated into Hmong through assistance from the Hmong American Partnership President, Kou Vang and Outagamie County Sheriff Department, Sergeant Lee Wang. A Spanish translation was provided through the county Health and Human Services department. The surveys were distributed through the following methods:

SOCIAL MEDIA DISTRIBUTION

Each week in the month of September, Outagamie County Emergency Management promoted the survey on Facebook (September 1, 9, 12, and 26, 2022). The department also promoted the Hmong and Spanish translations of the survey.

The following partners also promoted the survey:

- Aging and Disability Resource Center
- Brewster Village
- City of Appleton
- City of New London
- County Executive Office
- County Highway
- County Public Health Division
- Kaukauna Fire Department
- Kimberly Fire and Rescue
- Mosquito Hill – County Park
- Sheriff
- Village of Shiocton

PARTNER AGENCIES

The following partner agencies shared the survey with their distribution list:

- Outagamie County Social Media Group
- Community Emergency Response Team (CERT)
- Municipal Emergency Management Coordinators
- Aging and Long Term Support distribution list
- City of Appleton Emergency Management distribution to all department directors, deputy directors, and City Communications Team
- Multicultural Coalition, Inc. dispersed public surveys in English, Hmong, and Spanish to their partner agencies for distribution.
- Hmong American Partnership (HAP) met with the President of HAP to discuss the Hmong community's perspective and response to disasters.

PRESS RELEASE

County Media Distribution List (Appendix E)

COMMUNITY SURVEY LOCATIONS

Printed public surveys and ballot boxes were distributed at the community locations listed below with CERT members assisting in picking up the surveys.

- Aging and Long Term Support/Aging Disability Resource Center
- County Veterans Department
- County Public Health
- COVID-19 Community Vaccination Clinic
- Appleton Public Library
- Hortonville Public Library
- Seymour Public Library
- Oneida Nations Public Library

PUBLIC SURVEY RESULTS

Emergency Management received 285 completed surveys, all except 30 were completed online. Though the survey sample was not statistically significant enough to make determinations regarding the entire county, it did provide crucial feedback on the public perspective. One important feedback was the ranking of the natural hazards differed slightly from the Planning Team, as shown in Table 7.

Table 7 Public Ranked Natural Hazard List

Public Ranked Natural Hazards*
Tornado and Severe Thunderstorms
Hail
Winter storms
Fire
Extreme Cold
Lightning
Extreme Heat
Flooding
Dense Fog
Drought

* Hazards are ranked from highest to lowest

Emergency Management and the Planning Team proactively sought the input of the public regarding their concerns about the impact of potential disasters. This approach allowed for an understanding of the public's needs and helping to craft future disaster preparedness and mitigation strategies.

The top five ranked concerns from highest to lowest were:

1. Finding shelter if the primary home was damaged
2. Cleaning up from storm damage
3. Staying in the home during an extended power outage
4. Receiving medical care
5. Maintaining a steady income

The way in which different members of the public perceive changes in weather patterns can vary significantly. Some individuals placed a great deal of importance on such fluctuations, while others may not be as troubled by these changes. The top five ranked concerns from highest to lowest were:

1. Increased cost to heat/cool their home
2. Repeated storm damage to their home and/or vehicle
3. Increase in air-quality related allergens
4. Increased rainfall causing flooding
5. Increased number of invasive species and pests

Respondents were asked which services, systems, or buildings are important to their safety during and after a disaster. The top five ranked concerns were:

1. Communications (911, cell service, TV, radio)
2. Fire, Police, and Emergency Medical Services
3. Hospitals and other medical facilities
4. Water supply to their home
5. Electricity service to their home

Other key findings were that 5% of people would not take shelter until seeing a tornado or flying debris, wireless emergency alerts and text notification systems are the preferred method of notification, 42% prepared a family emergency plan, and 39% prepared an emergency supply kit. Additional details and the results of the online survey can be found in Appendix F.

INTEGRATION OF THE HAZARD MITIGATION PLAN INTO EXISTING PLANS AND PROGRAMS

To ensure the effectiveness of hazard mitigation, it is important for relevant agencies and partners to integrate these practices into their day-to-day operations and priorities. It is recommended to implement mitigation measures through existing plans and programs whenever possible. The County and other entities have already developed policies and initiatives to minimize damage caused by natural disasters, which are outlined in this plan's Capability Assessment. This plan aims to build upon the progress made by previous mitigation programs and planning efforts and proposes implementing projects through existing methods wherever feasible. These existing methods include:

- County Comprehensive Plan
- Local Comprehensive Plans
- Shoreland – Floodplain - Wetland Ordinance
- County Zoning Ordinances
- Outagamie County Land & Water Resource Management Plan 2018 - 2028
- Land Conservation: Water Storage Capacity Needs Studies
- Outagamie County Emergency Response Plan
- National Flood Insurance Program
- Appleton (Fox Cities) Transportation Management Area: Long Range Transportation / Land Use Plan 2020
- NEW North Broadband Study Report
- Fox Cities and Greater Outagamie County Regional Housing Strategy

Here is a summary of some of the listed methods.

COMPREHENSIVE/MASTER PLANNING

The identified mitigation strategies in Section 4 are tied to related programs, plans, and policies. As the county and jurisdictions in the planning area develop or update their comprehensive plans, incorporation of this hazard mitigation plan is highly recommended. The Wisconsin Comprehensive Planning Law includes a detailed description of elements that need to be addressed in all comprehensive plans.

The following items must be considered when incorporating this hazard mitigation plan into the required elements of local comprehensive plans for jurisdictions in the planning area:

Issues and Opportunities Element –Include a summary of the major hazards the local governments are susceptible to, along with opportunities to minimize future losses caused by these hazards.
Housing Element – An inventory of the properties within floodplain boundaries, the location of manufactured homes, recommendations concerning building codes, shelter opportunities, and a survey of homeowners that may be interested in a voluntary buyout and relocation program.
Transportation Element – Identify any transportation routes or facilities vulnerable during hazards events, such as flooding.
Utilities and Community Facilities – Identify critical connections of utilities and communication facilities in relation to common hazards.
Agricultural, and Natural and Cultural Resources Element – Identify floodplains and agricultural areas that are vulnerable during hazard events. Incorporate recommendations on how to mitigate future losses to these areas.

BROADBAND STUDY REPORT: SERVED, UNDERSERVED, AND UNSERVED AREAS

A study to identify underserved areas of broadband service and methods improve service.

FOX CITIES AND GREATER OUTAGAMIE COUNTY REGIONAL HOUSING STRATEGY

Recommended Course of Action to help improve our region's housing market and the future housing situations for households across our region.

OUTAGAMIE COUNTY LAND & WATER RESOURCE MANAGEMENT PLAN

Wetland areas are extremely efficient at trapping and filtering out nutrients and sediments contained in runoff while also providing highly effective flood storage areas. The following ordinances and plans support this effort and are a critical component for high rainfall events with climate change.

SHORELAND – FLOODPLAIN - WETLAND ORDINANCE

This ordinance is adopted pursuant to the authorization contained in sections 59.97, 59.971, 59.99, 87.30, 144.26 and 236.45, Wis. Stats. Uncontrolled use of the shorelands and pollution of the navigable waters of the county has an adverse effect on water quality and habitat. The legislature of Wisconsin has delegated responsibility to the county to further control flooding and protect against costly flood damages; prevent and control water pollution; protect spawning grounds, fish, and aquatic life; control building sites, placement of structures and land uses; and preserve shore cover and natural beauty.[1]

COUNTY ZONING ORDINANCE

Pursuant to the provisions of sections 59.97 and 59.99, Wis. Stats., this ordinance governs the use of publicly and privately owned land. As it relates to the Land and Water Resource Management plan, it is the purpose of this ordinance to ensure adequate educational and recreational facilities; recognize the needs of agriculture, forestry, industry and business in future growth; encourage uses of land and other natural resources which are in accordance with their character and adaptability; provide adequate light and air, including access to sunlight for solar collectors and to wind for wind energy systems; encourage the protection of groundwater resources; preserve wetlands; and conserve soil, water and forest resources. [2]

NATIONAL FLOOD INSURANCE PROGRAM

Outagamie County has participated in the FEMA National Floodplain Insurance Program (NFIP) since January 1975 by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in the county. Additionally, all incorporated communities in the county participate in the NFIP. The following provides the date that each incorporated community joined the NFIP:

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[1] Excerpted from: Outagamie County Land and Water Resource Management Plan 2018
[2] Excerpted from: Outagamie County Land and Water Resource Management Plan 2018

- City of Appleton since April 1973
- City of Kaukauna since June 1974
- City of New London since November 1973
- City of Seymour since November 1974
- Village of Bear Creek since November 1974
- Village of Black Creek since March 1981
- Village of Combined Locks since June 1974
- Village of Harrison since May 1974
- Village of Hortonville since November 1974
- Village of Howard since December 1973
- Village of Kimberly since June 1974
- Village of Little Chute since June 1974
- Village of Nichols since July 2010
- Village of Shiocton since May 1974
- Village of Wrightstown since August 1975

Outagamie County has adopted a local floodplain ordinance that meets the NFIP minimum standards. July 22, 2010, and January 20, 2016 (suffix E), the latest Flood Insurance Rate Map (FIRM) was adopted by the county. As it relates to implementing the County's floodplain ordinance, Outagamie County Development and Land Services requires that a land use permit shall be obtained before any new development or any repair or change in the use of a building or structure, including sewer and water facilities, may be initiated, within the floodplain and in unincorporated areas. This includes conducting inspections to determine compliance with said permits.

No flood events have occurred since 2017 requiring substantial improvement or substantial damage provisions of the flood management regulations. Only one NFIP Insured Special Direct Facility structure is listed experiencing repetitively damaged by floods. Isaac Uitenbroek, Zoning Administrator, is the appointee for addressing the commitments and requirements of the NFIP. Municipal details provided on the flood insurance program implementation can be found in Appendix L.

INTEGRATION OF EXISTING DATA AND PLANS INTO MITIGATION PLAN

Several plans, reports, and technical data were referenced and incorporated into the Outagamie County Hazard Mitigation Plan. Below is a comprehensive list of the data and reports that were utilized in plan development:

GEOGRAPHIC INFORMATION SYSTEM (GIS) MAPPING

- Outagamie County Geographic Information System (GIS) data
- Health and Human Services Critical Facilities GIS Data

- The Homeland Infrastructure Foundation-Level Data (HIFLD)
- State of the Cities Data Systems (SOCDS) from the U.S. Department of Housing and Urban Development
- Red Cross Shelter Data
- Wisconsin Department of Natural Resources Data
- Population, housing, and employment data from the Bureau of the Census
- Land use inventory data (2015, East Central Wisconsin Regional Planning Commission)

Maps created by DLS for consistent mapping purposes are for general planning intentions only and are not for legal or formal survey purposes.

LOCAL AND COUNTY RESOURCES AND PLANS

- Outagamie County Comprehensive Plan 2040 - The Shared Path Forward: contributed to the development of the mitigation action plan
- Local municipal comprehensive plans contributed to the development of the capability assessment
- County and Local Emergency Response Plans
- Documentation of past mitigation actions

STATE RESOURCES

- WEM Local Mitigation Planning Handbook and WEM Plan Review Tool 2023: used to ensure the plan contained all required information
- State of Wisconsin Threat and Hazard Identification and Risk Assessment (THIRA), 2021
- Wisconsin Initiative on Climate Change Impacts for climate change mapping
- State of Wisconsin Hazard Mitigation Plan, 2021
- Outagamie County Local Plan Review Tool, Completed by WEM 2017 used to ensure recommended revisions were addressed
- Planning for Hazards, Land Use Solutions for Colorado, 2023

FEDERAL RESOURCES AND DATA

- Past hazard occurrences were obtained from National Weather Service – Green Bay severe weather event data (January 2018 – April 2023)
- U.S. Geological Survey data on earthquakes were used to describe the hazard
- FEMA Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (2013) contributed to the development of the mitigation action plan
- FEMA Local Mitigation Planning Policy Guide FP 206-21-0002, April 2023
- Region 5 Mitigation Assistance Resource Guide, State of Wisconsin August 2022
- Integrating Climate Change Data Into a Hazard Mitigation Plan February 2023
- FEMA Hazard Mitigation Assistance Mitigation Action Portfolio, Building Resilient Infrastructure and Communities, 2021

- 2023 Building Code Adoption Tracking: FEMA Region 5
- FEMA's National Flood Hazard Layer, FEMA Flood Insurance Studies, and FEMA Flood Insurance Rate Maps (FIRMs) used to map floodplain areas

2. COMMUNITY PROFILE

The profile provides an overview of the Outagamie County Planning Area, including details on its physical setting, population and demographics, general building stock, and land use and population trends.

LOCATION

Outagamie County, covering 640 square miles, is in east central Wisconsin, along the Fox River, near the northern end of Lake Winnebago. The region was once the hunting and fishing grounds for several Native American tribes including the Menominee, Outagamie, and Winnebago. The name Outagamie is derived from a Native American word meaning "dwellers on either shore" or "dwellers on the other side of the stream."[3]

The planning area for Outagamie County has 34 municipalities comprised of four cities, nine villages, and twenty-one towns (Tables 2 - 4). Outagamie County lies partially within the Oneida Nation. Shawano County borders Outagamie County to the north, Brown County borders the east, Waupaca County to the west, Winnebago County to the southwest, and Calumet County in the southeast. Appendix G Map 1 illustrates the location of Outagamie County and the municipalities in the county. A large concentration of the county's 192,938 residents[4] is within the Fox Cities, which is the focal point of the region's commerce and industry. The Fox Cities Region is one of the largest, fastest growing urban centers in Wisconsin with a population of more than 300,000[5].

TOPOGRAPHY

Outagamie County is in the Eastern Ridges geographic province of Wisconsin. The topography is characterized as flat to gently rolling with several northeasterly trending escarpments as the dominant landscape feature. Outagamie County has about 1,250 miles of streams and rivers and 237 acres of lakes and impoundments. The Wolf River and its tributaries, including the Embarrass and Shioc rivers along with several feeder streams, are the major water features and drain the northern and western two-thirds of the county. These waterways are characterized by low stream gradients and frequent flooding. The Duck, Apple, and Ashwaubenon Creeks and the Lower Fox River drain the easterly and southerly segments of the county and have much steeper gradients, though the dams on the Lower Fox temper stream flows[6].

[3] Excerpted from: Outagamie County Comprehensive Plan 2040
[4] Source: Wisconsin Department of Administration 2022 Population Estimate
[5] Source: Fox Cities Chamber Regional Partnership website, Retrieved May 25, 2023
[6] Excerpted from: Outagamie County Comprehensive Plan 2040

CLIMATE

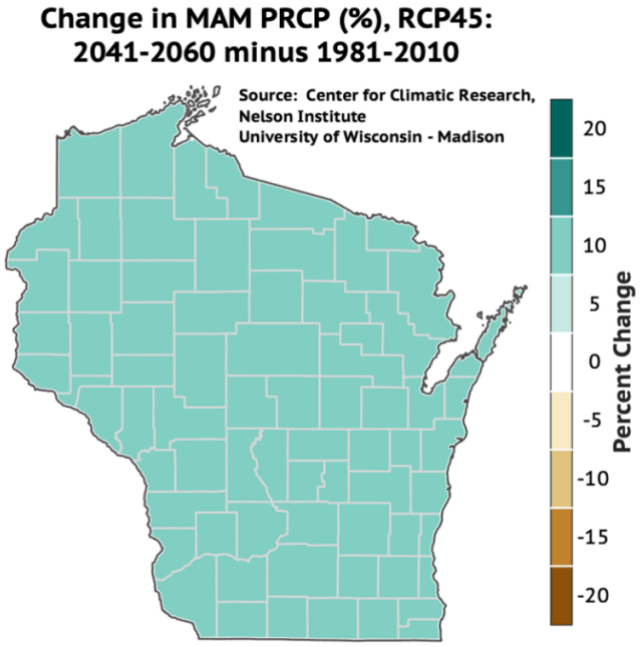
Outagamie County experiences all four seasons, bringing a variety of weather. July is the warmest month with an average temperature of 71.4°F and January is the coldest at 17.7°F[7]. Table 8 depicts the precipitation also varies by season with an annual total average of 33.15" of rainfall and 49.4" of snow (rough equivalent of 4.94" of precipitation)[8]. The wettest season in Outagamie County is summer followed by spring. According to the Center of Climatic Research, University of Wisconsin – Madison, an increase of 10% in precipitation is possible during spring in 2041 – 2060 (see Map 1). The data displayed in Map 2 projects in a 50-year period, 12 days have the ability for 3" of precipitation which would surpass the storage capacity for certain areas in the Lower Fox River Basin (see Map 6 and Table 19). Map 3 display the projection of 5" of precipitation in a day, similar to a 100-year flood event. Both types of events are projected to a slight increase of occurrence in the future.

Table 8 Annual Precipitation for Outagamie County 1991 - 2020

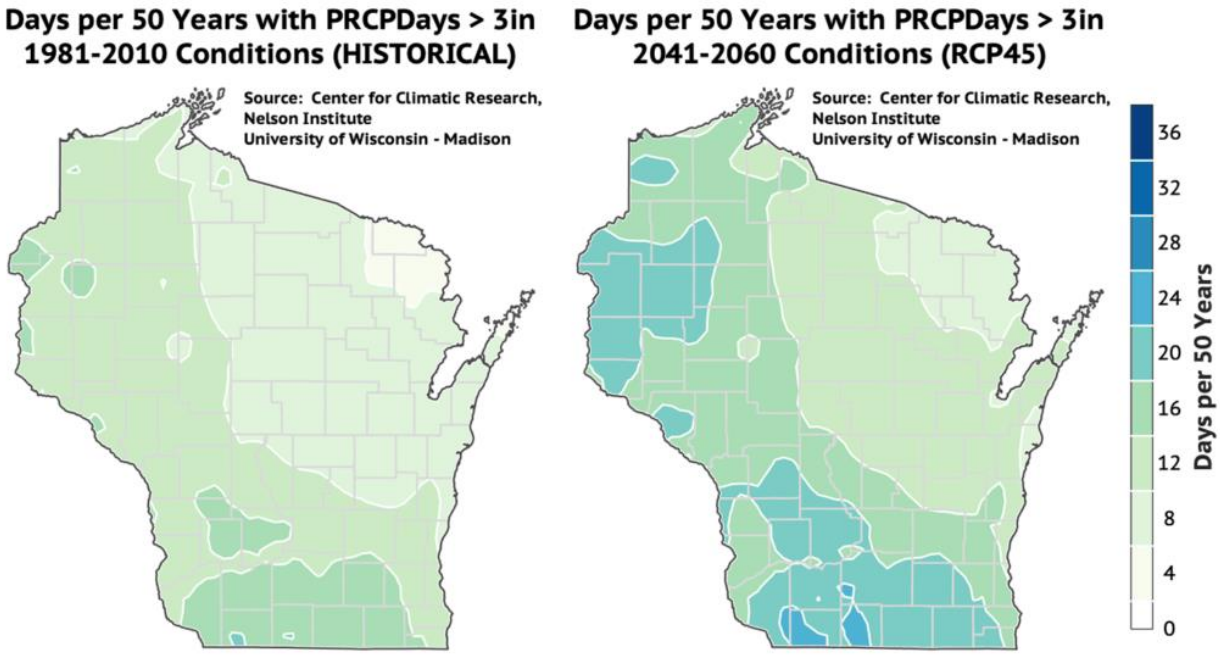
SEASON	RAIN (IN)	SNOW (IN)
Annual	33.15	49.4
Winter	4.25	35.4
Spring	8.80	11.3
Summer	12.01	0
Fall	8.09	2.7

[7] Source: NOAA National Centers for Environmental Information
[8] Source: NOAA National Centers for Environmental Information

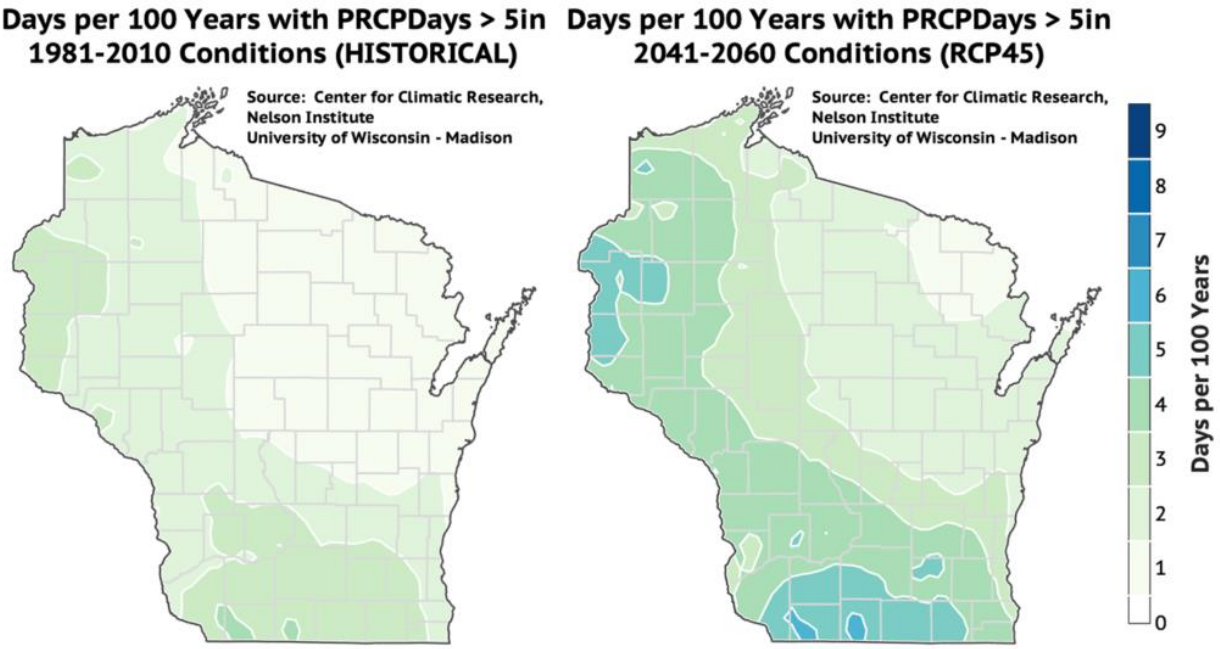
Map 1 Projected Change in Spring Precipitation 2041 - 2060



Map 2 Days Per 50 years with More Than 3" of Precipitation a Day



Map 3 Days Per 100 years with More Than 5" of Precipitation a Day



LAND USE AND COVER

A land use inventory assessment was conducted for Outagamie County in 2015 by the East Central Wisconsin Regional Planning Commission. Table 9 provides a tabulated summary of the land use data. Appendix G Maps 2 and 3 display the 2015 land use for county and the more populous portion of the county (also known as the Heart of the Valley).

Table 9 Land Use and Total Acreage: Outagamie County[9]

Category	2003	2015	# Change	% Change
Residential	28,237	34,075	5,838	20.7%
Commercial/Institutional	8,334	11,282	2,948	35.4%
Industrial	4,885	6,270	1,385	28.4%
Park & Open Space	3,318	2,297	-1,021	-30.8%
Woodland	88,649	90,288	1,639	1.9%
Agricultural & Vacant	252,900	240,490	-12,410	-4.9%
Water	8,099	8,751	652	8.1%
Right-of-Way	17,975	19,038	1,063	5.9%
Other	403	309	-94	-23.3%
Total	412,800	412,800	--	100.0%

[9] Source: Outagamie County Development & Land Services; ECWRPC Land Use Data, 2003 & 2015

The southeastern portion of the County, which is part of the Fox Cities area, experienced significant development along with high levels of land use in the outlying cities and villages in the County[10].

Agricultural land is decreasing as more and more acres are rezoned out of agricultural zones or annexed and rezoned by cities and villages[11]. The combined acreage of all developed land uses (residential, commercial, institutional, and industrial) in 2015 was 51,627 acres or 13% of the total acres[12]. Agricultural and vacant land represented 61% of the County's total land base in 2003; fifteen years later it had fallen to 58%.

Outagamie County still has a strong connection to agriculture since most of the county's geographic area remains rural and consists of vast and continuous farmland. According to the U.S. Census of Agriculture, the county had 236,963 acres of farmland as of 2017 – accounting for roughly 57 percent of the county's total land area. Over the years, the county has lost much of its agricultural land supply due to development pressure.[13] The available farmland also impacts the number of acres accessible for drainage and stormwater retention (Table 10).

Given the county's location within the Great Lakes region, water scarcity tends not to be a major concern, relative to other regions of the United States. In fact, too much water (and lack of proper drainage, due to the flat terrain) is often where the County sees community concern. For example, in the survey comments received as part of Farmland Plan project, agricultural producers and county residents have both cited drainage issues as a growing problem in the county.[14]

Agriculture will likely see existing large scale farms increase in both size and numbers. The County will need a proactive approach to agriculture as the population grows and the increased demand for food and fiber will also grow along with increased development pressure for non-agriculture development. As nonfarm development increases land values, it will continue making it difficult for farming operations to expand their operations and further fragmenting rural areas of the County.[15]

Table 10 Change in Total Farmland Acres, 2002 – 2017[16]

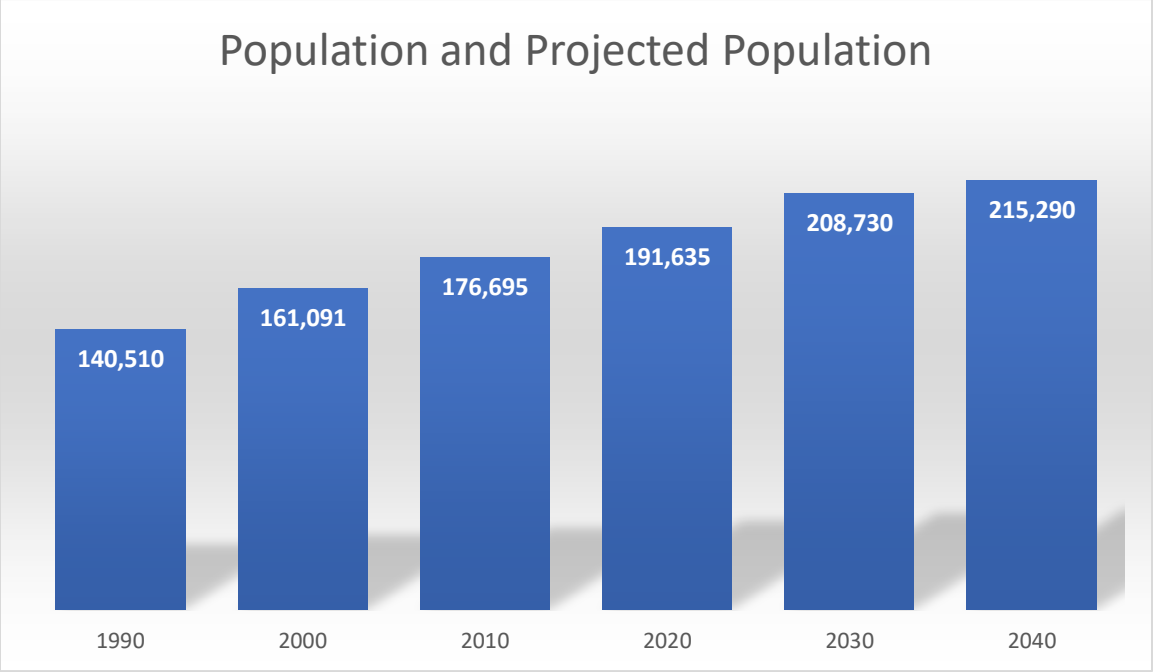
2002	2017	Acres Change	% Change
263,485	236, 963	-26,522	-10%

[10] Source: Outagamie County Comprehensive Plan 2040
[11] Excerpted from: Outagamie County Land & Water Resources Management Plan 2018
[12] Excerpted from: Outagamie County Comprehensive Plan 2040
[13] Source: Outagamie County's Farmland Preservation Plan for the 2023–2033 Planning Horizon
[14] Excerpted from: Outagamie County's Farmland Preservation Plan for the 2023–2033 Planning Horizon
[15] Excerpted from: Outagamie County's Farmland Preservation Plan for the 2023–2033 Planning Horizon
[16] Source: Outagamie County's Farmland Preservation Plan for the 2023–2033 Planning Horizon

DEMOGRAPHIC TRENDS

To prepare for potential hazards in Outagamie County, it is crucial to comprehend the current and future population and housing features of each community. The Wisconsin Department of Administration's projections and the U.S. Census of Population shows expected population growth in the county (Figure 1). As the population rises, there will be a need for new single and multi-family homes, as well as services to accommodate the needs of new residents. The following information summarizes population and housing data for Outagamie County. Population density increased from 277 persons in 2010 to 299 persons per square mile in 2020[17].

Figure 1 Outagamie County Population 1990 - 2040



Source: Wisconsin Department of Administration - Demographic Services Center, 2023

DIVERSITY TRENDS

When undertaking hazard mitigation, it is crucial to consider the county's racial diversity and identify any potential cultural or language barriers that may exist. In Outagamie County, the composition is:

[17] Source: U.S. Census Bureau, 2023.

- The Hispanics and Latinos community represent 4.9% of Outagamie County's population followed by Asians (3.9%), Native Americans (1.9%), African Americans (1.7%), multiracial (2.2%), and Pacific Islanders (0.1%) communities.[18]
- As of 2021, 3.6% of Outagamie County residents were born outside of the United State.[19]

HOUSING TRENDS

The Fox Cities and Greater Outagamie County Regional Housing Strategy Study estimated the regional housing need from 2020 to 2030 period is approximately 10,910 to 17,738 new dwelling units. A portion of this need addresses the current undersupply of housing and a portion accommodates the region's future need for accommodating household growth. Issues can arise when affordable housing is concentrated, and solely produced, in limited areas. The solution is affordable housing in high-opportunity areas. However, mitigating this imbalance can be challenging because affordable housing can face substantial neighborhood opposition. The solution will require ongoing education and political will[20.]

EMPLOYMENT CHARACTERISTICS

The labor force is comprised of employed persons and those seeking employment and excludes persons in the armed forces and those under age 16 years old. Variations in the number of persons in the labor force are the result of many factors. Shifts in the age and gender characteristics of the population, changes in the number of residents aged 16 and over, and the proportion of this group working or seeking employment are all factors affecting the size of the labor force. Outagamie County's three largest economic sectors for employment are (1) Education & Health Services, (2) Manufacturing, and (3) Trade, Transportation, & Utilities[21.]

As a result of the 2009 "Great Recession" and the 2020 Pandemic, there was a significant jump in the number of unemployed in the county during that time. However, after both time periods, the unemployment rate returned closer to average (Figure 2).

[18] Source: U.S. Census Bureau, 2023
[19] Source: U.S. Census Bureau, 2023
[20] Excerpted from: Fox Cities and Greater Outagamie County Regional Housing Strategy Study
[21] Source: 2021 Wisconsin Department of Workforce Development: WisConomy

Figure 2 Outagamie County Employment Rate 1990 - 2022[22]

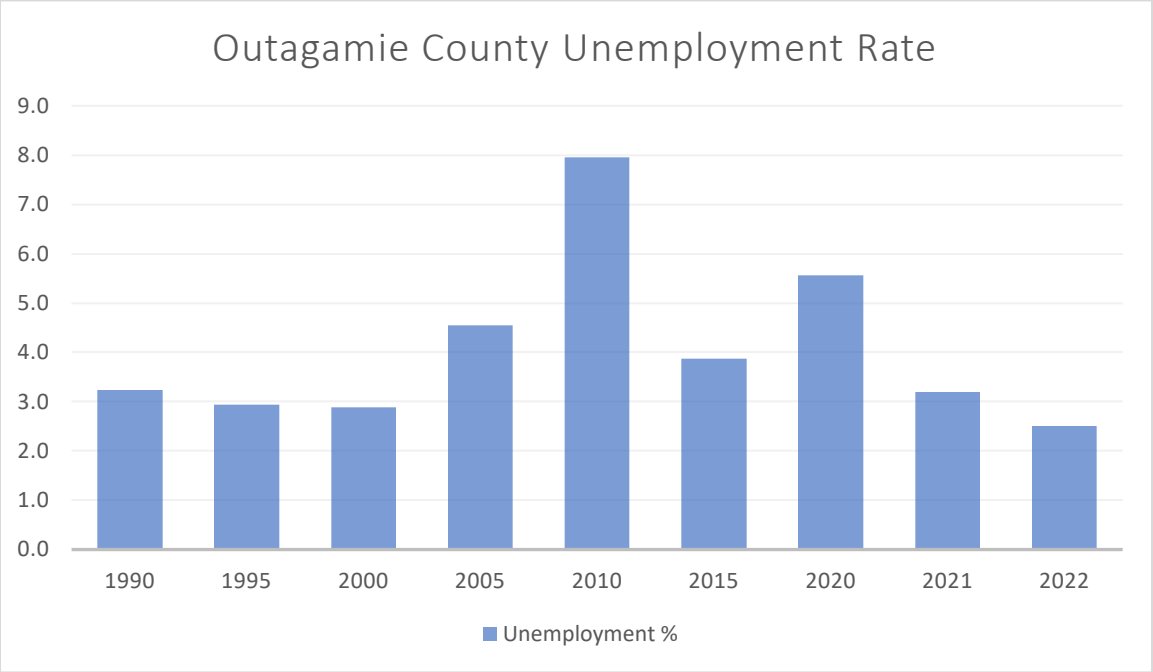
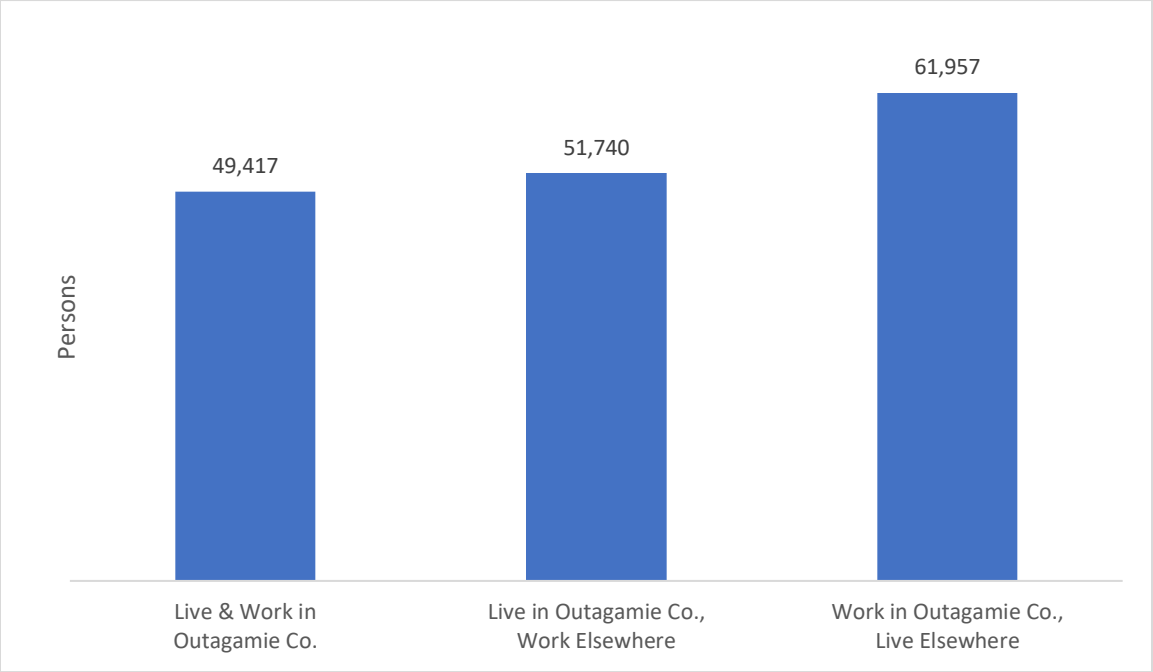


Figure 3 highlights workforce commuting characteristics of Outagamie County. It shows that in 2019, 61,957 people worked in Outagamie County, but lived elsewhere (either by choice or because of lack of suitable housing in Outagamie County). The people who work in Outagamie but live outside of the county, most of them commute to work from Winnebago, Calumet, and Brown Counties. The Fox Valley covers a large geographic area and includes multiple counties, including Outagamie.[23] The fact Fox Valley communities are interconnected highlights the significance of transportation for the economy along with restoration after a disaster. Open transportation routes are crucial for businesses to resume operations and for workers to return to their jobs following a disaster.

[22] Source: U.S. Bureau of Labor Statistics, Unemployment in State and Local Areas Not Seasonally Adjusted
[23] Excerpt from: Fox Cities and Greater Outagamie County Regional Housing Strategy Study

Figure 3 Persons Commuting to Work, Outagamie County, 2019[24]



BROADBAND SYSTEMS

Broadband has become an essential infrastructure based on the NEW (North East Wisconsin) North Broadband Study, 2021. Robust broadband is also crucial in mitigating the impacts of natural disasters and the continuity of emergency communications such as 911. This also was identified as a high concern in the public survey. According to Outagamie County's Broadband Study Report (2022), about 17 percent of households have no internet. Many areas of the county are unserved or underserved and large areas of the county have no fiber availability. The Broadband Study Report identifies strategies to begin the process of meeting the unserved and underserved populations.[25] Cellular carriers are planning to enhance their cellular networks in urban areas using 5G technology. However, it is unlikely to be feasible to implement this technology in the same way in rural America due to the key feature of 5G which requires multiple closely placed cell sites. This may not be cost-effective in areas with low housing density.[26] Therefore areas with underserved or no broadband service will likely also experience limited cellular service. This can have impacts on access to emergency notifications and disaster information.

[24] Source: Census on the Map from the Regional Housing Strategy Study
[25] Excerpt from: NEW North Broadband Study, 2021
[26] Source: A Primer on Rural Broadband Deployment, Pew Charitable Trust, 2021

3. RISK ASSESSMENT

A risk assessment has been conducted for Outagamie County to better evaluate potential hazard mitigation measures and develop effective strategies to address the risks posed by natural hazards. The purpose of the risk assessment is to identify the hazards that pose the highest risk to the county's residents, evaluate the severity of past natural hazards, and assess the county's vulnerability to future natural hazards.

HAZARD IDENTIFICATION

Although the county could potentially be at risk from several distinct hazards, this plan focuses on addressing the hazards that pose the greatest risk to people and property in the county. Identification of the natural hazards to be addressed was based on research of the natural hazards that have impacted the county in the past, as determined from historical hazard occurrences data from the National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) and the County Hazard Mitigation Planning Team. The manmade hazards addressed in the plan were selected based on a consensus of the Planning Team and county-wide impact.

RISK ASSESSMENT METHODOLOGY

To develop a risk assessment ranking for natural and manmade hazards, the Planning Team participated in a consensus-based process. The Planning Team used their professional experience in conjunction with past occurrences based on National Weather Service data to complete the natural hazards risk assessment found in Table 11. The Planning Team members used their knowledge and experiences to guide the ranking of the manmade hazards shown in the Table 12. See Appendix H for additional details on the rating scale.

Table 11 Natural Hazard Risk Assessment

Hazard	Probability	Past Occurrence	Loss of Life	Loss of Homes	Loss of Business	Warning Time	Impacted Area	Ranking
Tornado	3	3	3	3	3	2.5	2	2.79
Severe Thunderstorms/ Strong Wind	3	3	3	1	1	2.5	2	2.21
Hail	3	3	2	1	1	2.5	2	2.07
Blizzard / Winter Storms	3	3	3	0	1	1	3	2.00
Communicable Disease	3	3	1	0	1	3	3	2.00
Pandemic	1	2	3	1	3	1	3	2.00
Extreme Cold	3	3	3	0	0	1	3	1.86

Hazard	Probability	Past Occurrence	Loss of Life	Loss of Homes	Loss of Business	Warning Time	Impacted Area	Ranking
Extreme Wind	3	2	2.5	1	0	1	3	1.79
Dense fog	2	3	3	0	0	2.5	2	1.79
Vegetation Fires	3	3	1	1	0	3	1	1.71
River Flooding	3	2	2.5	0	1.5	1	1.5	1.64
Extreme Heat	2	2	3	0	0	1	3	1.57
Flash Flooding	1	2	3	0	1.5	2.5	1	1.57
Lightning	3	3	1	0	0	3	1	1.57
Ice storms	1.5	2	3	0	0	1.5	2	1.43
Extreme Drought	1	1	0	0	2.5	1	3	1.21

Source: Outagamie County Hazard Mitigation Planning Team

The manmade hazards addressed in the plan were selected based on a consensus of the Planning Team. To prioritize the mitigation strategies during the planning process, the team ranked the manmade hazards based on their potential risks. The hazards are listed in the order of their priority ranking in Table 12.

Table 12 Manmade Hazards Risk Assessment

Hazard	Probability	Past Occurrence	Loss of Life	Loss of Homes	Loss of Business	Warning Time	Impacted Area	Ranking
Terrorism / Acts of Violence	3	3	2.5	1	1	3	1	2.07
Structural Fires	3	3	3	0	1	3	1	2
Haz Mat Incident	3	3	3	0	0	3	1	1.85
Mass Casualty	3	2	3	0	0	3	1	1.71
Aircraft Incident	2	3/1*	0/3**	0	0	3	1	1.35
Power outage - long term[1]	2	2	0	0	0.5	3	1	1.21

Source: Outagamie County Hazard Mitigation Planning Team

[1] Locally defined by the planning team as longer than three days when health and safety would be compromised.

* For an aircraft incident past occurrence is highly likely (3) but an aircraft crash, past occurrence is possible (1).

** For an aircraft incident loss of life is not likely (0) but an aircraft crash, loss of life is likely (3).

PREVIOUS NATURAL HAZARD EVENTS

The National Climatic Data Center (NCDC) publishes National Weather Service (NWS) data describing past weather events and the resulting deaths, injuries, and damages associated with each of these events. Historical hazard events were available from January 1, 2005 through December 31, 2022. During this period, 337 events were recorded (Table 13) by the National Weather Service. The Outagamie County Communications Center provided the vegetation fire data.

Some of the hazard events that were recorded may not have been exclusively related to Outagamie County, as they could have been documented for a wider regional scope or even the entire state. Additionally, some of the common hazard events, such as lightning may only get reported to the NCDC if they are extreme events that cause property damage, injury, or death.

Table 13 Outagamie County Hazard Events Impact 2005 - 2022

Hazard	Events	Average #/year	Total Property Damage	Average cost/yr	Avg cost/yr	Weather Warnings	Deaths	Injuries	Past Impact
Tornado	20	1.11	$22.6 million	$1,253,556	12.5	23	0	0	13.61
Hail**	124	6.89	$6.2 million	$344,444	3.4	189	0	0	10.29
Thunderstorm/ Strong winds*	113	6.28	$6.6 million	$366,139	3.6	194	0	0	9.88
Blizzards/ Winter Storm	31	1.72	$250,000	$13,889	0.13	51 + 159 advisories	0	0	1.85
Floods	24	1.33	0	$0	0	48 + 83 advisories			1.33
Excessive Cold	7	0.44	$250,000	$13,889	0.13	7 + 70 advisories	0	0	0.57
Flash floods	5	0.28	$187,500	$10,417	0.1	8	0	0	0.38
Drought	4	0.22	$250,000	$13,889	0.13	---	0	0	0.35
Lightning	3	0.17	$115,000	$6,389	0.06	---	0	0	0.23
Dense Fog	1	0.06	$250,000	$13,889	0.13	87 advisories	0	0	0.19
Excessive Heat	3	0.17	0	$0	0	3 + 15 advisories	0	0	0.17
Ice Storm	2	0.11	0	$0	0	---	0	0	0.11

Hazard	Events	Average #/year	Total Property Damage	Average cost/yr	Avg cost/yr	Weather Warnings	Deaths	Injuries	Past Impact
Wildfire	0	0.00	0	$0	0	2 Red Flag Warnings	0	0	0.00
Vegetation fires	1413	78.5	Not available	Not available		Not available	0	0	N/A

Source: NOAA NCDC Storms Database, 2005-2022.
** Does not factor in private losses for most occurrences
*This includes Thunderstorm and Non-thunderstorm high wind warnings

DISASTER DECLARATIONS

There have been 18 major (federal) disaster declarations issued for Wisconsin since 2005. Outagamie County was included in four of the disaster declarations as shown in Table 14.

Table 14 FEMA Declared Disasters since 2005: Outagamie County[27]

Disaster Number	Program Description	Designated Date
WI COVID-19 Pandemic #DR-4520-WI	CC - Crisis Counseling	4/30/20
WI COVID-19 Pandemic #DR-4520-WI	DFA - Direct Federal Assistance	4/4/20
WI COVID-19 Pandemic #DR-4520-WI	DUA - Disaster Unemployment Assist.	3/11/21
WI COVID-19 Pandemic #DR-4520-WI	HA - Housing Assistance	3/11/21
WI COVID-19 Pandemic #DR-4520-WI	HM - Hazard Mitigation	8/5/21
WI COVID-19 Pandemic #DR-4520-WI	IH - IHP-Individuals & Households	3/11/21
WI COVID-19 Pandemic #DR-4520-WI	OTH - Other	3/11/21
WI COVID-19 Pandemic #DR-4520-WI	PA-B - Protective Measures	4/4/20
WI COVID-19 #EM-3454-WI	DFA - Direct Federal Assistance	3/13/20
WI COVID-19 #EM-3454-WI	PA-B - Protective Measures	3/13/20
WI Severe Storms, Tornadoes, Straight-line Winds, and Flooding #DR-4459-WI	HM - Hazard Mitigation	8/27/19
WI Severe Storms, Tornadoes, Straight-line Winds, and Flooding #DR-4459-WI	PA - Public Assistance	8/27/19

[27] FEMA Region V, 2023

Disaster Number	Program Description	Designated Date
WI Severe Storms, Tornadoes, Straight-line Winds, and Flooding #DR-4459-WI	PA-A - Debris Removal	8/27/19
WI Severe Storms, Tornadoes, Straight-line Winds, and Flooding #DR-4459-WI	PA-B - Protective Measures	8/27/19
WI Severe Storms, Tornadoes, Straight-line Winds, and Flooding #DR-4459-WI	PA-C - Roads & Bridges	8/27/19
WI Severe Storms, Tornadoes, Straight-line Winds, and Flooding #DR-4459-WI	PA-D - Water Control Facilities	8/27/19
WI Severe Storms, Tornadoes, Straight-line Winds, and Flooding #DR-4459-WI	PA-E - Public Buildings	8/27/19
WI Severe Storms, Tornadoes, Straight-line Winds, and Flooding #DR-4459-WI	PA-F - Public Utilities	8/27/19
WI Hurricane Katrina Evac #EM-3249-WI	DFA - Direct Federal Assistance	9/13/05
WI Hurricane Katrina Evac #EM-3249-WI	PA-B - Protective Measures	9/13/05

NATURAL HAZARDS DETERMINED NOT TO POSE A SIGNIFICANT RISK

Earthquakes have been determined to have a minimal likelihood of occurring in Outagamie County. Therefore, a full risk assessment for earthquakes has been excluded, but is briefly described here. The Forestry Division of the Wisconsin DNR has determined that there are no "Communities-at-Risk" and no "Communities-of-Concern" within Outagamie County for wildland fire. However, vegetation and peat moss fires will be addressed later in the plan.

EARTHQUAKES

According to the U.S. Geological Survey (USGS), there have been 13 earthquake events in Wisconsin since 1947[28]. All recorded readings on Wisconsin earthquakes have been relatively small, most being 1.5 to 3.8 in intensity or smaller. Due to the lack of recent events, some geologists question whether many of these events were true earthquakes, but rather were mining events.[29] In the state Hazard Mitigation Plan, Wisconsin is listed as not being vulnerable to earthquakes.[30] Also the USGS lists Wisconsin in Category A/White for earthquake risk, which has a very small probability of experiencing damaging earthquake effects.[31]

[28] Source: United States Geological Survey, 2023
[29] Source: United States Geological Survey, 2023
[30] Source: Wisconsin Hazard Mitigation Plan: Mitigation Strategy
[31] Source: United States Geological Survey, Earthquake Hazard Map 2020

WILDLAND FIRE

A wildland fire is any instance of unplanned burning in brush, marshes, grasslands, or field lands. Typical causes of these fires are lightning, human carelessness, or arson. The primary factors that can contribute to the start of a wildland fire are land use, vegetation, and weather conditions such as wind, low humidity, and lack of precipitation. Generally, fires are more likely when vegetation is dry from a winter with little snow or a spring and summer with sparse rainfall.

Since Outagamie County is not extensively forested and does not contain the hazards and risks necessary to warrant intensive or extensive fire protection, it is designated as a Cooperative Fire Protection Area. Therefore, no Wisconsin DNR ranger stations or suppression resources are located within the county.

RISK AND VULNERABILITY ASSESSMENT

The risk and vulnerability assessment are intended to describe the frequency, severity, and probability of future occurrences of natural hazards that could impact Outagamie County. The following hazard profiles describe the characteristics of each natural hazard and how they have historically affected the population, infrastructure, and environment of the county and the potential risk to the population and property.

This process helps identify and analyze potential hazards and evaluates the risk of harm to current and future assets (people, infrastructure, lifelines, systems, resources, and important community events) in the county. A risk assessment is a crucial tool that allows community leaders to consider ways to minimize the impact of hazards. By evaluating potential hazards beforehand, they can make informed decisions about mitigation measures to reduce their effects.

ASSETS

A risk assessment provides a foundation for the community's decision-makers to evaluate mitigation measures that can help reduce the impacts of a hazard when it occurs. Identifying community assets is an important part of a meaningful risk assessment.

PEOPLE

Vulnerable groups in Outagamie County are individuals with:

- A disability
- Experiencing homelessness and/or poverty
- Limited English
- Limited data access

INDIVIDUALS WITH DISABILITIES

According to the US. Census Population Estimates for 2022, about 7.4% of the individuals under 65 have a disability in Outagamie County (about 14,200 people). This data captures six aspects of disability: (hearing, vision, cognitive, ambulatory, self-care, and independent living); which can be used together to create an overall disability measure, or independently to identify populations with specific disability types. Limitations in these areas impact the ability to prepare, respond and, recover from disasters.

INDIVIDUALS EXPERIENCING HOMELESSNESS OR POVERTY

Twice a year, a Point-in-Time count is completed to determine the number of individuals who are homeless. In July 2021, a total of 36 people were identified in areas not meant for human habitation, an increase from 23 individuals the previous July. The number of individuals lowered in January 2022 to 19. Most of the time, they are sleeping outside in parks, vehicles, and parking ramps in all kinds of weather.[32] These individuals are susceptible to complications from short and longer-term weather exposure, increasing their risks.

The 2020 CDC Social Vulnerability Index for Outagamie County is low at .077 (possible scores range from 0, lowest vulnerability to 1, highest vulnerability). Though the percentage of families in poverty are low, Outagamie County is listed with 1030 families in poverty, 7th most in the state according to the Wisconsin Risk and Reach Project.[33]

In 2020, 6.7% or 10,523 people did not have health insurance in Outagamie County, which is an issue for those living in poverty or homeless. This is similar to the average in Wisconsin. Many of these individuals (8,719) are between the ages of 19 – 64.[34] Facilities such as the Hope Clinic & Care Center offer free medical care and the Partnership Community Health Center offers a sliding fee to assist with the need.

INDIVIDUALS WITH DATA ACCESS LIMITATIONS

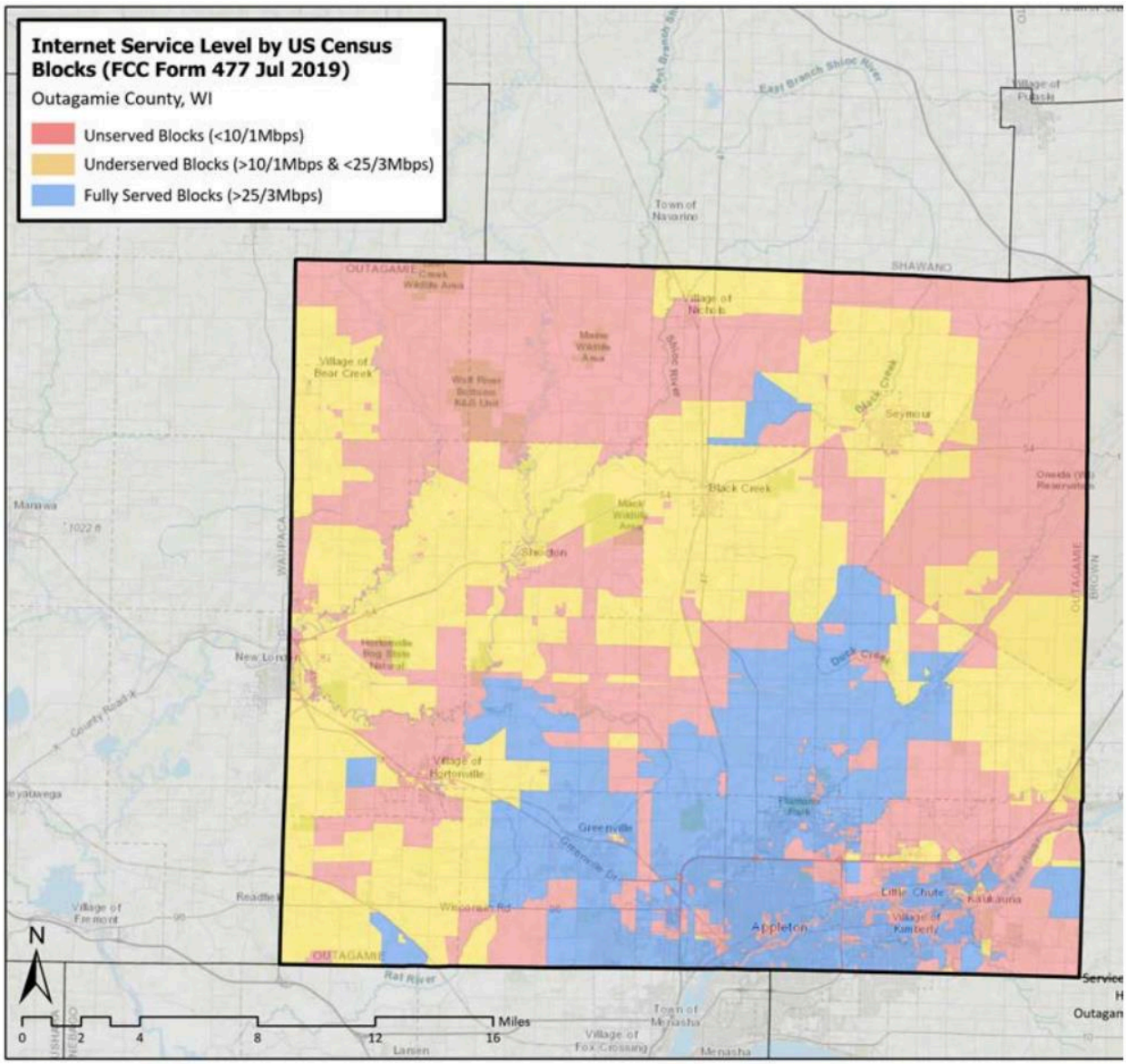
The areas on the map below have been identified using FCC (Federal Communications Commission) 477 data. The map also shows the three areas (outlined in red) where fiber pilot studies were done as part of this work. Service providers, including incumbent telephone and cable companies, file a 477 report with the FCC to identify where their service is available and at what speed, using the FCC designations (see Map 4):

- Unserved — Less than 10 Megabits down/1 Megabit up
- Underserved — At least 10 Megabits down/1 Megabit up and less than 25 Megabits down/3 Megabits up
- Served — Equal to or better than 25 Megabits down/3 Megabits up. [35]

[32] Source: Pillars Inc., What is the Point-in-Time Count?, July 29, 2021
[33] Source: Wisconsin Risk and Reach Project through the Applied Population Lab at UW-Madison
[34] Source: Small Area Health Insurance Estimates (SAHIE), U.S. Census, 2020.
[35] Excerpt from: Outagamie County Broadband Report, 2020

About 6.4% do not have a computer and 9.9% do not have broadband.[36] These limitations impact the access to receive weather and disaster information. Some of the unserved areas also have limited wireless coverage which also impacts the ability to receive wireless emergency alerts.

Map 4 Served, Underserved and Unserved Broadband Areas



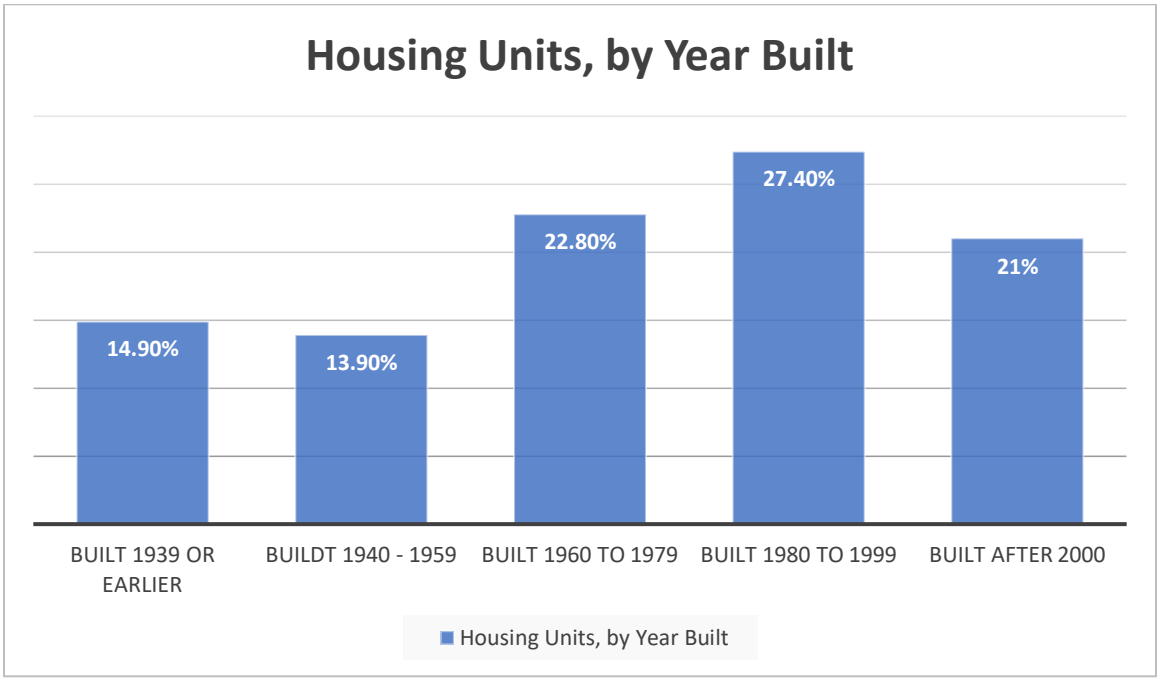
STRUCTURES

Based on data from the Regional Housing Strategy and the American Community Survey about 21% of the region's housing stock is newer, as defined as being built in 2000 or later (Figure 4). Wisconsin utilized a specialized residential building code not based on other standards called

[36] U.S Census, 2017 - 2021

the Uniform Building Code since July 1, 1980[37]. Based on this data 51.6% of homes were built prior to 1979 and at higher risk for damage from natural hazards. Homes built after 2000 are based on improved building codes in comparison to older homes. [38]

Figure 4 Outagamie County Comparison of Year Houses Built



A residential unit that does not share any walls with another dwelling unit is single-family detached housing, which is the highest percentage of households in Outagamie County at 70.3%. Single-family attached housing where each unit is connected by one or more walls comprises 6.3% of homes and duplexes, triplexes and quadplexes are 7.2% of homes. Mobile homes comprise only 1.1% or about 865 units. [39] This information is important when considering the potential of residential structures damaged. The value of the home units is listed in Figure 5. As of 2022 no National Flood Insurance Program insured structures have been repetitively damaged by floods.

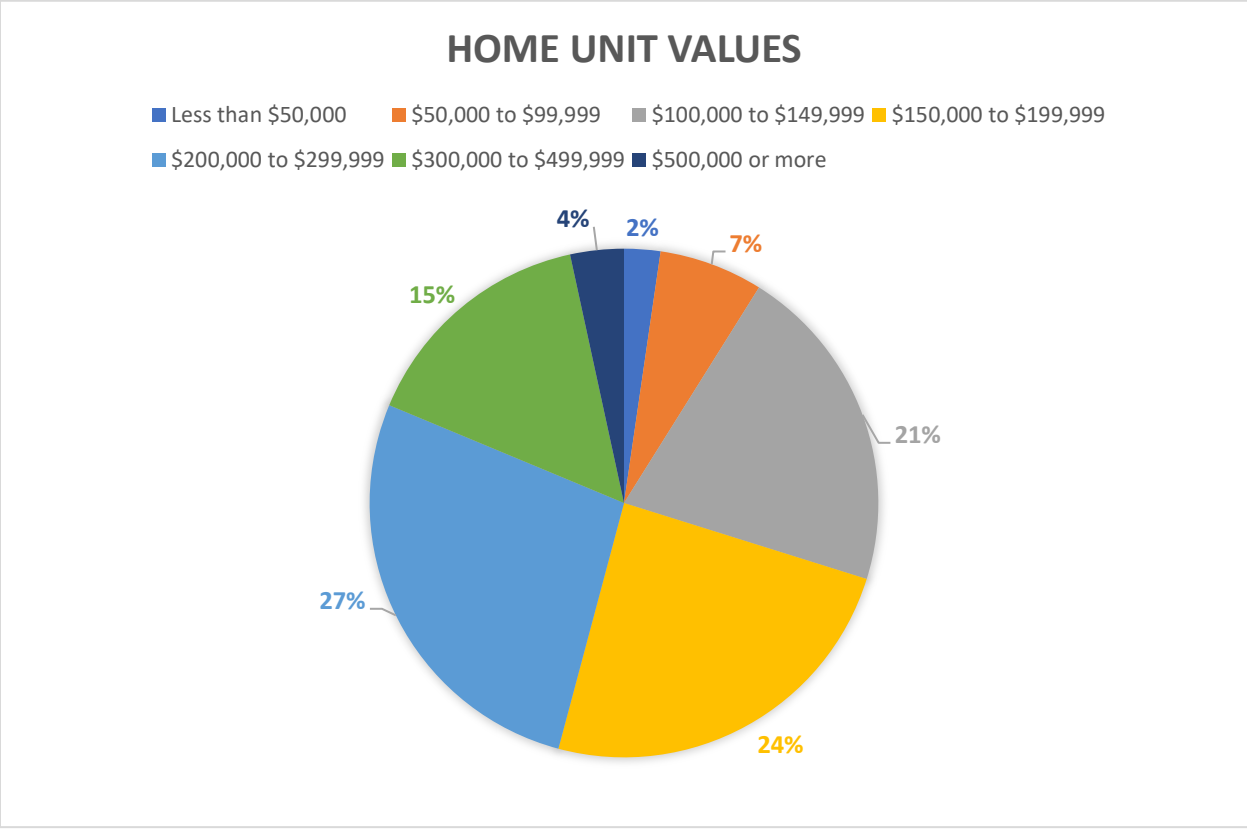
Outagamie County follows the state of Wisconsin requirements for codes which is 2015 International Building Code (IBC) for Buildings and 2009 Uniform Dwelling Code (UDC) for residential which is not based on the International Residential Code (IRC) or any model code. The tornado storm shelter requirements and resulting protections are reduced in Wisconsin by removing IBC Secs. 423.3 and 423.4. The UDC also lacks the wind resistance of the 2018 IRC in that UDC wind design provisions allow for lower wind pressures compared to the 2018 IRC and reference and outdated standard: ASCE 7-05, Minimal Design Loads for Buildings and Other

[37] State of Wisconsin Department of Safety and Professional Services, One- & Two-Family (Uniform Dwelling Code)
[38] U.S. Census, American Community Survey, 2021
[39] Excerpt from: Fox Cities and Greater Outagamie County Regional Housing Strategy Study

Structures. State requirements also lack certain flood resistant provisions found in the 2018 IRC, such as: R322.1.3, R322.1.4.2, R322.1.8.[40] The difference in standards in Wisconsin's code was also highlighted in La Follette School of Public Affairs Policy Brief to the Wisconsin Department of Safety and Professional Services in 2022.[41]

An action item in the Regional Housing Strategy is to address the UDC to adopt a flexible building code. While this potentially could increase home ownership, it could put these individuals at risk since the UDC does not adequately address damage to homes. It is recommended to find a balance between the Housing Strategy and Hazard Mitigation guidance, as they have differing and important concerns.

Figure 5 Outagamie County Home Unit Values[42]



SYSTEMS

AGRICULTURAL

According to the USDA, as of 2021, Outagamie County was among the top ten counties with the most dairy cows and is a leader in the state in terms of dairy production. The average dairy cow

[40] 2023 Building Code Adoption Tracking: FEMA Region 5
[41] Wisconsin's Residential Building Code: Understanding Challenges for Residential Building Codes and Hazard Resiliency, University of WI- Madison, La Follette School of Public Affairs, 2022
[42] U.S. Census, American Community Survey, 2021

in Outagamie County produced 27,700 pounds of milk, compared to 24,884 pounds for Wisconsin overall. Another important agricultural specialty in the county is cabbage. Agriculture census data shows that Wisconsin farmed 4,593 total acres of cabbage in 2017. Of that total acreage, approximately 1,578 acres (34 percent) was in Outagamie County. This makes Outagamie County a leading producer of cabbage in the state. In fact, Outagamie County holds a lot of joy and pride it its cabbage production such as the "World Championship Cabbage Chuck" event held annually in Shiocton Lake Park.[43]

Figure 6 Outagamie County Specialized Industry

Table 15. 2018 Location Quotient by 4-digit NAICS Code, Outagamie County

LQ Rank	Annual Average Emplymt - LQ	NAICS 4-Digit Industry	# of Establish-ments	Annual Average Employment	Annual Wages per Employee
1	17.77	NAICS 3221 Pulp, paper, and paperboard mills	4	1,242	$ 74,432
2	13.68	NAICS 3114 Fruit and vegetable preserving and specialty	5	1,740	$ 58,906
3	10.78	NAICS 3132 Fabric mills	3	418	$ 63,357
4	9.11	NAICS 3222 Converted paper product manufacturing	23	1,819	$ 62,354
5	8.92	NAICS 3115 Dairy product manufacturing	10	971	$ 62,050
6	8.4	NAICS 3332 Industrial machinery manufacturing	14	742	$ 80,100
7	7.6	NAICS 3339 Other general purpose machinery manufacturing	19	1,521	$ 65,010
8	4.75	NAICS 3231 Printing and related support activities	39	1,512	$ 49,870
9	3.82	NAICS 3329 Other fabricated metal product manufacturing	15	774	$ 58,323
10	3.59	NAICS 3327 Machine shops and threaded product mfg.	48	960	$ 58,349
11	3.42	NAICS 3219 Other wood product manufacturing	12	586	$ 41,425
12	3.04	NAICS 5241 Insurance carriers	19	2,626	$ 70,713
13	2.81	NAICS 7224 Drinking places, alcoholic beverages	109	817	$ 12,395
14	2.76	NAICS 4231 Motor vehicle and parts merchant wholesalers	17	716	$ 70,448
15	2.73	NAICS 5614 Business support services	19	1,802	$ 32,473
16	2.71	NAICS 4853 Taxi and limousine service	7	151	$ 17,610
17	2.35	NAICS 4237 Hardware and plumbing merchant wholesalers	32	481	$ 70,321
18	2.3	NAICS 2362 Nonresidential building construction	32	1,391	$ 86,791
19	2.16	NAICS 3344 Semiconductor and electronic component mfg.	5	593	$ 46,075
20	2.16	NAICS 4238 Machinery and supply merchant wholesalers	71	1,123	$ 72,759
21	2.11	NAICS 2382 Building equipment contractors	175	3,393	$ 66,849
22	1.83	NAICS 3259 Other chemical product and preparation mfg.	3	114	$ 73,698
23	1.81	NAICS 4412 Other motor vehicle dealers	14	213	$ 46,536
24	1.78	NAICS 4236 Appliance and electric goods merchant whls.	17	466	$ 73,446
25	1.75	NAICS 3335 Metalworking machinery manufacturing	6	235	$ 72,717

Source: 2018 Annual, Private Sector Data; Quarterly Census of Employment and Wages - Bureau of Labor Statistics

ECONOMIC CENTERS

By calculating a county's location quotients (LQs), it can assess its economic base. The LQ measures how specialized a smaller geographic area is in comparison to a larger one. (e.g., comparing a county to state or nation). If the LQ is above 1, it means that the industry is strong in a particular area. The higher the value above 1, the stronger the specialization of the industry in Outagamie County. 2018 LQs were calculated, by annual employment, for 4-digits NAICS

[43] Excerpt from: Outagamie County Farmland Preservation Plan –2023

(North American Industry Classification System) codes, of which the top 20 are listed in Figure 6.[44]

LIFELINES

The National Response Framework outlines the connection between Emergency Support Functions (ESF) and Community Lifelines, with the goal of providing necessary resources to stabilize Community Lifelines and minimize the impact of disasters on residents. However, it's important to note that not all aspects of a community that may be affected by a disaster, such as natural resources, cultural resources, financial issues, etc., are directly covered by the FEMA Community Lifelines and their components[45].

Table 15 shows how in Outagamie County the FEMA Community Lifelines are connected to their relevant components, Emergency Support Functions (ESFs), and agencies or departments that offer services within the Lifeline in the County EOC. The ESFs listed can be activated for the EOC under that lifeline. To promote collaboration and coordination in response activities, many ESFs are applicable to multiple lifelines. The summary of agencies and departments is not exhaustive, but it outlines the ones that can be activated to aid response activities in Outagamie County. Table 16 demonstrates the hazard mitigation planning team composition and their agencies' support to the specific FEMA Community Lifelines.

[44] Excerpt from: Outagamie County Comprehensive Plan 2040
[45] Source: FEMA Community Lifelines Implementation Toolkit, 2019

Table 15 FEMA Lifeline to Emergency Support Function Comparison

FEMA Lifeline	Lifeline Components	Associated Outagamie County ESF	Associated Agencies with Lifeline
	Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety	#4 Fire #6 Mass Care #Housing and Human Services #7 Resource Support #9 Search and Rescue #11 Agricultural & Natural Resources #13 Public Safety & Security #14 Long Term Community Recovery #15 External Affairs #16 Radiological/Ingestion Zone	Sheriff's Department, Local Police Departments, State Patrol Local Fire Departments, Outagamie County Communication Center (911), County Emergency Management, Health & Human Services, Outagamie County CERT, American Red Cross, County and Municipal Government Offices, School Districts, Outagamie VOAD and Public Information
	Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management	#6 Mass Care, Housing and Human Services #7 Resource Support #8 Public Health, Medical and Mortuary #15 External Affairs	City and County Public Health, Health & Human Services, Emergency Management, Medical Systems, Gold Cross Ambulance and municipal EMS, Dialysis Centers, Assisted Living Facilities, County Coroner's Office, Oxygen and Medical Supply Companies, Public Information and Outagamie County Communication Center (911)
	Food, Water, Shelter, Agriculture	#1 Evacuation & Transportation #3 Public Works and Engineering #5 Emergency Management #6 Mass Care, Housing and Human Services #7 Resource Support #8 Public Health, Medical and Mortuary #11 Agricultural & Natural Resources #12 Energy #15 External Affairs #16 Radiological/Ingestion Zone	Local grocery stores, Food Banks, City and County Public Health, Public Works, Emergency Management, Outagamie County CERT, Humane Society, UW-Extension, Land Conservation, Public Information and School Districts
	Power Grid, Fuel	#5 Emergency Management #7 Resource Support #10 Hazardous Materials #12 Energy #15 External Affairs	We Energies, Kaukauna Utilities, Gas stations, Highway Department and Public Works, Public Information, Emergency Management, County Haz Mat Team
	Infrastructure, Responder Communications, Alerts Warnings and Messages, Financial Services, 911 and Dispatch	#2 Communications and Warning #5 Emergency Management #7 Resource Support #12 Energy #15 External Affairs	Outagamie County Communication Center (911), Sheriff's Department, Emergency Management, Informational Technology Department, We Energy, Kaukauna Utilities, National Weather Service, TV Stations, Radio Stations, Cable Companies, Banks and Financial Institutions
	Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime	#1 Evacuation & Transportation #3 Public Works and Engineering #5 Emergency Management #7 Resource Support #15 External Affairs #16 Radiological/Ingestion Zone	Highway Department, Municipal Public Works, WI DOT, Appleton International Airport (ATW), Airport Fire, Railroad, Private Transportation, Emergency Management, County Haz Mat Team, Outagamie County Communication Center (911)
	Facilities, HAZMAT, Pollutants, Contaminants	#1 Evacuation & Transportation #5 Emergency Management #7 Resource Support #8 Public Health, Medical and Mortuary #10 Hazardous Materials #15 External Affairs #16 Radiological/Ingestion Zone	Municipal Fire Department, County Haz Mat Team, Local Emergency Planning Committee, Highway Department, Municipal Public Works, WI DOT, Railroad, Private Trucking, Emergency Management, and Public Information

Table 16 FEMA Community Lifelines and Hazard Mitigation Planning Team Representation

Lifeline	Hazard Mitigation Team Representation
Safety and Security	Outagamie County Sheriff Freedom Fire
Food, Water, Shelter	Outagamie County Emergency Management & CERT (Shelter, Food & Water) Outagamie County Land Conservation (Animals & Agriculture) Wisconsin DNR (Animals & Agriculture)
Health And Medical	Appleton Public Health Outagamie County Health & Human Services
Energy	We Energies: Electric & Gas Kaukauna Utilities
Communications	National Weather Service (NAWAS & NOAA Weather Radio) Outagamie County Sheriff (Dispatch) Outagamie County Emergency Management (IPAWS, Athoc and Outdoor Warning System)
Transportation	Outagamie County Highway Appleton Public Works
Hazardous Material	Outagamie County Emergency Management

CRITICAL INFRASTRUCTURE AND FACILITIES

In Outagamie County, there are 835 critical facilities that have been identified and classified according to their type. Table 17 provides a list of these types along with their respective definitions and the number of each type found in the county. Meanwhile, Table 18 presents the breakdown of critical facilities per municipality. Critical facilities in the county are displayed in Appendix G Map 4 and critical facilities within the floodplain in Appendix G Map 6.

Table 17 Outagamie County Critical Infrastructure

Category	Total	Definition
Bridge	301	A structure carrying a road or railroad across a river, ravine, road, railroad, or other obstacle.
Child Care	99	Certified and Licensed Child Care facilities provide care and supervision of no more than six to eight children under the age of seven for less than 24 hours a day.
School	103	Public or private institutions that provide instruction to children. Does not include home-based private or internet educational programs.
Community-based	63	A facility where 5 or more adults reside and receive care, treatment, or services that are above the level of room and board but that include no more than 3 hours of nursing care per

Category	Total	Definition
Residential Facility		week per resident, and who are not related to the operator or administrator, and who do not require care above intermediate level nursing care.
Dam	41	Active dams inventoried by the Wisconsin Department of Natural Resources.
Government Facilities	62	Federal, state, and local government owned facilities that provide valuable services for emergency response.
Adult Family Home	35	A facility where adults who are not related to the operator reside and receive care, treatment, or services that are above the level of room and board and that may include up to seven hours per week of nursing care per resident. The minimum age requirement for residents is 18 years old.
Fire Department	27	The department of a municipal authority in charge of preventing and fighting fires.
Shelter	21	Red Cross certified shelters.
Nursing Home	8	A facility where 5 or more persons who are not related to the operator or administrator reside and receive care or treatment, and because of their mental or physical condition, require access to 24-hour nursing services, including limited nursing care, intermediate level nursing care, and skilled nursing services.
Police Department	11	The department of a municipality concerned with enforcing the law and preventing crime.
Electric Substation	13	An electric substation is a part of an electrical generation, transmission, and distribution system. Those listed include substations where a transmission line is present in the substation
Wastewater Treatment Facility	11	A facility that collects wastewater and removes contaminants.
Manufactured Housing Community	10	A parcel containing 3 or more manufactured homes that are occupied for dwelling or sleeping purposes (not including a farm).
Sheriff Communication Tower	8	Towers supporting radio communications for the County Sheriff Department.
Ambulatory Surgical Center	5	An Ambulatory Surgical Center is a place that provides day surgery services to persons who need less than 24-hour nursing/medical care.
Hospital	3	An institution providing medical and surgical treatment and nursing care for sick or injured people.
Residential Care	8	An independent apartment complex where 5 or more adults reside. Apartments must each have a lockable entrance and exit,

Category	Total	Definition
Apartment Complex		a kitchen (including a range or microwave oven), an individual bathroom, and sleeping and living areas.
End Stage Renal Dialysis Center	2	End Stage Renal Dialysis is a treatment provided at an End Stage Renal Disease treatment facility two or three times a week that removes wastes from the blood that the kidneys are unable to remove.
Airport	2	A complex of runways and buildings for the takeoff, landing, and maintenance of civil aircraft, with facilities for passengers.
Adult Day Care	2	A day program that provides the elderly and other adults with services when their caregivers are at work or need relief.
Total	835	

Table 18 Number of Critical Facilities by Municipality, Outagamie County[46]

Municipality	# of Critical Facilities
City of Appleton	229
City of Kaukauna	57
City of New London	9
City of Seymour	23
Town of Black Creek	8
Town of Bovina	7
Town of Buchanan	18
Town of Center	16
Town of Cicero	14
Town of Clayton (Winnebago Co)	1
Town of Dale	7
Town of Deer Creek	13
Town of Ellington	16
Town of Freedom	33
Town of Grand Chute	88
Town of Hortonia	14
Town of Kaukauna	18
Town of Liberty	5
Town of Maine	9
Town of Maple Creek	18
Town of Oneida	29
Town of Osborn	4
Town of Seymour	8

[46] Source: Outagamie County Hazard Mitigation Planning Team and Development and Land Services

Municipality	# of Critical Facilities
Town of Vandenbroek	18
Village of Bear Creek	2
Village of Black Creek	9
Village of Combined Locks	16
Village of Greenville	36
Village of Hortonville	22
Village of Kimberly	28
Village of Little Chute	41
Village of Nichols	5
Village of Shiocton	13
Village of Wrightstown	1
Total	835

NATURAL, HISTORIC, AND CULTURAL RESOURCES

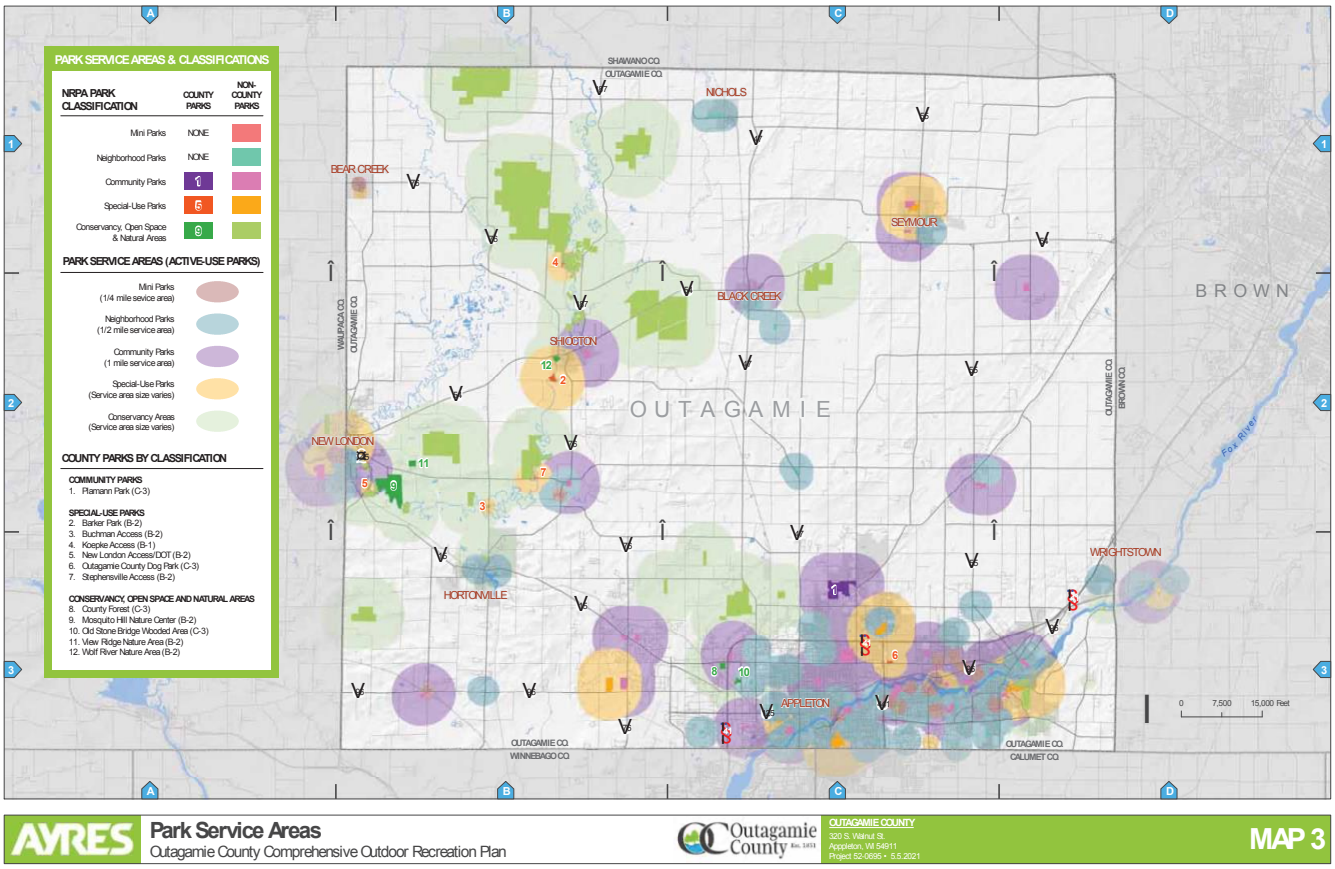
Outagamie County has natural, historic, and cultural resources which add to the uniqueness to the area. There is a strong and growing awareness of the need to ensure that places of significance are preserved for the enjoyment of future generations. Historic, archeologically, or architecturally important sites help foster a feeling of pride and identity in one's community. This is also true for natural resources. These places enhance the quality of life and provide cultural continuity between the past, present, and future. [47]

Conservancy, Open Space and Natural Areas

Conservancy parks and natural areas are established for the protection and management of the natural or cultural environment with recreational facilities as a secondary objective. Open spaces are areas that currently offer no recreational facilities but have been reserved as future active or passive parklands. County-owned conservancy areas are County Forest, Mosquito Hill Nature Center, Old Stone Bridge Wooded Area, View Ridge Natural Area, and the Wolf River Nature Area (see Map 5).[48] These areas are important measures to permanently restore water storage capacity to capture and store water during storm events as listed under Water Storage Capacity.

[47] Excerpt from: Outagamie County Comprehensive Plan
[48] Excerpt from: Outagamie County Comprehensive Outdoor Recreation Plan 2022 - 2026

Map 5 Outagamie County Outdoor Recreation Areas



Stormwater Biofilter

A project by the Fox-Wolf Watershed Alliance near the Fox River has two stormwater biofilters or vegetative swales. These biofilters are sloped, low-lying areas designed to capture and treat stormwater. The swales collect stormwater runoff and allow it to soak into the ground at a slower rate, which assists with flooding. Specialized native plants help to treat the stormwater by absorbing pollutants and nutrients, like phosphorus, and filtering suspended sediments. This improves the quality of the surface water entering nearby lakes and rivers.[49]

Nonmetallic Mineral Resources

There are no known metallic mineral resources in Outagamie County. However, there are nonmetallic resources, which are extracted at various locations across the County. The extraction of mineral aggregates or nonmetallic minerals for sale or use by the operator is defined as nonmetallic mining under Chapter NR 135 of the Wisconsin Administrative Code. These operations provide material for construction, landscaping, and road building/maintenance. East Central Wisconsin Regional Planning Commission (ECWRPC) administers a state mandated multi-county nonmetallic mining reclamation program under NR

[49] Excerpt from Renew Our Waters: Fox-Wolf Watershed Alliance

135, on behalf of Outagamie County. As of 2017, ECWRPC lists 55 known nonmetallic mining sites in Outagamie County.[50]

WATER RESOURCES

Outagamie County has about 1,250 miles of streams and rivers and 237 acres of lakes and impoundments. In general, the shallow waters of Outagamie County do not provide a great deal of recreation potential; however, the Wolf and Embarrass Rivers are heavily used. Black Otter Lake is a 75-acre impoundment of Black Otter Creek located in the village of Hortonville and the town of Hortonville in the southwestern portion of Outagamie County. [51]

The major sources of groundwater aquifers in Outagamie County are the St. Peter Sandstone of Ordovician age and the Sandstones of the Upper Cambrian Series. Where they are sufficiently thick, glacial sand and gravel are an important source of groundwater. Groundwater in the county is under water table and artesian conditions. The source of the groundwater is precipitation that falls on the surface and infiltrates downward into the underlying materials. The groundwater level is usually not far below the surface, generally less than 100 feet. In the northwestern quarter of the county, groundwater is mostly within 20 feet of the surface. [52]

WATER STORAGE CAPACITY NEEDS OF THE LOWER FOX RIVER BASIN

While a variety of Best Management Practices are being implemented in the Lower Fox River Basin, Outagamie County Land Conservation identified that further work is required to permanently restore water storage capacity to capture and store water during storm events, slowly releasing water to the streams, resulting in reduced flood events.[53]

Development has decreased the watershed capacity which impacts flooding during high rainfall events. Map 6 displays a 2-year rainfall event (2.45”) in a 24-hour period and the number of acres to store this rainfall to prevent flooding, as in the pre-settlement period. Table 19 lists the rainfall amounts tied to the frequency of flood events to provide context. The project delineates the number of acres to increase watershed capacity and decrease flooding from storm events. The following watersheds of the Lower Fox River Basin fall into Outagamie County: Oneida Creek, Middle Duck Creek, Upper Duck Creek, Apple Creek, Mud Creek, Plum Creek, Garners Creek-Fox River, and Kankapot Creek.[54]

[50] Excerpt from: Outagamie County Comprehensive Plan
[51] Excerpt from: Outagamie County Comprehensive Plan
[52] Excerpt from: Outagamie County Comprehensive Plan
[53] Source: Water Storage Capacity Needs for the Lower Fox River Basin Project Summary
[54] Source: Water Storage Capacity Needs for the Lower Fox River Basin Project Summary

Map 6 Lower Fox River Basin: Acres Needed for Storage of 2-year Rainfall Event in a Day

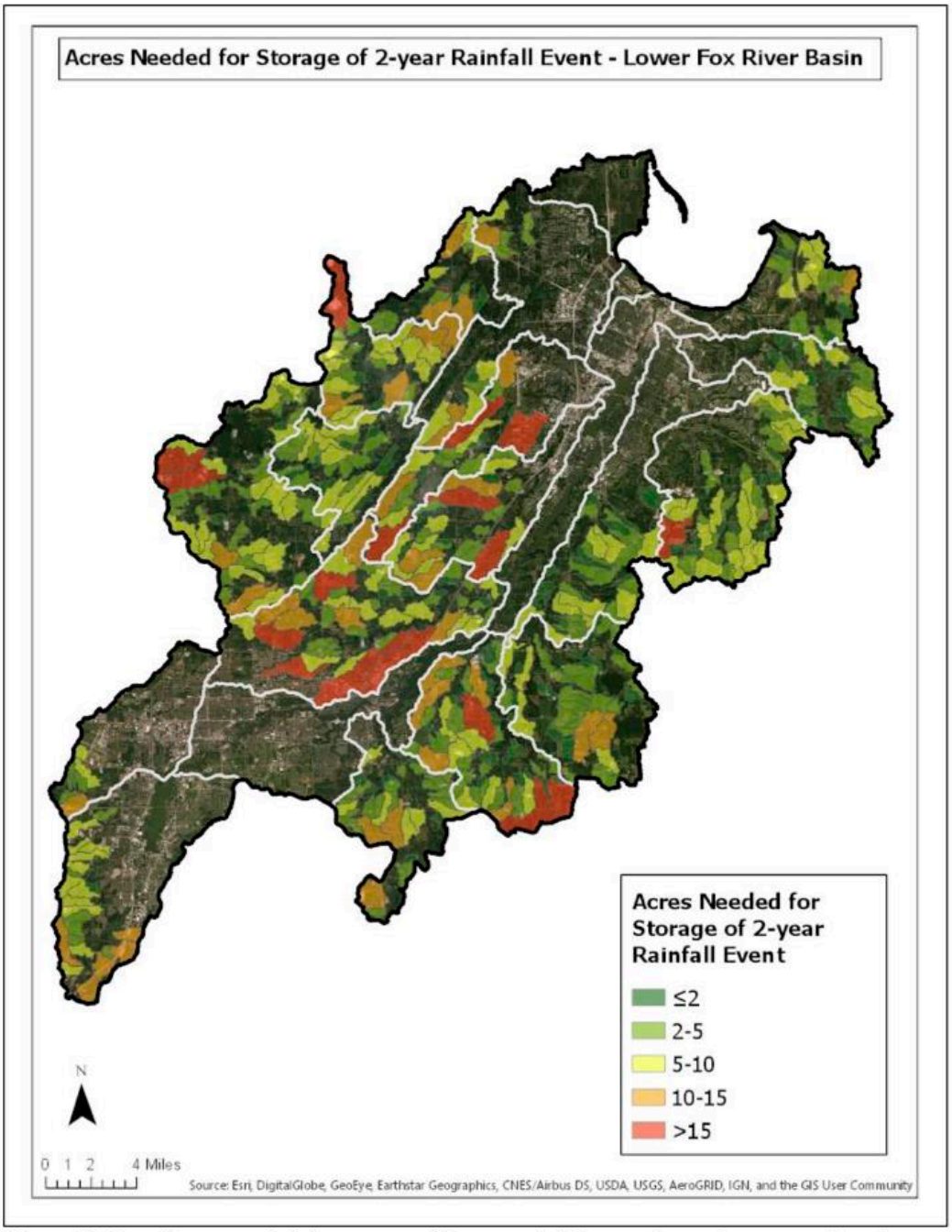


Figure 7. Map of acres needed for storage of 2- year rainfall event for catchments analyzed.

Table 19 Rainfall Event Frequency and Amount - Lower Fox River Basin[55]

Frequency	1 Year	2 Years	5 Years	10 Years	25 Years	50 Year	100 years
Rainfall amount	2.14”	2.45”	3.01”	3.51”	4.24”	4.85”	5.5”

Historical and Cultural Resources

- As of 2019, 273 properties in Outagamie County are listed in the Wisconsin Historical Society Architectural History Inventory
- National Register of Historic Places list 49 sites in Outagamie County (Table 20)
- Cultural resources in Outagamie County include CASA Hispana (Hispanic/Latinx heritage), Hmong American Partnership (Hmong heritage), and Little Chute Windmill (Dutch Heritage).

Table 20 National Register of Historic Places: Outagamie County[56]

Property Name	City	Area of Significance
Appleton City Park Historic District	Appleton	Architecture
Appleton Lock 4 Historic District	Appleton	Transportation; engineering
Appleton Locks 1-3 Historic District	Appleton	Transportation; engineering
Appleton Post-Crescent Building	Appleton	Communications
Appleton Wire Works	Appleton	Industry
Appleton Woolen Mills	Appleton	Industry
College Avenue Historic District	Appleton	Community planning and development; commerce; art; architecture
J. B. Courtney Woolen Mills	Appleton	Industry; architecture
Fox River Paper Company Historic District	Appleton	Industry; architecture
Main Hall, Lawrence University	Appleton	Education; architecture
Masonic Temple	Appleton	Architecture; social history
Henry J. and Cremora Rogers House	Appleton	Art; engineering; architecture
Henry Schuetter House	Appleton	Architecture
St. Paul Evangelical Lutheran Church	Appleton	Architecture

[55] Source: Outagamie County Land Conservation Data for Lower Fox River Basin Project
[56] National Register of Historic Places

Property Name	City	Area of Significance
Temple Zion and School	Appleton	European; architecture; religion
James Tompkins House	Appleton	Architecture
Washington School	Appleton	Architecture
West Prospect Avenue Historic District	Appleton	Architecture
John Hart Whorton House	Appleton	Commerce; architecture
Zion Lutheran Church	Appleton	Architecture
George Peters House	Black Creek	Architecture
Barteau Bridge	Bovina	Engineering
Center Valley Grade School	Center	Architecture; education
Greenville State Bank	Greenville	Community planning and development
Joseph Kronser Hotel and Saloon	Greenville	Architecture; social history
South Greenville Grange No. 225	Greenville	Social history
Hortonville Community Hall	Hortonville	Architecture; social history
Eagle Paper and Flouring Mill	Kaukauna	Industry; architecture
Merritt Black House	Kaukauna	Architecture
Norman Brokaw House	Kaukauna	Industry
Fargo's Furniture Store	Kaukauna	Architecture
Free Public Library of Kaukauna	Kaukauna	Community planning and development; education
Charles A. Grignon House	Kaukauna	Historic - aboriginal; commerce; politics/government; architecture
Holy Cross Church	Kaukauna	Architecture
Kaukauna Locks Historic District	Kaukauna	Engineering; transportation
Klein Dairy Farmhouse	Kaukauna	Architecture; agriculture
Kuehn Blacksmith Shop-Hardware Store	Kaukauna	Architecture
Lindauer and Rupert Block	Kaukauna	Commerce; architecture
Julius J. Martens Company Building	Kaukauna	Commerce; architecture
Capt. Matthew J. Meade House	Kaukauna	Industry
Nicolet Public School	Kaukauna	Architecture
Osprey Site	Kaukauna	Prehistoric; industry
Frank St. Andrews House	Kaukauna	Architecture
St. Mary's Catholic Church	Kaukauna	Community planning and development; architecture
Charles W. Stribley House	Kaukauna	Architecture
US Post Office, Former	Kaukauna	Politics/government; architecture
William and Susanna Geenen House	Kimberly	Architecture

Property Name	City	Area of Significance
Cedars Lock and Dam Historic District	Little Chute	Transportation; engineering
Little Chute Locks and Canal Historic District	Little Chute	Transportation; engineering
Rapide Croche Lock and Dam Historic District	Wrightstown	Transportation; engineering

IMPORTANT COMMUNITY ACTIVITIES

During the Planning Team's meeting, the group highlighted some of the significant events that align with the community's values. Please note that this list is not comprehensive.

- Meal sites: Provides meals to vulnerable residents
- Farmer's Markets: Fresh produce available to Food Stamp participants
- Outdoor Recreation: For physical and mental health
- Parades and Local Events (i.e., Cheese Festival, Paper Fest, Latino Fest, or Octoberfest): For community well-being and connectedness
- Public Protests: Ability of Free Speech Demonstrations

NATURAL HAZARD PROFILES

TORNADO

HAZARD DESCRIPTION

A tornado is defined as a violently rotating column of air, usually attached to the base of a thunderstorm. They are most often found in strong to severe thunderstorms, but not all thunderstorms that are severe will produce tornadoes. Because wind is invisible, it can sometimes be hard to see a tornado unless it forms a condensation funnel made up of water droplets, dust, and debris. These dangerous storms can last for just a few seconds or for over an hour. They come in a variety of shapes and sizes that can range from thin, rope-like circulations to gigantic wedge shapes that are over a mile wide. However, the size of a tornado is not always proportional to its wind speed. Most tornadoes have wind speeds less than 110 miles per hour, are about 250 feet across, and travel a few miles before dissipating. The most powerful tornadoes can have wind speeds exceeding 200mph.

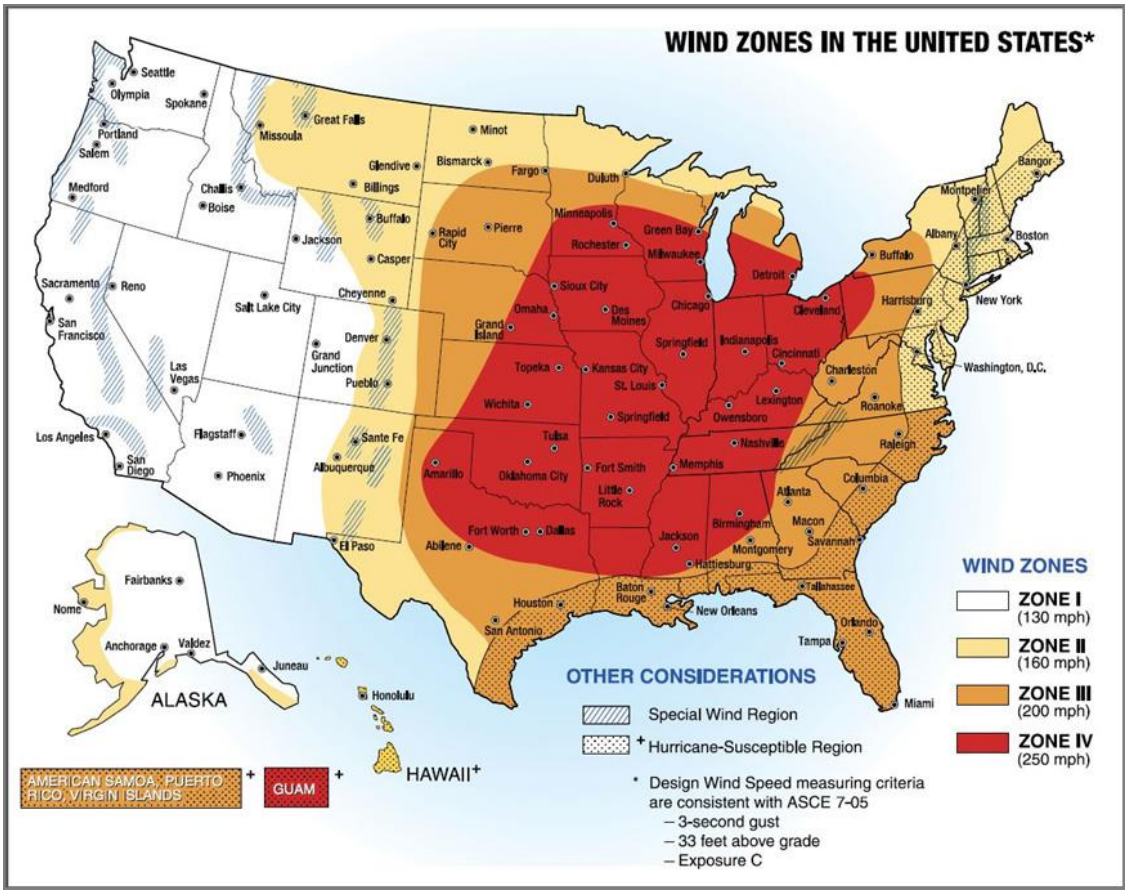
LOCATION AND EXTENT

The United States has been divided into four zones that geographically reflect the number and strength of extreme wind for the purpose of designing storm shelters (Map 7). Wisconsin lies along the northern edge of Zone IV, the nation's maximum frequency zone for tornadoes (commonly known as "tornado alley"), which extends northeastward from Oklahoma into Iowa and then across to Michigan and Ohio. Zone IV includes most of the southern two-thirds of

Wisconsin and has experienced the strongest tornado activity that has affected the entire U.S., with wind speeds of up to 250 miles per hour being recorded at some point. This zone includes Outagamie County.[57]

Tornadoes can occur during any month. In Wisconsin, the tornado season tends to pick up in June (peak), July, and August. Most tornadoes have struck during mid-afternoon or early evening (3 p.m. to 7 p.m.). The "average" Wisconsin tornado between 1982 and 2007 had a lifespan of 7.1 minutes, a path length of 3.7 miles, a path width of 118 yards, and an EF rating of 0.7 (between EF0 and EF1). Despite the averages, strong year-to-year variations occur, and many tornadoes can come without warnings.[58] The EF scale still is a set of wind estimates (not measurements) based on damage, as listed in Table 21.

Map 7 Design wind speeds for tornado storm shelters



[57] Source: International Code Council 500 (2020) Figure 304.2(1)
[58] Excerpt: State of Wisconsin Threat and Hazard Identification and Risk Assessment (THIRA), 2021

Table 21 Enhanced Fujita Scale for Tornadoes[59]

EF Rating	3 Second Gust (mph)
0	65-85
1	86-110
2	111-135
3	136-165
4	166-200
5	Over 200

PREVIOUS SIGNIFICANT EVENTS

- A record number of tornadoes for April struck Wisconsin on April 10, 2011. Fifteen twisters affected the state as a strong spring storm moved across the western Great Lakes. In the National Weather Service Green Bay service area of northeast Wisconsin, ten tornadoes were reported, a record single-day outbreak for any month of the year. Two of the tornadoes impacted Outagamie County totaling $8.6 million in damage to 7 homes destroyed, 24 homes & 4 businesses with major damage, and 160 homes with minor damage.
  - Southeast of Hortonville: EF 1, 6.4 miles long and 175 yards wide
  - Southwest of Kaukauna: EF 2, 1.52 miles long and 175 yards wide

- A line of severe thunderstorms, known as a quasi-linear convective system (QLCS), produced six tornadoes (five impacting Outagamie County) and widespread damaging winds across east-central Wisconsin during the late night hours of August 6-7,2013. The storms formed ahead of a cold front that also produced severe weather in Minnesota and western Wisconsin.

  The tornadoes occurred within about 50 minutes, between 12:22 am and 1:10 am. Hundreds of homes, businesses, and farm buildings were damaged. Thousands of trees and power lines were also downed, leaving tens of thousands of people without power. The six tornadoes that occurred on August 7 were the most nighttime tornadoes in a single event in northeast Wisconsin since accurate tornado records began (1950). The four tornadoes in Outagamie County damaged barns, commercial properties, homes, a church, and hundreds of trees down causing $15.5 million in costs.

  - Southeast of New London: EF1, 10.97 miles long and 175 yards wide
  - South of New London: EF1, 4.77 miles long and 125 yards wide
  - Southeast of Mackville to Little Chute: EF1, 11.31 miles long and 175 yards wide
  - Appleton, Kimberly, and Kaukauna: EF1, 13.72 miles long and 150 yards wide
  - East of Mackville to Freedom: EF1, 9.14 miles long and 200 yards wide

[59] NOAA: National Weather Service

- On June 14, 2017, a quasi-linear convective system (QLCS), formed ahead of a cold front and produced widespread winds of 50 to 70 mph and tornadoes as it passed through central and east-central Wisconsin. Ten tornadoes formed during the afternoon. At the time it was the biggest outbreak of tornadoes in the National Weather Service Green Bay service area of northeast and north-central Wisconsin, tying the April 10, 2011, event. Four of the tornadoes impact Outagamie County damaging trees, homes, and industrial buildings causing $252,000 in damage.
    - Appleton to Kaukauna: EF1, 6.97 miles long and 125 yards wide
    - Southeast of Mackville: EF0 2.83 miles long and 50 yards wide
    - East Northeast of Bear Creek: EF0, 3.99 miles long and 50 yards wide
    - Nichols: EF0, 2.16 miles long and 100 yards wide

- July 20, 2019, a line of powerful thunderstorms moved across portions of central and east-central Wisconsin. The worst damage occurred from Wood/Portage counties eastward into the Fox Valley and lakeshore. Trees were uprooted or snapped and several structures were damaged as a result of straight-line winds and six weak, fast-moving tornadoes in the region. Four of the tornadoes hit Outagamie County with total damage estimated at $110,000.
    - South of New London: EF1, 6.24 miles and 90 yards wide
    - East of Hortonville to East Stephensville: EF1, 3.51 miles long and 75 yards wide
    - Northeast Greenville: EF0, .72 miles long and 50 yards wide
    - Northeast Kaukauna: EF0, 1.11 miles long and 50 yards wide

- Thunderstorms developed ahead of an outflow boundary on August 10, 2021, during the evening hours across east-central Wisconsin. The strongest storms produced damaging winds and a tornado. A tornado formed at 5:58 pm northwest of Black Creek in Outagamie County and continued east southeast before dissipating at 6:11 pm. The tornado produced damage to trees and to the siding and roof of a house. Total path length is estimated to be 2.05 miles long, with a width of 40 yards. Peak wind is estimated to be around 90 mph.

- June 15, 2022 a line of thunderstorms developed ahead of an approaching cold front during the afternoon across western Wisconsin and tracked through northeast Wisconsin through the evening hours on Wednesday (6/15). The storms formed into a Quasi-Linear Convective System (QLCS) with multiple reports of damaging winds of 70 to 80 mph as well as 10 tornadoes embedded within the main line of thunderstorms across the state. The 10 tornadoes tie a record for the most tornadoes in an event for northeast Wisconsin. The swath of damaging winds caused multiple power outages, with over 125,000 customers without power across northeast Wisconsin. Power was not restored for several days across many areas as the cleanup from the storms took an extended period.

- Leeman: EF 1, 8.24 miles long and 80 yards wide. Peak winds estimated 94 mph.
- Southwest of Black Creek: EF 0, 9.37 miles long and 400 yards wide. Peak wind estimated 105 mph.

Outagamie County has experienced three Quasi-Linear Convective Systems in the past decade, which is a unique occurrence in its history.

FUTURE HAZARD EVENTS

PROBABILITY

Based on the hazard frequency, Outagamie County is considered to have a high probability of experiencing a tornado event in any given year. All municipalities in Outagamie County have equal opportunity for increased future probability of tornadic activity. Tornadoes have no defined hazard area within the county. Past events have been relatively uniform across the planning area. Manufactured home structures are very vulnerable as their occupants are at risk of death, injury, and property damage from tornadoes as these homes often lack foundations, tie-downs, and/or basements. Therefore, manufactured housing communities in the county are the areas of greatest risk from this hazard. Also persons outside in recreational areas or outdoor events are at great risk of injury and death from a tornado.

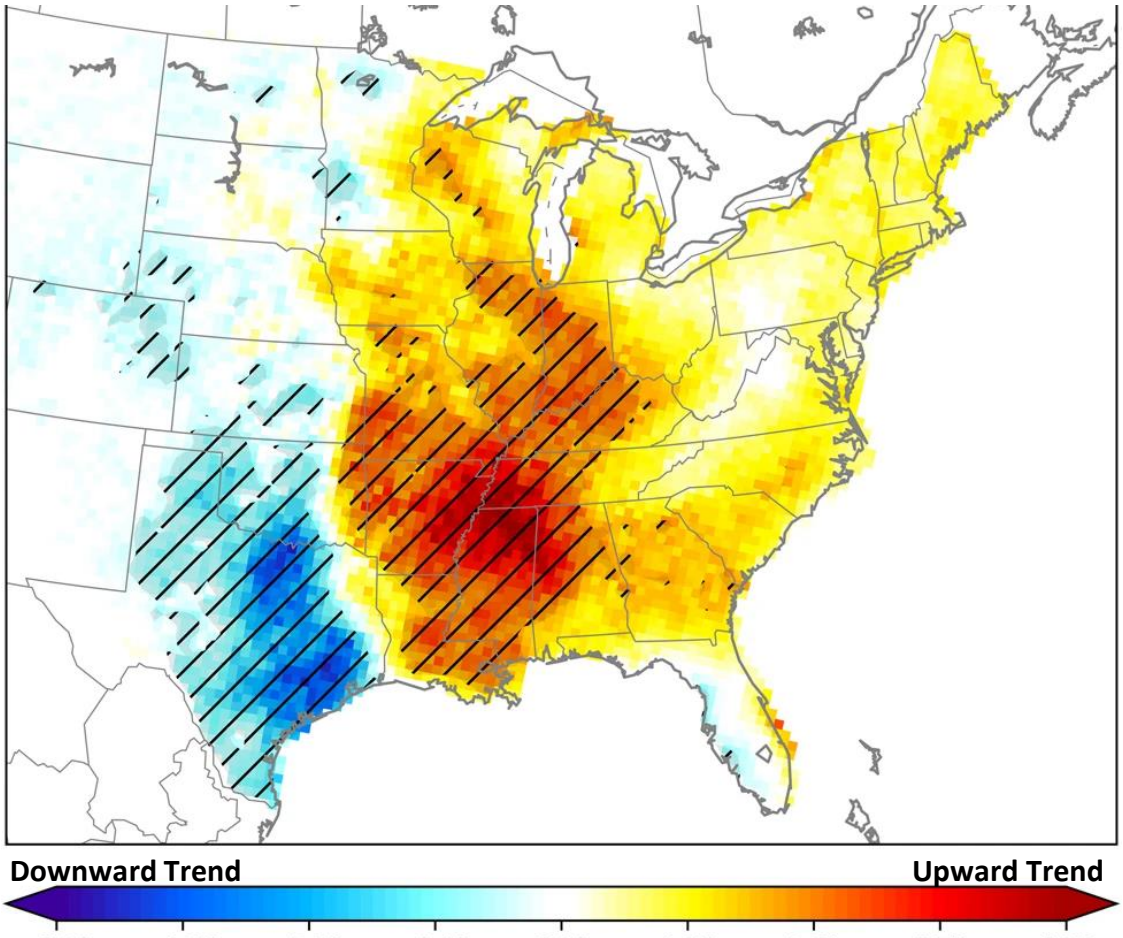
POSSIBLE FUTURE CONDITIONS

Population centers in the southern portion of the county are expected to increase slightly over the next 10 - 20 years, increasing the number of persons at risk. Also, the expansion of the Highway 15 corridor from Greenville to New London will enhance economic development and lower transportation costs according to the Wisconsin DOT Highway 15 project. This analysis indicates there could be an increase in land use development in the surrounding areas of Greenville, Hortonville, and Hortonia, which in turn lead to additional developed land at risk for tornadoes. The hazards expected with tornadoes and coinciding thunderstorms would remain the same though the frequency may increase. Though all communities are at equal risk for future conditions, the number of communities impacted by one system could increase. With the potential for an upward trend on tornadic activity days, an impact would be seen in the structures damaged.

According to a study conducted in 2018 (Map 8), tornado frequency has increased in many parts of the Midwest and Southeast over the past 40 years, while decreasing in some areas of the central and southern Great Plains. The researchers analyzed tornado reports from 1979 to 2017 and studied the trends in tornado-environment formation in different regions during the same period. Also, climate models show that severe weather may increase in the Midwest and Southeast, particularly in the spring. This could be linked to environmental changes and the rise in tornadoes and severe weather seen in recent studies.[60.]

[60] Excerpt from: Spatial trends in United States tornado frequency, NPJ Climate and Atmospheric Science 2018.

Map 8 Tornado Environment Frequency Trends



Excerpt from: Spatial trends in United States Tornado Frequency, Gensini and Brooks, NPJ Climate and Atmospheric Science 2018.

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

RISK ASSESSMENT RANKING

Tornadoes pose the highest level of risk among all hazards based on the county assessment in Table 11. On average from 2005 – 2022, Outagamie County experienced 1.11 tornadoes a year with a total of $22.6 million dollars of damage during the entire time span. The following is a depiction of the vulnerability of county assets to this hazard and the potential impact it could have.

ASSETS AT RISK

Asset	Vulnerability and Impact
Persons with Disabilities	The individual may have difficulty taking shelter during a tornado warning possibly resulting in injuries/death and potentially becoming trapped if the dwelling is damaged. Recovery could be hampered depending on available personal resources (people, equipment, and funds). Without these resources an individual may not fully recover from the impact of this event, creating long-term difficulties.
Persons experiencing homelessness & poverty	Inadequate shelter during a tornado warning possibly resulting in injuries/death. An individual may not have insurance for medical treatment of injuries or property damage. The impact of a tornado could further worsen their financial difficulty or compound illnesses.
Persons with Limited English	Individuals may lack experience with tornadoes or do not know the language of the warning message. Possibly difficult for individuals to understand the appropriate actions to take, especially since research demonstrates effective sheltering actions require multiple warnings. This could also impact taking safe and appropriate steps in clean up and recovery, affecting their physical, mental, emotional, and financial well-being.
Persons with limited data access	Areas with limited data access can also experience limited cellular coverage. Individuals in these areas may be unaware of a tornado warning unless other warning methods such as a NOAA weather radio are utilized. Following a tornado, those affected may face challenges in accessing important disaster-related information, which could hinder their recovery process.
Structures	Based on the detailed description under Assets: Structures regarding codes and expected impacts, damage to structures in the tornado path is high with decreasing damage areas adjacent to the path.
Agricultural Systems	Tornadoes can damage/contaminate crops or damage farm buildings/equipment. This could impact farmers' business in the current and future years.
Economic Center Systems	Damage to top economic centers will impact manufacturing or food processing facilities. Recovery and rebuilding could be lengthy impacting employees' income.
Lifeline Systems	All lifeline systems are at risk from tornado damage however Transportation, Energy (Power & Fuel) and Food, Water, & Shelter are the highest. This could cause a loss of economic activity, medical devices without power, and damaged homes.
Critical Infrastructure	Tornado damage can impact most critical infrastructure however buildings are at great risk, especially because of the construction or ability of occupants to take shelter. Examples are schools, community-based residential facilities, adult family homes, nursing homes and manufactured housing communities.
Natural Resources	The main risk for natural resources is damage to trees including uprooting. A secondary risk are individuals in the natural resource areas who are not warned or unable to take appropriate shelter.

Asset	Vulnerability and Impact
Historical & Cultural Resources	These resources are at risk from tornado damage, especially historical buildings since the properties were built prior stronger building codes. Individuals living/visiting in these dwellings would be at risk unless adequate shelter is available.
Community Activities	All parades, festivals, and protests would be impacted depending on the timing of the tornado event, bringing possible mental health impacts. It may be necessary to temporarily halt meal deliveries to designated sites until the roads are cleared of debris. This could potentially impact those who depend on these meals.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions, the possible slight increase in tornado activity could result in a higher number of days with tornadic potential and damage. This could lead to an increase in the average financial and material losses. This increase in tornado events could impact any municipality in Outagamie County.

SEVERE THUNDERSTORMS/STRONG WINDS

HAZARD DESCRIPTION

Strong winds, including thunderstorm winds and high winds can often be just as damaging as a tornado. Strong winds are most likely to happen in the spring and summer months and during the afternoon and evening hours but can occur throughout the year and at all hours.

The National Weather Service classifies a Severe Thunderstorm if winds reach or exceed 58 miles per hour or produce hail at least 1 inch in diameter. Compared with other atmospheric hazards (such as winter low-pressure systems), individual thunderstorms affect relatively small geographic areas.

LOCATION AND EXTENT

Severe thunderstorms and coinciding winds can impact any municipality in Outagamie County. The Beaufort Wind Scale is based on the work of Sir Francis Beaufort, originally on water and later modified to include land. It is useful in determining the impact of winds in the community.

Figure 7 Beaufort Wind Scale

Force	Wind (mph)	WMO Class	Appearance of Wind on Water	Appearance of Wind on Land
0	0 -1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes

Force	Wind (mph)	WMO Class	Appearance of Wind on Water	Appearance of Wind on Land
2	4-7	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move
3	8-12	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	13-18	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted; small tree branches move
5	19-24	Fresh Breeze	Moderate waves 4-8 ft taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	25-31	Strong Breeze	Larger waves 8-13 ft, whitecaps common	Larger tree branches moving, whistling in wires
7	32-38	Near Gale	Sea heaps up, waves 13-19 ft, white foam streaks off breakers	Whole trees moving, resistance felt walking against wind
8	39-46	Gale	Moderately high (18-25 ft) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks	Twigs breaking off trees, generally impedes progress
9	47-54	Strong Gale	High waves (23-32 ft), sea begins to roll, dense streaks of foam, spray may reduce visibility	Slight structural damage occurs, slate blows off roofs
10	55-63	Storm	Very high waves (29-41 ft) with overhanging crests, sea white with densely blown foam, low visibility	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	64-72	Violent Storm	Exceptionally high (37-52 ft) waves, foam patches cover sea, visibility more reduced	Seldom experienced inland; trees uprooted; considerable structural damage occurs.
12	73-83	Hurricane	Air filled with foam, waves over 45 ft, sea completely white with driving spray, low visibility reduced	Very rarely experienced; accompanied by wide-spread damage.

PREVIOUS SIGNIFICANT EVENTS

Since 2005, Outagamie County has experienced 110 wind events, including severe thunderstorms with estimated and measured winds and wind gusts ranging from 50 to 95 mph. Damage from these events was estimated at $6.6 million in damage but does not factor in all private losses. No death and injuries were reported. Below is a highlight of significant events:

- Thunderstorms developed as a cold front interacted with a moist and very unstable air mass over Wisconsin on September 13, 2005. Many of the storms became severe, with gusts more than 60 mph, as they moved across east central Wisconsin. Downed trees and power lines were widespread. Heavy damage was reported in the Appleton area where at least one tree landed on a car, flag poles were blown down, roofs were torn from at least three houses under construction, a construction trailer was overturned and a semi was blown over on U.S. Highway 441. Silos, sheds, garages and at least three barns were blown down and power was knocked out in Greenville and Freedom. The wind tore away parts of the screen at a drive-in movie theater in Freedom.

- A thunderstorm complex on July 30, 2006 formed in northwest Wisconsin moved southeast across the area during the early morning hours producing large hail and causing extensive wind damage. A wind gust of 63 mph was reported by the Appleton Automated Weather Observing System (AWOS). The high winds flipped an airplane at the Appleton Airport and downed numerous trees and power lines across the area. Power was knocked out to about 6,000 customers in the Fox Valley.

- High winds (61 mph +) from thunderstorms on July 12, 2008 knocked a large tree onto a garage, blew lawn furniture from a yard and damaged a storefront ($10,000).

- On July 20, 2010 severe thunderstorms developed across northeast Wisconsin as a weak surface boundary encountered an unstable air mass. The storms produced winds estimated as high as 100 mph and hail to golf ball size, causing millions of dollars in damage, power outages to thousands and injuring one person. Hortonville reported 70 mph winds and thunderstorm downburst winds uprooted or snapped about 65 trees on the northeast side of Hortonville and damaged a shed and playground equipment. In Grand Chute thunderstorm winds downed numerous trees and damaged 3 to 4 homes. Also, the Applegate subdivision experienced widespread tree damage.

- The combination of a cold front, unstable air, and an upper level disturbance produced severe thunderstorms on September 2, 2011 that caused extensive damage across the Fox Valley. A small cluster of intense thunderstorms produced wind gusts in excess of 70 mph, causing widespread damage across central and east central Wisconsin. Thousands of trees and power lines were blown down by the thunderstorm cluster. Numerous buildings were damaged by fallen trees and high winds. Power was knocked out to 60,000 people at the height of the storm. Widespread 70 to 75 mph wind gusts were experienced in the Grand Chute – Appleton area, with isolated winds estimated at around 95 mph. Thunderstorm winds, with gusts estimated to 80 mph, downed thousands of trees and knocked out power to 20,000 customers in Appleton alone.

Around 200 homes sustained at least minor damage, including one that was destroyed. More than 60 businesses also sustained damage. A semi-trailer was blown over near US-41 and US-10. $5,300,000 in damages reported.

- Thunderstorms developed on July 17, 2012 as unstable air combined with a south-moving cold front and an upper level disturbance. Some of the storms became severe during the afternoon as they passed through east-central Wisconsin. The strongest storms produced wind gusts to 70 mph that downed trees across Appleton.

- A line of severe thunderstorms, known as a quasi-linear convective system (QLCS), produced six tornadoes and widespread damaging winds across east-central Wisconsin during the late night hours of August 6-7, 2013. The storms formed ahead of a cold front that also produced severe weather in Minnesota and western Wisconsin. Hundreds of homes, businesses and farm buildings were damaged by either the tornadoes or the high winds. Thousands of trees and power lines were also downed, leaving tens of thousands of people without power. A wind gust of 87 mph was reported southeast of Hortonville and 67 mph at Lawrence University, in the city of Appleton.

- On July 13, 2015 a line of storms interacted with a warm front over central Wisconsin to produce severe weather. The storms downed trees and power lines and tore part of the roof from a barn in Hortonville as they moved across central and east central Wisconsin. Thunderstorm winds snapped and uprooted trees in Kimberly and downed trees and power lines in Appleton.

- Thunderstorms that developed ahead of an approaching surface boundary moved south across Wisconsin on August 14, 2015. Some of the storms produced heavy rainfall that caused minor urban flooding, damaging winds that downed trees and power lines, and hail up to golf ball size across eastern Wisconsin. Thunderstorm winds snapped large trees about five feet above the ground in Kaukauna. Kimberly, Black Creek, and Freedom were also impacted.

- Thunderstorms approaching from the northwest began to produce damaging winds in central Wisconsin on June 5, 2016 as they encountered a more unstable air mass. The storms continued to cause damage as they moved across east central Wisconsin. There was also some nickel size hail with the storms. Thunderstorm winds downed or snapped numerous trees, large branches, and power lines; and wrapped a trampoline around a power pole in Freedom. Measured gusts from the storms included 62 mph at Appleton International Airport. Shiocton, Black Creek, Hortonville, Greenville, Little Chute, Freedom, and Kimberly were impacted with at least $11,000 in damage.

- On June 26, 2016 thunderstorms brought damaging winds, hail, very heavy rain, and a brief tornado, as they moved across central and east central Wisconsin starting in the late afternoon of June 25th and continuing into the early morning hours of June 26th.

The storms downed numerous trees and power lines at many locations as they passed. Thunderstorm winds also tore the roof from a silo and caused shingle and siding damage to a house and garage north of Black Creek, knocked trees onto a house and a car near Seymour, and produced a downburst wind of at least 75 mph that snapped and uprooted trees south of Nichols. $65, 000 in damages reported.

- Thunderstorms moved into unstable air across central and east central Wisconsin during the afternoon hours of September 16, 2016. The storms intensified near outflow boundaries from earlier storms and produced wind damage, heavy rainfall, and large hail. The storms downed numerous trees, knocked down street lights near Little Chute, pushed a large shed from its foundation north of Hortonville, and caused a barn to collapse near Kaukauna. Quarter size hail fell near Dale. Damage reported at $20,000.

- A line of thunderstorms, known as a quasi-linear convective system (QLCS), formed ahead of a cold front and produced widespread winds of 50 to 70 mph and tornadoes as it passed through central and east-central Wisconsin on June 14, 2017. Ten tornadoes formed during the afternoon. One was associated with an isolated storm ahead of the main line. Five of the tornadoes were rated EF0 and the other five were EF1. Thunderstorm winds downed large trees on the south and east sides of Appleton and downed trees and power lines in Shiocton.

- On July 6, 2017 a warm, humid, and unstable air mass combined with a weak cold front to trigger scattered thunderstorms during the evening hours. A few of the storms became severe with large hail and damaging winds. Power was knocked out to approximately 3,400 customers in the Seymour area. Trees were damaged in Appleton, Buchanan, Shiocton, and Black Creek.

- For the second consecutive day, a line of powerful thunderstorms moved across portions of central and east-central Wisconsin on July 20, 2019. The worst damage occurred from Wood/Portage counties eastward into the Fox Valley and lakeshore. Trees were uprooted or snapped, and several structures were damaged because of straight-line winds and six weak, fast-moving tornadoes. Thunderstorm winds downed some road signs along Highway 441 and a couple of other locations, bent a power pole near I-41 and Ballard Road, and caused tree damage in the northeast part of Appleton. A thunderstorm wind gust of 67 mph was measured on the west side of Appleton. Thunderstorm winds downed some road signs along Highway 441 and a couple of other locations, bent a power pole near I-41 and Ballard Road, and caused tree damage in the northeast part of Appleton. Thunderstorm winds uprooted 2 trees and damaged a house in Appleton with tree damage in Freedom. Damage costs reported at $40,000.

- A cold front brought several rounds of showers and thunderstorms to central and east-central Wisconsin during the afternoon and evening hours of April 20, 2020. The storms produced gusty winds of 50 to 60 mph along with some wind damage and small hail.

Thunderstorm winds snapped seven power poles north of Black Creek and six power poles and downed wires in the town of Cicero.

- A line of weakening showers and thunderstorms tracked through east-central Wisconsin during the late morning hours of June 29, 2020. There was a microburst with one of the storms in Outagamie County, which downed some trees, power lines, and large branches.

- A line of thunderstorms developed ahead of an approaching cold front during the afternoon across western Wisconsin and tracked through northeast Wisconsin through the evening hours on Wednesday, June 15, 2022. The storms formed into a Quasi-Linear Convective System (QLCS) with multiple reports of damaging winds of 70 to 80 mph as well as 10 tornadoes embedded within the main line of thunderstorms. The 10 tornadoes tie a record for the most tornadoes in an event for northeast Wisconsin. The swath of damaging winds caused multiple power outages, with over 125,000 customers without power across northeast Wisconsin. Power was not restored for several days across many areas as the cleanup from the storms took an extended period. Thunderstorm winds downed numerous trees and power lines, which blocked highways and roads between Black Creek and Freedom. Thunderstorm winds downed numerous trees and powerlines north of Seymour, Greenville, and Appleton. Thunderstorms produced a wind gust to 72 mph on the west side of Appleton.

FUTURE HAZARD EVENTS

PROBABILITY

Convective Available Potential Energy (CAPE) measures the energy available for storm formation, which is one of the important factors in the formation of thunderstorms. CAPE values generally peak during warmer months in the eastern U.S. But since 1979, parts of the eastern U.S. have seen up to 10-15 more days of high CAPE values during both spring and summer—prime time for thunderstorms.[61]

Research in future climate trends shows a decrease in thunderstorm activity is projected for the Southern Plains, whereas the Southeast and Midwest experience an increase in thunderstorm activity.[62] This data lends to a slight increase in severe thunderstorm days.

Based on the past hazard frequency, Outagamie County and all municipalities are considered to have a high probability of experiencing a significant thunderstorm/wind event in any given year.

[61] Climate Central, Changing Thunderstorm Potential, May 11, 2022.
[62] Thunderstorm Activity Under Intermediate and Extreme Climate Change Scenarios, Geophysical Research Letters, 2020.

Possible Future Conditions

Besides damaging winds, a secondary consequence of severe thunderstorms is high rainfall events. At present, areas in the Lower Fox River Basin do not have enough available land to store the rainfall from a 2-year rainfall event (2.45 inches) within a 24-hour period, which is causing flooding issues (see Map 6). With the potential increase in thunderstorms comes the possible coinciding high rainfall events and damaging winds.

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

Risk Assessment Ranking

Severe thunderstorms/strong winds pose the second highest level of risk among all hazards based on the county assessment in Table 11. On average from 2005 – 2022, Outagamie County experienced 6.89 severe thunderstorms/strong winds a year with a total of $6.6 million dollars of damage during the entire time span. The following is a depiction of the vulnerability of county assets to this hazard and the potential impact it could have.

Assets at Risk

Asset	Vulnerability and Impact
Persons with Disabilities	It may be challenging for individuals to receive weather warnings in a preferred format, supportive of their needs and/or taking precautionary actions such as storing outdoor objects. In severe cases such as downbursts or derechos, an individual could potentially be trapped if the dwelling is damaged. Recovery could be hampered depending on available personal resources (people, equipment, and funds). Without these resources an individual may not fully recover from the impact of this event, creating long-term difficulties.
Persons experiencing homelessness and poverty	Inadequate shelter during a severe thunderstorm could result in injuries/death. An individual may not have insurance for medical treatment of injuries or property damage. The impact of strong winds could further worsen their financial difficulty or compound illnesses.
Persons with Limited English	Individuals may lack experience with this hazard or do not know the language of the warning message. Also, the potential hazards and life saving actions may not translate into their native language effectively. This can impact taking safe and appropriate steps for sheltering, clean up, and recovery, affecting their physical, mental, emotional, and financial well-being.
Persons with limited data access	Areas with limited data access can also experience limited cellular coverage. Individuals in these areas may be unaware of a severe thunderstorm warning unless other notification methods are utilized.

Asset	Vulnerability and Impact
	After a damaging thunderstorm event, these individuals could have difficulty obtaining disaster information, impacting their recovery process.
Structures	Structures are vulnerable to damage from high winds, downbursts, and derechos. Buildings constructed according to older codes are more vulnerable to damage and can be challenging and expensive to repair, which can cause financial strain for the owner.
Agricultural Systems	Strong winds can damage or contaminate crops or damage farm buildings/equipment, especially downbursts or derechos. This could impact farmers' business in the current and future years.
Economic Center Systems	These systems are vulnerable to loss of power, product spoilage and building damage from damaging winds. Long-term power outage creates an extra impact for businesses with food production, service or selling. Restoration from wind damage and power outage can create high fiscal impact to businesses, especially during economic downturns.
Lifeline Systems	All lifeline systems are at risk from severe thunderstorm damage however Transportation, Energy (Power & Fuel) and Food, Water, & Shelter are the highest. This could cause a loss of economic activity, medical devices without power and individuals with damaged homes.
Critical Infrastructure	Wind damage can impact most critical infrastructure however electrical substations and buildings are at great risk. Examples are schools, community-based residential facilities, adult family homes, nursing homes and manufactured housing communities.
Natural Resources	The main vulnerability for natural resources is damage to trees including uprooting. A secondary risk are individuals in these areas who do receive the weather warning or unable to take appropriate shelter.
Historical & Cultural Resources	These resources are at risk from wind damage, especially historical buildings since the properties were built prior to stronger building codes. Individuals living/visiting in these dwellings would be at risk unless adequate shelter is available.
Community Activities	All outdoor parades, events, festivals, and protests would be impacted depending on the timing of the severe thunderstorm/winds, bringing possible mental health impacts. It may be necessary to temporarily halt meal deliveries to designated sites until the roads are cleared of debris and safe for drivers. This could potentially impact those who depend on these meals.

Impact of Future Conditions

Based on the preceding Possible Future Conditions, the possible slight increase in potential severe thunderstorm days could result in a higher number of days with wind damage and

secondary high rainfall events. This could lead to an increase in the average financial and material losses. This increase in severe thunderstorm/wind events could impact any municipality in Outagamie County.

HAIL

HAZARD DESCRIPTION

During a severe thunderstorm, hail can be produced. Hailstones are ice crystals that form in low-pressure fronts due to warm air rising quickly into the upper atmosphere and then cooling down. Frozen droplets gather on the ice crystals, gradually increasing in weight until they fall as precipitation. The size of hailstones is determined by the severity and size of the storm. The potential for damage and/or injury typically begins to occur when hailstones reach the size of a quarter or larger (1 inch). In Wisconsin, hail ranges from the size of a pea (1⁄4 inch) to roughly that of a softball (4.5 inches). The area coverage of hailstorms can be highly variable and spotty due to the unstable nature of cumulonimbus clouds.

LOCATION AND EXTENT

Hail storms have no defined hazard area within the planning area. Past events have been relatively uniform across the planning area in local municipalities. Below is a scale of hailstones from the National Weather Service.

Table 22 Hail Size and 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/Hockey Puck Size
4"	Grapefruit Size
4 1/2"	Softball Size

PREVIOUS SIGNIFICANT EVENTS

From 2005 to 2022 Outagamie County experienced 124 hailstone events, 84 being severe (1" or larger), usually coinciding with severe thunderstorms or tornadoes. The significant events are listed below.

- Severe thunderstorms developed across northeast Wisconsin on July 20, 2010 as a weak surface boundary encountered an unstable air mass. The storms produced winds estimated as high as 100 mph and hail to golf ball size, causing $6,200,000 in damage, and power outages to thousands. Golf ball-sized hail (1.75") fell in Greenville along with Appleton which damaged nearly 1,000 vehicles and at least 200 homes. Many of the homes sustained significant damage as the hail damaged roofs and siding.

- Scattered storm on May 12, 2011 developed in an unstable air mass ahead of a weak area of low pressure. The storms produced large hail and isolated wind damage. Thunderstorms dropped golf ball-sized hail (1.75") in Greenville.

- Severe thunderstorms produced high winds, large hail, and a tornado across central and northeast Wisconsin on May 22, 2011. Unstable air combined with a surface boundary and an upper air disturbance produced thunderstorms. Storms became severe during the afternoon and early evening, causing numerous incidents of large hail and isolated straight-line wind damage. Hail fell in New London (1.75"), Grenville (1.5"), Appleton, (1.5") and Kaukauna (1.75").

- An upper level disturbance passed across the area during peak daytime heating on June 7, 2013. The unstable air, the upper disturbance, and a dew point boundary contributed to the development of thunderstorms that produced large hail and a funnel cloud in east central Wisconsin. Quite a bit of quarter to walnut size hail fell in and near Appleton, and there was even some golf ball to nearly tennis ball size hail (New London 1.75", Stephensville 2" hail, and Appleton 2.5").

- Isolated thunderstorms developed late in the afternoon of June 5, 2019 along a lake breeze. One of the storms produced quarter to tennis ball size hail as it passed through Outagamie County (Shiocton, 1.5", Stephensville 2.5", and Greenville 2.5").

- Showers and thunderstorms developed ahead of a strong cold front during the morning hours of September 7, 2021 across east-central Wisconsin. Very large hail up to grapefruit size (4.5) fell over the Fox Valley region. The grapefruit size hail from Outagamie County was the largest on record for the county and tied for the third largest

ever recorded in the state of Wisconsin (Little Chute, 3.75", Greenville 4.1", Apple Creek 4.5").

- A small cluster of thunderstorms developed north of a warm front during the late afternoon hours of May 13, 2022 across central Wisconsin and tracked east through east-central Wisconsin through the early evening hours. The strongest storms produced large hail up to golf ball size as they tracked through the region. Golf ball size hail (1.75") fell in Greenville.

FUTURE HAZARD EVENTS

PROBABILITY

Based on the hazard frequency, Outagamie County is considered to have a high probability of experiencing a significant hail event in any given year. All municipalities have an equal chance of hail storm events however the larger population centers in the southern portion of the county could experience greater impact because of population density.

POSSIBLE FUTURE CONDITIONS

A 2019 report from Climate and Atmospheric Science shows favorable environments for large hail increasing in a few regions, including the Midwest.[63]

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to being affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

RISK ASSESSMENT RANKING

Based on previous hazard occurrences as reported by the National Weather Service, Outagamie County experiences approximately 6.89 significant hail events per year costing on average $344,000 yearly. This is an increase from 5 events per year in the previous plan. The Planning Team ranked hail as third in the risk assessment. The following is a depiction of the vulnerability of county assets are to this hazard and the potential impact it could have.

ASSETS AT RISK

Asset	Vulnerability and Impact
Persons with Disabilities	Individuals may have trouble receiving weather warnings and/or taking precautionary actions such as moving vehicles or outdoor objects to

[63] Source: Trends in United States large hail environments and observations, NPJ *Climate and Atmospheric Science* (2019)

Asset	Vulnerability and Impact
	shelter. Individuals may not be able to check for property damage, leading to compounding problems. If resources are not accessible, an individual may not recover from the impact of this event, creating long-term difficulties.
Persons experiencing homelessness and poverty	Inadequate shelter during a hail storm could result in injuries/death. An individual may not have insurance for medical treatment of injuries or property damage. Impact from hail storms could further worsening of their financial difficulty or compound illnesses.
Persons with Limited English	Individuals may lack experience with this hazard or do not know the language of the warning message. Also, the potential hazards of hail may not translate into their native language effectively. This can impact taking safe and appropriate steps for sheltering, clean up, and recovery, affecting their physical, mental, emotional, and financial well-being.
Persons with limited data access	Areas with limited data access can also experience limited cellular coverage. Individuals in these areas may be unaware of a hail storm risk unless other notification methods are utilized. After a hail event, these individuals could have difficulty obtaining disaster information, impacting their recovery process.
Structures	Structures and vehicles are vulnerable to hail damage. Buildings with older roofs or substandard materials are vulnerable to damage. These repairs are expensive, which can cause financial strain for the owner. Because of financial restraints some owners may choose not to repair hail damage which can further exacerbate the problem.
Agricultural Systems	Hail can damage crops or damage farm buildings/equipment. This could impact farmers' business in the current and future years.
Economic Center Systems	These systems are vulnerable to building damage from hail storms. Depending on the insurance coverage and financial resiliency some business owners may forgo building repairs, which could lead to further exacerbate the damage.
Lifeline Systems	All lifeline systems can be impacted from hail storms however Energy (Power & Fuel) and Food, Water, Shelter & Agriculture are highest. This could cause loss of power from damage substations and damage to shelter and agriculture.
Critical Infrastructure	Hail damage can impact most critical infrastructure however buildings are at great risk. Examples are schools, community-based residential facilities, adult family homes, nursing homes and manufactured housing communities. Hail damage to these buildings would likely not prevent their operation.
Natural Resources	Individuals in these areas who do receive the weather warning or unable to take appropriate shelter are at risk for injury.
Historical & Cultural Resources	These resources are at risk from hail damage, especially historical buildings since the properties were built prior to stronger building codes.

Asset	Vulnerability and Impact
Community Activities	All outdoor events would be impacted depending on the timing of the hail storm, bringing possible mental health impacts with the event cancellation.

Impact of Future Conditions

Based on the preceding Possible Future Conditions, the possible slight increase in potential hail storms could result in a higher number of days with hail damage. This could lead to an increase in the average financial and material losses. Repeat hail storms could especially be difficult for homeowners depending on their insurance policy coverage. This increase in hail storm events could impact any municipality in Outagamie County.

BLIZZARD/WINTER STORMS

HAZARD DESCRIPTION

Winter storms can vary in size and strength, and can include heavy snow storms, blizzards, freezing rain, sleet, and ice storms. Extremely cold temperatures accompanied by strong winds can result in wind chills that cause bodily injury such as frostbite and hypothermia. Winter storms can occur as a single event or they can occur in combination, which can make an event more severe. For example, a moderate snowfall could create severe conditions when followed by freezing rain and subsequent cold temperatures. The aftermath of a winter storm can impact a community or region for weeks.
A variety of weather phenomena and conditions can occur during winter storms. For purposes of classification, the following are National Weather Service descriptions of winter storm elements:

- Heavy Snowfall – the accumulation of six or more inches during a single event, usually 12 hours or less.
- Winter Storm – the occurrence of heavy snowfall accompanied by significant blowing snow, low wind chills, sleet, or freezing rain.
- Blizzard – the occurrence of sustained wind speeds or frequent gusts of 35 miles per hour or more, and considerable falling and/or blowing snow frequently reducing visibilities to less than 1⁄4 mile, for 3 hours or longer.
- Sleet – solid grains or pellets of ice formed by the freezing of raindrops or the refreezing of largely melted snowflakes. This ice does not cling to surfaces.

Winter storms that affect Wisconsin develop over southeast Colorado, northwest Canada, and over the southern Plains. These storms move toward the Midwest and use both the southward plunge of cold air from Canada and the northward flow of moisture from the Gulf of Mexico to produce heavy snow over the region. Alberta Clippers, on the other hand, develop in the lee of the Canadian Rockies and move southeast toward Wisconsin, not only bring accumulating

snow, but also strong winds and extremely cold air to the state.[64] Much of the snowfall in Wisconsin occurs in small amounts between one and three inches per occurrence. Heavy snowfalls (producing at least six inches of accumulation) range from two to five times per season. True blizzards are rare in Wisconsin and are more likely to occur in northwestern Wisconsin than in southern portions of the state, even though heavy snowfalls are more frequent in southeastern Wisconsin. However, blizzard-like conditions often exist during heavy snowstorms when gusty winds cause severe blowing and drifting of snow.

LOCATION AND EXTENT

Winter storms have an equal chance of impacting all municipalities in Outagamie County and often winter storms have a regional impact.

NOAA's National Centers for Environmental Information produces the Regional Snowfall Index (RSI) for significant snowstorms that impact the eastern two thirds of the U.S, including Wisconsin. The RSI ranks snowstorm impacts on a scale from 1 to 5, similar to the Enhanced Fujita scale for tornadoes.

Table 23 National Centers for Environmental Information Regional Snowfall Index

Category	RSI Value (inches of snow)	Description & Impact
1	1–3”	Notable
2	3–6”	Significant
3	6–10”	Major
4	10–18”	Crippling
5	18.0” +	Extreme

PREVIOUS SIGNIFICANT EVENTS

From 2005 to 2022 Outagamie County experienced 31 winter storms/blizzards with 51 weather warnings and 159 advisories. The significant events are listed below and if available the Regional Snowfall Index is included. These events are described on a regional scale, as their impacts are usually regional rather than at the county level.

- A major winter storm intensified across the Midwest Thursday morning, February 16, 2006 and moved northeast across northeast Illinois into southern Lower Michigan by Thursday evening. Heavy snow began to fall across central, east central, and northeast Wisconsin Thursday morning. East central Wisconsin experienced blizzard conditions as sustained winds of 25 to 35 mph, with gusts to 45 mph, caused blowing snow that resulted in near white-out conditions. Snow accumulations were very difficult to

[64] Excerpt from: Winter Weather Safety – Winter Storms in Wisconsin, NWS Green Bay 2023

measure due to the high winds, but they were mainly in the 8 inches to 12 inch range in a corridor from eastern Waushara County to central Door County.

- An intense low pressure system that moved from the Plains to southern Wisconsin produced heavy snow and strong winds across northeast Wisconsin on February 26, 2007. Thunder accompanied the snow showers early on the morning of the 25th in east-central Wisconsin. The heavy snow and strong winds led to power outages for parts of Seymour. The highest snowfall in the east central regional range from 16" to 20". This snow storm ranked 3 on the Regional Snowfall Index.

- A fast moving winter storm passed through northeast Wisconsin during the evening rush hour of February 26, 2009. The storm dumped a swath of 4 to 6 inches of heavy, wet snow across much of northeast Wisconsin. A few locations received 8 to 10 inches of snow from the storm. Most of the snow fell over a period of 6 to 8 hours. The storm was accompanied by bursts of intense snowfall with occasional lightning and thunder that was reported from Oshkosh and Appleton to Green Bay. During the height of the storm, snow was falling at the rate of more than 2 inches per hour, reducing visibilities to a few hundred feet at times. In addition to the heavy snowfall, strong northeast wind gusts in excess of 40 mph created considerable blowing and drifting snow, with near white-out conditions at times.

- On March 8, 2009 a low pressure system rapidly moved from the Oklahoma panhandle to southern Lake Michigan. Five to eight inches of wet snow fell in about eight hours, accompanied by lightning and thunder. The heaviest amounts included 7.0 inches in Hortonville. Even though the snow was wet, strong northerly winds caused considerable blowing and drifting.

- One of the biggest winter storms in years pounded much of Wisconsin on December 9, 2009, including the northeast part of the state. Snow developed as low pressure rapidly deepened as it moved across Illinois into Lake Michigan. Strong winds in response to the deepening low created blowing snow and near blizzard conditions very early in the morning on the 9th across parts of northeast Wisconsin. Winds gusted to over 50 mph in Door County, and to 48 mph at the NWS Green Bay office. During the height of the storm, lightning and thunder were reported in the Green Bay area and in central Wisconsin. Widespread snowfalls of 8 to 16 inches were reported across much of northeast, east central and central Wisconsin. This snowstorm ranked 3 on the Regional Snowfall Index.

- A strong winter storm produced heavy snow and blizzard conditions across parts of Wisconsin and Minnesota on December 11-12, 2010. A widespread snowfall of 8 to 14

inches along with frequent wind gusts over 40 mph affected much of northeast and central Wisconsin. Thundersnow was even reported at several locations in east-central Wisconsin at the height of the storm. The low pressure system created severe blowing snow and blizzard conditions across Green Bay, the Fox Valley, and the lake shore counties. The strong winds blew down trees and limbs, resulting in power outages to thousands of homes. Significant peak wind gusts across the area including 48 mph in Appleton. This snowstorm ranked 3 on the Regional Snowfall Index.

- A potent storm system moved out of the Rockies and across the nation's mid-section into Iowa and Illinois on February 20-21, 2011. Abundant moisture ahead of this storm led to the development of snow across central and east-central Wisconsin during the day February 20th. Thunder and lightning were reported with the heavy snow in several locations during the afternoon and evening at the height of the storm. Twenty-four hour snowfall totals generally ranged from 8 to 12 inches along and near Highway 29 from Wausau to Green Bay. An upper level low pressure system, which lagged behind the surface storm center, produced another 2 to 4 inches of snow on February 21, bringing two-day storm totals to 13.0 inches at Appleton.

- A historic late season blizzard pummeled northeast and north-central Wisconsin on April 13-15, 2018. A large area of 19 to 21 inches of snow and winds gusting over 45 mph rewrote the record books for many locations across the area. The heavy weight of the snow caused roofs to collapse several barns Outagamie County. The storm brought blizzard or near-blizzard conditions to much of the area and made roads impassable from time-to-time. Many businesses were closed for part or all the weekend.

- Much of Wisconsin was blanketed by heavy snow on February 12, 2019, as low pressure moved across the region. Snowfall amounts of 10 to 15 inches were reported in throughout Outagamie County.

- A strong area of low pressure lifted northeast across the Great Lakes, bringing a swath of heavy snow to eastern Wisconsin on Saturday, March 25, 2023. Initially, the surface low was forecast to track northeast across southern Illinois and central Indiana, with a west to east area of banded snowfall. However, as the event unfolded, the surface low tracked further northwest across northeast Illinois and northwest Indiana. This allowed the banded area of heavy snow to shift to the west, by about 30-60 miles, and become oriented more south to north, centered over the Fox Valley. The snow piled up quickly (2-4" per hour!) due to impressive snowfall rates on Saturday morning, leading to difficult travel, and a few isolated power outages. Appleton received record snowfall during this event.

FUTURE HAZARD EVENTS

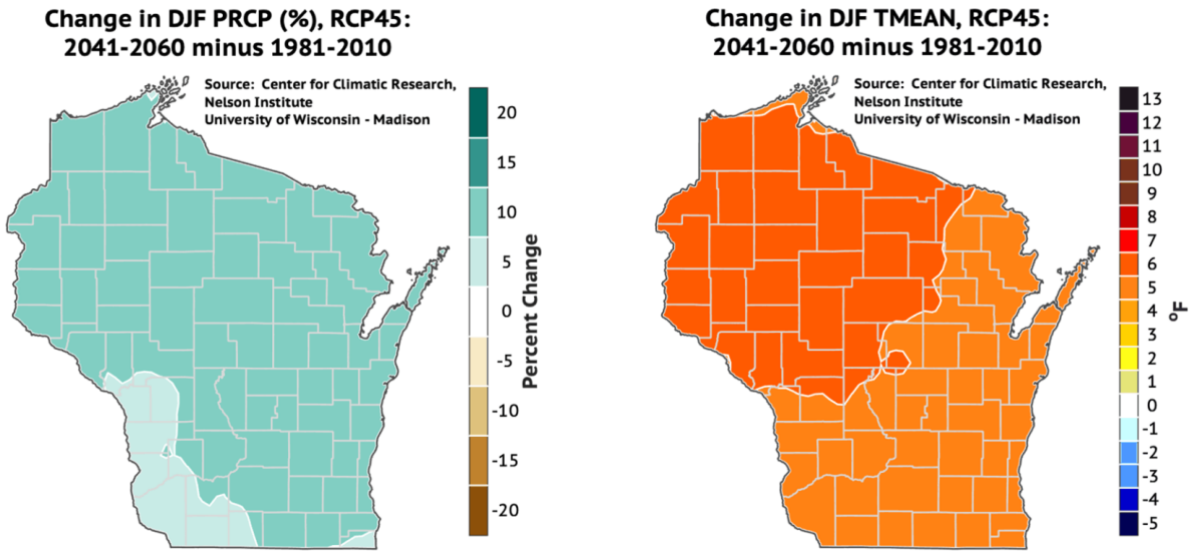
PROBABILITY

Based on the hazard frequency, Outagamie County is considered to have a high probability of experiencing a significant winter storm/blizzard event in any given year.

POSSIBLE FUTURE CONDITIONS

The change in future precipitation and temperature do not provide a clear leaning in any direction. An increase in precipitation is forecasted while also an increase in temperature (see Map 9). This could point to a warmer, snowy winter or warmer, rainy winter. This impact would apply to all municipalities in Outagamie County.

Map 9 Potential Change in Precipitation and Temperature: December, January & February



VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

RISK ASSESSMENT RANKING

According to the NCDC, Outagamie County has experienced 31 significant winter storm events in the last 15 years from January 1, 2005 to December 31, 2022 (including winter storm, winter weather, blizzards, and heavy snow). Many of these hazard events may not have been specific to Outagamie County and may have been recorded for a larger regional area. The following is a depiction of the vulnerability of county assets are to this hazard and the potential impact it could have.

Assets at Risk

Asset	Vulnerability and Impact
Persons with Disabilities	Individuals may have trouble taking precautionary actions such as stocking up on essential items. Completing snow removal could be difficult, limiting their ability to travel. If resources are not accessible, an individual may be stranded until the situation resolved.
Persons experiencing homelessness and poverty	Inadequate shelter during a winter storm could result in injuries, frostbite, or death. An individual may not have insurance for medical treatment of injuries or property damage. The impact of the winter storms could further worsen their financial difficulty or compound illnesses.
Persons with Limited English	Individuals who lack experience in winter climates may be unaware of the necessary actions to take during winter storms, such as safe winter driving, which can increase their risk of injury.
Structures	Occasionally, heavy snow or accumulated ice will cause structural collapse of older buildings (particularly roofs) which is expensive and time intensive to repair.
Agricultural Systems	If power is lost, farmers will require generators and fuel supply to continue operations without loss of profit.
Economic Center Systems	If transportation routes are hazardous to travel, it could affect the operation of these systems, which in turn could impact the manufacturing of products and employee paychecks.
Lifeline Systems	Energy and Transportation Lifelines are the main impacts from winter storms. If power lines and tree limbs are coated with heavy ice, power and telephone service can be disrupted, sometimes for days. Icy roads can be extremely dangerous to motorists and pedestrians, increasing possibility of accidents and injuries.
Critical Infrastructure	Individuals may be unable to travel to their job in a critical infrastructure, such as to a Medical Care facility or the Communication Center (911). This impacts services to the public.
Natural Resources	Individuals in these areas who are not warned or unable to take appropriate shelter could become stranded or frostbitten.
Historical & Cultural Resources	Historical structures could be at risk as listed under the Structures. Repair to these buildings could be cost prohibitive.
Community Activities	Depending on the timing and duration of a weather event, community holiday activities may be cancelled, which could have negative effects on people's mental health.

Impact of Future Conditions

Winter storms/blizzards can have a regional impact which could exasperate the main concerns of Power and Transportation which trickle into many areas. The impact is largely determined by people and their responses, especially people who are vulnerable to this hazard.

COMMUNICABLE DISEASE

HAZARD DESCRIPTION

The objective of responding to an outbreak of a communicable disease is to prevent the disease from spreading, provide treatment to those affected, reduce suffering and fatalities, and minimize the impact on the economy and society's functioning. The Outagamie County and City of Appleton Public Health Departments collaborate with state and federal partners to prepare for such risks through thorough planning, training, and exercises.

LOCATION AND EXTENT

Communicable diseases can impact anywhere in the county and no area is at a greater risk than another. However, some diseases may be exacerbated with a greater level of human-to-human contact, which occurs in more populous areas of the county.

PREVIOUS SIGNIFICANT EVENTS

There has been no significant communicable disease in Outagamie County since 2005 that have required activation of the county Emergency Operations Center (EOC). Although the county EOC has not been activated, Public Health Emergency Plans have been activated to respond to events since 2005 for communicable diseases, vaccine preventable diseases, and natural disasters.

FUTURE HAZARD EVENTS

PROBABILITY

Outagamie County has an average risk of communicable diseases with a varying risk of death or injury based on the type and timing of the incident, health status of the individuals and prophylaxis available for the threat.

POSSIBLE FUTURE CONDITIONS

New communicable diseases would challenge the public health response until a protocol and prophylaxis is developed.

As the world continues to evolve, new communicable diseases have started to emerge. These diseases pose a significant challenge to the public health response, as there are currently no suitable protocols or preventive measures in place to combat them until discovered. As a result, it is essential that we work together to develop effective strategies and solutions to protect our communities from these emerging health threats. Since 1980 new human pathogen species have been discovered at an average rate of over 3 per year. [65]

[65] Institute of Medicine Forum on Microbial Threats. Microbial Evolution and Co-Adaptation. Washington (DC): National Academies Press (US); 2009. 5, Infectious Disease Emergence: Past, Present, and Future.

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

RISK ASSESSMENT RANKING

Communicable diseases pose the fifth highest risk among all hazards based on the county assessment in Table 11 The following is a depiction of the vulnerability of county assets are to this hazard and the potential impact it could have.

ASSETS AT RISK

Asset	Vulnerability and Impact
Persons with Disabilities	Individuals with compromised immune systems would be vulnerable to communicable diseases and may face limitations in taking any necessary precautions. This could lead to a higher impact rate for these persons.
Persons experiencing homelessness and poverty	Some people may lack the means to protect themselves from communicable diseases, which could result in a greater likelihood of contracting one. If medical care is not accessible, these individuals' immune systems could be compromised and be susceptible for contracting diseases.
Persons with Limited English	Some people may find it challenging to get access to public health information in their language, which can make it difficult for them to take necessary precautions and protect themselves from communicable diseases. As a result, they may be at a higher risk of getting infected.
Persons with limited data access	Some people may find it challenging to converse with a medical expert in their native language or have quick access to an interpreter. This can create difficulty in discussing precautions and medical care. As a result, they may be at a higher risk of getting infections or complications.
Structures	Structures are not at risk but the staffing to operate the facilities could become ill, reduce available personnel and impact operations.
Agricultural Systems	Certain communicable disease can spread from an animal to a human which could impact those agricultural systems animal herds, such as turkeys or pigs.
Economic Center Systems	The structures themselves are not in danger, but there is a possibility that the staff who operate these facilities may fall ill. This could lead to a shortage of personnel, which could then affect the overall operations of the facilities.
Lifeline Systems	The Health & Medical and Safety & Security lifelines could become overwhelmed from increase service needs and decreased staffing.
Critical Infrastructure	There is a possibility the staff (or their family) operating the critical facility may fall ill. This could lead to a shortage of personnel, which could then

Asset	Vulnerability and Impact
	affect the overall operations of the facilities. This could place vulnerable individuals at risk if critical services are not available.
Community Activities	All outdoor parades, events, festivals, and protests could be altered or canceled depending on the type of communicable disease, bringing possible mental health impacts.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions and considering the added complexity of antimicrobial resistance the possible slight increase in potential communicable diseases impact. This increase in communicable diseases could impact any municipality in Outagamie County.

PANDEMIC

HAZARD DESCRIPTION

A pandemic is when an infectious disease spreads throughout an entire country or the world during a specific period. Most pandemics are caused by easily transmissible viruses that can spread rapidly among individuals. The Outagamie County and City of Appleton Public Health Departments collaborate with state and federal partners to prepare for such risks through thorough planning, training, and exercises.

LOCATION AND EXTENT

Contagious illnesses with complex factors can spread rapidly, progressing from an outbreak to an epidemic and potentially even a pandemic. An outbreak occurs when an illness affects a large number of people unexpectedly. It can be limited to one area or spread over a wider region. The duration of an outbreak can range from a few days to several years. When an infectious disease spreads rapidly to more people than anticipated, it is classified as an epidemic. Typically, it affects a larger region than an outbreak. A pandemic is characterized by the outbreak of a disease that spreads across countries or continents, affecting a large number of people and resulting in significant loss of life. Corona Virus Disease of 2019 (COVID) was declared a pandemic by the World Health Organization after it became evident that the illness was spreading rapidly across a wide area. A pandemic can impact any municipality in Outagamie County.

PREVIOUS SIGNIFICANT EVENTS

The last pandemic impacting Outagamie County was COVID19 which began in Spring 2020. Previously public health plans have been activated for H1N1 outbreak.

FUTURE HAZARD EVENTS

PROBABILITY

According to research, the likelihood of a pandemic with a similar impact to COVID-19 occurring in any given year is approximately 2%. [66] This is applicable to all municipalities in Outagamie County.

POSSIBLE FUTURE CONDITIONS

The increase in population and population density could create vulnerabilities in transmission during a pandemic. Also lack of access to medical care on a timely basis could increase vulnerability for those uninsured or underinsured.

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

RISK ASSESSMENT RANKING

Pandemics pose the sixth highest level of risk among all hazards based on the county assessment in Table 1. The following is a depiction of the vulnerability of county assets are to this hazard and the potential impact it could have.

ASSETS AT RISK

Asset	Vulnerability and Impact
Persons with Disabilities	Individuals with compromised immune systems would be vulnerable in a pandemic and may face limitations in taking any necessary precautions. This could lead to a higher impact rate for these persons.
Persons experiencing homelessness and poverty	Some people may lack the means to protect themselves from a pandemic, which could result in a greater likelihood of contracting the illness. If medical care is not accessible, these individuals' immune systems could be compromised and be susceptible for contracting the illness.
Persons with Limited English	Some people may find it challenging to converse with a medical expert in their native language or have quick access to an interpreter. This can create difficulty in discussing precautions and medical care. As a result, they may be at a higher risk of getting infections or complications.
Persons with limited data access	If in quarantine, these individuals may have limitations accessing public health online data which could impair medical care.
Structures	Structures are not at risk but the staffing to operate the facilities could become ill, reduce available personnel and impact operations.

[66] **I**ntensity and frequency of extreme novel epidemics, PNAS, August 23, 2021

Asset	Vulnerability and Impact
Agricultural Systems	Certain communicable disease can spread from an animal to a human which could impact those agricultural systems animal herds, such as turkeys or pigs.
Economic Center Systems	The structures themselves are not in danger, but there is a possibility that the staff who operate these facilities may fall ill. This could lead to a shortage of personnel, which could then affect the overall operations of the facilities.
Lifeline Systems	The Health & Medical and Safety & Security lifelines could become overwhelmed from increase service needs and decreased staffing.
Critical Infrastructure	There is a possibility the staff (or their family) operating the critical facility may fall ill. This could lead to a shortage of personnel, which could then affect the overall operations of the facilities. This could place vulnerable individuals at risk if critical services are not available.
Community Activities	All outdoor parades, events, festivals, and protests could be altered or canceled, bringing possible mental health impacts.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions and considering the added complexity of developing medical treatment, there is a possible slight increase in a potential pandemic. This possibility of a pandemic could impact any municipality in Outagamie County.

EXTREME COLD

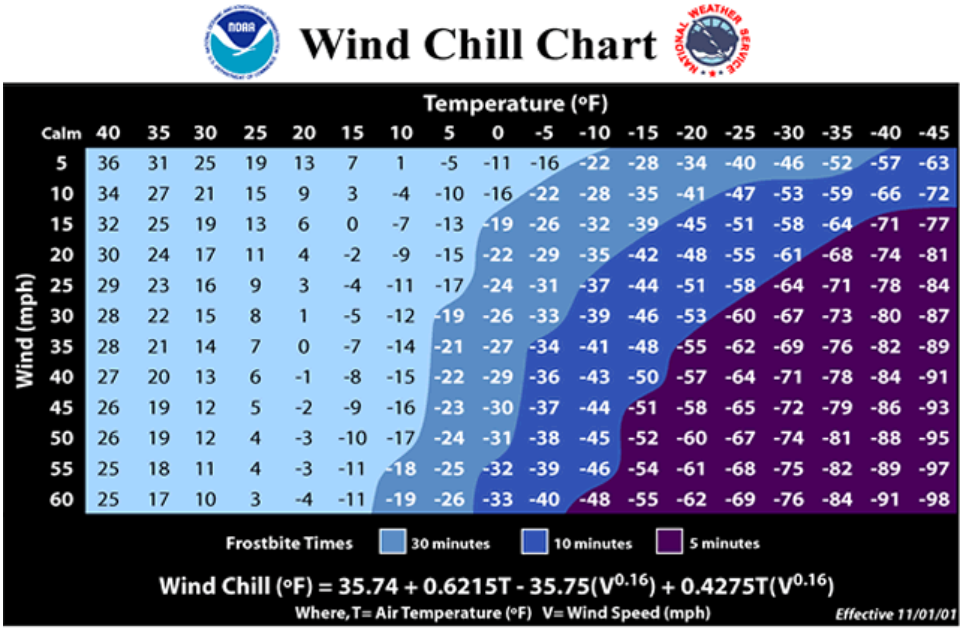
HAZARD DESCRIPTION

When temperatures drop to extremely low levels or when cold temperatures are combined with high winds, it can lead to dangerously cold conditions. The wind creates a perceived temperature known as "wind chill," which causes heat to leave your body more rapidly. As the wind speed increases, the body's heat is carried away at a faster rate, causing a drop in both skin and internal body temperature. This weather condition can result in serious health problems, particularly for vulnerable people such as those without shelter, stranded outdoors, in an immobilized car, or living in a poorly insulated or unheated home. Extreme cold is a hazardous situation that can trigger health emergencies.

LOCATION AND EXTENT

Extreme cold events have no defined hazard area within the planning area. Past events have been relatively uniform across the planning area. Wind chill is determined based on the temperature and wind speed as displayed in Table 24.

Table 24 National Weather Service Wind Chill



PREVIOUS SIGNIFICANT EVENTS

From 2005 to 2022 Outagamie County experienced 7 extreme cold weather events with 7 weather warnings and 70 advisories. Most of these extreme cold events range from one to three days and their impacts are usually regional rather than at the county level.

FUTURE HAZARD EVENTS

PROBABILITY

Outagamie County has a low likelihood of experiencing an extreme cold event each year, based on the frequency of hazards.

POSSIBLE FUTURE CONDITIONS

Based on Map 9, the average temperature for December, January, and February has the potential to increase, which may decrease the number of future extreme cold events.

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

RISK ASSESSMENT RANKING

Extreme Cold events pose the seventh highest level of risk among all hazards based on the county assessment in Table 11. On average from 2005 – 2022, Outagamie County experienced .44 extreme cold events a year with a total of $250,000 dollars of reported damage during this

entire period. Below is the description of the county assets' vulnerability and impact from this hazard.

Assets at Risk

Asset	Vulnerability and Impact
Persons with Disabilities	Individuals may have trouble taking precautionary actions such as stocking up on essential items. Travel options may be limited or not feasible based on their mode of transportation. If resources are not accessible, an individual may be stranded until the situation is resolved.
Persons experiencing homelessness and poverty	Inadequate shelter during an extreme cold event could result in injuries/death since frostbite can occur in minutes. An individual may not have insurance for medical treatment of injuries. The impact of extreme cold events could further worsen their financial difficulty or compound illnesses.
Persons with Limited English	Individuals who lack experience in winter climates may be unaware of the necessary actions to take during winter storms, such as the layering of protective clothes or safe winter driving, which can increase their risk of injury.
Structures	Extreme cold events could trigger pipes to rupture causing building damage. The demand for heating could dramatically increase heating costs. Both situations could creating financial strain.
Agricultural Systems	If power is lost, farmers will require generators and fuel supply to continue operations without a loss of profit.
Economic Center Systems	The demand for heating could dramatically increase energy costs, creating a financial strain.
Lifeline Systems	Energy Lifeline is the main impact of extreme cold events. The demand for heating could be greater than available resources, causing power outages.
Critical Infrastructure	Individuals may be unable to travel to their jobs in a critical infrastructure, such as the Medical Care Center or the Communication Center (911). This can impact services to the public.
Natural Resources	Individuals in these areas who are not warned, unable to take appropriate shelter or do not heed wind chill warnings could be frostbitten.
Historical & Cultural Resources	Historical structures could be at risk as listed under the Structures. Repair to these buildings could be cost prohibitive.
Community Activities	Depending on the timing and duration of a weather event, community holiday activities may be cancelled, which could have negative effects on people's mental health.

Impact of Future Conditions

Extreme cold events can have a regional impact which could exasperate the main concerns of Power and Transportation which trickle into many areas. The impact is largely determined by people and their responses, especially people who are vulnerable to this hazard.

EXTREME WIND

HAZARD DESCRIPTION

Other weather phenomena can cause damaging winds, such as microbursts, macrobursts, and derechos. A microburst is a small downburst with an outflow (cooled air quickly moving outward from the storm), less than 2½ miles wide and lasting only 2-5 minutes. Microbursts can produce destructive winds up to 168 mph. A macroburst is larger than a microburst, with a width more than 2½ miles in diameter. A macroburst is not as strong as a microburst but can still produce winds as high as 130 mph. Damaging winds generally last longer, from 5 to 20 minutes, and produce tornado-like damage, up to an EF-3 scale.[67] If the atmospheric conditions are right, widespread and long-lived windstorms associated with a band of rapidly moving showers or thunderstorms can result. Finally, a derecho is made up of a family of downburst clusters and, by definition, must be at least 240 miles in length.[68]

LOCATION AND EXTENT

Extreme wind events have no defined hazard area within the planning area. Though a severe thunderstorm warning can include strong winds impact, the National Weather Service will issue a High Wind Warning when sustained winds of 40 mph or greater for 1 hour, or any (non-thunderstorm) gusts of 58 mph or greater are occurring or forecast to occur. Past events have been relatively uniform across the planning area.

PREVIOUS SIGNIFICANT EVENTS

From 2005 to 2022 Outagamie County experienced 5 extreme wind events with 8 weather warnings/watches and 62 advisories. Below is a few of these events.

- Strong south to southwest winds developed on November 13 2005 as a deep low pressure system moved across northwest Wisconsin and Lake Superior. The winds caused scattered power outages, broken tree branches, and tore shingles from roofs. In Appleton a 6 foot section of fence was blown over which included two 4 inch by 4 inch posts that were snapped at ground level. A large tree was also blown down at a nearby residence damaging a house. The highest wind speeds in the county were 66 mph in Hortonville and 63 mph in Kimberly.

- A strong low pressure system moved from Ontario to Hudson Bay as high pressure drifted across the southern Mississippi Valley on March 8, 2017. The pressure difference created high winds across the western Great Lakes for two days. Winds gusted over 45 mph across much of central and northeast Wisconsin for much of the event and gusts

[67] Excerpt from: NOAA Jet Stream Thunderstorm Hazards - Damaging Wind, 2023
[68] Excerpt from: NOAA Jet Stream Thunderstorm Hazards - Derechos, 2023

near 60 mph were measured at several locations. In some locations the high winds knocked out power; downed, snapped, and uprooted trees; and caused roof damage. Winds gusted to an estimated 65 mph at Hortonville downing tree limbs and ripping shingles from the roof of at least one building.

- A strong storm system tracked across the central Plains and through the Upper Mississippi Valley, sweeping a cold front through the region during the late evening hours of Friday, December 15, 2021 and early morning hours of Saturday the 16th. Strong wind gusts of 55 to 76 mph were observed behind this cold front for several hours across northeast Wisconsin. The winds led to pockets of tree damage and numerous power outages, leaving over 50,000 people without power in northeast Wisconsin. High winds downed trees and power lines in Outagamie County. Several power poles were downed by high winds near Mackville.

FUTURE HAZARD EVENTS

PROBABILITY

Based on the past hazard frequency, Outagamie County is considered to have a low probability of experiencing a significant extreme wind event in any given year. However these extreme wind events can coincide with severe thunderstorms, which increases to a medium probability.

POSSIBLE FUTURE CONDITIONS

Since extreme wind events often coincide with severe thunderstorms the increase of thunderstorm activities can lead to a possible increase in high wind events. Additionally, an increase in population density could compound the number of homes damaged by extreme wind events.

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

RISK ASSESSMENT RANKING

Extreme wind events are ranked 9th among all hazards based on the county assessment in Table 11. On average from 2005 – 2022, Outagamie County experienced .27 extreme wind events a year and a total of 5 during this period. Below is the description of the county assets' vulnerability and impact from this hazard.

ASSETS AT RISK

Asset	Vulnerability and Impact
Persons with Disabilities	It may be challenging for individuals to receive weather warnings in a preferred format, supportive of their needs and/or taking precautionary

Asset	Vulnerability and Impact
	actions such as storing outdoor objects. In severe cases, an individual could potentially be trapped if the dwelling is damaged. Recovery could be hampered depending on available personal resources (people, equipment, and funds). Without these resources an individual may not recover from the impact of this event, creating long-term difficulties.
Persons experiencing homelessness and poverty	Inadequate shelter for these individuals during an extreme wind event could result in injuries/death. An individual may not have insurance for medical treatment of injuries or property damage. The impact of extreme winds could further worsen their financial difficulty or compound illnesses.
Persons with Limited English	Individuals may lack experience with this hazard or do not know the language of the warning message. Also, the potential hazards may not translate into their native language effectively. This could also impact taking safe and appropriate steps in clean up and recovery, affecting their physical, mental, emotional, and financial well-being.
Persons with limited data access	Areas with limited data access can also experience limited cellular coverage. Individuals in these areas may be unaware of an extreme wind event (high wind warning) unless other notification methods are utilized, such as the NOAA weather radio. After a weather event, these individuals could have difficulty obtaining disaster information, impacting their recovery process.
Structures	Structures are vulnerable to damage from extreme winds. Buildings constructed according to older codes are more vulnerable to damage and can be challenging and expensive to repair, which can cause financial strain for the owner.
Agricultural Systems	Strong winds can damage or contaminate crops or damage farm buildings/equipment, especially downbursts or derechos. This could impact farmers' business in the current and future years.
Economic Center Systems	These systems are vulnerable to loss of power, product spoilage and building damage from damaging winds. Long-term power outage creates an extra impact for businesses with food production, service or selling. Restoration from wind damage and power outages can create high fiscal impact to businesses, especially during economic downturns.
Lifeline Systems	All lifeline systems are at risk from wind damage however Transportation, Energy (Power & Fuel) and Food, Water, & Shelter are highest. This could cause a loss of economic activity, medical devices without power and individuals with damaged homes.
Critical Infrastructure	Wind damage can impact most critical infrastructure however buildings are at great risk, especially because of the construction or ability of occupants to take shelter if outside. Examples are schools, community-based residential facilities, adult family homes, nursing homes and manufactured housing communities.

Asset	Vulnerability and Impact
Natural Resources	The main vulnerability for natural resources is damage to trees including uprooting. A secondary risk are individuals in these areas who are not warned or unable to take appropriate shelter.
Historical & Cultural Resources	These resources are at risk from wind damage, especially historical buildings since the properties were built prior to stronger building codes. Individuals living/visiting in these dwellings would be at risk unless adequate shelter is available.
Community Activities	All outdoor parades, events, festivals, and protests would be impacted depending on the timing of the extreme wind event, bringing possible mental health impacts. It may be necessary to temporarily halt meal deliveries to designated sites until the roads are cleared of debris and safe for drivers. This could potentially impact those who depend on these meals.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions, there is a slight increase in future probabilities for high wind events and is applicable to any municipality in Outagamie County.

DENSE FOG

HAZARD DESCRIPTION

Fog refers to a group of water droplets or ice crystals that hang in the air close to or on the ground. Although fog is a type of stratus cloud, it is distinct from the broader term "cloud" because it is low-lying, and the moisture in the fog is often produced from a nearby body of water, such as a lake or stream, or from nearby moist ground or marshes. Fog is a hazard mainly because of reduced visibility. Airport delays, automobile accidents, shipwrecks, plane crashes, and many other problems are frequently caused by fog.

LOCATION AND EXTENT

Dense fog can occur in any municipality in Outagamie County. Portions of the planning area along waterways, wetlands, and low-lying areas can be at greater risk for fog under certain weather conditions. A Dense Fog Advisory is issued when dense fog is occurring or likely to occur. When this happens, visibilities frequently drop to one-quarter of a mile or less. These conditions make travel difficult. A Dense Fog Warning is issued when dense fog is occurring or likely to occur, and it poses a threat to life or property. Outagamie County and the municipalities have experienced only dense fog advisories and no warnings from 2005 - 2022.

PREVIOUS SIGNIFICANT EVENTS

Outagamie County from 2005 – 2022 has experienced 87 dense fog advisories and one dense fog event which impacted transportation.

FUTURE HAZARD EVENTS

PROBABILITY

Though Outagamie County does experience dense fog advisories it has a low likelihood of experiencing a dense fog event each year, based on the frequency of hazards.

POSSIBLE FUTURE CONDITIONS

A primary cause of the long-term changes in fog frequency is the increase in air pollution, as it introduces particles that attract water and form droplets, contributing to the formation of fog. When there is a great amount of fine aerosol particles in the air, it results in the creation of a higher number of fog droplets in the correct atmospheric conditions.[69]

VULNERABILITY OF ASSETS

RISK ASSESSMENT RANKING

Dense fog poses the ninth highest risk among all hazards based on the county assessment in Table 11. On average from 2005 – 2022, Outagamie County experienced .06 dense fog events a year. The following is a depiction of the vulnerability of county assets to this hazard and the potential impact it could have.

ASSETS AT RISK

Asset	Vulnerability and Impact
Persons with Disabilities	The lack of visibility while operating a vehicle may be an extra challenge for any individual, increasing the risk of a car accident.
Persons experiencing homelessness and poverty	The dense fog along transportation routes can make pedestrians difficult for drivers to see, putting them at risk of danger.
Persons with Limited English	Dependent on their experience, individuals may not know the appropriate actions to take when driving or walking in dense fog, placing them at risk for an accident.
Structures	Airports can experience flight delays and cancellations during certain fog events. The starting time for schools may be delayed by the fog event for the safety of students.
Lifeline Systems	The Health and Medical lifeline may experience high call/patient volumes due to people who have been injured in accidents.

[69] A review on factors influencing fog formation, classification, forecasting, detection and impacts, National Institutes of Medicine, Kanchan Lakra and Kirti Avishek.

Asset	Vulnerability and Impact
Critical Infrastructure	Law enforcement, Fire, and EMS may need to respond to an increased number of accidents. Municipal public works and county highway departments may need to perform emergency repairs to signs or roadway structures from accidents.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions, there is no change in the frequency of dense fog events, unless the area is impacted by air pollution. This is applicable to all municipalities in Outagamie County.

VEGETATION FIRES

HAZARD DESCRIPTION

A vegetation fire is a fire burning in vegetation that is predominantly shrubs, brush, dry grass, and scrub growth. For the purpose of this plan, it also includes peat moss fires.

LOCATION AND EXTENT

Vegetation fires have no defined hazard area within the planning area. Past events have been relatively uniform across the planning area, though locations with higher density have a greater frequency. Peat moss fires are limited to marshes and bogs such as Gordon Bubolz Nature Preserve and areas in the norther portion of the county.

PREVIOUS SIGNIFICANT EVENTS

From 2014 to 2022 Outagamie County experienced 1,413 vegetation fires. Data prior to 2014 was not available. Vegetation fires can happen any time of the year with higher frequency of fires in the spring and summer.

FUTURE HAZARD EVENTS

PROBABILITY

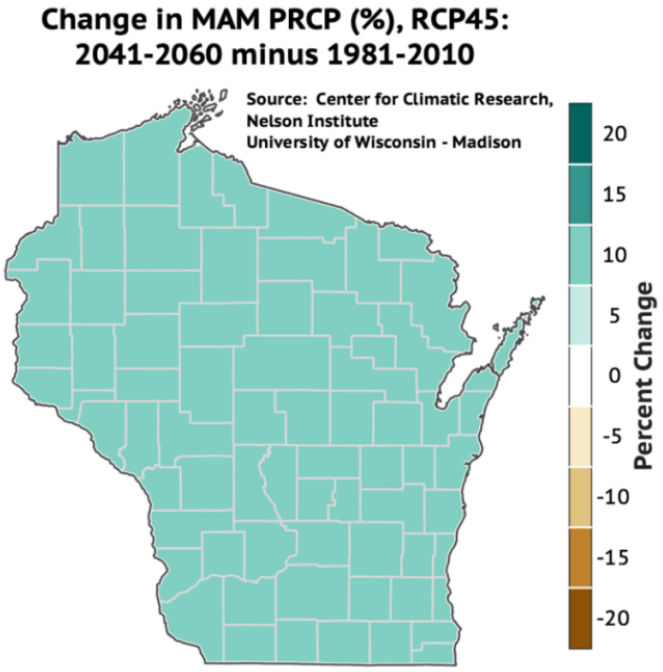
Based on the past hazard frequency, Outagamie County is considered to have a very high probability of experiencing vegetation fires in any given year. Areas with peat moss such as the Gordon Bubolz Nature Preserve and the Hortonville Bog are a high risk. Peat moss fires can remain undetected for days, weeks, or months because of their smoldering underground. A secondary hazard is peat moss stores a great deal of carbon and these fires results in large releases of CO2.[70]

[70] Peatland destruction is releasing vast amounts of CO_2, New Scientist 2007

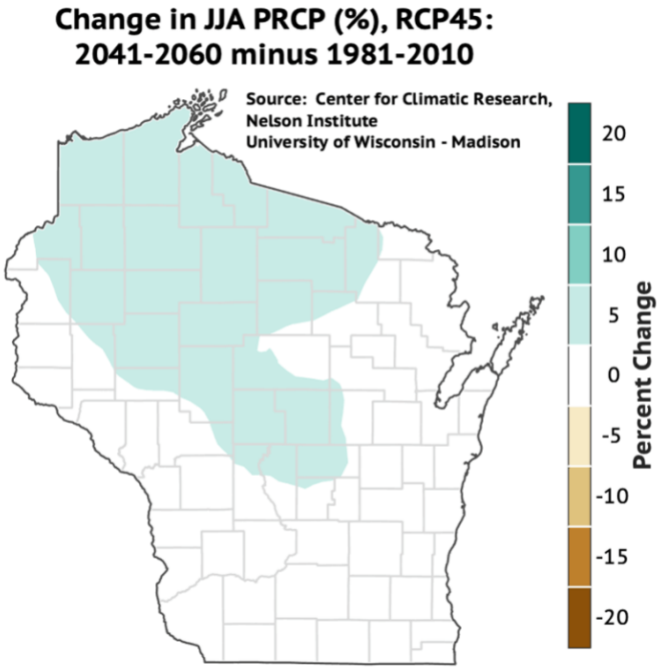
Possible Future Conditions

The spring is forecast with a possible increase in precipitation however until the vegetation grows and is green, there is a high risk of vegetation fires (Map 10). Summer months are probable for higher temperatures but no change in the average summer precipitation (Map 11). This could lead to potential drier conditions and an increase in vegetation fires. Homeowners in rural settings without buffer zones around buildings are at risk of vegetation fires causing structural fires.

Map 10 Changes in Precipitation March - May



Map 11 Changes in Precipitation: June, July, and August



VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

Risk Assessment Ranking

Vegetation fires are ranked 10th among all hazards based on the county assessment in Table 12. On average from 2014 – 2022, Outagamie County experienced 78 vegetation fires a year. Below is the description of the county assets' vulnerability and impact from this hazard.

Assets at Risk

Asset	Vulnerability and Impact
Persons with Disabilities	People who are outside or in a recreational area near a vegetation fire might find it challenging to escape quickly from the danger of the fire. Similarly, if their home is in danger due to a nearby vegetation fire, it may be difficult to evacuate promptly.
Persons experiencing homelessness and poverty	People who are outside or in a recreational area near a vegetation fire might find it challenging to escape quickly from the danger of the fire. An individual may not have insurance if the vegetation fire causes property damage. Impact from vegetation fires could further worsen their financial difficulty or compound illnesses.

Asset	Vulnerability and Impact
Persons with Limited English	Individuals may lack experience with this hazard or do not know the language of the warning message. Also, the potential hazards may not translate into their native language effectively. .
Structures	Structures are very vulnerable to nearby vegetation fires and buildings lost would cause great financial strain for the owner.
Agricultural Systems	Vegetation fires can quickly spread to nearby crops, causing significant financial and operational challenges for farmers if the crops are also affected.
Economic Center Systems	Businesses are very vulnerable to nearby vegetation fires and buildings damaged/lost would cause great financial strain for the owner.
Lifeline Systems	Vegetation fires will mainly impact Safety & Security, Food, Water, Shelter & Agricultural, and Transportation lifelines. Fire Departments may activate the Mutual Aid Box Alarm System for resource support. Peat moss fires will require substantial resources, support, and time, placing a strain on local fire departments.
Critical Infrastructure	Vegetation fires can impact most critical infrastructure however buildings are at great risk, especially if the occupants require additional time to evacuate. Examples are schools, community-based residential facilities, adult family homes, nursing homes and manufactured housing communities.
Natural Resources	The main vulnerability for natural resources is damage to trees, vegetation, and nearby buildings. A secondary risk are individuals in these areas who are not warned and unable to evacuate safely.
Historical & Cultural Resources	These resources are at risk from vegetation fire, especially historical buildings since the properties were built prior to stronger building codes.
Community Activities	In the event of unsafe conditions, nearby parades and festivals may be postponed or cancelled for safety reasons.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions, the possible slight increase in potential vegetation fires could result in a higher number of these events. This could lead to an increase in the average financial and material losses, especially in fires involving peat moss.

RIVER FLOODING

HAZARD DESCRIPTION

Floods happen when the water draining from a watershed, whether from rainfall or melting snow, exceeds the capacity of the river or stream channel to hold it. Water overflows onto the nearby low-lying lands (floodplains). This is the main method of river flooding in Outagamie County.

Flooding can also result from a dam failure. A dam is an artificial barrier, together with its ancillary works, constructed in or across a waterway for the primary purpose of impounding or diverting water. As identified by the Wisconsin Department of Natural Resources (WDNR), Outagamie County has 60 dams, 13 of which are classified as large dams. The remaining are regarded as small dams. A large dam has a structural height of over 6 feet and impounding 50 acre-feet or more or having a structural height of 25 feet or more and impounding more than 15 acre-feet. Appendix G Map 8 displays the dams in the county. It should be noted a dam failure or tainter gate issues during high river flows on the Wolf River in Shawano County could impact river levels in Outagamie County.

The Wisconsin DNR assigns hazard ratings to large dams within the state based on existing land use and land use controls (zoning) downstream of the dam. The hazard rating is based on the potential for loss of life or property damage should the dam fail. A high hazard rating indicates that a failure would put lives at risk. A significant hazard rating indicates that a failure could result in significant property damage. A low hazard rating is given when a failure would result in only minimal property damage and loss of life is unlikely. Concerning impacts, in Outagamie County nine dams have a high hazard, two significant hazard and the remaining are low hazards.

The areas of greatest risk from dam failure are those areas within the hydraulic shadow of the dam of the three high and significant risk dams. The hydraulic shadow of the dam is the area of land downstream from a dam that would be inundated by water upon failure of the dam during the regional flood (100-year flood). Available details are on high hazard dams are listed below.

Table 25 Outagamie County High and Significant Impact Dams

Dam	Stream	Size	Hazard	Owner
Kensington Pond	Garner Creek	Large	High	City of Appleton
Upper Appleton Powerhouse	Fox River	Large	High	We Energies
Upper Appleton Wall & Spillway	Fox River	Large	High	US Corp of Engineer
Lower Appleton	Fox River	Large	High	US Corp of Engineer
Hortonville	Black Otter Creek	Large	High	Village of Hortonville
Kimberly (Cedar Dam)	Fox River	Large	Significant	Kaukauna Utilities
Little Chute	Fox River	Large	Significant	Kaukauna Utilities
Combined Locks	Fox River	Large	Significant	Kaukauna Utilities
Kaukauna Dam (Badger)	Fox River	Large	High	Kaukauna Utilities
Lower Kaukauna (Kaukauna City Plant)	Fox River	Large	High	Kaukauna Utilities

KENSINGTON POND FLOOD INUNDATION

A dam failure analysis was performed to determine if the dam were to fail during the 100-year flood on Garners Creek, no critical facilities would be in the hazard area. There are several road crossings (of Garners Creek) up to 4.5 miles downstream of Kensington Pond Dam which would be inundated by a dam failure flood or a 100-year flood.

UPPER APPLETON (WE ENERGIES POWERHOUSE) FLOOD INUNDATION

Potentially Inundated Structures from only a Powerhouse incident would be buildings at 121, 235 and 301 E. Water Street.

KAUKAUNA BADGER DAM INUNDATION

While fair weather failure flow is larger than the typical normal river flows, it is still contained well within the channel banks and is therefore appropriate for representing a fair weather condition. Any flood larger than the 500-year event would overtop the power canal wall and overtop the embankments adjacent to the USACE Dam. According to the FEMA flood insurance rate maps for the area, the 500-year flood event would inundate a vast majority of the island area to the north of the left power canal wall, including the Middle School and a majority of the homes and structures on the island area.

KAUKAUNA CITY PLANT FLOOD INUNDATION (LOWER KAUKAUNA)

For normal flow (fair weather) condition the largest incremental rise of a left dam wall failure under normal flow conditions occurs near the breach location and was modeled at approximately 4.0 feet, with incremental rises diminishing rapidly to less than one foot further from the breach location as flows spread across the lots near the Thilmany Mill. The largest incremental rise of a left dam wall failure under flood conditions occurs near the breach location and was modeled at approximately 2.7 feet, with incremental rises diminishing to less than one foot further from the breach location as the floodwave progresses through the already inundated land near the Thilmany Mill.

HORTONVILLE FLOOD INUNDATION

The Village's well house in Miller Park would be inundated by more than two feet during a dam failure, and the business at 111 S. Nash St. would experience inundation of the lower level by more than two feet of water as well. Three bridges are in the flood hazard area including CTH M, Mill Street and STH 15. The Village's waste water treatment plant property is within the hydraulic shadow, but would not suffer any damage. (209 S. Nash) could experience significant erosion of their parking lot and driveway entrance. At least twelve residences and/or businesses would be inundated by the 1000-year flood caused by a dam failure.

LOCATION AND EXTENT

The areas at greatest risk from flooding include the "100-year floodplain" areas of Outagamie County. The 100-year floodplain are areas with a 1 percent chance of being flooded in any given year. The base floodplains for the planning area are shown in Appendix G Map 5. Properties that potentially lie within the floodplain and would be affected by the 100-year flood are shown in Appendix G Map 6. The parcels on this map is listed with at least $100 of improvements completed.

PREVIOUS SIGNIFICANT EVENTS

No flood events have occurred since 2017 requiring substantial improvement or substantial damage provisions of the flood management regulations.

Repetitive loss structure is a term that is usually associated with the National Flood Insurance Program (NFIP) to describe a structure, covered by a contract of flood insurance under the NFIP, that has suffered flood damage on two or more occasions over a 10-year period ending on the date when a second claim is made, in which the cost to repair the flood damage, on average, equals or exceeds 25 percent of the market-value of the structure at the time of each flood loss event. For the Community Rating System (CRS) of the NFIP, a repetitive loss property is any property, which the NFIP has paid two or more flood claims of $1,000 or more in any, given 10-year period since 1978. A repetitive loss structure is important to the NFIP, since structures that flood frequently put a strain on the flood insurance fund. It should also be important to a community because residents' lives are disrupted and may be threatened by the continual flooding.

Based on the available data, there are two repetitive loss properties in Outagamie County.

- Commercial Building, City of Appleton in 2010, 2015, 2016 and 2018
- Residential building, City of Kaukauna in 2015 and 2018

FUTURE HAZARD EVENTS

PROBABILITY

With 48 flood warnings and 83 advisories from 2005 – 2022, Outagamie County has a medium likelihood of experiencing a river flood in any given year.

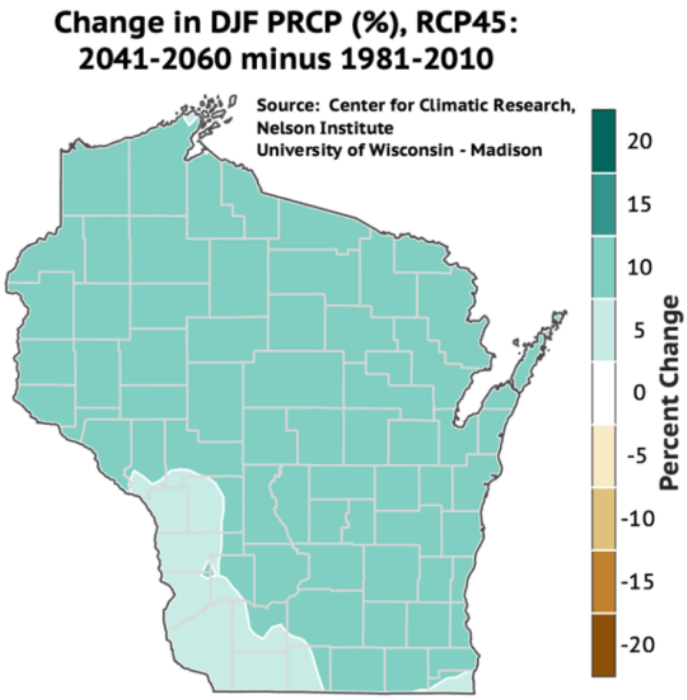
POSSIBLE FUTURE CONDITIONS

The Wisconsin Initiative on Climate Change Impacts projects 10% increase in future winter and spring precipitation (Maps 10 and 12). Potential warmer winters could cause rainfall instead of snow, beginning the flooding concern earlier in the year. If permeable ground soil is lost through land development, this would increase potential flooding as well.

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to being affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

Map 12 Changes in Precipitation Dec. – Feb.



RISK ASSESSMENT RANKING

River flooding is the 11th ranked hazard based on the county assessment in Table 11. On average from 2005 – 2022, Outagamie County experienced with 1.33 events per year. Below is the description of the county assets' vulnerability and impact from this hazard.

ASSETS AT RISK

Asset	Vulnerability and Impact
Persons with Disabilities	Individuals may have trouble receiving weather warnings and/or taking precautionary actions. In severe cases, an individual could potentially be trapped if the surrounding area is flooded. Recovery could be hampered depending on available personal resources (people, equipment, and funds). Without these resources an individual may not recover from the impact of this event, creating long-term difficulties.
Persons experiencing	Inadequate shelter during a river flood could result in injuries/death. An individual may not have insurance for medical treatment of injuries or

Asset	Vulnerability and Impact
homelessness and poverty	property damage. The impact of flooding could further worsen their financial difficulty or compound illnesses.
Persons with Limited English	Individuals may lack experience with this hazard or do not know the language of the warning message. Also, the potential hazards may not translate into their native language effectively or understand the timing/risk of river floods with the appropriate actions to take. This could also impact taking safe and appropriate steps in clean up and recovery, affecting their physical, mental, emotional, and financial well-being.
Persons with limited data access	Areas with limited data access can also experience limited cellular coverage. Individuals in these areas may be unaware of a river flood warning unless other notification methods are utilized. After a flood event, these individuals could have difficulty obtaining disaster information, impacting their recovery process.
Structures	Structures in the flood are vulnerable to damage from high or fast moving flood waters. Buildings constructed according to older codes are more vulnerable to damage and can be challenging and expensive to repair, which can cause financial strain for the owner.
Agricultural Systems	Flooding can damage or contaminate crops, impacting the farmers' business in the current and future years.
Economic Center Systems	These systems are vulnerable to damage or becoming isolated by flood waters. Restoration from flood damage can create a high fiscal impact to businesses, especially during economic downturns.
Lifeline Systems	All lifeline systems are at risk from river floods however Transportation and Food, Water, Shelter & Agriculture are highest. This could cause a loss of economic activity, waste water treatment plants malfunctioning and individuals with damaged homes.
Critical Infrastructure	Flood damage can impact most critical infrastructure however buildings and waste water treatment plants are at a greater risk, especially because of the construction or ability of occupants to take evacuate safely. Examples are schools, community-based residential facilities, adult family homes, nursing homes and manufactured housing communities.
Natural Resources	The main vulnerability for natural resources is area flooding until the flood water recedes. Another potential danger is posed by people visiting these areas who haven't been notified or are unable to find safe refuge.
Historical & Cultural Resources	These resources are at risk from flood damage, especially historical buildings since the properties were built prior to stronger building codes. People residing or visiting these residences would be in danger unless they are capable of evacuating.
Community Activities	All outdoor parades, events, festivals, and protests would be impacted depending on the timing of the flood waters, bringing possible mental health impacts. It may be necessary to temporarily halt meal deliveries to

Asset	Vulnerability and Impact
	designated sites until the roads are safe for drivers. This could potentially impact those who depend on these meals.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions, the possible slight increase in potential rain days could result in a higher number of days with flood damage. This could lead to an increase in the average financial and material losses to the municipalities within the 100-year floodplain.

EXTREME HEAT

HAZARD DESCRIPTION

Excessive heat (often referred to as a heat wave) results from extended periods of very high temperatures or high temperatures with high humidity. Individuals can suffer from several ailments, including heat exhaustion and heat stroke. Heat stroke is a particularly life-threatening condition that requires immediate medical attention. In addition to posing a health hazard, periods of excessive heat usually result in high electrical consumption, which can cause power outages and brownouts.

LOCATION AND EXTENT

The National Weather Service issues a Heat Advisory warning generally 6 to 24 hours in advance if any occurrence of daytime heat index values are expected to be around 100 or higher. Also, if four consecutive days of heat index values of 95 to 99 degrees are expected, the National Weather service will likely issue a Heat Advisory. An Excessive Heat Warning is issued by the National Weather Service generally 6 to 24 hours in advance if any daytime heat index values are expected to be around 105 or higher, with nighttime heat index values of 75 degrees or higher. If four consecutive days of Heat Advisory conditions are expected, the National Weather service will issue an Excessive Heat Warning.

There is no defined hazard area for excessive heat events in the planning area. Previous events have occurred consistently across Outagamie County and its municipalities.

PREVIOUS SIGNIFICANT EVENTS

According to the NCDC, Outagamie County has experienced three significant excessive heat events from 2005 - 2022.

FUTURE HAZARD EVENTS

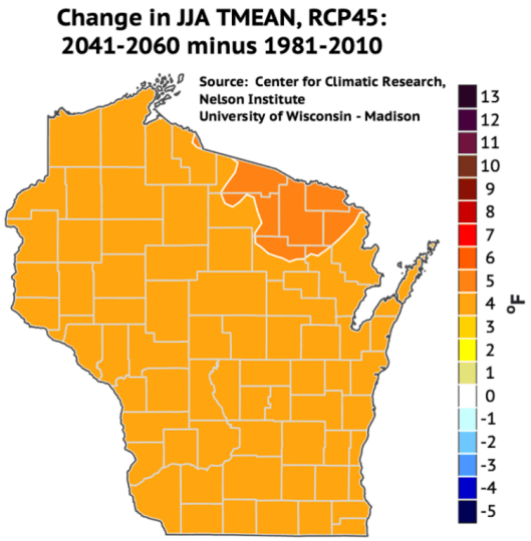
PROBABILITY

Based on the past hazard frequency, Outagamie County is considered to have a low probability of experiencing a significant excessive heat event in any given year.

Possible Future Conditions

The Wisconsin Initiative on Climate Change Impacts projects 4 degrees (Fahrenheit) increase in future summer temperatures (Map 13). Potential warmer summers could bring additional days with heat warnings and advisories. If land development increases in the county and higher populated municipalities, it could increase the Urban Heat Island effect.

Map 13 Change in Temperature June, July, and August



VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

Risk Assessment Ranking

Excessive heat events are ranked 12th among all hazards based on the county assessment in Table 11. On average from 2005 – 2022, Outagamie County experienced .17 excessive heat events a year with 3 events during the entire time span. Below is the description of the county assets' vulnerability and impact from this hazard.

Assets at Risk

Asset	Vulnerability and Impact
Persons with Disabilities	Individuals who are 65 years of age and older, overweight, ill or on certain medications are at greatest risk of heat related illness. Individuals without air conditioning and reliant on electric fans are at risk for heat-related illnesses above 90 degrees.
Persons experiencing	Inadequate shelter during an excessive heat event could result in illness/death since heat stroke can occur in a short time. Individuals without air conditioning and reliant on electric fans are at risk for heat-

Asset	Vulnerability and Impact
homelessness and poverty	related illnesses above 90 degrees. An individual may not have insurance if medical care is needed. The impact of excessive heat events could further worsen their financial difficulty or compound illnesses.
Persons with Limited English	Individuals may be unaware of the risk and how to access cooling resources during excessive heat events, which can increase their risk of illness.
Persons with limited data access	Individuals may not have access to websites listing cooling resources with excessive heat events. Also, as these areas are usually rural and agricultural, cooling resources may not be close and easily accessible. These concerns can increase their risk of heat related illness.
Structures	Excessive heat events could trigger power outages from increased power consumption, resulting in loss of cooling resources. This could increase the number of heat-related illnesses. Also, the demand for power to cool buildings can increase cooling costs, creating financial strain.
Agricultural Systems	If power is lost, farmers will require generators and fuel supply to continue operations without a loss of profit. Depending on the seasonal timing of excessive heat events, crops can be damaged or killed, creating financial strain.
Economic Center Systems	The demand for cooling could dramatically increase energy costs, creating financial strain.
Lifeline Systems	Energy, Medical, and Food, Water Shelter & Agriculture Lifelines are the main impacts from excessive heat events. The demand for cooling could be greater than available resources, causing power outages which in turns impacts homes (shelter). Medical systems can experience an influx of individuals seeking medical care from heat-related illnesses.
Critical Infrastructure	Loss of power at critical infrastructures could create cascading effects, especially concerning facilities which service vulnerable individuals (Adult Family Homes, Community-based Residential Facilities, child care and nursing homes).
Natural Resources	Individuals in these areas who do not take appropriate actions to stay cool could experience heat related illnesses, placing extra demand on medical services.
Historical & Cultural Resources	Historical structures could be at risk as listed under the Structures.
Community Activities	Depending on the timing and duration of the excessive heat event, outdoor activities may be shortened or cancelled, which could have negative effects on people's mental health. If not cancelled, individuals attending these activities could be impacted with heat related illnesses.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions, the possible slight increase in mean summer temperatures could result an annual risk of excessive heat events. At a minimum, it would increase energy costs to cool homes and economic centers. This increase in excessive heat events could impact any municipality in Outagamie County.

FLASH FLOODING

HAZARD DESCRIPTION

In urban areas, flooding can often happen because of problems with stormwater management. Although stormwater drainage systems are created to handle most storms, when larger storms happen in a short period of time, they can be so intense that the drains can't manage all the stormwater, leading to flooding. Additionally, if the storm sewers in a particular area are obstructed, it's possible for localized stormwater flooding to occur. To avoid this, it's crucial to keep the drainage system free from litter and debris.

LOCATION AND EXTENT

While the area at greatest risk from flooding includes the “100-year floodplain”, any municipality is at risk of flash flooding depending on the amount of precipitation in a 24-hour period.

The National Weather Service uses a flash flood watch and flash flood warning to describe the extent of flooding. When there is a risk of rapid flooding in low-lying areas, a Flash Flood Watch is issued. This does not necessarily mean that flash flooding will happen, but it is a potential possibility. If flash flooding is imminent or already happening, a Flash Flood Warning will be issued. Weather Prediction Center releases the Excessive Rainfall Forecast (ERO) when the probability of rainfall will exceed flash flood guidance.

PREVIOUS SIGNIFICANT EVENTS

From 2005 to 2022 Outagamie County experienced 5 flash flood events with 8 weather warnings. Most of these flash flood events range from one to three days and their impacts are usually regional rather than at the county level.

- Two inches of rain fell in an hour flooding 4 blocks of downtown Black Creek and 30 basements on July 19, 2010. State Highway 54 had to be closed due to 4 feet of standing water on the road.

- Heavy rain fell across the Fox Valley on August 11, 2010, causing flash flooding near Kaukauna while heavy rain also produced minor street and field flooding in Kimberly. Nearby Darboy measured 3.50 inches of rain during the morning storms. Kankapot Creek in Kaukauna flooded Highway KK, which was closed for some time. Wisconsin

International Raceway, which was hosting a Pyrotechnics Guild International event, had to be evacuated due to the flood.

- Heavy rain developed as low pressure moved across Wisconsin on September 8, 2015. The heaviest rain fell during the morning, with numerous locations in the Fox Valley receiving more than 2 inches of rain, much of which fell in just 2 to 3 hours. The highest rainfall totals were 3.15 inches near Kaukauna. The torrential rainfall in the Kaukauna area caused street flooding and popped manhole covers from their bases.

- On August 28, 2018, severe thunderstorms produced wind damage, including a tornado, over east-central Wisconsin. Numerous trees were snapped or uprooted and power lines downed. The storms also produced torrential rainfall that caused urban flooding and flash flooding in parts of the Fox Valley. There were numerous reports of 2 to 4 inches of rain, along with a few even higher totals. Torrential rainfall caused roads in Appleton to become impassible as water levels rose as high as the hoods of cars.

- Severe thunderstorms formed on August 7, 2019 in very unstable air ahead of a passing cold front. The worst of the damage from the storms occurred across east-central and parts of northeast Wisconsin. Thunderstorm winds downed numerous trees and some power lines, hail as large as golf balls fell, and a weak tornado touched down on the east side of Green Bay (Brown Co.). Heavy rain led to flooding in parts of east-central Wisconsin as the storms formed an east-west line that slowly moved southeast. Heavy rainfall led to flash flooding that caused the closure of part of southbound Interstate Highway 441 near the Appleton-Little Chute border.

FUTURE HAZARD EVENTS

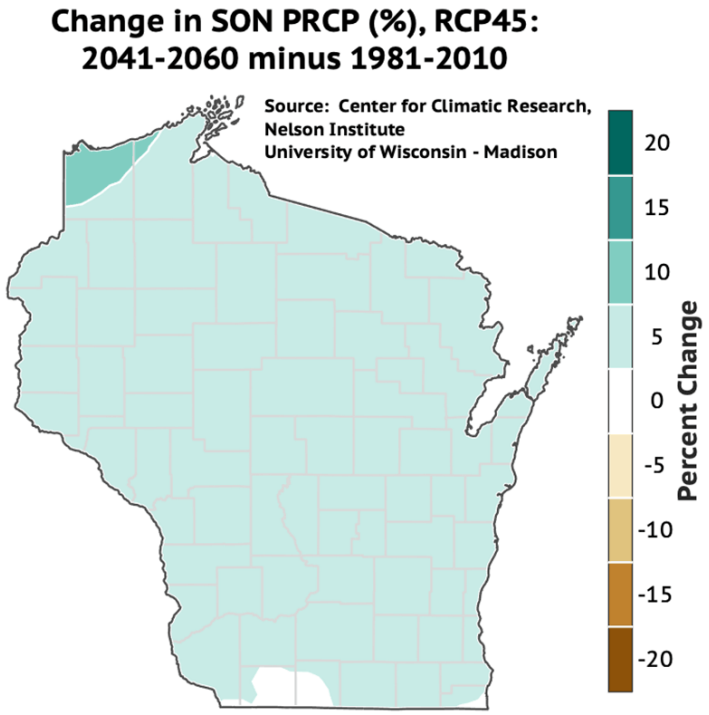
PROBABILITY

With 5 flash flood events, 8 warnings, and 18 flash flood watches from 2005 – 2022, Outagamie County has a medium likelihood of experiencing a flash flood in any given year. This is applicable to any municipality when heavy rainfall supersedes current drainage capacity.

POSSIBLE FUTURE CONDITIONS

In the last 15 years, the flash flooding events occurred July through September. While the Wisconsin Initiative on Climate Change Impacts does not project a change in precipitation for July and August, it does project a 5% increase for September (Map 14).

Map 14 Change in Precipitation September - November



VULNERABILITY OF ASSETS

Risk Assessment Ranking

In a vulnerability assessment, vulnerability refers to the assets that are prone to being affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

Assets at Risk

Flash flood events is ranked 13th among all hazards based on the county assessment in Table 11. On average from 2005 – 2022, Outagamie County experienced .57 flash flood events a year. The following depicts the vulnerability of county assets to this hazard and its potential impact.

Asset	Vulnerability and Impact
Persons with Disabilities	It could be very difficult to travel to safety if their home or vehicle was in the flash flood. Also flash floods with little or no warning may prevent any safety actions taken. Both scenarios could cause loss of life or injury.
Persons experiencing homelessness and poverty	If outdoors the individual may be caught in a flash flood with little or no warning, resulting in injury or death. If their home was in a flash flood, it may not be updated to current codes and is at a higher risk of damage. An individual may lack insurance coverage for medical care or property damage. A flash flood could also worsen their financial situation or exacerbate existing illnesses.

Asset	Vulnerability and Impact
Persons with Limited English	Individuals may lack experience with this hazard or warning message is not in their native language. Also, the potential hazards for flash floods may not translate into their native language effectively. This can impact taking safe and appropriate steps for sheltering, clean up, and recovery, affecting their physical, mental, emotional, and financial well-being.
Persons with limited data access	Areas with limited data access can also experience limited cellular coverage. Individuals in these areas may be unaware of flash flood warning unless other notification methods are utilized. This is critical with weather events with little or no warning to prevent injuries or death. After a flash flood event, these individuals could have difficulty obtaining disaster information, impacting their recovery process.
Structures	Structures in flash floods are vulnerable to damage from high or fast-moving flood waters. Buildings constructed according to older codes are more vulnerable to damage and can be challenging and expensive to repair, which can cause financial strain for the owner.
Agricultural Systems	Flooding can damage or contaminate crops, impacting the farmers' business in the current and future years.
Economic Center Systems	These systems are vulnerable to damage or becoming isolated by flood waters. Restoration from flood damage can create a high fiscal impact to businesses, especially during economic downturns.
Lifeline Systems	All lifeline systems are equally at risk from river floods however Transportation and Food, Water, Shelter & Agriculture are highest. This could cause a loss of economic activity, waste water treatment plants malfunctioning and individuals with damaged homes.
Critical Infrastructure	Flood damage can impact most critical infrastructure however buildings and waste water treatment plants are at a greater risk, especially because of the construction or ability of occupants to take evacuate safely. Examples are schools, community-based residential facilities, adult family homes, nursing homes and manufactured housing communities.
Natural Resources	The main vulnerability for natural resources is area flooding until the flood water recedes Another potential danger is posed by people visiting these areas who haven't been notified or are unable to find safe refuge.
Historical & Cultural Resources	These resources are at risk from flood damage, especially historical buildings since the properties were built prior to stronger building codes. People residing or visiting these residences would be in danger unless they are capable of evacuating.
Community Activities	All outdoor parades, events, festivals, and protests would be impacted depending on the timing of the flash flood, bringing possible mental health impacts. It may be necessary to temporarily halt meal deliveries to designated sites until the roads are safe for drivers. This could potentially impact those who depend on these meals.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions, the possible slight increase in potential flash floods could result in a higher number of events with flood damage. This could lead to an increase in the average financial and material losses. These impacts are applicable to any municipality in Outagamie County.

LIGHTNING

HAZARD DESCRIPTION

During a thunderstorm, lightning can strike at any location. It is generated through the buildup of charged ions within a thundercloud, and the resulting discharge of a lightning bolt interacts with the most conductive surface or object on the ground. The air within the lightning strike's channel can reach temperatures surpassing 50,000 degrees Fahrenheit. The sudden heating and cooling of the air surrounding the channel creates a shock wave that produces thunder.

Lightning is mainly caused by the mixing of warm and cold air masses, which creates atmospheric disturbances that polarize the atmosphere. However, it can also happen during dust storms, forest fires, tornadoes, volcanic eruptions, and even in snowstorms.

LOCATION AND EXTENT

Lightning has no defined hazard area within the planning area. Past events have been relatively uniform across the planning area.

PREVIOUS SIGNIFICANT EVENTS

From 2005 to 2022 Outagamie County experienced 3 official lightning events however lightning occurs with most thunderstorms.

FUTURE HAZARD EVENTS

PROBABILITY

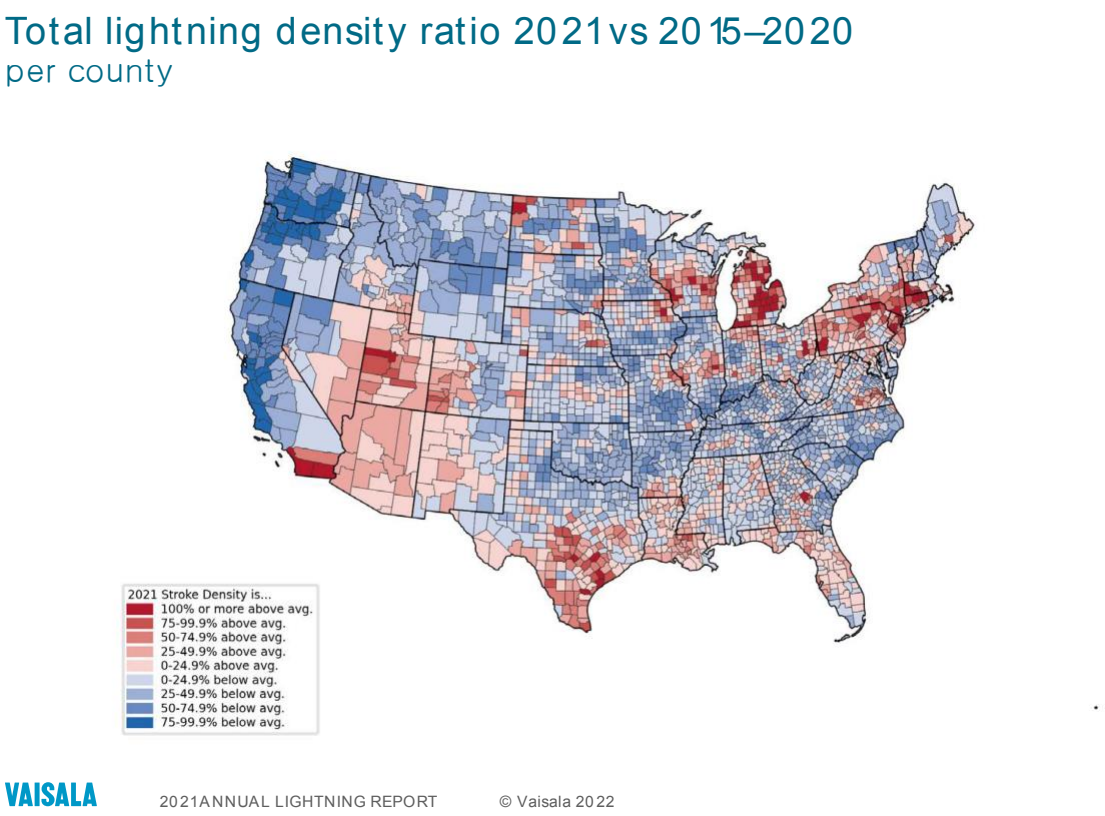
Based on the past hazard frequency, Outagamie County is considered to have a high probability of experiencing lightning but low probability of experiencing a lightning event in any given year.

POSSIBLE FUTURE CONDITIONS

The lightning density comparing 2021 to the previous 2015 – 2020 shows an increase in density 50 – 74.9% above average (see Map 15). This could demonstrate an increasing trend in lightning, but more data and time is required to be conclusive. The United States Department of Energy states that lightning causes approximately 34% of transmission and distribution outages, which plays a significant role in power disturbances caused by storms.[71]

[71] WxResearch, Why Does the Power Go Out in the Storm, 2023.

Map 15 Comparison of Lightning Density



VULNERABILITY OF ASSETS

RISK ASSESSMENT RANKING

Lightning events are rated 14th among all hazards based on the county assessment in Table 11. On average from 2005 – 2022, Outagamie County experienced .23 lightning events a year. Below is the description of the county assets' vulnerability and impact from this hazard.

ASSETS AT RISK

Asset	Vulnerability and Impact
Persons with Disabilities	Individuals may have trouble quickly taking appropriate shelter from lightning, increasing their risk of being struck. If their home is struck by lightning, recovery could be hampered depending on available personal resources (people, equipment, and funds). Without these resources an individual may not recover from the impact of this event, creating long-term difficulties.
Persons experiencing	Inadequate shelter during a lightning event individual could result in injuries/death if an individual is struck by lightning. An individual may not have insurance for medical treatment of injuries or property damage. The

Asset	Vulnerability and Impact
homelessness and poverty	impact of strong winds could further worsen their financial difficulty or compound illnesses.
Persons with Limited English	Individuals may lack experience with this hazard or do not know the language of the warning message. Also, the potential hazards may not translate into their native language effectively. This can impact taking safe and appropriate steps for sheltering from lightning.
Structures	Structures are vulnerable to lightning strikes which can cause fires, damage, and electrical surges damaging electronics.
Agricultural Systems	Lightning strikes can damage farm buildings/equipment which can impact farmers' business in the current and future years.
Economic Center Systems	These systems are vulnerable to loss of power from lightning strikes which can result in product spoilage or loss of production time. Long-term power outage creates an extra impact on businesses with food production, service, or selling. Restoration from a power outage can create a high fiscal impact on businesses, especially during economic downturns.
Lifeline Systems	All lifeline systems are at risk from severe thunderstorm damage however Transportation, Energy (Power & Fuel) and Food, Water, & Shelter are highest. This could cause a loss of economic activity, medical devices without power and individuals with damaged homes.
Critical Infrastructure	Lightning can damage any critical infrastructure or cause a power outage, which hampers the functioning of that facility.
Natural Resources	The main vulnerability for natural resources is damage to trees from lightning strikes or lightning caused fires. A secondary risk are individuals in these areas who are not warned or unable to take appropriate shelter.
Historical & Cultural Resources	These resources are at risk from lightning strikes, especially historical buildings since the properties were built prior to stronger building codes. Individuals living/visiting in these dwellings would be at risk unless adequate shelter is available.
Community Activities	All outdoor parades, events, festivals, and protests would be impacted depending on the timing of the weather event with lightning, bringing possible mental health impacts.

Impact of Future Conditions

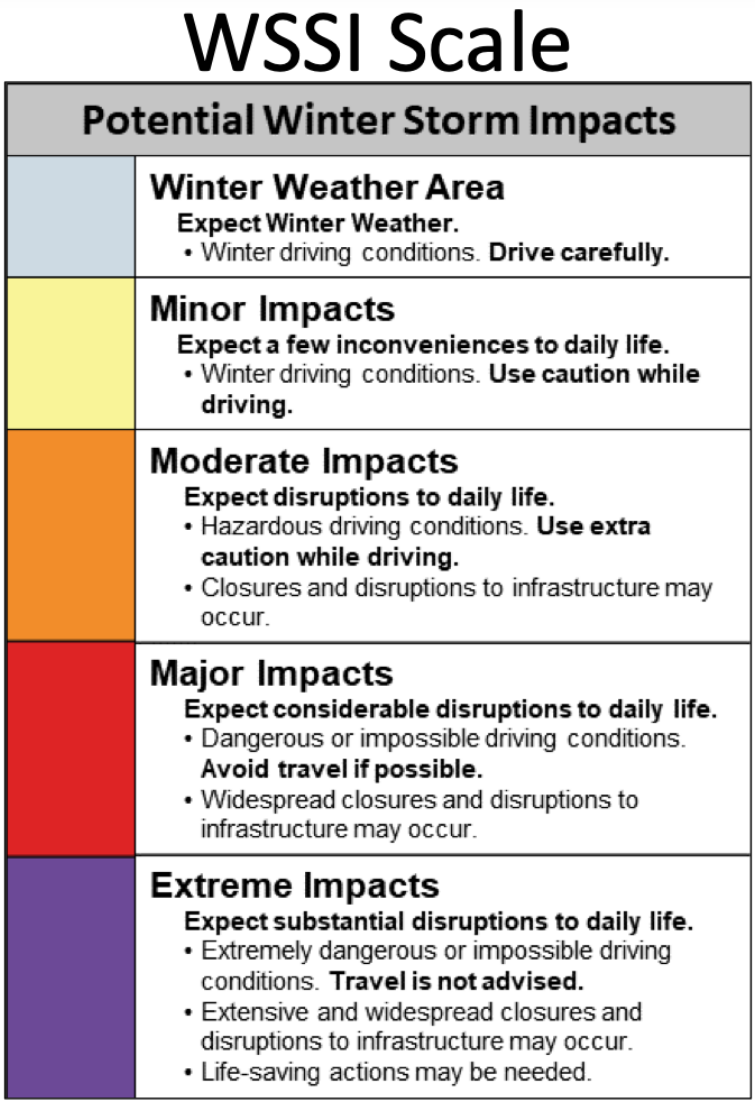
Based on the preceding Possible Future Conditions, the possible slight increase in potential days with lightning events. This could lead to an increase in the average financial and material losses, including the power grid. This increase can impact any municipality in Outagamie County.

ICE STORMS

HAZARD DESCRIPTION

Freezing drizzle/rain is drizzle or rain freezing upon impact on objects that have a temperature of 32 degrees Fahrenheit or below. On a large scale, an ice storm occurs when at least .25" of freezing rain accumulates on the ground or objects.

Figure 8 Winter Storm Severity Index



LOCATION AND EXTENT

Ice storms can occur at any time throughout the winter season from October into April. Early- and late-season ice storms and sleet are generally limited to northern Wisconsin. Otherwise, most of these storms occur in southern Wisconsin.[72] Ice storms have no defined hazard area

[72] State of WI Threat Hazard Identification and Risk Assessment, 2021

within the planning area. Past events have been relatively uniform across the planning area. The NWS Green Bay uses the Winter Storm Severity Index (Figure 8) to depict the risk from winter weather, including ice storms. Regarding the Ice Storm Accumulation portion of the index, this component was developed to account for the combined effects of ice accumulation and wind which can produce widespread tree damage, transportation shutdowns and utility problems.

PREVIOUS SIGNIFICANT EVENTS

From 2005 to 2022 Outagamie County experienced 2 ice storm events with 11 freezing rain advisories and 2 freezing fog advisories.

FUTURE HAZARD EVENTS

PROBABILITY

Based on the past hazard frequency, Outagamie County is considered to have a low probability of experiencing an ice storm in any given year.

POSSIBLE FUTURE CONDITIONS

The data is nonconclusive for future trends either increasing or decreasing. It is possible the corridor of ice storms in the Midwest to shift north depending on the climate.

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to being affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

RISK ASSESSMENT RANKING

Ice storms are rated 15th among all hazards based on the county assessment in Table 11. On average from 2005 – 2022, Outagamie County experienced .11 ice storms a year. Below is the description of the county assets' vulnerability and impact from this hazard.

ASSETS AT RISK

Asset	Vulnerability and Impact
Persons with Disabilities	Individuals may have trouble taking precautionary actions such as stocking up on essential items before the impact of the ice storm. Icy roads can make travel almost impossible until the roads are treated. If resources are not accessible, an individual may be stranded until the situation is resolved.
Persons experiencing homelessness and poverty	Inadequate shelter during an ice storm could result in injuries/death. An individual may not have insurance for medical treatment of injuries or property damage. The impact of ice storms could further worsen their financial difficulty or compound illnesses.

Asset	Vulnerability and Impact
Persons with Limited English	Individuals may lack experience with ice storms or do not know the language of the warning message. This can impact taking safe and appropriate steps such as safe winter driving, which can increase their risk of injury.
Structures	Accumulated ice can cause structural collapse of older buildings (particularly roofs) which is expensive and time intensive to repair.
Agricultural Systems	If power is lost from the ice storm, farmers will require generators and fuel supply to continue operations without loss of profit.
Economic Center Systems	If transportation routes are icy and hazardous, it could affect the operation of this system, which in turn could impact the manufacturing of products and employee paychecks.
Lifeline Systems	Energy and Transportation Lifelines are the main impacts from ice storms. If power lines and tree limbs are coated with heavy ice, power and telephone service can be disrupted, sometimes for days. Icy roads can be extremely dangerous to motorists and pedestrians, increasing possibility of accidents and injuries.
Critical Infrastructure	Individuals may be unable to travel to their job in a critical infrastructure, such as the Medical Care Center or the Communication Center (911). This impacts services to the public.
Historical & Cultural Resources	Historical structures could be at risk as listed under the Structures. Repair to these buildings could be cost prohibitive.
Community Activities	Depending on the timing and duration of the ice storm, community holiday activities may be cancelled, which could have negative effects on people's mental health.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions, at this time no major impact is foreseen from ice storms, which is applicable to any municipality in Outagamie County.

EXTREME DROUGHT

HAZARD DESCRIPTION

A drought refers to a prolonged period of abnormally dry weather, often accompanied by high temperatures. In Wisconsin, droughts fall into two categories - agricultural drought and hydrologic drought. Agricultural drought refers to a prolonged and severe dry spell that significantly decreases crop productivity. On the other hand, hydrologic drought is a prolonged and severe dry period that impacts the levels of lakes and streams as well as the depth of the groundwater table. These two types of droughts may, but do not necessarily occur at the same time. The severity of a drought depends on several factors including duration, intensity, geographic extent, and regional water supply demands by people and crops.

Droughts generally have the greatest impact on agriculture. Small droughts of limited duration can significantly reduce crop growth and yields. More substantial drought events can decimate croplands and can result in a total loss. Droughts can also greatly increase the risk of vegetation and wildfires because of extreme dryness. In addition, the loss of vegetation in the absence of sufficient water can result in flooding, even from average rainfall, following drought conditions.

LOCATION AND EXTENT

Droughts have no defined hazard area within the planning area. Past events have been relatively uniform across the planning area. Droughts are measured by the U.S. Drought Monitor with these levels:

Table 26 U.S. Drought Categories

Category	Description	Example Percentile Range for Most Indicators	Values for Standard Precipitation Index and Standardized Precipitation-Evapotranspiration Index
None	Normal or wet conditions	31 or above	-0.49 or above
D0	Abnormally Dry	21 to 30	-0.5 to -0.79
D1	Moderate Drought	11 to 20.99	-0.8 to -1.29
D2	Severe Drought	6 to 10.99	-1.3 to -1.59
D3	Extreme Drought	3 to 5.99	-1.6 to -1.99
D4	Exceptional Drought	0 to 2.99	-2.0 or less

PREVIOUS SIGNIFICANT EVENTS

From 2005 to 2022 Outagamie County experienced 4 droughts. Most of these extreme drought events range from one to three weeks and their impacts are usually regional rather than at the county level.

- July 19 – 31, 2005: Below normal rainfall and temperatures that averaged about 5 degrees above normal for the month of July combined with below-normal precipitation during the first half of the year to result in the development of drought conditions. The U.S. Drought Monitor began categorizing parts of east central Wisconsin as being in moderate drought (D1) on June 28th, and by July 12th northeast, central, east central, and most of northeast Wisconsin had reached the moderate drought category. Central, east central, and much of northeast Wisconsin were upgraded to severe drought (D2) on July 19th.

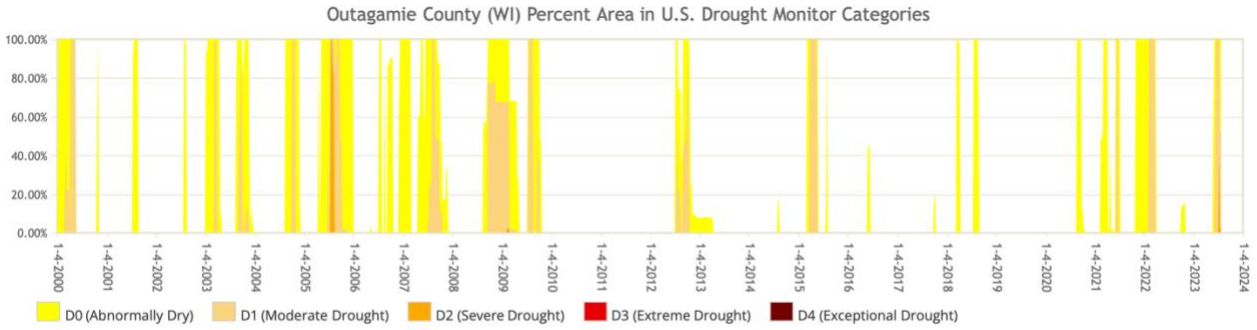
- August 1 – 16, 2005 Below normal rainfall in most areas and slightly above normal temperatures for the month of August allowed drought conditions to persist through at least the first half of the month. The U.S. Drought Monitor continued to categorize much of northeast and most of east central Wisconsin as being in severe drought (D2)

since July. By the end of the month the entire area was either in the abnormally dry (D0), or moderate drought category.

- February 10 – 28, 2009 Dry weather during the latter half of January into the early part of February caused severe drought conditions (D2) in east-central Wisconsin to expand in coverage. The severe drought (D2) expanded to cover extreme northwest Outagamie County. The severe drought (D2) there continued into March 2009.

- March 1-3, 2009 A winter storm in late February brought significant snowfall to east-central Wisconsin. Precipitation from the storm was enough to cause drought conditions to be reclassified from severe (D2) to moderate drought (D1) in Outagamie County.

Figure 9 U.S. Drought Monitor: Outagamie County Events



FUTURE HAZARD EVENTS

PROBABILITY

Based on the past hazard frequency, Outagamie County is considered to have a low probability of experiencing a significant drought in any given year.

POSSIBLE FUTURE CONDITIONS

Map 11 shows no change of precipitation during the summer months while Map 13 demonstrates a trend of warmer summer temperatures. These factors could lead to an increase in future droughts.

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

Risk Assessment Ranking

Droughts are rated 16th among all hazards based on the county assessment in Table 11. On average from 2005 – 2022, Outagamie County experienced .35 a year with a total of $250,000 of damage during the entire time span. The following depicts the vulnerability of county assets to this hazard and its potential impact.

Assets at Risk

Asset	Vulnerability and Impact
Agricultural Systems	Short periods of drought can significantly reduce crop growth and yields, which can negatively impact the income of farmers. In more severe cases, complete crop failure may occur, resulting in a total loss. During these difficult times, farmers may have to rely on government assistance to compensate for their lost income. Droughts can have a negative impact on livestock as they might not have enough water to survive, which could result in animal deaths. Furthermore, during drought conditions, animals are exposed to prolonged periods of intense sunlight and high temperatures, which increases their risk of heatstroke. The loss of livestock can also cause significant financial losses for farmers.
Economic Center Systems	When severe drought occurs, restrictions are typically imposed on water usage. This could have an adverse effect on businesses like car washes and landscapers, as they may not be able to offer their services to clients. Industries that require a significant amount of water for processing materials may also face restrictions that could potentially limit their production capacity.
Lifeline Systems	During times of drought, there may be a shortage of water available for human consumption, leading to dehydration among individuals. Hospitals may have to provide treatment to those affected by this.
Critical Infrastructure	Droughts can have a significant impact on municipal water supplies. Such droughts can lead to a scarcity of water for human, industrial, and agricultural use, as wells and other water reserves may dry up. Water quality is often a concern before and after a drought event, which can further strain wastewater treatment facilities.
Natural Resources	Forested and vegetated areas will be dry and at risk for vegetation fires.
Community Activities	Community activities involve public bodies of water may be scaled back or cancelled.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions, the possible slight increase in potential droughts leads to an increase in the average financial and material losses, especially in the agricultural sector. This increase in drought events could impact any municipality in Outagamie County.

MAN-MADE HAZARDS

TERRORISM/ACTS OF VIOLENCE

HAZARD DESCRIPTION

Terrorism refers to the use of violence or threats of violence to instill fear and intimidate the community and/or government. Such acts can be carried out through explosives, weapons, and other methods.

LOCATION AND EXTENT

Terrorism events have no defined hazard area within the planning area.

PREVIOUS SIGNIFICANT EVENTS

From 2005 to 2022 Outagamie County experienced 0 terrorism events.

FUTURE HAZARD EVENTS

PROBABILITY

Based on the past hazard frequency, Outagamie County is considered to have a low probability of experiencing a terrorism event in any given year.

POSSIBLE FUTURE CONDITIONS

The Center for Strategic and International Studies predicts terrorism will continue to be a concern, primarily from supremacist and extremist elements.

VULNERABILITY OF ASSETS

RISK ASSESSMENT RANKING

Terrorism incidents are rated 1st among manmade hazards based on the county assessment in Table 12. On average from 2005 – 2022, Outagamie County experienced no terrorism incidents during the entire time span.

ASSETS AT RISK

Asset	Vulnerability and Impact
People	People will always be at risk in a terrorism event from trauma, injury, and death. This impact can be compounded if the person or members of their support network speaks limited English or has a disability.
Structures	Any structure in Outagamie County is at risk, however, government and education facilities have a higher threat.
Economic Center Systems	Response and recovery to terrorism can be extremely expensive, resulting in loss of life, property damage, and response costs. The costs increase

Asset	Vulnerability and Impact
	proportionally as the size of the response, including mutual aid agencies and additional resources requested, increases.
Lifeline Systems	All lifeline systems can be impacted, depending on the type of terrorism event. In a significant event, Safety & Security and Health & Medical services would be inundated.
Critical Infrastructure	All critical infrastructure could be a target and be at risk. Response and recovery could be lengthy and expensive.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions, the potential remains low for risk from a terrorist event. Any terrorist attack would lead to an increase in financial and material losses, along with mental health impacts.

STRUCTURAL FIRES

HAZARD DESCRIPTION

Fires can be caused by accidents, nature, or criminal activity. Accidental fires can happen when cooking is left unattended, heating appliances are used improperly or are defective, candles are used incorrectly, electrical wiring or circuits fail, or smoking materials are not used properly, among other reasons. Natural causes such as lightning strikes are also common.

In Outagamie County, municipal fire departments oversee preventing and responding to structural fires. They follow established response procedures, local zoning setback controls, along with building and fire prevention codes to provide extra safety measures. When dealing with large fires, they can use the Mutual Aid Box Alarm System (MABAS) to obtain help from nearby departments.

LOCATION AND EXTENT

Structural fires have no defined hazard area within the planning area. Past events have been relatively uniform across the planning area. The local fire department responds to a structural fire but if the fire escalates resources are requested from a neighboring department. The request for resources can expand across the county, state or even intrastate using the MABAS.

PREVIOUS SIGNIFICANT EVENTS

From 2014 to 2022 Outagamie County experienced 4,139 structural fires. Based on previous hazard occurrences as reported by the Outagamie County Dispatch, Outagamie County experiences approximately 460 structure fire calls every year.

FUTURE HAZARD EVENTS

PROBABILITY

Based on the past hazard frequency, Outagamie County is considered to have a high probability of experiencing structural fires in any given year.

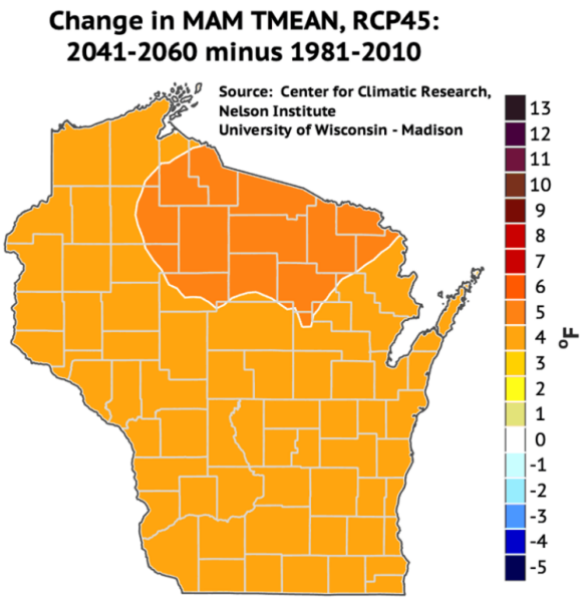
POSSIBLE FUTURE CONDITIONS

All developed areas are vulnerable to structure fires based on the reasons listed in the hazard description. Grasslands that abut heavy residential development present a great danger, especially when residents practice unapproved outdoor burning of leaves, garbage, and other items that they wish to dispose of by burning. The warmer spring season (Map 16) could lead to drier conditions for grassland fires though spring precipitation trends does show an increase (Map 10).

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

Map 16 Change in Mean Temperature March - May



RISK ASSESSMENT RANKING

Structural fires are rated 2nd among manmade hazards based on the county assessment in Table 12. Below is the description of the county assets' vulnerability and impact from this hazard.

Assets at Risk

Asset	Vulnerability and Impact
People	People will always be at risk in a structural fire from trauma, injury, and death. Persons with disabilities or speaking limited English are at high risk of safely exiting during a structural fire or understanding directions given in a non-native language during a structural fire or understanding directions given in a non-native language during a stressful situation.
Structures	Any structure in Outagamie County is at risk however, older or unmaintained buildings pose a higher risk.
Economic Center Systems	Fires can significantly affect the economy of an affected area by causing destruction of private property. Direct costs associated with fires include extinguishing the fire, salvaging, and removing damaged debris, restoring the burned area, and reconstruction.
Lifeline Systems	Structural fires will mainly impact Safety & Security and Food, Water, Shelter & Agricultural. Fire Departments may activate the MABAS for resource support.
Critical Infrastructure	Structural fires can impact any critical infrastructure with the added complexity if occupied such as schools, nursing homes and day cares.

Impact of Future Conditions

Based on the preceding Possible Future Conditions, the risk for structural fires remains unchanged. The current trend of structural fires causing damage and high rebuilding costs continues. This risk is applicable to any municipality in Outagamie County.

HAZMAT INCIDENT

HAZARD DESCRIPTION

Outagamie County is concerned about the possibility of hazardous materials incidents from:

Fixed Facility - A facility containing hazardous substances when either accidental or intentionally released cause concern for life safety and environmental containment.

Pipeline - Accidental or intentional release of natural gas from the pipeline resulting in a potential evacuation or explosion.

Railway - Train derailment, train/vehicle collision or intentional release causing ruptured rail cars to release hazardous substances resulting in life safety and environmental concerns.

Roadway - Vehicle accident involving hazardous chemicals in transport on the roadway resulting in life safety and environmental concerns.

Each Wisconsin County is designated as an emergency planning district and has a Local Emergency Planning Committee (LEPC) to administer the local hazardous chemical planning program under the Emergency Planning and Community Right-To-Know Act, also known as SARA Title III.

The Outagamie County LEPC was established in 1989 and includes local and state elected officials, members of emergency response agencies (EMS, fire, hazardous materials team, law enforcement, health, etc.), emergency management, hospitals, and representatives from transportation, broadcast and print media, community groups, and facilities subject to SARA Title III. The Outagamie County Executive appoints members who meet regularly at various locations in the community to exchange ideas and information that contribute to effective and safe emergency planning for accidental chemical releases.

LOCATION AND EXTENT

Hazardous materials incidents can impact most of the county because roadways, pipelines, and railway corridors run through many residential, agricultural, and commercial neighborhoods in the county. Areas of greatest risk are those areas where chemicals are stored on site or corridors through which chemicals are frequently transported. Facilities subject to SARA Title III, while concentrated in industrial areas, can also be found in business, residential, and agricultural areas.

Local fire departments respond to a hazardous material incident in their municipality and request the County Hazardous Materials Team if additional expertise or resource are required. If the incident necessitates additional resources, the Northeast Regional Team or other entities in the Wisconsin Hazardous Materials Response System are mobilized.

PREVIOUS SIGNIFICANT EVENTS

Outagamie County Communication Center reports show local fire departments responded to 2,050 spills and accident spills from 2014 – 2022. From 2005 to 2022 Outagamie County experienced 483 hazardous materials spills which met the requirement for notification to the Wisconsin DNR Spills Hotline.

920 hazardous material spills required a higher level of response from the County Hazardous Materials Team responded from 2017 - 2022. Nine of these incidents required the Regional Hazardous Materials Team response as well. Below are a highlight of extensive responses with a summary of actions taken.

Date	Type	Location	Description
8/28/2018	Chemical hazard (no spill or leak)	Village of Greenville	The Haz Mat Team was called to assist Outagamie County Sheriff, Greenville Fire Department and Wisconsin Department of Criminal (DCI) Investigations to investigate and meter two 20 pound liquid propane cylinders that reportedly had discoloration at the valving. A two-person entry team donned appropriate levels of protection and made entry into the hot zone with

Date	Type	Location	Description
			the direction to meter the containers for any leakage. Greenville Fire provided a staffed handline to be used for decontamination and or product displacement. After doing extensive, quality monitoring they exited the hot zone and briefed everyone that they were unable to detect anything leaking from either container. Personnel upgraded their protection level while DCI agents got properly suited up for entry to assess the contents of the cylinders. The only meters to register results were the combustible gas indicator and 4 gas that indicated a highly flammable concentration coming from the containers. The scene was then released to local authorities.
8/16/2020	Oil or other combustible liquid spill	Village of Greenville	Outagamie County Emergency Management requested County HazMat Team assistance at a barn fire that had a large quantity of hydrocarbon (waste oil, diesel, hydraulic fluid) leaking from multiple containers and spreading the waste oil spill. Booms and pads were deployed to immediate threat areas. Fire department personnel had already been constructing a long berm stretching several hundred feet down the gravel driveway. Incident Command contacted a contractor for vacuum trucks to start skimming/pumping the contaminated run-off. A secondary contractor was requested when the spill surpassed the available resources of the Haz Mat Team.
5/1/2021	Chemical spill or leak	City of Seymour	There was an active leak from the relief valve of an ammonia tank. There were no victims, and Seymour Fire along with Seymour and Outagamie County police officers evacuated the downwind residences and businesses. A nursing home was ordered to shelter in place until they were notified otherwise. A decontamination line and equipment necessary for entry and back up team was setup. Entry team 1, in level A suits, entered the roof to turn off the leaking valves and to sample air measurements. Entry Team 2 opened three overhead doors to naturally ventilate the area and

Date	Type	Location	Description
			continued to test air readings. The room naturally ventilated for an additional 15-20 minutes. A final inspection of the room showed normal air levels.
9/2/2021	Chemical spill or leak	City of Appleton	The Haz Mat Team was requested when a chemical spill resulted in the mixture of two substances during a delivery. The ER and the 2nd floor Operating Room were evacuated because of the strong odor and burning eyes. The chemicals were Hydrochloric Acid and Sodium Hypochlorite, which created Chlorine Gas. Because of the effect it was having on the hospital a plan was formulated on how to remove the container out of the building. The container was disconnected from all attachments and safely removed.

FUTURE HAZARD EVENTS

PROBABILITY

Based on the past hazard frequency, Outagamie County is considered to have a very high probability of experiencing a hazardous materials incident in any given year.

POSSIBLE FUTURE CONDITIONS

Thorough communication and preparedness (i.e., planning, training, and exercising) measures between stakeholders help to ensure that significant hazardous materials events are not common, but these incidents can and do occur. Since these events are dependent on human activities, hazardous material incidents are expected to continue in the same trend.

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

RISK ASSESSMENT RANKING

Hazardous material incidents are rated 3rd among manmade hazards based on the county assessment in Table 13. On average from 2005 – 2022, Outagamie County experienced about 131 hazardous material incidents a year during the entire time span. Below is the description of the county assets' vulnerability and impact from this hazard.

Assets at Risk

Asset	Vulnerability and Impact
People	People are vulnerable to exposure from hazardous material, possibly requiring gross/technical decontamination or medical care. Complexities will increase if assisting an individual with a disability or with Limited English experience.
Structures	Structures storing chemicals on the premises or have corridors that are frequently used for transporting chemicals are at risk.
Economic Center Systems	Businesses in proximity to a hazardous materials incident may lose money due to evacuations or closings. Direct costs associated with hazardous material response can be expensive.
Lifeline Systems	Hazardous material incidents will impact Hazardous Materials, Safety & Security and Food, Water, Shelter & Agricultural and Transportation lifelines. In a large-scale event, local agencies will be overwhelmed and regional assets required.
Critical Infrastructure	Critical facilities and infrastructure may not be open due to evacuations and/or closings resulting from hazardous materials incidents.

Impact of Future Conditions

Based on the preceding Possible Future Conditions, the frequency of hazardous material incidents will continue the same rate. This trend in hazardous materials incidents is applicable to any municipality in Outagamie County.

MASS CASUALTY

HAZARD DESCRIPTION

A mass casualty incident is any event emergency medical services resources, such as personnel and equipment, are overwhelmed by the number and severity of casualties. Mass casualty incidents can quickly overwhelm local municipalities' capabilities and resources for responding. The definition of a mass casualty incident is determined by the responding agency, not by a specific number of victims because a mass casualty incident is one that exceeds the responding jurisdiction's ability and resources to manage it.

LOCATION AND EXTENT

Mass casualty events have no defined hazard area within the planning area. Mass casualty events would likely require utilizing resources from multiple hospitals including trauma level II center such as the ThedaCare Regional Medical Center, Neenah.

PREVIOUS SIGNIFICANT EVENTS

From 2005 to 2022 Outagamie County experienced no mass casualty events. Although there have been no mass casualty incidents in the county, in preparation for potential occurrences,

emergency management and emergency response departments have undertaken significant pre-planning in association with the airport.

FUTURE HAZARD EVENTS

PROBABILITY

Based on the past hazard frequency, Outagamie County is considered to have a very low probability of experiencing a mass casualty event in any given year. The county is working with the Healthcare Emergency Readiness Coalition to focus on mitigation strategies with clinic and hospital which will help in prevention of these events.

POSSIBLE FUTURE CONDITIONS

There are many situations in today's world, such as such as heavily traveled interstates, active shooter incidents and air travel, can cause mass casualties, leading to a potential increase in such events.

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

Mass casualties are rated 4th among manmade hazards based on the county assessment in Table 12. The following depicts the vulnerability of county assets to this hazard and its potential impact.

ASSETS AT RISK

Asset	Vulnerability and Impact
People	People are very vulnerable to mass casualty events and require medical and mental health care. Complexities will increase if assisting an individual with a disability or with Limited English experience.
Structures	Any structure could be at risk from a mass casualty incident depending on the type of incident.
Economic Center Systems	Mass casualty incidents can result in significant losses in terms of lives, property damage, injuries, and response expenses. The costs increase proportionally with the scale of the response, which includes mutual aid agencies and additional resources that are immediately required.
Lifeline Systems	Mass casualty incidents will impact Safety & Security and Food and Health & Medical lifelines. In a large-scale event, local agencies will be overwhelmed and regional assets required.
Critical Infrastructure	Any critical facility could be at risk from a mass casualty incident depending on the type of incident. Critical facilities and infrastructure may not be open due to damage or evacuations.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions, the possible reasons for a mass casualty incident could result in increased events. This could lead to an escalation in the average financial and material losses along with injuries and death.

AIRCRAFT INCIDENT

HAZARD DESCRIPTION

The Appleton International Airport (ATW) is located west of the City of Appleton in the Town of Greenville. It is the third-largest commercial airport in Wisconsin in terms of passengers served.

An aircraft incident is an occurrence associated with the operation of an aircraft, which takes place between the time any person boards the aircraft with the intention of flight until all such persons have disembarked, where a person is fatally or seriously injured, the aircraft sustains damage or structural failure, or the aircraft is missing or is completely inaccessible. Aircraft incidents may require a response from airport fire personnel, but it may not be necessary to involve surrounding public safety agencies.

LOCATION AND EXTENT

Outagamie County faces the highest risk of aircraft incidents around the Appleton International Airport, its surrounding areas, and flight paths. In the event of an aircraft incident, the airport employs the Mutual Aid Box Alarm System (MABAS) to request assistance from neighboring agencies based on the nature and complexity of the situation.

PREVIOUS SIGNIFICANT EVENTS

Based on the available date from 2008 to 2022 the Appleton International Airport experienced 57 aircraft incidents. Some of these incidents required only airport personnel to respond.

FUTURE HAZARD EVENTS

PROBABILITY

Based on the past hazard frequency, Outagamie County is considered to have a medium probability of experiencing an aircraft incident event but low probability of it being significant.

POSSIBLE FUTURE CONDITION

The number of people the Appleton International Airport serves has grown and is expected to continue to grow. The potential increase in flights and the nearby popular Experimental Aircraft Association (EAA) AirVenture in July signals a slight increase in incidents.

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

RISK ASSESSMENT RANKING

Aircraft Incidents are rated 5th among manmade hazards based on the county assessment in Table 12. On average from 2008 – 2022, Outagamie County experienced about 4 aircraft incidents a year during the entire time span. The following depicts the vulnerability of county assets to this hazard and its potential impact.

ASSETS AT RISK

Asset	Vulnerability and Impact
People	Individuals on the aircraft can experience shock and injury which can be compounded if the person speaks limited English or has a disability. In any aircraft crash, the risk of death is possible.
Structures	The Appleton International Airport, along with its associated buildings and structures within its flight paths, face the danger of potential aircraft incidents.
Economic Center Systems	If a business relies on the airport to conduct business, airport closure would impact their operations.
Lifeline Systems	Transportation, Health & Medical, and Safety & Security are the main lifelines impacted by an aircraft incident. In a significant event, the airport would be closed, and Health & Medical services will be inundated.
Critical Infrastructure	The Appleton International Airport is a critical infrastructure at risk from an aircraft crash.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions, the possible slight increase air traffic could result in potential higher aircraft incidents. While most aircraft incidents are handled with normal procedure and budgets, a significant incident would lead to an increase in the average financial and material losses. Although the likelihood of an aircraft crash is higher in airport areas and flight paths, it is important to recognize that such an incident can happen anywhere in the county.

POWER OUTAGE – LONG TERM

HAZARD DESCRIPTION

A long-term power outage is a disruption to buildings electrical power and restricts the ability of people to safely occupy the facility. Electrical power outages are often caused by power failure or natural disaster. This can also cause disruptions to the water and sewage systems.

LOCATION AND EXTENT

Long-term power outages have no defined hazard area within the planning area. Past events have been relatively uniform across the planning area, usually coinciding with extreme weather events.

PREVIOUS SIGNIFICANT EVENTS

From 2005 to 2022 Outagamie County experienced many long term power outages. Most of these events range from two to four days and their impacts are go beyond county borders and can be regional.

FUTURE HAZARD EVENTS

PROBABILITY

Based on the past hazard frequency, Outagamie County is considered to have a medium probability of experiencing a long term power outage in any given year.

POSSIBLE FUTURE CONDITIONS

While We Energies and Kaukauna Utilities spend considerable efforts in maintain and hazard proofing the electrical system, weather events will continue to cause long-term power outages.

VULNERABILITY OF ASSETS

In a vulnerability assessment, vulnerability refers to the assets that are prone to be affected by a hazard, while impacts are the resulting consequences of the hazard on the identified assets.

RISK ASSESSMENT RANKING

Long-term power outages are rated 6th among manmade hazards based on the county assessment in Table 12. The following depicts the vulnerability of county assets to this hazard and its potential impact.

ASSETS AT RISK

Asset	Vulnerability and Impact
People	In a long-term power outage, the loss of refrigerated or frozen food will have a financial impact, especially for those persons experiencing poverty. Health problems can arise if the outage coincides with an extreme cold or heat event. Additionally, individuals with disabilities may rely on electricity for their health needs and unable to care for their daily needs.
Structures	Any structure could be at risk from a long-term power outage depending on the type of incident.
Economic Center Systems	Long-term power outage creates an extra impact for businesses with food production, service or selling. Restoration from a long term power outage

Asset	Vulnerability and Impact
	can create high fiscal impact to businesses, especially during economic downturns.
Lifeline Systems	All lifeline systems are at risk from a long-term power outage however Health & Medical, Energy (Power & Fuel), and Food, Water, & Shelter are highest. This could cause a reduction of medical care, home medical devices without power and individuals unable to prep/use food.
Critical Infrastructure	Any critical facility without a generator in a power outage will be inoperable, creating serious effects for those reliant on the infrastructure.

IMPACT OF FUTURE CONDITIONS

Based on the preceding Possible Future Conditions, the trend of power outages will continue unchanged. Often long-term power outages are preceded by a weather event which compounds the cost and recovery time. This trend is applicable to any municipality in Outagamie County.

4. MITIGATION STRATEGIES

Mitigation, as defined by the Disaster Mitigation Act of 2000, is a continuous effort to decrease or eliminate long-term risks to people and property caused by hazards and their consequences. Mitigation planning involves a methodical approach to studying potential hazards in the area, setting specific objectives, identifying suitable actions, and implementing an effective mitigation plan. By focusing on mitigation, communities can reduce their vulnerability to hazards over the long term, ultimately saving the government and property owners significant costs associated with disasters. Additionally, mitigation can safeguard crucial community facilities and infrastructure, lower liability exposure, and minimize community disruption.

The mitigation strategy outlines the general goals to be achieved through the implementation of the Outagamie County Hazard Mitigation Plan. From the identified hazard mitigation goals, a mitigation strategy was developed to identify specific projects and activities that could help achieve the County's hazard mitigation objectives to make them safer and better prepared for disasters.

This chapter includes a discussion of the mitigation efforts that are underway, the County's plan to implement additional identified mitigation actions, an assessment of the County's pre- and post-disaster hazard management policies, programs, and capability to mitigate hazards, and an evaluation of the current and potential sources of federal, state, or private funding to implement mitigation activities.

OUTAGAMIE COUNTY HAZARD MITIGATION PLAN GOALS

Goals and objectives for the 2023 update have been revised to show current County priorities and needs. The following are the goals and objectives for the 2023 plan update:

Goal 1: Coordinate hazard mitigation programs that affect Outagamie County and the municipalities
Goal 2: Prevent hazards from impacting life, property, and the environment
Goal 3: Increase public awareness of hazards, their impacts, and ways to reduce vulnerability
Goal 4: Protect, preserve, and restore the functions of natural systems

CAPABILITY ASSESSMENT

Capability assessments describe the current ability and gaps of the community planning and resources regarding hazards. The assessment listed below reflects the capabilities at the county level and some are applicable to local municipalities. Completed municipal capability assessments can be found in Appendix J.

Table 27 Outagamie County Capability Assessment

Plan/Resource	Is a plan in effect?	Plan address hazards	Plan use mitigation actions
Comprehensive Plan	Yes	Briefly	Briefly
Capital Improvements Plan	Yes	Briefly	Briefly
Economic Development Plan	Yes	No	In the resource guide for businesses
Local Emergency Response Plan	Yes	Yes	Yes
Continuity of Operations Plan	Yes	Yes	Yes
Transportation Plan	Yes	No	Stormwater impacts on transportation
Bicycle/Pedestrian Plan	In draft form	In process	In process
Stormwater Management Plan	Yes	Yes	Yes

Land Use Planning and Ordinances

Plan/Resource	Ordinance/ plans in place?	Effective measure for reducing hazard impacts?	Adequately administered and enforced?
Zoning ordinance	Yes	Yes	Yes
Floodplain ordinance	Yes	Yes	Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes, stormwater	Yes	Yes
Acquisition of land for open space and public recreation uses	No	N/A	N/A

Administrative & Financial Capabilities

Plan/Resource	Jurisdiction Capabilities	Description
Zoning Committee	Yes	Zoning Committee to hold public hearings for rezonings, special exception permits, ordinance text amendments to various ordinances, and select conditional use permits. Also reviews and approves all proposed subdivisions in the unincorporated areas of the County.
Hazard Mitigation Planning Team	Yes	Discuss applying mitigation process to the hazards in Outagamie County through the plan update.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes	Through the local utility provers, We Energies and Kaukauna Utilities.
Mutual aid agreements	Emergency Management, Sheriff, and Highway	Agreements allow intra-jurisdictional cooperation
Financial - Capital Improvement Program	Yes	Planned use of tax levy to fund mitigation projects for Emergency Management,

Plan/Resource	Jurisdiction Capabilities	Description
		Highway and Parks Departments

Education & Outreach Capability

Plan/Resource	Jurisdiction Capabilities
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access, and functional needs populations, etc.	Yes - Local Emergency Planning Committee -Voluntary Organizations Active in Disaster - Fox-Wolf Watershed Alliance
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes, through Outagamie County Emergency Management, Highway, Sheriff, and HHS/Public Health Departments
StormReady Certification	Yes, through Outagamie County Emergency Management

MITIGATION ACTIONS

BENEFIT – COST REVIEW

A qualitative process, described in Table 28, was used for the benefit-cost review in evaluating mitigation strategies. Full benefit-cost calculations were not prepared for each strategy item in the plan, however if implemented a detailed benefit-cost analysis would be completed during the project process.

Table 28 Benefits - Cost Rating

Benefits	
High	Project will have an immediate impact on reducing the risk to life and property.
Medium	Project will have a long-term impact on reducing the risk to life and property or will provide an immediate reduction in the risk to property.
Low	Long-term benefits of the project are difficult to quantify in the short term.

If measurable estimates of costs and benefits were available, ratings/ranges were defined as: Low = < $10,000, Medium = $10,000 to $100,000, and High = > $100,000. If measurable estimates of costs or benefits were not available, qualitative ratings according to the definitions

listed in Table 29 were applied: Strategies listed as short term projects are predicted to be completed in 1 to 5 years while long term would be completed in 5 years or more.

Table 29 Costs of Hazard Mitigation Strategies

Costs	
High	Current funding levels are not sufficient to cover the costs of the proposed project, and implementing the project requires an increase in revenue through an alternative source (such as grants, fee increases or referendums).
Medium	The project could be implemented with existing funding but would require re-apportionment of the budget, a budget amendment, or the cost of the project would have to be spread over multiple years.
Low	The project could be funded under the existing budget. The project is part of or could be part of a current, ongoing program.

UPDATED/COMPLETED MITGATION STRATEGIES

The following changes have been completed to the hazard categories in this plan update:

- The Tornado and Strong Winds category has been split.
- Extreme Wind events have been added.
- The flooding category has been split between River and Flash flooding.
- The extreme Heat and Cold category have been split.
- Manmade hazards has been updated to the following categories: Terrorism, Structural Fires, Hazardous Materials Incident, Mass Casualty Incident, Aircraft Incident, and Long-term Power Outage.

Table 30 Mitigation Strategy Status

Mitigation Strategy	New Status	Comments
Upgrade area early warning sirens.	Not applicable	Siren ownership has been turned over to municipalities. Those that did not accept ownership were decommissioned.
Upgrade County EOC.	Completed	County EOC was remodeled in 2019. OCEM is waiting for the completion of the audio-visual system.
Work with the United Way 211 system to develop procedures to release emergency public information.	Completed	County EOC does share information with 211 during disasters. No need for additional training or formal procedures.
Provide information to builders and owners of	Not applicable	The focus has shifted to Weather radio outreach and safe rooms instead.

Mitigation Strategy	New Status	Comments
manufactured homes about the use of tie-downs with ground anchors.		HHS/Environmental Health staff complete annual inspections of mobile parks.
Identify large sporting and recreational areas and survey their alerting and notification capabilities. Explore upgrading the warning system for storms/tornadoes to a voice-capable digital siren at Plamann Park, USA Sports, and Mosquito Hill.	Not applicable	Sirens are no longer owned by the County. OCEM has provided weather alert radios to County owned parks. If notified by local event organizers, the National Weather Service can list their event in applicable weather warnings.
Establish enhanced County MABAS division included additional EMS groups.	Completed	This has been completed. MABAS cards are reviewed annually with changes submitted to the County MABAS President for approval.

CURRENT AND NEW MITIGATION STRATEGIES

The hazard mitigation strategies form the core of the hazard mitigation plan. The Planning Team and partner agencies reviewed and revised mitigation strategies from the 2017 plan along with considering the public input from the surveys. Some of the identified mitigation initiatives in Table 31 are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. The identified actions and projects aim to reduce the effects of hazards on the people, services, buildings, and infrastructure.

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Continue to promote the increased use of NOAA weather radios.	All hazards	EM Department & County Clerk	Local Operating Budget	Low	High	Ongoing	High	The county resells radios to interested residents. Public Information reminder in spring and summer. Also, the County EM gives away approximately 900 free weather radios annually to at-risk populations through the ADRC/ALTS, Veterans Services and various outreach campaigns throughout the year.
Continue to work with and support the county Volunteer Organization Active in Disasters (VOAD) teams.	All hazards	EM Department	Local Operating Budget	Low	High	Ongoing	Medium	The VOAD is in rebuilding process.
Continue to add/update EM Dept links on the existing county website (e.g., ARC, Homeland Security/FEMA, WEM) especially focusing on preparedness messages. Publicize the website.	All hazards	EM Department	Local Operating Budget	Low	Medium	Ongoing	Medium	
Continue to add/update Public Health Division links on the existing county website, especially focusing on public health preparedness messages. Publicize the website.	All hazards	HHS/Public Health Division	Local Operating Budget	Low	Medium	Ongoing	Medium	

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Review the Memoranda of Understanding (MOU) and contingency contracts used in a disaster.	All hazards	EM Department	Local Operating Budget	Low	Medium	Ongoing	Medium	MOU's are updated as needed
Create an interoperability communications plan between the municipal and county EOCs in Outagamie County	All hazards	EM Department & ARES	Local Operating Budget	Low	Medium	Ongoing	Low	This strategy will be delayed until the Communications Center relocation in 2024.
Strengthen Land Use Regulations for hazards impacting properties	All hazards	Development and Land Services Department & Director	Local Staff time and resources	Medium	Low	Ongoing	Low	
Additional training, planning, drills, and exercising between Calumet and Outagamie Counties radio systems and Joint Information Coordination	All hazards	Outagamie and Calumet Counties Emergency Management with relevant public safety agencies	Local Staff time and resources	Low	Medium	Short Term: Completed in 1 to 5 years	Low	
HHS/Aging and Disability Resource Center provide education on steps take in a weather emergency. Also provided in their newsletter and social media.	All hazards	Health and Human Services/Aging and Disability Resource Center	Local Staff time and resources	Low	Medium	Ongoing	Medium	

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Provide information (via website link) to mobile home park owners and park/campground operators about providing permanent storm shelters in the parks. Identify sheltering locations within the community and publicize those locations.	Tornado	EM Department	Local Operating Budget	Low	Medium	Ongoing	Low	
Hold an informational meeting in partnership with WEM on Storm Shelter projects and available funding.	Tornado	EM Department & municipal EM	Local Operating Budget	Low	High	Short Term: Completed in 1 to 5 years	High	
Identify high-hazard sites and put safe shelters where needed.	Tornado	EM Department	FEMA BRIC (Building Resilient Infrastructure and Communities)	High	High	Ongoing	Low	The Thousand Island Nature Center is a potential location.
Promote tornado awareness, including safety measures via website, Facebook, and Twitter.	Tornado	EM Department and HHS/Public Health Division	Local Staff time and resources	Low	Medium	Annual - Once a year	High	OCEM has a robust social media site and promote all the campaigns from WEM.
NWS Green Bay conducts Skywarn spotter training each spring. Spotter training content includes how to stay safe during tornadoes, severe thunderstorms/strong wind, hail, lightning, flash flooding.	Tornado	National Weather Service Green Bay and EM	Local Staff time and resources	Low	High	Annual - Once a year	High	Training is normally completed virtually, but EM can request in-person training.

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Promote severe thunderstorm awareness, including safety measures via website, Facebook, and Twitter.	Severe Thunderstorms /Strong Wind	EM Department and HHS/Public Health Division	Local Operating Budget	Low	Medium	Annual - Once a year	High	
Generators at each Highway shop	Severe Thunderstorms /Strong Wind	Highway Department	Local Operating Budget	High	Medium	Short Term: Completed in 1 to 5 years	High	If any Highway Shop has a power outage, the garage doors will not operate, to get equipment out.
Electrical Utilities forestry program trims trees away from conductors.	Severe Thunderstorms /Strong Wind	We Energies	Local Operating Budget	Medium	High	Ongoing	High	
Incorporate Climate Planning into the County's update of our Sustainability Plan.	Severe Thunderstorms /Strong Wind	Development and Land Services Department, Land Use & Sustainability Specialist	Local Staff time and resources	Medium	Low	Ongoing	Low	
Traffic signal backup generators	Severe Thunderstorms /Strong Wind	Highway Department	Local Operating Budget	Low	Low	Long Term: Completed in 5 years or greater	Low	Traffic signals in high traffic volume areas, or rural areas, that are affected by power outage.
Provides generators for children who have health issues/disabilities that depend on electricity to operate life sustaining equipment in power outages. Children need to be eligible and enrolled in the CLTS Program to receive funding.	Severe Thunderstorms /Strong Wind	HHS	FEMA BRIC (Building Resilient Infrastructure and Communities)	Medium	Medium	As grant funds are available	Medium	

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Continue public informational outreach campaigns about hail on the website, Facebook, and Twitter.	Hail	EM Department and Municipal EM	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium	County EM will be developing a regional approach to preparedness campaigns with municipal EM.
Provide education regarding crop insurance.	Hail	UW Extension	Local Staff time and resources	Low	Medium	Ongoing	Low	
Promote winter hazards awareness, including home and travel safety measures (including website.)	Blizzard / Winter Storms	EM Department and Municipal EM	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium	County EM will be developing a regional approach to preparedness campaigns with municipal EM.
Install snow fencing where needed around the county	Blizzard / Winter Storms		Local Operating Budget	Low	Medium	Annual - Once a year	Medium	
Install a Road Weather Information System (RWIS) monitoring system stations for Highway 41.	Blizzard / Winter Storms	County Highway Dept	Other - list in comments	Medium	High	As funding available	Low	As funding available. The stations report air and bridge/road deck temperature and wind speed and direction.
Loader-mounted industrial Snow Blower	Blizzard / Winter Storms	Highway Department	Local Operating Budget	Low	Medium	Short Term: Completed in 1 to 5 years	Medium	During and after major snow events, our crews could clear urban areas, highways, or bridges.
Provide high-quality, coordinated public information in support of the public health plan for periods of public health concerns.	Communicable Disease	HHS/Public Health Division and EM Department	Local Operating Budget	Low	High	Ongoing	Medium	

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Undertake planning and exercises in order to provide mass medication distribution in response to public health threats.	Communicable Disease	HHS/Public Health Division and EM Department	Local Operating Budget	Low	Medium	Ongoing	Medium	
Provide high-quality, coordinated public information in support of the public health plan for periods of public health concerns.	Pandemic	HHS/Public Health Division and EM Department	Local Operating Budget	Low	High	Ongoing	Medium	
Continue public informational outreach campaigns about extreme cold on the website, Facebook, and Twitter.	Extreme Cold	EM Department, Municipal EM, and HHS/Public Health Division	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium	County EM will be developing a regional approach to preparedness campaigns with municipal EM.
HHS communicate the Warming Shelter locations to their clientele by posting on Social Media and calling clients at risk.	Extreme Cold	HHS Department	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium	
Maintain a list and map of Warming Centers for Public Outreach.	Extreme Cold	HHS/Public Health	Local Staff time and resources	Low	Medium	Ongoing	Medium	
Annual program to test pole integrity and replace based upon those findings.	Extreme Wind	We Energies/Utilities	Local Operating Budget	Medium	High	Annual - Once a year	Medium	
Implement a forestry program to trim trees from conductors to reduce impacts from falling branches.	Extreme Wind	We Energies/Utilities	Local Operating Budget	Medium	High	Annual - Once a year	Medium	

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Continue public informational outreach campaigns about dense fog on the website, Facebook, and Twitter.	Dense fog	EM Department and Municipal EM	Local Staff time and resources	Low	Medium	Ongoing	Medium	County EM will be developing a regional approach to preparedness campaigns with municipal EM.
Identify and install areas that need dry hydrants in rural areas.	Vegetation Fires	Outagamie County Fire Chiefs Association	FEMA BRIC (Building Resilient Infrastructure and Communities)	Medium	High	Ongoing	Medium	$3,000 - $5,000 per hydrant per site. Dry hydrants permitted with DNR.
Identify high-hazard areas in the community's risk hazard analysis as part of the MABAS project.	Vegetation Fires	Outagamie County Fire Chiefs Association	Local Operating Budget	Low	Medium	Ongoing	Medium	Each fire department needs to perform a hazard assessment in their respective jurisdictions. Municipal career and combination department have more staff available to completing this task.
Creation of Defensible Space around Bubolz Reserve and other outdoor areas. Projects such as creating perimeters around homes, structures, and critical facilities through the removal or reduction of flammable vegetation.	Vegetation Fires	Local Fire departments, outdoor site and EM	FEMA BRIC (Building Resilient Infrastructure and Communities)	Medium	High	Long Term: Completed in 5 years or greater	Medium	Also HMGP and PDM grant funding

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Hazardous Fuels Reduction around Bubolz Reserve and other outdoor areas. Projects to remove vegetative fuels close to at risk structures that, if ignited, pose a significant threat to human life and property, especially critical facilities.	Vegetation Fires	Local Fire departments, outdoor site and EM	FEMA BRIC (Building Resilient Infrastructure and Communities)	Medium	High	Long Term: Completed in 5 years or greater	Medium	Also HMGP and PDM grant funding
Keep a supply of emergency sandbags in stock.	River Flooding	EM Dept., municipal fire and police depts.	Local Operating Budget	Low	Medium	Ongoing	High	
Culvert/bridge replacement program.	River Flooding	County Highway Dept	Local Operating Budget	Medium	High	Ongoing	Medium	
Conduct a culvert-bridge inventory.	River Flooding	County Highway Dept	FEMA BRIC (Building Resilient Infrastructure and Communities)	Medium	High	As grant funds are available	Medium	
Review model floodplain zoning ordinance from DNR and their new floodplain maps (once released). Evaluate the need to repeal and adopt a new floodplain ordinance for Outagamie County as a result of these new/updated tools.	River Flooding	DLS Department, Zoning Administrator	Local Staff time and resources	Low	Medium	Short Term: Completed in 1 to 5 years	Low	

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Watershed Based Planning initiatives to address flood hazards with neighboring jurisdictions.	River Flooding	Land Conservation Department (County Conservationist, Project Coordinator, Watershed Planner)	Other - list in comments	High	Medium	Ongoing	Medium	Land Conservation has been doing 9 Key Element Watershed Plans for HUC12 size scale subwatersheds in the Lower Fox Basin. These plans focus on addressing runoff and erosion from agricultural land. To date funding has come from several sources including federal (GLRI), state (DNR), and local partners for developing watershed plans. Funding will be needed to complete this planning for remainder of County. Flash Flooding also addressed.

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Using Streambank Stabilization & Restoration Techniques	River Flooding	Land Conservation Department (County Conservationist, Project Coordinator, Watershed Planner, Engineering Technicians)	Other - list in comments	High	Medium	Ongoing	Medium	Land Conservation has been working to restore and stabilize stream corridors using different methods: Rip Rap, Obstruction/Debris Removal, Vegetation Management, Shaping & Seeding, and other Bio-engineering methods. To date funding has come from several grant sources from federal and state level. Flash Flooding also addressed.
Using vegetative management, such as vegetative buffers, around streams and water sources. Establishing and managing riparian buffers along rivers and streams.	River Flooding	Land Conservation Department (County Conservationist, Project Coordinator, Watershed Planner, Engineering Technicians, Agronomists)	Other - list in comments	High	Medium	Ongoing	Medium	Land Conservation has been installing riparian buffers with grant funds (Federal) acquired. Flash Flooding also addressed.

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Completing a stormwater drainage study for known problem areas.	River Flooding	Land Conservation Department (County Conservationist, Project Coordinator, Watershed Planner, Engineering Technicians, Agronomists)	Other - list in comments	High	Medium	As grant funds are available	Medium	Land Conservation would like to do hydrologic analysis studies to determine where water retention/detention practices would be best suited in watersheds with flash flooding/river flooding issues. Flash Flooding also addressed. LCD is currently a partner in a USDA Watershed Planning Grant for Bear Creek along with several townships to do a drainage study to address drainage issues/flooding.
Implement an acceptable (environmentally, socially, cost benefit, politically, etc.) solution for removing water from flood- prone areas. Seek out funding sources (grants) to execute solutions.	River Flooding	Municipalities	FEMA BRIC (Building Resilient Infrastructure and Communities)	Medium	High	As grant funds are available	Medium	

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Increasing drainage or absorption capacities with detention and retention basins, relief drains, spillways, drain widening/dredging or rerouting, logjam and debris removal, extra culverts, bridge modification, dike setbacks, flood gates and pumps, or channel redirection.	River Flooding	Land Conservation Department (County Conservationist, Project Coordinator, Watershed Planner, Engineering Technicians)	Other - list in comments	High	Medium	Ongoing	Medium	Land Conservation has been working to implement Agricultural Runoff Treatment Systems to retain more water on the landscape and reduce downstream flooding and erosion. The department has also been working to install other runoff reducing practices such as Water and Sediment Control Basins, Riparian Buffers, and Two-Stage Ditch Modifications (floodplain reconnection) on drainage ditches. To date funding has come from several grant sources from federal and state level. Flash Flooding also addressed.
Grapple bucket for an excavator	River Flooding	County Highway Dept	Local Operating Budget	High	Medium	Short Term: Completed in 1 to 5 years	Medium	Highway crews could remove debris or ice from bridges over flooded areas.

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Flood studies to determine if areas with flooding risk need upsized culverts. Identify areas needing to be studied.	River Flooding	County Highway	FEMA BRIC (Building Resilient Infrastructure and Communities)	Medium	High	Long Term: Completed in 5 years or greater	Medium	
Continue public informational outreach campaigns about extreme heat on the website, Facebook, and Twitter.	Extreme Heat	EM Department and Municipal EM	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium	County EM will be developing a regional approach to preparedness campaigns with municipal EM.
HHS communicate the Cooling Shelter locations to their clientele by posting on Social Media and calling clients at risk.	Extreme Heat	HHS Department	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium	
Maintain a list and map of Cooling Shelters for Public Outreach.	Extreme Heat	HHS/Public Health	Local Staff time and resources	Low	Medium	Ongoing	Medium	
Maintain the Stormwater management plan	Flash Flooding	County Highway Dept, Zoning and LCD	Local Operating Budget	Low	Medium	Ongoing	Medium	
Better monitoring and management County stormwater infrastructure	Flash Flooding	DLS Department, Land Use & Sustainability Specialist	Local Staff time and resources	Medium	Low	Ongoing	Low	
Remove debris (logs, timbers, etc.) from the river beds, ditches, storm drains, etc. to prevent blockages at bridges and other potential "choke points."	Flash Flooding	County Highway Dept and DPWs	Local Staff time and resources	Medium	High	Ongoing	Low	

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Complete study to determine areas which flood during high rainfall events to identify possible rainwater gardens or stormwater reserves and Upsize culverts with historic impact of flash flooding.	Flash Flooding	County Highway	FEMA BRIC (Building Resilient Infrastructure and Communities)	Medium	High	Long Term: Completed in 5 years or greater	Medium	
Continue public informational outreach campaigns about lightning safety on the website, Facebook, and Twitter.	Lightning	EM Department and Municipal EM	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium	County EM will be developing a regional approach to preparedness campaigns with municipal EM.
Promote the National Weather Service Lightning Toolkits to improve messaging, plans and sheltering for outdoor locations/venues.	Lightning	EM Department	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium	weather.gov/safety/lightning-toolkits
Promote existing lightning safety campaigns via social media to encourage public awareness of notification methods and identifying safe shelter locations for outdoor events and venues.	Lightning	EM Department and Municipal EM	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium	County EM will be developing a regional approach to preparedness campaigns with municipal EM.
Continue public informational outreach campaigns about ice storms on the website, Facebook, and Twitter.	Ice storms	EM Department and Municipal EM	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium	County EM will be developing a regional approach to preparedness campaigns with municipal EM.

Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Provide information to farmers during times of drought.	Extreme Drought	UW-Extension and USDA	Local Staff time and resources	Low	Medium	As needed	Medium	

Amended Table 31

OUTAGAMIE COUNTY MITIGATION STRATEGIES								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Mitigation of critical facilities and infrastructure at risk to flood hazards	River Flooding	Kaukauna Utilities/City of Kaukauna	FEMA BRIC (Building Resilient Infrastructure and Communities)	High	High	Short Term: Completed in 1 to 5 years	High	Kaukauna Utilities and the City of Kaukauna will be relocating and modifying several water supply and treatment facilities currently locating within the floodplain.
Generator installation at community lifelines	Severe Thunderstorms /Strong Wind/Long Term Power Outages	Kaukauna Utilities/City of Kaukauna	FEMA BRIC (Building Resilient Infrastructure and Communities)	Medium	High	Short Term: Completed in 1 to 5 years	High	Backup generation will be installed at all water supply and treatment facilities.
Mitigation of critical facilities and infrastructure at risk from strong winds and tornadoes	Severe Thunderstorms/ Strong Wind/Tornadoes	Kaukauna Utilities/City of Kaukauna	FEMA BRIC (Building Resilient Infrastructure and Communities)	High	High	Short Term: Completed in 1 to 5 years	High	Kaukauna Utilities and the City of Kaukauna will be reconstructing a building at one of the water supply facilities to ensure the building can withstand high winds.

5. PLAN MAINTENANCE

DRAFT PLAN INPUT

The county utilized many methods to share the draft plan and solicit feedback. A draft and ultimately final versions of the Plan have been posted to the public website for public review and comment. Municipalities received a draft plan for their review and for dispersion to their community.

Members of the Planning Team, Outagamie County Emergency Management and Community Emergency Response Team (CERT) shared the draft plan on social media as allowed by their agency policy. Emergency Management completed news releases and interviews along with a presentation to the Multicultural Coalition, Inc. Committee.

All participating jurisdictions have identified continued public outreach as a high-priority initiative for hazard mitigation. Under these initiatives, the County attends various public events during the year which are opportunities to gather ongoing input and may include additional public meetings to further promote awareness of the Plan.

Outagamie County Hazard Mitigation Plan (2023) is an update to the 2017 plan, and will continue to be monitored, evaluated, and updated by the County. Every five years, the plan will be comprehensively reviewed, and fully updated. The update shall involve the collection of the most current data to support the plan and the development of new mitigation strategies and an implementation plan. This planning effort will be comprehensive and will incorporate opportunities for public involvement to meet all requirements of 44 CFR Part 201.6 and/or any applicable requirements or regulations developed over the next five years. Below is list of plan maintenance activities to support the plan for the following five years.

PLAN MAINTENANCE SCHEDULE

Table 32 Required Plan Maintenance Tasks

Requirement	Activity	Responsible Entities	Timeline
Public participation	Annual message to municipalities with BRIC grant opportunities and reviewing the mitigation outreach, planning strategies and priorities	County Emergency Management	September to January timeframe
Public participation	Place on the Public Safety Committee agenda to discuss current efforts on hazard mitigation and seek input	County Emergency Management	Coincide the annual BRIC opportunity (January – September)

Requirement	Activity	Responsible Entities	Timeline
Public participation	Create an annual social media message asking the public to comment on which hazards they are most concerned about in their communities	County Emergency Management	September: National Preparedness month
Plan monitoring	Incorporate the hazard mitigation plan review in the annual Integrated Preparedness Plan (IPP) review process with the municipalities. This planning effort meets once a year and incorporates whole community planning	County Emergency Management with municipalities	September to January
Evaluation and update	Annual meeting of the Hazard Mitigation Planning Team to develop, track, and implement plan changes, along with municipalities check-ins. Also determine effectiveness of plan, such as are goals still relevant or any risks/impacts changed.	Emergency Management, Hazard Mitigation Planning Team with municipalities	September to January
Evaluation and update	Post-disaster After Action Review and Improvement Plan will be developed. EM will collect information concerning the disaster response, recovery, and future mitigation efforts. This information shall be provided to the Hazard Mitigation Planning Team for review. The Hazard Mitigation Planning Team may choose to revise or amend the existing County Hazard Mitigation Plan based on what is learned in the review process.	Emergency Management, Hazard Mitigation Planning Team and applicable municipalities	Three to six months following a significant natural hazard event (as determined by the Outagamie County Emergency Management Director)

The Emergency Management Director will present the completed plan to the County Board for approval. All meetings related to the plan update will be subject to the Wisconsin Open Meeting Law and will be properly noticed to allow for public participation and feedback. All municipalities are strongly encouraged to take part in the process and adopt the updated plan.

The Outagamie County Emergency Management Director will coordinate the next update of the five-year plan. A suggested timeline for the update process is:

- 2024: Begin implementing the plan and secure any remaining adoptions as necessary. Distribute BRIC and other relevant grant funding to county agencies and municipalities.
- 2025: Conduct annual meeting and other plan maintenance activities while tracking progress.
- 2026: Contact Wisconsin Emergency Management to secure funding for the upcoming plan update. Conduct annual meeting and other plan maintenance activities while tracking progress.
- 2027: Begin the planning process, determine the planning lead (or a consultant) and convene planning team.
- 2028: Finalize plan, submit for review, and secure FEMA approval.

For an effective planning process two years should be given from beginning the update process to submit to Wisconsin Emergency Management and FEMA.

6. PLAN ADOPTION

Adoption by the local jurisdictions demonstrates the commitment of Outagamie County and each participating municipality to fulfill the mitigation goals and objectives outlined in the Plan. Adoption shows approval of the Plan and authorizes responsible agencies to execute their responsibilities. For the multi-jurisdictional plan to be approved, each jurisdiction involved must have its governing body adopt it. This applies even when a cross-jurisdiction agency has the authority to prepare plans for the respective jurisdictions.

Once FEMA provides conditional approval of this Plan, each participating jurisdiction can proceed with the formal adoption proceedings. The Plan's conditional approval will be granted to those municipalities that meet the planning requirements, except for the adoption requirement mentioned above. After adopting or taking formal action on the Plan, each participating jurisdiction must submit a copy of the resolution or other legal instrument showing formal adoption (acceptance) of the Plan to Outagamie County Emergency Management. FEMA will send an acknowledgment of verification of formal plan adoption and the official approval of the Plan to county Emergency Management.

Plan development was completed with the adoption of the plan by resolution at the Outagamie County Board meeting on Month XX, 2023.

The FEMA and WEM letters of approval and resolutions issued to support the adoption of the Plan by each jurisdiction are included in Appendix M.

7. APPENDIX

APPENDIX A ACRONYMNS

Abbreviation	Meaning
ATW	Appleton International Airport
AWOS	Automated Weather Observing System
BRIC	Building Resilient Infrastructure and Communities
CERT	Community Emergency Response Team
CAPE	Convective Available Potential Energy
DNR	Department of Natural Resources
DLS	DLS Development & Land Services
ECWRPC	East Central Wisconsin Regional Planning Commission
EM	Emergency Management
ESF	Emergency Support Functions
EAA	Experimental Aircraft Association
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
GIS	Geographic Information Systemss
Haz Mat	Hazardous Materials
HHS	Health and Human Service
HAP	Hmong American Partnership
HIFLD	Homeland Infrastructure Foundation-Level Data
IPAWS	Integrated Public Alert & Warning System
IRC	International Residential Code
NCDC	National Climatic Data Center (NCDC)
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NAWAS	National Warning System
NWS	National Weather Service
NEW	Northeast Wisconsin
QLCS	Quasi-linear convective system
SOCDS	State of the Cities Data Systems
THIRA	Threat and Hazard Identification and Risk Assessment
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
WEM	Wisconsin Emergency Management

APPENDIX B HAZARD MITIGATION PLANNING MEETING AGENDAS & NOTES

OUTAGAMIE COUNTY HAZARD MITIGATION INITIAL MEETING

Outagamie County Emergency Management Office

May 2, 2022 10 am

Hazard Mitigation Purpose & Vision

Requirements of plan

Tracking of each municipality communication

Tracking of committee communication

Public Participation

Tracking time

Other Costs to track

Information needed

Timeline

OUTAGAMIE COUNTY HAZARD MITIGATION INITIAL MEETING

Outagamie County Emergency Management Office

May 24th, 2022 10 am

- Introductions

- Hazard Mitigation Plan: What is it and why update it?

- The Team's Purpose

- Brainstorm: Outreach activities to gather input

- Needed information: Existing plans, studies, and reports

Accommodation Notice:
Any person requiring special accommodation who wishes to attend this meeting should contact the Emergency Management office at 832-5846 at least 48 hours in advance.

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Outagamie County Sheriff's Department

June 13th, 2022 10 am

Public Input on Hazard Perception and Risk

- Possible survey questions
  - Location
  - Hazard most concerned about in future
  - Method of receiving warning messages
  - Experienced a disaster in Outagamie
  - Completed preparedness activities
  - Home or renters insurance

- Survey methods: online survey, face to face or paper

- Survey languages

Accommodation Notice:
Any person requiring special accommodation who wishes to attend this meeting should contact the Emergency Management office at 832-5846 at least 48 hours in advance.

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Outagamie County Highway Department 1313 Holland Road Appleton, WI

August 10th, 2022 10 am

- Welcome and introduction of new guests
- List of participating jurisdictions as of August 9th
- Discuss the draft public participation plan
- Discuss draft resident survey questions

Upcoming steps:

- Finalize resident survey questions with translations
- Begin survey process
- Reviewing and documenting community capabilities
- Risk and vulnerability assessments

Accommodation Notice:
Any person requiring special accommodation who wishes to attend this meeting should contact the Emergency Management office at 832-5846 at least 48 hours in advance.

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Outagamie County Emergency Management Office
320 S. Walnut Street Appleton, WI

September 15th, 2022 at 1 pm

- Welcome and introduction of new guests

- List of participating jurisdictions as of September

- Public survey: update from Emergency Management

- Community capabilities of agencies: any missing information

- Setting up risk and vulnerability assessments: review hazard lists

Upcoming steps:

- Formalize Community Capability overview
- Review risk and vulnerability assessment form
- Conduct local municipality assessment

Accommodation Notice:
Any person requiring special accommodation who wishes to attend this meeting should contact the Emergency Management office at 832-5846 at least 48 hours in advance.

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Appleton Fire Department, Station 6
4930 N. Lightning Drive Appleton, WI

October 20th, 2022 at 1 pm

- Welcome and introduction of new guests

- List of participating jurisdictions as of October

- Updates from Emergency Management

- Complete Risk and Vulnerability Assessment

Upcoming steps:

- Conduct local municipality assessment
- Review local assessments responses
- Develop mitigation strategies

Accommodation Notice:

Any person requiring special accommodation who wishes to attend this meeting should contact the Emergency Management office at 832-5846 at least 48 hours in advance.

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

National Weather Service Green Bay
2485 S Point Rd, Ashwaubenon, WI 54313

December 6th, 2022 at 1 pm

- Welcome and introduction of new guests
- List of participating jurisdictions as of November
- Updates from Emergency Management
- Complete Manmade Risk and Vulnerability Assessment

Upcoming/continuing steps:

- Conduct local municipality assessment
- Review local assessment responses
- Develop mitigation strategies

Accommodation Notice:
Any person requiring special accommodation who wishes to attend this meeting should contact the Emergency Management office at 832-5846 at least 48 hours in advance.

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

~~Grand Chute Fire Department Station #1~~
~~2250 Grand Chute Blvd, Appleton WI 54913~~
Virtual on Zoom (due to weather)

January 19, 2022 at 1 pm

- Welcome and introduction of new guests

- List of participating jurisdictions as of January

- Updates from Emergency Management

- Complete Manmade Risk and Vulnerability Assessment

- Future Weather Impacts on Hazard Risks

Upcoming/continuing steps:

- Continue local municipality assessment
- Review local assessments responses
- Develop mitigation strategies

Accommodation Notice:
Any person requiring special accommodation who wishes to attend this meeting should contact the Emergency Management office at 832-5846 at least 48 hours in advance.

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Virtual

Join Zoom Meeting
https://us02web.zoom.us/j/83556535484?pwd=a0s3VkRvblhhczdjMCtHdVZGNWVmUT09
Meeting ID: 835 5653 5484
Passcode: 122734
Dial by your location
+1 312 626 6799 US (Chicago)
Meeting ID: 835 5653 5484
Find your local number: https://us02web.zoom.us/u/kTpu2c3Z5

February, 23 2023 at 1 pm

- Welcome and introduction of new guests

- List of participating jurisdictions and completed assessments

- Updates from Emergency Management

- Mitigation Strategies

Upcoming/continuing steps:

- Continue local municipality assessment
- Review local assessments responses
- Develop mitigation strategies

Accommodation Notice:

Any person requiring special accommodation who wishes to attend this meeting should contact the Emergency Management office at 832-5846 at least 48 hours in advance.

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Appleton Fire Station #6
4930 N Lightning Dr, Appleton WI 54913
March 23, 2023 at 1 pm

Welcome and introduction of new guests

- Christina Muller, Paula Van De Leygraaf, Melissa Hack, Chrissi Lowery, Sarah Kussow, JP Heim, Cassidy Walsh, Scott Sheppard, Mike Joosten, Dean Steingraber

List of participating jurisdictions and completed assessments

- Christina provided an update to participating jurisdictions and assessments.
- Hortonville and Town of Oneida returned their agreements to participate
- Nichols and Shiocton completed and returned their local assessments

Updates from Emergency Management

- EM and Christina decided to have a deadline of mid-April for municipalities to return agreements and/or assessments. This will allow time to have the Draft Plan ready for review by June 1st, 2023.
- EM is still tracking costs for the local match. If willing, please share your hourly rates to Paula.

Risk Assessment: Locals

- Shared data collected from local municipalities about their top hazards.

New Mitigation Strategies

- Tornado/Severe Thunderstorms/Strong Wind
    - Discussion about backup generators for Highway Shop locations
    - Discussion about Safe Rooms – Appleton School District would be very interested in this
    - WE Energies discussion about tree trimming program

Upcoming/continuing steps:

- Develop mitigation strategies
- Continue local municipality assessment
- Review local assessment responses

Next Meetings:

Thursday, April 13th at 1pm

Location to be determined

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Appleton International Airport
Public Safety Building
W6390 Challenger Dr.
Appleton, WI 54914
April 13, 2023 at 1 pm

- Welcome and introduction of new guests

- List of participating jurisdictions and completed assessments

- Updates from Emergency Management

- New Mitigation Strategies:
    - Winter Storms
    - Flooding
    - Extreme Cold and Excessive Heat
    - Lightning
    - Dense Fog
    - Drought

- Plan Maintenance Procedures

Upcoming/continuing steps:

- Develop mitigation strategies
- Continue local municipality assessment
- Review local assessments responses

Accommodation Notice:
Any person requiring special accommodation who wishes to attend this meeting should contact the Emergency Management office at 832-5846 at least 48 hours in advance.

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Kaukauna Public Library, 207 Thilmany Rd, Board Room

May 11, 2023 at 1 pm

- Welcome and introduction of new guests
- List of completed county and municipal assessments
- Updates from Emergency Management
- Mitigation Plan Goals (Reminder)
  - To **preserve life** and minimize the potential for injuries or death.
  - To preserve and enhance the quality of life throughout Outagamie County by **identifying potential property damage risks and recommending appropriate mitigation strategies** to minimize potential property damage.
  - To promote countywide planning that **avoids transferring the risk** from one community to an adjacent community, where appropriate.
  - To **identify potential funding sources** for mitigation projects and form the basis for FEMA project grant applications.
- Maps completed by Development and Land Services (thank you!)
  - Any additional information needed to depict the social vulnerability and underserved communities
- Plan Maintenance Procedures
  - Monitoring and Evaluation
  - Integration into other plans
- Draft Plan Feedback

Next steps:

- Complete Draft Plan
- Distribute to public and municipalities for input
- Collect feedback and changes

Accommodation Notice:

Any person requiring special accommodation who wishes to attend this meeting should contact the Emergency Management office at 920-832-5846 at least 48 hours in advance.

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Freedom Fire Department - W2400 Schmidt Road, Appleton, WI 54913

September 28, 2023 at 1 pm

- Updates from Emergency Management

- Draft Plan Review

Next steps:

- Provide feedback on the Draft Plan
- Distribute to the public and municipalities for input
- Collect feedback, review, and complete applicable changes

Accommodation Notice:
Any person requiring special accommodation who wishes to attend this meeting should contact the Emergency Management office at 832-5846 at least 48 hours in advance.

OUTAGAMIE COUNTY HAZARD MITIGATION INITIAL MEETING NOTES

Outagamie County Emergency Management Office

May 24th, 2022 10 am

- Introductions/members present:
  Christina Muller, Paula Rieder, Melissa Hackl, Sadie DiNatale Burda, Chris Shea, Cassidy Walsh, Zach Moreau, Dave Pahl, Scott Sheppard, Ryan Carpenter, Greg Baneck, Dean Steingraber, Kurt Kotenberg

- Hazard Mitigation Plan: What is it and why update it?
  - Christina provided hazard mitigation purpose overview re: reducing disaster impacts
  - Team discussed their current practices of trend analysis and mitigation efforts
  - Identified potential types of mitigation projects

- The Team's Purpose
  - Reviewed hazard mitigation plan timeline, FEMA expectations (climate concerns, equity), public outreach strategy and public interest/input, risk assessment process, plan maintenance

- Brainstorm: Outreach activities to gather input
  - Members provided procedures for collecting public input as part of daily operations:
    - Social media (specifically Facebook), direct phone calls, emails, website comment/contact form, follow-up phone calls to solicit feedback, customer satisfaction surveys, individual in-person feedback, input from regular contact with partners (EM, media, coalitions, schools, faith/based organizations, etc.), outreach and training events, other government agencies/departments, local public officials, public hearings, advisory committees
  - Surveys: can we build onto existing processes or platforms/tools? Would members be likely to share survey questions on their existing platforms?
  - Less technology-dependent options: churches, school districts, hospitals, libraries
  - Municipal newsletters, utility payment sites, clerks' offices
  - ADRC meal site/deliveries
  - Existing events (UWEX breakfast on the farm)
  - Quarterly Towns Association meetings

- Discussed public input/survey potential questions and methods:
  - Identified the need to be specific to hazard mitigation
  - Utilize existing THIRA framework (ID hazard, likelihood of occurrence, effects)
  - Identify repetitive damage properties/areas

- Differentiate between need for government intervention/mitigation vs. personal preparedness
- Assess public familiarity and perception of avenues to obtain information or provide feedback
- Analyze historical and response data specific to repetitive hazards (law enforcement calls for service, highway crash data, long-range plans at municipal/county levels)

- Needed information: Existing plans, studies and reports
  - To-do for each member:
    - Identify current plans and historical data to address gaps and capabilities
    - Christina will coordinate with EM to collect this info from each member prior to the next meeting

- Next meeting

  Monday, June 13, 10:00am
  Sheriff's Department
  3030 Goodland, Appleton

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Outagamie County Sheriff's Department

June 13th, 2022 10 am

Introductions & Members Present:

- Christina Muller, Paula Rieder, Melissa Hackl, Chrissi Lowery, Natalie Oostenbrug, Scott Sheppard, Traci Meulemans, Ryan Carpenter, Chris Shea, Zach Moreau, Dave Pahl, Dean Steingraber, Greg Baneck, Mike Stanonik, Kara Homan

Grant Requirements

- 25% has to be matched by the county
  - Usually done by local involvement/volunteer hours
  - Or done by tracking salary/fringe benefits
- Email Paula back which way back which way you prefer

Public Input on Hazard Perception and Risk

- What are the concerns/hazards of the public?
  - How prepared are people for different hazards?
  - This is important because if people know how to do certain things themselves, it will have less strain on responders
- Survey to reach public at large and businesses

Possible survey questions

- Hazard most concerned about in future
  - Flooding - basement/property/saturation of ground & fields (Corp. of Engineers tracks some of this info)
    - Can lead to cascading events
    - Wisconsin is getting wetter - heavier storms, higher frequency
    - Concerns about the fields? Changes in the future?
  - Homelessness & cold
    - Is there affordable/appropriate housing for people
    - Are people able to find safe housing?
    - If they don't have a vehicle, are they able to walk/bus to jobs?
  - Do you rely on public transportation for daily activities?
  - Location will be major factor in what people view as hazards
  - Do you have anyone that is power dependent in your residence?
  - Do you have a generator? Do you have safety training?
  - Would you need to go to a shelter?
  - Do you have safe backup heating for your house?
  - Multiple choice question

        - Which of these would you use for a heat source…
    - DLS/GIS can review survey before sending out to see if answers can be found through other data sources to keep survey shorter
    - What are your top 3 hazards you're concerned about?
    - How are you prepared to mitigate these hazards? What have you done to plan/be prepared?
    - If you were in a long term disaster/power outage, how long would it be before it causes issues for you?
    - Dependency on CPAP/medical equipment needs?
- Method of receiving warning messages
    - Could promote self-registry for AtHoc at end of survey
    - How would you monitor an emergency situation or inclement weather?
    - What is your preferred mode of communication?
- Experienced a disaster in Outagamie
    - Have you ever lived in Outagamie County during an emergency/disaster event?
    - Did you have any unmet needs during that event?
- Completed preparedness activities
    - What preparedness is there for larger scale events for farms?
- Home or renter's insurance
    - Check U.S. Census data for insurance info.
    - Outagamie/Appleton Housing Authority might have renter's insurance info.

Survey methods

- County has Survey123 that can map data
    - Gather respondent municipality data in survey
- Link, webpage, QR code
- Public participation plan will be worked on
- Town's Association meeting - QR code for mailers/flyers
- EM will look at outreach budget to push survey out/incentivize

Next Meeting

Wednesday, August 10th, 2022
10:00am
Highway Department
1313 Holland Rd, Appleton

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Outagamie County Highway Department 1313 Holland Road Appleton, WI

August 10th, 2022 10 am

Introduction & Members Present:

- Christina Muller, Scott Sheppard, Ryan Carpenter, Chris Shea, Cassidy Walsh, Chrissi Lowery, Melissa Hackl, Rob Olson, Paula Van De Leygraaf, Sarah Kussow

List of participating jurisdictions as of August 9th

- Cities
  - Appleton has not sent in participation agreement yet – Christina will follow up
- Villages
  - Nichols only one agreed
  - Will continue to reach out
- Towns
  - Maple Creek declined- still covered by plan
  - Bovina, Buchanan, Dale, Grand Chute, Kaukauna, Osborn, Vandenbroek all agreed

Discussion of the Draft Public Participation Plan

- Purpose: how we make sure we get public input on the plan
  - What does the public perceive as hazards?
- Input from Hmong and Hispanic communities – survey will be translated
- Distribution of survey
  - Online via social media
  - Printed options
  - Local events?
    - Seniors Expo in September - EM
    - DNR does presentations – can do QR code to give out

Discuss draft resident survey questions

- Questions 1,2,3 in draft are required
- Discussion on manmade hazard question – EM will discuss separately
- Broadened the term “home” to include property and business throughout the survey
- Discussion on formatting of questions & question content

Upcoming steps:

- Finalize resident survey questions with translations

    - EM and Christina
- Begin survey process
    - Push out survey in September – end in October
    - EM offering prizes for those that finish the survey & enter to win
        - Emergency Supply Kits
        - Submit survey then prompted to enter contact info/separate entry box for prize
        - The names and surveys are separate – keeps survey anonymous
    - Possible reach out to Multi Cultural community – Christina will follow up
- Reviewing and documenting community capabilities – next meeting

Next Meeting:

Thursday, September 15th, 2022
1pm
Outagamie County EOC
320 S Walnut Street, Appleton

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Outagamie County Emergency Management Office

320 S. Walnut Street Appleton, WI

September 15th, 2022 at 1 pm

Introduction & Members Present

- Christina Muller, Paula Van De Leygraaf, Melissa Hackl, Sarah Kussow, Cassidy Walsh, Rob Olson, Chrissi Lowery, Chris Shea, Scott Sheppard, Kara Homan

List of participating jurisdictions as of September

- Little Chute, Shiocton, Combined Locks completed forms

Public survey: update from Emergency Management

- Hazard Mitigation Public Survey has gone out in English, Spanish and Hmong. Available in person and via social media. As of today, 214 online responses. Briefly reviewed results so far.
- Could try to reach out to rural areas more – via UW Extension Office for farming community & Hmong newsletter or event
- Sarah offered to have paper form go out with technicians to farms
- Mailing might be best option for farmers
- Any agencies that shared the survey, please let Christina, Paula or Melissa know to show the different avenues attempted

Community capabilities of agencies

- New FEMA requirements include building codes and land use – need to include summary statements about where we are at
- Christina, Rob & Kara – look into what level codes there are and what is used & send Christina any potential concerns and/or resources (by 9/29/22)

Setting up risk and vulnerability assessments

- Not many changes to hazards compared to previous plan
- Discussion on natural disasters
    - tornadoes, strong winds, hail, snow events, ice storms, flooding, excessive heat, excessive cold, lightning, dense fog, draught
- Discussion on man-made disasters
    - fire, utility failure, hazardous materials incident, manure spill incidents, public health incidents, mass casualty incidents, aircraft incidents, terrorism/intentional acts of violence incidents, cyber incidents
    - Chris – find data on fires

    - Discussion on keeping man-made disasters in the plan (not required by FEMA)
- Identifying vulnerable populations
    - Homeless, mobile home communities, elderly, access & functional needs, those without personal transportation, low income based, minority groups, those with no generator
- Identifying critical facilities
    - Looked at previous plan list
    - Add water treatment plants, fire based ambulance services, televisions/radar/radio stations, pipeline out take stations, propane delivery/storage, blood center
    - Scott – look into data for stores with generators, confirm number of electric substations
- Natural, Historic, Cultural Resources
    - Can get historic building list from the State
    - Kara & Paula will look into if we can include a number of confidential cultural sites in the county without listing exact locations
- Activities that have value to community
    - Meal sites, farmer's markets, trick or treating, outdoor recreations, parades, Oktoberfest, protests
    - Cassidy can get list of special events for Appleton

Upcoming steps

- Formalize Community Capability overview
- Review risk and vulnerability assessment form
- Conduct local municipality assessment
- Paula attending Towns Association Meeting to explain their role and why the survey results are important

Next Meeting:
Appleton Fire Station #6
Thursday, October 20th 1pm

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING MINUTES

Appleton Fire Department, Station 6

4930 N. Lightning Drive Appleton, WI

October 20th, 2022 at 1 pm

Introduction & Members Present:

- Christina Muller, Paula Van De Leygraaf, Melissa Hackl, Chrissi Lowery, Cassidy Walsh, Chris Shea, Kurt Kotenberg, Sara Kussow, Sadie DiNatale Burda

List of participating jurisdictions as of October

- Responses are still coming in.

Updates from Emergency Management

- Public survey is now closed and all the data has been collected.
    - About 255 online survey responses and about 30 paper copies filled out.
    - Reviewed survey responses with the group.
    - Still want to reach out to Hmong, Hispanic and Agricultural communities.
- Paula attended the Towns Association Meeting on 10-17-22. She presented on The Hazard Mitigation Plan, the importance of it and explained their participation is necessary if they want to do mitigation in the future. Some municipalities had questions and there was good conversation about the Plan.

Complete Risk and Vulnerability Assessment

- Need each municipality & County to answer their rating for each hazard in the Assessment
    - Survey will be sent out to the municipalities
- Planning Team reviewed Hazards Assessment Survey categories
    - Separated “Strong Wind” into its own category
    - Separated “Flash Flooding” and “River Flooding”
    - Added “Bridge/Road Failure”
- Planning Team then discussed each category and gave a rating for natural hazards

Upcoming steps:

- Finish Hazards Assessment Survey – Man Made Hazards
- Conduct local municipality assessment
- Review local assessments responses
- Develop mitigation strategies

Next meeting:

Thursday, November 10th, 2022 1pm (MEETING CANCELLED)
Location TBD

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING MINUTES

National Weather Service Green Bay
2485 S Point Rd, Ashwaubenon, WI 54313
December 6th, 2022 at 1 pm

Welcome and introduction of new guests

- Christina Muller, Kurt Kotenberg, Melissa Hackl, Chrissi Lowery, Cassidy Walsh, Scott Sheppard, Mike Joosten

List of participating jurisdictions as of November

- A few municipalities have already turned in their risk assessments.

Updates from Emergency Management

- Paula talked to Fire Chiefs and they had an interest in vegetation fires (Ellington and Grand Chute). Verbiage is key when it comes to coding for Communications Center and FEMA & a few departments don't have a brush fire truck. Christina & Paula will be working with them for more data and damage costs.
- Kurt – would like to know causes of the vegetation fires & dates of the fires vs weather conditions those days
    - Would need to rely on data for that and the individual reports. Potential mitigation for vegetation fires would be a "buffer" zone for homes.
    - Christina – will look into what municipalities have the ability to issue a fire ban

Reviewed Natural Hazards Assessment

- Natural Hazards are now sorted based on rankings & past occurrence impacts
- Winter Storm & Ice Storm damage data seems low – are there other sources of the data?
    - Vehicle damage
    - Loss of business
    - Power line damage
    - Kurt will look into dates of storms – Scott will look into their costs during those dates

Complete Manmade Risk and Vulnerability Assessment

- Planning Team discussed and gave ranking to manmade risks categories – will need to finish these at next meeting

Next Meeting:
January 19th, 2023
1pm

Location: TBD

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Virtual Meeting (due to weather)
January 19, 2022 at 1 pm

Introduction & Members Present

Christina Muller, Paula Van De Leygraaf, Melissa Hackl, Sarah Kussow, Cassidy Walsh, Chris Shea, Jim Bentle, Scott Sheppard, Kurt Kotenberg, and Emma Dziengeleski

List of participating jurisdictions as of January

Hazard & Capability: Appleton, Kimberly, Bovina, Cicero, Grand Chute, Vandenbroek

Updates from Emergency Management

EM and the consultant met with the Ellington Fire Department to discuss rural fire department concerns with vegetation fires in the county. Also discussed were the strategies to reduce the risk of peat moss fires in Bubolz Preserve and northern portions of the county. Christina will contact WEM regarding potential funding avenues for these mitigation strategies.

Complete Manmade Risk and Vulnerability Assessment

The Planning Team discussed and gave ranking to manmade risks categories.

Future Weather Impacts on Hazard Risks

Christina provided data and maps depicting potential weather trends and their impacts on natural disasters. These graphics will be used in the plan. Kurt (National Weather Service) provided additional details explaining the trends.

Upcoming/continuing steps:

- Continue local municipality assessment
- Review local assessment responses
- Develop mitigation strategies

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Virtual Meeting (due to weather)
February 23, 2023 at 1 pm

Introduction & Members Present

- Christina Muller, Paula Van De Leygraaf, Melissa Hackl, Sarah Kussow, Cassidy Walsh, Rob Olson, Chris Shea, Scott Sheppard, Mike Joosten, JP Heim, Amie Bastian, Tracey Froiland, Kurt Kotenberg

List of participating jurisdictions

- Village of Black Creek

Communities with completed Risk Assessment and Capability Forms

- City of Appleton
- City of Kaukauna
- City of Seymour
- Village of Kimberly
- Town of Liberty
- Town of Grand Chute
- Town of Cicero
- Town of Bovina
- Town of Vandenbroek

Bubolz Nature Preserve wildfire concern. Christina reached out to Wisconsin Emergency Management (WEM) about hazard mitigation assistance available to address this concern. WEM did advise that Bubolz should be listed in the Outagamie Hazard Mitigation Plan in the event BRIC or HMGP funding becomes available. WEM also directed us to look to WI DNR for possible programs. WEM reached out to FEMA for other possible funding sources and did provide us a document that we will share with the local jurisdiction on other funding opportunities to mitigate this risk.

Planning Team reviewed the Mitigation Strategies that were identified in the 2017 update of the Outagamie County Hazard Mitigation Plan. Several of the strategies will be removed as they are no longer relevant including those regarding sirens. Outagamie County no longer owns the sirens. The sirens are owned and maintained by local municipalities.

EM would like to focus on outreach, weather radio deliver, safe rooms and working with local EM's that have manufactured home parks in their communities. Outagamie Public Health also does inspections with manufactured home parks and this would be another opportunity for preparedness education.

City of Appleton is researching funds to help build a storm shelter at USA Sports Complex.

WE Energies, Outagamie County Public Health, Outagamie County Aging and Long Term Support do a lot of outreach with regards to extreme heat, extreme cold and power outages. OC ALTS does reach out to high risk clients directly during these weather events.

Paula will reach out to OC Maintenance and municipalities to see if they maintain backup generators and complete testing on a regular basis.

Upcoming steps

- Continue to review and update mitigation strategies from 2017 plan
- Review municipal assessment results

Next meeting:
Thursday, March 23, 2023 at 1 pm
Location to be determined

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Appleton Fire Station #6
4930 N Lightning Dr, Appleton WI 54913
March 23, 2023 at 1 pm

Welcome and introduction of new guests

- Christina Muller, Paula Van De Leygraaf, Melissa Hack, Chrissi Lowery, Sarah Kussow, JP Heim, Cassidy Walsh, Scott Sheppard, Mike Joosten, Dean Steingraber

List of participating jurisdictions and completed assessments

- Christina provided an update to participating jurisdictions and assessments.
- Hortonville and Town of Oneida returned their agreements to participate
- Nichols and Shiocton completed and returned their local assessments

Updates from Emergency Management

- EM and Christina decided to have a deadline of mid-April for municipalities to return agreements and/or assessments. This will allow time to have the Draft Plan ready for review by June 1st, 2023.
- EM is still tracking costs for the local match. If willing, please share your hourly rates to Paula.

Risk Assessment: Locals

- Shared data collected from local municipalities about their top hazards.

New Mitigation Strategies

- Tornado/Severe Thunderstorms/Strong Wind
    - Discussion about backup generators for Highway Shop locations
    - Discussion about Safe Rooms – Appleton School District would be very interested in this
    - WE Energies discussion about tree trimming program

Upcoming/continuing steps:

- Develop mitigation strategies
- Continue local municipality assessment
- Review local assessments responses

Next Meetings:
Thursday, April 13th at 1pm
Location to be determined

Thursday, May 11th at 1pm (if needed)

Location to be determined

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Appleton International Airport
Public Safety Building
W6390 Challenger Dr.
Appleton, WI 54914
April 13, 2023 at 1 pm

Welcome and introduction of new guests

- Chrissi Lowery, Melissa Hackl, JP Heim, Paula Van De Leygraaf, Scott Sheppard, Amie Bastian, Cassidy Walsh, Mike Joosten, Christina Muller

List of participating jurisdictions and completed assessments

- Seymour has responded and will be submitting their documents
- GIS is working on maps that depict flood areas and critical facilities
- Final email was sent to municipalities to complete documents by 4/30/23
- Draft plan will be sent to group by June

Updates from Emergency Management

- Paula has been tracking costs for in-kind match – has county employee payroll information, about halfway to $8300 local match, still have data to collect from local municipalities and most recent highway work
    - Christina has meeting with Appleton soon – those hours can county too

New Mitigation Strategies:

- Reviewed strategies submitted by Highway Department
    - Good example of what agencies have to do no matter what (because the public relies on it)– that is what we need a mitigation strategy for
- Discussed underserved communities, socially or financially vulnerable populations
    - Sometimes they don't seek out help due to different reasons
    - Mitigation strategies should address these groups and help them "bounce back"
    - Can show what we are currently doing and what we want to do to help these groups
    - There is funding for day-to-day long term support clients, not specifically disasters
    - Amie talked about current programs that help children that need long-term support and rely on powered devices
    - JP and Paula talked about a project currently working on to reach out to home health providers about educating clients about preparedness
        - Scott said they also share this message

- Discussed mitigation strategies for:
  - Winter Storms
  - Flooding
    - Shiocton flooding – discussion with EM/NWS/Shiocton about different levels and how official perception and resident perception of the situation vary
  - Extreme Cold and Excessive Heat
    - Transportation routes for those without transportation
    - Valley Transit-has voucher system and offer elderly/disabled reduced rates
  - Lightning
    - NWS Lightning Safe Zone Campaign – Christina will look into this
  - Dense Fog
  - Drought
    - Appleton FD Chief provided some ongoing mitigation strategies for this

Plan Maintenance Procedures

- Have some options:
  - Build it into the Integrated Preparedness Plan
    - Whole community planning, meets once a year to review the plan
  - HMEP Grants for after disaster – develop project idea and wait until disaster happens, then apply for mitigation projects
  - BRIC Grants application period is September-January, January-September state reviews, following September they decide who gets what – align mitigation projects with that

Upcoming/continuing steps:

- Finalize Plan Maintenance Procedures
- Review Draft Plan

Next Meeting:
Thursday, May 11th at 1pm
Location TBD

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING
Kaukauna Public Library, 207 Thilmany Rd, Board Room
May 11, 2023 at 1 pm

- Welcome and introduction of new guests
  Sadie DiNatale Burda, Chrissi Lowery, Chris Shea, Melissa Hackl, JP Heim, Cassidy Walsh and Christina Muller

- List of completed county and municipal assessments
  - Cities and villages are a main priority for return of their strategies
  - Capability and hazard assessments did have an excellent return from municipalities
- Updates from Emergency Management
  - EM received some mitigation-related feedback during recent Integrated Preparedness Plan (IPP) workshops – will check to see if information from there can be used to supplement the municipal mitigation strategies
- Mitigation Plan Goals (Reminder)
  - To preserve life and minimize the potential for injuries or death.
  - To preserve and enhance the quality of life throughout Outagamie County by identifying potential property damage risks and recommending appropriate mitigation strategies to minimize potential property damage.
  - To promote countywide planning that avoids transferring the risk from one community to an adjacent community, where appropriate.
  - To identify potential funding sources for mitigation projects and form the basis for FEMA project grant applications.
    - Christina summarized available grant funding opportunities that could be used to achieve this objective

- Maps completed by Development and Land Services (thank you!)
  - Any additional information needed to depict the social vulnerability and underserved communities
    - Discussed transition in undeveloped areas to residential, recreational, etc. use
    - Development and Land Services will provide a future/projected land use map for mitigation planning
    - Reviewed differing municipality sentiments toward development and urbanization

        - Floodplain mapping and ordinance review and discussion – revisions to floodplain ordinances will result from new mapping process
        - Reviewed improved parcels located within floodplain areas county-wide
        - Discussed definitions, inclusion of “critical facilities”
        - Consider improvements to the dam mapping to clarify hazard potential
        - Add income-based housing aggregate data to “critical facilities” list (recovery considerations)

- Plan Maintenance Procedures
    - Monitoring and Evaluation
        - Discussed bringing together the mitigation planning team for annual review
        - City of Appleton will meet twice a year to discuss mitigation

    - Integration into other plans

- Draft Plan Feedback

  Next steps:
    - Complete Draft Plan (June)
    - Distribute to public and municipalities for input (July)
    - Collect feedback and changes

Next meeting
        - TBD

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Freedom Fire Department - W2400 Schmidt Road, Appleton, WI 54913

September 28, 2023 at 1 pm

Welcome and Introductions

- Christina Muller, Paula Van De Leygraaf, Melissa Hackl, Chrissi Lowery, Cassidy Walsh, JP Heim, Kurt Kotenberg, Scott Sheppard, Amie Bastian, Phil Kurimksi

Updates from Emergency Management

- Paula presented the Draft Plan before the Public Safety Committee at the County for review. Will be posting the plan online and once we have comments and edits, we will submit it to FEMA.
- EM appreciates all participants for this time and work on this Plan update.

Draft Plan Review & Update from Christina

- Thank you to all for looking at the plan and providing feedback.
- Some highlights from the plan:
    - Focus on vulnerable populations – defined based on the community (Outagamie County vulnerable populations are different from other counties)
        - Page 43 has a map that shows underserved, unserved and served populations based on internet/cell connections – communications after a disaster could be difficult for these populations – multiple methods of notifications necessary
    - Building codes
        - Page 44 – discussion about Wisconsin codes and the Uniform Dwelling Code – considers wind speed and special buildings (schools, nursing homes, etc.), standards are different in Wisconsin vs International Building Code – not bad, just something to be aware of. People need homes, but Wisconsin requirements are less than IBC. Discussion about when WI implanted this Code and what was considered “safe” now versus 20+ years ago.
        - Wind Zone Map
            - Wisconsin is in Zone 4. Zone 4 is the area for design wind speeds up to 250 mph wind speeds for tornado and storm shelters.
        - Page 56 – Water Storage Capacity in the Fox River

        - Shows acres needed for storage of a 2-year rainfall event – how much can it really hold?
        - As development continues, this needs to be taken into consideration. Discussion about green spaces and storm drains, storm water gardens, time of year, etc.
    - Mitigation Strategies
        - Reviewed River Flooding additions by Land Conservation
        - Scott has data for long-term power outages – will get it to Christina
        - JP has input for Public Health – will send to Christina & Paula
    - Public Survey Results
        - Gave a good view of what the public views as concerns/hazards
        - Top public concern is shelter if primary home was damaged
            - EM has opened shelters in past and people only showed up to charge phones. Discussion about why that is (communication, area of damage, definition of shelter, etc.)
        - Discussion on 2nd public concern is clean up from storm damage
            - Outagamie area is quick to clean up & resilient when it comes to power outages compared to more populated areas.
            - Might be worth pulling in insurance companies/data for next plan update

Discussion

- Plan has to be posted publicly for 30 days & reach out to underserved populations. Discussion on posting methods:
    - Link on County website
    - School districts newsletters
    - Multi-Cultural Committee Meeting – next meeting October 10th, 2023
    - Paper copy in Seymour library
    - Feedback method – send to ocem@outagamie.org email
- Distribution of final plan
    - Via email, download and offer flash drives of plan
- Implementation of Plan
    - Discussed Plan Maintenance Schedule – starting on Page 130
        - Continually discuss this Plan, mitigation, grant opportunities throughout the year through various methods

Next steps:

- Provide feedback on the Draft Plan
- Distribute to the public and municipalities for input
- Collect feedback, review, and complete applicable changes

APPENDIX C HAZARD MITIGATION PLANNING MEETING SIGN-IN SHEETS

OUTAGAMIE COUTY HAZARD MITIGATION INITIAL MEETING

Outagamie County Emergency Management Office

May 2, 2022 10 am

NAME	ORGANIZATION	POSITION	EMAIL
Paula Rieder	Outagamie Co EM	Director	paula.rieder@outagamie.org
Chrissi Lowery	Outagamie Co EM	EM Specialist	chrissi.lowery@outagamie.org
MELISSA HACKL	OUTAGAMIE CO. EM	DEPUTY DIRECTOR	MELISSA.HACKL@OUTAGAMIE.ORG
ChristinaMuller	Emerga LLC	Consultant	christinammuller@icloud.com

OUTAGAMIE COUTY HAZARD MITIGATION INITIAL MEETING

Outagamie County Emergency Management Office

May 24, 2022 at 10 am

NAME	ORGANIZATION	POSITION	EMAIL
Paula Rieder	Outagamie EM	Director	paula.rieder@outagamie.org
MELISSA HACKL	OUTAGAMIE EM	DEPUTY DIRECTOR	MELISSA.HACKL@OUTAGAMIE.ORG
Sadie DiNatale Burda	Outagamie DLS	Principal Planner	sadie.dinataleburda@outagamie.org
Chris Shea	WI-DNR		Christopher.Shea@wisconsin.gov
Cassidy Walsh	Appleton	EM coordinator	cassidy.walsh@appleton.org
Zach Moureau	Kaukauna Utilities	Compliance Manager	zmoureau@ku-wi.org
Dave Pahl	" "	MGR. Gen. & Sub	dpahl@ku-wi.org
Scott Sheppard	We Energies	Local/Gov Affairs	scott.sheppard@wecenergygroup.com
Christina Miller	Emergy	Consultant	emergallc@gmail.com
RYAN CARPENTER	SHERIFF	CAPTAIN	RYAN.CARPENTER@OUTAGAMIE.ORG
DEAN STEINGRABER	O.C. HIGHWAY	COMMISSIONER	DEAN.STEINGRABER@OUTAGAMIE.ORG
Kurt Kotenberg	National Weather Service	Warning Coordination Meteorologist	Kurt.Kotenberg@noaa.gov
Greg Baneck	Outagamie Land Conservation Dept	County Conservationist/Dir.	greg.baneck@outamie.org

OUTAGAMIE COUTY HAZARD MITIGATION INITIAL MEETING

Outagamie County Emergency Management Office

Date: JUNE 13, 2022

NAME	ORGANIZATION	POSITION	EMAIL
MELISSA HACKL	OUTAGAMIE E.M.	DEPUTY DIRECTOR	MELISSA.HACKL@OUTAGAMIE.ORG
Chrissi Lavery	Outagamie EM	EM Specialist	chrissi.lavery@outagamie.org
Traci Meulemans	OC DLS	GIS Specialist	Traci.Meulemans@outagamie.org
RYAN CARPENTER	SHERIFF	CAPTAIN	RYAN.CARPENTER@OUTAGAMIE.ORG
Chris Shea	DNR	Lt.	christopher.shea@wisconsin.gov
Zach Moureau	Kaukauna Utilities	Compliance Manager	Zmoureau@Kurwi.org
Dave Pahl	Kaukauna Utilities	Mgr Generation & Substation	dpahl@ KU-wi.org
DEAN STEINGRABER	OUTAGAMIE CO. HWY DEPT.	HWY COMMISSIONER	DEAN.STEINGRABER@OUTAMIE.ORG
Greg Banuck	Outagamie Land Conservation	Director/Co. Conservationist	greg.banuck@outagamie.org
Mike Stanonik	City of Appton Public Wk	Safety/Operations	michael.Stanonik@appleton.org
Kara Homan	OC DLS	DLS Director	kara.homan@outagamie.org
Paula Rieder	OCEM	Director EM	paula.rieder@outagamie
Natalie Oostenbrug	Outagamie County	DEI Officer	natalie.oostenbrug@outagamie.org
Scott Sheppard	We Energies	Local/Gov Affairs	Scott.sheppard@weenergygroup.com
Christina Mueller	Emergen	Consultant	christinamueller@icloud.com

OUTAGAMIE COUTY HAZARD MITIGATION INITIAL MEETING

Outagamie County Emergency Management Office

Date: August 10, 2022

NAME	ORGANIZATION	POSITION	EMAIL
RYAN CARPENTER	OUTAGAMIE S.O.	CAPTAIN	RYAN.CARPENTER@OUTAGAMIE.ORG
Cassidy Walsh	Appleton EM	EM coordinator	cassidy.walsh@appleton.org
Chris Shea	DNR	Lt.	Christopher.Shea@wisconsin.gov
Scott Sheppard	We Energies	Local/Gov Affairs	Scott.Sheppard@wecenergygroup.com
Chrissi Lowery	Outagamie EM	EM Specialist	chrissi.lowery@outagamie.org
MELISSA HACKL	OCEM	PROGRAM MGR.	MELISSA.HACKL@OUTAGAMIE.ORG
Bob Olson	OCEM	EM Spec	Robert.Olson@outagam
Paula Vandeleygraaf	OCEM	OCEM Director	paula.vandeleygraaf@
Sarah Kussow	LCD	watershed planner	sarah.kussow@outagamie.org
Christina Mulke	Emerg	Consultant	emer.gall@gmail.com

Hazard Mitigation Plan Meeting
September 15th, 2022
1pm
County EOC

Name	Agency
Paula VanDeleygraaf	OCEM
MELISSA HACKL	OCEM
Cassidy Walsh	Appleton
Rob Olson	OCEM
Chrissi Lowery	OCEM
Chris Shea	DNR
Scott Sheppard	We Energies
Christina Muller	Emerg.
Sarah Kussow	OC Land Conservation
Kara Homan	OC DCS

OUTAGAMIE COUTY HAZARD MITIGATION INITIAL MEETING

Outagamie County Emergency Management Office

Date: October 20, 2022

NAME	ORGANIZATION	~~POSITION~~	~~EMAIL~~
Christine Muller	Emerge LLC		
MELISSA HACKL	OCEM		
Chrissi Lowery	OCEM		
Sadie DiNatale Burda	outagamie CO - DLS		
Chris Shea	DNR		
Sarah Kussow	Outagamie CCD		
Kurt Kotenberg	NWS - Green Bay, WI		
Cassidy Walsh	Appleton		
Paula VanDeleygraaf	OCEM		

OUTAGAMIE COUTY HAZARD MITIGATION INITIAL MEETING

Outagamie County Emergency Management Office

Date: 12/6/22

Name	agency	email
Christina Muller	Emerga LLC	emergallc@gmail.com
Kurt Kotenberg	NWS Green Bay	Kurt.Kotenberg@noaa.gov
Melissa Hackl	OCEM	MELISSA.HACKL@OUTAGAMIE.ORG
Chrissi Lowery	OCEM	Chrissi.lowery@outagamie.org
Mike Joosten	OC Highway	michael.joosten@outagamie.org
Scott Sheppard	We Energies/WPS	scott.sheppard@wecenergygroup.com
Cassidy Walsh	Appleton EM	cassidy.walsh@appleton.org

OUTAGAMIE COUTY HAZARD MITIGATION INITIAL MEETING

Outagamie County Emergency Management Office

Date: 1/9/23

NAME	ORGANIZATION	POSITION	EMAIL
Rob Olson	OCEM		
Rick Buser	Ellington Fire Dept.		
Jim Bentle	ELLINGTON FIRE		JBentle@NMFIRE.ORG
Christina Muller	Emerga LLC		

OUTAGAMIE COUTY HAZARD MITIGATION MEETING

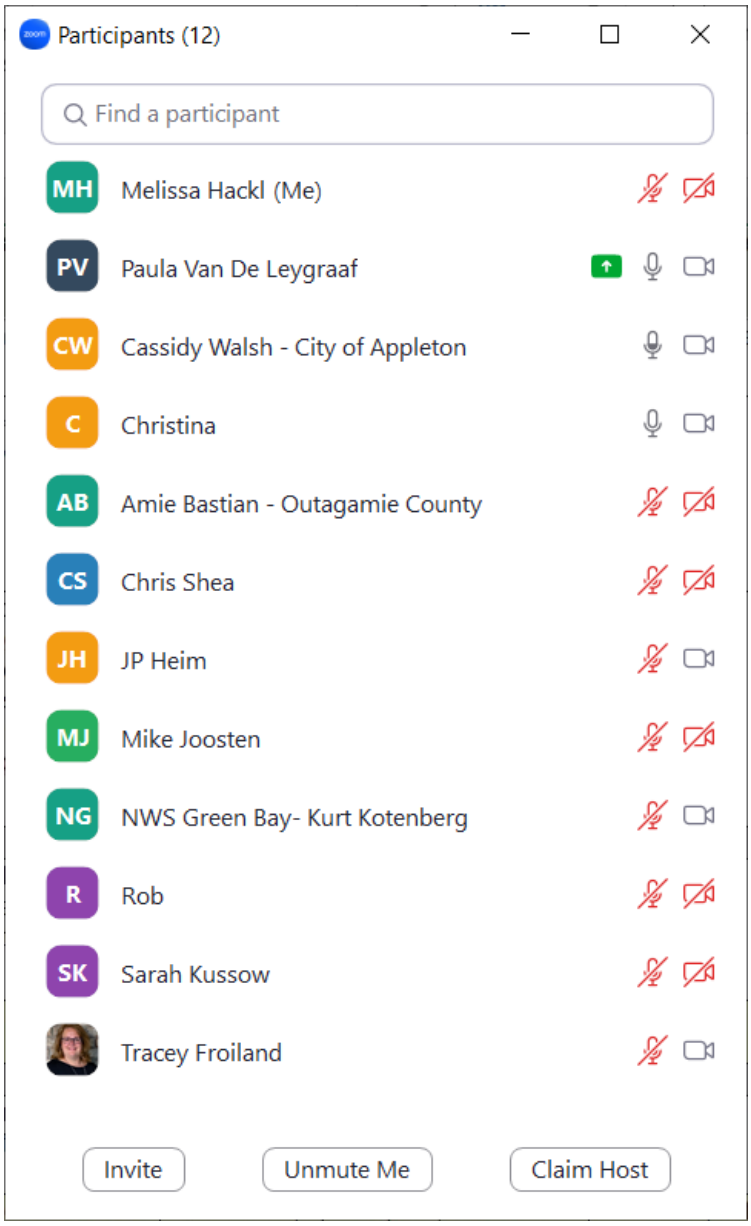
Outagamie County Emergency Management Office

Date: 1-19-23

OUTAGAMIE COUTY HAZARD MITIGATION MEETING

Outagamie County Emergency Management Office

Date: 2-23-23



Scott Shepherd, We Energies

OUTAGAMIE COUTY HAZARD MITIGATION INITIAL MEETING

Outagamie County Emergency Management Office

Date: 3-23-23

NAME	ORGANIZATION	POSITION	EMAIL
Chrissi Lowery	Outagamie EM	EM Specialist	chrissi.lowery@outagamie.org
MELISSA HACKL	OCEM	DEPUTY DIR.	MELISSA.HACKL@OUTAGAMIE.ORG
JPHein	OCPH	Emergency Preparedness Planner	jp.hein@outagamie.org
Sarah Kussow	Outagamie LCD	Watershed Planner/ GIS Specialist	Sarah.Kussow@outagamie.org
Paula VanDeleygraaf	OCEM	EM Director	paula.vandeleygraaf@outagamie.or
Cassidy Walsh	CoA	EM Coordinator	cassidy.walsh@appleton.org
Scott Sheppard	We Energies	Gov. Affairs Rep	scott.sheppard@wecenergygroup.com
Mike Joosten	Outagamie Highway	Engineering Tech.	Michael.joosten@outagamie.org
DEAN STEINGRABER	OUTAGAMIE COUNTY HIGHWAY DEPARTMENT	HIGHWAY COMMISSIONER	DEAN.STEINGRABER@OUTAGAMIE.ORG
Christine [illegible]	Emergia LLC	Consultant	@emergiallc@gmail.com

OUTAGAMIE COUTY HAZARD MITIGATION MEETING

Location: Kaukauna Public Library

Date: May 11, 2023

NAME	ORGANIZATION	POSITION	EMAIL
Sadie DiNatale Burda	outagamie co. DLS	Principal Planner	Sadie.dinataleburda @outagamie.org
Chrissi Lowery	Outagamie EM	EM Specialist	chrissi.lowery@outagamie.org
Chris Shea	WI DNR	Lt.	Christopher.shea@wi.gov
MELISSA HACKL	OCEM	PROGRAM MGR.	MELISSA.HACKL@OUTAGAMIE.ORG
JP Heim	OCPH	EMERGENCY PREP PLANNER	
Cassidy Walsh	Appleton EM	EM Coordinator	cassidy.walsh@appleton.org

OUTAGAMIE COUTY HAZARD MITIGATION MEETING

Outagamie County Emergency Management Office

Date: 4/13/23

NAME	ORGANIZATION	POSITION	EMAIL
Amie Bastian	OC HHS	Manager	amie.bastian@outagamie.org
Scott Sheppard	We Energies	Local/Gov Affairs	Scott.Sheppard@wecenergygroup.com
Paula VanDeleygraaf	OCEM	Director	
JP Heim	OCPH	PREPAREDNESS PLANNER	
MELISSA HACKL	OCEM	DEPUTY DIRECTOR	@OUTAGAMIE.ORG
Chrissi Lowery	OCEM	EM Specialist	Chrissi.lowery@outagamie.org
Cassidy Walsh	CoA EM	EM Coordinator	cassidy.walshe appleton.org
Mike Joosten	OC Highway	Eng. Tech.	michael.joosten@outagamie.org
Christina Muller	Emergen	Consultant	emergall@gmail.com

OUTAGAMIE COUNTY HAZARD MITIGATION MEETING

Location: Freedom Fire Dept

Date: 9-28-23

NAME	ORGANIZATION	EMAIL
Kurt Kotenberg	NWS	Kurt.Kotenberg@noaa.gov
Phil Kurimski	NWS	Phil.Kurimski@noaa.gov
JP Hein	OCPH	jpheim@outagamie.org
Scott Shappard	We Energies	scott.shappard@weenergygroup.com
Amie Bastian	OCHHS - ALTS	amie.bastian@outagamie.org
Chrissi Lowery	OC EM	chrissi.lowery@outagamie.org
Cassidy Walsh	Appleton EM	cassidy.walsh@appleton.org
Paula VanDeleygraaf	OCEM	paula.vandeleygraaf@outagamie.org
MELISSA HACKL	OCEM	MELISSA.HACKL@OUTAGAMIE-CO.G
Christine Muller	Emerga	

APPENDIX D MUNICIPAL HAZARD MITIGATION PLAN UPDATE HANDOUT

HAZARD MITIGATION PLANNING INFO SHEET

What is hazard mitigation?

A community participating in hazard mitigation takes action to reduce their harm from natural disasters. By being pro-active instead of reactive, your community can solve problems caused by natural disasters. During the planning process, mitigation strategies are created based on the jurisdiction's risk. Examples are constructing safe rooms and widening culverts prone to flooding.

Why spend time on hazard mitigation?

The result of this planning process is a hazard mitigation plan. A FEMA approved local mitigation plan is a requirement for hazard mitigation disaster assistance. A funding request can be submitted based on a project proposal from one of the plans mitigation strategies.

What is my role?

Your role in the community allows you to provide important feedback. No one knows the community better, your input in this process is vital.

What are my next steps?

- Complete the Participation Agreement
- Share public surveys on social media
- Answer municipality surveys in a timely manner
- Complete provided forms to track your time
- Review and provide feedback to the draft plan
- Adopt the final Hazard Mitigation plan

Questions? Email or call Paula Van De Leygraaf,
Outagamie County Emergency Management Director at
paula.vandeleygraaf@outagamie.org or 920-832-6361.

Designed by Emerga, LLC

APPENDIX E OUTREACH PLAN AND NEWS RELEASE

APPENDIX: OUTAGAMIE COUNTY HAZARD MITIGATION OUTREACH PLAN

Goal: To solicit public input on hazards perception, concerns, and preparedness. Along with required general public input, resources are allocated to solicit input from these community groups:

- Hmong community
- Hispanic/Latino community

Surveys will gather the person's perception of:

- Greatest hazards of concern
- Protective actions to undertake
- Area of focus for mitigation efforts

In accordance with the Local Mitigation Planning Policy Guide FP 206-21-0002, the sectors (see below) involved with mitigation responsibilities were invited into the planning process. Also, agencies involved in community lifelines as listed in FEMA's Community Lifelines Implementation Toolkit 2.0 are incorporated into the planning process as well.

Sector	Planning Team Participation	Additional Information Requested
Emergency management	Outagamie Co. Emergency Management Oneida Nation Emergency Management	
Economic development	Outagamie County Development and Land Services	Fox Cities Regional Partnership Local Chamber of Commerce (on website)
Land use and development	Outagamie County Development and Land Services	
Housing	Outagamie County Development and Land Services	Appleton Housing Authority (provided)
Health and Social Services	Appleton Public Health Leaven	
Infrastructure (with relevant community lifelines)	See below	
Natural and cultural resources	WI DNR Outagamie County Land Conservation	Hmong American Partnership (provided) Casa Hispana (contacted)

APPENDIX: OUTAGAMIE COUNTY HAZARD MITIGATION OUTREACH PLAN

Community Lifeline	Planning Team Participation	Potential Information Outreach
Safety and Security	Outagamie County Sheriff Greenville Fire & EMS Freedom Fire Department	
Food, Water, Shelter	Outagamie County Emergency Management (CERT) Outagamie County Land Conservation (Animals & Agriculture) WI DNR (Animals & Agriculture)	Appleton Utilities: Water Treatment and Wastewater American Red Cross: Sheltering Salvation Army: Food bank
Health and Medical	Appleton Public Health Outagamie County Health & Human Services	Fox Valley HERC: Medical Care, Patient Care, and Medical Supply Chain
Energy	We Energies: Electric & Gas Kaukauna Utilities	
Communications	National Weather Service (NAWAS & NOAA Weather Radio) Outagamie County Sheriff (Dispatch) Outagamie County Emergency Management (IPAWS, AtHoc and Outdoor Warning System)	Broadcast: TV and Radio
Transportation	Outagamie County Highway Appleton Public Works	
Hazardous Material	Outagamie County Emergency Management	County HazMat Team

An online survey with a printed option, will be distributed through the following methods:

- Posting of the survey to all jurisdictions in Outagamie County for their website, social media account, and newsletters
- News release and subsequent media outreach
- Printed survey available at municipal buildings, libraries, and county offices (such as ADRC and Veterans)
- Upcoming community events/partners:
    - Hmong American Partnership
    - Fire Safety Days
- Requesting planning team members to identify other partner agencies

September 1, 2022

FOR IMMEDIATE RELEASE

Contact: **Paula Van De Leygraaf**
Emergency Management Director
Office: (920) 832-6361
paula.vandeleygraaf@outagamie.org

OUTAGAMIE COUNTY SEEKS PUBLIC INPUT FOR HAZARD MITIGATION PLAN

APPLETON – Outagamie County is working with community members to update the County's Hazard Mitigation Plan. Hazard mitigation is taking action to reduce or eliminate risk to life or property from hazardous events. We are asking for Outagamie County residents or business owners to take a brief survey about their hazard concerns and current preparedness knowledge. The survey will be open during the month of September, which is also National Preparedness Month.

The Planning Team will be offering weekly drawings for those who participate in the survey. There will be two winners each week during the month of September. Prizes will include emergency preparedness kits and emergency kits for your vehicle.

Click here to complete the brief survey, link to the survey.

The survey will also be available in paper form at the following locations:
Muehl Public Library, 436 N Main Street, Seymour
Hortonville Public Library, 531 N Nash Street, Hortonville
Appleton Public Library, 2411 S Kensington Drive, Appleton
Outagamie COVID-19 Community Vaccination Clinic, 4629 W Michaels Drive, Appleton
Outagamie County Government Center, 320 S Walnut Street, Appleton (Veterans, ADRC, Public Health and Economic/Child Support Divisions)

For more information on the Outagamie County Hazard Mitigation Plan, contact the Outagamie County Emergency Management office at 920-832-6361 or you can click on the link to view the current plan Outagamie County Hazard Mitigation Plan.

For more information, follow Outagamie County Emergency Management
https://www.facebook.com/outagamiecoem
https://twitter.com/OutagamieEM

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October 10, 2023

FOR IMMEDIATE RELEASE

Contact: **Paula Van De Leygraaf**
Emergency Management Director
Office: (920) 832-6361
paula.vandeleygraaf@outagamie.org

OUTAGAMIE COUNTY SEEKS PUBLIC INPUT ON HAZARD MITIGATION DRAFT PLAN

APPLETON – Outagamie County is working with community members to update the County's Hazard Mitigation Plan. Hazard mitigation is taking action to reduce or eliminate risk to life or property from hazardous events. The plan focuses on the hazards, risks and vulnerabilities of our community and what steps we can take to mitigate or reduce the impacts from those hazards. We are asking for Outagamie County residents or business owners to review the draft plan and provide their input. The draft plan will be available for public comment for the next 30 days.

Click here to review the draft plan, Review Plan

Click here to provide community feedback, Provide Feedback

If you would like a paper copy of the draft plan, please email ocem@outagamie.org with your request.

For more information on the Outagamie County Hazard Mitigation Plan, contact the Outagamie County Emergency Management office at 920-832-6361 or you can click on the link to view the current plan Outagamie County Hazard Mitigation Plan.

For more information, follow Outagamie County Emergency Management
https://www.facebook.com/outagamiecoem
https://twitter.com/OutagamieEM

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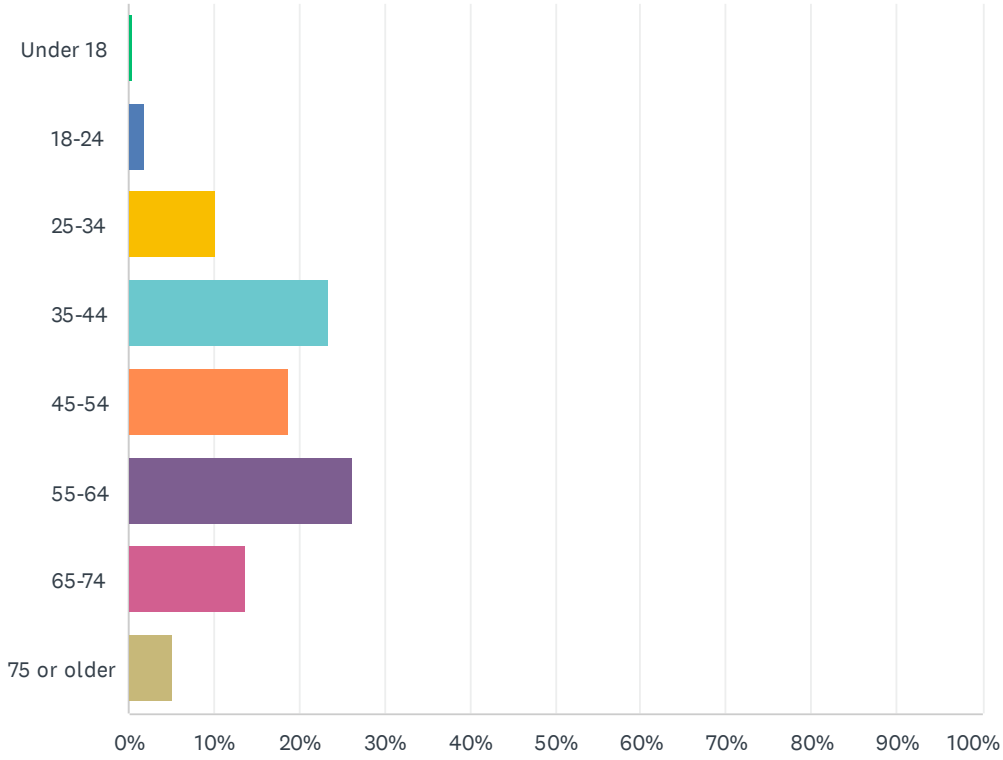
APPENDIX F SURVEY QUESTIONS AND RESULTS

Q1 Please select your age:

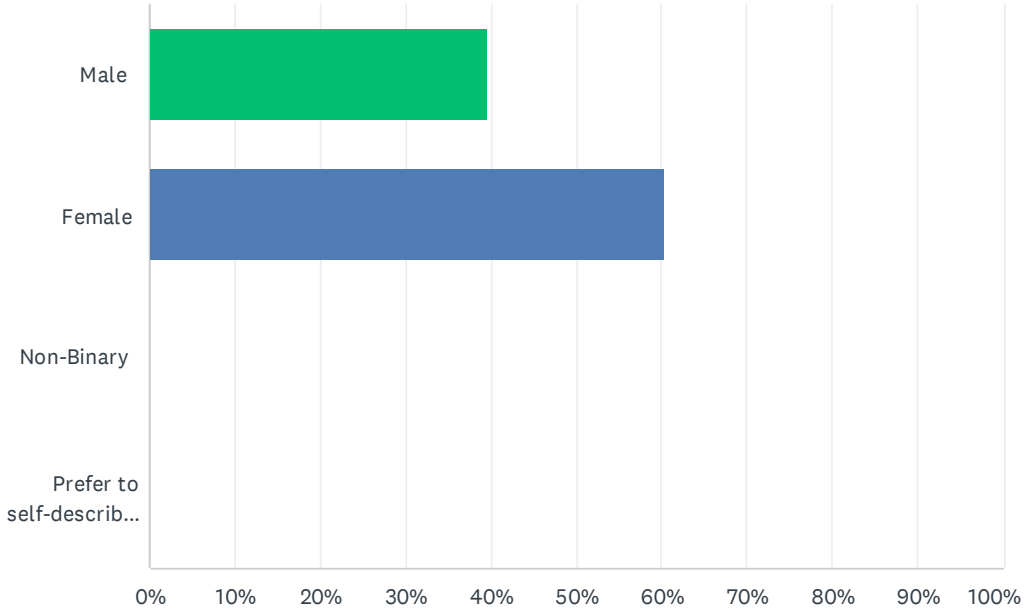
Answered: 255 Skipped: 0



ANSWER CHOICES	RESPONSES	
Under 18	0.39%	1
18-24	1.96%	5
25-34	10.20%	26
35-44	23.53%	60
45-54	18.82%	48
55-64	26.27%	67
65-74	13.73%	35
75 or older	5.10%	13
Total Respondents: 255		

Q2 Please select your gender:

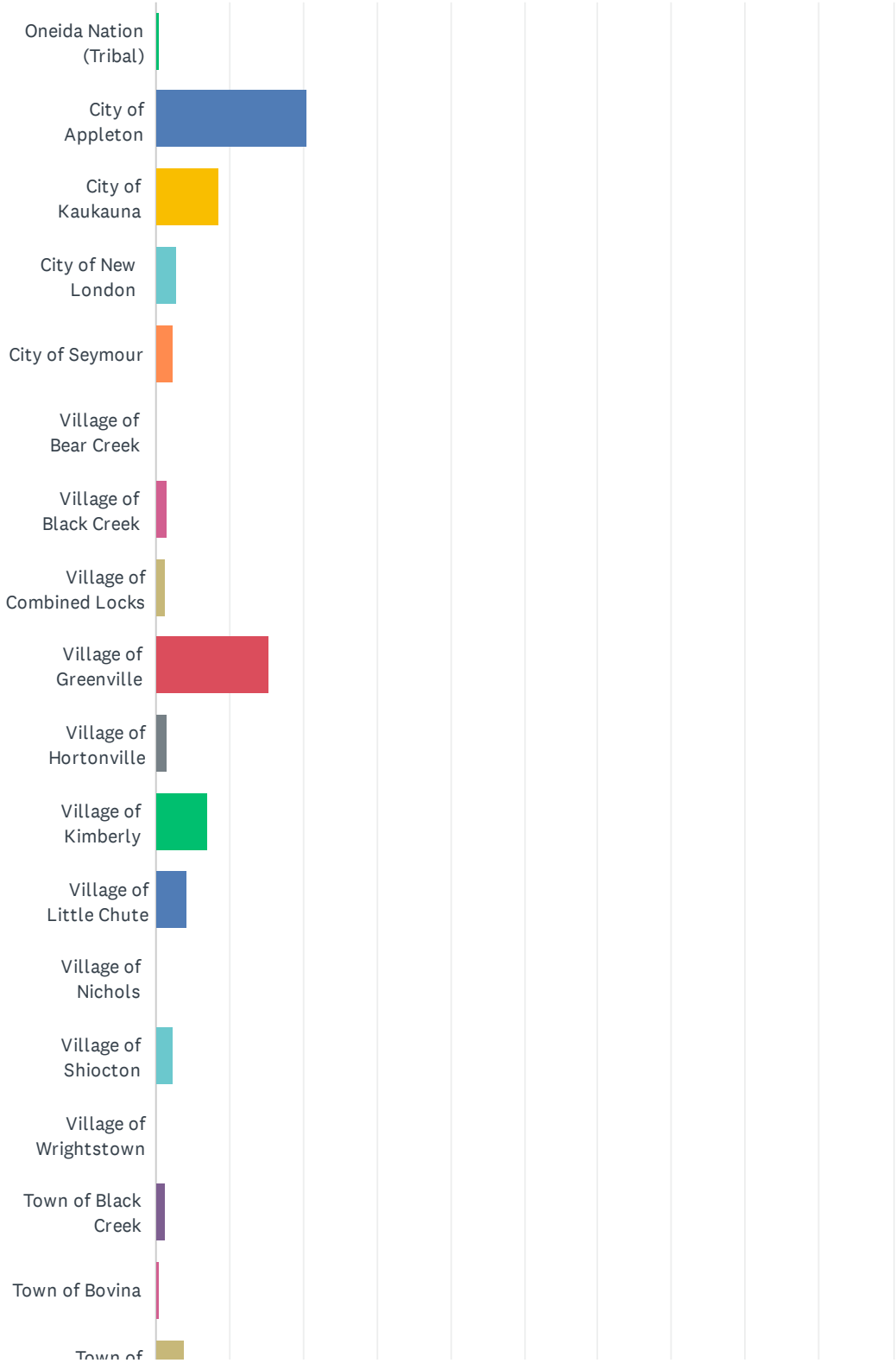
Answered: 255 Skipped: 0

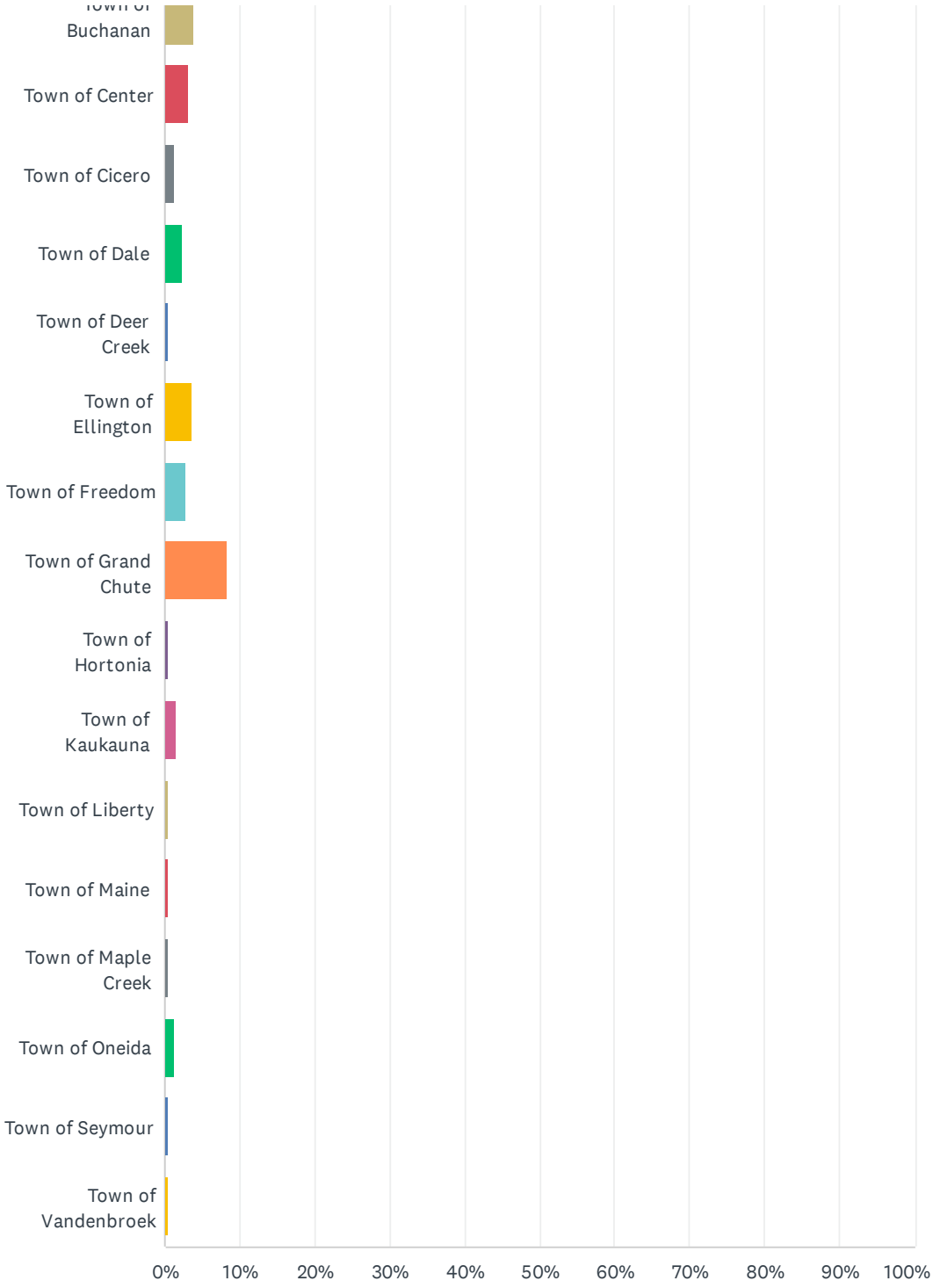


ANSWER CHOICES	RESPONSES	
Male	39.61%	101
Female	60.39%	154
Non-Binary	0.00%	0
Prefer to self-describe/other (please specify)	0.00%	0
Total Respondents: 255		

Q3 In which municipality is your property located?Note: this is NOT your mailing address - please choose the municipality that provides services like tax billing, garbage collection, pet licensing, etc. for your property.

Answered: 255 Skipped: 0



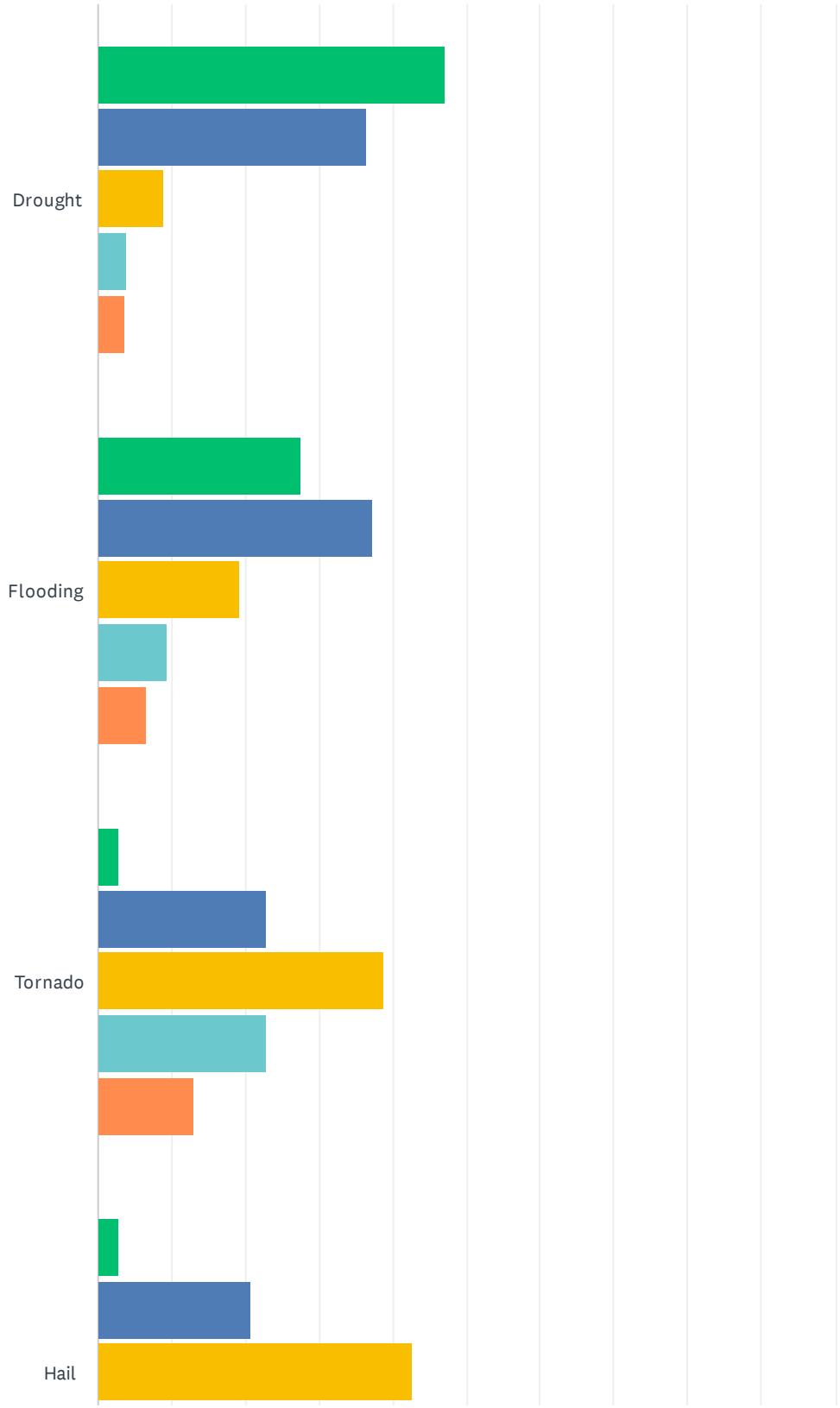

Buchanan
Town of Center
Town of Cicero
Town of Dale
Town of Deer Creek
Town of Ellington
Town of Freedom
Town of Grand Chute
Town of Hortonia
Town of Kaukauna
Town of Liberty
Town of Maine
Town of Maple Creek
Town of Oneida
Town of Seymour
Town of Vandenbroek
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

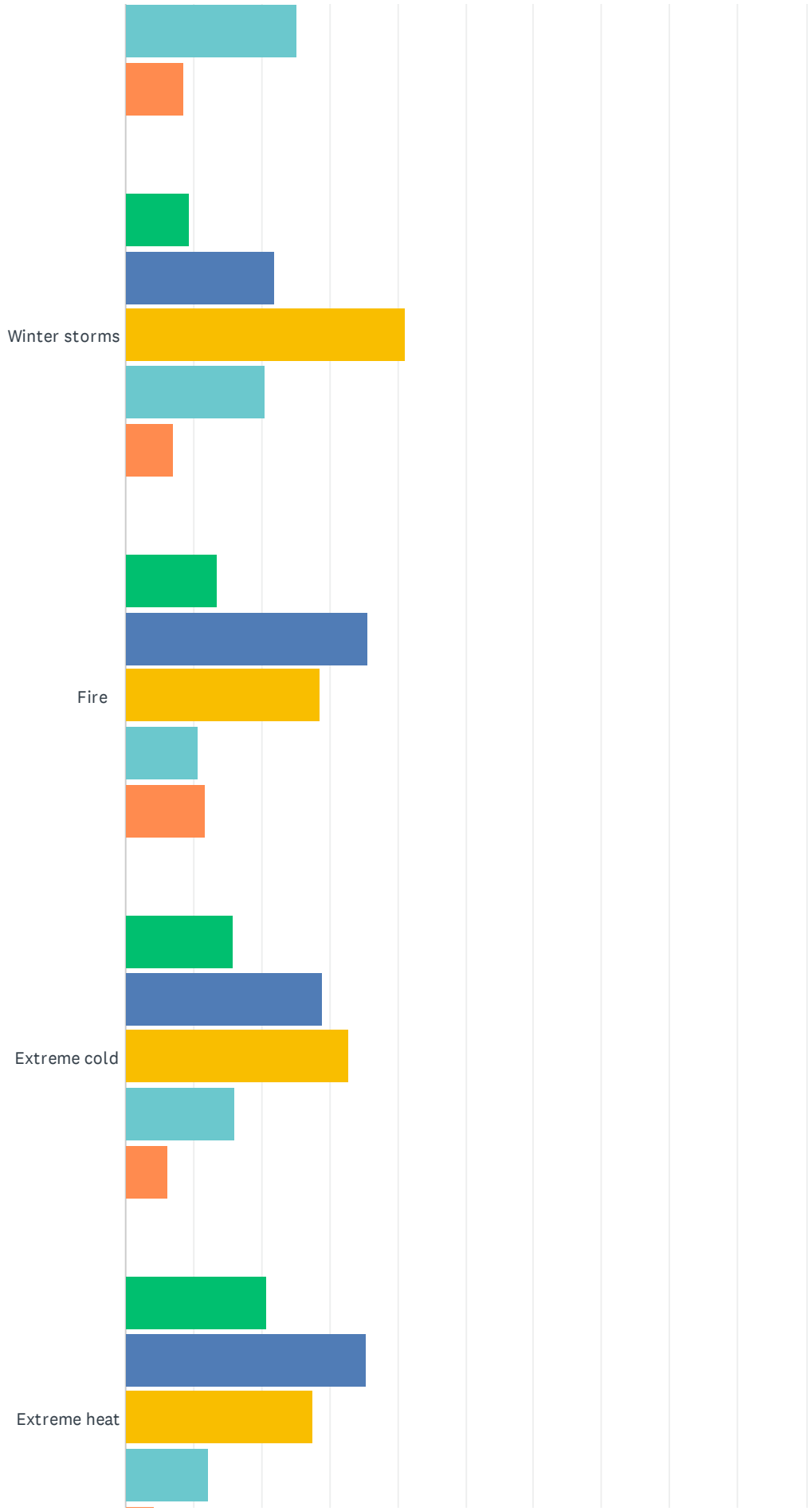
ANSWER CHOICES	RESPONSES	
Oneida Nation (Tribal)	0.39%	1
City of Appleton	20.39%	52
City of Kaukauna	8.63%	22
City of New London	2.75%	7
City of Seymour	2.35%	6
Village of Bear Creek	0.00%	0
Village of Black Creek	1.57%	4
Village of Combined Locks	1.18%	3
Village of Greenville	15.29%	39
Village of Hortonville	1.57%	4
Village of Kimberly	7.06%	18
Village of Little Chute	4.31%	11
Village of Nichols	0.00%	0
Village of Shiocton	2.35%	6
Village of Wrightstown	0.00%	0
Town of Black Creek	1.18%	3
Town of Bovina	0.39%	1
Town of Buchanan	3.92%	10
Town of Center	3.14%	8
Town of Cicero	1.18%	3
Town of Dale	2.35%	6
Town of Deer Creek	0.39%	1
Town of Ellington	3.53%	9
Town of Freedom	2.75%	7
Town of Grand Chute	8.24%	21
Town of Hortonia	0.39%	1
Town of Kaukauna	1.57%	4
Town of Liberty	0.39%	1
Town of Maine	0.39%	1
Town of Maple Creek	0.39%	1
Town of Oneida	1.18%	3
Town of Seymour	0.39%	1

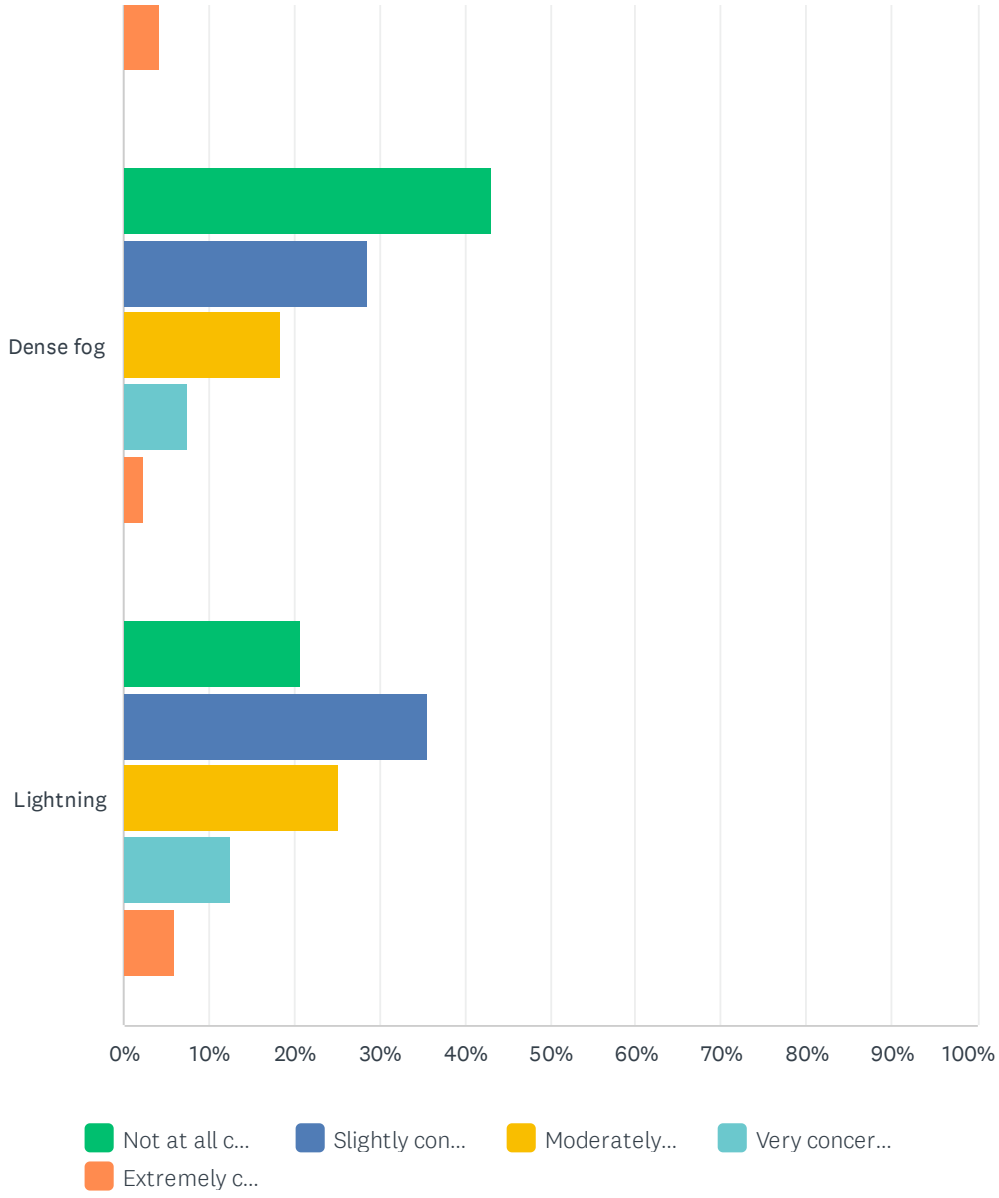
Town of Vandenbroek	0.39%	1
Total Respondents: 255		

Q4 How concerned are you that each of these natural disasters will impact your property?

Answered: 255 Skipped: 0



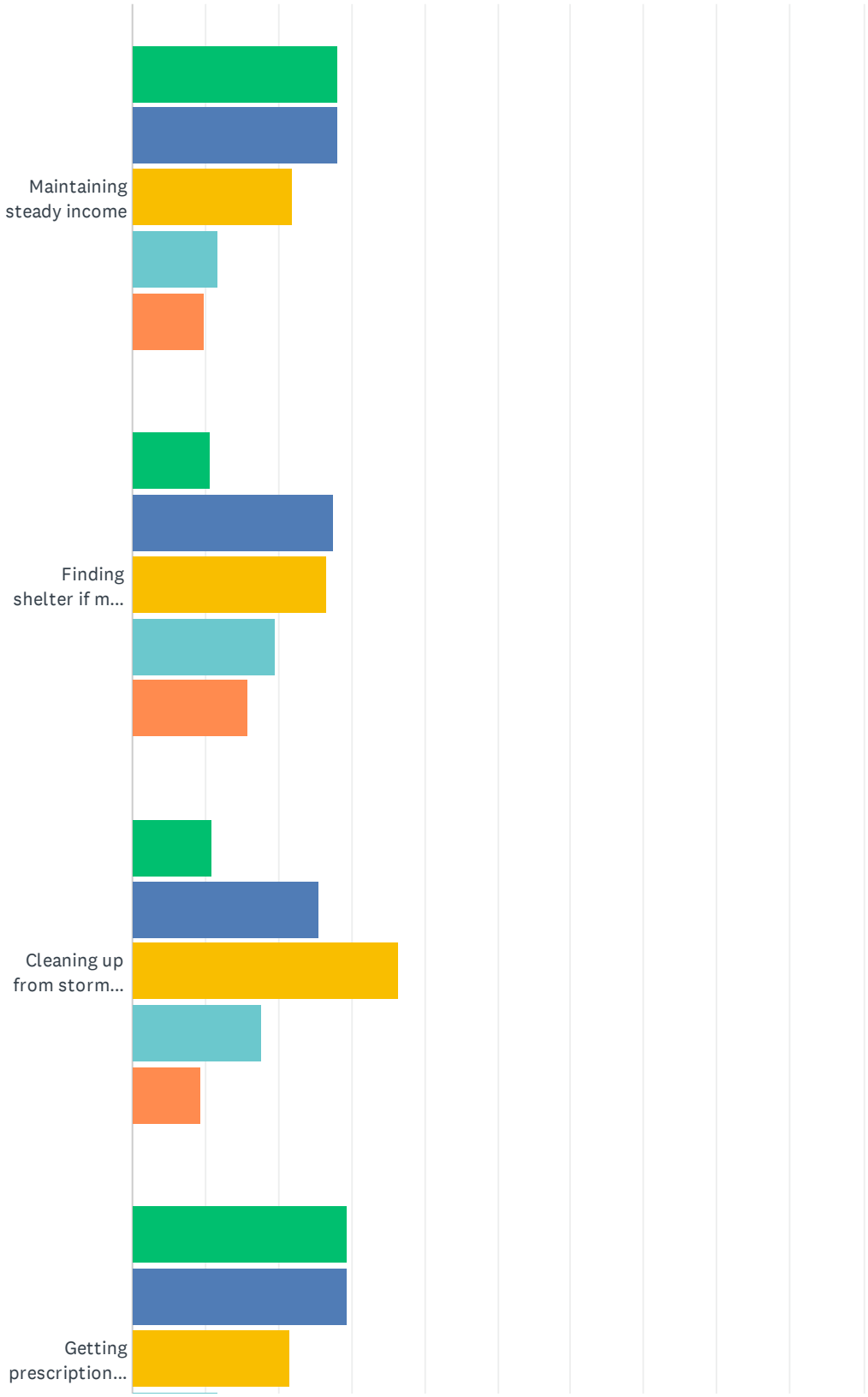

Winter storms
Fire
Extreme cold
Extreme heat

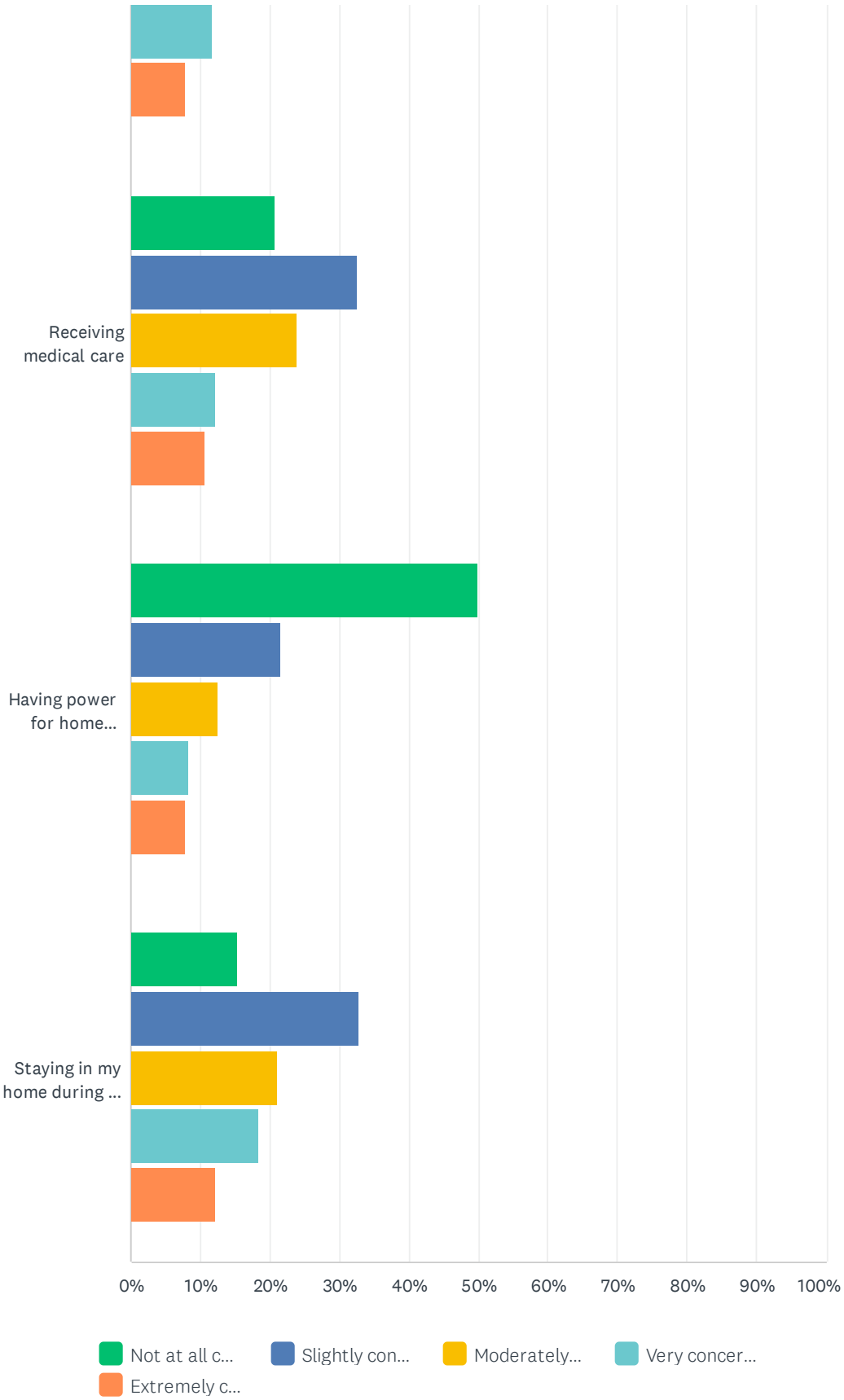

Dense fog
Lightning
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Not at all c...
Slightly con...
Moderately...
Very concer...
Extremely c...

	NOT AT ALL CONCERNED	SLIGHTLY CONCERNED	MODERATELY CONCERNED	VERY CONCERNED	EXTREMELY CONCERNED	TOTAL	WEIGHTED AVERAGE
Drought	47.06% 120	36.47% 93	9.02% 23	3.92% 10	3.53% 9	255	1.80
Flooding	27.45% 70	37.25% 95	19.22% 49	9.41% 24	6.67% 17	255	2.31
Tornado	2.75% 7	22.75% 58	38.82% 99	22.75% 58	12.94% 33	255	3.20
Hail	2.75% 7	20.78% 53	42.75% 109	25.10% 64	8.63% 22	255	3.16
Winter storms	9.41% 24	21.96% 56	41.18% 105	20.39% 52	7.06% 18	255	2.94
Fire	13.33% 34	35.69% 91	28.63% 73	10.59% 27	11.76% 30	255	2.72
Extreme cold	15.69% 40	29.02% 74	32.94% 84	16.08% 41	6.27% 16	255	2.68
Extreme heat	20.78% 53	35.29% 90	27.45% 70	12.16% 31	4.31% 11	255	2.44
Dense fog	43.14% 110	28.63% 73	18.43% 47	7.45% 19	2.35% 6	255	1.97
Lightning	20.78% 53	35.69% 91	25.10% 64	12.55% 32	5.88% 15	255	2.47

Q5 How concerned are you about each of these impacts of a natural disaster?

Answered: 255 Skipped: 0

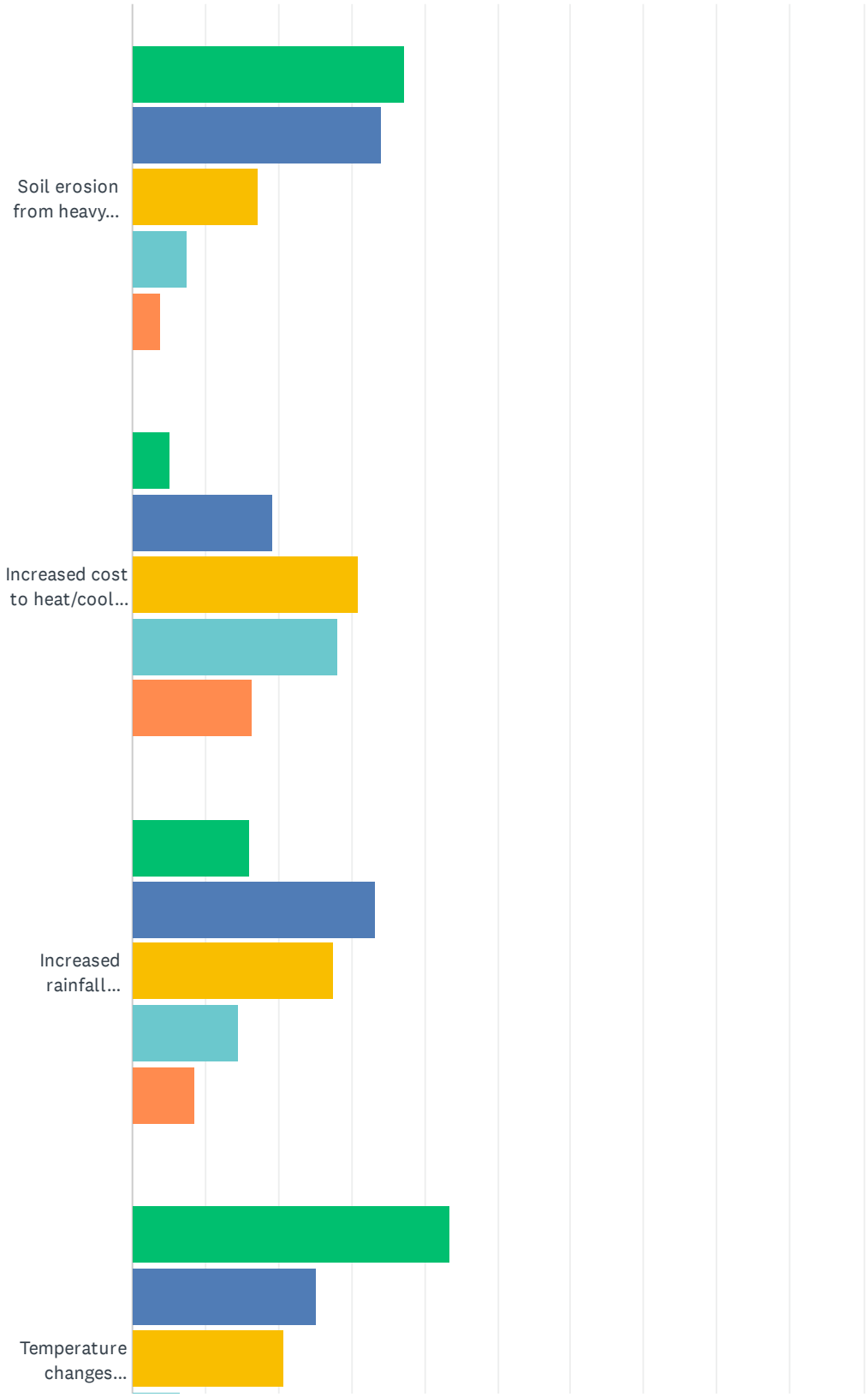


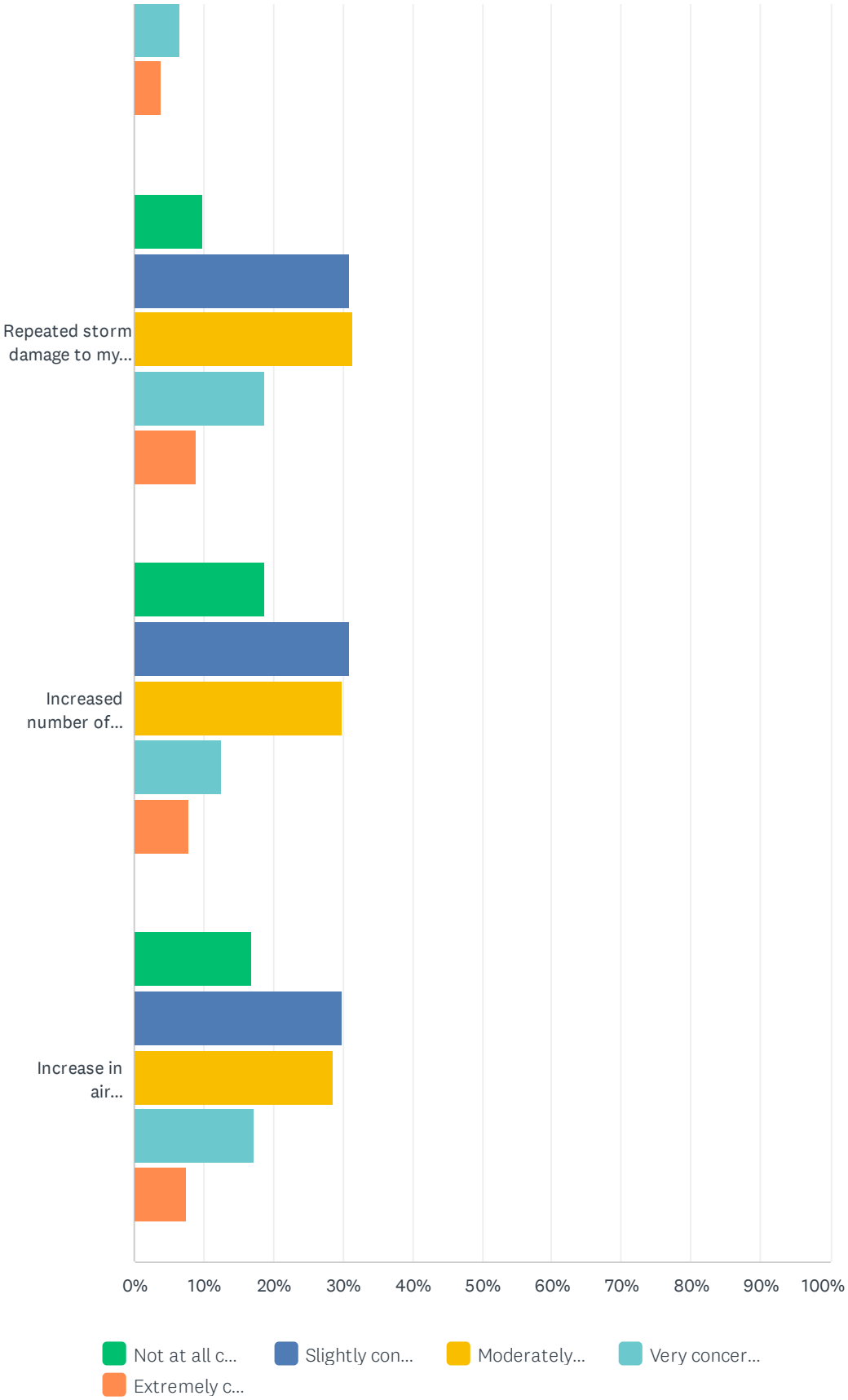

Receiving medical care
Having power for home...
Staying in my home during ...
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Not at all c...
Slightly con...
Moderately...
Very concer...
Extremely c...

	NOT AT ALL CONCERNED	SLIGHTLY CONCERNED	MODERATELY CONCERNED	VERY CONCERNED	EXTREMELY CONCERNED	TOTAL	WEIGHTED AVERAGE
Maintaining steady income	28.24% 72	28.24% 72	21.96% 56	11.76% 30	9.80% 25	255	2.47
Finding shelter if my primary home was damaged	10.59% 27	27.45% 70	26.67% 68	19.61% 50	15.69% 40	255	3.02
Cleaning up from storm damage	10.98% 28	25.49% 65	36.47% 93	17.65% 45	9.41% 24	255	2.89
Getting prescription medications	29.41% 75	29.41% 75	21.57% 55	11.76% 30	7.84% 20	255	2.39
Receiving medical care	20.78% 53	32.55% 83	23.92% 61	12.16% 31	10.59% 27	255	2.59
Having power for home medical devices	49.80% 127	21.57% 55	12.55% 32	8.24% 21	7.84% 20	255	2.03
Staying in my home during an extended power outage	15.29% 39	32.94% 84	21.18% 54	18.43% 47	12.16% 31	255	2.79

Q6 How concerned are you about each of these effects of changes in weather?

Answered: 255 Skipped: 0

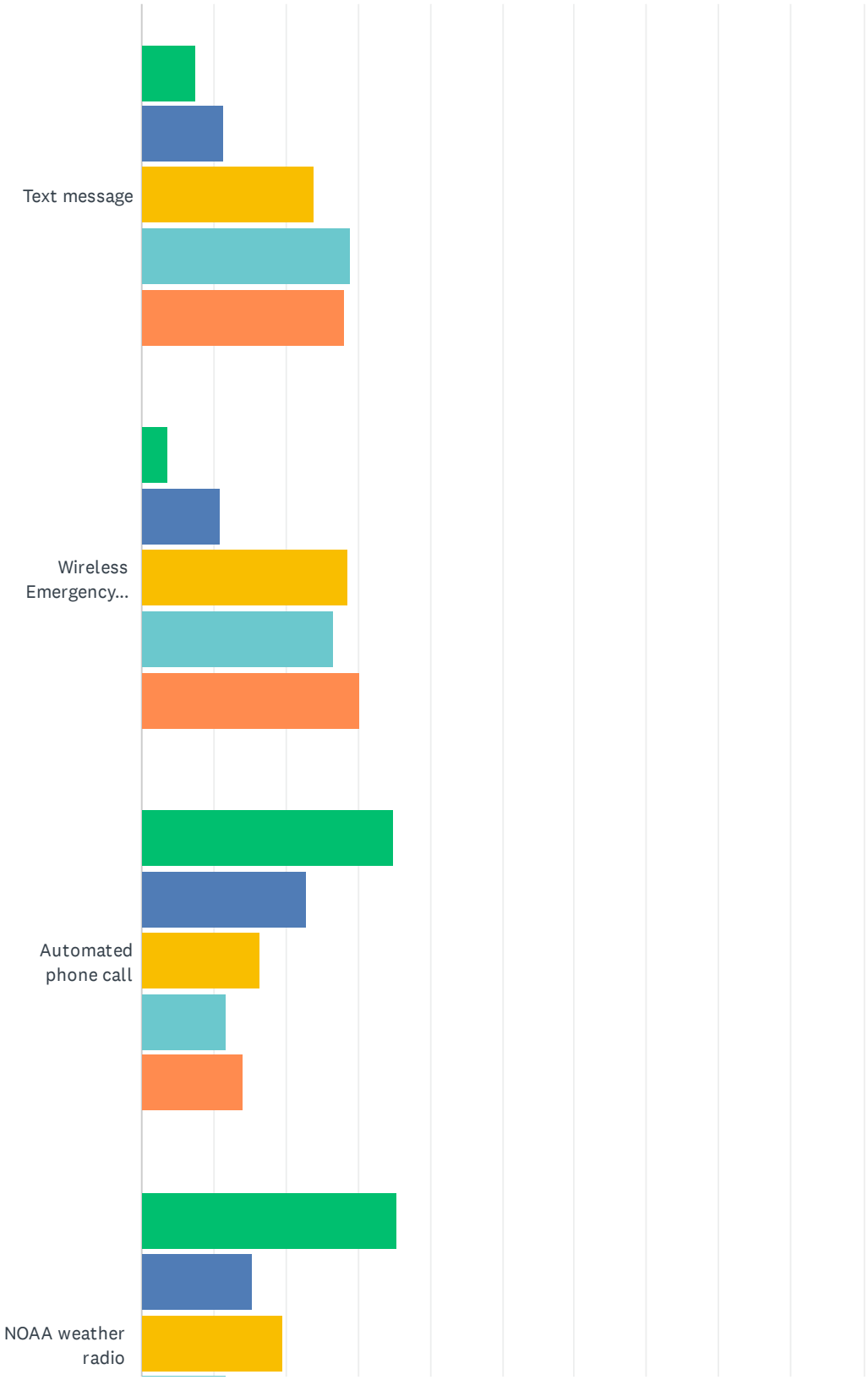


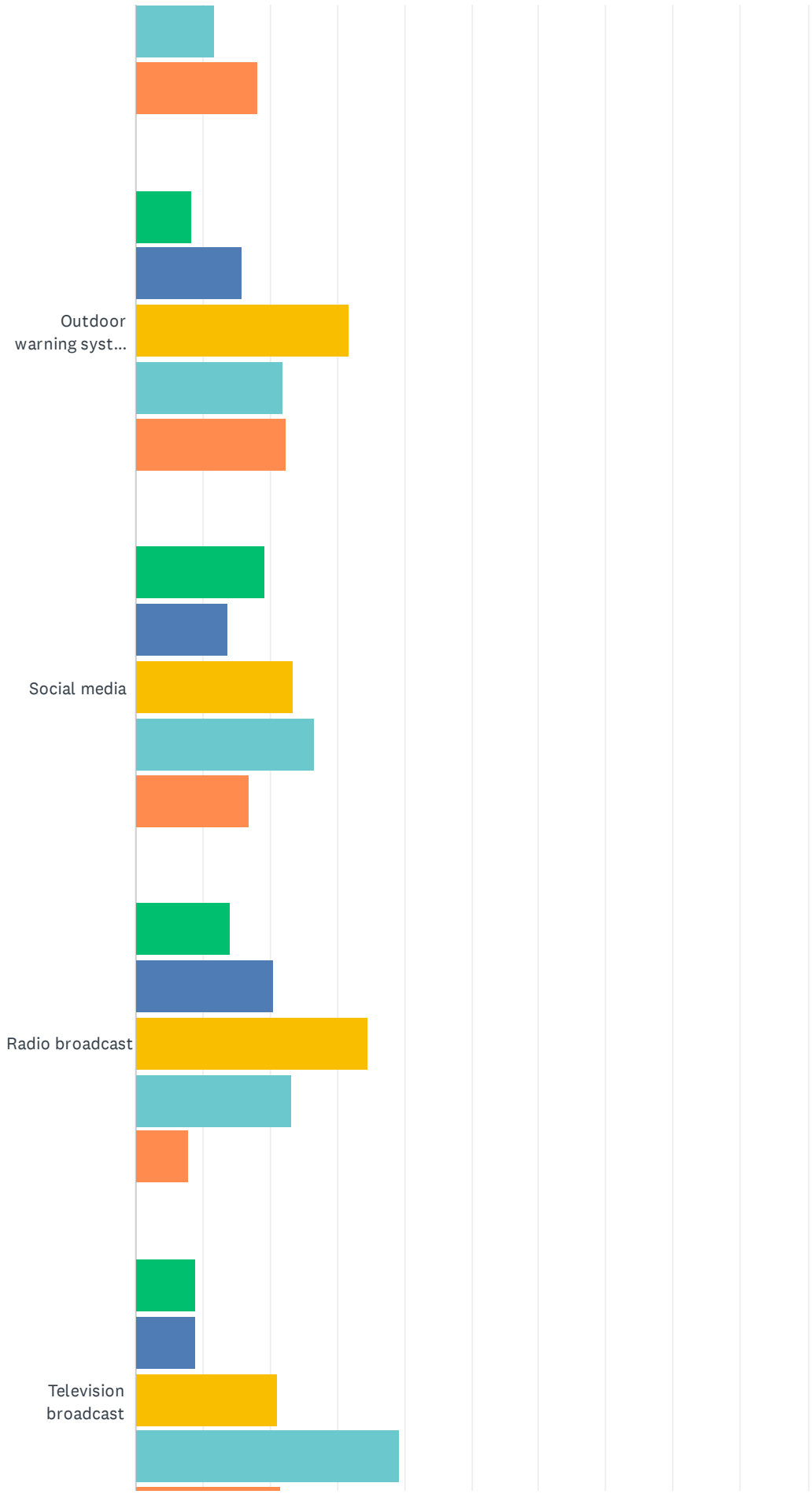

Repeated storm damage to my...
Increased number of...
Increase in air...
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Not at all c...
Slightly con...
Moderately...
Very concer...
Extremely c...

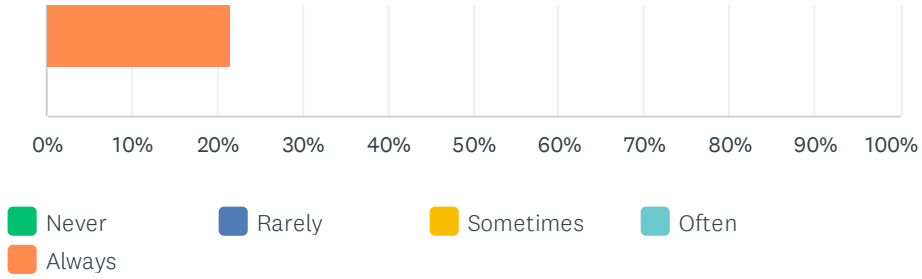
	NOT AT ALL CONCERNED	SLIGHTLY CONCERNED	MODERATELY CONCERNED	VERY CONCERNED	EXTREMELY CONCERNED	TOTAL	WEIGHTED AVERAGE
Soil erosion from heavy rainfall	37.25% 95	34.12% 87	17.25% 44	7.45% 19	3.92% 10	255	2.07
Increased cost to heat/cool my home	5.10% 13	19.22% 49	30.98% 79	28.24% 72	16.47% 42	255	3.32
Increased rainfall causing flooding	16.08% 41	33.33% 85	27.45% 70	14.51% 37	8.63% 22	255	2.66
Temperature changes impacting my garden or crops	43.53% 111	25.10% 64	20.78% 53	6.67% 17	3.92% 10	255	2.02
Repeated storm damage to my home and/or vehicle	9.80% 25	30.98% 79	31.37% 80	18.82% 48	9.02% 23	255	2.86
Increased number of invasive species and pests	18.82% 48	30.98% 79	29.80% 76	12.55% 32	7.84% 20	255	2.60
Increase in air quality-related allergens	16.86% 43	29.80% 76	28.63% 73	17.25% 44	7.45% 19	255	2.69

Q7 How often do you use each of these methods to get severe weather and/or emergency alerts?

Answered: 255 Skipped: 0



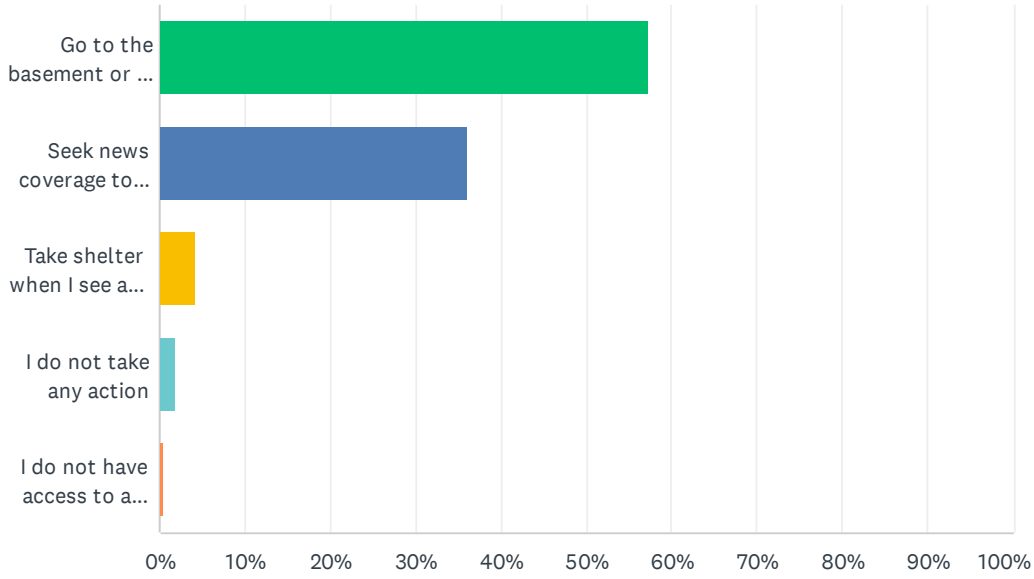

Outdoor warning syst...
Social media
Radio broadcast
Television broadcast



	NEVER	RARELY	SOMETIMES	OFTEN	ALWAYS	TOTAL	WEIGHTED AVERAGE
Text message	7.45% 19	11.37% 29	23.92% 61	29.02% 74	28.24% 72	255	3.59
Wireless Emergency Alerts (AMBER alert, silver alert, local area emergency, etc.)	3.53% 9	10.98% 28	28.63% 73	26.67% 68	30.20% 77	255	3.69
Automated phone call	34.90% 89	22.75% 58	16.47% 42	11.76% 30	14.12% 36	255	2.47
NOAA weather radio	35.29% 90	15.29% 39	19.61% 50	11.76% 30	18.04% 46	255	2.62
Outdoor warning system (sirens)	8.24% 21	15.69% 40	31.76% 81	21.96% 56	22.35% 57	255	3.35
Social media	19.22% 49	13.73% 35	23.53% 60	26.67% 68	16.86% 43	255	3.08
Radio broadcast	14.12% 36	20.39% 52	34.51% 88	23.14% 59	7.84% 20	255	2.90
Television broadcast	9.02% 23	9.02% 23	21.18% 54	39.22% 100	21.57% 55	255	3.55

Q8 When at home during a tornado warning, which action do you take? (choose one)

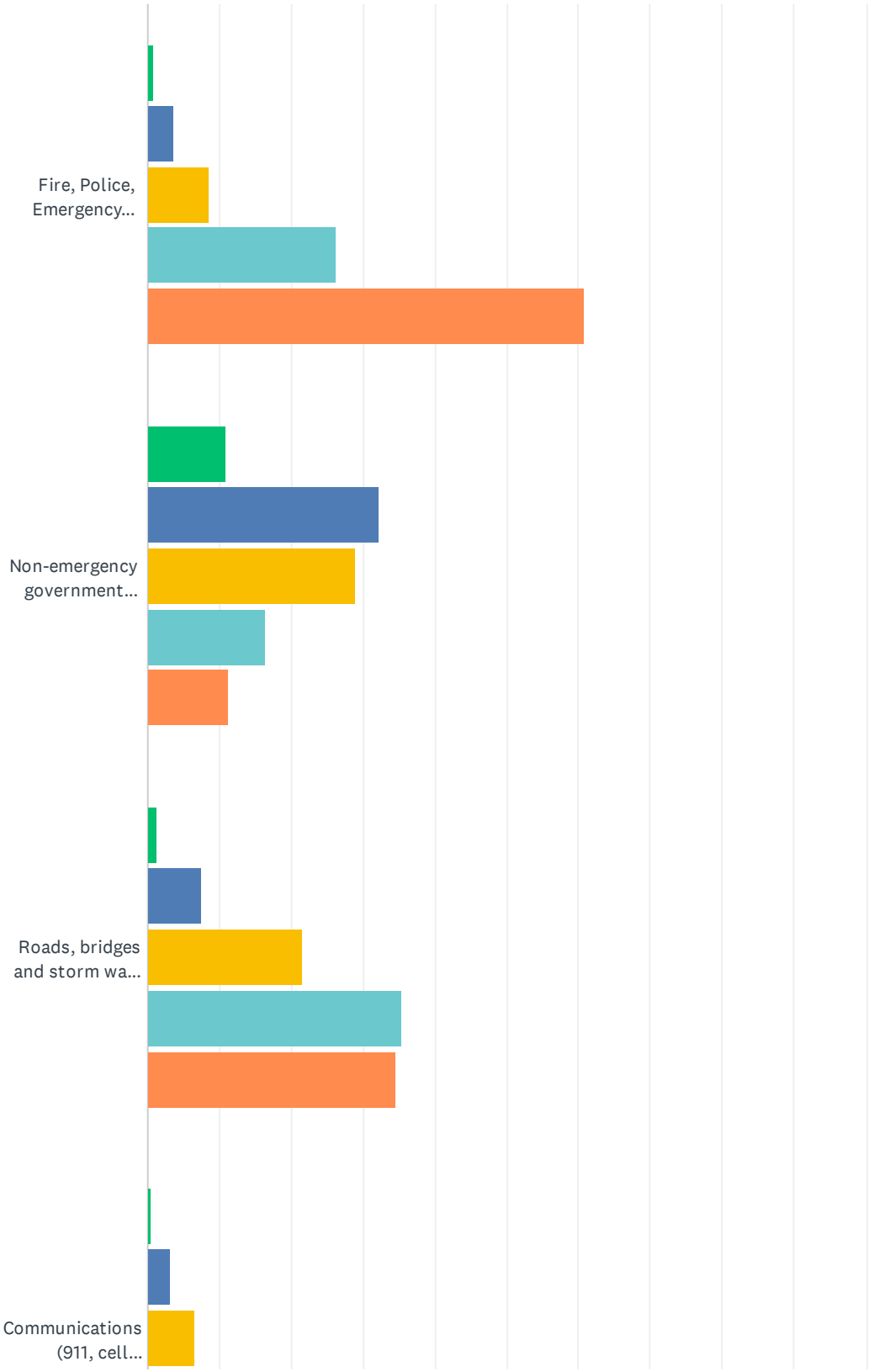
Answered: 255 Skipped: 0

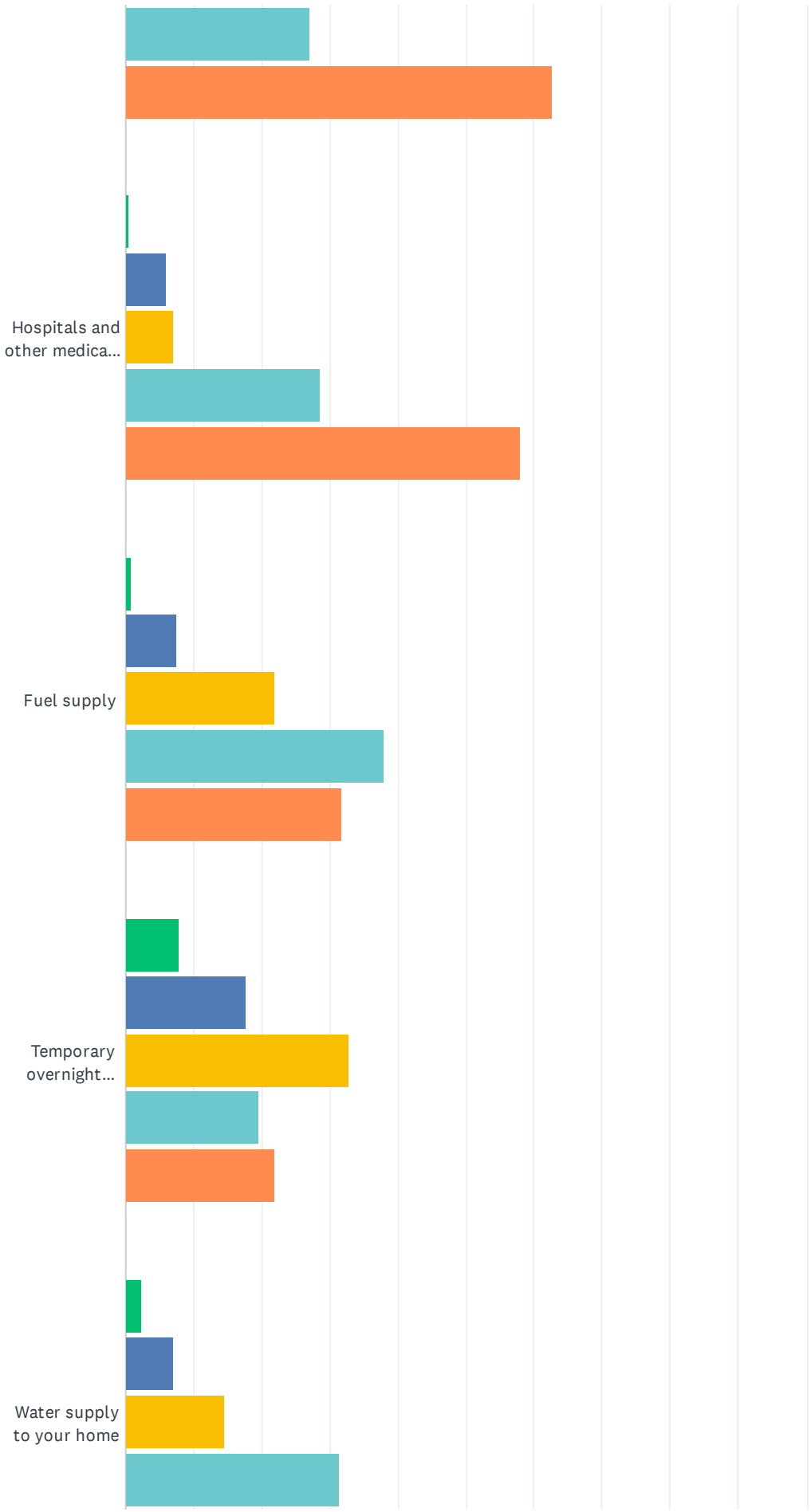


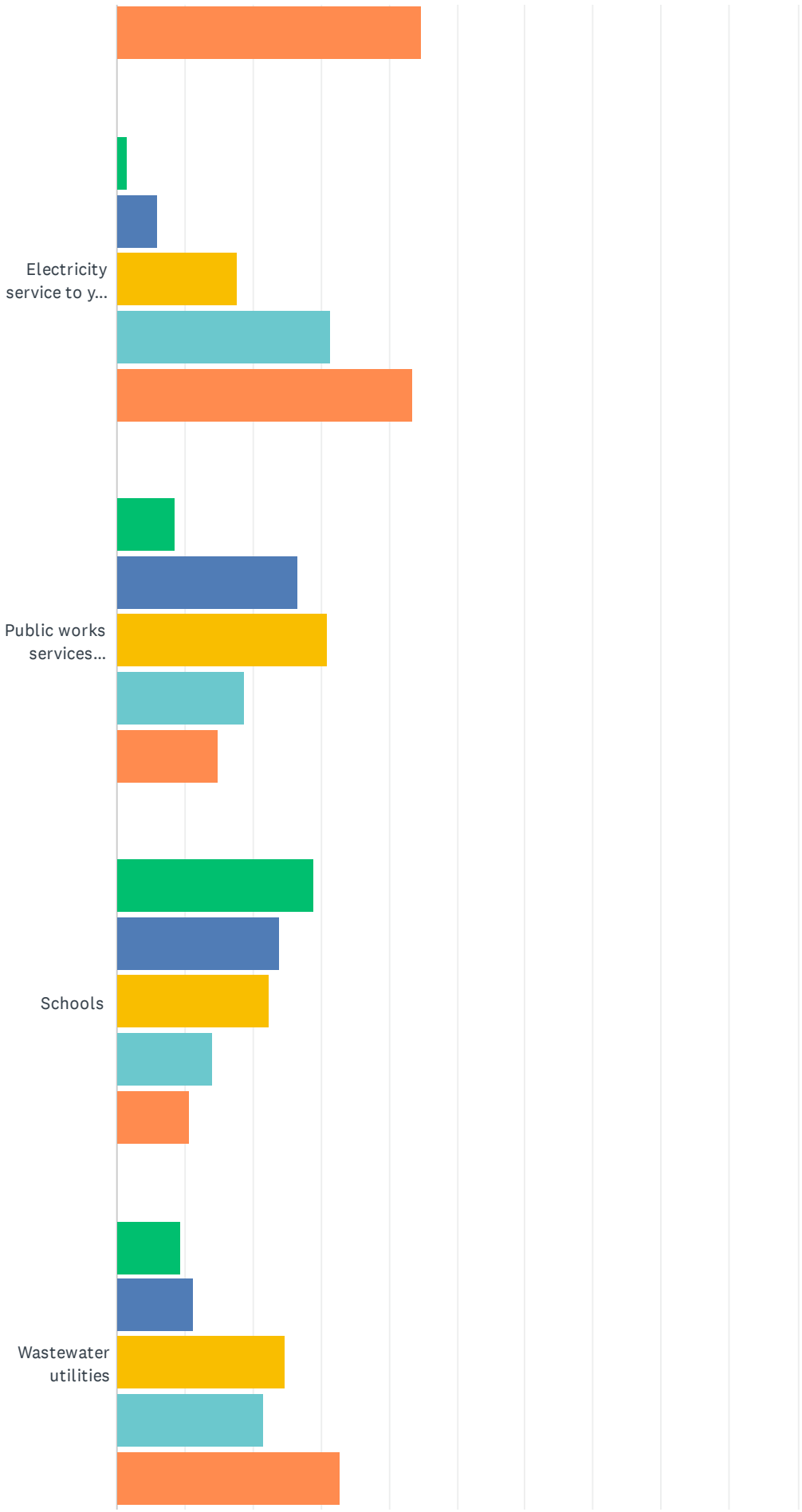
ANSWER CHOICES	RESPONSES	
Go to the basement or an interior room in the lowest level of my home	57.25%	146
Seek news coverage to confirm there is a tornado, then take shelter	36.08%	92
Take shelter when I see a tornado or flying debris	4.31%	11
I do not take any action	1.96%	5
I do not have access to a safe location	0.39%	1
Total Respondents: 255		

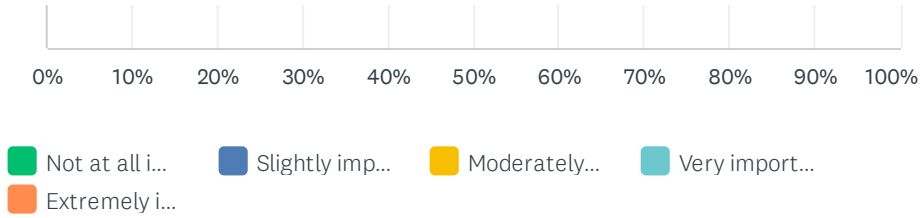
Q9 How important is each one of these services, systems, or buildings to your safety during and after a disaster?

Answered: 255 Skipped: 0




Hospitals and other medica...
Fuel supply
Temporary overnight...
Water supply to your home

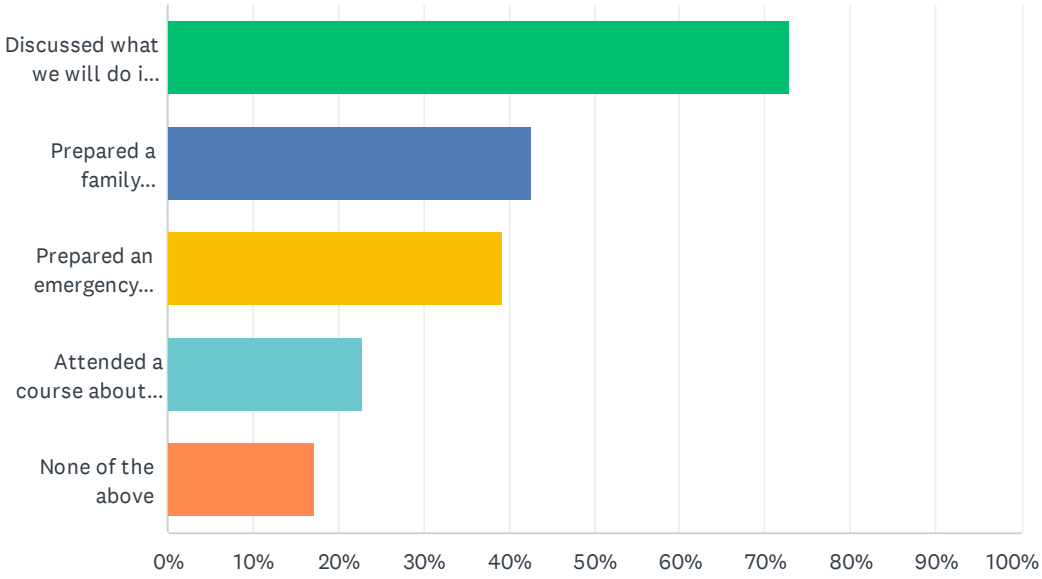

Electricity service to y...
Public works services...
Schools
Wastewater utilities



	NOT AT ALL IMPORTANT	SLIGHTLY IMPORTANT	MODERATELY IMPORTANT	VERY IMPORTANT	EXTREMELY IMPORTANT	TOTAL	WEIGHTED AVERAGE
Fire, Police, Emergency Medical Services	0.78% 2	3.53% 9	8.63% 22	26.27% 67	60.78% 155	255	4.43
Non-emergency government buildings and services	10.98% 28	32.16% 82	29.02% 74	16.47% 42	11.37% 29	255	2.85
Roads, bridges and storm water systems	1.18% 3	7.45% 19	21.57% 55	35.29% 90	34.51% 88	255	3.95
Communications (911, cell service, TV, radio)	0.39% 1	3.14% 8	6.67% 17	27.06% 69	62.75% 160	255	4.49
Hospitals and other medical facilities	0.39% 1	5.88% 15	7.06% 18	28.63% 73	58.04% 148	255	4.38
Fuel supply	0.78% 2	7.45% 19	21.96% 56	38.04% 97	31.76% 81	255	3.93
Temporary overnight shelters	7.84% 20	17.65% 45	32.94% 84	19.61% 50	21.96% 56	255	3.30
Water supply to your home	2.35% 6	7.06% 18	14.51% 37	31.37% 80	44.71% 114	255	4.09
Electricity service to your home	1.57% 4	5.88% 15	17.65% 45	31.37% 80	43.53% 111	255	4.09
Public works services (garbage collection, etc.)	8.63% 22	26.67% 68	30.98% 79	18.82% 48	14.90% 38	255	3.05
Schools	29.02% 74	23.92% 61	22.35% 57	14.12% 36	10.59% 27	255	2.53
Wastewater utilities	9.41% 24	11.37% 29	24.71% 63	21.57% 55	32.94% 84	255	3.57

Q10 Which of these preparedness activities has anyone in your home or business done? (check all that apply)

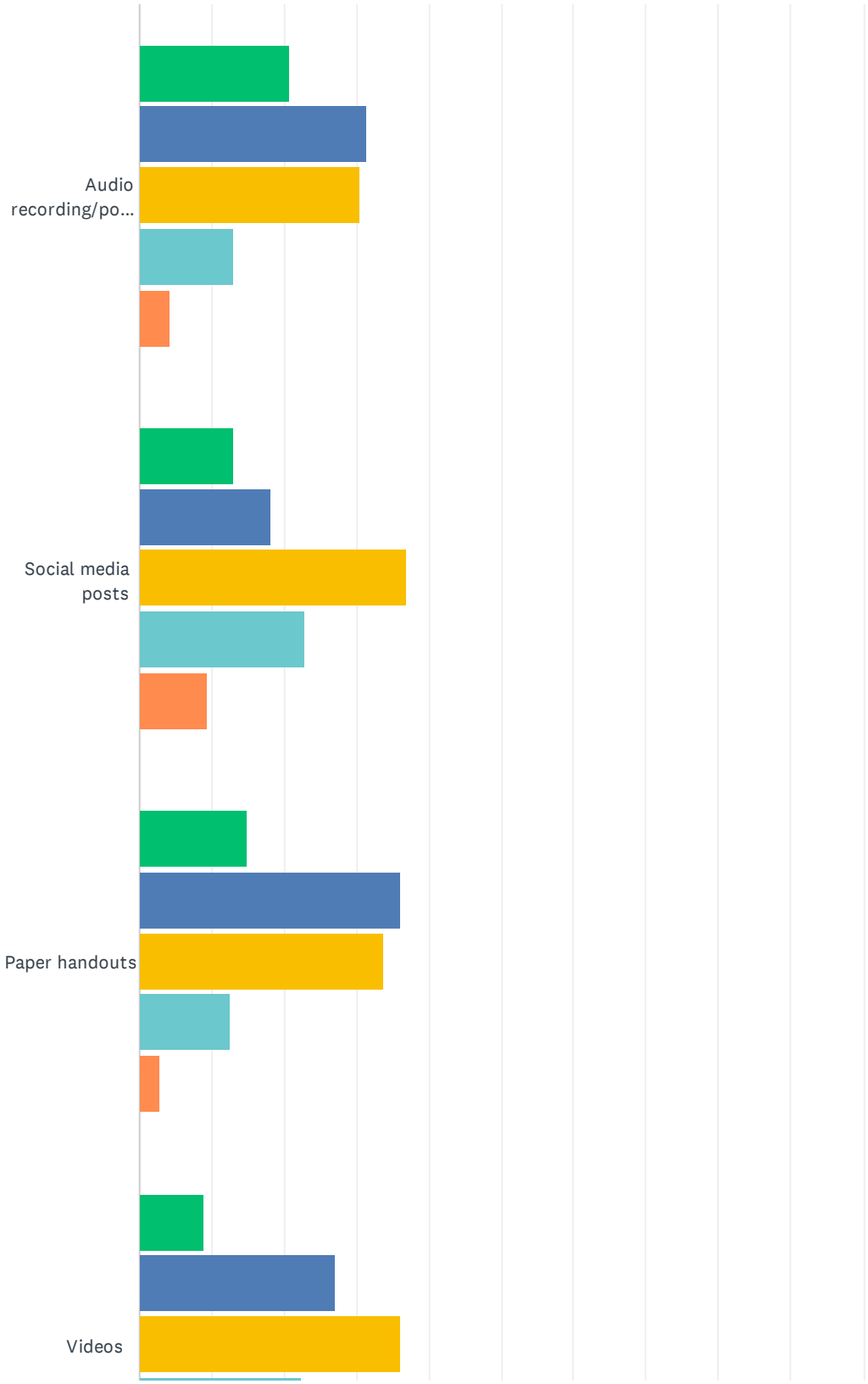
Answered: 255 Skipped: 0

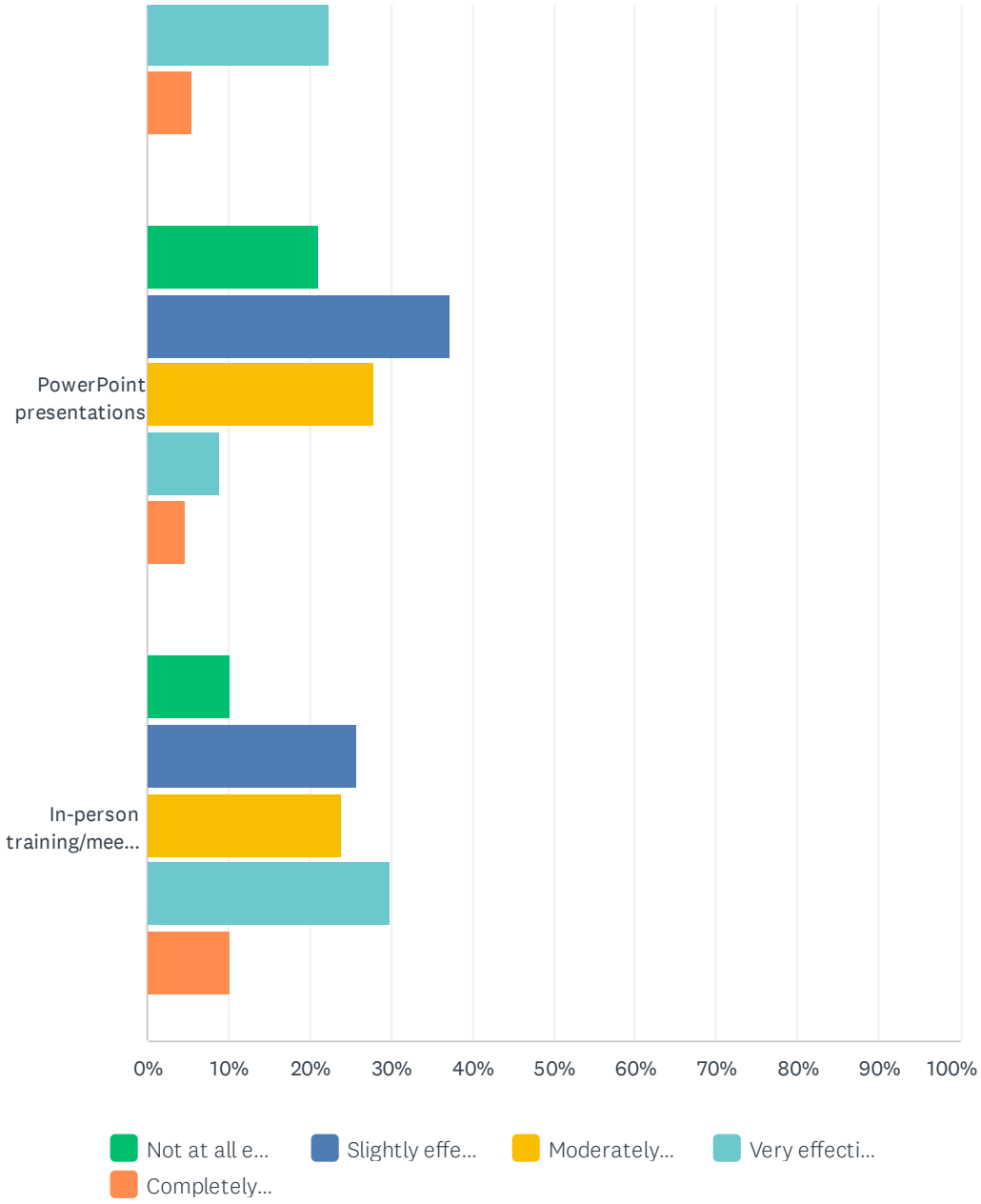


ANSWER CHOICES	RESPONSES	
Discussed what we will do in case of an emergency or natural disaster	72.94%	186
Prepared a family emergency plan	42.75%	109
Prepared an emergency supply kit	39.22%	100
Attended a course about emergency preparedness	22.75%	58
None of the above	17.25%	44
Total Respondents: 255		

Q11 How effective is each of these ways for you to learn about emergency preparedness?

Answered: 255 Skipped: 0



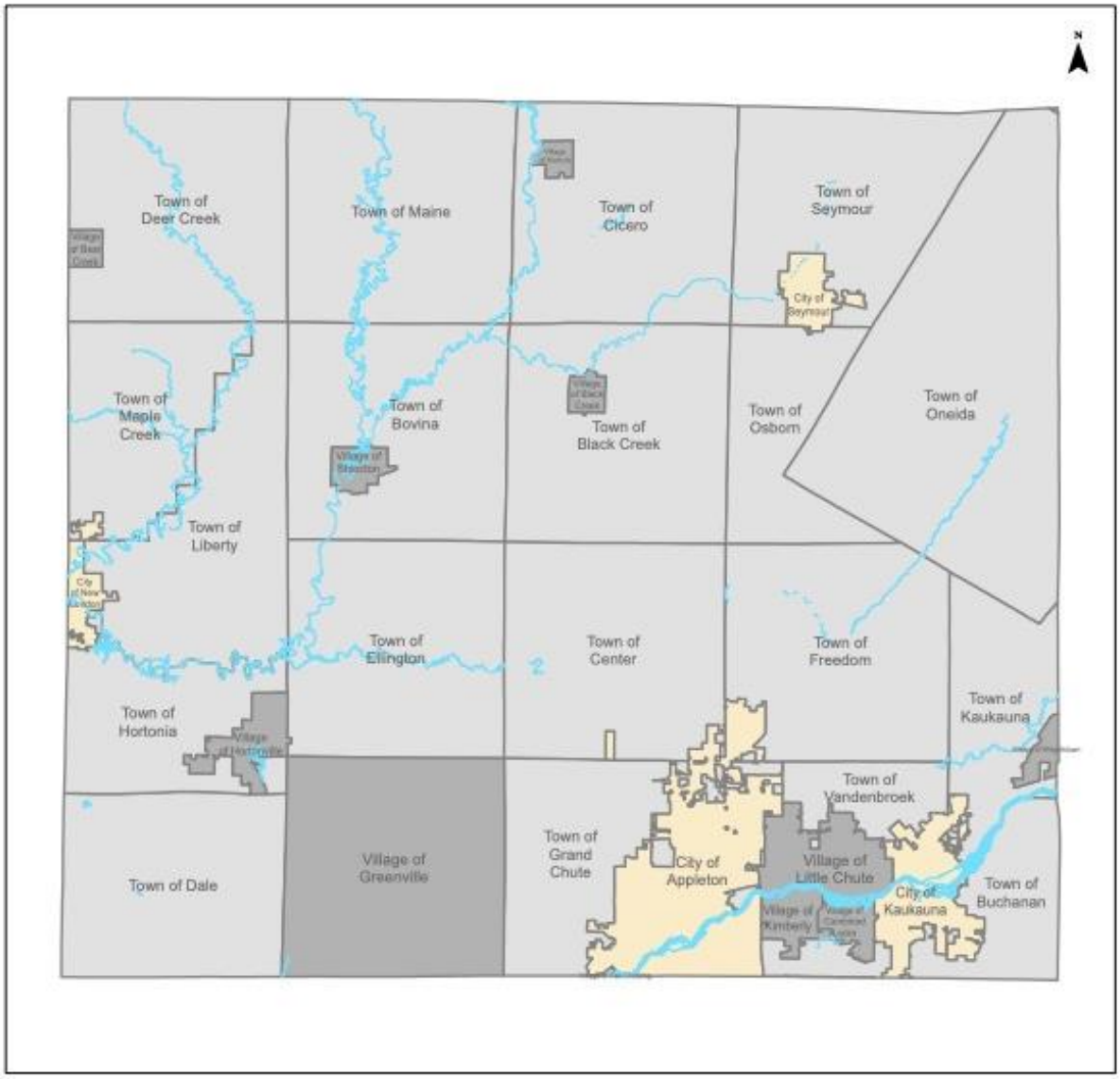


	NOT AT ALL EFFECTIVE	SLIGHTLY EFFECTIVE	MODERATELY EFFECTIVE	VERY EFFECTIVE	COMPLETELY EFFECTIVE	TOTAL	WEIGHTED AVERAGE
Audio recording/podcast	20.78% 53	31.37% 80	30.59% 78	12.94% 33	4.31% 11	255	2.49
Social media posts	12.94% 33	18.04% 46	36.86% 94	22.75% 58	9.41% 24	255	2.98
Paper handouts	14.90% 38	36.08% 92	33.73% 86	12.55% 32	2.75% 7	255	2.52
Videos	9.02% 23	27.06% 69	36.08% 92	22.35% 57	5.49% 14	255	2.88
PowerPoint presentations	21.18% 54	37.25% 95	27.84% 71	9.02% 23	4.71% 12	255	2.39
In-person training/meetings	10.20% 26	25.88% 66	23.92% 61	29.80% 76	10.20% 26	255	3.04

APPENDIX G ADDITIONAL MAPS

APPENDIX G MAPS

Map 1 Outagamie County and Municipalities



APPENDIX G MAPS

Map 2 County Land Use

Legend

2015 Land Use

- RESIDENTIAL
- COMMERCIAL/INSTITUTIONAL
- INDUSTRIAL
- PARKS AND REC
- AGRICULTURE
- WOODLAND
- WATER

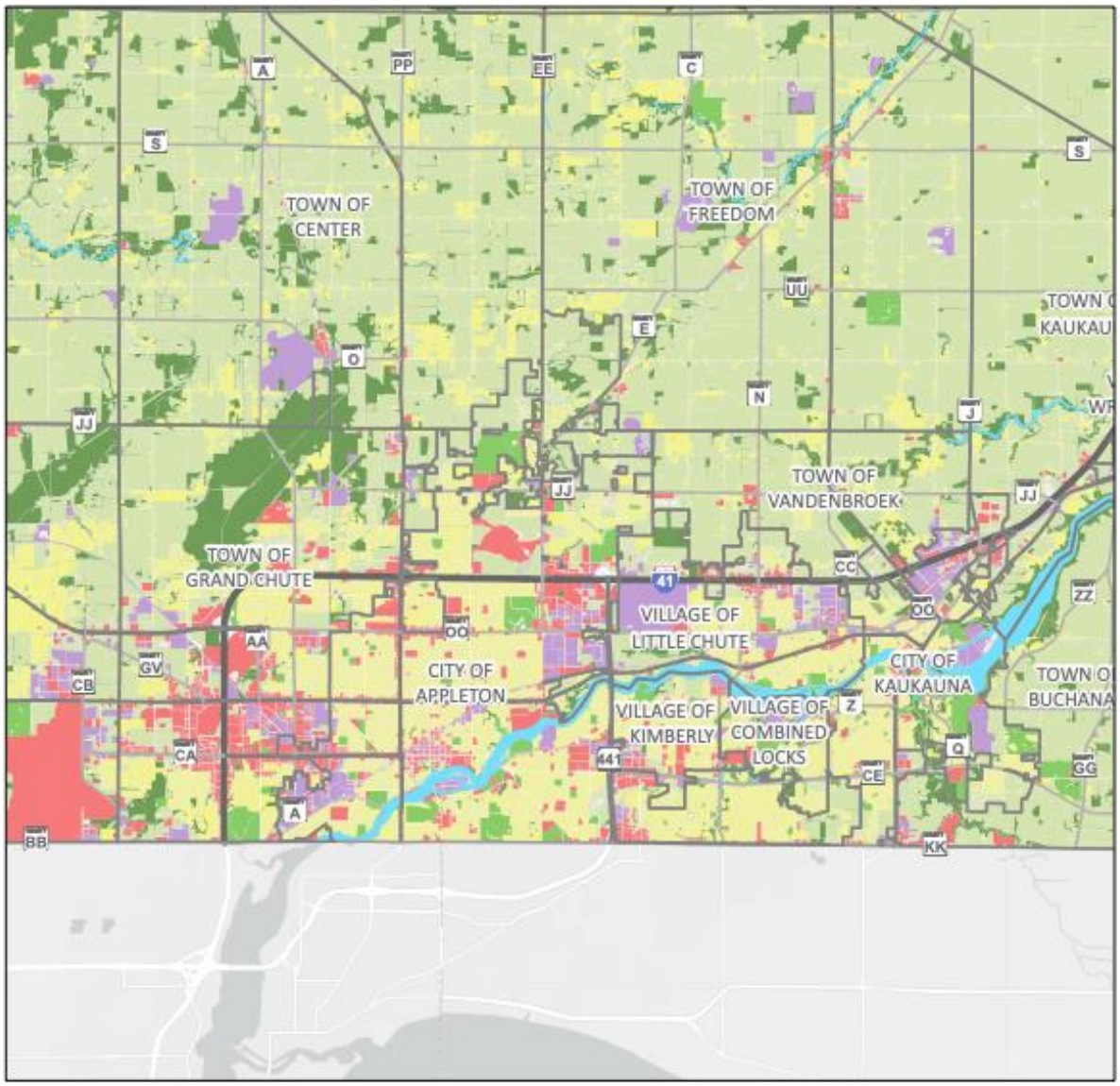
N

Outagamie County

Data Source: 2015 land use data provided by East Central Regional Planning Commission.
Outagamie County does not guarantee this information to be correct, current or complete. The maps are only intended for use as a general reference and are not intended for legal purposes or financial decisions. In no event shall Outagamie County become liable to users of these maps for any loss arising from the use of these maps.

APPENDIX G MAPS

Map 3 Heart of the Valley Land Use



Legend

2015 Land Use

- RESIDENTIAL
- COMMERCIAL/INSTITUTIONAL
- INDUSTRIAL
- PARKS AND REC
- AGRICULTURE
- WOODLAND
- WATER

N

Outagamie County

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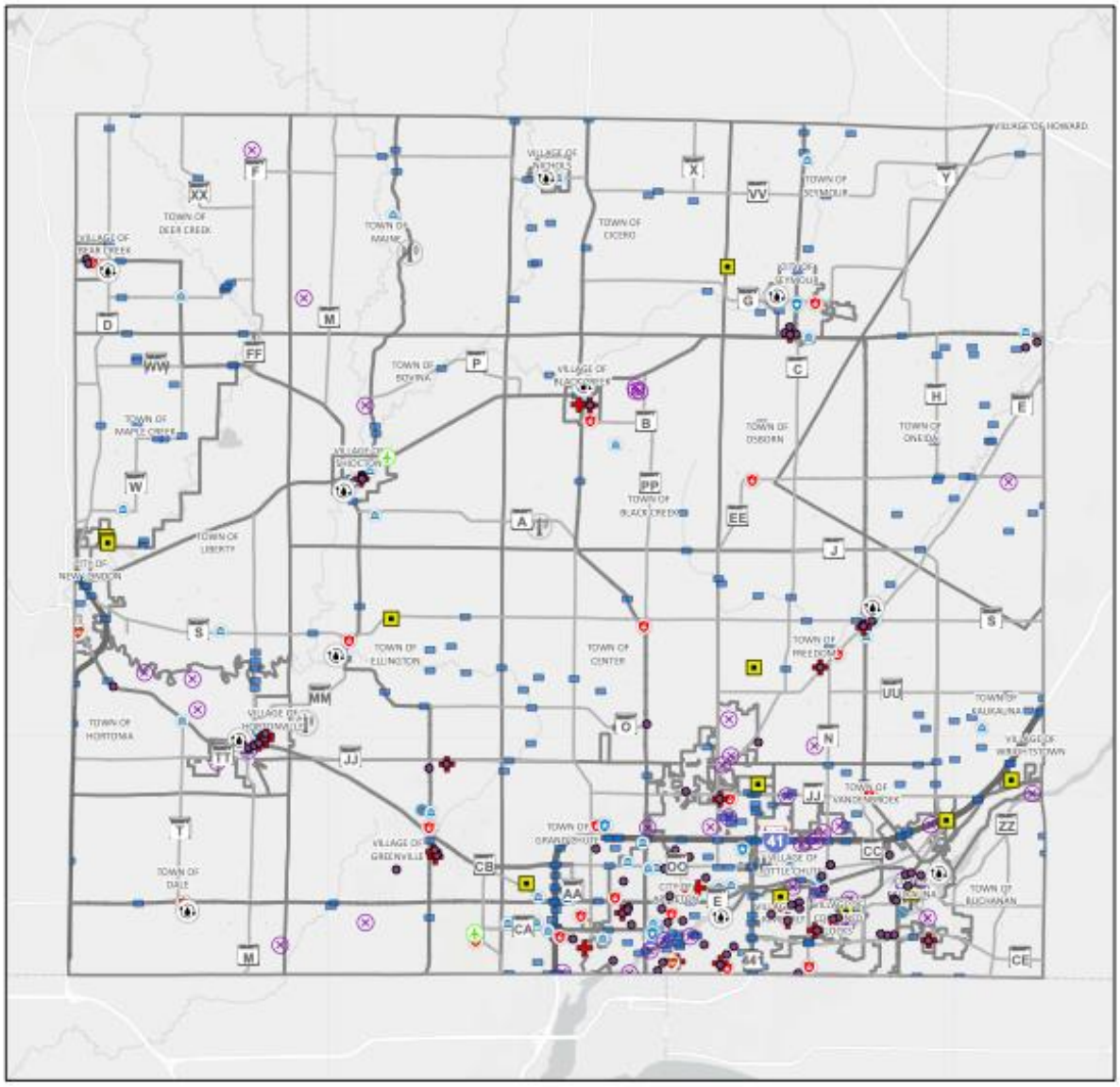
APPENDIX G MAPS

Map 4 Critical Facilities



Legend

- Airports
- Bridges
- Dams
- Fire Department
- Government Buildings
- Hospital
- Police Department
- Red Cross Shelters
- Sheriffs Towers
- Substations
- Waterwater Treatment Plants
- Adult Family Home
- Adult Day Care
- Ambulatory Surgical Center
- Community Base Residential Facility
- Child Care
- End State Renal Dialysis
- Manufactured Home Community
- Nursing Home
- Residential Care Apartment Complex
- School
- InternalGIS1.GIS.CountyBoundary
- InternalGIS1.GIS.SCHOOLS

N

Outagamie County

Data Sources: Health and Human Services Critical Facilities GIS Data, The Homeland Infrastructure Foundation-Level Data (HIFLD), Red Cross, WI DNR, Outagamie County GIS Data.
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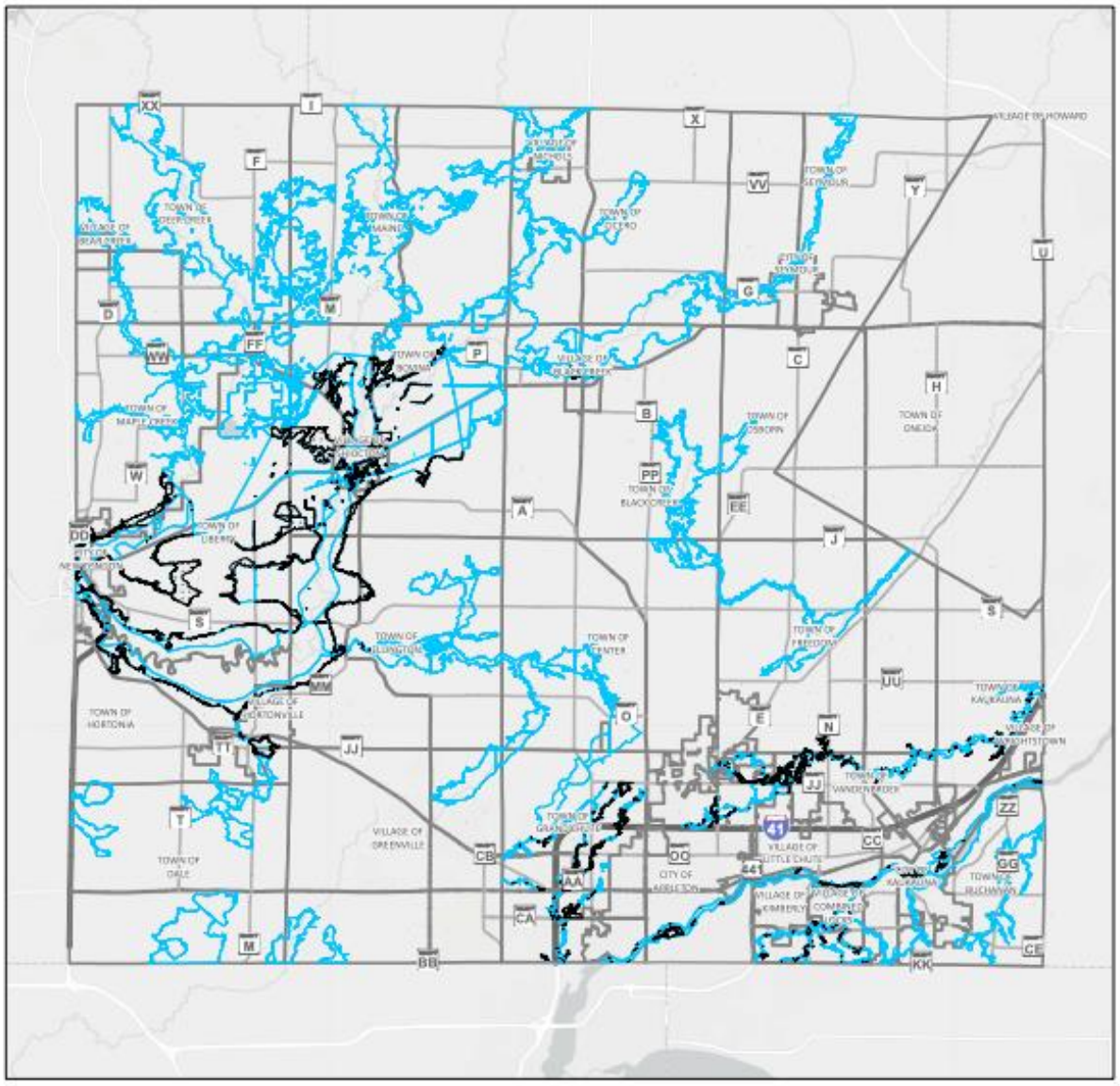
APPENDIX G MAPS

Map 5 100-year Floodplains



Legend

Flood Hazard Zones

1 % Annual Chance Flood

0.2 % Annual Chance Flood

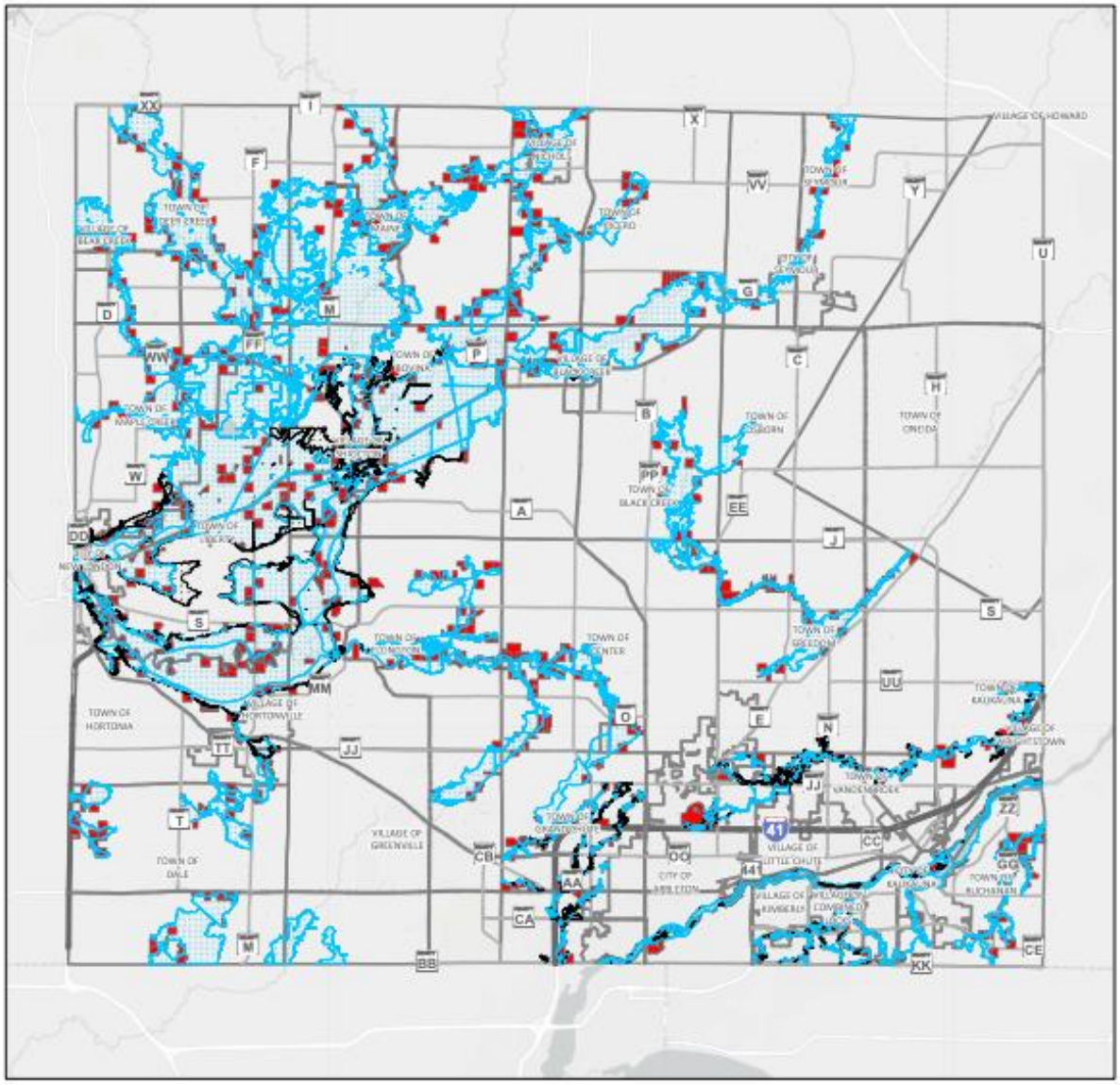
N

Outagamie County

Data Source: FEMA's National Flood Hazard Layer
Outagamie County does not guarantee this information to be correct, current or complete. The maps are only intended for use as a general reference and are not intended for legal purposes or financial decisions. In no event shall Outagamie County become liable to users of these maps for any loss arising from the use of these maps.

APPENDIX G MAPS

Map 6 Properties within the 100-year Floodplain



Legend

- 1 % Annual Chance Flood
- 0.2 % Annual Chance Flood
- Improved Parcels within Floodplain

N

Outagamie County

Data Sources: FEMA's National Flood Hazard Layer, Outagamie County GIS Data.
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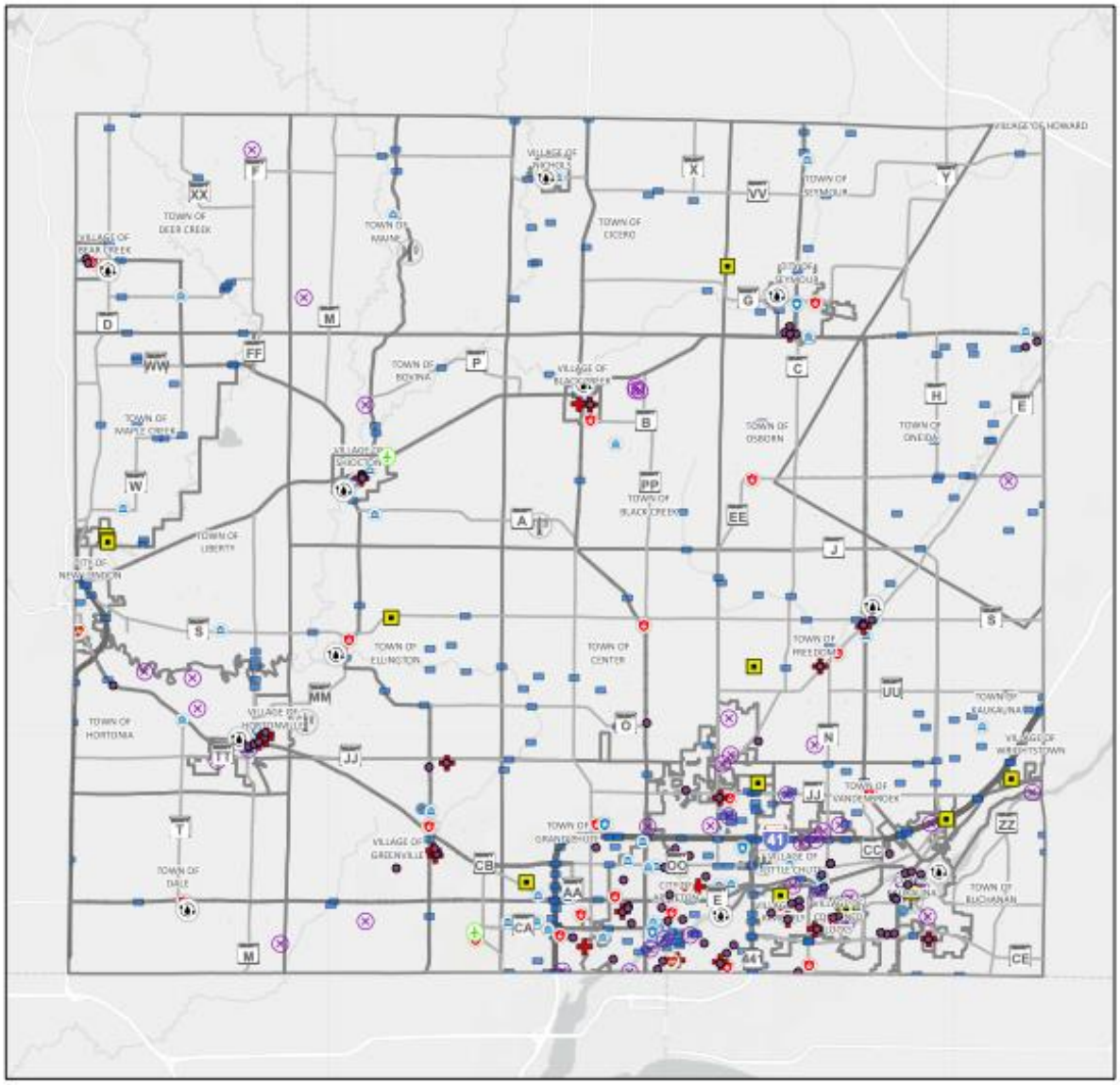
APPENDIX G MAPS

Map 7 Critical Facilities in the 100-year Floodplain



Legend

- Airports
- Bridges
- Dams
- Fire Department
- Government Buildings
- Hospital
- Police Department
- Red Cross Shelters
- Sheriffs Towers
- Substations
- Waterwater Treatment Plants
- Adult Family Home
- Adult Day Care
- Ambulatory Surgical Center
- Community Base Residential Facility
- Child Care
- End State Renal Dialysis
- Manufactured Home Community
- Nursing Home
- Residential Care Apartment Complex
- School
- InternalGIS1.GIS.CountyBoundary
- InternalGIS1.GIS.SCHOOLS

N

Outagamie County

Data Sources: Health and Human Services Critical Facilities GIS Data, The Homeland Infrastructure Foundation-Level Data (HIFLD), Red Cross, WI DNR, Outagamie County GIS Data.
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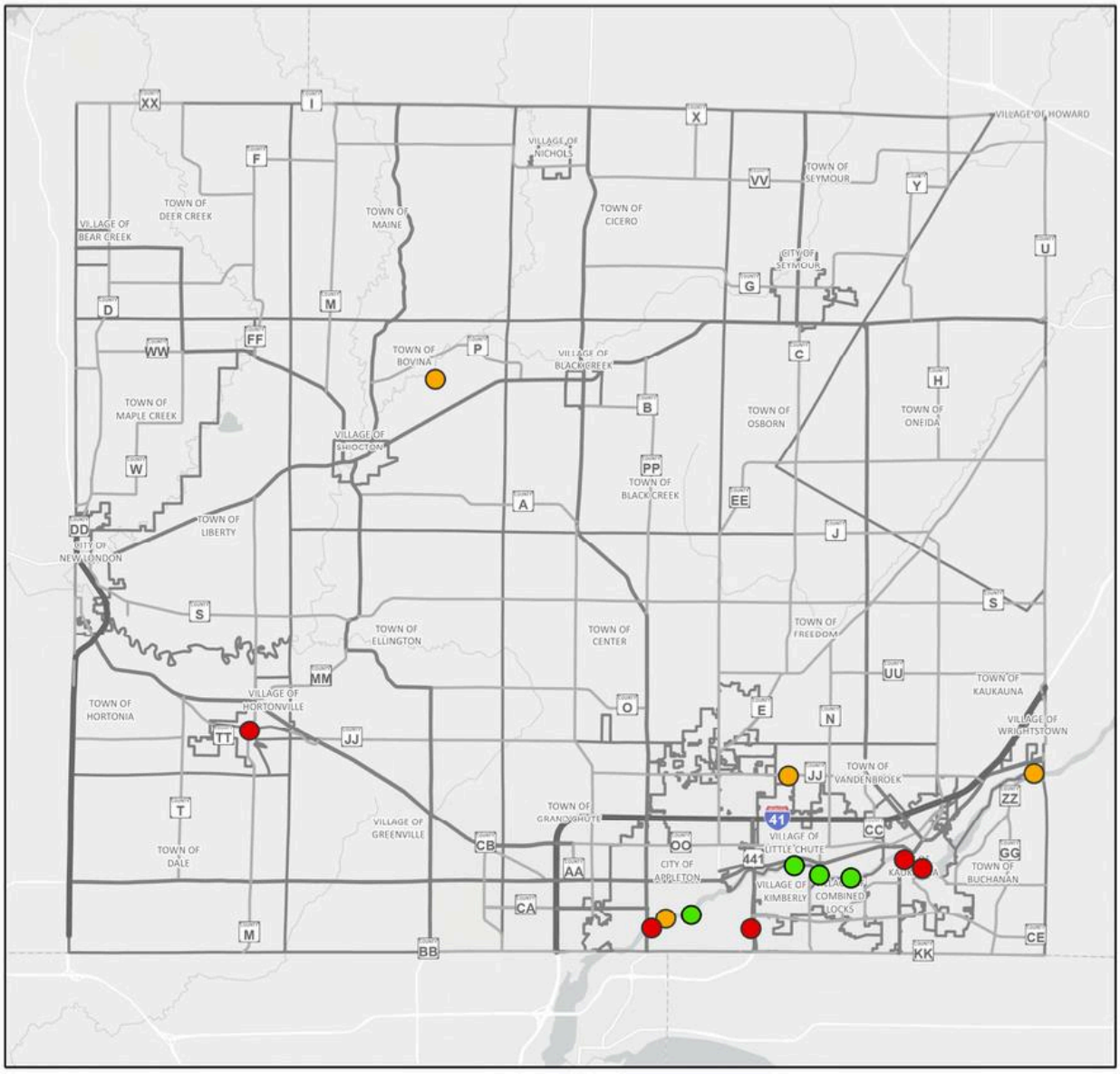
APPENDIX G MAPS

Map 8 Large Dams



Legend

Hazard Potential

- High
- Low
- Significant

N

Outagamie County

Data Sources: WI DNR, Outagamie County GIS Data.
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APPENDIX H RISK ASSESSMENT FORM

Risk Assessment for: _____

Thank you for completing this risk assesment for your community. For each hazard please choose one of the values for each categories. A legend is included for certain categories. Please email this form to emergallc@gmail.com by December 2nd.

Outagamie County Hazards Assessment Survey	**Probability[a]** 3 = Highly Likely 2 = Likely 1 = Possible 0 = Unlikely	**Past Occurrences[b]** 3 = Highly Likely 2 = Likely 1 = Possible 0 = Unlikely NS =Not sure	**Potential Loss of Life[c]** 3 = Catastrophic 2 = Critical 1 = Limited 0 = Negligible	**Potential Loss of Homes[d]** 3 = Catastrophic 2 = Critical 1 = Limited 0 = Negligible	**Potential Loss of Business[e]** 3 = Catastrophic 2 = Critical 1 = Limited 0 = Negligible	**Amount of Warning Time** 3 = No warning 2 = 1 to 6 hrs 1 = 7 or more hrs	**Impacted Area** 3 = County-wide 2 = Local 1 = Isolated areas
Natural Hazards							
Blizzard / Winter Storm							
Communicable Disease							
Pandemic							
Dense fog							
Extreme Drought							
Extreme Cold							
Extreme Heat							
River Flooding							
Flash Flooding							
Extreme Wind							
Hail							
Ice storms							
Severe Thunderstorm/ Strong Wind							
Lightning							
Tornado							

LEGEND

PROBABILITY[a] - How likely an event will occur	
Unlikely = 0 The potential for this event occurring is less than 1 % in the next 100 years.	**Likely = 2** The potential for this event occuring is between 10 and 100 percent within the next year. OR There is at least one chance of occurrence within the next 10 years.
Possible = 1 The potential for this event occuring is between 1 and 10 % within the next year. OR There is at least one chance of occurrence within the next 100 years.	**Highly likely = 3** The potential for this event occuring is very probable (near 100 percent) in the next year.

PAST OCCURRENCES[b]		
Unlikely = 0 Has not occurred in the last 100 years	**Likely = 2** Has occurred in the last 10 years.	
Possible = 1 Has occurred between the last 11 - 100 years	**Highly likely = 3** Has occurred in the last yr.	

	Potential Loss of Life[c]	Potential Loss of Homes[d]	Potential Loss of Business[e]
Catastrophic = 3	This event could cause one or more deaths.	This event could cause more than 50% of homes to be severely damaged in the jurisdiction.	This event could cause complete shutdown of businesses for 30 days or more.
Critical = 2	This event could cause injuries and/or illnesses result in permanent disability.	This event could cause more than 25% of homes to be severely damaged in the jurisdiction.	This event could cause complete shutdown of busineeses for at least 2 weeks.
Limited = 1	This event could cause injuries and/or illnesses do not result in permanent disability.	This event could cause more than 10% of homes to be severely damaged in the jurisdiction.	This event could cause complete shutdown of busineses for more than 1 week.
Negligible = 0	This event could cause injuries and/or illnesses treatable with first aid. Loss of life is small.	This event could cause no more than 1% of homes to be severely damaged in the jurisdiction.	This event could cause shutdown of businesses and services for 24 hours or less.

APPENDIX I MUNICIPAL RISK ASSESSMENTS

Municipal Natural Hazard Risk Assessments

Appleton		Bear Creek		Bovina	
Pandemic	2.00	Extreme Drought	1.71	Tornado	2.29
Extreme Cold	2.00	Pandemic	1.57	Severe Thunderstorms/Strong Wind	2
Blizzard / Winter Storm	1.36	Blizzard / Winter Storm	1.43	Lightning	2
Extreme Wind	1.79	Extreme Cold	1.43	Extreme Wind	1.71
Extreme Heat	1.75	Extreme Heat	1.43	Blizzard / Winter Storms	1.57
Severe Thunderstorm/ Strong Wind	1.64	Extreme Wind	1.43	Dense fog	1.57
Tornado	1.64	Hail	1.43	Ice storms	1.57
Dense fog	1.57	Ice storms	1.43	Extreme Cold	1.43
Lightning	1.57	Severe Thunderstorm/ Strong Wind	1.43	Extreme Heat	1.43
Hail	1.43	Lightning	1.43	Hail	1.43
Communicable Disease	1.29	Dense fog	1.29	Communicable Disease	1.29
Flash Flooding	1.29	Tornado	0.86	Pandemic	1.29
Ice storms	1.29	Communicable Disease	0.00	River Flooding	1.14
Extreme Drought	0.86	River Flooding	0.00	Flash Flooding	1
River Flooding	0.86	Flash Flooding	0.00	Extreme Drought	0.86

Municipal Natural Hazard Risk Assessments

Buchanan		Center		Cicero	
Tornado	2.3	Lightning	2.14	Severe Thunderstorms/Strong Wind	1.57
Extreme Wind	2	Dense fog	2.00	Extreme Cold	1.43
Pandemic	1.7	Tornado	2.00	Extreme Heat	1.43
Severe Thunderstorm/ Strong Wind	1.7	Communicable Disease	1.86	Pandemic	1.29
Blizzard / Winter Storm	1.3	Pandemic	1.86	Tornado	1.29
Ice storms	1.3	Extreme Wind	1.86	Blizzard / Winter Storms	1.14
Hail	1	Severe Thunderstorm/ Strong Wind	1.71	Dense fog	1.14
Communicable Disease	0.9	Blizzard / Winter Storm	1.57	Extreme Drought	1
Flash Flooding	0.9	Hail	1.57	Extreme Wind	1
Lightning	0.7	Extreme Cold	1.43	Ice storms	1
Extreme Cold	0.4	Ice storms	1.43	Communicable Disease	0.86
Extreme Heat	0.4	Extreme Heat	1.29	Hail	0.86
Dense fog	0.3	River Flooding	1.29	Lightning	0.86
Extreme Drought	0.3	Extreme Drought	1.14	River Flooding	0.57
River Flooding	0	Flash Flooding	1.00	Flash Flooding	0.286

Municipal Natural Hazard Risk Assessments

Grand Chute		Hortonville		Kaukauna - City	
Pandemic	2.14	Tornado	2.14	Tornado	2.57
Tornado	2.14	Severe Thunderstorm/ Strong Wind	1.86	Extreme Wind	2.14
Communicable Disease	2.00	Communicable Disease	1.71	Blizzard / Winter Storm	2.00
Severe Thunderstorm/ Strong Wind	1.86	Pandemic	1.71	Communicable Disease	2.00
Extreme Wind	1.71	Extreme Wind	1.71	Pandemic	2.00
Dense fog	1.57	Blizzard / Winter Storm	1.57	Hail	2.00
Extreme Heat	1.57	Extreme Cold	1.57	Lightning	2.00
Lightning	1.57	Extreme Heat	1.57	Extreme Cold	1.86
Blizzard / Winter Storm	1.43	Dense fog	1.57	Flash Flooding	1.86
Extreme Cold	1.43	Hail	1.14	Ice storms	1.86
Hail	1.43	Ice storms	1.14	Severe Thunderstorm/ Strong Wind	1.71
Flash Flooding	1.29	Lightning	1.14	Dense fog	1.57
Extreme Drought	1.00	Flash Flooding	0.71	Extreme Heat	1.57
River Flooding	1.00	Extreme Drought	0.57	River Flooding	1.29
Ice storms	1.00	River Flooding	0.57	Extreme Drought	1.14

Municipal Natural Hazard Risk Assessments

Kimberly		Liberty		Nichols	
Pandemic	2.14	Blizzard / Winter Storm	1.86	Severe Thunderstorms/ Strong Wind	2.86
Extreme Cold	1.86	Pandemic	1.71	Tornado	2.71
Blizzard / Winter Storm	1.57	Ice storms	1.71	Hail	2.57
Communicable Disease	1.57	Severe Thunderstorm/ Strong Wind	1.71	Lightning	2.57
Extreme Heat	1.57	Hail	1.57	Extreme Wind	2.42
Ice storms	1.57	Dense fog	1.43	Blizzard / Winter Storms	2.14
Flash Flooding	1.43	Extreme Cold	1.43	Dense fog	2.14
Extreme Wind	1.43	River Flooding	1.43	Ice storms	2.14
Hail	1.43	Extreme Wind	1.43	Pandemic	1.86
Severe Thunderstorm/ Strong Wind	1.43	Communicable Disease	1.29	Extreme Cold	1.71
Lightning	1.43	Lightning	1.29	River Flooding	1.71
Tornado	1.00	Tornado	1.29	Flash Flooding	1.71
Extreme Drought	0.71	Extreme Heat	1.14	Extreme Heat	1.43
River Flooding	0.43	Flash Flooding	1.00	Communicable Disease	1
Dense fog		Extreme Drought	0.86	Extreme Drought	0.86

Municipal Natural Hazard Risk Assessments

Seymour - City		Seymour - Town		Shiocton	
Tornado	2.71	Extreme Cold	1.86	Tornado	1.71
Pandemic	2.00	Blizzard / Winter Storm	1.57	River Flooding	1.43
Communicable Disease	1.86	Extreme Wind	1.57	Flash Flooding	1.14
Extreme Cold	1.86	Severe Thunderstorm/ Strong Wind	1.57	Severe Thunderstorm/ Strong Wind	1.14
Extreme Heat	1.86	Communicable Disease	1.43	Lightning	1.14
Blizzard / Winter Storm	1.43	Extreme Drought	1.43	Communicable Disease	1.00
Severe Thunderstorm/ Strong Wind	1.43	River Flooding	1.43	Pandemic	1.00
Lightning	1.43	Extreme Heat	1.29	Extreme Heat	1.00
Dense fog	1.29	Lightning	1.29	Ice storms	1.00
Extreme Wind	1.29	Pandemic	1.29	Blizzard / Winter Storm	0.86
Hail	1.14	Flash Flooding	1.14	Extreme Cold	0.86
Ice storms	0.86	Hail	1.14	Extreme Wind	0.86
Extreme Drought	0.57	Ice storms	1.14	Hail	0.86
River Flooding	0.00	Tornado	1.14	Dense fog	0.43
Flash Flooding	0.00	Dense fog	0.71	Extreme Drought	0.43

Municipal Natural Hazard Risk Assessments

Vandenbroek

Blizzard / Winter Storm	1.86
Severe Thunderstorm/ Strong Wind	1.71
Lightning	1.71
Tornado	1.57
Hail	1.43
Pandemic	1.29
Flash Flooding	1.14
Dense fog	1.00
Extreme Cold	1.00
Extreme Heat	1.00
Extreme Wind	1.00
Ice storms	1.00
Extreme Drought	0.86
Communicable Disease	0.71
River Flooding	0.29

APPENDIX J MUNICIPAL CAPABILITY ASSESSMENTS

Hazard Mitigation Capabilities for:
Appleton

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns ->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes - local and county	Yes	Yes
Capital Improvements Plan	Yes - local plan	Yes	Yes
Economic Development Plan	Yes - local plan	Yes	Yes
Local Emergency Response Plan	Yes - local plan	Yes	Yes
Continuity of Operations Plan	Yes - local plan	Yes	No
Transportation Plan	Yes - local plan	Yes	
Stormwater Management Plan	Yes - local plan	Yes	Yes
Community Wildfire Protection Plan	No	No	No
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)	Yes - local plan	Yes	Yes

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	Yes	2018 International Fire Code (IFC)
Fire department ISO rating	Yes	2
Building Code Standard(s)	Yes	2015 IBC, IEBC, IMC, IECC. 2017 NEC.
Electrical Code Standard(s)	Yes	SPS 305, 316 and 324
Any additional fire or building municipal codes which aid in mitigation?	Yes	2012 NFPA 1; 4-137 Fire Limits; Chapt. 6 of the Appleton Municipal Code provides some requirements too.

Hazard Mitigation Capabilities for:
Appleton

3. Inspections & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Local municipality completes
Building Inspections: Does the municipality complete own inspections or contract out services?	Local municipality completes
What position/committee completes your site plan reviews?	Local municipality completes

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - local ordinance	Yes	Yes
Floodplain ordinance	Yes - local ordinance	Yes	Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes - local ordinance	Yes	Yes
Acquisition of land for open space and public recreation uses	Yes - local ordinance	No	Yes

Hazard Mitigation Capabilities for:
Appleton

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes - local plan	Responsible for reviewing rezonings,
Mitigation Planning Committee	Yes - local and county	Floodplain zoning is included within Chapter 23
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes - local plan	management, Forestry maintenance, parks maintenance, and more. See additional comments.
Mutual aid agreements	Yes - local and county	Public Works, Police, and Fire have

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes - local and county
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes - local and county
StormReady certification	No

Additional Comments: The city's zoning ordinance – Chapter 23 of the Municipal Code is primarily administered by Community and Economic Development (DPW also has a role). Floodplain zoning is included within Chapter 23 and stormwater management requirements are captured in Chapter 20, Utilities of the Municipal Code; this chapter is administered by DPW. Steep slope requirements are captured in Chapter 17 Subdivisions and Chapter 24 Erosion and Sediment Control of the Municipal Code. Chapter 17 is primarily administered Community and Economic Development (DPW also has a role), and Chapter 24 is administered by DPW. The City has a Plan Commission that typically meets twice each month. Acquisition of land for open space and public recreation is captured in Chapter 17 Subdivisions of the Municipal Code. This chapter is primarily administered by our department (DPW also has a role). Decisions regarding location, size, etc. of the land are made by PRFM Dept. PRFM has several related plans, including their Comprehensive Outdoor Recreation Plan and Trails Master Plan.

Hazard Mitigation Planning, Operation and Outreach Capabilities for:

Village of Bear Creek

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes - local plan	Yes	Yes
Capital Improvements Plan	No		
Economic Development Plan	No		
Local Emergency Response Plan	Yes - local plan	Yes	Yes
Continuity of Operations Plan			
Transportation Plan			
Stormwater Management Plan	Yes - local plan	Yes	Yes
Community Wildfire Protection Plan	No		
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)	No		

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	Yes	
Fire department ISO rating	Yes	
Building Code Standard(s)	Yes	
Electrical Code Standard(s)	Yes	
Any additional fire or building municipal codes which aid in mitigation?	Yes	

Hazard Mitigation Planning, Operation and Outreach Capabilities for:

Village of Bear Creek

3. Inspections & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Local municipality completes
Building Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
What position/committee completes your site plan reviews?	The Village Board

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - local ordinance	Yes	Yes
Floodplain ordinance	Yes - local ordinance	Yes	Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes - local ordinance	Yes	Yes
Acquisition of land for open space and public recreation uses	Yes - local ordinance	Yes	Yes

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes - local plan	Village Board
Mitigation Planning Committee	Yes - local plan	Village Board
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes - local plan	Village Board
Mutual aid agreements	Yes - local plan	Village Board/Fire Dept.

Hazard Mitigation Planning, Operation and Outreach Capabilities for:

Village of Bear Creek

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes - through County
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes - local plan
StormReady certification	Yes - local plan

Hazard Mitigation Capabilities for:

Town of Bovina

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes	No	
Capital Improvements Plan	No		
Economic Development Plan	No		
Local Emergency Response Plan	Yes - through County	Yes	Yes
Continuity of Operations Plan	No		
Transportation Plan	No		
Stormwater Management Plan	No		
Community Wildfire Protection Plan	No		
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)	No		

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	Yes	State Codes
Fire department ISO rating	Yes	State Codes
Building Code Standard(s)	Yes	State Codes
Electrical Code Standard(s)	Yes	State Codes
Any additional fire or building municipal codes which aid in mitigation?		

Hazard Mitigation Capabilities for:

Town of Bovina

3. Inspectiongs & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
Building Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
What position/committee completes your site plan reviews?	Building Inspector

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - county ordinance		
Floodplain ordinance	Yes - county ordinance		
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	No		
Acquisition of land for open space and public recreation uses	No		

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes - local plan	Developing Comprehensive Plan
Mitigation Planning Committee		
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	No	
Mutual aid agreements	Yes - local plan	Joint Fire Departments

Hazard Mitigation Capabilities for:

Town of Bovina

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
StormReady certification	No

Hazard Mitigation Capabilities for:

Town of Buchanan

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes - local plan	Yes	
Capital Improvements Plan	Yes - local plan	No	No
Economic Development Plan	Yes - local plan	No	No
Local Emergency Response Plan	Yes - local and county	Yes	Yes
Continuity of Operations Plan	Yes - local plan	No	No
Transportation Plan			
Stormwater Management Plan			
Community Wildfire Protection Plan			
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)			

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	Yes	NFPA and state
Fire department ISO rating	Yes	Good
Building Code Standard(s)	Yes	Local and state
Electrical Code Standard(s)	Yes	Local and state
Any additional fire or building municipal codes which aid in mitigation?	No	

Hazard Mitigation Capabilities for:

Town of Buchanan

3. Inspections & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Local municipality completes
Building Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
What position/committee completes your site plan reviews?	Planning and zoning

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - local ordinance	Yes	Yes
Floodplain ordinance	Yes - local and county ordinance	Yes	Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes - local and county ordinance	Yes	Yes
Acquisition of land for open space and public recreation uses	Yes - local ordinance	Yes	Yes

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes - local plan	
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	In Progress	
Mutual aid agreements	Yes - local and county	

Hazard Mitigation Capabilities for:

Town of Buchanan

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	In Progress
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	In Progress
StormReady certification	In Progress

Hazard Mitigation Capabilities for:

Town of Center

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes - local plan	No	No
Capital Improvements Plan	No		
Economic Development Plan	No		
Local Emergency Response Plan	Yes - local and county	Yes	No
Continuity of Operations Plan	No		
Transportation Plan	No		
Stormwater Management Plan	No		
Community Wildfire Protection Plan	No		
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)	No		

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	No	
Fire department ISO rating	Yes	
Building Code Standard(s)	No	
Electrical Code Standard(s)	No	
Any additional fire or building municipal codes which aid in mitigation?		

Hazard Mitigation Capabilities for:

Town of Center

3. Inspectiongs & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Local municipality completes
Building Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
What position/committee completes your site plan reviews?	County

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - county ordinance		
Floodplain ordinance	Yes - county ordinance		
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes - county ordinance		
Acquisition of land for open space and public recreation uses	Yes - local ordinance		

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes - local plan	
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes - local plan	
Mutual aid agreements	Yes - local plan	

Hazard Mitigation Capabilities for:

Town of Center

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
StormReady certification	No

Hazard Mitigation Capabilities for:

Town of Cicero

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes	Yes	Yes
Capital Improvements Plan	No		
Economic Development Plan	No		
Local Emergency Response Plan	Yes	Yes	Yes
Continuity of Operations Plan	No		
Transportation Plan	No		
Stormwater Management Plan	No		
Community Wildfire Protection Plan	No		
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)	No		

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	No	
Fire department ISO rating	Yes	
Building Code Standard(s)	Yes	
Electrical Code Standard(s)	Yes	
Any additional fire or building municipal codes which aid in mitigation?	No	

Hazard Mitigation Capabilities for:

Town of Cicero

3. Inspectiongs & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
Building Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
What position/committee completes your site plan reviews?	County Zoning

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - county ordinance	Yes	Yes
Floodplain ordinance	Yes - county ordinance	Yes	Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes - county ordinance	Yes	Yes
Acquisition of land for open space and public recreation uses	No		

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes	
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes	Tree trimming and ditch cleaning
Mutual aid agreements	Yes	Fire Department

Hazard Mitigation Capabilities for:

Town of Cicero

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes
StormReady certification	No

Hazard Mitigation Capabilities for:
Town of Grand Chute

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes - local plan	No	No
Capital Improvements Plan	Yes - local plan	No	No
Economic Development Plan	Yes - local plan	No	No
Local Emergency Response Plan	Yes - local and county	Yes	Yes
Continuity of Operations Plan	No		
Transportation Plan	No		
Stormwater Management Plan	In Progress	No	No
Community Wildfire Protection Plan	No		
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)	No		

Hazard Mitigation Capabilities for:
Town of Grand Chute

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	Yes	IFC 2015 Edition
Fire department ISO rating	Yes	3 hydrant-areas / 4 non-hydrant areas
Building Code Standard(s)	Yes	Wis. Adm. Code - Chapters Comm 61-66, Wisconsin Commercial Building Code; Chapters Comm 75-79, Building Constructed Prior to 1974; Chapters 20-25, Uniform Dwelling Code
Electrical Code Standard(s)	Yes	Wisconsin State Electrical Code, Ch. Comm 16, Wis. Adm. Code
Any additional fire or building municipal codes which aid in mitigation?	Yes	Variety of local ordinances 3.g. GC Municipal Code Chapters 190, 220, 275, 291, 295, 310, 317, 415, 515

Hazard Mitigation Capabilities for:
Town of Grand Chute

3. Inspections & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Local municipality completes
Building Inspections: Does the municipality complete own inspections or contract out services?	Local municipality completes
What position/committee completes your site plan reviews?	Town Planner & Building Inspector / Town Site Plan Committee

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - local ordinance	No	Yes
Floodplain ordinance	Yes - county ordinance		
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes - local ordinance	No	Yes
Acquisition of land for open space and public recreation uses	Yes - local ordinance	No	Yes

Hazard Mitigation Capabilities for:
Town of Grand Chute

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes - local plan	The plan commission is a 7-member group with 5 citizen members and 2 Town Board members. They review staff recommendations regarding site plan application, amendments, exceptions, etc as outlined in the applicable portions of the Zoning Municipal Ordinance Ch. 535.
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes - local plan	The Town of Grand Chute has a Department of Public Works that consists of approximately 30 employees who provide maintenance programs to streets, vegetation, the water system, facilities, etc.
Mutual aid agreements	Yes - local and county	GCFD is part of MABAS Division 127 and the Wisconsin State MABAS program; GCPD has mutual aid agreements in place with other local law enforcement; Dept of Public Works also collaborates with similar organizations at county and local levels.

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes - through County
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes - local and county
StormReady certification	No

Additional comments: The Town of Grand Chute Emergency Response Plan was last revised in 2015. The Town will have new EM leadership at the start of 2023, and it is believed, but cannot say for certain, that updating the ERP will be a priority in 2023.

Hazard Mitigation Capabilities for:
City of Kaukauna

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes - local and county	No	No
Capital Improvements Plan	Yes - local plan	No	No
Economic Development Plan	Yes - local plan	No	No
Local Emergency Response Plan	Yes - local and county	Yes	Yes
Continuity of Operations Plan	No	No	No
Transportation Plan	Yes - through County		
Stormwater Management Plan	Yes - local plan	Yes	No
Community Wildfire Protection Plan	No	No	No
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)	No	No	No

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	Yes	2015
Fire department ISO rating	Yes	3
Building Code Standard(s)	Yes	State Codes
Electrical Code Standard(s)	Yes	State Codes
Any additional fire or building municipal codes which aid in mitigation?		

Hazard Mitigation Capabilities for:
City of Kaukauna

3. Inspectiongs & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Local municipality completes
Building Inspections: Does the municipality complete own inspections or contract out services?	Local municipality completes
What position/committee completes your site plan reviews?	Planning Commission

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - local ordinance	Yes	Yes
Floodplain ordinance	No		
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes - local ordinance	Yes	Yes
Acquisition of land for open space and public recreation uses	Yes - local ordinance	Yes	Yes

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes - local plan	7 member board meets regularly.
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes - local plan	Street Department handles this on a routine basis.
Mutual aid agreements	Yes - local plan	Agreements with all of our neighboring jurisdictions.

Hazard Mitigation Capabilities for:
City of Kaukauna

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes - local plan
StormReady certification	No

Hazard Mitigation Capabilities for:
Village of Kimberly

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes - local and county	Yes	In progress
Capital Improvements Plan	Yes - local plan	Yes	In progress
Economic Development Plan	No	No	No
Local Emergency Response Plan	Yes - local plan	Yes	In progress
Continuity of Operations Plan	Yes - local plan	In progress	In progress
Transportation Plan	Yes - local and county	Yes	No
Stormwater Management Plan	Yes - local plan	Yes	In progress
Community Wildfire Protection Plan	No	No	No
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)	Yes - local and county	Yes	Yes

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	Yes	State of Wisconsin Adopted Codes
Fire department ISO rating	Yes	3
Building Code Standard(s)	Yes	4
Electrical Code Standard(s)	Yes	State of Wisconsin Adopted NEC Codes
Any additional fire or building municipal codes which aid in mitigation?	yes	yes

Hazard Mitigation Capabilities for:

Village of Kimberly

3. Inspectiongs & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Local municipality completes
Building Inspections: Does the municipality complete own inspections or contract out services?	Local municipality completes
What position/committee completes your site plan reviews?	Management Team & Plan Commission

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - local ordinance	Yes	Yes
Floodplain ordinance	Yes - local ordinance	Yes	Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes - local ordinance	Yes	Yes
Acquisition of land for open space and public recreation uses	Yes - local ordinance	Yes	Yes

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes - local plan	Review/approve ordinances impacting property usage, Site Review authority.
Mitigation Planning Committee	Yes - local and county	Joint effort on areas of mutual interest.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes - local plan	Urban Forestry Management, Storm Water Management
Mutual aid agreements	Yes - local and county	Law enforcement has local, county and statewide mutual aid capabilities to respond to large incidents.

Hazard Mitigation Capabilities for:

Village of Kimberly

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes - local and county
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes - local and county
StormReady certification	No

Hazard Mitigation Capabilities for:
Town of Liberty

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes - through County		
Capital Improvements Plan	No		
Economic Development Plan	No		
Local Emergency Response Plan	No		
Continuity of Operations Plan	No		
Transportation Plan	No		
Stormwater Management Plan	No		
Community Wildfire Protection Plan	No		
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)	No		

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	No	
Fire department ISO rating	No	
Building Code Standard(s)	Yes	Building ordinance
Electrical Code Standard(s)	No	
Any additional fire or building municipal codes which aid in mitigation?	No	

Hazard Mitigation Capabilities for:
Town of Liberty

3. Inspectiongs & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
Building Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
What position/committee completes your site plan reviews?	

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - local ordinance	Yes	Yes
Floodplain ordinance	Yes - county ordinance	Yes	Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes - county ordinance	Yes	Yes
Acquisition of land for open space and public recreation uses	No	No	No

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes - local plan	The board is the planning commision
Mitigation Planning Committee	No	N/A
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes - local plan	Yes, contract out if needed.
Mutual aid agreements	No	N/A

Hazard Mitigation Capabilities for:
Town of Liberty

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
StormReady certification	No

Hazard Mitigation Capabilities for:

Village of Nichols

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes - local plan	No	No
Capital Improvements Plan	Yes - local and county	No	No
Economic Development Plan	Yes - local plan	No	No
Local Emergency Response Plan	Yes - local plan	Yes	Yes
Continuity of Operations Plan	No		
Transportation Plan	Yes - local plan	No	No
Stormwater Management Plan	Yes - local plan	No	No
Community Wildfire Protection Plan	No		
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)	No		

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	Yes	
Fire department ISO rating	Yes	6
Building Code Standard(s)	Yes	
Electrical Code Standard(s)	Yes	
Any additional fire or building municipal codes which aid in mitigation?	No	

Hazard Mitigation Capabilities for:

Village of Nichols

3. Inspectiongs & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
Building Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
What position/committee completes your site plan reviews?	Building Inspector

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - county ordinance	Yes	Yes
Floodplain ordinance	Yes - county ordinance	Yes	Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	No		
Acquisition of land for open space and public recreation uses	No		

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes - local plan	
Mitigation Planning Committee	Yes - through County	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	No	
Mutual aid agreements	Yes - local plan	MABAS

Hazard Mitigation Capabilities for:

Village of Nichols

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes - local plan
StormReady certification	No

Hazard Mitigation Capabilities for:
City of Seymour

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes - local plan	Yes	Yes
Capital Improvements Plan	Yes - local plan	No	No
Economic Development Plan	Yes - local plan	Yes	Yes
Local Emergency Response Plan	Yes - local plan	Yes	Yes
Continuity of Operations Plan	No		
Transportation Plan	No		
Stormwater Management Plan	Yes - local plan		
Community Wildfire Protection Plan	No	No	No
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)	No	No	No

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	No	National Fire Protection Assocation
Fire department ISO rating	Yes	3
Building Code Standard(s)	Yes	
Electrical Code Standard(s)	Yes	WI Admin Code - Comm 16
Any additional fire or building municipal codes which aid in mitigation?	Yes	WI Admin Code 81-87, 10, 20-25

Hazard Mitigation Capabilities for:

City of Seymour

3. Inspectiongs & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
Building Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
What position/committee completes your site plan reviews?	Plan Commission. Final approval from City Council

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - local ordinance	Yes	Yes
Floodplain ordinance	Yes - local ordinance	Yes	Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes - local ordinance	Yes	Yes
Acquisition of land for open space and public recreation uses	No	No	No

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes - local plan	Reviews site plan and provides
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes - local plan	Department of Public Works handles tree trimming, clearing drainage systems, etc.
Mutual aid agreements	Yes - local plan	Mutual Aid agreement for fire and rescue with surrounding muncipalities.

Hazard Mitigation Capabilities for:

City of Seymour

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
StormReady certification	

Hazard Mitigation Capabilities for:

Town of Seymour

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes	Yes	Yes
Capital Improvements Plan	No		
Economic Development Plan	No		
Local Emergency Response Plan	Yes	Yes	Yes
Continuity of Operations Plan	No		
Transportation Plan	No		
Stormwater Management Plan	No		
Community Wildfire Protection Plan	No		
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)	No		

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)		
Fire department ISO rating	Yes	
Building Code Standard(s)	Yes	
Electrical Code Standard(s)	Yes	
Any additional fire or building municipal codes which aid in mitigation?	Yes	

Hazard Mitigation Capabilities for:

Town of Seymour

3. Inspectiongs & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
Building Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
What position/committee completes your site plan reviews?	

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - county ordinance		
Floodplain ordinance	Yes - county ordinance		
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	No		
Acquisition of land for open space and public recreation uses	No		

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes	
Mitigation Planning Committee	Yes	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes	
Mutual aid agreements	Yes	

Hazard Mitigation Capabilities for:

Town of Seymour

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
StormReady certification	No

Hazard Mitigation Planning, Operation and Outreach Capabilities for:
Village of Shiocton

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes - local plan	No	
Capital Improvements Plan	No		
Economic Development Plan	No		
Local Emergency Response Plan	Yes - local plan	Yes	Yes
Continuity of Operations Plan	Yes - through County	Yes	Yes
Transportation Plan	Yes - through County	Yes	Yes
Stormwater Management Plan	Yes - through County	Yes	Yes
Community Wildfire Protection Plan	Yes - through County	Yes	Yes
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)			

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	Yes	NFIP
Fire department ISO rating	Yes	
Building Code Standard(s)	Yes	State
Electrical Code Standard(s)	Yes	State
Any additional fire or building municipal codes which aid in mitigation?		

Hazard Mitigation Planning, Operation and Outreach Capabilities for:
Village of Shiocton

3. Inspectiongs & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
Building Inspections: Does the municipality complete own inspections or contract out services?	Local municipality completes
What position/committee completes your site plan reviews?	Zoning and Inspector

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - local ordinance	Yes	Yes
Floodplain ordinance	Yes - local ordinance	Yes	Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes - local ordinance	Yes	Yes
Acquisition of land for open space and public recreation uses	Yes - local ordinance	Yes	Yes

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	No	
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes - local plan	Public Works does that
Mutual aid agreements		

Hazard Mitigation Planning, Operation and Outreach Capabilities for:
Village of Shiocton

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes - local and county
StormReady certification	No

Additional Comments: Our small village adopted the County plan. We have our own ordinances and also our own fire and EMS that are included in the plans for emergencys, etc.

Hazard Mitigation Planning, Operation and Outreach Capabilities for:
Vandenbroek

1. Planning Capabilities	Does the municipality have this plan in effect? (if yes, please answer the remaining columns -->)	Does the plan address hazards?	Can the plan implement mitigation actions (reducing risks from disasters)?
Comprehensive/Master Plan	Yes - through County	No	
Capital Improvements Plan	No	No	
Economic Development Plan	No	No	
Local Emergency Response Plan	Yes - local and county	Yes	
Continuity of Operations Plan	Yes - local plan	Yes	
Transportation Plan	No	No	
Stormwater Management Plan	Yes - through County		
Community Wildfire Protection Plan	No	No	
Other special plans (e.g., brownfields redevelopment, disaster recovery, climate change adaptation)	No	No	

2. Building Code Capabilities	Does your municipality have these standards or process?	Please list the standard and/or rating
Fire Code standard (i.e. IFC or NFIP)	Yes	NFPA
Fire department ISO rating	Yes	5
Building Code Standard(s)	Yes	Uniform Dwelling Code
Electrical Code Standard(s)	Yes	NEC
Any additional fire or building municipal codes which aid in mitigation?		

Hazard Mitigation Planning, Operation and Outreach Capabilities for:
Vandenbroek

3. Inspectiongs & Site Plans	Does your municipality have this process?
Fire Inspections: Does the municipality complete own inspections or contract out services?	Local municipality completes
Building Inspections: Does the municipality complete own inspections or contract out services?	Contracted service
What position/committee completes your site plan reviews?	Planning Commission and Town Board

4. Land Use Planning and Ordinances	Does the municipality have an ordinance/plans in place?	Is the ordinance an effective measure for reducing hazard impacts?	Is the ordinance adequately administered and enforced?
Zoning ordinance	Yes - local and county ordinance		Yes
Floodplain ordinance	Yes - county ordinance	Yes	Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes - county ordinance	Yes	Yes
Acquisition of land for open space and public recreation uses	Yes - local ordinance	Yes	Yes

5. Administrative Capabilities	Does the municipality have these capabilities?	Please describe the capability
Planning Commission	Yes - local plan	They review all new develops and give
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	No	
Mutual aid agreements	Yes - local and county	We have auto aid with Freedom and also use MABAS

Hazard Mitigation Planning, Operation and Outreach Capabilities for: Vandenbroek

6. Education & Outreach Capability	Does the municipality have these capabilities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	No
StormReady certification	No

APPENDIX K MUNICIPAL MITIGATION STRATEGIES

LOCAL MITIGATION STRATEGIES WORKSHEET FOR APPLETON

Mitigation Strategy	Hazards Mitigated	Responsible Entities	Source of Funding	Estimated Cost	Estimated Benefit	Timeline	Priority	Comments
Construct a Flood Control Pond in Lions Park to reduce flooding in the Theodore Street Area	Flash Flooding	City of Appleton Department of Public Works	Other - list in comments	Medium	Medium	Long Term: Completed in 5 years or greater	Low	Stormwater Utility Funding or grant, TBD
Construct Pierce Park relief sewer to alleviate flooding at the Mason Street railroad underpass and nearby areas	Flash Flooding	City of Appleton Department of Public Works	Other - list in comments	Medium	Medium	Long Term: Completed in 5 years or greater	Low	Stormwater Utility Funding or grant, TBD
Construct upsized storm sewers in various areas throughout City to improve drainage in areas with modelled and/or reported risk of flash flooding, as streets are scheduled for reconstruction.	Flash Flooding	City of Appleton Department of Public Works	Other - list in comments	Medium	Medium	Long Term: Completed in 5 years or greater	Low	Stormwater Utility Funding or grant, TBD
Internal Department notification technology	Severe Thunderstorms /Strong Wind	City of Appleton - DPW	Local Operating Budget	Low	High	Short Term: Completed in 1 to 5 years	High	I am Responding type application for all DPW field staff. Perhaps this could be expanded to City-wide field staff
Comprehensive stormwater/flood management study	Flash Flooding	City of Appleton - DPW	Local Capital Improvement Project	High	Medium	Long Term: Completed in 5 years or greater	Medium	
Shelter Location resiliency surveying	Tornado	City of Appleton - EM	Local Staff time and resources	Medium	Medium	Ongoing	Medium	

LOCAL MITIGATION STRATEGIES WORKSHEET FOR APPLETON

Mitigation Strategy	Hazards Mitigated	Responsible Entities	Source of Funding	Estimated Cost	Estimated Benefit	Timeline	Priority	Comments
Appleton Public Health will distribute information through our website and social media to reduce the spread of communicable disease.	Communicable Disease	City of Appleton Public Health	Local Staff time and resources	Low	Low	Ongoing	Medium	This is ongoing work that Public Health engages in as one of it's health priorities
Utilizing social media and Appleton's website, promote winter hazards awareness, including home and travel safety measures.	Blizzard / Winter Storms	City of Appleton	Local Staff time and resources	Low	Low	Ongoing	Medium	
Appleton Public Health will distribute information through our website and social media on measures to reduce pandemic impact.	Pandemic	City of Appleton Public Health	Local Staff time and resources	Low	Medium	As grant funds are available	Medium	With the COVID-19 pandemic, additional funds were made available to public health for mitigation measures. Education will continue with the pandemic ending,
The city will distribute the National Weather Service Dense Fog Advisory via social media.	Dense fog	City of Appleton	Local Staff time and resources	Low	Low	Ongoing	Medium	
Education to residents related to water conservation and avoidance of irresponsible use and subsequent waste.	Extreme Drought	City of Appleton	Local Staff time and resources	Low	Low	Annual - Once a year	Medium	

LOCAL MITIGATION STRATEGIES WORKSHEET FOR APPLETON

Mitigation Strategy	Hazards Mitigated	Responsible Entities	Source of Funding	Estimated Cost	Estimated Benefit	Timeline	Priority	Comments
Continue public informational outreach campaigns about extreme cold safety from the National Weather Service on the Appleton website, Facebook, and Twitter.	Extreme Cold	City of Appleton	Local Staff time and resources	Low	Low	Ongoing	Medium	
Promote tips on generator safety in extreme cold weather on Appleton social media platforms	Extreme Cold	City of Appleton	Local Staff time and resources	Low	Low	Ongoing	Medium	
Continue public informational outreach campaigns about extreme heat and cooling shelters on social media platforms.	Extreme Heat	City of Appleton	Local Staff time and resources	Low	Low	Ongoing	Medium	
Identifying and designating additional cooling sites/shelters in the city to accommodate more citizens	Extreme Heat	City of Appleton EM	Local Staff time and resources	Low	Low	Ongoing	Medium	
Educate the public via social media platforms on ways to strap down lawn equipment or décor to reduce property damage during extreme wind events.	Extreme Wind	City of Appleton EM	Local Staff time and resources	Low	Low	Ongoing	Medium	

LOCAL MITIGATION STRATEGIES WORKSHEET FOR APPLETON

Mitigation Strategy	Hazards Mitigated	Responsible Entities	Source of Funding	Estimated Cost	Estimated Benefit	Timeline	Priority	Comments
Continue education via face to face interactions on dam action levels and sand bag request procedures with facilities on lower levels along the Fox River.	River Flooding	City of Appleton EM	Local Staff time and resources	Low	Low	Ongoing	Medium	
Public informational outreach campaigns about hail during severe weather on the Appleton website and social media platforms.	Hail	City of Appleton	Local Staff time and resources	Low	Low	Ongoing	Medium	
When an ice storm is forecasted, use city of Appleton's social media resources on proper use of generators	Ice storms	City of Appleton	Local Staff time and resources	Low	Low	Ongoing	Medium	
Continue public informational outreach campaigns about lightning on Appleton social media platforms using the National Weather Service resources	Lightning	City of Appleton	Local Staff time and resources	Low	Low	Ongoing	Medium	
Increase community awareness on vegetation fires and mitigation activities the public could do to reduce the hazard risks.	Vegetation Fires	City of Appleton	Local Staff time and resources	Low	Low	Ongoing	Medium	

LOCAL MITIGATION STRATEGIES WORKSHEET FOR VILLAGE OF BEAR CREEK							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Conduct public outreach to residents and businesses to about being prepared for severe weather to reduce hazard impact. Promote winter hazards awareness, including home and travel safety measures (including website.)	Blizzard / Winter Storms	Clerk	Local Staff time and resources	Low	Medium	Ongoing	Medium
Distribute information through newsletters, website and social media from the county Public health on measures to reduce communicable disease.	Communicable Disease	Clerk	Local Staff time and resources	Low	Low	Short Term: Completed in 1 to 5 years	Low
Distribute information through newsletters, website and social media from the county Public health on measures to reduce pandemic impact.	Pandemic	Clerk	Local Staff time and resources	Low	Low	Short Term: Completed in 1 to 5 years	Low
Distribute the National Weather Service Dense Fog Advisory.	Dense fog	Clerk	Local Staff time and resources	Low	Medium	Ongoing	Medium
Education to residents related to water conservation and avoidance of irresponsible use and subsequent waste.	Extreme Drought	Clerk	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Promote tips on generator safety in extreme cold weather in the municipal newsletter.	Extreme Cold	Clerk/Fire Chief	Local Staff time and resources	Low	Medium	Ongoing	Medium
Continue public informational outreach campaigns about extreme heat and cooling shelters on the city website and Facebook pages.	Extreme Heat	Clerk	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Identify river/creek areas the community is at risk for flooding and request during high water levels, Public Works and Law Enforcement staff check the area for safety concerns.	River Flooding	Clerk/President/ Fire Chief	Local Staff time and resources	Low	Low	Ongoing	Low

LOCAL MITIGATION STRATEGIES WORKSHEET FOR VILLAGE OF BEAR CREEK							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Asking residents to help keep storm drains clear of debris during storms.	Flash Flooding	Clerk	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Public informational campaigns before extreme wind and thunderstorm event for residents to pack away light weight yard items and move vehicles into gararges/car ports. Utilize the municipalities website and social media.	Extreme Wind	Clerk/President/ Fire Chief	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Public informational outreach campaigns about hail during severe weather on the municipalities website and Facebook pages.	Hail	Clerk	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
When an ice storm is forecasted, use available social media resources on proper use of generators	Ice storms	Clerk/Fire Chief	Local Staff time and resources	Low	Medium	Ongoing	Medium
Public informational outreach in the local newspaper during severe thunderstorm season on preparedness activities.	Severe Thunderstorms/ Strong Wind	Clerk	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Contact local outdoor, recreational and school organizations on utlizing the National Weather Service Lightning Safety Toolkit https://www.weather.gov/safety/lightning-toolkits	Lightning	Clerk/Fire Chief	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Increase community awareness and participation in vegetation hazard mitigation activities to include maintaining zones of debris clearance between homes and vegetation.	Vegetation Fires	Clerk/President/ Fire Chief	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Educate students at schools on how to mitigate against a tornado and be better prepared for storms.	Tornado	Fire Department	Local Staff time and resources	Low	High	Annual - Once a year	High

LOCAL MITIGATION STRATEGIES WORKSHEET FOR TOWN OF BLACK CREEK							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Call County Highway to plow road. The Fire Department or neighbors will bring water if needed. Many generator's in the town and share between neighbors.	Blizzard / Winter Storms	Town Board and residents	Local Staff time and resources	Low	High	Ongoing	High
Use the town's website and posting boards to share relevant information.	Communicable Disease	Town Board	Local Staff time and resources	Low	Low	Ongoing	Low
Use the town's website and posting boards to share relevant information.	Pandemic	Town Board	Local Staff time and resources	Low	Low	Ongoing	Low
Rely on the media to distribute the National Weather Service Dense Fog Advisory.	Dense fog	Media	Local Staff time and resources	Low	Low	Ongoing	Low
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	Extreme Drought	Media/Town Board	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	Extreme Cold	Media/Town Board	Local Staff time and resources	Low	Low	Ongoing	Low
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	Extreme Heat	Media/Town Board	Local Staff time and resources	Low	Low	Ongoing	Low
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	River Flooding	Media/Town Board	Local Staff time and resources	Low	Low	Ongoing	Low

LOCAL MITIGATION STRATEGIES WORKSHEET FOR TOWN OF BLACK CREEK							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Signs placed to warn residents of flooding.	Flash Flooding	Town Staff	Local Staff time and resources	Low	Medium	Annual - Once a year	High
Local residents will cut trees and if needed dump trucks will be loaded and hauled to chipper.	Extreme Wind	Town Staff	Local Staff time and resources	Low	Medium	Ongoing	Medium
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	Hail	Media/Town Board	Local Staff time and resources	Low	Low	Ongoing	Low
Salt the roads.	Ice storms	County Highway	Local Staff time and resources	Low	Medium	Ongoing	Medium
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	Severe Thunderstorms/ Strong Wind	Media/Town Board	Local Staff time and resources	Low	Medium		Medium
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	Lightning	Media/Town Board	Local Staff time and resources	Low	Low	Ongoing	Low
Fire department will increase community awareness and participation in vegetation hazard mitigation activities.	Vegetation Fires	Fire Dept	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Rely on the media to distribute the weather message.	Tornado	Media/Town Board	Local Staff time and resources	Low	Low	Ongoing	Low

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF BLACK CREEK							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Conduct public outreach to residents and businesses to about being prepared for severe weather to reduce hazard impact. Promote winter hazards awareness, including home and travel safety measures (including website.)	Blizzard / Winter Storms	Public Works Director	Local Staff time and resources	Low	Medium	Ongoing	Medium
Distribute information through newsletters, website and social media from the county Public health on measures to reduce communicable disease.	Communicable Disease	Clerks Office	Local Staff time and resources	Low	Low	Short Term: Completed in 1 to 5 years	Low
Distribute information through newsletters, website and social media from the county Public health on measures to reduce pandemic impact.	Pandemic	Clerks Office	Local Staff time and resources	Low	Low	Short Term: Completed in 1 to 5 years	Low
Distribute the National Weather Service Dense Fog Advisory.	Dense fog		Local Staff time and resources	Low	Medium	Ongoing	Medium
Education to residents related to water conservation and avoidance of irresponsible use and subsequent waste.	Extreme Drought	water treatment department	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Promote tips on generator safety in extreme cold weather in the municipal newsletter.	Extreme Cold	Clerks office	Local Staff time and resources	Low	Medium	Ongoing	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF BLACK CREEK							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Continue public informational outreach campaigns about extreme heat and cooling shelters on the city website and Facebook pages.	Extreme Heat	clerks office	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Identify river/creek areas the community is at risk for flooding and request during high water levels, Public Works and Law Enforcement staff check the area for safety concerns.	River Flooding	Public Works Director , Fire Dept	Local Staff time and resources	Low	Low	Ongoing	Low
Asking residents to help keep storm drains clear of debris during storms.	Flash Flooding	Public works Director	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Public informational campaigns before extreme wind and thunderstorm event for residents to pack away light weight yard items and move vehicles into garages/car ports. Utilize the municipalities website and social media.	Extreme Wind	public works, clerks office	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Public informational outreach campaigns about hail during severe weather on the municipalities website and Facebook pages.	Hail	public works , fire dept	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF BLACK CREEK							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
When an ice storm is forecasted, use available social media resources on proper use of generators	Ice storms		Local Staff time and resources	Low	Medium	Ongoing	Medium
Public informational outreach in the local newspaper during severe thunderstorm season on preparedness activities.	Severe Thunderstorms/Strong Wind	fire dept	Local Staff time and resources	Low	Medium		Medium
Contact local outdoor, recreational and school organizations on utilizing the National Weather Service Lightning Safety Toolkit https://www.weather.gov/safety/lightning-toolkits	Lightning	fire dept	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Increase community awareness and participation in vegetation hazard mitigation activities to include maintaining zones of debris clearance between homes and vegetation.	Vegetation Fires		Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Educate students at schools on how to mitigate against a tornado and be better prepared for storms.	Tornado	fire dept	Local Staff time and resources	Low	High	Annual - Once a year	High

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: CENTER							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Make sure plows are ready to clear roads and request assistance from county if needed. Provide shelter at town hall if needed.	Blizzard / Winter Storms	Local Public Works Department and County Highway Department	Local Operating Budget	Low	High	Short Term: Completed in 1 to 5 years	High
Mobilize public works department to open roads and provide shelter at town hall if needed.	Tornado	Local Public Works Department, Fire Department and County Highway Department	FEMA Public Assistance Program	Medium	High	Short Term: Completed in 1 to 5 years	High
Mobilize public works department to open roads and provide shelter at town hall if needed.	Extreme Wind	Local Public Works Department, Fire Department and County Highway Department	FEMA Public Assistance Program	Medium	High	Short Term: Completed in 1 to 5 years	High
Mobilize public works department to open roads and provide shelter at town hall if needed.	Severe Thunderstorms/Strong Wind	Local Public Works Department, Fire Department and County Highway Department	FEMA Public Assistance Program	Medium	High	Short Term: Completed in 1 to 5 years	High

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: CENTER							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Mobilize public works department to open roads and provide shelter at town hall if needed.	Hail	Local Public Works Department, Fire Department and County Highway Department	Local Operating Budget	Low	High	Short Term: Completed in 1 to 5 years	High
Mobilize public works department to open roads and provide shelter at town hall if needed.	Ice storms	Local Public Works Department, Fire Department and County Highway Department	Local Operating Budget	Low	High	Short Term: Completed in 1 to 5 years	High
Continue public informational outreach campaigns about lightning on the website, Facebook, and Twitter using the National Weather Service resources https://www.weather.gov/safety/lightning	Lightning	Town Clerk & EMS	Local Operating Budget	Low	High	Ongoing	Medium
Inform community about National Weather Service Dense Fog Advisory.	Dense fog	Town Clerk & EMS	Local Staff time and resources	Low	Low	Ongoing	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: CENTER							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Education to residents related to water conservation and avoidance of irresponsible use and subsequent waste.	Extreme Drought	Local Fire Department	Local Staff time and resources	Low	Low	Ongoing	Medium
Increase community awareness and participation in vegetation hazard mitigation activities to include maintaining zones of debris clearance between homes and vegetation**. Fire Department response, and provide shelter at town hall if needed for evacuation.**	Vegetation Fires	Local Fire Department	Local Staff time and resources	Low	Low	Ongoing	Medium
Continue public informational outreach campaigns about extreme cold safety from the National Weather Service on the website, Facebook, and Twitter. Promote tips on generator safety in extreme cold weather in the municipal newsletter.	Extreme Cold	Town Clerk & EMS	Local Staff time and resources	Low	Low	Ongoing	Medium
Continue public informational outreach campaigns about extreme heat and cooling shelters on the website, Facebook, and Twitter.	Extreme Heat	Town Clerk & EMS	Local Staff time and resources	Low	Low	Ongoing	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: CENTER							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Distribute information through newsletters, website and social media from the county Public health on measures to reduce pandemic impact.	Communicable Disease	Town Clerk & EMS	Local Staff time and resources	Low	Low	Ongoing	Low
Distribute information through newsletters, website and social media from the county Public health on measures to reduce pandemic impact.	Pandemic	Town Clerk & EMS	Local Staff time and resources	Low	Low	Ongoing	Low
Install a rain garden or stormwater park (select one) to alleviate influx of water in the storm sewer system, river or roadway which causes flooding.	River Flooding	Local Public Works Department	Local Operating Budget	Low	Low	Long Term: Completed in 5 years or greater	High
Complete study to determine areas which flood during high rainfall events to identify possible rainwater gardens or stormwater reserves. Upsize culverts with historic impact of flash flooding.	Flash Flooding	Local Public Works Department	Local Operating Budget	Low	Low	Long Term: Completed in 5 years or greater	High

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: TOWN OF CICERO							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Coordinate and deliver public outreach and education, including home and travel safety measures.	Blizzard / Winter Storms	Town Board - Chair & Supervisors Local EM Fire Department (potential) Local Law Enforcement (Sheriff)	Local Operating Budget	Low	High	Ongoing	Medium
Distribute information through newsletters, website and social media from the county Public health on measures to reduce communicable disease.	Communicable Disease	Local EM Local EMS (Black Creek Rescue)	Local Operating Budget	Low	Medium	Ongoing	Medium
Distribute information through newsletters, website and social media from the county Public health on measures to reduce communicable disease.	Pandemic	Local EM Local EMS (Black Creek Rescue)	Local Operating Budget	Low	Medium	Ongoing	Medium
Distribute the National Weather Service Dense Fog Advisory.	Dense fog	Town Board - Chair & Supervisors Local EM Fire Department (potential) Local Law Enforcement (Sheriff)	Local Operating Budget	Low	Medium	Ongoing	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: TOWN OF CICERO							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Education to residents related to water conservation and avoidance of irresponsible use and subsequent waste.	Extreme Drought	Town Board - Chair & Supervisors Local EM Fire Department (potential) Local Law Enforcement (Sheriff)	Local Operating Budget	Low	Low	Ongoing	Medium
Continue public informational outreach campaigns about extreme cold safety from the National Weather Service on the website, Facebook, and Twitter.	Extreme Cold	Town Board - Chair & Supervisors Local EM Fire Department (potential) Local Law Enforcement (Sheriff)	Local Operating Budget	Low	High	Ongoing	Medium
Continue public informational outreach campaigns about extreme cold safety from the National Weather Service on the website, Facebook, and Twitter.	Extreme Heat	Town Board - Chair & Supervisors Local EM Fire Department (potential) Local Law Enforcement (Sheriff)	Local Operating Budget	Low	High	Ongoing	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: TOWN OF CICERO							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Educate residents in areas of repeated river flooding re: insurance, sandbagging, etc.	River Flooding	Town Board - Chair & Supervisors Local EM Fire Department (potential) Local Law Enforcement (Sheriff)	Local Operating Budget	Low	High	Annual - Once a year	Medium
Continue to monitor and increase culvert sizes in areas susceptible to flash flooding	Flash Flooding	Town Board - Chair	Local Operating Budget	Medium	High	Long Term: Completed in 5 years or greater	High
Maintain a tree maintenance cycle to reduce vulnerability to power outages	Extreme Wind	Town Board - Chair Town DPW/maintenance employee(s)	Local Operating Budget	Medium	Medium	Long Term: Completed in 5 years or greater	Medium
Coordinate and deliver public outreach and education, including regular roof inspections to identify hail damage	Hail	Town Board - Chair & Supervisors Local EM Fire Department (potential) Local Law Enforcement (Sheriff)	Local Staff time and resources	Low	High	Ongoing	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: TOWN OF CICERO							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Coordinate and deliver public outreach and education, including generator and home heating safety	Ice storms	Town Board - Chair & Supervisors Local EM Fire Department (potential) Local Law Enforcement (Sheriff)	Local Staff time and resources	Low	Medium	Ongoing	Medium
Maintain a tree maintenance cycle to reduce vulnerability to power outages	Severe Thunderstorms/ Strong Wind	Town Board - Chair Town DPW/maintenance employee(s)	Local Operating Budget	Medium	Medium	Long Term: Completed in 5 years or greater	Medium
Coordinate and deliver public outreach and education, including lightning safety for outdoor venues	Lightning	Town Board - Chair & Supervisors Local EM Fire Department (potential) Local Law Enforcement (Sheriff)	Local Staff time and resources	Low	Low	Ongoing	Medium
Increase community awareness and participation in vegetation hazard mitigation activities to include maintaining zones of debris clearance between homes and vegetation.	Vegetation Fires	Town Board - Chair & Supervisors Local EM Fire Department (potential) Local Law Enforcement (Sheriff)	Local Staff time and resources	Low	Medium	Ongoing	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: TOWN OF CICERO							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Maintain a tree maintenance cycle to reduce vulnerability to power outages	Tornado	Town Board - Chair Town DPW/maintenance employee(s)	Local Operating Budget	Medium	Medium	Long Term: Completed in 5 years or greater	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR TOWN OF GRAND CHUTE								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Distribute information through newsletters, website and social media from local, regional, and national organizations (OCPH, WHS, CDC, OSHA, etc) on measures to reduce disease impact.	Pandemic	Town Administration & Fire Department Administrative Staff responsible for public outreach	Local Staff time and resources	Low	Low	Ongoing	Medium	Also: Communicable Disease; Terrorism / Violent Acts
Maintain vaccination and/or Point-of-Dispensing capabilities	Pandemic	Fire Department Emergency Manager (Fire Chief)	Other - list in comments	Medium	Medium	As funding available	Medium	Also: Communicable Disease, Terrorism / Violent Acts (of certain types) GCFD is currently an approved vaccination site and has a basic Closed POD plan drafted Funding source is expected to be supplemental government fundings (e.g. ARPA) in the event of a widespread issues requiring these services - otherwise on a smaller scale, we would likely fund within local operating budget
Meet with staff and/or review emergency plans for Fox Cities Stadium, Fox River Mall, and Champion Center regarding emergency alerting and notification systems for facility visitors	Tornado	Fire Department Emergency Manager (Fire Chief)	Local Staff time and resources	Low	High	Annual - Once a year	Medium	

LOCAL MITIGATION STRATEGIES WORKSHEET FOR TOWN OF GRAND CHUTE								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Continue to conduct public outreach to residents and businesses to about being prepared for severe weather to reduce hazard impact and increse resilience / secondary impacts	Tornado	Town Administration, Community Development, DPW, Fire & Police Departments Administrative Staff responsible for public outreach	Local Staff time and resources	Low	Low	Ongoing	High	Also: Servere Thunderstorm/Strong Wind, Extreme Wind, Dense Fog, Extreme Heat, Lightning, Blizzard/Winter Storm, Extreme Cold, Hail, Flash Flooding, Ice Storms, Power outage: long term
Continue to distribute the National Weather Service Advisory Information for severe weather advisories through website, social media	Tornado	Town Administration, DPW, Fire & Police Departments Administrative Staff responsible for public outreach	Local Staff time and resources	Low	Low	Ongoing	High	Also: Severe Thunderstorm / Strong Wing, Extreme Wind, Dense Fog, Blizzard/Winter Storm, Extreme Cold, Hail, Flash Flooding
Continue to develop and implement directed education and awareness campaigns for individuals, underserved populations, neighborhood associations, civic and business groups about community resilience	Tornado	Fire Department Assistant Chief of Community Risk Reduction	Local Staff time and resources	Low	Medium	Ongoing	Medium	Also: Servere Thunderstorm/Strong Wind, Extreme Wind, Dense Fog, Extreme Heat, Lightning, Blizzard/Winter Storm, Extreme Cold, Hail, Flash Flooding, River Flooding, Ice Storms, Hazardous Materials (releases of all types), Structure Fires, Mass Casualties, Power Outage: long term New Fire Department Strategic Plan has a goal to complete a mini-CRR strategic plan that will direct the develop of community risk reduction campaigns in the next 4 years then follow that plan for implementation

LOCAL MITIGATION STRATEGIES WORKSHEET FOR TOWN OF GRAND CHUTE								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Continue to conduct public tree maintenance to reduce impacts of falling branches	Tornado	DPW Deputy Director of Operations	Local Staff time and resources	Low	Medium	Ongoing	Medium	Also: Severe Thunderstorm / Strong Wing, Extreme Wind, Blizzard/Winter Storm, Ice Storms, Power Outage:Long Term
Provide appropriate hazard mitigation training (chain saw safety, first aid, ICS, hazard communication, etc) to all staff responsible for response in the event of an incident	Tornado	Human Resources Human Resources Director	Local Operating Budget	Medium	High	Ongoing	Medium	Also: all others
Advocate for the state of Wisconsin to adopt the latest building and fire codes and put in place automatic adoption after each update cycle	Tornado	Community Development & Fire Department Chief Building Inspector & Fire Chief	Local Staff time and resources	Low	High	Short Term: Completed in 1 to 5 years	High	Also: Servere Thunderstorm/Strong Wind, Extreme Wind, Lightning, Blizzard/Winter Storm, Hail, Ice Storms, Structure Fires, Hazardous Materials Releases
Explore FEMA 361 recommendations for Emergency Operations Center (Training Room at Fire Station 1) in advance of Station 1 remodel for potential incorporation	Tornado	Fire Department Assistant Chief of Operations	Local Capital Improvement Project	High	Low	Short Term: Completed in 1 to 5 years	Low	Also: Extreme Wind
Explore wind resistant design elements for potential incorporation in any new builds or signficant renovations of municipal buildings	Tornado	DPW Facilities Manager	Local Capital Improvement Project	High	Low	Short Term: Completed in 1 to 5 years	Low	Also: Extreme Wind
Update weather emergency siren capabilities	Tornado	Fire Department Assistant Chief of Operations	Local Operating Budget	Medium	Low	Short Term: Completed in 1 to 5 years	Medium	Also: Servere Thunderstorm/Strong Wind, Extreme Wind, Lightning, Hail

LOCAL MITIGATION STRATEGIES WORKSHEET FOR TOWN OF GRAND CHUTE								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Become NWS Storm Ready	Tornado	Fire Department Emergency Manager (Fire Chief)	Local Staff time and resources	Low	High	Long Term: Completed in 5 years or greater	High	Also: Servere Thunderstorm/Strong Wind, Extreme Wind, Dense Fog, Extreme Heat, Lightning, Blizzard/Winter Storm, Extreme Cold, Hail, Flash Flooding, Ice Storms, Power outage: long term The issue with implementation is timing - but the Fire Department's new strategic plan will address elements of the checklist for being "NWS Storm Ready"
Provide weather radios to community members - especially target underserved populations	Tornado	Fire Department Emergency Manager (Fire Chief)	Other - list in comments	High	Medium	As grant funds are available	Low	Also: Severe Thunderstorm / Strong Wing, Extreme Wind, Dense Fog, Blizzard/Winter Storm, Extreme Cold, Hail, Flash Flooding Funding source: Local grants / partnerships with local, regional, and state organziations
Continue to promote winter hazards awareness, including home and travel safety measures and information sources.	Blizzard / Winter Storms	DPW, Fire & Polic Departments Administrative Staff responsible for public outreach		Low	Medium	Annual - Once a year	Medium	Also: Extreme Cold, Ice Storms
Remind residents to inspect their roof and repair any wear and tear	Hail	Community Development	Local Staff time and resources	Low	Low	Ongoing	Low	Also: Extreme Wind, Ice Storms
Continue to conduct stormwater management plan reviews and enforce ordinance requirements	Flash Flooding	DPW Town Engineer	Local Staff time and resources	Low	Medium	Ongoing	High	Also: River Flooding

LOCAL MITIGATION STRATEGIES WORKSHEET FOR TOWN OF GRAND CHUTE								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Continue to educate residents about water conservation and avoidance of irresponsible use and subsequent waste through newsletters, utility bill inserts, websites and social media	Extreme Drought	DPW Administrative Staff responsible for public outreach	Local Staff time and resources	Low	Low	Ongoing	Low	
Continue to distribute public outreach and education information through newsletters, website and social media on measures to reduce structure fires, mass casuality incidents	All Hazards	Fire Department Assistant Chief of Community Risk Reduction	Local Staff time and resources	Low	Low	Ongoing	High	Man Made Hazards: Structure Fires, Mass Casualty
Continue to distribute public outreach and education information through newsletters, website and social media on measures to reduce violent hazards	All Hazards	Police Department Community Resource Officer	Local Staff time and resources	Low	Low	Ongoing	High	Man Made Hazards: Mass Casualty, Terrorism/Violent Acts, Cyber Attack
Continue to conduct fire inspections of commercial properties and enforce code accordingly	All Hazards	Fire Department Assistant Chief of Community Risk Reduction	Local Staff time and resources	Low	High	Ongoing	High	Man Made Hazards: Structure Fires, Mass Casualty
Maintain a list of vulnerable individuals in the community dependent on power for medical needs	All Hazards	Fire Department Battalion Chief	Local Staff time and resources	Low	Medium	Ongoing	Low	Power Outage: Long Term
Develop and implement directed education and awareness campaigns for individuals, underserved populations, neighborhood associations, civic and business groups about community resilience	All Hazards	Police Department Community Resource Officer	Local Staff time and resources	Low	Medium	Ongoing	Medium	Man Made Hazards: Mass Casualty, Terrorism/Violent Acts, Cyber Attack

LOCAL MITIGATION STRATEGIES WORKSHEET FOR TOWN OF GRAND CHUTE								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Update the Community Risk Assessment to inform response strategies and community risk reduction strategies	All Hazards	Fire Department Assistant Chief of Community Risk Reduction	Local Staff time and resources	Low	High	Short Term: Completed in 1 to 5 years	High	Man Made Hazards: Structure Fires, Mass Casualty The new Fire Department Strategic Plan contains this activity
Explore the implementation of a voluntary home fire inspection program and/or a rental property inspection program / revision to multi-family dwelling inspections	All Hazards	Fire Department Assistant Chief of Community Risk Reduction	Local Referendum	High	Medium	Short Term: Completed in 1 to 5 years	Low	Man Made Hazards: Structure Fires Would likely need to add staff member(s) to add this capability
Ensure hydrants and water main loops throughout municipality	All Hazards	DPW Town Engineer	Local Referendum	High	Medium	Long Term: Completed in 5 years or greater	Medium	Manmade: Structure Fires

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: HORTONVILLE							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Promote tornado awareness, including safety measures via Village website and Facebook. Making sure siren is in working condition. Educate the public to use the AtHoc by registering to get notifications.	Tornado	Police Department/ Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Promote winter hazards awareness, including home and travel safety measures (Facebook & Village Website)	Blizzard / Winter Storms	Police Department/ Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Distribute information through newsletters, website and social media from the county Public Health on measures to reduce communicable disease.	Communicable Disease	Police Department/ Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Distribute information through newsletters, website and social media from the county Public Health on measures to reduce pandemic impact.	Pandemic	Police Department/ Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Distribute the National Weather Service Dense Fog Advisory. Advise drivers to turn on lights using Facebook.	Dense fog	Police Department/ Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Education to residents related to water conservation and avoidance of irresponsible use and subsequent waste using Facebook and Village Website.	Extreme Drought	Police Department/ Clerk	Local Operating Budget	Low	Low	Ongoing	Low

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: HORTONVILLE							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Continue public informational outreach campaigns about extreme cold safety from the National Weather Service on the Village website and Facebook.	Extreme Cold	Police Department/ Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Continue public informational outreach campaigns about extreme heat safety and cooling centers from the National Weather Service on the Village website and Facebook.	Extreme Heat	Police Department/ Clerk	Local Operating Budget	Low	Low	Ongoing	Low
No rivers flow through Village. However, we do have a lake. We are currently monitoring level and adjusting the dam.	River Flooding	Police Department/ Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Upsize culverts with historic impact of flash flooding. Dam maintenance	Flash Flooding	Village board	Local Capital Improvement Project	Medium	High	As funding available	High
Maintain a tree maintenance cycle to reduce vulnerability to power outages. (WE Energies) Educate the public to use the AtHoc by registering to get notifications.	Extreme Wind	Police Department/ Clerk	Local Operating Budget	Medium	Medium	Ongoing	Low

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: HORTONVILLE							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Public informational outreach campaigns about hail during severe weather on the Village website and Facebook. Remind residents to inspect their roof and repair any wear and tear. Educate the public to use the AtHoc by registering to get notifications.	Hail	Police Department/ Clerk	Local Operating Budget	Low	Low	Ongoing	Low
When an ice storm is forecasted, use available social media resources on proper use of generators due to loss of power.	Ice storms	Police Department/ Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Promote winter hazards awareness, including home and travel safety measures (Facebook & Village website) Educate the public to use the AtHoc by registering to get notifications.	Severe Thunderstorms/Strong Wind	Police Department/ Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Continue public informational outreach campaigns about lightning on the Village website and Facebook using the National Weather Service resources https://www.weather.gov/safety/lightning. Educate the public to use the AtHoc by registering to get notifications.	Lightning	Police Department/ Clerk	Local Operating Budget	Low	Low	Ongoing	Low

LOCAL MITIGATION STRATEGIES WORKSHEET FOR CITY OF KAUKAUNA							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Conduct public outreach to residents and businesses to about being prepared for severe weather to reduce hazard impact. Promote winter hazards awareness, including home and travel safety measures (including website.)	Blizzard / Winter Storms	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Medium	Ongoing	Medium
Distribute information through newsletters, website and social media from the county Public health on measures to reduce communicable disease.	municable Disea	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Low	Short Term: Completed in 1 to 5 years	Low
Distribute information through newsletters, website and social media from the county Public health on measures to reduce pandemic impact.	Pandemic	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Low	Short Term: Completed in 1 to 5 years	Low
National Weather Service Dense	Dense fog	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Medium	Ongoing	Medium
Education to residents related to water conservation and avoidance of irresponsible use and subsequent waste.	Extreme Drough	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Low	Annual - Once a year	Low

LOCAL MITIGATION STRATEGIES WORKSHEET FOR CITY OF KAUKAUNA							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Continue public informational outreach campaigns about extreme cold safety from the National Weather Service on city website and Facebook pages.	Extreme Cold	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Medium	Ongoing	Medium
Continue public informational outreach campaigns about extreme heat and cooling shelters on the city website and Facebook pages.	Extreme Heat	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Identify river/creek areas the community is at risk for flooding and request during high water levels, Public Works and Law Enforcement staff check the area for safety concerns.	River Flooding	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Low	Ongoing	Low
Asking residents to help keep storm drains clear of debris during storms.	Flash Flooding	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Low	Annual - Once a year	Low

LOCAL MITIGATION STRATEGIES WORKSHEET FOR CITY OF KAUKAUNA							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Public informational campaigns before extreme wind and thunderstorm event for residents to pack away light weight yard items and move vehicles into garages/car ports. Utilize the municipalities website and social media.	Extreme Wind	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Public informational outreach campaigns about hail during severe weather on the municipalities website and Facebook pages.	Hail	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
When an ice storm is forecasted, use available social media resources on proper use of generators	Ice storms	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Medium	Ongoing	Medium
Public informational outreach in the local newspaper during severe thunderstorm season on preparedness activities. Identify large sporting and recreational areas and survey their alerting and notification capabilities.	understorms/St	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Medium		Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR CITY OF KAUKAUNA							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Contact local outdoor, recreational and school organizations on utilizing the National Weather Service Lightning Safety Toolkit https://www.weather.gov/safety/lightning-toolkits	Lightning	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Increase community awareness and participation in vegetation hazard mitigation activities to include maintaining zones of debris clearance between homes and vegetation.	Vegetation Fires	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Educating citizens through social media and local newspaper. Distribute tornado shelter location information. Promote tornado awareness. Increase first responders awareness of vulnerable populations needs during a disaster.	Tornado	Fire Department, Chief Jake Carrel	Local Staff time and resources	Low	High	Annual - Once a year	High

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF KIMBERLY							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Distribute information through newsletters, website and social media from the county Public health on measures to reduce impact of the hazard.	Pandemic	Community Enrichment, Community Enrichment Director	Local Operating Budget	Low	High	Ongoing	High
Distribute information through newsletters, website and social media from the county Public health on measures to reduce impact of the hazard.	Communicable Disease	Community Enrichment, Community Enrichment Director	Local Operating Budget	Low	High	Ongoing	High
Promote tips on generator safety in extreme heat/cold weather in the municipal newsletter.	Extreme Cold	Department of Public Works, Director of Public Works	Local Operating Budget	Low	Medium	Ongoing	Medium
Public informational outreach campaigns about weather safety from the National Weather Service on the website, Facebook, and Twitter.	Extreme Cold	Community Enrichment, Community Enrichment Director	Local Operating Budget	Low	Medium	Ongoing	Medium
Public informational outreach campaigns about weather safety from the National Weather Service on the website, Facebook, and Twitter.	Extreme Heat	Community Enrichment, Community Enrichment Director	Local Operating Budget	Low	Medium	Ongoing	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF KIMBERLY							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Promote tips on generator safety in extreme heat/cold weather in the municipal newsletter.	Extreme Heat	Department of Public Works, Director of Public Works	Local Operating Budget	Low	Medium	Ongoing	Medium
Complete study to determine areas which flood during high rainfall events to identify possible rainwater gardens or stormwater reserves.	Flash Flooding	Department of Public Works, Director of Public Works	Local Capital Improvement Project	Medium	Medium	Long Term: Completed in 5 years or greater	Medium
Public informational outreach campaigns about weather safety from the National Weather Service on the website, Facebook, and Twitter.	Blizzard / Winter Storms	Community Enrichment, Community Enrichment Director	Local Operating Budget	Low	Medium	Ongoing	Medium
Reviewing International Residential Code (IRC) and/or the International Building Code (IBC) for building codes standards for wind safety for homes/businesses to include.	Extreme Wind	Department of Public Works, Building Inspector	Local Operating Budget	Low	Low	Short Term: Completed in 1 to 5 years	Medium
Identify sheltering locations within the community, create procedures for their activation and publicize those locations.	Tornado	Administration, Administrator; Police, Police Chief; Fire Department/EMS, Fire Chief	Local Staff time and resources	Low	Medium	Short Term: Completed in 1 to 5 years	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF KIMBERLY							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Distribute the National Weather Service Advisory on social media and/or website.	Tornado	Community Enrichment, Community Enrichment Director	Local Staff time and resources	Low	High	Ongoing	High
Public informational outreach campaigns about weather safety from the National Weather Service on the website, Facebook, and Twitter.	Lightning	Community Enrichment, Community Enrichment Director	Local Operating Budget	Low	Medium	Ongoing	Medium
Education to residents related to water conservation and avoidance of irresponsible use and subsequent waste.	Extreme Drought	Water Utility, Water Superintendent	Local Staff time and resources	Low	Medium	Ongoing	Medium
Install a stormwater retention infrastructure to alleviate influx of water in the storm sewer system, river or roadway which causes flooding.	River Flooding	Department of Public Works, Director of Public Works	Local Capital Improvement Project	High	Medium	Long Term: Completed in 5 years or greater	Medium
Distribute the National Weather Service Advisory on social media and/or website.	Dense fog	Community Enrichment, Community Enrichment Director	Local Staff time and resources	Low	High	Ongoing	High

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF KIMBERLY							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Public informational outreach campaigns about weather safety from the National Weather Service on the website, Facebook, and Twitter.	Hail	Community Enrichment, Community Enrichment Director	Local Operating Budget	Low	Medium	Ongoing	Medium
Promote tips on generator safety in extreme heat/cold weather in the municipal newsletter.	Ice storms	Department of Public Works, Director of Public Works	Local Operating Budget	Low	Medium	Ongoing	Medium
Public informational outreach campaigns about weather safety from the National Weather Service on the website, Facebook, and Twitter.	Severe Thunderstorms /Strong Wind	Community Enrichment, Community Enrichment Director	Local Operating Budget	Low	Medium	Ongoing	Medium
Distribute the National Weather Service Advisory on social media and/or website.	Severe Thunderstorms /Strong Wind	Community Enrichment, Community Enrichment Director	Local Staff time and resources	Low	High	Ongoing	High

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF NICHOLS								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Purchase Barricades to block off roads	Flash Flooding	Nichols Rural Fire Department Chief	FEMA Public Assistance Program	Low	Medium	Short Term: Completed in 1 to 5 years	Low	
Purchase backup 36 kw generator to power up the Community Center and Fire Station	Extreme Cold	Village President	Other - list in comments	Medium	High	Long Term: Completed in 5 years or greater	Medium	75% USDA grant with 25% local match for a generator that will power the building and could be used by area residents as needed (such as shelter, recharge electronic equipment, etc.).
Purchase a chainsaw to clear blocked roads	Severe Thunderstorms /Strong Wind	Nichols Rural Fire Department Chief	Other - list in comments	Low	Medium	Short Term: Completed in 1 to 5 years	Low	50% WI DNR match
Upgrade to priority phone service to receive priority phone calls	Vegetation Fires	Nichols Rural Fire Department Chief	Local Operating Budget	Low	High	Short Term: Completed in 1 to 5 years	Medium	

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF NICHOLS								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
A larger communication center to handle disaster communication	Tornado	Village President	Other - list in comments	High	High	Long Term: Completed in 5 years or greater	High	Estimated cost $300,000 75% USDA grant with 25% local match for an addition to the west end of the FD/Community Center for a new village office and Conference room that will be used for fire dept training, etc. and used as a Command Center in emergency situations.
Distribute information through newsletters and website from the county Public health on measures to reduce communicable disease.	Communicable Disease	Village President	Local Staff time and resources	Low	Medium	Annual - Once a year	Low	
Distribute information through newsletters and website from the county Public health on measures to reduce pandemic impact.	Pandemic	Village President	Local Staff time and resources	Low	Medium	Annual - Once a year	Low	
No rivers are located in Nichols	River Flooding	N/A	N/A	N/A	N/A	N/A	N/A	

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF NICHOLS								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Education to residents related to water conservation and avoidance of irresponsible use and subsequent waste using the Village Website.	Extreme Drought	Village President	Local Staff time and resources	Low	Medium	Annual - Once a year	Low	
Promote winter hazards awareness, including home and travel safety measures (Village Website)	Blizzard / Winter Storms	Village President	Local Staff time and resources	Low	Medium	Ongoing	Low	
Open the Community Center as a cooling center for the village	Extreme Heat	Village President	Local Operating Budget	Low	Low	Annual - Once a year	Low	
Distribute the National Weather Service Dense Fog Advisory.	Dense fog	Village President	Local Operating Budget	Low	Low	Annual - Once a year	Low	
Track culverts not meeting the of demand of drainage from rainstorms	Flash Flooding	Village President	Local Staff time and resources	Low	Low	Annual - Once a year	Low	
Remind residents to inspect their roof and repair any wear and tear through the village website.	Hail	Village President	Local Staff time and resources	Low	Low	Annual - Once a year	Low	

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF NICHOLS								
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**	**Comments**
Public informational outreach campaigns during severe thunderstorm season of the risk of lightning on the website.	Lightning	Village President	Local Staff time and resources	Low	Low	Ongoing	Low	
When an ice storm is forecasted, use available social media resources/website on proper use of generators.	Ice storms	Village President	Local Operating Budget	Low	Medium	Annual - Once a year	Low	

LOCAL MITIGATION STRATEGIES WORKSHEET FOR CITY OF SEYMOUR							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Conduct public outreach to residents and businesses to about being prepared for severe weather to reduce hazard impact. Promote winter hazards awareness, including home and travel safety measures (including website.)	Blizzard / Winter Storms	Police Dept. - Chief of Police; Public Works - Director; Emergency Management - Local Emergency Management Coordinator	Local Staff time and resources	Low	Medium	Ongoing	Medium
Distribute information through newsletters, website and social media from the county Public health on measures to reduce communicable disease.	Communicable Disease	Emergency Management - Local Emergency Management Coordinator; Seymour Rescue - Director	Local Staff time and resources	Low	Low	Short Term: Completed in 1 to 5 years	Low
Distribute information through newsletters, website and social media from the county Public health on measures to reduce pandemic impact.	Pandemic	Emergency Management - Local Emergency Management Coordinator; Seymour Rescue - Director	Local Staff time and resources	Low	Low	Short Term: Completed in 1 to 5 years	Low
Distribute the National Weather Service Dense Fog Advisory.	Dense fog	Emergency Management - Local Emergency Management Coordinator	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Education to residents related to water conservation and avoidance of irresponsible use and subsequent waste.	Extreme Drought	Emergency Management - Local Emergency Management Coordinator	Local Staff time and resources	Low	Low	Annual - Once a year	Low

LOCAL MITIGATION STRATEGIES WORKSHEET FOR CITY OF SEYMOUR							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Continue public informational outreach campaigns about extreme cold safety from the National Weather Service on city website and Facebook pages.	Extreme Cold	Emergency Management - Local Emergency Management Coordinator	Local Staff time and resources	Low	Medium	Ongoing	Medium
Continue public informational outreach campaigns about extreme heat and cooling shelters on the city website and Facebook pages.	Extreme Heat	Emergency Management - Local Emergency Management Coordinator	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Install a stormwater park to alleviate influx of water in the storm sewer system, river or roadway which causes flooding.	River Flooding	Emergency Management - Local Emergency Management Coordinator	Local Staff time and resources	Low	Low	Long Term: (	Low
Asking residents to help keep storm drains clear of debris during storms (not to relay solely on Public Works).	Flash Flooding	Public Works - Director; Emergency Management - Local Emergency Management Coordinator	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Informing residents of shelter locations and evacuation routes.	Extreme Wind	Emergency Management - Local Emergency Management Coordinator	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR CITY OF SEYMOUR							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Public informational outreach campaigns about hail during severe weather on the city website and Facebook pages.	Hail	Emergency Management - Local Emergency Management Coordinator	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
When an ice storm is forecasted, use available social media resources on proper use of generators	Ice storms	Police Dept. - Chief of Police; Public Works - Director; Emergency Management - Local Emergency Management Coordinator	Local Staff time and resources	Low	Medium	Ongoing	Medium
Public informational outreach in the local newspaper during severe thunderstorm season on preparedness activities. Identify large sporting and recreational areas and survey their alerting and notification capabilities.	Severe Thunderstorms/ Strong Wind	Emergency Management - Local Emergency Management Coordinator	Local Staff time and resources	Low	Medium		Medium
Contact local outdoor, recreational and school organizations on utilizing the National Weather Service Lightning Safety Toolkit https://www.weather.gov/safety/lightning-toolkits	Lightning	Emergency Management - Local Emergency Management Coordinator	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Increase community awareness and participation in vegetation hazard mitigation activities to include maintaining zones of debris clearance between homes and vegetation.	Vegetation Fires	Fire Dept. - Fire Chief	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR CITY OF SEYMOUR							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Educating citizens through social media and local newspaper. Distribute tornado shelter location information. Promote tornado awareness. Increase first responders awareness of vulnerable populations needs during a disaster.	Tornado	Emergency Management - Local Emergency Management Coordinator	Local Staff time and resources	Low	High	Annual - Once a year	High

LOCAL MITIGATION STRATEGIES WORKSHEET FOR TOWN OF SEYMOUR							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Call County Highway to plow road. The Fire Department or neighbors will bring water if needed. Many generator's in the town and share between neighbors.	Blizzard / Winter Storms	Town Board and residents	Local Staff time and resources	Low	High	Ongoing	High
Use the town's website and posting boards to share relevant information.	Communicable Disease	Town Board	Local Staff time and resources	Low	Low	Ongoing	Low
Use the town's website and posting boards to share relevant information.	Pandemic	Town Board	Local Staff time and resources	Low	Low	Ongoing	Low
Rely on the media to distribute the National Weather Service Dense Fog Advisory.	Dense fog	Media	Local Staff time and resources	Low	Low	Ongoing	Low
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	Extreme Drought	Media/Town Board	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	Extreme Cold	Media/Town Board	Local Staff time and resources	Low	Low	Ongoing	Low
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	Extreme Heat	Media/Town Board	Local Staff time and resources	Low	Low	Ongoing	Low
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	River Flooding	Media/Town Board	Local Staff time and resources	Low	Low	Ongoing	Low

LOCAL MITIGATION STRATEGIES WORKSHEET FOR TOWN OF SEYMOUR							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Signs placed to warn residents of flooding.	Flash Flooding	Town Staff	Local Staff time and resources	Low	Medium	Annual - Once a year	High
Local residents will cut trees and if needed dump trucks will be loaded and hauled to chipper.	Extreme Wind	Town Staff	Local Staff time and resources	Low	Medium	Ongoing	Medium
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	Hail	Media/Town Board	Local Staff time and resources	Low	Low	Ongoing	Low
Salt the roads.	Ice storms	County Highway	Local Staff time and resources	Low	Medium	Ongoing	Medium
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	Severe Thunderstorms/ Strong Wind	Media/Town Board	Local Staff time and resources	Low	Medium		Medium
Rely on the media to distribute the weather message. Use the town's website and posting boards to share relevant information.	Lightning	Media/Town Board	Local Staff time and resources	Low	Low	Ongoing	Low
Fire department will increase community awareness and participation in vegetation hazard mitigation activities.	Vegetation Fires	Fire Dept	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Rely on the media to distribute the weather message.	Tornado	Media/Town Board	Local Staff time and resources	Low	Low	Ongoing	Low

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF SHIOCTON							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Conduct public outreach to residents and businesses to about being prepared for severe weather to reduce hazard impact. Promote winter hazards awareness, including home and travel safety measures (including website.)	Blizzard / Winter Storms	Village Clerk	Local Staff time and resources	Low	Medium	Ongoing	Medium
Distribute information through newsletters, website and social media from the county Public health on measures to reduce communicable disease.	Communicable Disease	Village Clerk	Local Staff time and resources	Low	Low	Short Term: Completed in 1 to 5 years	Low
Distribute information through newsletters, website and social media from the county Public health on measures to reduce pandemic impact.	Pandemic	Village Clerk	Local Staff time and resources	Low	Low	Short Term: Completed in 1 to 5 years	Low
Distribute the National Weather Service Dense Fog Advisory.	Dense fog	Village Clerk	Local Staff time and resources	Low	Medium	Ongoing	Medium
Education to residents related to water conservation and avoidance of irresponsible use and subsequent waste.	Extreme Drought	Utility Clerk	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Promote tips on generator safety in extreme cold weather in the municipal newsletter.	Extreme Cold	Village Clerk	Local Staff time and resources	Low	Medium	Ongoing	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF SHIOCTON							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Continue public informational outreach campaigns about extreme heat and cooling shelters on the city website and Facebook pages.	Extreme Heat	Village Clerk	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Identify river/creek areas the community is at risk for flooding and request during high water levels, Public Works and Law Enforcement staff check the area for safety concerns.	River Flooding	Public Works Supervisor	Local Staff time and resources	Low	Low	Ongoing	Low
Asking residents to help keep storm drains clear of debris during storms.	Flash Flooding	Public Works Supervisor	Local Staff time and resources	Low	Low	Annual - Once a year	Low
Public informational campaigns before extreme wind and thunderstorm event for residents to pack away light weight yard items and move vehicles into garages/car ports. Utilize the municipalities website and social media.	Extreme Wind	Village Clerk	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF SHIOCTON							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Public informational outreach campaigns about hail during severe weather on the municipalities website and Facebook pages.	Hail	Village Clerk	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
When an ice storm is forecasted, use available social media resources on proper use of generators	Ice storms	Village Clerk	Local Staff time and resources	Low	Medium	Ongoing	Medium
Public informational outreach in the local newspaper during severe thunderstorm season on preparedness activities.	Severe Thunderstorms/ Strong Wind	Village Clerk	Local Staff time and resources	Low	Medium		Medium
Contact local outdoor, recreational and school organizations on utilizing the National Weather Service Lightning Safety Toolkit https://www.weather.gov/safety/lightning-toolkits	Lightning	Village Clerk	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium

LOCAL MITIGATION STRATEGIES WORKSHEET FOR THE VILLAGE OF SHIOCTON							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Increase community awareness and participation in vegetation hazard mitigation activities to include maintaining zones of debris clearance between homes and vegetation.	Vegetation Fires	Public Works Supervisor	Local Staff time and resources	Low	Medium	Annual - Once a year	Medium
Educate students at schools on how to mitigate against a tornado and be better prepared for storms.	Tornado	School Staff	Local Staff time and resources	Low	High	Annual - Once a year	High

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: Vandenbroek							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Promote winter hazards awareness, including home and travel safety measures (Facebook & www.vandenbroekwi.gov)	Blizzard / Winter Storms	Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Promote winter hazards awareness, including home and travel safety measures (Facebook & www.vandenbroekwi.gov)	Severe Thunderstorms/ Strong Wind	Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Continue public informational outreach campaigns about lightning on the website, Facebook, and Twitter using the National Weather Service resources https://www.weather.gov/safety/lightning	Lightning	Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Promote tornado awareness, including safety measures via website, Facebook, and Twitter.	Tornado	Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Public informational outreach campaigns about hail during severe weather on the website, Facebook, and Twitter. Remind residents to inspect their roof and repair any wear and tear.	Hail	Clerk	Local Operating Budget	Low	Low	Ongoing	Low

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: Vandenbroek							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
Distribute information through newsletters, website and social media from the county Public health on measures to reduce pandemic impact.	Pandemic	Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Upsize culverts with historic impact of flash flooding.	Flash Flooding	Town Board	Local Capital Improvement Project	Medium	High	As funding available	High
Distribute the National Weather Service Dense Fog Advisory.	Dense fog	Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Continue public informational outreach campaigns about extreme cold safety from the National Weather Service on the website, Facebook, and Twitter.	Extreme Cold	Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Continue public informational outreach campaigns about extreme heat safety and cooling centers from the National Weather Service on the website, Facebook, and Twitter.	Extreme Heat	Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Maintain a tree maintenance cycle to reduce vulnerability to power outages. (WE Energies and Kaukauna Utilities)	Extreme Wind	Clerk	Local Operating Budget	Medium	Medium	Ongoing	Low

LOCAL MITIGATION STRATEGIES WORKSHEET FOR: Vandenbroek							
Mitigation Strategy	**Hazards Mitigated**	**Responsible Entities**	**Source of Funding**	**Estimated Cost**	**Estimated Benefit**	**Timeline**	**Priority**
When an ice storm is forecasted, use available social media resources on proper use of generators	Ice storms	Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Education to residents related to water conservation and avoidance of irresponsible use and subsequent waste.	Extreme Drought	Clerk	Local Operating Budget	Low	Low	Ongoing	Low
Distribute information through newsletters, website and social media from the county Public health on measures to reduce communicable disease.	Communicable Disease	Clerk	Local Operating Budget	Low	Low	Ongoing	Low
No rivers flow through town.	River Flooding	Clerk	Local Operating Budget	Low	Low	Ongoing	Low

APPENDIX L MUNICIPAL NATIONAL FLOOD INSURANCE PROGRAM

Municipal National Flood Insurance Program Implementation

Municipality	Participate in NFIP	Date/Version of Flood Insurance Rate Map	Flood Plain Manager	Task Performed
City of Appleton	Yes	Calumet Co. FIRM dated 2/4/2009 and Outagamie Co. FIRM dated 7/22/10, 8/23/13 and 1/20/16 Panel numbers 55015C0007E, 55015C0026E and 55015C0027E, 55087C0304E, 55087C0308E, 55087C0309D, 55087C0314D, 55087C0316D, 55087C0317D, 55087C0318D, 55087C0319D, 55087C0330, 55087C0338D, 55087C0427D, 55087C0431D and 55087C451D, 55087C0328D, 55087C0329D, 55087C0336D, and 55087C0337D	Director of Community and Economic Development	Permit reviews and ordinance updates
City of Kaukauna	Yes	FIRM Panel numbers 55087c0334d, 55087c0341d, 55087c0342d, 55087c0343d, 55087c0344d, 55087c0353d, 55087c0361d, 55087c0363d, 55087c0456d, 55087c0460 and 55087c0500d Effective Date 07/22/2010	Director of Planning and Community Development	Advise applicants of the ordinance provisions, assist in preparing permit applications and appeals, and assure that the regional flood elevation for the proposed development is shown on all permit applications. Issue permits and inspect properties for compliance with provisions of this ordinance and issue certificates of compliance where appropriate. Inspect and assess all damaged floodplain structures to determine if substantial damage to the structures has occurred.
City of Seymour	Yes	FIRM panel numbers 55087C0090D, 55087C0100D & 55087C0225D Effective Date 07/22/2010	Director of Public Works & Utilities and Zoning Administrat	Reviews building/zoning requests to ensure compliance with Floodplain Zoning Ordiance
Village of Bear Creek	Yes	Effective Date 07/22/2010	Not provided	Not provided
Village of Black Creek	Yes	Effective Date 07/22/2010	Not provided	Not provided

Municipal National Flood Insurance Program Implementation

Municipality	Participate in NFIP	Date/Version of Flood Insurance Rate Map	Flood Plain Manager	Task Performed
Village of Combined Locks	Yes	Effective Date 07/22/2010	Not provided	Not provided
Village of Harrison	In Calumet County Plan	N/A	N/A	N/A
Village of Hortonville	Yes	Effective Date 07/22/2010	Building Inspector	Coordination with the DNR and Building Inspector per situation
Village of Howard	In the Brown County Plan	N/A	N/A	N/A
Village of Kimberly	Yes	FIRM Parcel 55087C0339D Effective Date 07/22/2010	Director of Public Works	Permit reviews
Village of Little Chute	Yes	Effective Date 07/22/2010	Not provided	Not provided
Village of Nichols	Yes	FIRM: Map # 55087C0055D, Effective Date: 07-22-2010	Village Clerk & Administrator	Ordinance Updates and program oversight
Village of Shiocton	Yes	Effective Date 07/22/2010	Public Works Director	Elevation Reports, permits and zoning
Village of Wrightstown	In the Brown County Plan	N/A	N/A	N/A

APPENDIX M ADOPTION RESOLUTIONS