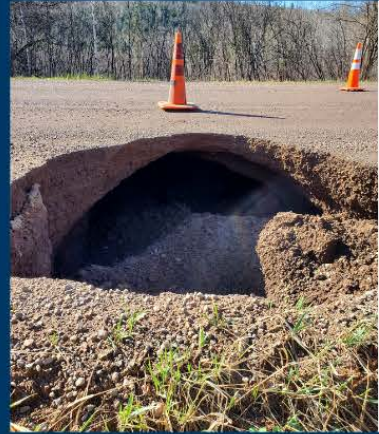
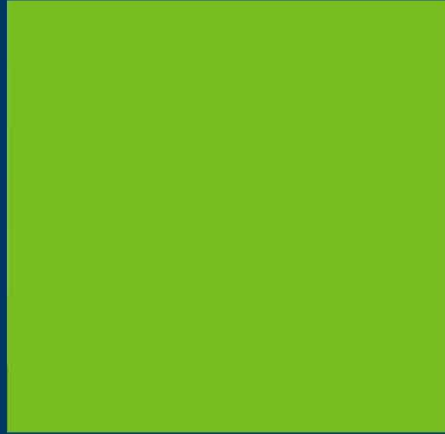


# Lake County 2024 Hazard Mitigation Plan



# Lake County Minnesota

## 2024 Hazard Mitigation Plan

### **Lake County Emergency Management**

Matt Pollmann

Emergency Management Director

601 3rd Ave.

Two Harbors, MN 55616

*Prepared By:*

### **U-Spatial**

Research and Innovation Office (RIO) | University of Minnesota

389 Kirby Plaza, 1208 Kirby Drive

Duluth, MN 55812

218-726-7438

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# Section 1 – Introduction

## 1.1 Hazard Mitigation Planning in Minnesota

Hazard mitigation planning refers to any sustained action to reduce or eliminate long-term risk to human life and property from natural disasters. The Federal Emergency Management Agency (FEMA) has made reducing hazards one of its primary goals, and a primary mechanism in achieving this goal is both the hazard mitigation planning process and the subsequent implementation of resulting projects, measures, and policies (FEMA, 2023b).

Since 1980, damages from natural disasters in the U.S. exceeded \$2.72 trillion. 2023 saw a record 28 separate billion-dollar weather and climate disaster events in the United States, breaking the previous record of 22 events set in 2020. Minnesota alone has experienced 59 separate billion-dollar disasters since 1980 (NCEI, 2024). Hazard mitigation planning is an effective process to prepare communities and lessen the impact of loss of life and property from future disasters. Although mitigation efforts will not eliminate all disasters, government at all levels should strive to be as prepared as possible for a disaster for the well-being of its residents.

The Hazard Mitigation Plan (HMP) is a requirement of the Federal Disaster Mitigation Act of 2000. The development of a local government plan is required to maintain eligibility for federal hazard mitigation grant funding programs. To be eligible for future mitigation funds, communities must adopt an HMP.

Researchers at the National Institute of Building Sciences looked at the results of 23 years of federally funded mitigation grants provided by FEMA, the U.S. Economic Development Administration (EDA), and the U.S. Department of Housing and Urban Development (HUD). Their findings revealed that for every \$1 spent on hazard mitigation funding in the nation, \$6 is saved in future disaster costs (Multi-Hazard Mitigation Council, 2019).

Lake County is vulnerable to various natural hazards that threaten the loss of life and property. Hazards such as tornadoes, flooding, wildfires, blizzards, straight-line winds, and droughts can potentially inflict vast economic loss and personal hardship.

This planning document is accompanied by a website that allows for easy stakeholder and community engagement, as well as interactive maps, dashboards, and infographics.

A broad overview of this companion website's features is as follows:

- About HMP Planning
- County Profile
- Natural Hazard Profiles
- Climate Change
- Mitigation Actions

*Lake County HMP Website*

### 1.1.1 Scope

U-Spatial, University of Minnesota, was contracted by Minnesota Homeland Security and Emergency Management using FEMA Pre-Disaster Mitigation (PDM) grant funds to work with Lake County Emergency Management to facilitate an update to the 2017 Lake County HMP. U-Spatial brings extensive geographic data analysis skills and hazard risk assessment expertise to the HMP process. U-Spatial also employed the services of Hundrieser Consulting LLC for county and stakeholder outreach as well as mitigation action development related to this plan.

This HMP evaluates and prioritizes the major natural hazards affecting Lake County as determined by frequency of event, economic impact, deaths, and injuries. Mitigation recommendations are based on input from state and local agencies, the public, and national best practices.

This is a multi-jurisdictional plan that covers Lake County, including the cities of Beaver Bay, Silver Bay, and Two Harbors. The Lake County mitigation activities identified in this plan also incorporate the concerns and needs of townships, school districts, and other participating entities.

Members from each of these jurisdictions actively participated in the planning process by assisting with public outreach, attending planning team meetings, providing local information, identifying mitigation actions, and reviewing the plan document (see Appendix C). The information in these forms was used to help identify mitigation actions for local implementation (see also Section 2.2). Each jurisdiction will adopt the plan by resolution after the plan is approved by FEMA. County and local city resolutions will be added by Lake County after final approval by FEMA (see Appendix B).

Lake County has specified the following goals for this plan update:

- Include more recent data documenting the critical infrastructure and hazards faced by Lake County.
- Reformat and reorganize the plan to reflect definitions of hazards as expressed in the 2024 Minnesota State Hazard Mitigation Plan.
- Reflect current hazard mitigation priorities in Lake County.
- Encourage recipients and sub-recipients of hazard mitigation grants to consider climate change adaptation, resiliency, and equity in their planning efforts.

### 1.1.2 Hazard Mitigation Definition

Hazard mitigation may be defined as any action taken to eliminate or reduce the long-term risk to human life and property from natural hazards. The benefits of hazard mitigation planning include the following:

- saving lives, protecting the health of the public, and reducing injuries
- preventing or reducing property damage
- reducing economic losses
- minimizing social dislocation and stress
- reducing agricultural losses
- maintaining critical facilities in functioning order
- protecting infrastructure from damage

- protecting mental health
- reducing legal liability of government and public officials

## 1.2 State Administration of Mitigation Grants

FEMA currently has three mitigation grant programs that are administered by the State of Minnesota: the Hazard Mitigation Grant Program (HMGP), the Building Resilient Infrastructure and Communities (BRIC) program, and the Flood Mitigation Assistance (FMA) program. The HMGP, BRIC, and FMA programs are administered through the state of Minnesota Department of Public Safety Homeland Security Emergency Management (HSEM) Division. All applicants must have or be covered under an approved Hazard Mitigation Plan. Eligible applicants include state and local governments, certain private non-profit organizations or institutions, and tribal communities.

# Section 2 – Public Planning Process

## 2.1 Planning Team Information

The Lake County HMP planning team is headed by the Lake County emergency manager, who is the primary point of contact. Members of the Lake County HMP planning team include representatives from the public and governmental sectors. Table 1 identifies the planning team individuals and the organizations they represent

[Find the planning team members on the Lake County HMP website](#)

*Table 1. Hazard Mitigation Planning (HMP) Team*

Name	Agency/Organization	Participant Title
Matt Pollmann	Lake County Emergency Management	Emergency Management Director
Jason DiPiazza	Lake County Highway Department	Highway Engineer
Tracy Gilsvik	Lake County Health and Human Services	Public Health Supervisor
Lareesa Sandretsky	Lake County Public Health	Emergency Preparedness Coordinator
Linda Libal	Lake County	Auditor-Treasurer
Ronni Radle	Lake County	Auditor
Amy Lewis	Lake County	GIS Analyst
Curt Backen	Lake County	Facilities Director
Aaron Mollin-Kling	Lake/Cook County Firewise	Firewise Coordinator
Tara Solem	Lake County Soil & Water Conservation District	District Manager & Watershed Planner
Cole Ernest	City of Silver Bay Police Department	Chief of Police
Richard Hogenson	City of Two Harbors Police Department	Chief of Police
Jenny Ramsdell	Beaver Bay Township	Clerk/Treasurer
Stacy Breden	Crystal Bay Township	Clerk
Cheri DeBeltz	Fall Lake Township	Clerk
Katie Anderson	Town of Silver Creek	Deputy Clerk
Marjori Bottila	Arrowhead Area Agency on Aging	Program Manager
Kimberly Scanlon	Arrowhead Area Agency on Aging	Program Developer
Lynelle Hanson	Arrowhead Regional Development Commission	Regional Planer
Kelvin McCuskey	MN Homeland Security and Emergency Management	Regional Program Coordinator
Clinton Little	MN DNR Coastal Program	Coastal Program Specialist
Elizabeth Radke	Student Stakeholder, Two Harbors High School	Senior Student
Ken Jones	Cooperative Light and Power	Energy Services Manager
Laura Murphy	MN DNR	NE Region Firewise Community Specialist
Derek Howe	Lake Country Power	Chief Operating Officer
Mike Keyport	Cook County Emergency Management	Emergency Management Director
Chris Morris	MnDOT	Assistant Maintenance Engineer

## 2.2 Review of Existing Plans, Capabilities & Vulnerabilities

Lake County and its local communities utilized a variety of planning documents to direct plan development. These documents included a Comprehensive/Master Plan, Emergency Operations Plan, Transportation Plan, etc. (see Section 5.1.3 and Appendix D). The planning process also incorporated the existing natural hazard mitigation elements from previous planning efforts. In addition, the 2024 Minnesota All-Hazard Mitigation Plan was consulted.

In the development of the Lake County HMP, U-Spatial consultants reviewed and incorporated a variety of planning documents that direct community development and influence land use decisions for the county and its jurisdictions. In addition, U-Spatial consultants worked closely with the Lake County emergency management director and other key county staff and local city officials to collect feedback on local mitigation capabilities and vulnerabilities that either support or hinder the ability to mitigate against natural hazards countywide and at the local level. Following is a summary of the assessment tools used to gather information on local capabilities and vulnerabilities during the planning process:

*Capabilities Assessment (hazard-specific):* In this assessment, detailed information was collected from Lake County on current plans and programs in place (i.e., existing programs, plans, or policies) as well as program gaps or deficiencies that currently exist to mitigate against damages caused by each natural hazard addressed in the plan. Section 4 identifies current gaps and deficiencies for mitigation and Section 5.3 describes the mitigation capabilities that are in place by Lake County to support mitigation.

*Local Mitigation Surveys:* As part of Lake County's 2024 HMP update, participating jurisdictions and key county personnel were asked to fill out a Local Mitigation Survey (LMS) form. Questions in the LMS form addressed the following:

- Part A: Hazard Identification, Risk Assessment & Vulnerability Analysis
- Part B: Local Mitigation Capabilities Assessment
- Part C: Local Mitigation Projects
- Part D: Survey Participants

The purpose of the survey was to gather jurisdictionally specific information needed to support the update of the plan and to help inform development of local-level mitigation actions for the next five-year planning cycle (for the full Lake County LMS report, see Appendix C).

## 2.3 Planning Process Timeline and Steps

To update the 2017 Lake County HMP, U-Spatial consultants worked in coordination with Lake County Emergency Management and members of the planning team. The updated plan includes new data documenting the types of hazards faced by Lake County residents and emergency planning officials as well as new thinking on how to address these hazards.

*[Survey forms to acquire mitigation ideas and feedback remain available on the HMP website](#)*

### 2.3.1 Lake County Stakeholder Coordination

Two planning team meetings took place via Zoom video conference hosted by U-Spatial. Meeting participants included representatives from Lake County, city and township governments, neighboring jurisdictions, and other key stakeholders. Appendix F provides documentation of stakeholder outreach and participation in the plan update.

To provide opportunity for public input, Lake County issued two news releases announcing the plan update and inviting public review and feedback on the draft plan. The news release provided information on where to view the plan and submit comments. The County HMP website, hosted by U-Spatial, and the feedback and mitigation action ideas survey will remain available through the five-year planning period to foster public engagement. Table 2 documents dates of Hazard Mitigation update meetings and public outreach. The public feedback period for the draft plan was open from 10/7/24 to 10/21/24, for a period of 15 days. Appendix G provides documentation of the public outreach for feedback on the draft plan by Lake County and jurisdictions.

*Table 2. Lake County hazard mitigation update meetings and public outreach*

Event	Date	Appendix
Kickoff Webinar	4/28/23	Appendix F, Planning Team Meetings
News Release #1	6/5/23	Appendix G, Public Outreach & Engagement Documentation
Planning Team Meeting #1	2/8/24	Appendix F, Planning Team Meetings
Planning Team Meeting #2	9/11/24	Appendix F, Planning Team Meetings
News Release #2	10/7/24	Appendix G, Public Outreach & Engagement Documentation

At the close of the public outreach period, the U-Spatial consultants worked with the Lake County Emergency Manager and planning team members to incorporate feedback from the public into the HMP.

For more information on the planning process, see Sections 5 and 6.

### 2.3.2 Overview of Jurisdictional Participation

Throughout the planning process, Lake County and the U-Spatial team worked to engage representatives from the county and each city in the update of the plan. Key activities for jurisdictions included assisting with public outreach, participating in planning team meetings, providing local-level information, reviewing and providing feedback to the plan update.

U-Spatial and Lake County actively used the following methods to engage jurisdictions in the HMP plan update process:

- Zoom Video Conferencing:** Planning team meetings were conducted via Zoom video conferencing hosted by U-Spatial. Virtual meetings proved to be a beneficial addition to the planning process, resulting in a high turnout from jurisdictional representatives and other stakeholders, as well as providing the ability for presenters to collect, respond to, and document feedback from participants through Zoom functions such as surveys, chat, and Q&A.

- Email Correspondence:** Email was a primary tool used to communicate with representatives from Lake County, municipal governments, and other stakeholders. Emails were used to distribute news releases for public outreach, to invite participation in meetings and to share meeting summaries, as well as to request local information and final review of the draft plan. Email proved to be an effective tool that resulted in increased jurisdictional participation and collection of locally specific information. Email was also used by the public to submit feedback to Lake County following news releases on the HMP.
- Phone Calls:** Phone calls were frequently used to conduct direct outreach or follow-up to jurisdictions to ensure participation or to collect information via one-on-one interviews. Phone calls proved to be an effective tool that resulted in increased jurisdictional participation and collection of quality information. Phone calls were especially useful in engaging very small communities that had limited staff or technological capabilities.

Cities participating in Lake County HMP update varied by population and associated government resources to participate in the planning process (e.g., personnel, time, and technology). Rural communities with smaller populations (under 500) typically had part-time elected officials, limited-to-no city staff, and reduced city hall hours in which to conduct business. Lake County and U-Spatial were sensitive to these local challenges and worked to help these local governments to participate using the methods that worked best to accommodate them, such as phone interviews to complete local mitigation survey forms (see Appendix C).

Table 3 provides an overview of each city’s participation in the Lake County HMP update planning process and a reference to supporting documentation.

*Table 3. Jurisdictional participation in planning process*

Jurisdiction (2022 Est. Population, Esri)	News Release #1	Planning Team Mtg. #1	Local Mitigation Survey	Mitigation Action Charts	Planning Team Mtg. #2	News Release #2 & Plan Review
Supporting Documentation	App. G	App. F	App. C	Sec. 5.3 App. H	App. F	App. G
Lake County (10,825)	X	X	X	X	X	X
City of Beaver Bay (123)	X		X	X	X	X
City of Silver Bay (1,962)	X	X	X	X		X
City of Two Harbors (3,608)	X	X	X	X		X
<b>Neighboring Jurisdictions:</b>						
St. Louis County						
Cook County					X	
Grand Portage Reservation						

# Section 3 – Risk Assessment and Vulnerability Analysis

The goal of mitigation is to reduce or eliminate the future impacts of a hazard, including loss of life, property damage, disruption to local and regional economies, and the expenditure of public and private funds for recovery. Sound mitigation practices must be based on sound risk assessment. A risk assessment involves quantifying the potential loss resulting from a disaster by assessing the vulnerability of buildings, infrastructure, and people.

The risk assessments in this plan are based on widely accepted tools and databases as well as consultation with hazard mitigation planning expertise at FEMA and HSEM as well as technical guidance from the MN DNR State Climatology Office. Geographic Information System (GIS) tools are used throughout to demonstrate geographically based risk and vulnerabilities.

This assessment identifies the characteristics of natural hazard events, the severity of the risk, the likelihood of these events occurring, and the vulnerability of each jurisdiction’s population and assets.

[See a list of all natural hazards covered in the 2024 HMP](#)

The cornerstone of risk assessment is identifying the hazards that affect jurisdictions. Listed below are the natural hazards addressed in the 2024 Minnesota State Hazard Mitigation Plan:

Flooding	Lightning	Drought
Dam/Levee Failure	Winter Storms	Extreme Heat
Wildfires	Landslides (Erosion and	Extreme Cold
Windstorms	Mudslides)	Earthquakes
Tornadoes	Land Subsidence (Sinkholes	Coastal Erosion & Flooding
Hail	and Karst)	

### 3.1.1 Hazard Prioritization

As part of the plan update process, the planning team reviewed, updated, and prioritized the hazards faced by residents of Lake County, updated the existing mitigation actions published in the 2017 HMP, and proposed new mitigation actions.

The team examined the hazards identified in the 2017 HMP and adjusted them to reflect the definitions of natural hazards used in the 2024 Minnesota State Hazard Mitigation Plan.

While the focus of this HMP is on natural hazards, planning took place with the understanding that many non-natural hazards could occur as a result of natural disasters (e.g., disruption in electrical service due to downed powerlines from heavy snow, ice storms, or high wind events).

The prioritization of hazards for the Lake County HMP Update (Table 4) was based on group review and discussion of the natural hazards that pose risk to the county during the HMP Planning Team Meeting #1. In the review of each hazard, the group was asked to consider if the risk to severe natural hazards had increased or decreased since the last plan, and if this affected their priority level to mitigate against that hazard. Appendix F provides the discussion notes from the meeting.

*Table 4. Prioritization of hazards for 2024 Lake County HMP Update*

Natural Hazards	Current Priority
Winter Storms	High
Windstorms	High
Wildfire	High
Flooding	Moderate
Coastal Erosion	Moderate
Extreme Cold	Moderate
Extreme Heat	Moderate
Drought	Moderate
Lightning	Low
Hailstorms	Low
Tornadoes	Low
Landslides	Low
Dam Failure	Low

### 3.1.2 FEMA- and Minnesota-Declared Disasters and Assistance

Another historical perspective is derived from FEMA-declared disasters. Nine major disasters and three emergency declarations in Lake County have been made between 1957 and July 2024; details of these can be viewed on the [Lake County HMP website](#).

Minnesota Statutes Chapter 12A established a framework for state agencies to help communities recover from disaster. In 2014, Governor Mark Dayton signed legislation establishing the state’s Disaster Assistance Contingency Account to assist local communities after a natural disaster when federal aid is not available. Damage required to declare a disaster is half the threshold of the federal/FEMA public assistance (only) program threshold (MN HSEM, 2019). Lake County was included in three State Disaster Declarations.

The Hazard Mitigation Grant Program (HMGP), Building Resilient Infrastructure and Communities (BRIC), and Flood Mitigation Assistance (FMA) Program are FEMA-administered hazard mitigation assistance programs that provide funding for eligible mitigation planning and projects that reduce disaster losses and protect life and property from future disaster damages (FEMA, 2021). Table 5 lists the projects in the county funded by a hazard mitigation assistance program.

*Table 5. Historical hazard mitigation funding awarded in Lake County*

Disaster Number	Project Type	Subgrantee	Cost Share Percentage	Project Amount	Federal Share Obligated
1900	91.1: Local Multihazard Mitigation Plan	Lake County	74%	\$48,622	\$36,000

Disaster Number	Project Type	Subgrantee	Cost Share Percentage	Project Amount	Federal Share Obligated
1283	400.1: Utility Protective Measures (Electric, Gas, etc.)	Cooperative Light & Power Assn	75%	\$71,250	\$37,719
1982	300.2: Vegetation Management - Wildfire; 501.1: Other Major Structural Projects	Lake County	68%	\$413,499	\$281,620
1212	403.1: Stormwater Management - Culverts	Lake County	75%	\$119,400	\$89,550
1212	403.1: Stormwater Management - Culverts	Lake County	75%	\$87,618	\$65,676
4113	205.1: Retrofitting Private Structures - Wildfire	Lake County	70%	\$332,781	\$234,344
1283	300.2: Vegetation Management - Wildfire	Lake County	75%	\$70,752	\$53,064
4131	205.1: Retrofitting Private Structures - Wildfire	Lake County	71%	\$311,431	\$221,985

SOURCE: (FEMA, 2023c)

### 3.2 Community Vulnerability

The degree to which a person is vulnerable to the impacts of a hazard depends on how well they can react before, during, and after a hazardous event. The Centers for Disease Control and Prevention (CDC) Agency for Toxic Substances & Disease Registry (ATSDR) defines social vulnerability as “...the resilience of communities when confronted by external stresses on human health, stresses such as natural or human-caused disasters, or disease outbreaks” (ATSDR, 2020). Exacerbating these stressors are the increasing number of extreme weather events attributed to Minnesota’s changing climate (MPCA, 2018).

The ATSDR created the CDC Social Vulnerability Index (SVI) to help identify vulnerable communities that need support in preparing for hazards or recovering from disaster. The CDC SVI is created at the census tract level using American Community Survey (ACS) five-year data. The SVI is included in the FEMA National Risk Index (NRI) and presented on the webpage for each hazard. Additionally, at-risk populations are summarized for each jurisdiction in the county profile page. Vulnerable attributes of a population are addressed with each natural hazard.

[Explore population vulnerability on the Lake County HMP Website](#)

### 3.3 Climate Change

Minnesota’s climate change summary is informed primarily by the Midwest Chapter of the Fifth National Climate Assessment (NCA5) dated November 2023 and with interpretations from the MN DNR State Climatology Office (Wilson et al., 2023).

Rising global temperatures and the resulting increases in atmospheric moisture from evaporation of ocean waters have allowed Minnesota to become warmer, wetter, and more humid during the past

several decades. The ten combined warmest and wettest years between 1895 and 2022 all occurred since 1998. Nights have warmed faster than days since 1970, and winter has warmed several times faster than summer. Even with the drought conditions of the early 2020s in Minnesota, heavy precipitation continues to show long-term increases, with damaging rain and snowfall events reported somewhere in the state each year of the decade through 2023. Despite no increase in the highest temperatures of summer, maximum annual heat index values (one measure of how hot it feels) have been rising across the state because of increased humidity during heat waves.

Even though periods of intense growing-season drought have defined the climate of the early 2020s in much of Minnesota, long-term increases in annual precipitation have continued because of heavy and even record-setting precipitation during the cold season. For instance, record-dry conditions during May through mid-August of 2021 led to parts of northwestern and northern Minnesota reaching “Exceptional Drought”—the worst category on the US Drought Monitor. A shift to a stormy pattern during the following winter and spring, however, produced unprecedented precipitation between December in May in the exact same areas, with historic flooding along the Rainy River.

The observed changes in our climate have altered growing seasons, damaged forests, challenged natural resource management, limited recreational opportunities, destroyed infrastructure, and affected the conditions of lakes, rivers, wetlands, and groundwater aquifers that provide water for drinking and agriculture. Climate models project that temperature and precipitation increases will continue in Minnesota through the 21<sup>st</sup> century, with hotter summers and increased drought severity during dry periods as well.

To help the public understand how the changing climate has affected and is expected to affect the behavior of common weather hazards in the Minnesota, the MN DNR State Climatology Office developed graphical summaries of the scientific confidence associated with each hazard’s relationship to climate change (Table 6 and Table 7). Climate change in Minnesota has by far the strongest associations with (1) sharp declines in the frequency and severity of extreme cold outbreaks, tied to a persistent warming of winters, and (2) sharp increases in the frequency and intensity of extreme precipitation events. For instance, from 1970 through 2023, Minnesota’s winters warmed at a rate of almost one degree F per decade, and approximately three-four times faster than summer. During that same period, the coldest night of the year has warmed almost twice as fast as winter as a whole—up to two degrees F per decade (or 20 degrees F per century).

Despite major losses to cold extremes, the warming climate and increased abundance of atmospheric moisture has led to an uptick in many heavy snowfall metrics across Minnesota, leading to moderately high confidence that the changing climate is increasing heavy snowfall events—even as other winter characteristics decline. The intensity and frequency of tornadoes and severe convective storms are weakly connected at best to recent climate changes, and since the 1950s, despite superior detection and verification capabilities, the number of damaging tornadoes rated at least F-2 or EF-2 in Minnesota has shown no increases. Dramatic changes in the seasonal and geographical ranges of severe convective weather have, on the other hand, already affected Minnesota. In 2021, a damaging tornado crossed the Boundary Waters into Canada, becoming the latest on record so far north in the state. Then, on December 15<sup>th</sup>, an outbreak of destructive thunderstorm winds and over 20 tornadoes struck the southeastern parts of the state, producing the latest tornadoes on record by 29 days.

The climatic picture is expected to change further beyond the 2020s and especially as Minnesota approaches the middle of the 21<sup>st</sup> century (Table 7). Dramatic losses in extreme cold and additional increases in heavy and extreme precipitation are expected to remain the state’s leading climate change symptoms. Although Minnesota has not yet observed increases in the frequency, severity, or duration of summertime high temperatures or drought (through 2023), climate model projections summarized in NCA5 indicate that heat waves are all but certain to increase by mid-century. A 2018 study conducted by NOAA scientists indicates that by the 2050s, heat waves in Minnesota will be more attributable to climate change than to natural variability (Lopez et al., 2018).

*Table 6. Confidence that climate change has already impacted Minnesota weather/climate hazards*

Confidence	Hazard	Recent & Current Observations
Highest	Extreme cold	Rapid decline in severity & frequency
	Extreme rainfall and heavy snowfall	Becoming larger and more frequent
Moderately High	Humid heat waves	Some increase in maximum dew point and Heat Index values since 1980
Moderately Low	Tornadoes, hail, thunderstorm winds	Intensity and frequency unchanged, but seasons expanding aggressively
Low	Drought and dry spells	Intense & major episodes in early 2020s but no long-term trend
Lowest	Summer high temperature extremes	Highest temperatures still <i>well</i> within historical ranges, and number of hot days increasing only slightly in isolated locations

SOURCE: (BLUMENFELD, K. MINNESOTA STATE CLIMATOLOGY OFFICE, PERSONAL COMMUNICATION, DECEMBER 21, 2023)

*Table 7. Confidence that climate change will impact Minnesota weather/climate hazards through 2070*

Confidence	Hazard	Expectations through 2070
Highest	Extreme cold	Continued rapid decrease in severity and frequency
	Extreme rainfall	Unprecedented events more common
High	Heat waves	Summer high temperatures, maximum dew point and heat index values all projected to increase
Moderately High	Drought	Increased severity likely as summer heat increases; frequency and duration projections unclear
Moderately Low	Heavy snowfall	Greater extremes, but events less frequent as winter rain increases
	Tornadoes, hail, thunderstorm winds	Intensity and frequency unclear but continued seasonal expansion and larger “outbreaks” possible

SOURCE: (BLUMENFELD, K. MINNESOTA STATE CLIMATOLOGY OFFICE, PERSONAL COMMUNICATION, DECEMBER 21, 2023)

### 3.3.1 Climate Change Impacts and Resilience Planning

The NCA5 states that even if the world decarbonizes rapidly, the Nation will continue to face climate impacts and risks. Adequately and equitably addressing these risks involves longer-term inclusive planning, investments in transformative adaptation, and mitigation approaches that consider equity and justice. In the Midwest, rising temperatures, extreme precipitation, drought, and other climate-related events are impacting agriculture, ecosystems, cultural practices, health, infrastructure, and waterways. Communities, Indigenous Peoples, governments, and businesses are embracing adaptation approaches that include climate-smart agriculture, improved landscape management, innovative green infrastructure financing, and collaborative decision-making.

NCA5 includes these key messages for the Midwest region ([Chapter 24: Midwest](#)):

- Changes in precipitation extremes, timing of snowmelt, and early-spring rainfall are expected to pose greater challenges for crop and animal agriculture, including increased pest and disease transmission, muddier pastures, and further degradation of water quality. Climate-smart agriculture and other adaptation techniques provide a potential path toward environmental and economic sustainability.
- Increasing incidence of flooding and drought is expected to further alter aquatic ecosystems, while terrestrial ecosystems are being reshaped by rising temperatures and decreasing snow and ice cover. In response, communities are adapting their cultural practices and the ways they manage the landscape, preserving and protecting ecosystems and the services they provide.
- Climate change has wide-ranging effects on lives and livelihoods. Mitigation and adaptation strategies, such as expanded use of green infrastructure, heat-health early warning systems, and improved stormwater management systems, when developed in collaboration with affected communities, have the potential to improve individual and community health.
- Increases in temperatures and extreme precipitation events are already challenging aging infrastructure and are expected to impair surface transportation, water navigation, and the electrical grid. Shifts in the timing and intensity of rainfall are expected to disrupt transportation along major rivers and increase chronic flooding. Green infrastructure and public and private investments may mitigate losses, provide relief from heat, and offer other ways to adapt the built environment to a changing climate.
- Climate-related changes to water quantity and quality are increasing the risks to ecosystem health, adequate food production, surface water and groundwater uses, and recreation (high confidence). Projected increases in droughts, floods, and runoff events across the Mississippi River basin and the Great Lakes will adversely impact ecosystems through increased erosion, harmful algal blooms, and expansion of invasive species.

Key messages from the NCA5 are indicated in green throughout this document.

### 3.3.2 Health Impacts of Climate Change in Minnesota

Climate change already impacts our health, and these impacts are expected to worsen in the years ahead. The risks are especially high for Minnesotans who are less able to cope due to their age, income, housing insecurity, preexisting health conditions, and more.

Heat, air pollution (including wildfire smoke and allergens like pollen), extreme precipitation, floods, droughts, and ecosystem changes are all “climate hazards” that impact our health. Some of these climate hazards have a direct effect, like a heat-related illness from a heatwave, while some have an indirect impact, like exacerbation of asthma from mold growth in a flooded basement.

### **Heat**

Minnesotans will experience a wide range of impacts from the increased frequency and severity of extreme heat events. Higher heat, increased humidity, and longer and more frequent extreme heat events can lead to direct health impacts of dehydration and heatstroke. Untreated heat stroke can lead to death. Heat-related illness directly accounted for 75 deaths in Minnesota from 2000–2022.

Heat can also worsen existing health conditions, such as respiratory and cardiovascular diseases. The people most at risk include those who are more exposed and those who may be more susceptible due to physiological reasons. People more likely to be exposed to heat include outdoor workers in agriculture and construction, student athletes, people who live in cities (due to the heat island effect), people without air conditioning, and unhoused persons.

People at higher risk because of physiological reasons include those with underlying medical conditions, pregnant people, older adults, infants, and young children.

Just as one example of the devastating effects of heat, in the summer of 2011, Minnesota had six days when the heat index was 105 degrees F or higher—and that same summer there were 1,302 emergency department visits and 3 deaths due to heat. What makes these numbers tragic is that heat-related illnesses are preventable.

Indirect impacts of extreme heat include infrastructure failures like roads buckling and power outages; strain on essential services, such as emergency medical services and law enforcement response time due to increases in crime; and disruptions to important social and economic networks, such as school and event cancellations, which reduces access to education, physical activity, and community support.

### **Air Pollution**

In general, we breathe clean air in Minnesota, according to federal standards. But on some days and in some locations, air is unhealthy due to ozone or fine particulate matter. Greenhouse gas emissions can increase air pollution, and rising temperatures can also affect the formation and release of pollutants. Unhealthy air days are expected to become more frequent, and more intense due to climate change.

Climate change is likely to increase three main air contaminants in Minnesota: ozone, particulate matter (including wildfire smoke), and allergens. These air pollutants can cause or exacerbate cardiovascular and respiratory diseases, chronic obstructive pulmonary disease (COPD), allergies, and asthma.

Pollen is intensifying with climate change, and can trigger allergies, asthma attacks, and affect other respiratory conditions. In Minnesota, asthma affects one in 16 children (6.4%) and one in 13 adults (7.4%). People with asthma need to be especially aware of pollen sources and seasons to prevent an allergy-related asthma attack.

There are three pollen seasons in Minnesota: trees, grasses, and weeds. Trees are the first to release pollen, typically starting in early April, grasses usually ramp up pollen release in early June, and weeds

typically begin releasing pollen in mid-June and continue until the first hard frost. Research shows that the growing season for ragweed pollen, which is highly allergenic, has increased by 15 to 25 days in and around Minnesota. The lengthening pollen season is strongly related to climate change characteristics, such as lengthening of the frost-free season and later timing of the first fall frost.

Indirect health effects from air pollution can include reduced visibility on a high smog day, reduced productivity at work or school due to allergies or asthma, and reduced productivity and degradation of crops and water sources, which can lead to economic burdens.

Those most at risk include:

- Children, because they have developing lungs, are outside more, and they play vigorously and inhale more air per pound of body weight compared to adults.
- Adults over 60, because their bodies are aging.
- People with chronic respiratory or cardiovascular disease because they are more susceptible to air pollution.
- Individuals living near other sources of air pollution (such as roadways, freeways, and heavy industry), because they are chronically exposed to air pollution.
- People of color, because they are more likely to be exposed to more air pollution and have a disproportionate burden of heart and lung diseases, which may increase susceptibility.

### **Extreme Precipitation, Floods, Drought**

Rain is falling more frequently in extreme, heavy, localized events, leading to some parts of our state experiencing flooding while other parts experience drought.

Increased frequency and severity of heavy rainfalls can lead to flooding, which results in both direct and indirect health impacts like:

- Injury or even death from drowning.
- Illnesses from being exposed to contaminated drinking water or recreational sources.
- Mental health stress from experiencing the trauma of the event or later from being displaced or dealing with damaged homes and business.
- Respiratory ailments from exposure to mold from flooded basements.
- Carbon monoxide poisoning from exposure to carbon monoxide when using secondary power sources, like generators.
- Flooding can also disrupt economic and social networks and put a strain on essential services.

The people most at risk are Minnesotans who are more likely to be exposed to flood waters, like those who live in a flood plain or near water bodies, or people who cannot easily evacuate or recover from flooding destruction, such as people who do not have reliable transportation, people who can't use the stairs when elevators are out of service, people in wheelchairs, people with disabilities, older adults, and lower income people.

Heavy rain events can cause standing water in backyards or basements. Many homeowners have experienced wet basements, which is mentally and financially stressful, and if mold starts to grow that can become a health problem.

Localized flash flooding can also be a problem where our infrastructure is undersized, and people get caught off guard by flooded roads. This is an important public health safety concern as almost half of

flash flood fatalities occur in vehicles. It takes as little as six inches of fast-moving water to knock over and carry away an adult, and as little as 12 inches can carry away a small car.

Another public health concern with precipitation changes exacerbated by climate change is waterborne disease outbreaks. Heavy downpours can lead to a host of problems, including increased runoff and sewage overflows, which can cause outbreaks of waterborne diseases such as E. coli and Cryptosporidium. Runoff can carry viruses and other disease-causing agents into wells and recreational waters, contaminating them and causing health problems.

### **Zoonotic Diseases**

Zoonotic diseases or zoonoses are caused by germs like viruses, bacteria, parasites, and fungi that spread between animals and people. Increases in temperatures and changes in rain patterns are changing our ecosystems, which can affect the spread of diseases carried by insects, ticks, rodents, birds, and other animals.

Diseases from ticks include Lyme disease, Anaplasmosis, and Babesiosis. As temperatures increase, disease-transmitting ticks will become active sooner and stay active longer, allowing more time to develop and feed on hosts. Ticks thrive in warm humid environments.

Additionally, there may be a decreased die off over the winter months if temperatures do not get very cold. An increase in winter temperatures can also lead to new tick species moving into and surviving in Minnesota, which can lead to the introduction of new diseases.

People more at risk for diseases carried by insects, ticks, and rodents are people who spend more time outdoors or are more exposed to these pests.

### **Harmful Algal Blooms**

An increase in water temperatures can lead to blue-green algal blooms, which contain toxins that can pose harmful health risks. People or pets who drink or swim in water with dangerous levels of harmful algal bloom (HAB) contamination may experience stomach illness, skin irritation, allergic responses, and damage to the liver and nervous system. In extreme cases, dogs and other animals have died after drinking water containing these toxins.

Harmful algal blooms in Minnesota lakes result from several factors including runoff from fertilizers, discharges from waste treatment plants, warmer waters, and higher temperatures. While HABs can occur naturally, the frequency of outbreaks is increasing in part because human activities create favorable conditions for the blooms.

Zoonotic diseases and HABs can have an indirect health effect when they threaten the livelihoods of people who work in recreation-dependent economies that revolve around camping, fishing, and hunting.

### **Mental Health**

Climate change threatens our mental health through direct exposure to a climate-related disaster (e.g., flooding); through the disruption to a major determinant of health, such as a loss of livelihood or a cultural tradition; and through awareness or uncertainty of climate change as an existential threat. These experiences may overlap and lead to compounded impacts on an individual or even an entire community, such as family farmers burdened with decadal drought who are more likely to commit suicide.

Existing research has associated several mental health conditions with climate change, such as psychological distress, grief reactions, depression, post-traumatic stress disorder, interpersonal conflicts, drug or alcohol abuse, loss of identity, and suicide ideation.

Vulnerable populations such as children, the elderly, communities of color, and other marginalized communities are most at risk of climate change-related mental health impacts.

### 3.3.3 Climate Change Adaptation

Climate change adaptation is important for increasing the resilience of communities and the environment. The shocks caused by more extreme weather events and the stressors of longer-term changes to the climate affect all natural systems. For human communities, these impacts challenge the surroundings in which they live, the critically important ecosystem services upon which they depend, public health, local facilities and infrastructure, the safety of their residences, and the viability of their livelihoods. Development trends can further exacerbate both climate impacts and population vulnerability. Communities are only as resilient as the most vulnerable within them.

### 3.3.4 Climate Change Data and Tools in Minnesota

The University of Minnesota Extension and the University of Minnesota's Water Resources Center coordinate the Minnesota Climate Adaptation Partnership (MCAP), which brings together federal and state agencies, organizations, and individuals statewide with an interest in climate adaptation. MCAP received funding after the 2021 legislative session to develop high-resolution (2.6 mile/4km grid) dynamically downscaled climate projections utilizing the University of Minnesota's Supercomputing Institute. This data is being made publicly accessible via the new [Minnesota CliMAT—Climate Mapping and Analysis Tool](#). This interactive online tool provides highly localized climate projections for Minnesota. MN CliMAT is based on data from the latest generation of global climate models, called [CMIP6](#). With the dynamically downscaled climate projection data, users can visualize even how small cities will likely be impacted in the coming decades (Liess, S. et al., 2023).

*More resources are available on the [climate change page](#) of the Lake County website*

## 3.4 Jurisdictional Change in Risk or Vulnerability Assessment

Jurisdictions in Lake County have varying vulnerabilities to and concerns about impacts to their communities. Interviews with jurisdictional representatives in addition to the Local Mitigation Survey resulted in some specific concerns (see Appendix C). Participants were asked to provide feedback on how their community's vulnerability to natural hazards had either increased (due to changes such as development) or decreased (due to local mitigation efforts) over the past five years.

At the local jurisdictional level, several communities did note an increase in development over the last five years as a factor for an increase in vulnerability to severe weather or disaster events.

### 3.4.1 Jurisdictional Responses

As part of the Local Mitigation Survey form, Lake County Emergency Management and each city jurisdiction were asked to provide a vulnerability assessment that described what structures, systems,

populations, or other community assets were susceptible to damage and loss from specific hazard events. Following are examples of common responses related to noted local vulnerabilities (as preserved in Appendix C: Part A, Question 3) for each jurisdiction. This information was used to help tie local vulnerability back to the exposure of people, buildings, infrastructure, and the environment to the natural hazards listed in Table 4 and to assist local governments in development of related local mitigation actions to reduce risk.

### Lake County

*Windstorms:* Drought, fire, and infestation-weakened trees are prone to blow downs across critical highway network links that could delay emergency response times while trees are cleared.

*Flooding:* Culverts and bridges across the county need repair, replacement, or evaluation for flood resiliency upgrades.

### City of Beaver Bay

*Winter Storms:* We have a high population of seniors who are vulnerable during winter storms. They are unable to shovel themselves out or reach out for services when needed.

*Windstorm:* Living on the North Shore we have the capabilities of high winds that can affect our electricity. In the past, it was reported that trees were down taking out power lines. This affected the community that was unable to utilize resources.

*Extreme Cold:* During the winter months we have the ability to have temperatures that drop well below zero degrees. This can cause community members who struggle to not be able to utilize resources and place in jeopardy of not being able to subsidize heat. Pipes have also burst if the homeowner was not able to keep the furnace going.

*Drought:* The winter of 2023-2024 was less than normal snowfall on the North Shore. Getting enough snowfalls is imperative to the water level and the foliage of the area. Without snow we have an increased risk of drought occurring.

### City of Silver Bay

*All Hazards:* We need to obtain backup generators for our city buildings and Community Center that would serve as our local shelter if people are displaced from a severe storm event or extended power outage. We also have a large population of senior citizens that do not use cell phones to receive emergency notifications.

*Windstorms, Ice Storms, Blizzards:* Our municipal campground is active during summer and fall months with RVs and campers and does not have a storm shelter. Tree damage to boulevard trees can be costly and time consuming for clean up after storms.

*Extreme Cold:* We have a high population of senior citizens and low-income residents who are more vulnerable during periods of extreme cold with power outages. In the past we have experienced frozen water services and some residential homes experienced burst pipes from extended extreme cold. The city has experienced damages to roads from spring frost heaves, frozen culverts that cause localized flooding.

### **City of Two Harbors**

*Flooding:* Rivers, creeks, culverts, ditches continue to need attention, maintenance, and replacement to allow proper drainage and prevent erosion/pollution.

*Extreme Cold:* The elderly population is always a concern when it comes to periods of extreme cold here. The ability to identify where this population is always concerning and something we are mindful of in case there is an extended period of extreme cold and utilities compromise.

### **3.4.2 Future Development**

Because Lake County is vulnerable to a variety of natural hazards, the county government—in partnership with the state government—must make a commitment to prepare for the management of these events. Lake County is committed to ensuring that county elected and appointed officials become informed leaders regarding community hazards so that they are better prepared to set and direct policies for emergency management and county response.

As part of the vulnerability assessment conducted for the Lake County HMP update, jurisdictions were asked to describe if there were any factors related to population growth, zoning, or development they felt have increased their community's vulnerability to future severe weather or disaster events. Following is a compilation of common responses as noted in Appendix C: Part A.

#### **Lake County**

Lake County continues to see large population influxes during summer months due to tourists and part-time residents. Reaching these residents can be problematic when they aren't signed up for Everbridge alerts in the county and do not track weather or drought patterns. With limited transportation resources, it will be difficult for the county to assist evacuation efforts for large groups if that time comes.

#### **City of Beaver Bay**

An increased number of elderly community members have made the vulnerability rate increase. We are a very small town in which most are elderly. We have a low level of younger generations. A struggle we additionally have due to the amount of vacation homes in city limits we are negatively affected for grants. We do not qualify for grant funding to update infrastructure or be able to get a generator that could assist in emergency situations.

**City of Silver Bay**

The city is working on new housing developments, street and utility improvements. No work has started but significant investment is expected to be made.

**City of Two Harbors**

*No changes in vulnerability to report.*

In the development of local mitigation actions, all jurisdictions were encouraged to consider hazard mitigation strategies that would reduce risk in relation to future development, such as the update of local comprehensive plans, enforcement of ordinances, and incorporation of infrastructure improvements to reduce local vulnerabilities (see Appendix H).

The Lake County emergency management director will work to keep the jurisdictions covered by the HMP engaged and informed during the plan's cycle. By keeping jurisdictional leaders involved in the monitoring, evaluation, and update of the HMP, they will keep their local governments aware of the hazards that face their communities and how to mitigate those hazards through planning and project implementation.

Section 6 of this plan further outlines the process by which Lake County will address the maintenance of this plan, including monitoring, evaluation, and update of the plan, as well as implementation and continued public involvement.

# Section 4 – Hazards

As part of the risk assessment, each natural hazard that poses risk to the county was independently reviewed for its past hazard history, relationship to future trends, and jurisdictional vulnerability to future events. A capabilities assessment was also conducted by the county to review the plans and programs that are in place or that are lacking (program gaps or deficiencies) for the implementation of mitigation efforts, as related to each natural hazard. An assessment was also conducted for local jurisdictions to identify the plans, policies, programs, staff, and funding they have in place in order to incorporate mitigation into other planning mechanisms (see Section 5.1 and Appendix C).

[Read more about natural hazard prioritization and view interactive information on all hazards](#)

Hazards that were deemed by Lake County to be of moderate to high risk are addressed in the following hazard profiles. Hazards that were determined to be of low risk or without substantive mitigation actions to address them are not required to be included.

## 4.1 Flooding

Flooding is the most significant and costly natural hazard in Minnesota. Ten of the 18 federal disaster declarations in Lake County included flooding. The history of flooding in Lake County is shown in an interactive map on the [HMP flooding webpage](#).

After several years of drought and exceptionally mild winter, the first half of 2024 was extremely wet with frequent, heavy precipitation causing widespread flooding throughout Minnesota. The result was a Federal Disaster Declaration, DR-4797\_MN, affecting 33 counties including Lake County. The intense rains occurred within an extremely wet period lasting over a week and followed a wet spring in general, leading to significant and devastating flooding. Rainfall rates on June 18 preceding the flooding, included rates of 1-2 inches per hour and a recorded 7.33 inches in McNair, north of Two Harbors. Major flooding contributed to partial closures on Highways 1 and 61, as well as dangerous conditions and closures of facilities at Gooseberry Falls, Lake Vermilion-Soudan Underground Mine, and Tettegouche State Parks (MN DNR State Climatology Office, 2024).

On June 19-20, 2012, excessive rainfall from over a dozen distinct thunderstorm complexes hammered southern Lake County and neighboring St. Louis County produced the heaviest rains ever recorded in northeastern Minnesota. Flooding was most extreme and destructive in the Duluth area, but major flooding occurred in the Two Harbors, where a NWS cooperative observer recorded a 24-hour total of 10.45 inches, which is the third largest “official” total on record for the state. Rainfall of this magnitude is exceedingly rare and will continue to occur infrequently in relatively isolated fashion in the future. That said, rising global temperatures have made and will continue to make more moisture available to many precipitating weather systems. As a result, the trend towards increasing frequencies and intensities of precipitation extremes will continue through the decades ahead (Blumenfeld, K. Minnesota State Climatology Office, personal communication, October 24, 2024).

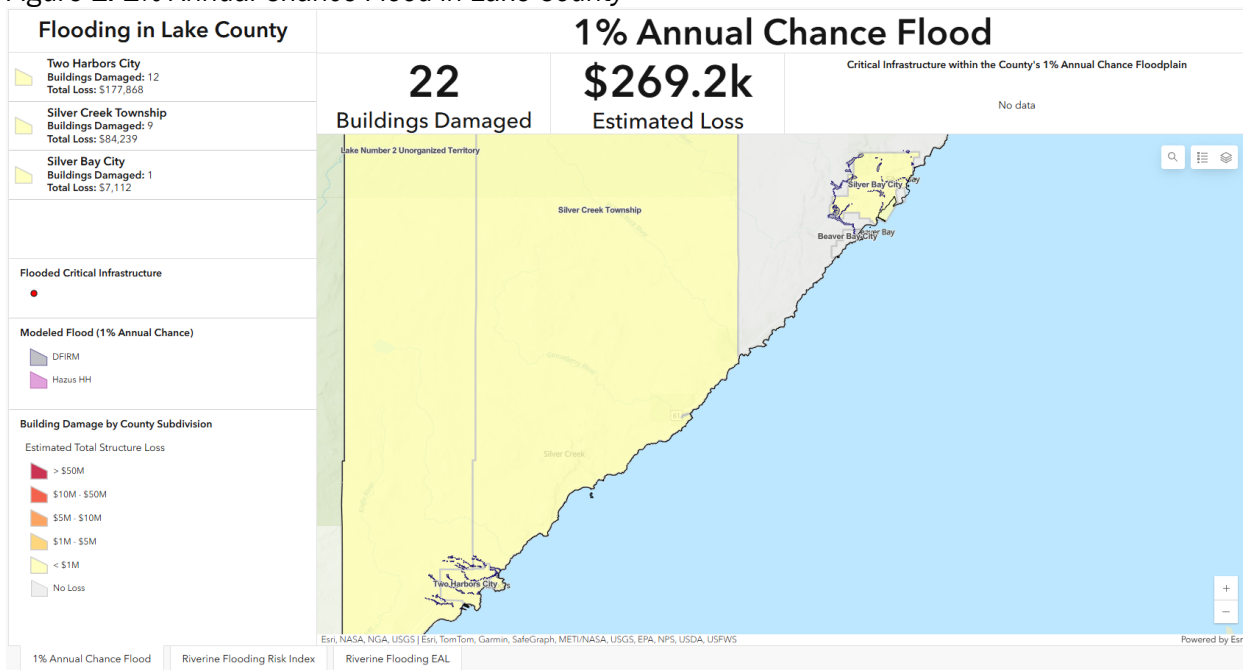
[View interactive maps and see information about flooding history, risk, and vulnerability](#)

### 4.1.1 Probability of Occurrence

From 1997 to February 2024, the NCEI Storm Events Database has recorded 12 flood and flash flood events. Lake County has experienced one flash flood event every 2.4 years and one riverine flood event every 25.4 years on average during this period.

Minnesota HSEM has encouraged a potential risk and economic loss analysis for a 1% annual chance flood using the FEMA tool, Hazus for ArcGIS. Effective Digital Flood Insurance Rate Maps (DFIRM) are not available for Lake County. However, MN DNR provided some preliminary modeling for Two Harbors and Silver Creek to define the 1% annual chance flood boundary (J. Weiss, Floodplain and Surface Water Engineer, personal communication, October 24, 2024). The resulting Hazus 1% annual chance floodplain is shown in the Flood Vulnerability dashboard on the [Lake County HMP website](#) (Figure 1Figure 1), where it is available in an interactive form.

Figure 1. 1% Annual Chance Flood in Lake County



### 4.1.2 Vulnerability

Potential economic loss estimates were based on county-specific building data. Lake County provided parcel tax and spatial databases that included building valuations, occupancy class, square footage, year built, and number of stories. The quality of the inventory is the limiting factor to a Hazus flood model loss estimation. Best practices were used to use local data and assumptions were made to populate missing (but required) values.

Hazus reports the percent damage of each building in the floodplain, defined by the centroid of each building footprint. After formatting the tax and spatial data, 21,770 points were input to Hazus to represent buildings with a total estimated building plus contents value of \$3.2 billion. Approximately 93% of the buildings (and 83% of the building value) are associated with residential housing.

The estimated loss by occupancy class for Two Harbors and Silver Bay is shown in Table 8.

*Table 8. Summary of 1% annual chance flood loss estimation by occupancy class*

General Occupancy	County Total Buildings	County Building and Contents Value	Floodplain Total Buildings	Floodplain Building + Contents Value	Buildings with damage	Building + Contents Loss
Residential	20,437	\$2,711,062,726	27	\$6,764,700	21	\$262,107
Commercial	360	\$162,573,256	4	\$2,409,000	0	\$0
Other	973	\$392,088,874	5	\$1,710,200	1	\$7,112
Totals	21,770	\$3,265,724,856	36	\$10,883,900	22	\$269,219

SOURCE: (FEMA, 2023A)

[View at-risk populations in Lake County](#)

**Hazus Critical Infrastructure Loss Analysis**

Critical facilities and infrastructure are vital to the public and their incapacitation or destruction would have a significant negative impact on the community. These facilities and infrastructure were identified.

Buildings identified as essential facilities for the Hazus flood analysis include hospitals, police and fire stations, and schools (often used as shelters). Loss of essential facilities are vulnerable to structural failure, extensive water damage, and loss of facility functionality during a flood, thereby negatively impacting the communities relying on these facilities’ services. Fortunately, none of Two Harbors or Silver Bay’s essential facilities included in the Hazus flood analysis are located within the 1% annual chance floodplain available.

Extreme precipitation resulting in flooding may overwhelm water infrastructure, disrupt transportation and cause other damage. Particularly where stormwater, sewage and water treatment infrastructure is aging or undersized for more intense rainstorms, extreme rain events may pose both health and ecological risks in addition to costly damage (USGCRP, 2018b).

It is important to identify any critical infrastructure within the 1% annual chance floodplain, given the higher risk of the facility or infrastructure being incapacitated or destroyed during a flood. None of none of Two Harbors or Silver Bay’s critical infrastructure was determined to be in the 1% chance flood boundary using the available floodplain data.

**Community Vulnerability**

In addition to riverine flooding, wind, waves, and water levels contribute to flooding along the shores of Lake Superior. During periods of high water, flooding and erosion may cause serious damage to homes and businesses, roads, water and wastewater treatment facilities, and other structures in

coastal communities. Long-term and seasonal variations in precipitation and evaporation rates primarily control the Great Lakes water levels and their fluctuations.

Potential economic losses due to a 1% annual chance riverine flood were estimated using Hazus. The cities of Two Harbors and Silver Bay, and the Silver Bay Township would suffer moderate estimated losses in the 1% annual chance flood, with 22 total buildings in the flooded area.

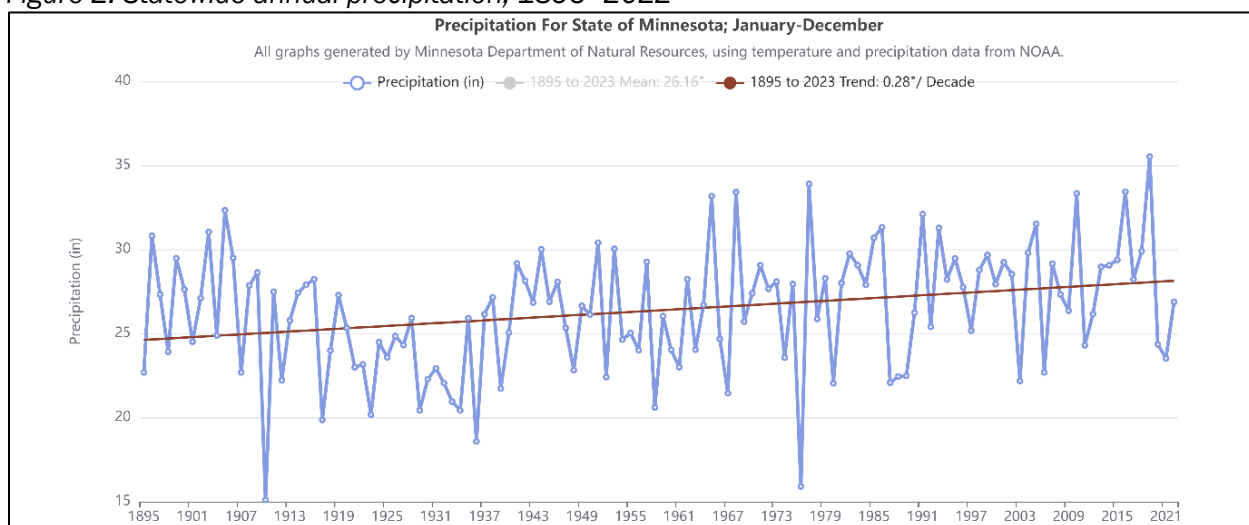
The status of jurisdictional participation in the National Flood Insurance Program and any repetitive loss properties are detailed in Section 5.1.1. National Flood Insurance Program (NFIP).

Section 3.4 provides jurisdictional responses of localized vulnerabilities to specific hazards.

### 4.1.3 Flooding and Climate Change

Higher temperatures globally have evaporated more surface and ocean water into the atmosphere, which, in turn, has provided more potential moisture for precipitating weather systems. In Minnesota, the result has been increased precipitation, with annual totals increasing at an average rate of just over a quarter inch per decade statewide since 1895 (see Figure 2).

Figure 2. Statewide annual precipitation, 1895–2022



SOURCE:(MN DNR, 2023A)

**Key Message #1 in the Water Chapter of the NCA5 states that climate change will continue to cause profound changes in the water cycle.**

Snow cover will decrease and melt earlier and heavier rainfall is leading to increasing flooding (Payton et al., 2023). Additional increases in heavy and extreme precipitation are expected to remain the state’s leading climate change symptoms. Heavy rains are now more common in Minnesota and more intense than at any time on record. Long-term observation sites have seen dramatic increases in one-inch rains, three-inch rains, and the size of the heaviest rainfall of the year. Since 2000, Minnesota has seen a significant uptick in devastating, large-area extreme rainstorms as well. Rains that historically would have been in the 98th percentile annually (the largest 2%) have become more common (MN DNR, 2024a).

This precipitation increase is found in all seasons, but spring and summer are becoming wetter at faster rates than fall and winter. Whereas temperature increases have been greatest in the northern parts of the state, precipitation increases have been well distributed geographically, and have somewhat favored southern Minnesota, which has better access to moisture from the Gulf of Mexico and is more frequently near the “low-level jet” airflow (a relatively fast-moving zone of winds in the lower atmosphere) that influences precipitation production.

#### 4.1.4 Program Gaps and Deficiencies

Lake County Emergency Management identified that there are existing program gaps and deficiencies that make its residents more vulnerable to flooding. The following gaps and deficiencies should be addressed with new mitigation efforts to reduce that vulnerability:

*Road Infrastructure:* Flood mitigation for county and township roads (e.g., culvert replacements, and road repair) is an ongoing need. The county and many of our townships have limited funding for road infrastructure. Lake County continues to assist road infrastructure mitigation projects to reduce the impacts of localized flooding.

*Funding:* The county needs funding assistance to improve roads and culverts that experience repetitive flooding. Significant State and Federal funding is needed to construct infrastructure projects to prevent, reduce, and mitigate the impacts of high rain events and flooding.

## 4.2 Wildfire

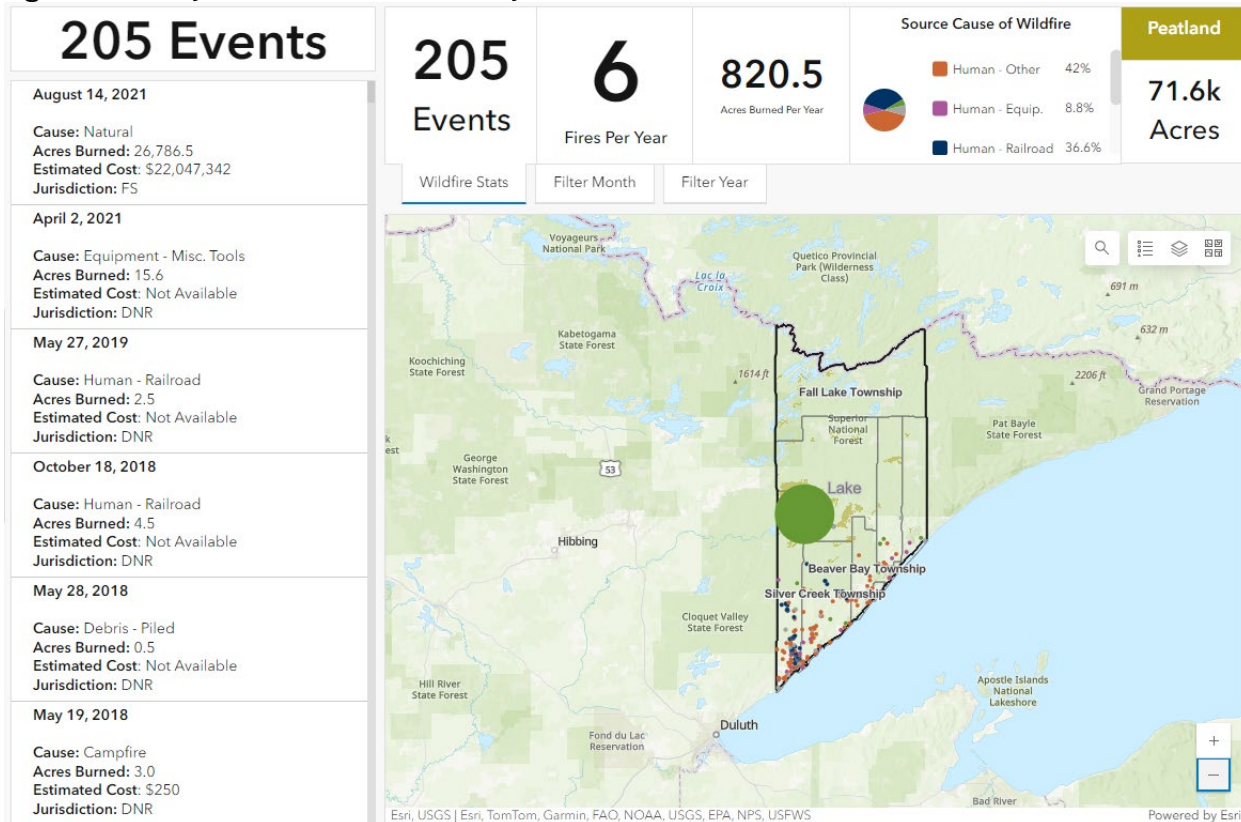
Wildfire is an uncontrolled fire spreading through vegetative fuels, posing danger and destruction to property. Minnesota experienced an average of 1,400 wildfires each year between 1985 and June 2021 (MN DNR, 2021b). Wildfires occur throughout the spring, summer and fall; however, most wildfires in Minnesota take place in March, April and May. The history of wildfire in Lake County is shown in Figure 2; an interactive map is available on the Lake County HMP website.

*View interactive maps and see information about wildfire history, risk, and vulnerability*

### 4.2.1 Probability of Occurrence

To determine the probability of future wildfires Lake County, records of previous wildfire events in were summed and divided by the dataset’s period of record, resulting in the annual relative frequency of wildfires during the period of record. Based on Minnesota DNR records, from January 1985 to December 2023, the relative frequency of wildfire events in the county is 6 per year (MN DNR, 2023b). This relative frequency can infer the probability of these events occurring in the future.

Figure 3. History of wildfire in Lake County



### 4.2.2 Vulnerability

Wildfires jeopardize the built environment, health, and well-being of individuals living near its fuel source. Some residents are more vulnerable to air quality conditions of wildfire, including children, older adults, and those with respiratory issues (AirNow, 2021).

Structures located in areas near undeveloped wildland are vulnerable to wildfires. The SILVIS Lab at University of Wisconsin–Madison created a dataset documenting the changes of the wildland–urban interface (WUI) in the United States from 1990 to 2010. Radeloff et al. (2018) define WUI as the area where structures and other human development meet or intermingle with wildland vegetation. With the increase of development in metropolitan fringes and rural areas, the WUI is growing. The expansion of the WUI in recent decades has significant implications for wildfire management and impact as it creates an environment in which fire can readily move between structural and vegetation fuels. Its expansion has increased the likelihood that wildfires will threaten structures and people (Radeloff et al., 2018).

There are two main types of WUI: intermix and interface. Intermix WUI are areas where housing and wildland vegetation intermingle; interface WUI are areas where housing are adjacent to wildland vegetation (Radeloff et al., 2018). Table 9 shows the change of total WUI (intermix and interface) in the county from 2000 to 2020, and the percent of the county’s land, housing, and population located in the WUI area.

Table 9. Wildland-Urban Interface (WUI), Lake County, 2000–2020

	Total WUI 2000	Total WUI 2010	Total WUI 2020	% Change (2000–2020)
Land Area	1.5	1.5	2.0	+33.3%
Housing	79.6	78.6	81.4	+2.3%

SOURCE: (RADELOFF, MOCKRIN, ET AL., 2023)

Communities with higher proportions of WUI areas are more vulnerable to wildfires. The percentage of WUI within individual jurisdictions in Lake County is shown in Table 10.

Table 10. Percentage of land area classified as WUI per jurisdiction in Lake County

Township / City	Percent WUI
Beaver Bay	47.7
Silver Bay	41.8
Two Harbors	19.1

SOURCE: (RADELOFF, HELMERS, ET AL., 2023)

Some communities are more vulnerable than others to wildfires. Stretching from Lake Superior to the Canadian border, Lake County is heavily forested. In 2020, 81.88% of Lake County’s population lived within a wildland–urban interface or intermix area (Radeloff, Mockrin, et al., 2023). Fall Lake Township, Stoney River Township, Crystal Bay Township, Silver Creek Township, and Beaver Bay Township have a collection median wildfire risk score of 95.7, which is higher 98% of census tracts in Minnesota (FEMA, 2023a).

Section 3.4 provides jurisdictional responses of localized vulnerabilities to specific hazards.

#### 4.2.3 Wildfire and Climate Change

The changing climate poses a complex web of issues for wildfire in Minnesota. Climate change likely is affecting the frequency and intensity of Canadian wildfires, similar to its effect on wildfires in the western U.S. and Alaska (Wehner, 2017). Small particulate pollution from smoke plumes has numerous health impacts as described above, and if severe enough can result in spikes of demand for emergency services. Based even on intermediate (RCP4.5) future climate projections, many Midwest counties will experience increased exposure to wildfire smoke (Mills et al., 2018).

According to the NCA5, Key Message #3 in the Midwest Chapter, Climate Adaptation will require innovative collaborations between public health and other sectors such as emergency management (Wilson et al., 2023).

Changes in Minnesota’s climate also may be influencing the frequency, severity, and areal coverage of wildfires. For example, warmer winters with inconsistent snow cover, the arrival of wet conditions prior to the growing season, plus early and more frequent thaws, all combine to prolong the exposure of susceptible vegetation to dry conditions, potentially extending the peak wildfire season.

Minnesota’s changing climate also may affect fire-damaged areas. For instance, heavy rains in burned areas can lead to erosion and mudslides. Documented and projected increases in the frequency and intensity of heavy and extreme rainfall suggest that Minnesota is becoming and will become more prone to post-fire landscape hazards. Climate change also is having an impact on the pests that

damage the health and composition of Minnesota forests, although the ultimate consequences for wildfire are complex and uncertain. Shorter winters are allowing two reproductive cycles of the Eastern Larch Beetle, which has now killed off at least 143,000 acres of mature tamarack forest in Minnesota since 2001 and affected about 535,000 acres to some degree during that period. The decline in severity and frequency of extreme cold may allow more rapid establishment of Emerald Ash Borer to latitudes further north than without climate change. Minnesota forests are home to an estimated 1 billion ash trees. Many of these trees are in nearly pure stands of black ash growing in wet areas. So while the deaths of these lowland species will increase fuel loading, their decreased transpiration will increase water on the ground. The ultimate contribution to wildfire will depend on the interplay between increased precipitation, warming temperatures, extreme heat, and periods of drought as our climate continues to change.

Temperatures are predicted to rise in the state, which could lead to more extreme heat events and associated wildfire risks. As Minnesota's climate changes, weather fluctuations between drought and extreme rain events and increasing temperatures will result in changes to forest composition and/or distribution. These fluctuations can lead to dry conditions that may cause increased fire risk in both grassland and forest environments.

The varied impacts of climate change are complicated by how these changes also interact with and reinforce one another. Drought and heat may both contribute to wildfires, which may in turn lead to changes in plant and animal populations and other ecological shifts. Increasing events of extreme heat and drought can increase the number of wildfires (Blumenfeld, K. Minnesota State Climatology Office, personal communication, January 9, 2019).

#### 4.2.4 Program Gaps and Deficiencies

Lake County Management identified existing program gaps and deficiencies that make its residents more vulnerable to wildfire. These gaps should be addressed with new mitigation efforts to reduce vulnerability, outlined as follows:

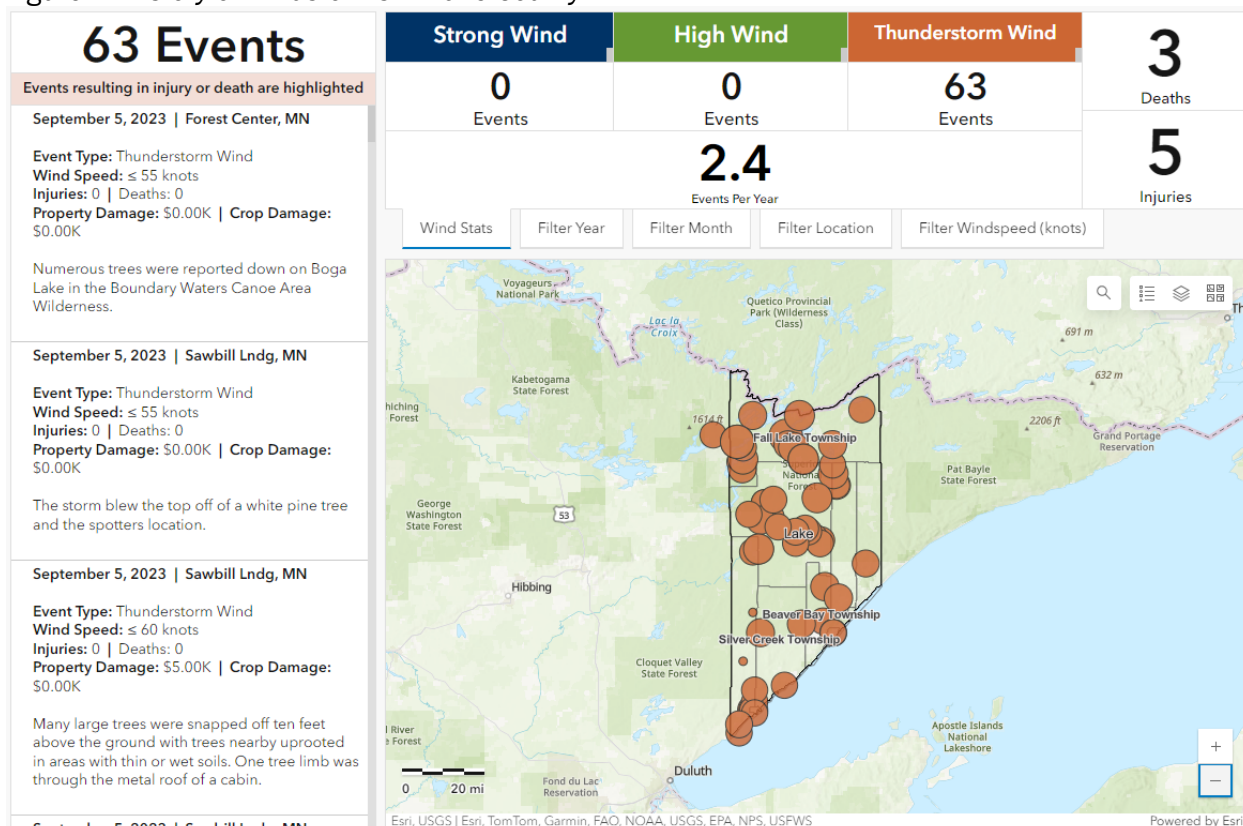
*Public Education & Firewise Practices:* There is an ongoing need to educate residents who live within high-risk wildfire areas as well as visitors to those areas on the risks of wildfire and preventative measures to take. Lake County Emergency Management and local jurisdictions should continue to prioritize and coordinate these efforts. The Lake County 2017 Community Wildfire Protection Plan (CWPP) is outdated and needs to be updated.

### 4.3 Windstorms

A windstorm is a wind strong enough to cause damage to trees and buildings and typically exceeding 34 mph (Pielke, 2012). Windstorm events encompass a variety of types of damaging wind. The history of windstorms in Lake County is shown in Figure 4; an interactive version of this map can be found on the Lake County HMP website.

[View interactive maps and see information about windstorm history, risk, and vulnerability](#)

Figure 4. History of windstorms in Lake County



### 4.3.1 Probability of Occurrence

To determine the probability of future wind-related events in Lake County, records of previous wind-related events (strong wind, high wind, and thunderstorm wind) in Lake County were examined since 1996, the period of record all wind events have in common. The relative frequency of all wind-related events from January 1996 to February 2024 is 2.4 per year. These relative frequencies can be used to infer the probability of these events occurring in the future.

### 4.3.2 Vulnerability

The likelihood of a windstorm event does not vary geographically within the county, but the vulnerability of its residents is not constant. Vulnerability to injury from all kinds of windstorms decreases with adequate warnings, warning time, and sheltering in a reinforced structure. Therefore, residents living in rural areas, living alone or with limited mobility, or living in a manufactured home may be more vulnerable. Also at a higher risk to windstorms are those who work outdoors or do not have permanent housing.

Structural vulnerability depends in part upon the construction of a building and its infrastructure. Residents of mobile homes are more vulnerable to fatality or injury from windstorms because mobile homes are not able to withstand high winds as well as other structural dwellings, with 50 mph (43.4 knots) being the lower limit of wind speeds capable of damaging mobile homes (AMS, 2004). Steps to mitigate these vulnerabilities have been taken by the state, requiring all mobile home parks to provide an evacuation plan, and parks with at least 10 homes licensed after March 1, 1988 to provide a storm

shelter (MDH, 2020). However, mobile home parks often do not provide the required storm shelters (Sepic, 2017). Building codes have also changed to improve the strength of new mobile home construction but there are still many older mobile homes in use that do not meet these new standards.

Section 3.4 provides jurisdictional responses of localized vulnerabilities to specific hazards.

#### 4.3.3 Windstorms and Climate Change

Lack of high-quality long-term data sets makes assessment of changes in wind speeds very difficult (Kunkel et al., 2013). In general, one analysis found no evidence of significant changes in wind speed distribution. Other trends in severe storms, including the number of hurricanes and the intensity and frequency of tornadoes, hail, and damaging thunderstorm winds, are uncertain. Since the impact of more frequent or intense storms can be larger than the impact of average temperature, climate scientists are actively researching the connections between climate change and severe storms (USGCRP, 2018a).

According to the NCA5 Key Message #5 in the Climate Trends chapter, extreme events are becoming more frequent.

#### 4.3.4 Program Gaps and Deficiencies

Lake County Emergency Management identified several program gaps and deficiencies that make its residents more vulnerable to summer storms, including windstorms, that should be addressed with new mitigation efforts to reduce vulnerability. These include:

*Above-Ground Power Lines:* Most powerlines throughout Lake County are above ground, exposing them to potential damage from high wind events. The county and local jurisdictions continue to work with utility providers to convert overhead powerlines to underground or to implement other measures to reduce risk of power failure.

*Public Education:* Ongoing public education is needed during tornado season to inform the public on what is a tornado watch/warning and what to do when outdoor warning sirens are activated. Lake County and local jurisdictions also need to continue to encourage residents to be aware of and ready for severe storm events that can lead to long-term power outages.

*Storm Shelters and Tornado Safe Rooms:* There are areas throughout Lake County without viable storm shelters or tornado safe rooms where there are populations vulnerable to high wind and storm events, such as mobile home parks and campgrounds. A coordinated approach is needed to identify where storm shelters or tornado safe rooms are needed and to evaluate whether new construction or a retrofit of facilities is possible. Finding funding for the implementation of such construction projects is also a barrier.

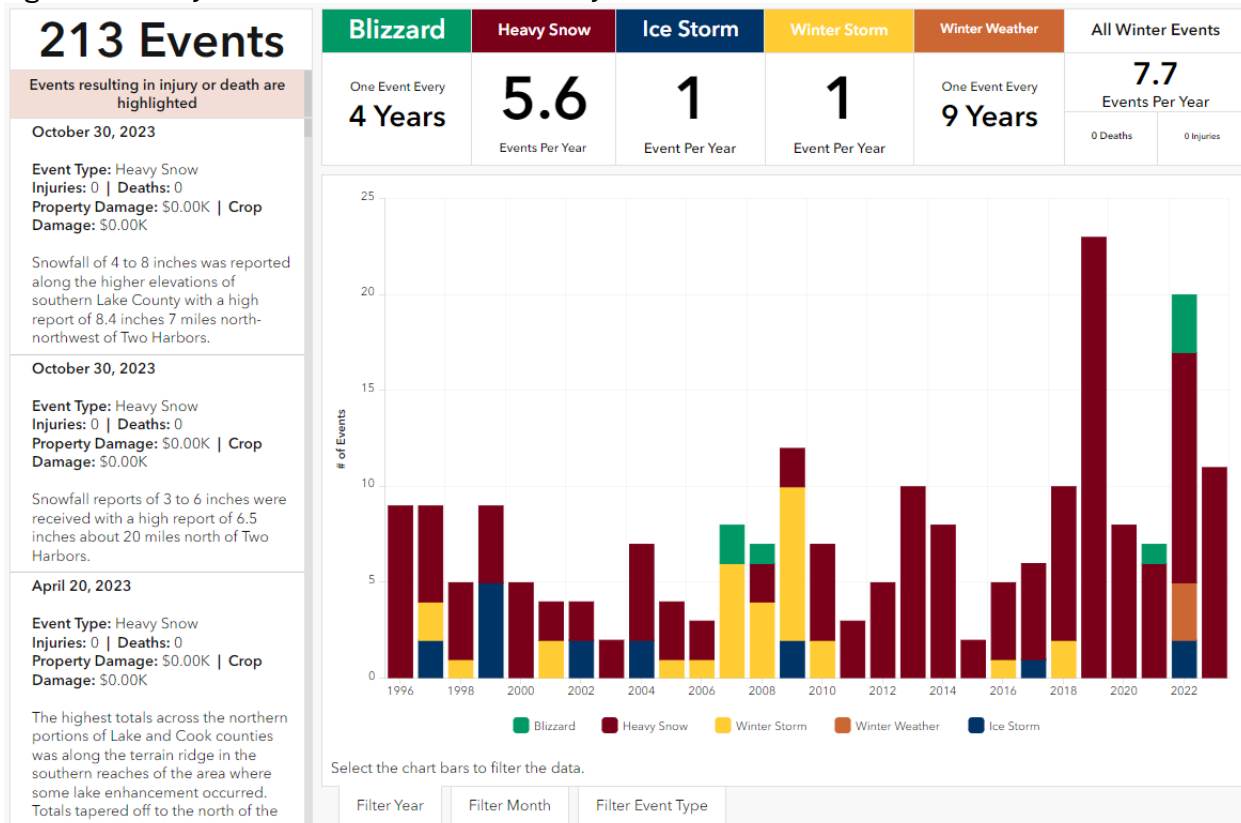
*Outdoor Warning Sirens:* There are no outdoor warning sirens within Lake County. This is something that Lake County may want to consider in partnership with local jurisdictions for future purchase and installation. The cost of buying warning sirens is very high and is a financial barrier.

## 4.4 Winter Storms

Winter storms encompass a number of winter weather events which the National Weather Service (NWS) organizes into the following categories: blizzard, heavy snow, ice storm, winter storm, and winter weather. Winter weather events are common in Minnesota and can be costly. According to the Spatial Hazard Events and Losses Database (SHELDUS), winter weather events in Minnesota have cost more than \$1.02 billion in damages since 1960 (CEMHS, 2023). The history of winter storms in Lake County is shown in Figure 5; an interactive version of this map can be found on the Lake County HMP website.

[View interactive maps and see information about winter storm history, risk, and vulnerability](#)

Figure 5. History of winter storms in Lake County



### 4.4.1 Probability of Occurrence

To determine the probability of future winter-related storm events in Lake County, records of previous events (blizzards, heavy snows, ice storms, winter storms, and winter weather) were summed and divided by the dataset’s period of record, resulting in the annual relative frequency of winter-related storms. Based on records in the NCEI Storm Events Database through January 2024, the relative frequency of winter-related storm events in Lake County is 7.7 per year. This relative frequency can infer the probability of these events occurring in the future.

#### 4.4.2 Vulnerability

Transportation systems, electrical distribution systems, and structures are vulnerable to winter storms throughout the county. These events do not vary geographically within the county; all jurisdictions are equally vulnerable. While it is highly likely these events will continue occurring annually, the amount of snow and ice and number of winter-related storm events to occur each year are unpredictable. Citizens living in climates such as these must always be prepared for situations that put their lives or property at risk. It is important that extra consideration be given to the vulnerable populations discussed in Section 3.2. Section 3.4 provides jurisdictional responses of localized vulnerabilities to specific hazards.

#### 4.4.3 Winter Storms and Climate Change

Historically, winter storms have had a large impact on public safety in Minnesota. If the frequency of snowstorms and annual total snowfalls increase, as anticipated effects of Climate Change, the effects on public safety will also increase. Pressures on energy use, reduced reliability of services, potential outages, and potential rise in household energy costs are major climate change risks to public health that can occur from winter weather.

Table 7 in Section 3.3 discusses confidence that climate change will impact common Minnesota weather/climate hazards beyond 2025, there is some weak evidence that warming winters may make heavy snowfall events less frequent as winter warms.

#### 4.4.4 Program Gaps and Deficiencies

Lake County Emergency Management identified several program gaps and deficiencies that make its residents more vulnerable to severe winter storms. The following gaps and deficiencies should be addressed with new mitigation efforts to reduce that vulnerability:

*Above-Ground Power Lines:* Most powerlines throughout Lake County are above ground, exposing them to impacts/damage from winter high wind and ice events, potentially leading to localized or extensive power outages.

*Public Education:* Ongoing public education is needed to encourage residents to be ready for long-term power outages or to be snowed in during dangerous winter events such as ice storms and blizzards.

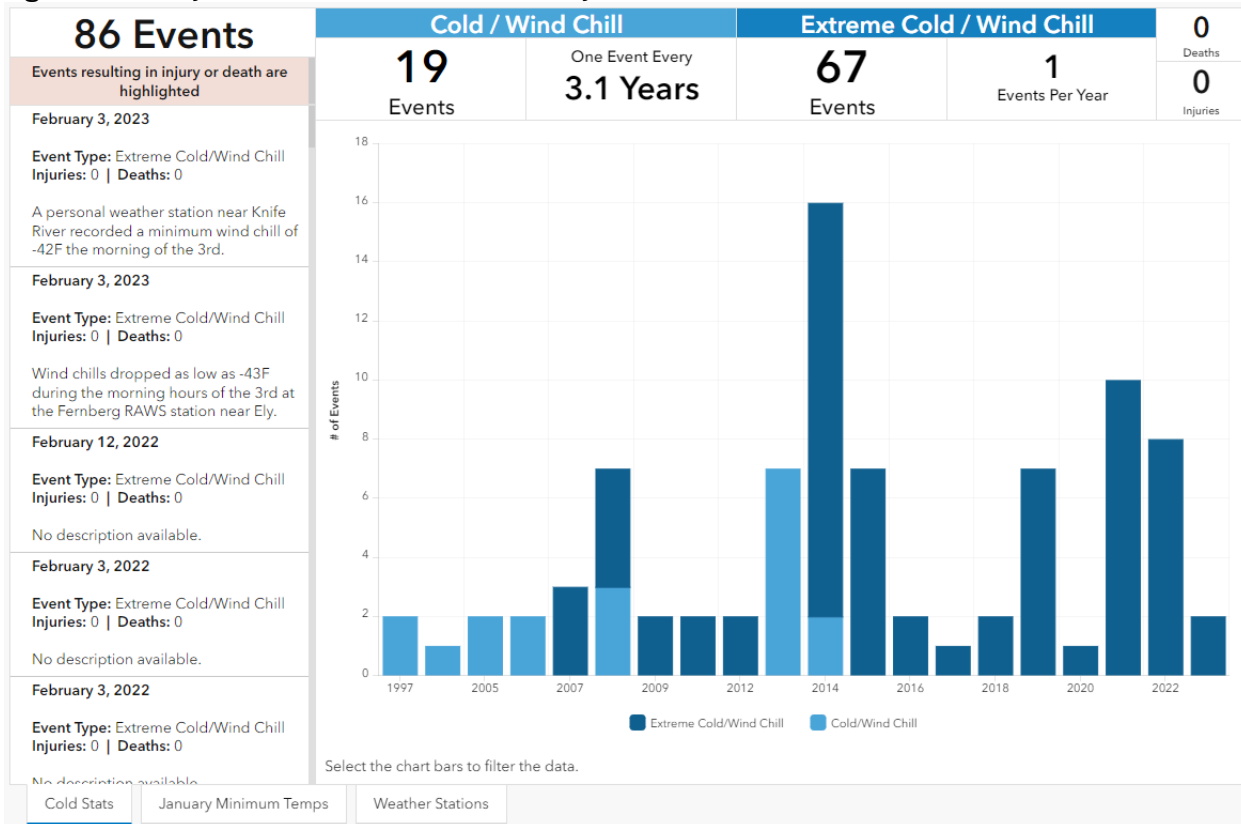
*Backup Power:* Not all designated shelter facilities have generator back-up power to provide the ability to care for residents if displaced during a severe winter event coupled with an extended power outage.

### 4.5 Extreme Cold

Due to Minnesota's position in the middle of the continent and subsequent climate, the state may experience extremely frigid temperatures in winter. Winter in Lake County can be especially dangerous when low temperatures and wind create arctic-like wind chills. The history of extreme cold in Lake County is shown in Figure 6; an interactive version of this dashboard can be found on the Lake County HMP website.

[View interactive maps and see information about extreme cold history, risk, and vulnerability](#)

Figure 6. History of extreme cold in Lake County



#### 4.5.1 Probability of Occurrence

To determine the probability of future cold-related events in Lake County, records of previous cold/wind chill and extreme cold/wind chill events were summed and divided by the dataset’s period of record, resulting in the annual relative frequency. Based on records in the NCEI Storm Events Database through January 2024, the relative frequency of extreme cold/wind chill events in Lake County is 1 per year. (NCEI, 2023). This relative frequency can be used to infer the probability of these events occurring in the future.

#### 4.5.2 Vulnerability

The risk of extreme cold does not vary geographically within the county. Citizens living in climates such as these must always be prepared for situations that put their lives or property at risk. The youngest and more elderly residents, homeless persons, individuals with chronic medical conditions, and those who are working or recreating outdoors are most at risk for frostbite and hypothermia (MDH, 2021).

[View at-risk populations in Lake County](#)

It is not always the depth of the cold that poses a threat but rather unpreparedness for the cold, such as an individual with a vehicle breakdown who lacks a personal winter safety kit in the vehicle. The cost of propane can make rural residents more vulnerable to issues with extreme cold. A propane shortage and resulting crisis, such as that which occurred in 2014, may increase the cost of heating homes and farms to a prohibitive amount (Eaton, 2014). The Minnesota Department of Commerce presents options and suggestions for homeowners who use propane [on their website](#).

The CDC publication “Extreme Cold: A Prevention Guide to Promote Your Personal Health and Safety” outlines preparation measures that individuals can take to reduce their vulnerability to extreme cold. Highlights in this document include advice about travel preparations, securing your home water supply, and safety during recreation (CDC, 2021).

Section 3.4 provides jurisdictional responses of localized vulnerabilities to extreme cold.

### 4.5.3 Extreme Cold and Climate Change

Although climate research indicates that Minnesota’s average winter lows are rising rapidly, and our coldest days of winter are now warmer than we have ever recorded, cold temperatures have always been a part of Minnesota’s climate, and extreme cold events will continue.

As the climate changes, an increase in extreme precipitation or storm events could lead to a higher risk of residents being exposed to cold temperatures during power outages or other storm-related hazards. Extreme and changing temperatures are already challenging aging infrastructure and are expected to impair surface transportation and the electrical grid.

Key Message #4 in NCA5 in the Midwest Chapter states that green infrastructure and public and private investments may mitigate losses, provide relief from heat, and offer other ways to adapt the built environment to a changing climate.

### 4.5.4 Program Gaps and Deficiencies

Lake County Emergency Management identified several program gaps and deficiencies that make its residents more vulnerable to extreme cold. The following gaps and deficiencies should be addressed with new mitigation efforts to reduce that vulnerability:

*Generators for Backup Power to Critical Facilities & Shelters:* Not all healthcare and other critical facilities utilized for the care of residents & visitors, including designated severe weather/emergency shelters (schools, churches, etc.) have backup power to run heating systems in the event of a power outage.

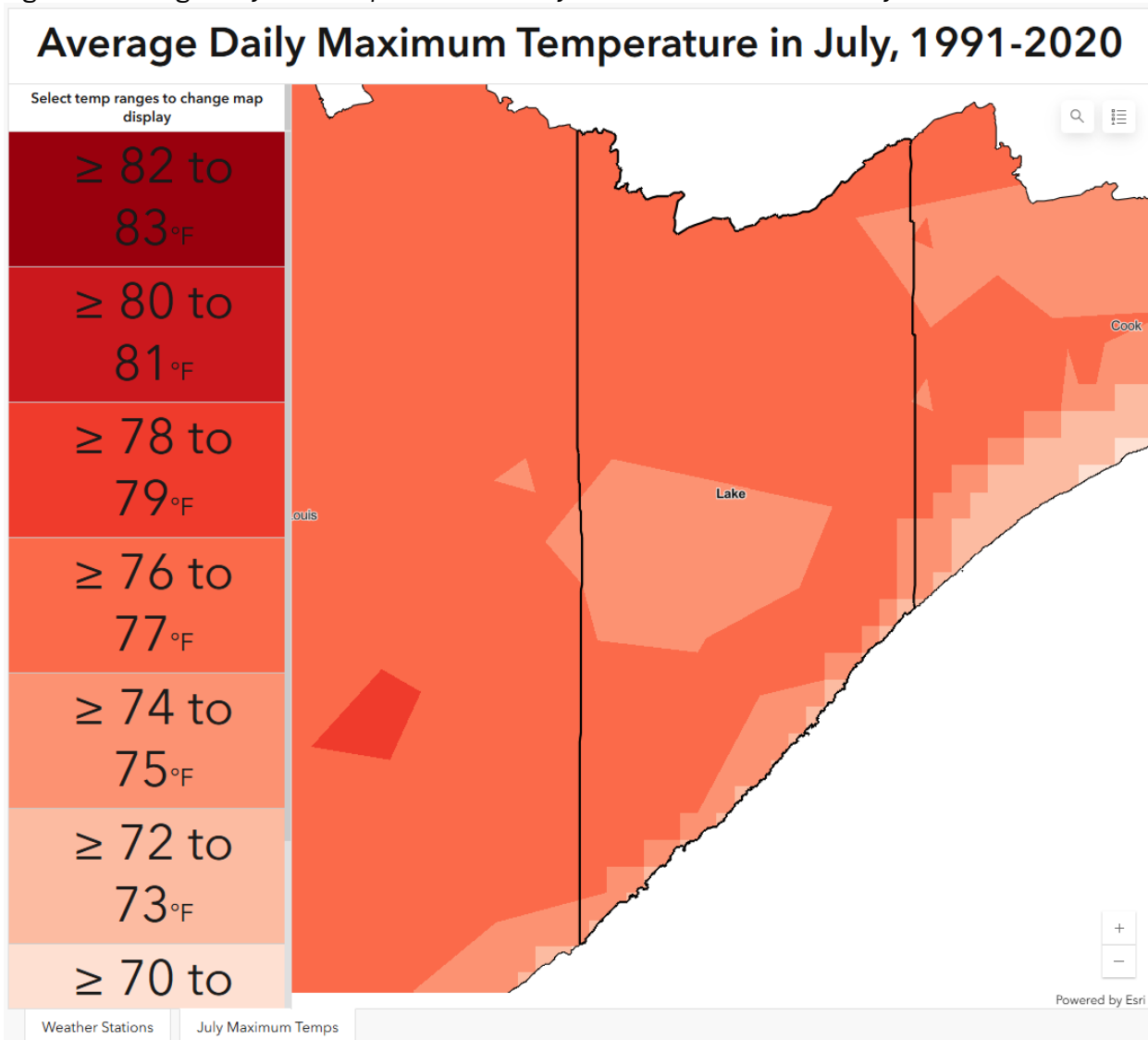
*Public Education:* Ongoing public education is needed to encourage residents to be prepared for extreme weather, including power outages during periods of extreme cold. Lake County Emergency Management continues to do public education through the local schools, senior and health care centers, and local government for severe weather awareness.

### 4.6 Extreme Heat

Extreme heat is the combination of very high temperatures and exceptionally humid conditions. Lake County’s agricultural lands and structures are vulnerable to heat damage and its residents to injury, exacerbation of pre-existing chronic conditions, and even death (Moss, 2017). Medical costs related to extreme heat can be enormous, and with extreme heat estimated to create \$1 billion in health care-related costs in the United States in 2023 (Center for American Progress, 2023). In 2023 in Minnesota, 682 people went to the emergency department and two died from heat-related illness (MDH, 2024).

When the atmospheric moisture content is high, the rate of perspiration from the body decreases and the human body feels warmer (NWS, 2021). Heat stress can be indexed by combining the effects of temperature and humidity. Average daily maximum temperatures for July in Lake County are shown in Figure 7; an interactive version of this chart can be found on the Lake County HMP website.

Figure 7. Average daily max temperatures for July 1991–2020 in Lake County



[View interactive maps and see information about extreme heat history, risk, and vulnerability](#)

#### 4.6.1 Probability of Occurrence

Based on records in the Midwestern Regional Climate Center (MRCC) that date back to 1991, the average daily maximum temperature for July in Lake County has historically been in the 78–79 °F range (MRCC, 2021), which is below the 90 °F for 2–3 days criteria for “extreme” heat events (FEMA, 2024). However, the Wolf Ridge Environmental Learning Center weather station in Finland, MN, reported daily maximum temperatures above 90 °F a total of 84 times, an average of three days per year. This historical average can be used to infer future events, although climate change projections show an increase in the number of days that exceed 90 °F by mid-century (see Section 4.8.3).

#### 4.6.2 Vulnerability

The Minnesota Department of Health released a 2012 Minnesota Extreme Heat Toolkit, to help local governments prepare for extreme heat events. In their toolkit, they note extreme heat events are often dubbed “silent killers” because deaths and illnesses from these events are often misunderstood and underreported. Minnesota has no official system to report deaths and illnesses linked to extreme heat (MDH, 2012). It is important to not underestimate the danger of extreme heat events within the state.

Key Message #3 in the Midwest Chapter of the NCA5 states that Mitigation and adaptation strategies, such as expanded use of green infrastructure and heat-health early warning systems, have the potential to improve both individual and community health (Wilson et al., 2023).

The impact extreme heat has on individuals is not equal. According to the Center for Disease Control and Prevention (CDC), population groups more vulnerable to extreme heat include:

- Older adults (≥65 years old). The elderly cannot easily adjust to sudden changes in temperature and are more likely to have a chronic medical condition or take medication affecting their body’s ability to control its temperature.
- Infants and children. Young children and infants have limited control with their surroundings and rely on others to keep them cool and hydrated.
- Individuals with chronic health conditions. These individuals are less likely to respond to changes in temperature, may be taking a medication which exacerbates the effects of extreme heat, or have a condition which is a risk-factor for heat-related illness (e.g., heart disease, mental illness, poor blood circulation, and obesity).
- People with low income. These individuals may not be able to afford to properly cool their home and may face transportation challenges when trying to access cooling shelters.
- Athletes and people working outdoors. Both groups are likely to exert energy while being exposed to the heat (CDC, 2020).

[View at-risk populations in Lake County](#)

Warming temperatures will continue to increase the risk of extreme heat, especially among these already vulnerable populations. Section 3.4 provides jurisdictional responses to localized vulnerabilities to extreme heat.

#### 4.6.3 Extreme Heat and Climate Change

Minnesota's annual average temperature has increased more than 3 °F since record keeping began in 1895, and nine of Minnesota's hottest 16 years on record have occurred since the year 2000 (MCAP, 2024).

Climate models project that temperature and precipitation increases will continue in Minnesota through the 21<sup>st</sup> century, with hotter summers and increased drought severity during dry periods as well. Already, the maximum annual heat index values have been rising across the state, because increased humidity during heat waves (Blumenfeld, K. Minnesota State Climatology Office, personal communication, December 21, 2023).

*The average number of days per year with temperatures over 95 °F under a high carbon emissions (SSP 585), mid-century (2040–2059) scenario is illustrated in the [Climate Dashboard](#) on the [Plan website](#)*

On average, by mid-century (2040–2059), under a high emissions (SSP 585) scenario, Lake County may reach 1.0 days/year of temperature greater than 95 °F, an increase in 0.92 more days to the historical (1995–2014) simulations average of 0.09 days/year (Liess, S. et al., 2023).

Greenhouse gas concentrations will continue rising through the century, and the air's ability to trap heat from the earth's surface will increase accordingly. Warming of the atmosphere will evaporate even more water into the air, further limiting the amount of cooling Minnesota will be able to achieve at night and during the winter. As warmer winters and warmer baseline conditions transition into summer, it will be much easier to attain extreme heat (ICAT, 2017).

#### 4.6.4 Program Gaps and Deficiencies

Lake County Emergency Management identified several program gaps and deficiencies that make its residents more vulnerable to extreme heat. The following gaps and deficiencies should be addressed with new mitigation efforts to reduce that vulnerability:

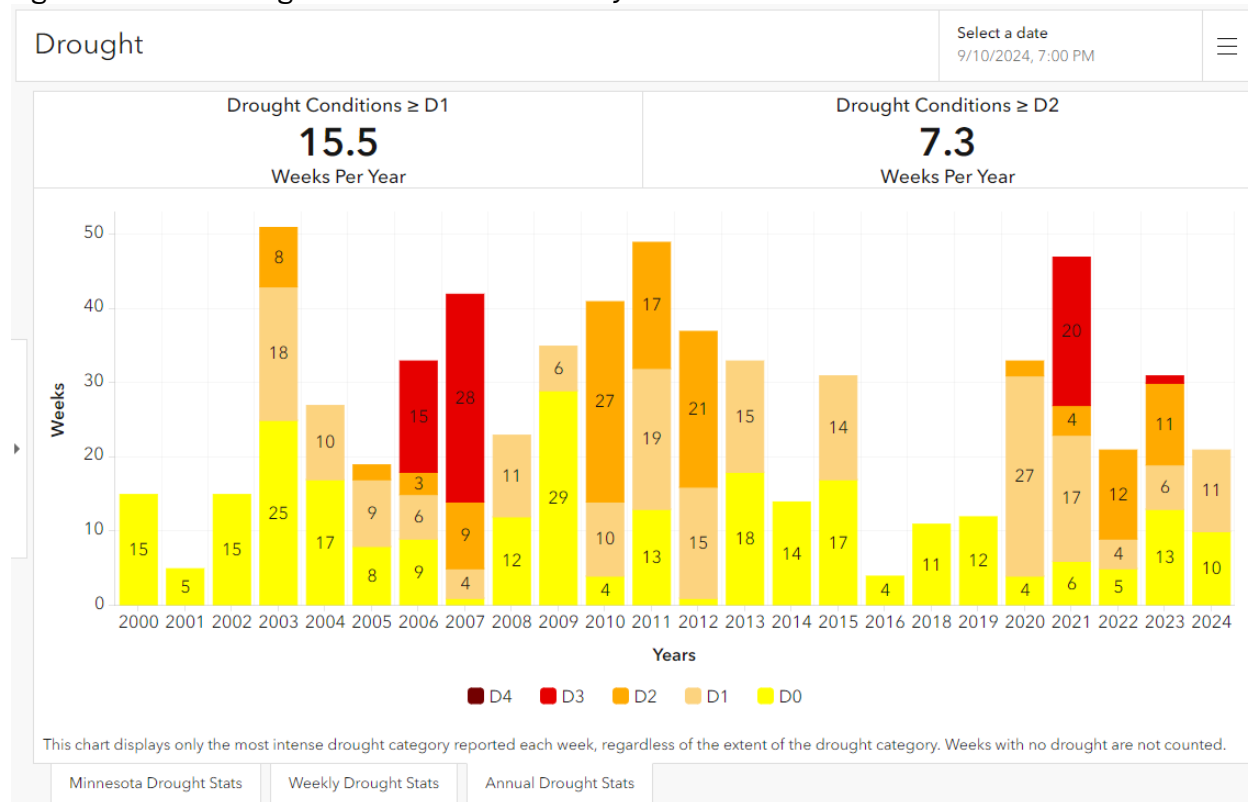
**Generators for Backup Power to Critical Facilities & Shelters:** Not all healthcare and other critical facilities utilized for the care of residents & visitors, including designated severe weather/emergency shelters (schools, churches, etc.) have backup power to run cooling systems in the event of a power outage.

## 4.7 Drought

There are numerous approaches to assessing drought conditions. The current gold standard for accurate drought conditions in the United States is the United States Drought Monitor (USDM). Annual drought statistics since 2000 can be seen in Figure 8; an interactive version of this dashboard can be found on the Lake County HMP website.

[See interactive information about drought, including history and the USDM Dashboard, on the Lake County HMP website](#)

Figure 8. Annual drought statistics in Lake County since 2000



### 4.7.1 Probability of Occurrence

To determine the probability of future droughts in Lake County, records of previous droughts were summed and divided by the dataset’s period of record, resulting in the annual relative frequency of droughts. The USDM database was examined from January 2000–September 10, 2024 for any occurrence of drought  $\geq$  D1 in Lake County, regardless of the duration of the drought. According to the weekly reported data, the relative frequency of the county experiencing drought conditions  $\geq$  D1 is 15.5 weeks per year, and the relative frequency of drought conditions  $\geq$  D2 is 7.3 weeks per year (NDMC, 2024b). The relative frequency of past droughts can be used to infer the probability of similar droughts occurring in the future.

#### 4.7.2 Vulnerability

One way to identify county assets vulnerable to drought is by examining the impacts of previous droughts. Overseen by the National Drought Mitigation Center (NDMC), the Drought Impact Reporter (DIR) is a comprehensive database that gathers drought-related reports from a variety of sources and identifies the sector(s) impacted by each drought. The NDMC (NDMC, 2024b) defines a drought impact as “[a]n observable loss or change that occurred at a specific place and time because of drought.” A drought meeting this definition is categorized based on the sector(s) the drought impacts; therefore, a single drought affecting multiple sectors will be counted once for each respective sector it impacted.

DIR records show 16 reported drought incidents in Lake County between 2000 and 2022, impacting eight sectors with greatest impacts to the following sectors: Fire; Plants & Wildlife; and Relief, Response & Restrictions (NDMC, 2024a). Since droughts are regional, jurisdictions within Lake County do not vary in their vulnerability to drought; however, the impact from droughts are not equal.

Drought conditions may impact soil moisture reserves, groundwater supplies, lake levels, and stream flows. Water-dependent industries that experience the greatest impacts include: agriculture, public utilities, forestry, and tourism (MN DNR, 2021a). In addition, droughts may negatively affect an individual’s health by contributing to poor air quality caused by wildfire smoke and particulate, or a dusty environment. The 2021 drought resulted in elevated fire danger in roughly the northern two-thirds of the state, and record high particulate readings across Minnesota due to the Canadian wildfires (Huttner, 2021). [Populations vulnerable to these conditions](#) include children, older adults, and those with respiratory issues.

Section 3.4 provides jurisdictional responses of localized vulnerabilities to specific hazards.

#### 4.7.3 Drought and Climate Change

Droughts have been happening throughout Minnesota’s history. While the degree at which climate change will impact future droughts is not certain, an increase in efforts and resources are being devoted to project these impacts. In 2023, the NCA5 was completed by the U.S. Global Change Research Program. It provided a comprehensive scientific review of how climate change is impacting the U.S. as well as providing climate change projections.

Key Message #5 in the Midwest Chapter of the NCA5 states that managing extremes is necessary to minimize impacts on water quality and quantity. The extreme variability between wet and dry periods is expected to negatively impact the water quality and quantity of the Mississippi River System and adversely affect dependent ecosystems and commerce (Wilson et al., 2023).

According to the report, a warming climate is contributing to oscillations between extreme droughts and floods, threatening the agriculture and livestock in the Midwest which produces more than 30% of the world’s corn and soybeans (Wilson et al., 2023). Climate change is attributed to an estimated \$31.9 billion (2022 USD adjusted) of US crop indemnity payments over the last 30 years, with the largest portion of payments going to farmers affected by drought (Wilson et al., 2023). In Minnesota, drought alone represents 25% of the total crop indemnity payments made in the state (CEMHS, 2023).

Climate projections indicate an increase in annual precipitation of 0.2%–0.5% in the western Midwest and the increase in cumulative runoff is expected to continue through the midcentury (Wilson et al., 2023).

#### 4.7.4 Program Gaps and Deficiencies

Lake County Emergency Management did not identify any program gaps or deficiencies that make its citizens more vulnerable to drought.

### 4.8 Coastal Erosion

This plan identifies coastal erosion as a hazard of moderate risk and separates it from other erosion hazards. Coastal erosion is often accelerated by coastal flooding—caused by storm surges and waves—but many other factors have an influence. On the Lake Superior shoreline, flooding is dependent on anthropogenic activities as well as storm intensity and lake levels, the latter of which vary due to precipitation, evaporation, and other natural processes. Ice cover—or the lack thereof—also significantly impacts the risk of a flood hazard. These phenomena distinguish the analysis of flood hazards on the Great Lakes from those for ocean coastal areas—as well as from riverine flooding or erosion (FEMA, 2014).

Northeast Minnesota has 189 miles of Lake Superior shoreline and a coastal population of 215,500 (NOAA, 2018). Section 304(1) of the Coastal Zone Management Act identifies the coastal zone as the coastal waters (including lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder), strongly influenced by each other and in proximity to the shorelines of the several coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches.

Lake County has 74 miles of shoreline. Forty-one miles of this shoreline have two- to ten-foot-high bluffs, and seven-and-a-half miles have bluffs of over ten feet. Erosion along unstable, tall clay shoreline is a particular problem for the north shore of Lake Superior erosion, and bluff instability can harm the aquatic zone near the shore.

A Great Lakes Coastal Flood Study was initiated in 2014 to update the coastal flood hazard information and Flood Insurance Rate Maps (FIRM) for Great Lakes coastal communities using analysis of historic storm and high water events and an extensive storm surge study (FEMA, 2014). Preliminary FEMA maps are not available for Lake County.

Three USACE breakwater structures in Lake County protect against tides, currents, waves, and storm surges. They are the Knife River Harbor Breakwater (75 feet), the Two Harbors East Breakwater (496 feet), and the Two Harbors West Breakwater (274 feet) (FEMA, 2014).

#### 4.8.1 Coastal Erosion History

Severe flood events on the Lake Superior coast may occur when high lake levels are combined with strong winds that drive water and waves onshore. When large waves are paired with elevated lake levels, the waves reach farther onshore, eroding the backshore, and potentially reaching developed lakefront areas. Whether wave hazards reach development depends on local conditions—for instance, in many areas, the bluffs are tall enough to limit the wave effects to the bluff face. However, in other

areas, the bluff, dunes, or shore protection structures may be overtopped, or waves may pass over inundated, low-lying areas. Waves can cause dramatic structural damage to buildings, including splintering walls and causing homes to float off foundations or even collapse (FEMA, 2014).

Major storm winds and waves come from the northeast, which greatly impact the north- and northeast-facing shores. The differences in coastal aspects result in areas of higher and lower susceptibility along Lake Superior coasts. Johnson et al. (1995) showed that the North Shore of Lake Superior is variable in its geology and geometry, and these variations result in different rates of erosion. The study showed that non-bedrock areas at or near the shoreline receded at an average rate of .46 ft/yr., and a maximum of 1.1 ft/yr. Many landowners inquire at SWCDs and County Planning and Zoning and are surprised to find they've bought or built in an erosion hazard area. Cities also are concerned about coastal erosion, especially as it affects infrastructure.

A lack of validated current coastal erosion data has weakened coastal setback enforcement on the North Shore of Lake Superior. The Coastal Erosion Hazard Mapping (CEHM) initiative combines current research and technology to produce a coastal erosion rate map and to develop common guidance for landowners (ARDC, 2022). The [North Shore Erosion Mapping Tool](#), a data viewer developed through CEHM, identifies erosion potential in high, medium, and low categories. CEHM has also leveraged NOAA's 2019 Great Lakes Hardened Shoreline Classification, which classifies shoreline type, structure type, and structure condition (NOAA, 2019). The USGS Inventory of landslides in the northwestern, northeastern, southern, and southeastern parts of Minnesota provides location of coastal landslides with estimated dates (DeLong, et al., 2022).

In Lake County, 12% of state highway corridor is being managed due to risk of slope failure. The majority of the erosion concern is along Highway 61, which runs directly along the Lake Superior shoreline (MnDOT, 2019).

The NCEI storm events database has not reported any Coastal Flood or Lakeshore Flood events in Lake County.

#### **4.8.2 Probability of Occurrence**

Coastal erosion is usually a gradual process, punctuated by large events. Sudden incidents prompting emergency action are rare. Such rare events include strong storms with high winds or heavy wave action that can cause sudden failure of bluffs. Coastal property owners are acutely aware of hazards during periods of high-water levels, especially right after a damaging storm or a bluff failure, but this awareness can fade over time if low lake levels slow the erosion rate.

#### **4.8.3 Vulnerability**

Wind, waves, water levels, and human activities constantly affect the communities along the shores of the Great Lakes. Shoreline flooding and erosion are natural processes, occurring at high, average, and even low Great Lakes' water levels. However, during periods of high water, flooding and erosion are more obvious, causing serious damage to homes and businesses, roads, water and wastewater treatment facilities, and other structures in coastal communities. Long-term and seasonal variations in precipitation and evaporation rates primarily control the Great Lakes water levels and their fluctuations.

Natural processes of deep-water waves and swells determine Lake Superior's water fluctuation. These natural processes are further modified by International Joint Commission (IJC) navigation control structures. By regulating the outflow of Lake Superior water, IJC strives to keep the lake's monthly mean water level between 593.36 and 601.97 feet, but because meteorological conditions greatly affect lake levels, attempts to balance the system can be difficult (Rasid, 1992).

As the frequency of high lake levels increases, bluff recession rates also increase. Increasing assaults by wave action against the base of the bluff cause erosion and beach-building sediments. Navigational improvements and dredge-material disposal practices deplete both tributary and shoreland sources of sediment; removing these sediments from the shore system contributes to erosion. Ice ridges that form and break up each winter along the shoreline cause erosion by trapping sand in floating fragments of ice that are carried offshore into deep water. This continual natural process is one of the principal mechanisms by which sand is lost from the near-shore system.

Coastal communities face flood risks from a combination of increased water levels and/or high-energy waves. When storms affect the coast, communities can face serious threats to human safety, extensive damage to infrastructure and the built environment, and negative economic impacts. To help protect against these impacts, more stringent building practices and flood insurance are required in the hazardous areas along the coast.

Continued shoreline development is probable, and it contributes to erosion problems. Erosion rates can accelerate with increases in impervious surfaces, changing and eliminating vegetation cover, and alterations to the beach sand. Serious situations are rare but massive/fast erosion can occur during one storm event leaving houses dangling from cliffs or beginning to slide down hillsides. The effective management of areas with high erosion potential is necessary to protect property owners and provide measures for reducing erosion.

Low-elevation beaches and sandspits are vulnerable to even minor fluctuations in lake levels, which may induce significant coastal flooding and erosion problems.

#### **4.8.4 Coastal Erosion and Climate Change**

Heavy, extreme precipitation is expected to be a primary symptom of climate change in northern Minnesota. Erosion is exacerbated during storm events. At an average increase of 2 °C per decade, Lake Superior's rising water temperatures are leading to more storm events. Li et. al modeled increasing wave action with warming Lake Superior water temperatures to demonstrate that increasing storm events in recent years will intensify with high water levels (Li et al., 2021). Increased wave action due to high water levels are also evidenced in the Great Lakes Coastal Flood Study for Lake Superior (FEMA, 2014).

#### **4.8.5 Program Gaps and Deficiencies**

Lake County Emergency Management identified several program gaps and deficiencies that make its residents more vulnerable to coastal erosion and flooding. The following gaps and deficiencies should be addressed with new mitigation efforts to reduce that vulnerability:

*Public Education & Coastal Erosion Monitoring:* There is an ongoing need to educate residents who live within Lake Superior coastal areas about coastal erosion and how to monitor and address erosion

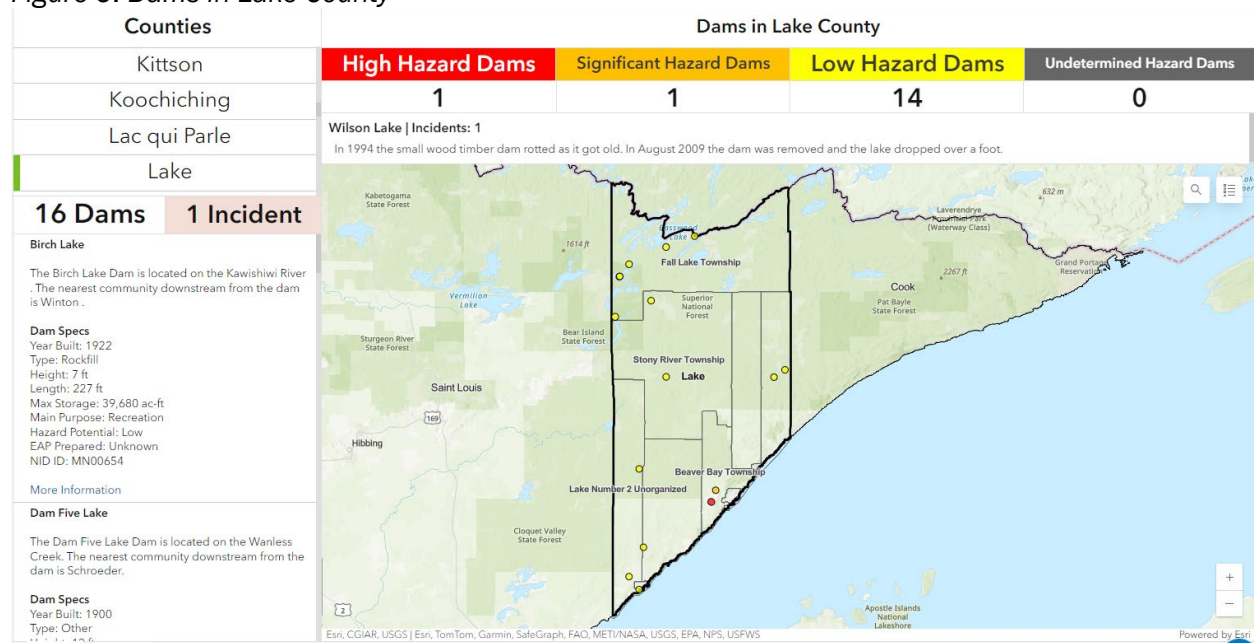
on private property. Lake County continues to work with the MN DNR and local jurisdictions on addressing public awareness of coastal erosion.

### 4.9 Dam Failure

The MN DNR Dam Safety Program has the mission of protecting the life and safety of people by ensuring that dams are safe. Minnesota's Dam Safety Program sets minimum standards for dams and regulates the design, construction, operation, repair, and removal of both privately and publicly (non-federal) owned dams (MN DNR, 2020). The federal government is responsible for regulating and maintaining dam safety of federally owned dams. No single agency regulates all federally owned dams. 42% of federal dams are owned and managed by the U.S. Army Corp of Engineers (USACE) and the Bureau of Reclamation. The remaining federal dams are owned and managed by other federal agencies, including the Fish and Wildlife Service, Forest Service, the Department of Defense, and the Bureau of Indian Affairs, among others (Normand, 2019). The Federal Energy Regulatory Commission (FERC) Dam Safety Program is the largest dam safety program in the U.S. The Commission works with federal and state agencies to ensure and promote dam safety of over 3,000 dams across the U.S. The Commission inspects projects on an unscheduled basis to investigate potential dam safety problems; complaints about constructing and operating a project; safety concerns related to natural disasters; and issues concerning compliance with the term and conditions of a license (FERC, 2020).

**Dam Inventory:** The National Dam Inventory reports that there are 16 dams in Lake County. Dams are mapped in Figure 9; an interactive version of this map is available on the [MN State 2024 HMP website](#). Lake County had one dam classified as a High Hazard Dam, one dam classified as a Significant Hazard Dam, and 13 dams classified as Low Hazard Dams. One other dam of Low Hazard Potential (the Wilson Lake Dam) has been removed.

Figure 9. Dams in Lake County



### 4.9.1 Probability of Occurrence

Extreme precipitation is only one factor contributing to dam failure and the possibility of failure is dam-specific, relating to both environmental and structural conditions. There was only one dam incident noted in Lake County. In 1994, this 15-foot dam built for recreation started failing as it rotted. In 2009 the dam was removed. Dam failures are unlikely if the dam is maintained in compliance with Minnesota's Dam Safety Program. The likelihood of failure in Lake County is low.

### 4.9.2 Vulnerability

Although dam regulatory authorities differ between various federal and state agencies, all authorities attempt to classify dams according to the potential impacts from a dam failure or mis-operation. In response to the numerous classification systems, FEMA's Interagency Committee on Dam Safety created a downstream hazard potential classification system that is adaptable to any agency's current system. Table 11 provides an overview of the main criteria agencies consider when determining a dam's downstream hazard potential. This classification system does not imply that the dam is unsafe, but rather categorizes dams based on the probable loss of human life and the impacts on economic, environmental, and lifeline interests (FEMA, 2004).

*Table 11. Downstream hazard potential classification criteria*

Hazard Potential Classification	Loss of Human Life	Economic, Environmental, Lifeline Losses
Class III (Low)	None expected	Low and generally limited to owner
Class II (Significant)	None expected	Yes
Class I (High)	Probable - one or more expected.	Yes (but not necessary for this classification)

SOURCE: (USACE, 2008)

Dams for which a hazard potential has not been designated, or is not provided, are classified as "Undetermined."

An Emergency Action Plan (EAP) is a document that identifies potential emergency conditions at a dam and specifies preplanned actions to be followed during a dam failure to minimize property damage or loss of life. An EAP is required for Class I dams and strongly recommended for Class II dams (MN DNR, 2020).

The only High Hazard Potential Dam in Lake County is the Northshore Mining Dam (Northshore Mining Company is a subsidiary of Cleveland Cliffs, Inc.). This dam is owned by Cleveland Cliffs, Inc. and was built off-stream of a tributary to the Beaver River. This dam is a tailings disposal pond at the seven-mile point from Silver Bay on Northshore Mining Company's railroad in the Beaver River watershed. The Milepost 7 area was chosen as a site for tailings disposal in part because it is a large, deep valley contained on two sides and part of a third by bedrock slopes. Operation of the facility began in 1980 and during its 40-year projected use the basin is designed to be filled to an elevation of 1,309 feet (Green, 1982). Located only three miles from Lake Superior, this dam could cause catastrophic water quality problems if it failed (Waters, 1977). Milepost 7 tailings disposal pond is approximately 1.7 miles wide and 2.5 miles long.

The height of 100 feet and storage of 31,500 acre-feet make it a highly significant impoundment. At the time of this plan's writing in August 2024, a project to extend two of the dams for the tailings basin and relocate a material supply railroad at the tailings basin has been proposed. Because the project proposes to use the remaining capacity of the tailings basin studied in the original EIS for the facility, and subsequently authorized by applicable permits, the DNR issued a Record of Decision that an Environmental Impact Statement (EIS) is not needed for this extension. According to the Record of Decision, the facility has been regulated with the most up-to-date dam safety considerations (MN DNR, 2024b).

#### **4.9.3 Dam Failure and Climate Change**

Dams are designed based on assumptions about a river's annual flow behavior that will determine the volume of water behind the dam and flowing through the dam at any one time. Changes in weather patterns due to climate change may change the hydrograph or expected flow pattern. Spillways are put in place on dams as a safety measure in the event of the reservoir filling too quickly. Spillway overflow events are mechanisms that also result in increased discharges downstream. It is conceivable that bigger rainfalls at earlier times in the year could threaten a dam's designed margin of safety, causing dam operators to release greater volumes of water earlier in a storm cycle in order to maintain the required margins of safety. Such early releases of increased volumes can increase flood potential downstream.

Climate change may increase the probability of design failures. Some spillways may not be large enough to convey the increased flow pattern. An undersized spillway could lead to dam overtopping and failure.

The partial failure of the Rapidan Dam in Blue Earth County in June of 2024 highlighted the growing threat climate change poses to the country's aging infrastructure as extreme weather becomes more common and severe. The Rapidan Dam is a Significant Hazard Dam in "poor" condition. About 20% of Minnesota's Significant and High Hazard Potential Dams are in "fair" or "poor" condition, with a few in "undefined" condition, and about 70% of these dams were built before 1970 (USACE, 2024). These older dams are growing increasingly taxed by extreme weather, especially in the Midwest (Harrison, 2024). Climate change is adding a new level of uncertainty that needs to be considered with respect to assumptions made during the dam construction.

While the Rapidan Dam partial failure did not result in mass inundation, it sent an estimated 11.6 million cubic yards of sediment downstream. The sediment was high in phosphorus and nitrogen because of nearby agricultural runoff. The impacts to the fish habitat and ecology of the stream may not be known for years (MPR News, 2024). The sediment loading behind older dams adds another compounding threat of dam failure to the stream and structures below.

#### **4.9.3 Program Gaps and Deficiencies**

Lake County Emergency Management did not identify any program gaps or deficiencies that make its citizens more vulnerable to dam failure.

# Section 5 – Mitigation Strategy

The goal of mitigation is to protect lives and reduce the impacts of future hazard events including property damage, disruption to local and regional economies, the amount of public and private funds spent to assist with recovery, and to build disaster-resistant communities. Mitigation actions and projects should be based on a well-constructed risk assessment, provided in Section 3 of this plan. Mitigation should be an ongoing process adapting over time to accommodate a community's needs.

## 5.1 Community Capability Assessments

The capability assessment identifies current activities and existing planning tools used to mitigate hazards. The capability assessment identifies the policies, regulations, procedures, programs and projects that contribute to the lessening of disaster damages. The assessment also provides an evaluation of these capabilities to determine whether the activities can be improved in order to more effectively reduce the impact of future hazard events. The following sections identify existing plans and mitigation capabilities within all of the communities:

- Appendix D: Lists the plans and programs in place in Lake County as related to hazard mitigation.
- Appendix C: As part of the Lake County HMP update, the county and city governments were asked to participate in filling out a “Local Mitigation Survey” (LMS) form to report on their current mitigation capabilities and program gaps. Appendix C provides the LMS reports gathered for Lake County.

Information from the capability assessments was used to support development of local mitigation actions for implementation over the next five years (see column *Comments on Implementation & Integration*).

### 5.1.1 National Flood Insurance Program (NFIP)

The NFIP is a federal program created by Congress to mitigate future flood losses nationwide through sound, community-enforced building and zoning ordinances and to provide access to affordable, federally backed flood insurance protection for property owners. The NFIP is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods. Participation in the NFIP is based on an agreement between local communities and the federal government that states that if a community will adopt and enforce a floodplain management ordinance to reduce future flood risks to new construction in Special Flood Hazard Areas (SFHAs), the federal government will make flood insurance available within the community as a financial protection against flood losses.

Table 12 lists and describes jurisdictional participation in the National Flood Insurance Program (NFIP).

Table 12. NFIP participation in Lake County

FEMA Plan Requirements Plan Review Tool, Section C2		Description
Name of Community	Lake County	
Participation in the NFIP	Participating – Entry date 05/15/1985	
FEMA Map	No FEMA-Mapped High-Risk Areas	
Current Effective Map Date	(NSFHA) - No Special Flood Hazard Area is mapped. FEMA will be working on updated floodplain data in Lake County in the next couple of years.	
Potential Buildings Damaged in Floodplain (including all townships and cities)	0	
1. Adoption of NFIP minimum floodplain management criteria via local regulation	Adoption of current floodplain ordinance: N/A	
2. Adoption of the latest effective Flood Insurance Rate Map (FIRM), if applicable	N/A	
3. Implementation and enforcement of local floodplain management regulations to regulate and permit development in SFHAs	N/A	
4. Appointment of a designee or agency to implement the addressed commitments and requirements of the NFIP	Floodplain Administrator: Christine McCarthy, Lake County Planning & Zoning Administrator	
5. Description of how participant implements the substantial improvement / substantial damage provisions of their floodplain management regulations after an event.	N/A	
Name of Community	City of Beaver Bay	
Participation in the NFIP	Participating – Entry date 05/25/1984	
FEMA Map	No FEMA-Mapped High-Risk Areas	
Current Effective Map Date	NSFHA	
Potential Buildings Damaged in Floodplain	0	
1. Adoption of NFIP minimum floodplain management criteria via local regulation	Adoption of current floodplain ordinance: N/A	
2. Adoption of the latest effective Flood Insurance Rate Map (FIRM), if applicable	N/A	

FEMA Plan Requirements Plan Review Tool, Section C2		Description
3. Implementation and enforcement of local floodplain management regulations to regulate and permit development in SFHAs	N/A	
4. Appointment of a designee or agency to implement the addressed commitments and requirements of the NFIP	Floodplain Administrator: Tim Anderson, City Administrator-Treasurer	
5. Description of how participant implements the substantial improvement / substantial damage provisions of their floodplain management regulations after an event.	N/A	
<b>Name of Community</b>		<b>City of Silver Bay</b>
Participation in the NFIP	Participating – Entry date 07/06/1984	
FEMA Map	No FEMA-Mapped High-Risk Areas	
Current Effective Map Date	NSFHA	
Potential Buildings Damaged in Floodplain	0	
1. Adoption of NFIP minimum floodplain management criteria via local regulation	Adoption of current floodplain ordinance: N/A	
2. Adoption of the latest effective Flood Insurance Rate Map (FIRM), if applicable	N/A	
3. Implementation and enforcement of local floodplain management regulations to regulate and permit development in SFHAs	N/A	
4. Appointment of a designee or agency to implement the addressed commitments and requirements of the NFIP	Floodplain Administrator: Lana Fralich, City Administrator	
5. Description of how participant implements the substantial improvement / substantial damage provisions of their floodplain management regulations after an event.	N/A	
<b>Name of Community</b>		<b>City of Two Harbors</b>
Participation in the NFIP	Participating – Entry date 03/18/1985	

FEMA Plan Requirements Plan Review Tool, Section C2	Description
FEMA Map	No FEMA-Mapped High-Risk Areas
Current Effective Map Date	NSFHA
Potential Buildings Damaged in Floodplain	0
1. Adoption of NFIP minimum floodplain management criteria via local regulation	Adoption of current floodplain ordinance: N/A
2. Adoption of the latest effective Flood Insurance Rate Map (FIRM), if applicable	N/A
3. Implementation and enforcement of local floodplain management regulations to regulate and permit development in SFHAs	N/A
4. Appointment of a designee or agency to implement the addressed commitments and requirements of the NFIP	Floodplain Administrator: Joel Dhein, City Administrator
5. Description of how participant implements the substantial improvement / substantial damage provisions of their floodplain management regulations after an event.	N/A

SOURCE: (CEIL STRAUSS, MN FLOODPLAIN MANAGER, PERSONAL COMMUNICATION, SEPTEMBER 22, 2023)

Repetitive loss properties are defined as properties that have had two or more flood insurance claims of \$1,000 or more in any rolling 10-year period. Property owners are asked to consider mitigation activities such as acquisition, relocation, or elevation, among other options. FEMA’s Repetitive Loss (RL) properties strategy is to eliminate or reduce the damage to property and the disruption to life caused by repeated flooding of the same properties. Property owners are notified of their status by FEMA.

A Severe Repetitive Loss (SRL) property is defined as a residential property that is covered under an NFIP flood insurance policy and:

- a) That has at least four NFIP claim payments (including building and contents) over \$5,000 each, and the cumulative amount of such claims payments exceeds \$20,000; or
- b) For which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.
- c) For both (a) and (b) above, at least two of the referenced claims must have occurred within any 10-year period and must be greater than 10 days apart.

Lake County has one RL property and no SRL properties. The property is in Two Harbors and is classified as a non-residence with a loss date in 2019.

For more on the areas that flood repeatedly in Lake County, see the [Lake County Flooding page](#).

### 5.1.2 Plans and Ordinances

Lake County and its incorporated communities have a number of plans and ordinances in place to ensure the safety of residents and the effective operation of communities including a Zoning Ordinance, Floodplain Ordinance, Emergency Operations Plan, and Wellhead Protection Plan.

### 5.1.3 Plans and Programs in Place to Address Natural Hazards

Lake County has numerous plans and programs in place to address natural hazards. Some of these programs are specific to a hazard and others address impacts and human safety for many types of events (“All-Hazards”). For the purpose of grouping related natural hazards, “Summer Storms” encompasses Tornadoes, Windstorms, Lightning, and Hail. Following is a description of the plans and programs in place by Lake County to support mitigation for the hazards addressed in this plan.

#### All Hazards

*All Hazards Emergency Operations Plan:* Lake County Emergency Management maintains an all-hazards Emergency Operations Plan (EOP) which lays out concepts and operating guidelines for all incident management and support functions that may be needed to ensure life safety, incident stabilization, and property preservation during an incident and the transition to recovery.

*Everbridge Emergency Notification System and IPAWS:* Lake County maintains the Everbridge Emergency Notification System which allows residents and visitors to sign up (“opt-in”) to receive severe weather alerts targeted to their location, along with other local emergency alerts. A link to sign up for the system is located on the Lake County Emergency Management website page. Lake County also uses IPAWS (Integrated Public Alert Warning System), which allows for both targeted and county-wide emergency notifications to both residents and visitors (not an “opt-in” service).

*Relationship with National Weather Service:* Lake County has a strong relationship with the Duluth National Weather Service (NWS) Forecast Office, having access to all live and on-demand briefings, announcements, and educational opportunities, and contact information for direct collaboration as needed. The county also receives all products/statements issued by the NWS, and in turn shares or incorporates these into its community outreach and public education.

*Preparedness Outreach & Public Education:* Lake County Emergency Management utilizes the Lake County website and local news media to communicate with residents, visitors, schools, and long-term care facilities on emergency preparedness, severe weather, and other hazard conditions throughout the year. Lake County Emergency Management and Lake County Public Health pages provide emergency preparedness information and resource links for the public.

*Mass Care Sheltering:* In the event of a disaster where temporary sheltering is needed, Lake County Emergency Management works in coordination with Lake County Public Health, the American Red Cross, and local governments/Fire & EMS to provide mass care services as needed. The county EOP includes plans, procedures, and resources available for mass care sheltering.

*NOAA Weather Radios:* Lake County Emergency Management promotes the use of NOAA Weather Radios by residents, businesses, schools, long term care facilities, government buildings, faith communities, and other places of common gathering. NOAA Weather Radios broadcast continuous weather information directly from the nearest National Weather Service office, including warnings, watches, forecasts, and other hazard information 24 hours a day, 7 days a week. They are an important tool to be able to receive information, particularly in the event of extended power outages where updates from local media and cell phone apps may not be available.

*Backup Power:* Lake County works to ensure the continuity of operations of county government services and critical infrastructure in the event of an extended power outage. County facilities with backup generators include the Lake County Highway Department, Courthouse, and Social Services Building.

*Schools Support:* Lake County Emergency Management coordinates with local school districts as needed on related emergency planning and preparedness, including support for specific trainings, exercises, equipment, and relay of county-level emergency notifications. School districts have their own policies, decision-making protocols, and communications plans in place to determine the need to close school and to notify targeted audiences in the event of severe weather, extreme temperatures, or other events that pose risk to students and staff.

*Regional Collaboration:* Lake County Emergency Management works closely with the MN HSEM Region 2 regional program coordinator and neighboring county emergency managers on a range of planning, training, and exercises to support all-hazards preparedness, mitigation, response, and recovery capabilities.

## **Severe Winter Storms**

*Winter Weather Statements (Watch, Advisory, Warning, etc.):* Lake County Emergency Management works to relay winter weather statements received from the NWS to help alert residents and visitors to hazardous conditions.

*Winter Hazard Awareness Week:* Lake County participates in the Winter Hazard Awareness Week campaign sponsored by MN HSEM and the NWS each November. The week-long effort provides specific information each day covering the topics of winter weather, outdoor winter safety, indoor winter safety, and winter driving safety. Lake County Emergency Management promotes and shares information during the week via social media with communities, schools, churches or other civic programs are encouraged to share locally.

*Snow Removal & Ice Control:* The Lake County Highway Department conducts winter road maintenance on county roads in accordance with the Lake County Snow Removal Policy. Other road jurisdictions conduct winter road maintenance on their respective road systems in accordance with each of their established policy and/or practice.

## Severe Summer Storms

*Severe Weather Statements (Watch, Advisory, Warning, etc.):* Lake County works to relay severe spring and summer weather statements (such as for thunderstorms, windstorms, or tornadoes) received from the NWS to help alert residents and visitors to hazardous conditions.

*Skywarn Program:* Lake County Emergency Management works with the National Weather Service to offer Storm Spotter training on an annual basis to local fire and law enforcement departments and area residents that wish to be trained as spotters. SkyWarn Storm Spotters help to keep their local communities safe by providing timely and accurate reports of severe weather to their local NWS office.

*Severe Weather Awareness Week:* Lake County participates in the Severe Weather Awareness Week campaign sponsored by MN HSEM and the NWS each April. The week-long effort provides specific information each day covering the topics of severe weather alerts and warnings, lightning, hail, floods, tornadoes (with statewide drills), and extreme heat. Each topic covered includes factsheets, checklists, data, and other resources. Lake County Emergency Management promotes and shares information during the week via social media with communities, schools, churches or other civic programs are encouraged to share locally.

*Vegetation Management:* The Lake County Highway Department conducts vegetation management along county roads to reduce the risk of downed trees or branches resulting from severe spring and summer storm events. Local utility providers also work to manage vegetation near power lines to reduce the risk of downed lines and power outages.

## Extreme Cold

*Emergency Notifications:* Extreme cold temperature warnings are issued by the National Weather Service. Lake County Emergency Management works to relay extreme cold temperature warnings from the NWS to help alert residents and visitors to hazardous conditions. The Lake County Emergency Management Office also encourages residents to follow local news or NWS weather applications to receive severe weather and extreme temperature notifications.

*Extreme Cold Safety Awareness:* Lake County Emergency Management and Lake County Public Health promote public awareness of personal safety measure to take during periods of extreme cold, such as sharing information via Facebook posts.

*Emergency Sheltering:* In the event of an extended power outage coupled with a period of extreme cold, Lake County Emergency Management will work with Lake County Public Health and local Fire or EMS agencies as needed to assist vulnerable residents such as the elderly who may need temporary sheltering.

## Extreme Heat

*Emergency Notifications:* Extreme cold temperature warnings are issued by the National Weather Service. Lake County Emergency Management works to relay extreme cold temperature warnings from the NWS to help alert residents and visitors to hazardous conditions. The Lake County Emergency Management Office also encourages residents to follow local news or NWS weather applications to receive severe weather and extreme temperature notifications.

*Public Education and Awareness:* Lake County Emergency Management and Lake County Public Health to promote public awareness of personal safety measure to take during periods of extreme heat, such as sharing information via Facebook posts.

*Emergency Sheltering:* In the event of an extended power outage coupled with a period of extreme heat, Lake County Emergency Management will work with Lake County Public Health and local Fire or EMS agencies as needed to assist vulnerable residents such as the elderly who may need temporary sheltering.

## Drought

*Public Awareness & Outreach:* In the event of extreme drought conditions, Lake County works in concert with the NWS, MN DNR, and local communities to raise public awareness of drought conditions and recommended water use restrictions as per MN DNR guidance.

*Precipitation Monitoring:* The Lake SWCD participates in the MNGage Minnesota Volunteer Precipitation Observing Program, which is administered by the DNR Minnesota State Climatology Office. Data collected by volunteers is entered into a database for various studies and weather prediction simulations, including the assessment of drought severity and impacts.

## Wildfire

*Lake County Community Wildfire Protection Plan (CWPP):* The Lake County 2017 CWPP update was developed to identify planning zones with Wildland Urban Interface (WUI) areas, set priorities to reduce fuels, and recommend treatment measures to reduce structural ignitability. It outlines measures for reducing fire danger to structures in at-risk communities throughout Lake County through the strategies of education, engineering, and enforcement.

*Firewise:* Lake County Emergency Management encourages residents to practice Firewise measures to reduce the risk of wildfire to personal properties. The EM website page provides information on the MN DNR Firewise Program including Firewise Home Evaluation Forms.

*Public Awareness & Emergency Notifications:* In event of wildfire, Lake County Emergency Management works with local law enforcement, local fire departments, local news media, the NWS, and the MN DNR to get the word out on the risk of the level of fire danger and any burning restrictions to help keep the public informed and protected.

*Burning Restrictions/Permits:* Burning restrictions are set by the MN DNR. Burning permits within Lake County are obtained through the MN DNR website or local office.

*Wildland Fire Fighting:* Local fire departments respond to woodland or grassland fires within their boundaries or in coordination with other fire departments as well as the MN DNR and USDA Forest Service.

## Flooding

*National Flood Insurance Program (NFIP):* Lake County has No FEMA Mapped High Risk Areas and participates in the NFIP. Initial entry date into the program was 05/15/1985.

*Floodplain Administrator:* The Lake County Planning & Zoning Director is the county's designated Floodplain Administrator, who is responsible to implement the requirements of the NFIP.

*Floodplain Ordinance:* Lake County does not have a floodplain ordinance as we have no mapped floodplain.

*Floodplain Mapping:* No floodplain maps - Lake County has NSFHA (No Special Flood Hazard Area) status as per MN DNR records.

*Shoreland Ordinance:* Lake County's shoreland ordinance is located within Lake County Comprehensive Plan and Land Use Ordinance #12.

*Subdivision Ordinance:* Lake County Ordinance #9, Subdivision Platting Ordinance is established to regulate the subdividing of land in Lake County.

*Transportation Plan:* The Lake County Highway Department maintains update of the county's 5-Year Transportation Plan (2022-2026) and schedules projects for implementation.

*Minnesota Buffer Law and Buffer Ordinance:* Lake County administers the state Buffer Law and provides technical assistance on buffer compliance by landowners. Lake County adopted Lake County Buffer Ordinance #23 on November 14, 2017. Enforcement of the Buffer Law provides for riparian vegetated buffers and water quality practices to stabilize soils, shores, and banks.

*One-Watershed One Plan (1w1P):* Lake County and the Lake County SWCD have participated in the Lake Superior North, Rainy River Headwaters/Vermillion and the St. Louis River 1W1Ps.

These plans cover the whole county and address regional watershed planning. Flooding is mentioned in stream connectivity.

## Coastal Erosion

*Public Awareness & Property Owner Monitoring:* The Lake County website provides a factsheet from the MN DNR on Coastal Erosion that encourages property owners in coastal areas to monitor for erosion occurring on their property. The factsheet includes information on shoreline protection measures to mitigate against localized coastal erosion. The county website also provides a publication “Citizen’s Coastal Erosion Monitoring Guide”, developed by the Lake County Soil and Water Conservation District in partnership with the MN DNR Coastal Program.

*Coastal Hazards of Superior – Community of Practice:* The Coastal Hazards of Superior (CHAOS) is a Community of Practice (CoP) focusing on the Minnesota and Wisconsin coasts of western Lake Superior. CHAOS is a platform for engaging local community leaders, managers, researchers, and communicators with a shared concern about coastal hazards and their impacts.

*MN DNR Coastal Program Coordination:* Lake County works in partnership with the MN DNR Coastal Program on coastal erosion monitoring and mitigation projects. The Program provides technical and financial resources for the local community, by bringing federal dollars into Minnesota for the Lake Superior coastal area. The coastal program collects coastal oblique photos on a 5-year cycle. This aids in permitting and identifying coastal erosion/landslides. Years collected to date: 2002, 2007, 2012, 2017, and 2022. The Coastal Program has created a Lake Superior Hardened Shoreline Inventory (GIS data).

## Dam/Levee Failure

*Northshore Mining Tailings Dam:* Cliffs Natural Resources owns and operates a dam that is classified as a high hazard potential dam. The dam operates as an inland tailings basin for the Northshore Mining Company in Silver Bay. The dam is inspected annually and an EAP is in place.

## 5.2 Mitigation Goals

The goals and strategies for natural hazards in the 2024 Minnesota State Hazard Mitigation Plan were adopted for use in the Lake County Plan. This framework, as outlined below, will allow for integration of the mitigation actions that are listed by Lake County and its jurisdictions into the state plan. The state will then be able to develop a statewide strategy that will benefit all of Minnesota.

*Flooding Goal:* Reduce deaths, injuries, property loss and economic disruption due to all types of flooding (riverine, flash, coastal, dam/levee failure).

*Wildfire Goal:* Reduce deaths, injuries, property loss, natural resource and economic disruption due to wildfires (forest, prairie, grass, and peat bogs).

*Windstorms Goal:* Reduce deaths, injuries, property loss, and economic disruption due to windstorms.

*Hail Goal:* Reduce deaths, injuries, property damage, and economic disruption due to hailstorms.

*Winter Storms Goal:* Reduce deaths, injuries, property loss, and economic disruption due to winter storms (blizzard, ice, and ice storm).

*Lightning Goal:* Reduce deaths, injuries, property losses, loss of services, and economic disruption due to lightning.

*Tornado Goal:* Reduce deaths, injuries, property loss, and economic disruption due to tornadoes.

*Drought Goal:* Reduce economic loss and environmental impacts due to drought.

*Extreme Heat Goal:* Reduce deaths, injuries, and economic disruption due to extreme heat.

*Extreme Cold Goal:* Reduce deaths, injuries, and economic disruption due to extreme cold.

*Dam/Levee Failure Goal:* Reduce deaths, injuries, property loss, natural resource and economic disruption due to dam/levee failure.

*Erosion/Landslide/Mudslide Goal:* Reduce deaths, injuries, property loss, and economic disruption due to hillside, coastal, bluff: caused primarily by oversaturation of soil.

### 5.3 Mitigation Action and Project Strategies

The mitigation actions in this plan are summarized into four main strategy types, as described in the FEMA publications *Local Mitigation Planning Handbook* (2013) and *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* (2013). A fifth strategy type was determined by Minnesota HSEM for use within the state: Mitigation Preparedness and Response. The strategies and example actions are listed in Table 13 below:

Table 13. Mitigation strategies and action types

Mitigation Strategy	Description	Example Mitigation Actions
Local Plans and Regulations	These actions include government authorities, policies, or codes, that influence the way land and buildings are developed and built.	<ul style="list-style-type: none"> <li>• Comprehensive plans</li> <li>• Land use ordinances</li> <li>• Planning and zoning</li> <li>• Building codes and enforcement</li> <li>• Floodplain ordinances</li> <li>• NFIP Community Rating System</li> <li>• Capital improvement programs</li> <li>• Open space preservation</li> <li>• Shoreline codes</li> <li>• Stormwater management regulations and master plans</li> </ul>

Structure and Infrastructure Projects	<p>These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure.</p> <p>This type of action also involves projects to construct manmade structures to reduce the impact of hazards.</p> <p>Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance program.</p>	<ul style="list-style-type: none"> <li>• Acquisitions and elevations of structures in flood prone areas</li> <li>• Utility undergrounding</li> <li>• Structural retrofits</li> <li>• Floodwalls and retaining walls</li> <li>• Detention and retention structures</li> <li>• Culverts</li> <li>• Safe rooms</li> </ul>
Natural Systems Protection	<p>These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.</p>	<ul style="list-style-type: none"> <li>• Sediment and erosion control</li> <li>• Stream corridor restoration</li> <li>• Forest management</li> <li>• Conservation easements</li> <li>• Wetland restoration and preservation</li> </ul>
Education and Awareness Programs	<p>These are actions to inform and educate residents, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady or Firewise Communities.</p> <p>Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions.</p>	<ul style="list-style-type: none"> <li>• Radio or television spots</li> <li>• Websites with maps and information</li> <li>• Real estate disclosure</li> <li>• Presentations to school groups or neighborhood organizations</li> <li>• Mailings to residents in hazard-prone areas.</li> <li>• StormReady Certification</li> <li>• Firewise Communities</li> </ul>
Mitigation Preparedness and Response	<p>This is a State of Minnesota mitigation strategy with the intent of covering preparation and actions that protect life and property during a natural disaster.</p>	<ul style="list-style-type: none"> <li>• Emergency operations plan</li> <li>• Flood fight plans and preparedness</li> <li>• Dam emergency action plans</li> <li>• Warning</li> <li>• Backup power</li> <li>• Emergency capabilities</li> </ul>

Local leaders work together with the Lake County emergency management director to assure that the hazards and mitigation actions included in this plan are accurate and addressed in their jurisdictions. Development of mitigation actions for the county and each city was informed by a community’s hazard and risk assessment; identification of local vulnerabilities, and review of capabilities in place to address mitigation. Planning team members, local elected officials and staff from Lake County and each city actively participated in the development and review of mitigation action charts for implementation through participation in planning team meetings (see Appendix F) and development of Local Mitigation Surveys (see Appendix C). Additional jurisdictional and public feedback was incorporated following news releases inviting public input to the planning process (see Appendix G).

The Lake County risks and mitigation activities identified also incorporate the concerns and needs of townships, school districts, and other entities participating in this plan. Appendix H contains the jurisdictional mitigation action charts for the cities of Beaver Bay, Silver Bay, and Two Harbors.

*See Mitigation Actions for all jurisdictions and provide ongoing feedback on the HMP website*

Following is an overview of the mitigation action charts and a description of each element of the chart.

### **Number (#)**

Each mitigation action is identified by a number.

### **Hazard**

Each mitigation action is identified by the natural hazard it relates to. Actions that fall under “All Hazards” relate to both natural and non-natural hazards. “Severe Winter Storms” includes blizzards, heavy snow, ice storms, winter storms, and winter weather. “Severe Summer Storms” includes windstorms, tornadoes, lightning, and hail.

### **Mitigation Strategy**

Each mitigation action is identified by one of the following five mitigation strategies. See Table 13 for a description of each mitigation strategy and related types of actions.

- Local Planning and Regulations
- Structure and Infrastructure Projects
- Natural Systems Protection
- Education and Awareness Programs
- Mitigation Preparedness and Response Support

### **Mitigation Action**

Each mitigation action provides a concise, action-oriented description of the action or project to be undertaken. If a mitigation action reduces risk to new or existing buildings/infrastructure, it is noted.

### **Status**

The status of each mitigation action is indicated by one of the following categories:

- New – New actions that have been identified since the last plan.
- Existing – Actions that are carried over from the last plan or have been updated.
- In Progress – Actions from the last plan that are currently being acted upon.

Mitigation actions that have been completed or deleted from the 2017 Lake County Hazard Mitigation Plan are identified and reported on in Appendix H. Completed and deleted mitigation actions are not carried over into the updated mitigation action chart.

### **Priority**

In the review and discussion of selected mitigation strategies and actions, the planning team ranked mitigation actions by priority for implementation. Table 14 provides criteria that were taken into consideration in the process.

Table 14. Criteria for Mitigation Action Priority Ranking

Ranking	Criteria
High Priority	<ul style="list-style-type: none"> <li>• Methods for reducing risk from the hazard are technically reliable.</li> <li>• The County has experience in implementing mitigation measures.</li> <li>• Mitigation measures are eligible under federal grant programs.</li> <li>• There are multiple mitigation measures for the hazard.</li> <li>• The mitigation measure(s) are known to be cost effective.</li> <li>• The mitigation measures protect lives and property for a long period of time, or are permanent risk reduction solutions.</li> </ul>
Moderate Priority	<ul style="list-style-type: none"> <li>• Mitigation methods are established.</li> <li>• The County has limited experience with the kinds of measures that may be appropriate to mitigate the hazard.</li> <li>• Some mitigation measures are eligible for federal grants.</li> <li>• There is a limited range of effective mitigation measures for the hazard.</li> <li>• Mitigation measures are cost-effective only in limited circumstances.</li> <li>• Mitigation measures are effective for a reasonable period of time.</li> </ul>
Low Priority	<ul style="list-style-type: none"> <li>• Methods for reducing risk from the hazard are not well-established, are not proven reliable, or are experimental.</li> <li>• The State or Counties have little or no experience in implementing mitigation measures, and/or no technical knowledge of them.</li> <li>• Mitigation measures are ineligible under federal grant programs.</li> <li>• There is a very limited range of mitigation measures for the hazard, usually only one feasible alternative.</li> <li>• The mitigation measure(s) have not been proven cost effective and are likely to be very expensive compared to the magnitude of the hazard.</li> <li>• The long-term effectiveness of the measure is not known or is known to be relatively poor.</li> </ul>

**Time frame**

Each mitigation action identifies the anticipated timeframe for implementation of the action within the next five-year planning cycle.

- Ongoing – Implementation of the action will require continued application.
- Defined (year) – Implementation of the action will occur within a defined time frame that is noted.
- TBD – The anticipated time frame for implementation of an action is to be determined.

**Responsibility**

Each mitigation action identifies what personnel, department or agency will be lead for the administration or implementation of the action.

**Comments on Implementation & Integration**

Each mitigation action provides a description of how the jurisdiction will work to implement the mitigation action and incorporate the activity into other existing planning mechanisms. As part of the plan update process, communities were asked to describe how they will integrate the mitigation actions listed into other planning mechanisms since the last plan update. This can include description

of methods for public outreach, enforcement of policies, development of plans, and coordination of key staff and partnership efforts.

### **Possible Funding**

Each mitigation action identifies where potential funding may come from to support implementation of the mitigation activity, such as existing county or city funding, state or federal funding. Projects that may be eligible for future FEMA Hazard Mitigation Assistance grant funding are noted.

#### **5.3.1 Lake County Mitigation Action Chart**

The Lake County Mitigation Action Chart is provided in Table 15. Appendix H provides the mitigation action charts developed for each city participating in the HMP update.

*See Mitigation Actions for all jurisdictions and provide ongoing feedback on the HMP website*

Table 15. Lake County Mitigation Action Chart (2024–2028)

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
1	All-Hazards	Education Awareness Programs	EMERGENCY NOTIFICATION Encourage all county residents to sign-up for the county’s Everbridge Emergency Notification System.	Existing High Ongoing	Lake County Emergency Management (LCEM)	Lake County maintains the Everbridge Emergency Notification System which allows residents and visitors to sign up (“opt-in”) to receive severe weather alerts targeted to their location, along with other local emergency alerts. A link to sign up for the system is located on the Lake County Emergency Management website page.	County Funding
2	All-Hazards	Education Awareness Programs	PUBLIC OUTREACH Conduct outreach to the public to increase awareness and preparedness for severe weather events, periods of extreme temperatures, and extended power outages.	Existing High Ongoing	LCEM	Lake County Emergency Management utilizes the Lake County website and local news media to communicate with residents, visitors, schools, and long-term care facilities on emergency preparedness, severe weather, and other hazard conditions throughout the year. Lake County Emergency Management and Lake County Public Health pages provide emergency preparedness information and resource links for the public.	County Funding

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
3	All-Hazards	Mitigation Preparedness & Response Support	EOP PLANNING Ensure the county's Emergency Operations Plan (EOP) is updated and addresses policies & procedures needed to support EM functions prior to, during, and following a disaster.	Existing High Ongoing	LCEM	Lake County Emergency Management maintains an all-hazards Emergency Operations Plan (EOP) which lays out concepts and operating guidelines for all incident management and support functions that may be needed to ensure life safety, incident stabilization, and property preservation during an incident and the transition to recovery.	County Funding
4	All Hazards	Local Planning & Regulations	FUTURE DEVELOPMENT Incorporate mitigation strategies across county and local government plans and policies that address future growth and new development.	Existing High 2025-2030	LC Admin, LC Planning, LC Public Works in coord with local gov'ts	Lake County continues to work closely with surrounding communities to address planning for increased growth and development that will affect emergency response services as well as an increase in vulnerable systems and infrastructure. Lake County uses its Comprehensive Plan and Land Use Ordinance #12 (2017), Community Wildfire Protection Plan (2017), and Transportation Plan (2022) to address long-term planning for future development.	County Funding

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
5	All-Hazards	Mitigation Preparedness & Response Support	VULNERABLE POPULATIONS Work with county departments, partner agencies, facilities, and local jurisdictions to address planning and outreach efforts for those considered to be more vulnerable to severe weather events.	Existing High Ongoing	LCEM, Lake County Public Health / Health & Human Services	Lake County Emergency Management, Public Health, and Health & Human Services continue to provide outreach to and emergency planning assistance as needed to facilities such as schools, long-term care facilities, and directly to individuals. Schools throughout the county participate annually in tornado drills annually. The county works in coordination with agencies such as the Red Cross and Salvation Army. LCEM works with PH&HHS and our GIS department to maintain information on the location of key facilities such as hospitals, nursing homes, and day cares.	County Funding other agencies & organizations

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
6	All-Hazards	Mitigation Preparedness & Response Support	<p><b>GENERATOR BACKUP POWER</b></p> <p>Install generators at key county facilities to ensure continuity of operations and services in the event of loss of power.</p>	Existing High Ongoing	LCEM, LC Hwy. Dept.	<p>This is an ongoing effort of LCEM in coordination with Lake County Administration and other departments. Not all county, city, and other incident support facilities (e.g., public safety/emergency services stations, designated mass care shelters, etc.) have backup power to provide care for the displaced and the logistical needs of an incident, such as tornadoes, flooding, long-term power outages, and winter storms. LCEM encourages local jurisdictions to evaluate and address where backup power is needed.</p>	County Funding
7	All-Hazards	Mitigation Preparedness & Response Support	<p><b>MASS CARE SHELTERING</b></p> <p>Ensure that plans and designated facilities are in place in order to provide temporary sheltering due to a severe weather or other disaster event.</p>	Existing High 2025-2030	LCEM, LC PH	<p>In the event of a disaster where temporary sheltering is needed, Lake County Emergency Management works in coordination with Lake County Public Health, the American Red Cross, and local governments/Fire &amp; EMS to provide mass care services as needed. The county EOP includes plans, procedures, and resources available for mass care sheltering. LCEM is available to provide assistance to local governments on their plans for sheltering.</p>	County Funding

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
8	Extreme Cold/Heat Temps	Education Awareness Programs	<p><b>EXTREME TEMPS PUBLIC OUTREACH</b></p> <p>Provide outreach and education to the public on personal safety measures to take during periods of extreme cold or extreme heat.</p>	In-Progress High 2024	LCEM	LCEM works to share information received from the Duluth National Weather Service (NWS) Forecast Office when periods of extreme cold are forecast and occurring. Public education regarding extreme temperatures also occurs during the two NWS Severe Weather Awareness weeks that occur in April and November each year.	County Funding
9	Extreme Cold/Heat Temps	Mitigation Preparedness & Response Support	<p><b>WARMING/COOLING CENTERS</b></p> <p>Work with local communities to develop plans for operating warming or cooling centers for those who are vulnerable during extreme temperature events.</p>	New High 2025-2030	LCEM	This is an ongoing part of LCEM's program in developing greater capacity within communities to deal with extreme temperature or other severe weather events. Communities are encouraged to have plans in place for a local facility (i.e., school, church, community center, Fire Hall) to be designated to operate for temporary sheltering and prepared with backup power and other supplies. LCEM is available to assist communities in this planning as needed.	County and Local Gov't Funding

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
10	Severe Winter Storms	Local Planning & Regulations	SNOW & ICE CONTROL Implement snow removal and ice control to ensure the safety of county roads impacted by winter storms.	Existing High 2025-2030	Lake County Hwy. Dept.	The Lake County Highway Department conducts winter road maintenance on county roads in accordance with the Lake County Snow Removal Policy. Other road jurisdictions conduct winter road maintenance on their respective road systems in accordance with each of their established policy and/or practice.	County Funding
11	Severe Summer Storms	Education & Awareness Programs	SKYWARN TRAINING Work with the National Weather Service (NWS) to provide SkyWarn training and develop a network of trained Storm Spotters throughout the county.	Existing High 2025-2030	LCEM in coord with NWS	LCEM works with the Duluth NWS Office to offer this training on an annual basis to local fire and law enforcement departments and local residents that wish to be trained as spotters.	National Weather Service
12	Severe Summer Storms	Mitigation Preparedness & Response Support	OUTDOOR WARNING SIRENS Work with local jurisdictions with the county to consider / address the installation of outdoor warning sirens in key areas.	Existing Moderate 2025-2030	LCEM in coord with local jurisdictions	There are currently no outdoor warning sirens within Lake County. This is something that Lake County Emergency Management will evaluate in partnership with local jurisdictions for future purchase, installation, and local maintenance agreements. The cost of buying warning sirens is very high and is a financial barrier.	County Funding & local jurisdictions

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
13	Severe Summer Storms	Structure & Infrastructure Projects	STORM SHELTERS / TORNADO SAFE ROOMS Address the need for the construction of storm shelters or tornado safe rooms in areas where residents or visitors are vulnerable to high wind events, such as mobile home parks and campgrounds.	Existing High 2025-2030	LCEM in coord with local jurisdictions	LCEM will assist any mobile home park or community in their effort to assess and address the need for construction of a storm shelter or tornado safe room. Grant funding may be available for tornado safe rooms from FEMA Hazard Mitigation grant program funding, based on funding availability and application approval.	County Funding, Local Gov't, Possible FEMA Grant Funding
14	Severe Winter & Summer Storms	Structure & Infrastructure Projects	POWERLINE RETROFITS Encourage municipal and rural electric coops to address burying powerlines or strengthening power poles to avoid power outages from high wind events and storms.	Existing High 2025-2030	LCEM, local jurisdictions in coord with electric utility providers	LCEM works with the utility cooperatives that serve the county (Lake Country Power, Cooperative Light & Power, Two Harbors Public Utilities) and local governments on these efforts as needed. FEMA HMA grant funding may be a source for powerline infrastructure retrofits that eligible rural and municipal electric coops can apply for.	Electric Coop funding, Possible FEMA Grant Funding

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
15	Severe Winter & Summer Storms	Local Planning & Regulations	<b>BUILDING SAFETY</b> Ensure that new development projects follow state building codes in order to withstand the impacts of severe weather events, including roof collapse from heavy snow or damages from high wind events.	Existing Moderate 2025-2030	Lake County Planning & Zoning Dept.	Lake County Planning & Zoning oversees permits for new development. Lake County recommends new development is built to meet the specifications as provided by the State of Minnesota's Department of Labor and Industry in order to minimize financial burdens and potential safety hazards which can arise from poorly constructed buildings. Local jurisdictions enforce their own building permits respectively.	County Funding
16	Severe Winter & Summer Storms	Natural Systems Protection	<b>VEGETATION MANAGEMENT</b> Manage trees and other vegetation along roads from severe storm events to reduce risk to powerlines and passing motorists.	Existing Moderate 2025-2030	LC Highway Dept., Local Utility Providers	The Lake County Highway Dept. regularly conducts vegetation management along county roads to reduce the risk of downed trees or branches resulting from severe spring and summer storm events. Local utility providers also work to manage vegetation near power lines to reduce the risk of downed lines and power outages.	County Funding, Utility Coops

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
17	Wildfire	Local Planning & Regulations	COMMUNITY WILDFIRE PROTECTION PLAN Update the Lake County 2017 CWPP in coordination with MN DNR Firewise and local jurisdictions.		LCEM in coord with NE MN DNR Firewise Coordinator	LCEM will work with the NE MN Firewise Coordinator to evaluate and apply for possible grant funding from the federal Community Wildfire Defense Grants to update the Lake County CWPP. When the plan is being updated, LCEM will work with local city and township fire departments and government officials to assess current fire risks and a range of mitigation actions to reduce wildfire risk. CWDG grants cover 90% cost share match with awards up to \$250,000.	Community Wildfire Defense Grant & County/local government cost share
18	Wildfire	Natural Systems Protection	FIREWISE OUTREACH & EDUCATION Continue promote wildfire safety awareness and encourage homeowners to conduct assessments for defensible space.	Existing High 2025-2030	LCEM in coord with	Lake County Emergency Management maintains a Firewise link on the EM website page that includes information on safety of burning garbage and how to do a home evaluation for defensible space.	
19	Flooding / Coastal Erosion	Local Planning & Regulations	FLOODPLAIN MAPPING & FLOODPLAIN ORDINANCE Work with the MN DNR to update flood risk mapping for Lake County and establish an updated floodplain ordinance for Lake County.	New High 2025-2030	LC Floodplain Administrator	Lake County will work with the MN DNR on the process of updating new floodplain maps for Lake County, particularly in coastal areas. We will also work with the MN DNR to establish a floodplain ordinance to be in compliance with requirements of the National Flood Insurance Program.	County Funding, MN DNR

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
20	Flooding	Local Planning & Regulations / Structure & Infrastructure Projects	LOCALIZED FLOOD RISK REDUCTION Plan for and implement measures to address localized flood reduction projects for roads, bridges, and culverts throughout the county.	Existing High 2025-2030	LC Hwy. Dept.	The Lake County Highway Department maintains update of the county's Transportation Plan (2022-2026). Lake County will utilize local levy funding to supplement and provide grant funding matches for culvert and bridge replacement projects.	County Funding, Levee Funding
21	Flooding	Local Planning & Regulations	WATERSHED PLANNING Work with area watershed organizations to address mitigation plans and projects that address risk reduction for localized flooding and erosion.	Existing Moderate 2025-2030	Lake County Dept. in coord with SWCD	Lake County Environmental Services and the Lake County SWCD have participated in the Lake Superior North, Rainy River Headwaters/Vermillion and the St. Louis River 1W1Ps. These plans cover the whole county and address regional watershed planning. Flooding is mentioned in stream connectivity.	SWCD, Watershed District funding
22	Flooding	Local Planning & Regulations	PROPERTY BUYOUTS Conduct property buyouts to acquire homes affected by repetitive flooding and physically relocate or remove those homes to eliminate future flood damages.	Existing Low 2025-2030	LCEM, LC Envr. Services	There are currently no potential property buyout projects identified by Lake County. The county will continue to evaluate and assist with potential future property acquisition projects and application to FEMA or MN DNR for grant funding to conduct buyouts.	Lake County, Possible FEMA Grant Funding

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
23	Drought	Education & Awareness Programs	DROUGHT OUTREACH & EDUCATION Provide outreach and education to residents to be aware of watering restrictions, water conservation tips, and fire safety during periods of severe drought.	Existing High 2025-2030	LCEM	LCEM continues to provide public outreach and education during heightened drought periods using the county website and social media platforms. LCEM encourages city and townships to promote drought awareness to residents at the local level.	Lake County
24	Drought	Local Planning & Regulations	WATERING RESTRICTIONS Implement watering restrictions during periods of drought as per MN DNR guidance.	Existing High 2025-2030	LCEM in coord with MN DNR and local jurisdictions	Lake County and local jurisdictions will establish and enforce watering restrictions as per MN DNR guidelines during periods of severe drought.	County Funding, Local Gov'ts
25	Coastal Erosion	Local Planning & Regulations	COASTAL EROSION MITIGATION PROJECTS Work with the MN DNR Coastal Program to address planning for any projects that address coastal hazards on city-owned property along Lake Superior.	New Moderate 2025-2030	City Admin / Public Works in coordination with MLSCP	The Minnesota Lake Superior Coastal Program (MN DNR) has project funding to support related projects in the areas of climate change, education & awareness, and nature-based solutions. The city will work with the MN DNR Coastal Program if there are priority projects that are recommended and funding is available.	MLSCP grant funding
26	Coastal Erosion	Education & Awareness Programs	COASTAL EROSION EDUCATION & AWARENESS Encourage property owners homes along Lake Superior to monitor and address coastal erosion on their property.	Existing High 2025-2030	Lake County SWCD	The Lake County website has a page on Lake Superior Coastal Erosion that provides a video on coastal erosion for landowners, as well as additional resources that are part of the Citizen's Coastal Erosion Monitoring Guide.	LC SWCD

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
27	Dam Failure	Structure & Infrastructure Projects	NORTHSHORE MINING TAILINGS DAM EAP Continue to participate in EAP planning with Cliffs Natural Resources for the high-hazard Northshore mining tailings dam.	Existing Moderate 2025-2030	LCEM in coord with Cliffs	Cliffs Natural Resources owns and operates a dam that is classified as a high hazard potential dam. The dam operates as an inland tailings basin for the Northshore Mining Company in Silver Bay. The dam is inspected annually and an EAP is in place. Lake County Emergency Management continues to stay informed of the EAP updates and is aware of emergency notification procedures in the event of a failure of the dam.	

# Section 6 – Plan Maintenance

## 6.1 Monitoring, Evaluation, and Updating the Plan

The Lake County Hazard Mitigation Plan (HMP) should be considered a living document. The plan should be updated and approved by FEMA at a minimum of every five years. The guidance in this section will function as the primary tool when reviewing progress on the implementation of the Lake County HMP.

The Lake County emergency management director (EMD) is the individual responsible for leading all efforts to monitor, evaluate, and update the hazard mitigation plan within the five-year window. Throughout the five-year planning cycle, the Lake County EMD will work with an emergency managers group to help monitor, review, evaluate, and update the HMP. The group will include township representatives and designated city emergency managers from the cities of Beaver Bay, Silver Bay, and Two Harbors, and include other city elected officials or staff as needed. Representatives from agencies or organizations that are involved with related mitigation work in the county as well as those that work with underserved communities or socially vulnerable populations will also be invited to participate in the group. The Lake County EMD will conduct outreach to and communicate with the group on a quarterly basis on emergency management matters regarding severe weather awareness, local preparedness, mitigation, and response & recovery as needed. Additional stakeholders will be added based on need or in response to severe weather events.

If necessary, the Lake County EMD will convene the group to meet on a more regular basis to monitor plan implementation progress and reassess needs and opportunities. This could be done in response to funding cycles of programs that provide resources for hazard mitigation activities. If there is a need for a special meeting due to new developments or a declared disaster occurring in the county, the group will meet to update pertinent mitigation strategies. Depending on Lake County opportunities and fiscal resources, mitigation projects may be implemented independently by individual communities or through local partnerships.

The group will continue to review the HMP goals and objectives to determine their relevance to changing situations in Lake County. In addition, state and federal policies will be reviewed to ensure they are addressing current and expected conditions. The group will also review the risk assessment portion of the plan to determine if this information should be updated or modified. The parties responsible for the various implementation actions will report on the status of their projects, and will include which implementation processes worked well, any difficulties encountered, how coordination efforts are proceeding, and which strategies should be revised.

Updates or modifications to the HMP during the five-year planning process will require a public notice and a meeting prior to submitting revisions to the individual jurisdictions for approval. The plan will be updated via written changes, submissions as the group deems appropriate and necessary, and as approved by county commissioners.

Throughout the five-year window of the plan, each respective county department and jurisdiction will be required to report on the status of mitigation actions in their charts to the Lake County EMD so that progress notes may be maintained for the next plan update.

## 6.2 Implementation

Lake County and its included municipalities share a common HMP and work together closely to develop, revise, and implement it. This HMP provides a comprehensive chart of mitigation actions for Lake County and its jurisdictions (see Appendix H and Section 5.3). The cities of Beaver Bay, Silver Bay, and Two Harbors participated in the HMP planning process and identified the specific mitigation strategies that they would seek to implement in their communities during the five-year planning cycle. These mitigation actions are provided in Appendix H.

A number of implementation tools are available to address hazards. Many of these tools are below; however, in some cases additional discussion is needed in order to identify what strategies are most appropriate to use. This will be part of an ongoing discussion as Lake County looks for opportunities for plan implementation. The following tools will be considered:

**Education:** In many cases, education of residents has been identified as one of the most effective mitigation strategies.

**Capital Investments:** Capital investments such as fire and ambulance equipment, sprinkler systems, and dry hydrants are tools that can limit risks and impacts of natural and manmade hazards.

**Data Collection and Needs Assessments:** Data collection and needs assessments can aid in gaining a better understanding of threats and allow planning for mitigation strategies accordingly. As resources are limited for this part of the planning process, additional data collection is likely to be an ongoing activity as resources become available.

**Coordination:** Responsibilities for mitigation strategies run across various county departments, local fire and ambulance departments, city and township governments, and a host of state and federal agencies. Ongoing coordination is an important tool to ensure resources are used efficiently. Coordination can also avoid duplication of efforts or prevent gaps that are created because of unclear roles and responsibilities. The mitigation plan review process can function as a tool to have an ongoing discussion of roles, responsibilities, and opportunities for coordination.

**Regional Cooperation:** Counties and public safety services providers throughout the region often share similar challenges and concerns. In some cases, a regional approach may be warranted as a mitigation strategy in order to save resources. Mutual aid agreements are a tool already in use for a number of services. Needs assessments for fire and ambulance services and development of assistance for volunteer recruiting, training, and retention could benefit from a regional approach. Cooperation among counties could also help in lobbying for certain funding priorities that address concerns relating to challenges in service delivery in rural areas. Organizations such as FEMA Region 5 and the Minnesota Division of Homeland Security and Emergency Management (HSEM) through the Regional Program Director can offer tools and resources to assist in these cooperative efforts.

**Regulation:** Regulation is an important mitigation tool for Lake County. Regulation plays a particularly important role for land use, access to structures, and the protection of water resources and public health.

### 6.3 Continued Public Involvement

Continued public involvement is critical to the successful implementation of the Hazard Mitigation Plan. The Lake County Emergency Management Director and the emergency managers group will continue to engage new public stakeholders in planning discussions and project implementation during the five-year cycle of this plan.

*The Lake County HMP website provides opportunities for continued public involvement and feedback*

To seek continued public participation after the plan has been approved and during the five-year window of implementation for this plan, Lake County will take the following measures:

- The Lake County HMP website link will be posted on the Lake County Emergency Management website. The website provides a PDF of the plan for download and an interactive experience for the public to understand the planning process, where county-specific vulnerabilities lie, national best practices, as well as a chance to submit feedback. Collected feedback will be reviewed during the five-year plan cycle and will be noted for future update of the plan or addressed as necessary.
- Following any major storms or natural disasters, Lake County Emergency Management will seek to gather concerns and new ideas for mitigation from local residents to include in the next update of the plan. This may be done through public meetings, outreach via social media, or news releases via local media.
- Each community participating in the plan will be responsible for keeping their local government, schools, and community members updated and engaged in the implementation of their respective mitigation action charts (see Appendix H or the Lake County HMP website). Each respective jurisdiction will be required to report on the status of mitigation actions in their charts to the Lake County EMD.
- Lake County and its jurisdictions will use numerous means of public outreach to engage new public stakeholders in providing input on mitigation concerns, including those from underserved communities or socially vulnerable populations. Outreach methods may include presentations at city council or township board meetings, sharing information at special events, working with local schools and partner organizations, and posting information in areas that are used to communicate with the public (bulletin boards, websites, social media, and local media sources that communities use to inform and engage the public). As mitigation projects are implemented, jurisdictions will work to keep the public updated and engaged in those local efforts.

# Appendices

**Appendix A – References**

**Appendix B – Adopting Resolutions**

**Appendix C – Local Mitigation Survey Report**

**Appendix E – Past Mitigation Action Review Status Report**

**Appendix F – Planning Team Meetings**

**Appendix G – Public Outreach & Engagement Documentation**

**Appendix H – Mitigation Actions by Jurisdiction**

## **Appendix A – References**

# References

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## **Appendix B – Adopting Resolutions**

# **Appendix C – Local Mitigation Survey Report**



# Lake County

## Local Mitigation Survey Report

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### Overview

As part of Lake County's 2024 Hazard Mitigation Plan update, participating jurisdictions and county personnel were asked to fill out a Local Mitigation Survey (LMS) form. The purpose of the survey was to gather jurisdictionally-specific information needed to support update of the plan and to help inform development of local-level mitigation actions for the next five-year planning cycle.

Following is a list of the jurisdictions that participated in the survey.

### LMS Forms

Lake County	Yes
City of Beaver Bay	Yes
City of Silver Bay	Yes
City of Two Harbors	Yes

The following LMS Survey Report includes a copy of each jurisdiction's completed survey.

# Lake County

## LOCAL MITIGATION SURVEY

Please fill out the Point of Contact information and Parts A, B, C, and D of this survey. Please be as specific as in your responses with information as it relates to your jurisdiction. It is strongly recommended to include government officials and staff to help provide detailed feedback.

**Name of Jurisdiction:** LAKE COUNTY

**Point of Contact:**

Name: Matt Pollmann  
 Job Title: Emergency Management Director  
 Phone: (218) 220-6277  
 Email: [matt.pollmann@co.lake.mn.us](mailto:matt.pollmann@co.lake.mn.us)

### **PART A: HAZARD IDENTIFICATION, RISK ASSESSMENT & VULNERABILITY ANALYSIS**

#### **1. HAZARD IDENTIFICATION**

*In the chart below, please identify the natural hazards that pose the greatest risk to your community. Consider past damaging events, likelihood of future events, and impacts to community assets. Rank the prioritization of hazards as high, moderate, or low. Only put an “X” next to those hazards that are of moderate to high priority. These will be addressed with localized mitigation actions.*

Natural Hazard	Use an “X” to select the hazards that pose the greatest risk to your jurisdiction.	Please indicate if the hazard is of high, moderate, or low priority.	Do feel that this hazard has increased, decreased, or had no change?
Flooding	X	High	No Change
Winter Storms	X	High	No Change
Tornadoes		Low	No Change
Windstorms	X	Moderate	No Change
Lightning		Low	No Change
Hail		Low	No Change
Extreme Cold	X	High	No Change
Extreme Heat		Low	No Change
Drought	X	Moderate	Increased
Wildfire	X	High	Increased
Landslides		Low	No Change
Dam/Levee Failure		Low	No Change

#### **2. RECENT HAZARD EVENTS**

*Please describe any severe weather or disaster events that have occurred over roughly the last 5 years that caused damages in your community or resulted in a disaster declaration.*

Started by lightning, the Greenwood Fire was detected on August 15, 2021, around 3 pm on the Laurentian Ranger District. Generally, the fire was between Greenwood Lake and the intersections of

Highways 1 and 2. Fourteen primary structures and 57 outbuildings were destroyed on August 23. Overall, the Greenwood Fire consumed more than 28,000 acres of land.

May 12<sup>th</sup> 2022, there was widespread flooding in Northern Lake County, leading to roads being washed out and culverts destroyed. Over 200 miles of ATV/Snowmobile trails were also destroyed, leading to a disaster declaration.

### 3. LOCAL VULNERABILITIES

Use the chart below to identify what specific community assets are vulnerable to damages or loss from the hazards that pose risk to your community.

Natural Hazard (please list)	Vulnerability Assessment Describe <u>specific</u> community assets (infrastructure, systems, or populations) that are susceptible to damage or loss from hazard events.
Windstorms	Drought, fire, and infestation weakened trees are prone to blow downs across critical highway network links that could delay emergency response times while trees are cleared.
Flooding	Culverts and bridges across the county need repair, replacement, or evaluation for flood resiliency upgrades.

### 4. REDUCTION IN VULNERABILITY

Please describe any actions your community has taken to reduce vulnerability against future severe weather or disaster events. This can include examples of any work that has been completed or is currently underway.

Bridge and culvert replacement work is ongoing. A more detailed plan to inventory and manage maintenance and replacement of all culverts is in progress as well.

A record setting low snow year in 2023/2024 has allowed highway maintenance crews time and resources to clear highway rights of way to reduce the potential for blowdowns and highway blockage.

Lake County Emergency Management has participated in past FEMA HMA funded wildfire mitigation grant activities which included installation of external wildfire sprinkler systems / metal roofs for homes in high risk wildfire areas.

### 5. INCREASE IN VULNERABILITY

Please describe any current conditions or changes you feel have increased your community's vulnerability to future severe weather or disaster events. Please include any factors such as recent population growth or new development.

Lake County continues to see large population influxes during summer months due to tourists and part-time residents. Reaching these residents can be problematic when they aren't signed up for Everbridge alerts in the county and do not track weather or drought patterns. With limited transportation resources, it will be difficult for the county to assist evacuation efforts for large groups if that time comes.

## **PART B: LOCAL MITIGATION CAPABILITIES ASSESSMENT**

### **1. PUBLIC OUTREACH**

*Please describe what capabilities you have in place to communicate with those in your community to share information about severe weather events and personal preparedness. Please include any considerations for underserved communities or socially vulnerable populations within your jurisdiction.*

Lake County Emergency Management utilizes the Lake County website and local news media to communicate with residents, visitors, schools, and long-term care facilities on emergency preparedness, severe weather, and other hazard conditions throughout the year. Lake County Emergency Management and Lake County Public Health pages provide emergency preparedness information and resource links for the public.

Lake County Highway Department has a mutual aid agreement with MnDOT and will work with area traffic control vendors to provide on-road signing, including portable changeable message signs (PCMS) to notify travelers and residents of closures and detour routes.

### **2. EMERGENCY NOTIFICATION SYSTEM**

*Do you encourage residents in your community to sign up for the county's emergency notification system and/or a local emergency alert system? If yes, how? If not, is this something you would do?*

Lake County maintains the Everbridge Emergency Notification System which allows residents and visitors to sign up ("opt-in") to receive severe weather alerts targeted to their location, along with other local emergency alerts. A link to sign up for the system is located on the Lake County Emergency Management website page.

### **3. LOCAL PLANS & POLICIES**

*Please describe any local plans, authorities or policies in place that help to reduce risk from natural hazards in your community. Please make note of enforcement of existing building codes and land use and development ordinances or regulations as they apply to your community. Please also note if your community has any plans or policies in place related to resilience and adaptation for climate change.*

*All Hazards Emergency Operations Plan:* Lake County Emergency Management maintains an all-hazards Emergency Operations Plan (EOP) which lays out concepts and operating guidelines for all incident management and support functions that may be needed to ensure life safety, incident stabilization, and property preservation during an incident and the transition to recovery.

*Mass Care Sheltering:* In the event of a disaster where temporary sheltering is needed, Lake County Emergency Management works in coordination with Lake County Public Health, the American Red Cross, and local governments/Fire & EMS to provide mass care services as needed. The county EOP includes plans, procedures, and resources available for mass care sheltering.

*Snow Removal & Ice Control:* The Lake County Highway Department conducts winter road maintenance on county roads in accordance with the Lake County Snow Removal Policy.

*Lake County Community Wildfire Protection Plan (CWPP):* The Lake County 2017 CWPP update was developed to identify planning zones with Wildland Urban Interface (WUI) areas, set priorities to reduce

fuels, and recommend treatment measures to reduce structural ignitability. It outlines measures for reducing fire danger to structures in at-risk communities throughout Lake County through the strategies of education, engineering, and enforcement.

*Shoreland Ordinance:* Lake County's shoreland ordinance is located within Lake County Comprehensive Plan and Land Use Ordinance #12.

*Subdivision Ordinance:* Lake County Ordinance #9, Subdivision Platting Ordinance is established to regulate the subdividing of land in Lake County.

*Transportation Plan:* The Lake County Highway Department maintains update of the county's 5-Year Transportation Plan (2022-2026) and schedules projects for implementation.

*Lake County Buffer Ordinance* –Lake County Buffer Ordinance #23. Effective 11/14/2017 provides for riparian vegetated buffers and water quality practices to stabilize soils, shores, and banks. Lake County administers the state Buffer Law and provides technical assistance on buffer compliance by landowners.

*One-Watershed One Plan (1w1P):* Lake County and the Lake County SWCD have participated in the Lake Superior North, Rainy River Headwaters/Vermillion and the St. Louis River 1W1Ps. These plans cover the whole county and address regional watershed planning. Flooding is mentioned in stream connectivity.

#### **4. STAFF & PARTNERSHIPS**

*Please describe what staff or other partnerships are in place to help accomplish mitigation in your community. This can include specific department staff or outside agencies that have a role with mitigation-related planning or projects.*

Lake County departments work together to accomplish mitigation goals through integrated policies and programs. Key departments include Lake County Emergency Management, Lake County Sheriff's Office, Lake County Highway Department, Lake County Environmental Services / Planning & Zoning, Lake County Forestry, Lake County Public Health, Lake County Health & Human Services, Lake County Administration, and Lake County Soil and Water Conservation District. Lake County also works in partnership with MN DNR regularly (DNR Forestry, DNR Coastal Program) as well as the USDA Forest Service – Superior National Forest.

Lake County Emergency Management works closely with city emergency managers within the county on emergency preparedness and response capabilities. The county also works closely with the 5 townships within the county.

Lake County Emergency Management works closely with the MN HSEM Region 2 regional program coordinator and neighboring county emergency managers on an annual basis for joint planning, training, and exercises.

Lake County Emergency Management coordinates with local school districts as needed on related emergency planning and preparedness, including support for specific trainings, exercises, equipment, and relay of county-level emergency notifications.

Lake County has a strong relationship with the Duluth National Weather Service (NWS) Forecast Office, having access to all live and on-demand briefings, announcements, and educational opportunities, and contact information for direct collaboration as needed. The county also receives all products/statements issued by the NWS, and in turn shares or incorporates these into its community outreach and public education.

Lake County Emergency Management also works closely with our local radio station, Two Harbors Community Radio (KTWH) to relay information on wildfire conditions to the public or other emergency information.

## **5. PROGRAMS IN PLACE**

*Describe any programs in place that to help reduce risk from natural hazards in your community.*

*Severe Weather Statements (Watch, Advisory, Warning, etc.):* Lake County Emergency Management works to relay all severe weather and extreme temperature statements received from the NWS to help alert residents and visitors to hazardous conditions. This applies for wildfire danger warnings as well that are provided by the NWS, MN DNR and USFS.

*NOAA Weather Radios:* Lake County Emergency Management promotes the use of NOAA Weather Radios by residents, businesses, schools, long term care facilities, government buildings, faith communities, and other places of common gathering.

*National Weather Service – Severe Weather Awareness Weeks:* Lake County participates in the annual Winter Hazard Awareness Week and Severe Weather Awareness Week campaigns sponsored by MN HSEM and the NWS each November and April. Each week-long effort provides specific information each day covering the topics of severe weather winter weather, outdoor winter safety, indoor winter safety, and winter driving safety. Lake County Emergency Management promotes and shares information during the week via social media which communities, schools, churches or other civic programs are encouraged to share locally.

*Skywarn Program:* Lake County Emergency Management works with the National Weather Service to offer Storm Spotter training on an annual basis to local fire and law enforcement departments and area residents that wish to be trained as spotters. SkyWarn Storm Spotters help to keep their local communities safe by providing timely and accurate reports of severe weather to their local NWS office.

*Firewise:* Lake County Emergency Management encourages residents to practice Firewise measures to reduce the risk of wildfire to personal properties. The EM website page provides information on the MN DNR Firewise Program including Firewise Home Evaluation Forms.

*Public Awareness & Emergency Notifications:* In event of wildfire, Lake County Emergency Management works with local law enforcement, local fire departments, local news media, the NWS, and the MN DNR to get the word out on the risk of the level of fire danger and any burning restrictions to help keep the public informed and protected.

*Vegetation Management:* The Lake County Highway Department conducts vegetation management along county roads to reduce the risk of downed trees or branches resulting from severe spring and summer storm events. Local utility providers also work to manage vegetation near power lines to reduce the risk of downed lines and power outages.

*Precipitation Monitoring:* The Lake SWCD participates in the MNgage Minnesota Volunteer Precipitation Observing Program, which is administered by the DNR Minnesota State Climatology Office. Data collected by volunteers is entered into a database for various studies and weather prediction simulations, including the assessment of drought severity and impacts.

*Coastal Erosion Public Awareness & Property Owner Monitoring:* The Lake County website provides a factsheet from the MN DNR on Coastal Erosion that encourages property owners in coastal areas to monitor for erosion occurring on their property. The factsheet includes information on shoreline protection measures to mitigate against localized coastal erosion. The county website also provides a publication “Citizen’s Coastal Erosion Monitoring Guide”, developed by the Lake County Soil and Water Conservation District in partnership with the MN DNR Coastal Program.

## **6. FUNDING & OTHER RESOURCES**

*Please describe what sorts of funding or other resources are available to help accomplish mitigation in your community. Please make note of any work with outside organizations or agencies or municipal/rural electrical coop providers.*

Lake County Highway Department is active in pursuing state and federal grants to fund culvert and bridge replacement projects that prioritize climate resiliency, watershed management, and habitat improvement projects (culvert crossings that meet quality aquatic habitat standards also tend to have higher capacity and improved flood resiliency).

## **PART C: LOCAL MITIGATION PROJECTS**

### **1. LOCAL MITIGATION PROJECTS**

*Please describe what mitigation actions would help to reduce risk to your community from future hazard events. Please consider mitigation activities that address local vulnerabilities; limit risk to existing structures or new development; and also any actions that benefit underserved communities or socially vulnerable populations in your community. Please be as specific as possible in your responses.*

**Windstorms/Tornadoes** – There are no outdoor warning sirens within Lake County. This is something that Lake County may want to consider in partnership with local jurisdictions for future purchase and installation. The cost of buying warning sirens is very high and is a financial barrier.

**Flooding/Coastal Erosion** – Work with the MN DNR on the process of updating new floodplain maps for Lake County, particularly in coastal areas.

**Wildfire** – Work on a 10-year update of the Lake County 2017 Community Wildfire Protection Plan. The plan includes coordinating with local fire departments, community leaders, and other agencies on wildfire mitigation efforts targeted at high-risk wildfire areas.

**Flooding** – Lake County will utilize local levy funding to supplement and provide grant funding matches for culvert and bridge replacement projects.

## **2. GAPS OR DEFICIENCIES**

*Please describe any specific gaps or deficiencies that are a barrier to implementing local mitigation measures.*

*Public Education & Firewise Practices:* There is an ongoing need to educate residents who live within high-risk wildfire areas as well as visitors to those areas on the risks of wildfire and preventative measures to take. Lake County Emergency Management and local jurisdictions should continue to prioritize and coordinate these efforts.

*Public Education & Coastal Erosion Monitoring:* There is an ongoing need to educate residents who live within Lake Superior coastal areas about coastal erosion and how to monitor and address erosion on private property. Lake County continues to work with the MN DNR and local jurisdictions on addressing public awareness of coastal erosion.

*Funding:* Funding for large scale mitigation projects is a challenge. This includes obtaining significant funding for the purchase and installation of outdoor warning sirens if this is something the county or local communities would want to pursue. Lake County's bridge replacement priority list also exceeds anticipated grant funding revenue sources by a large margin.

*Permitting:* Significant upgrades to improve flood resiliency of highways often result in impacts to natural resources, particularly wetlands, that are difficult to mitigate and, therefore, permit.

## **PART D: SURVEY PARTICIPANTS**

*Please list the names & titles of all persons that contributed information to this survey.*

Matt Pollman, Lake County EM Director  
Jason DiPiazza, Lake County Highway Engineer  
Nate Eide, Lake County Forestry Department  
Christine McCarthy, Lake County Environmental Services Director  
Curt Backen, Lake County Facilities Director

# Lake County

## LOCAL MITIGATION SURVEY

Please fill out the Point of Contact information and Parts A, B, C, and D of this survey. Please be as specific as in your responses with information as it relates to your jurisdiction. It is strongly recommended to include government officials and staff to help provide detailed feedback.

**Name of Jurisdiction:** CITY OF BEAVER BAY

**Point of Contact:**

Name: Kristy Gregory  
 Job Title: City Administrator  
 Phone: 715.292.3487  
 Email: [cityclerkbeaverbay@gmail.com](mailto:cityclerkbeaverbay@gmail.com)

### **PART A: HAZARD IDENTIFICATION, RISK ASSESSMENT & VULNERABILITY ANALYSIS**

#### **1. HAZARD IDENTIFICATION**

*In the chart below, please identify the natural hazards that pose the greatest risk to your community. Consider past damaging events, likelihood of future events, and impacts to community assets. Rank the prioritization of hazards as high, moderate, or low. Only put an “X” next to those hazards that are of moderate to high priority. These will be addressed with localized mitigation actions.*

Natural Hazard	Use an “X” to select the hazards that pose the greatest risk to your jurisdiction.	Please indicate if the hazard is of high, moderate, or low priority.	Do feel that this hazard has increased, decreased, or had no change?
Flooding			
Winter Storms	X	Moderate	No change
Tornadoes			
Windstorms	X	Moderate	No change
Lightning			
Hail			
Extreme Cold	X	Moderate	No change
Extreme Heat			
Drought	X	High	Increased due to Winter 2023
Wildfire			
Landslides			
Dam/Levee Failure			

#### **2. RECENT HAZARD EVENTS**

*Please describe any severe weather or disaster events that have occurred over roughly the last 5 years that caused damages in your community or resulted in a disaster declaration.*

None to note.

### 3. LOCAL VULNERABILITIES

Use the chart below to identify what specific community assets are vulnerable to damages or loss from the hazards that pose risk to your community.

Natural Hazard (please list)	Vulnerability Assessment Describe <u>specific</u> community assets (infrastructure, systems, or populations) that are susceptible to damage or loss from hazard events.
Winter Storms	We have a high population of Seniors who are vulnerable during winter storms. They are unable to shovel themselves out or reach out for services when needed. From what was reported some pipes bursts as some were not able to keep the furnace going during the winter storm.
Windstorm	Living on the North Shore we have the capabilities of high winds that can affect our electricity. In the past, it was reported that trees were down taking out power lines. This affected the community that was unable to utilize resources.
Extreme Cold	During the Winter Months we have the ability to have temperatures that drop well below zero degrees. This can cause community members who struggle to not be able to utilize resources and place in jeopardy of not being able to subsidize heat.
Drought	The Winter of 2023-2024 was not “normal” Snowfall on the north Shore is imperative to the water level and the foliage of the area. With out snow it is a fear of drought over the summer of 2024.

### 4. REDUCTION IN VULNERABILITY

Please describe any actions your community has taken to reduce vulnerability against future severe weather or disaster events. This can include examples of any work that has been completed or is currently underway.

At this time the phone numbers of the Public Works Superintendent and the City Administrator are available and posted publicly for all community members. This is to ensure if there is a community member in need there is a person local that can help. The Water Superintendent has been called to assist with furnace issues in the winter and frozen pipes for elderly community members. A long-term goal is to make the Community Center a safe place in times of emergency, power outage for a considerable time, winter to have a place that is warm, or summer when heat is extreme.

### 5. INCREASE IN VULNERABILITY

Please describe any current conditions or changes you feel have increased your community’s vulnerability to future severe weather or disaster events. Please include any factors such as recent population growth or new development.

An increased number of elderly community members have made the vulnerability rate increase. We are a very small town in which most are elderly. We have a low level of younger generations. A struggle we additionally have due to the amount of Vacation Homes in City limits we are negatively affected for grants. We do not qualify for grant funding to update infrastructure, or be able to get a generator that could assist in emergency situations.

## **PART B: LOCAL MITIGATION CAPABILITIES ASSESSMENT**

### **1. PUBLIC OUTREACH**

*Please describe what capabilities you have in place to communicate with those in your community to share information about severe weather events and personal preparedness. Please include any considerations for underserved communities or socially vulnerable populations within your jurisdiction.*

We utilize the Beaver Bay website and post in public places. We will also utilize social media, as it casts a wider net as to who can receive the information. We will also discuss it at a city council meeting.

### **2. EMERGENCY NOTIFICATION SYSTEM**

*Do you encourage residents in your community to sign up for the county's emergency notification system and/or a local emergency alert system? If yes, how? If not, is this something you would do?*

Not at this time but would like to move towards getting that to our community members. I am very new to my position as administrator, so I am still learning.

### **3. LOCAL PLANS & POLICIES**

*Please describe any local plans, authorities or policies in place that help to reduce risk from natural hazards in your community. Please make note of enforcement of existing building codes and land use and development ordinances or regulations as they apply to your community. Please also note if your community has any plans or policies in place related to resilience and adaptation for climate change.*

We follow MN building code and have codes that are specific to Beaver Bay. The city does have a comprehensive plan moving forward.

### **4. STAFF & PARTNERSHIPS**

*Please describe what staff or other partnerships are in place to help accomplish mitigation in your community. This can include specific department staff or outside agencies that have a role with mitigation-related planning or projects.*

The Water superintendent has a safety plan posted. A goal would be to update and create a plan for all community members.

### **5. PROGRAMS IN PLACE**

*Describe any programs in place that to help reduce risk from natural hazards in your community.*

None as if now but we will be creating a plan moving forward.

### **6. FUNDING & OTHER RESOURCES**

*Please describe what sorts of funding or other resources are available to help accomplish mitigation in your community. Please make note of any work with outside organizations or agencies or municipal/rural electrical coop providers.*

The city utilizes its own budget.

## **PART C: LOCAL MITIGATION PROJECTS**

### **1. LOCAL MITIGATION PROJECTS**

*Please describe what mitigation actions would help to reduce risk to your community from future hazard events. Please consider mitigation activities that address local vulnerabilities; limit risk to existing structures or new development; and also any actions that benefit underserved communities or socially vulnerable populations in your community. Please be as specific as possible in your responses.*

**Windstorms/Tornadoes** - Upgrade the city's warning siren, it is outdated and needs to be connected to the county system. Work with the local mobile home park owner to construct a storm shelter or tornado safe room. We need to develop an evacuation and sheltering plan with the mobile home park.

**Drought** – Establish and enforce watering use restrictions when in periods of severe drought.

**Severe Winter / Summer Storms** – Post information on the city's website and local bulletin boards to encourage residents to sign up for the county's emergency notification system. Participate in the National Weather Service's – Severe Weather Awareness Weeks. Acquire a portable generator for our Community Center, which is our designated community mass care shelter.

**Extreme Cold** – Encourage residents to be prepared for periods of extreme cold and potential power outages. Use our city website and utility bills to notify residents to avoid freezing pipes during sub-zero weather. Work with the local nursing home to be prepared with emergency plans for extended power outages. Work with the county and partner agencies to establish a warming center facility and program for those who are homeless and exposed to extreme cold.

### **2. GAPS OR DEFICIENCIES**

*Please describe any specific gaps or deficiencies that are a barrier to implementing local mitigation measures.*

Beaver Bay needs Funding to be able to execute a safety plan. As stated above we as a city do not qualify for grants, this has hindered the ability to update and /or implement a better safety plan.

## **PART D: SURVEY PARTICIPANTS**

*Please list the names & titles of all persons that contributed information to this survey.*

Kristy Gregory, City Administrator

# Lake County

## LOCAL MITIGATION SURVEY

Please fill out the Point of Contact information and Parts A, B, C, and D of this survey. Please be as specific as in your responses with information as it relates to your jurisdiction. It is strongly recommended to include government officials and staff to help provide detailed feedback.

**Name of Jurisdiction:** CITY OF SILVER BAY

**Point of Contact:** Lana Fralich

Name: Cole Ernest  
 Job Title: Chief of Police  
 Phone: 2182264408  
 Email: [cole.ernest@co.lake.mn.us](mailto:cole.ernest@co.lake.mn.us)

### **PART A: HAZARD IDENTIFICATION, RISK ASSESSMENT & VULNERABILITY ANALYSIS**

#### **1. HAZARD IDENTIFICATION**

*In the chart below, please identify the natural hazards that pose the greatest risk to your community. Consider past damaging events, likelihood of future events, and impacts to community assets. Rank the prioritization of hazards as high, moderate, or low. Only put an "X" next to those hazards that are of moderate to high priority. These will be addressed with localized mitigation actions.*

Natural Hazard	Use an "X" to select the hazards that pose the greatest risk to your jurisdiction.	Please indicate if the hazard is of high, moderate, or low priority.	Do feel that this hazard has increased, decreased, or had no change?
Flooding	X	MODERATE	NO CHANGE
Winter Storms	X	HIGH	NO CHANGE
Tornadoes		LOW	NO CHANGE
Windstorms	X	MODERATE	NO CHANGE
Lightning	X	MODERATE	NO CHANGE
Hail		LOW	NO CHANGE
Extreme Cold	X	MODERATE	NO CHANGE
Extreme Heat		LOW	NO CHANGE
Drought	X	MODERATE	INCREASE
Wildfire	X	HIGH	INCREASE
Landslides		LOW	NO CHANGE
Dam/Levee Failure		LOW	NO CHANGE

#### **2. RECENT HAZARD EVENTS**

*Please describe any severe weather or disaster events that have occurred over roughly the last 5 years that caused damages in your community or resulted in a disaster declaration.*

Nothing noted.

### 3. LOCAL VULNERABILITIES

Use the chart below to identify what specific community assets are vulnerable to damages or loss from the hazards that pose risk to your community.

Natural Hazard (please list)	Vulnerability Assessment Describe <u>specific</u> community assets (infrastructure, systems, or populations) that are susceptible to damage or loss from hazard events.
<b>All Hazards</b>	We need to obtain backup generators for our City buildings and Community Center that would serve as our local shelter if people are displaced from a severe storm event or extended power outage. We also have a large population of senior citizens that do not use cell phones to receive emergency notifications.
<b>Windstorms, Ice Storms, Blizzards</b>	Our municipal campground is active during summer and fall months with RVs and campers and does not have a storm shelter. Tree damage to boulevard trees can be costly and time consuming for clean up after storms.
<b>Extreme Cold</b>	We have a high population of senior citizens and also low-income residents who are more vulnerable during periods of extreme cold with power outages. In the past we have experienced frozen water services and some residential homes experienced burst pipes from extended extreme cold. The city has experienced damages to roads from spring frost heaves, frozen culverts that cause localized flooding.

### 4. REDUCTION IN VULNERABILITY

Please describe any actions your community has taken to reduce vulnerability against future severe weather or disaster events. This can include examples of any work that has been completed or is currently underway.

Stream restoration and mitigation along the East Branch of the Beaver River has been completed. There was past discussion after the ice storm to possibly install a community alert/siren but the costs were prohibitive. In 2023, the city completed a stormwater management plan.

### 5. INCREASE IN VULNERABILITY

Please describe any current conditions or changes you feel have increased your community's vulnerability to future severe weather or disaster events. Please include any factors such as recent population growth or new development.

The City is working on new housing developments, street and utility improvements. No work has started but significant investment is expected to be made.

## **PART B: LOCAL MITIGATION CAPABILITIES ASSESSMENT**

### 1. PUBLIC OUTREACH

Please describe what capabilities you have in place to communicate with those in your community to share information about severe weather events and personal preparedness. Please include any considerations for underserved communities or socially vulnerable populations within your jurisdiction.

We post information on our city website and Facebook page. We also post information on Information board at the school. We make announcements at City Council meetings and post flyers on our community bulletin board outside of City Hall.

## **2. EMERGENCY NOTIFICATION SYSTEM**

*Do you encourage residents in your community to sign up for the county's emergency notification system and/or a local emergency alert system? If yes, how? If not, is this something you would do?*

We have posted on the Police Department's Facebook page in the past. It would be something we should post on the Silver Bay website. We can also add information into the city newsletter that is sent out twice per year.

## **3. LOCAL PLANS & POLICIES**

*Please describe any local plans, authorities or policies in place that help to reduce risk from natural hazards in your community. Please make note of enforcement of existing building codes and land use and development ordinances or regulations as they apply to your community. Please also note if your community has any plans or policies in place related to resilience and adaptation for climate change.*

In 2023 the city has completed a Stormwater Management Plan. The city is also updating its current City Ordinances. The city has a Building Official and a Zoning Administrator to make sure we meet local zoning and building ordinances along with meeting the North Shore Management Board's requirements along the shoreline.

## **4. STAFF & PARTNERSHIPS**

*Please describe what staff or other partnerships are in place to help accomplish mitigation in your community. This can include specific department staff or outside agencies that have a role with mitigation-related planning or projects.*

City Administrator, Police Chief, Fire Chief, Street Superintendent, and Public Utilities Superintendent are key roles of the city. We work with Lake County Emergency Management, Lake County Soil and Water District, and through mutual aid with Lake County Sheriff's office and neighboring fire departments.

## **5. PROGRAMS IN PLACE**

*Describe any programs in place that to help reduce risk from natural hazards in your community.*

Water mitigation for drought and conservation – odd/even days for watering restrictions

## **6. FUNDING & OTHER RESOURCES**

*Please describe what sorts of funding or other resources are available to help accomplish mitigation in your community. Please make note of any work with outside organizations or agencies or municipal/rural electrical coop providers.*

The Lake County SWCD has applied for grants on the city's behalf. The city does not have any mitigation dollars.

## **PART C: LOCAL MITIGATION PROJECTS**

### **1. LOCAL MITIGATION PROJECTS**

*Please describe what mitigation actions would help to reduce risk to your community from future hazard events. Please consider mitigation activities that address local vulnerabilities; limit risk to existing structures or new development; and also any actions that benefit underserved communities or socially vulnerable populations in your community. Please be as specific as possible in your responses.*

**Windstorms/Tornadoes** – Work with the county to explore possible funding to acquire a warning siren.

**Flooding** – Work with the MN DNR to enroll in the NFIP and establish a floodplain ordinance. Implement new storm sewer upgrades as construction projects and purchase additional pumps in the event of flooding. Work with the city and county engineer on local flood reduction measures. Enforce the city's sump pump ordinance to minimize impacts to the city's stormwater system.

**Drought** – Enforce watering use restrictions when in periods of severe drought.

**Severe Winter / Summer Storms** – Post information on the city's website and local bulletin boards to encourage residents to sign up for the county's emergency notification system. Participate in the National Weather Service's – Severe Weather Awareness Weeks. Acquire a portable generator for our Community Center, which is our designated community mass care shelter.

**Extreme Cold** – Encourage residents to be prepared for periods of extreme cold and potential power outages. Use our city website and utility bills to notify residents to avoid freezing pipes during sub-zero weather.

**Wildfire:** Work to increase public awareness of creating defensible space in woodland areas that are experiencing new development. Work with our fire department to address the need for water resources outside of the municipal water system.

### **2. GAPS OR DEFICIENCIES**

*Please describe any specific gaps or deficiencies that are a barrier to implementing local mitigation measures.*

Our city does have its own website or Facebook page to do better outreach to our residents. Not all our residents are signed up for the county's emergency notification system. We need to update our city's Comprehensive Plan to address considerations for future hazard events such as flooding. We are small city with limited financial and staff resources to address local mitigation projects.

## **PART D: SURVEY PARTICIPANTS**

*Please list the names & titles of all persons that contributed information to this survey.*

Lana Fralich, City Administrator

Wade Lablanc, Mayor

Cole Ernest, Chief of Police

Corey Carlson, Public Works Director

Mike Rowlee, City Emergency Manager/Fire Chief

# Lake County

## LOCAL MITIGATION SURVEY

Please fill out the Point of Contact information and Parts A, B, C, and D of this survey. Please be as specific as in your responses with information as it relates to your jurisdiction. It is strongly recommended to include government officials and staff to help provide detailed feedback.

**Name of Jurisdiction:** CITY OF TWO HARBORS

**Point of Contact:** PATTY NORDEAN, CITY ADMINISTRATOR  
**Name:** Richard Hogenson  
**Job Title:** Chief of Police  
**Phone:** 218-834-8825  
**Email:** [rick.hogenson@co.lake.mn.us](mailto:rick.hogenson@co.lake.mn.us)

### **PART A: HAZARD IDENTIFICATION, RISK ASSESSMENT & VULNERABILITY ANALYSIS**

#### **1. HAZARD IDENTIFICATION**

*In the chart below, please identify the natural hazards that pose the greatest risk to your community. Consider past damaging events, likelihood of future events, and impacts to community assets. Rank the prioritization of hazards as high, moderate, or low. Only put an "X" next to those hazards that are of moderate to high priority. These will be addressed with localized mitigation actions.*

Natural Hazard	Use an "X" to select the hazards that pose the greatest risk to your jurisdiction.	Please indicate if the hazard is of high, moderate, or low priority.	Do feel that this hazard has increased, decreased, or had no change?
Flooding	X	HIGH	NO CHANGE
Winter Storms	X	HIGH	NO CHANGE
Tornadoes		LOW	
Windstorms	X	MODERATE	NO CHANGE
Lightning	X	MODERATE	INCREASED
Hail		LOW	
Extreme Cold	X	MODERATE	INCREASED
Extreme Heat		LOW	
Drought	X	MODERATE	INCREASED
Wildfire	X	HIGH	INCREASED
Landslides		LOW	
Dam/Levee Failure		LOW	

#### **2. RECENT HAZARD EVENTS**

*Please describe any severe weather or disaster events that have occurred over roughly the last 5 years that caused damages in your community or resulted in a disaster declaration.*

Continual changing weather patterns for seasons each year has all the various departments (public works, public safety, electrical, utilities, administration, etc.) continually thinking of the potential hazards that come with our area and surroundings.

The risk of wildfire continues to be the biggest concern for our area. Many of the threats are not only because of nature (lightning, etc.), but because of human nature (trains, safety chains, cigarette butts, etc.) and those threats are constant based off the amount of these types of traffic we see here.

Flooding events are a threat to our aging infrastructure, homes along our creeks and rivers here. These flood events have economic impacts on our area as well, so the preparation and mitigation of these events in critical in many ways.

Our overhead powerlines are always at threat during our storm events and seasons, and we all understand the vulnerabilities that exist when people are without power.

### 3. LOCAL VULNERABILITIES

*Use the chart below to identify what specific community assets are vulnerable to damages or loss from the hazards that pose risk to your community.*

Natural Hazard (please list)	Vulnerability Assessment Describe <u>specific</u> community assets (infrastructure, systems, or populations) that are susceptible to damage or loss from hazard events.
<b>FLOODING</b>	Rivers, creeks, culverts, ditches continue to need attention, maintenance, and replacement to allow proper drainage and prevent erosion/pollution.
<b>EXTREME COLD</b>	The elderly population is always a concern when it comes to periods of extreme cold here. The ability to identify where this population is always concerning and something we are mindful of in case there is an extended period of extreme cold and utilities compromise.

### 4. REDUCTION IN VULNERABILITY

*Please describe any actions your community has taken to reduce vulnerability against future severe weather or disaster events. This can include examples of any work that has been completed or is currently underway.*

All involved departments are aware of our vulnerabilities and continue to work on proactive solutions as time allows.

### 5. INCREASE IN VULNERABILITY

*Please describe any current conditions or changes you feel have increased your community's vulnerability to future severe weather or disaster events. Please include any factors such as recent population growth or new development.*

The warm and dry winter of 2023/2024 has many of us concerned about fire danger. Coupled with increased numbers of people visiting the area increases our chances of a disaster caused by humans.

## **PART B: LOCAL MITIGATION CAPABILITIES ASSESSMENT**

### **1. PUBLIC OUTREACH**

*Please describe what capabilities you have in place to communicate with those in your community to share information about severe weather events and personal preparedness. Please include any considerations for underserved communities or socially vulnerable populations within your jurisdiction.*

Everbridge alert system in cooperation with Lake County Emergency Management and Lake County Dispatch, as well as social media pages and local radio station allow us to try and communicate with our citizens and visitors.

### **2. EMERGENCY NOTIFICATION SYSTEM**

*Do you encourage residents in your community to sign up for the county's emergency notification system and/or a local emergency alert system? If yes, how? If not, is this something you would do?*

Lake County maintains the Everbridge Emergency Notification System which allows residents and visitors to sign up ("opt-in") to receive severe weather alerts targeted to their location, along with other local emergency alerts. A link to sign up for the system is located on the Lake County Emergency Management website page, and soon to be included on the City of Two Harbors website pages.

### **3. LOCAL PLANS & POLICIES**

*Please describe any local plans, authorities or policies in place that help to reduce risk from natural hazards in your community. Please make note of enforcement of existing building codes and land use and development ordinances or regulations as they apply to your community. Please also note if your community has any plans or policies in place related to resilience and adaptation for climate change.*

Many of our plans and policies are aligned with Lake County Emergency Management, and include: Emergency Operations Plan, Mass Sheltering, Wildfire Protection, etc. The Two Harbors Public Works Department conduct local road maintenance during the winter and have established snow emergency routes.

### **4. STAFF & PARTNERSHIPS**

*Please describe what staff or other partnerships are in place to help accomplish mitigation in your community. This can include specific department staff or outside agencies that have a role with mitigation-related planning or projects.*

Local fire and first responder organizations work very well and very closely on emergency scenes and at times conduct combined trainings. These relationships are critical to our success.

Our strong relationships with Lake County Emergency Management allows coordination on all types of planning and projects to be seamless.

Strong partnerships and mutual aid agreements are also in place for law enforcement and fire organizations.

Partnerships exist with our electrical department and the local and larger electrical providers (Cooperative Light & Power and Minnesota Power).

Our public works department and the county highway department have strong relationships.

Our schools are just a phone call away and assist and allow access as necessary.

Local businesses are also a strength for aid and shelter when possibly needed.

## **5. PROGRAMS IN PLACE**

*Describe any programs in place that to help reduce risk from natural hazards in your community.*

None noted.

## **6. FUNDING & OTHER RESOURCES**

*Please describe what sorts of funding or other resources are available to help accomplish mitigation in your community. Please make note of any work with outside organizations or agencies or municipal/rural electrical coop providers.*

City funding.

## **PART C: LOCAL MITIGATION PROJECTS**

### **1. LOCAL MITIGATION PROJECTS**

*Please describe what mitigation actions would help to reduce risk to your community from future hazard events. Please consider mitigation activities that address local vulnerabilities; limit risk to existing structures or new development; and also any actions that benefit underserved communities or socially vulnerable populations in your community. Please be as specific as possible in your responses.*

Look into the purchase and installation of an outdoor warning siren.

Continue public outreach and education for local residents.

### **2. GAPS OR DEFICIENCIES**

*Please describe any specific gaps or deficiencies that are a barrier to implementing local mitigation measures.*

The need or desire to have an audible siren to notify citizens and visitors of impending emergencies is something that needs further discussion and planning.

Increasing public awareness and communication with the public is always challenging, as it relates to emergencies, programs and alerts.

## **PART D: SURVEY PARTICIPANTS**

*Please list the names & titles of all persons that contributed information to this survey.*

Richard Hogenson, Chief of Police/City Emergency Manager

## **Appendix D – Plans & Programs in Place**

# Lake County

## HMP Plans & Programs in Place Form

EMERGENCY PLANNING CAPABILITIES	Yes/No	Comments
Emergency Mass Notification System	Yes	Everbridge
Outdoor Warning Sirens (#'s and location)	No	Lake County no longer has outdoor sirens. The Silver Bay Mine is looking at maybe placing sirens in Beaver Bay and Silver Bay, but there are no rigid plans yet.
Emergency Operations Plan (EOP)	Yes	County EOP is updated annually
Mass Care Sheltering Plan / List of Shelter Facilities	Yes	Addressed in EOP and in coordination with local jurisdictions
Tornado Safe Rooms / Storm Shelters	No	Addressed in coordination with schools & local jurisdictions with local vulnerabilities
NWS Weather Ready Nation / StormReady Certification	No	
Coordination with Schools	Yes	Tornado Drills, other trainings
Coordination with Neighboring County/Tribal Jurisdictions	Yes	Annual regional planning and training; statewide AMEM conference
Coordination with Local / Regional Agencies involved in mitigation	Yes	SWCD, MN DNR, MnDOT, Rural and Municipal Electric Cooperatives, Watershed Districts
Coordination with organizations or agencies addressing disaster related issues and vulnerable populations, emergency preparedness, access and functional needs populations	Yes	Public Health, American Red Cross, Salvation Army
Hazard data and information	Yes	Damage information is kept on file from past storm events and disaster declarations
<i>Other (please describe)</i>	Yes	Lake County Health & Human Services has

		preparedness plans in place
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<b>PLANNING &amp; REGULATORY CAPABILITIES</b>	<b>Yes/No</b>	<b>Comments</b>
Comprehensive/Land Use Plan	Yes	Lake County Comprehensive Plan and Land Use Ordinance, Ordinance #12, Effective 06/23/2017
Capital Improvements Plan	Yes	Lake County 5-Year CIP for Lake County Road and Bridge System, adopted 01/25/2023
Economic Development Plan	No	
Climate Adaptation Plan	No	
Continuity of Operations Plan (COOP)	Yes	This falls under Lake County Emergency Management in coordination with other county depts.
Transportation Plan (Roads, Bridges, Culverts, Ditches)	Yes	Lake County Highway Dept. 5-Year Transportation Plan 2022-2026
Stormwater Management Plan / Drainage Plan	Yes	City of Silver Bay Stormwater Management Plan (March, 2023), City of Two Harbors Stormwater Management Plan (March, 2021)
Burning Permits/Restrictions (Sheriff's Office or MN DNR)	Yes	MN DNR
Comprehensive Local Water Management Plan	Yes	Lake County Local Water Management Plan Update, July 2005. See section on One Watershed, One Plans that now cover all of Lake County.

Watershed Plan (One Watershed, One Plan)	Yes	Lake Superior North 1W1P and the Rainy River Headwaters /Vermillion 1W1P will be adopted soon. These plans will cover the whole county.
Wellhead Protection Plan	No	Municipal level plans are done in coordination with MDH
Forest Management Plan	Yes	Lake County Working Management Plan, 06/28/2007 is administered by the Lake County Forestry Department
Community Wildfire Protection Plan (CWPP)	Yes	Lake County 2017 CWPP Update
Participation in MN DNR Firewise Program	Yes	
Database of Dry Hydrants/Well Access	Yes	Lake County GIS / local fire departments
<i>Other (please describe)</i>	Yes	Lake County Emergency Management - Implementation of past FEMA HMA grants for external wildfire sprinkler systems and metal roof program

<b>LOCAL POLICY / PROGRAM CAPABILITIES</b>	<b>Yes/No</b>	<b>Comments</b>
Land Use, Planning, & Zoning Ordinance	Yes	Lake County Code of Ordinances
Subdivision Ordinance	Yes	Lake County Ordinance #9, Subdivision Platting Ordinance
Building Codes	No	Lake County has not adopted the MN Building Code. It must be followed, be the county does not enforce this outside of the municipalities.
National Flood Insurance Program (NFIP)	Yes	Lake County NFIP entry date 05/15/85

Flood insurance rate maps	No	No floodplain maps - Lake County has NSFHA (No Special Flood Hazard Area) status as per MN DNR records.
Floodplain Ordinance	No	Lake County does not have a floodplain ordinance as we have no mapped floodplain.
Shoreland Ordinance	Yes	This is located within Lake County Comprehensive Plan and Land Use Ordinance #12.
Minnesota Buffer Law / Soil Erosion Ordinance	Yes	Lake County Ordinance, #23 Buffer Ordinance
Home Buyouts for flood or erosion mitigation	No	
Other natural hazard specific ordinance (i.e., stormwater, steep slope, wildfire)	No	
Maintenance programs to reduce risk		Highway Dept. ROW maintenance and drainage systems
<i>Other (please describe)</i>		

<b>ADMINISTRATIVE/TECHNICAL CAPABILITIES</b>	<b>Yes/No</b>	<b>Comments</b>
Emergency Management Director	Yes	Lake County Emergency Management Director.
Sheriff/Police Department	Yes	Lake County Sheriff's Office
Floodplain Administrator	Yes	Lake County Planning & Zoning Director
Chief Building Official	Yes	Lake County Planning & Zoning Director
County Engineer	Yes	Lake County Highway Engineer
Mapping Specialist (GIS)	Yes	Lake County GIS Dept.
Public Health Coordinator/Department	Yes	Lake County Health & Human Services Dept.
Planning Commission	Yes	Lake County Planning Commission is under Lake County

		Environmental Services / Planning & Zoning
Soil and Water Conservation District	Yes	Lake County SWCD
Minnesota Department of Natural Resources	Yes	MN DNR Forestry, MN DNR Coastal Program
Mitigation Planning Committee		2023 HMP Update Planning Team
Mutual Aid Agreements	Yes	Regional
<i>Other (please describe)</i>		

<b>EDUCATION &amp; OUTREACH CAPABILITIES</b>	<b>Yes/No</b>	<b>Comments</b>
SKYWARN Program Training with NWS	Yes	Annual event
Severe Weather Awareness Week (HSEM/NWS)	Yes	Annual event
Winter Weather Awareness Week (HSEM/NWS)	Yes	Annual event
Promotion of NOAA Weather Radios	Yes	During NWS Severe Weather Weeks and Ongoing
<i>Other (please describe)</i>	Yes	Lake County SWCD - Citizen's Coastal Erosion Monitoring Guide

# **Appendix E – Past Mitigation Action Review Status Report**

# Lake County

## Past Mitigation Action Review Status Report

Following is a report on the status of mitigation actions related to natural hazards included in the Lake County 2017 Hazard Mitigation Plan. This report identifies those actions that have been completed, are being deleted, or are considered as ongoing efforts. Mitigation actions that are noted as “ongoing” will be reviewed and revised as necessary for inclusion in the plan update. This report covers the mitigation actions that were listed for implementation by Lake County and by city jurisdictions, as applicable.

Hazard	Mitigation Action	Jurisdiction	Status	Comments
Wildfire	CWPP 1.1: Facilitate development of and support local jurisdictions in becoming recognized Firewise Communities.	Lake County, Fall Lake Twp.	Ongoing	Lake County Emergency Management has a Firewise page that provides information on becoming a Firewise Community.
Wildfire	CWPP 1.2: Provide funding for Level 2 Firewise assessments for all residences and actively conduct Firewise trainings and assessments.	Lake County, All Cities + FL Twp.	Ongoing	Level 2 FW assessments have been completed in the past with Firewise grant funding and the assistance of local fire department personnel. This work will continue in the future as needed.
Wildfire	CWPP 2.2: Develop and implement metal roofing grant program with cost share for homes located in Lake County in areas with increased wildfire risk as identified in the CWPP.	Lake County, Fall Lake Twp.	Completed	Lake County received two separate FEMA grants for installation of metal roofs.
Wildfire, Structure Fire	CWPP 2.9: Address structural ignitability treatments to improve fire resistance of structures.	Lake County, Fall Lake Twp.	Completed	Lake County Emergency Management has implemented 2 metal roof grant programs.
Wildfire	CWPP 2.8: Prioritize and implement hazardous fuels treatments annually for high risk WUIs.	Lake County, Fall Lake Twp.	Ongoing	This occurs annually as needed in partnership with Fall Lake Township and the agency partners that manage the surrounding forest areas (USFS, MN DNR)
Wildfire	CWPP 2.3: Install dry hydrants or water tanks for residential fire response in key locations.	Lake County, Fall Lake Twp.	Completed	Work has been completed on installing dry hydrants in rural areas not supported by a municipal water source.

Hazard	Mitigation Action	Jurisdiction	Status	Comments
Wildfire	CWPP 2.4: Organize and provide brush disposal / chipper programs in communities in high risk areas.	Lake County, Fall Lake Twp.	Ongoing	Lake County has implemented several chipper days with local communities to dispose of woodland fuels around their properties. The program will continue in the future as funding allows. There are several brush pits managed by the county.
Wildfire	CWPP 3.1: Work with partners to communicate fire restrictions to the public	Lake County, Fall Lake Twp.	Ongoing	Lake County Emergency Management continues to work in partnership with the USDA Forest Service and the MN DNR to convey fire restrictions and danger levels to the public. LCEM sends out notices to the public when there are restrictions.
Lightning, Winter Storms, Severe Winter Storms	Install generators in government facilities and critical infrastructure.	Lake County, All Cities + FL Twp.	Ongoing	The county and local jurisdictions continue to identify and address where emergency backup generator power is needed.
Flash Flooding	Maintain or improve bridge, roads, and culverts to withstand major storm events.	Lake County, All Cities + FL Twp.	Ongoing	Ongoing by Lake County Highway Department and local city public works departments. MnDOT also oversees any improvements to Hwy. 61 running through the county.
Wildfire	Update Subdivision Ordinance 9 to require wildfire mitigation standards ie. road access, and water sources for fire response	Lake County (Planning Commission)	Ongoing (revised)	Our Subdivision Ordinance has not been amended to include wildfire mitigation standards, however the past LCEM suggested to the Planning Commission to include appropriate access for emergency vehicles and that larger developments have reserve water for fire emergencies. Every project is different, but the effort has been made and will continue.
Thunderstorms, Windstorms, Extreme Cold, Winter Storms	Locate power lines underground where possible.	Lake County, Two Harbors, Silver Bay	Ongoing	This falls under the authority of Minnesota Power/ALLETE, Lake County Power, and Two Harbors Cooperative Light and Power.

Hazard	Mitigation Action	Jurisdiction	Status	Comments
Thunderstorms	Encourage campground operators to provide information for Lake County visitors regarding storm shelter and safety during severe storms.	Lake County, Two Harbors, Silver Bay	Ongoing	Information is posted for campers.
Flash Flooding	Maintain efforts to address storm water management and flood control.	Lake County, All Cities	Ongoing	Lake County and local jurisdictions continue to address local stormwater management improvements as needed.
Drought	Analyze existing municipal water use and promote water conservation in case of drought.	Lake County, All Cities	Ongoing	Lake County and local jurisdictions monitor water use during periods of extreme drought and implement watering restrictions as per the directive of the MN DNR.
Tornadoes, windstorms, thunderstorms	Promote saferooms in new construction and housing developments.	Lake County, All Cities + FL Twp.	Ongoing	Ongoing as determined as necessary. No new saferooms have been constructed since the last plan.
Dam Failure	Work with the DNR, MN Power and Northshore Mining to identify at-risk dams.	Lake County	Ongoing	The three dams located in Lake County are the Winton Dam, the Birch Lake Reservoir Dam, and Milepost 7 Dam all shown in Figure 21. All three dams have an emergency plan on file with Lake County. The Winton and Birch Lake Reservoir Dam are both in the Superior National Forest and both owned by Allele, Inc. Winton Dam is on the Kawishiwi River and is used for hydroelectric power and recreation purposes.
Wildfire, Flash Flooding, windstorm	CWPP 2.11: Provide escape routes and safety zones for high-risk WUIs when possible, and include them in community-based evacuation plans .	Lake County, Fall Lake Twp.	Completed	Lake County Emergency Management and local fire departments have evacuation plans and procedures in place for wildfire.

Hazard	Mitigation Action	Jurisdiction	Status	Comments
All-Hazards	Train elected official in Emergency Roles and Responsibilities	Lake County	Delete	Not a necessary mitigation action. Lake County Emergency Management encourages local elected officials to participate in available training with HSEM for local elected officials as well as to participate in EM training exercises when appropriate.
All-Hazards	Develop County Facebook page for emergency information.	Lake County	Completed	The Lake County Sheriff's Office Facebook page is used for dissemination of emergency information to the public via social media.

## **Appendix F – Planning Team Meetings**

## Lake County HMP Update

### **Appendix F – Kickoff Meeting Documentation**

#### **Overview:**

On 4/28/23 U-Spatial@UMD hosted a kickoff meeting online that was attended by the Lake County Emergency Manager. The webinar included a project overview, U-Spatial@UMD's background, the roles and responsibilities of the Emergency Manager, the contents of the Hazard Mitigation Plan, the planning process, and the projected timeline of the project.

#### **Attached Documentation:**

- **Project Handout:** "Minnesota 2023-2024 Multi-Hazard Mitigation Plan Update Project Overview"
- **Webinar Slides:** "Minnesota 2023-2024 Multi-Hazard Mitigation Plan Update Project Kickoff Orientation Webinar"

# Minnesota 2023-2024 Hazard Mitigation Plan Update Project Overview

During 2023-2024, U-Spatial at the University of Minnesota Duluth (U-Spatial@UMD) will be working to update Hazard Mitigation Plans (HMPs) for 14 counties. Our team consists of UMD staff who specialize in GIS applications and research and Hundrieser Consulting LLC, who specializes in stakeholder engagement and mitigation strategies.

## Participating Jurisdictions

Becker, Chisago, Goodhue, Grant, Houston, Hubbard, Kanabec, Lake, Lyon, Mille Lacs, Olmsted, Pennington, Roseau, and Wabasha counties. Cities within each county are required to participate in the planning process.

## Overview of Update Process

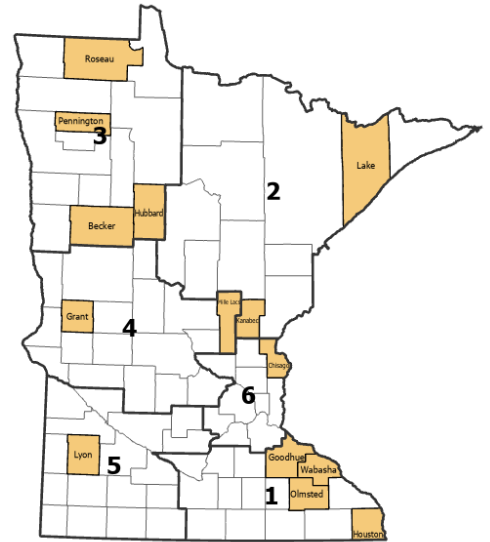
The U-Spatial@UMD team will coordinate with each Emergency Manager throughout the plan update process to engage participating jurisdictions and other stakeholders in the planning process. Following is an overview of key tasks that the U-Spatial@UMD team will facilitate to meet FEMA requirements in the update of each plan:

- Conduct 2 planning team meetings
- Conduct public outreach & engagement
- Assess Plans & Programs in Place to address natural hazards
- Conduct a Past Mitigation Action Review from past plan
- Update prioritization of natural hazards that pose risk
- Complete jurisdictional Local Mitigation Surveys (hazards, vulnerabilities & capabilities)
- Conduct hazard risk assessment for 1% annual chance floods using the Hazus GIS tool
- Inventory critical infrastructure
- Develop hazard profiles for each natural hazard (description, incident history, geographic variability, future probability, relationship to changing climate trends and local vulnerabilities) and present data in an interactive website.
- Prepare a PDF document and interactive website that meets FEMA HMP plan requirements.
- Develop 5-year jurisdictional Mitigation Action Charts

The planning process generally occurs over the course of 14-18 months from start to finish.

## Contact

Stacey Stark, U-Spatial Associate Director (MHMP Project Manager)  
Phone: (218) 726-7438 / Email: [slstark@d.umn.edu](mailto:slstark@d.umn.edu)



# Overview of the HMP Update Process

The U-Spatial@UMD team will coordinate with each Emergency Manager (EM), participating jurisdictions, and other stakeholders throughout the planning process. The plan update generally occurs over the course of 14-18 months from start to finish. Following is an overview of key tasks that will occur and the approximate timeline for completion. This list is not a complete list of what the plan update entails.

## Stage 1 Tasks (4-5 months)

- HMP kickoff meeting/webinar with EM and U-Spatial@UMD
- Develop jurisdictional contact list for MHMP planning team
- Disseminate & document News Release #1 (plan update announcement)
- Complete Plans & Programs in Place Checklist
- Conduct a Past Mitigation Action Review from prior plan
- Complete Capabilities Assessment to address natural hazards
- Hold & document Planning Team Meeting #1
- Complete Local Mitigation Surveys (hazards, vulnerabilities & capabilities)
- Revisit prioritization of natural hazards that pose risk
- Assist U-Spatial@UMD with provision of key data
- Complete inventory of Critical Infrastructure

## Stage 2 Tasks (5-7 months)

- Develop 5-year Jurisdictional Mitigation Action Charts
- Conduct hazard risk assessment for 1% annual chance floods using the Hazus GIS tool
- Develop hazard profiles for each natural hazard (description, incident history, geographic variability, future probability)
- Complete hazard profiles for each natural hazard
- Complete Plan Maintenance section of draft plan

## Stage 3 Tasks (2-3 months)

- EM review of Draft Plan
- Hold & document Planning Team Meeting #2
- Finalize Mitigation Action Charts
- Disseminate & document News Release #2 (Public Review & Comment Period)
- EM coordination of plan review by local government(s) & other stakeholders

## Stage 4 Tasks (2-3 months)

- Post-public review revisions made to plan (as necessary)
- Draft Plan sent to HSEM for review & approval
- Draft Plan sent to FEMA for review & approval
- Post FEMA review revisions made to plan (as necessary)
- FEMA to send letter stating "Approval Pending Adoption" to EM
- EM to facilitate MHMP jurisdictional adoptions (County/Tribe and cities)

## ***Ongoing - Quarterly 25% Local Match Tracking Quarterly to HSEM***

As part of the MHMP plan update, Emergency Managers are required to submit quarterly reports to HSEM on their local 25% match accrued through HMP activities during that quarter.

# Minnesota 2023-2024 Multi-Hazard Mitigation Plan Update Project Kick-off Orientation Webinar



## Webinar Purpose & Goals

The purpose of this webinar is to provide an orientation for Emergency Managers participating in 2023-2024 Multi-Hazard Mitigation Plan Updates.

- Introduce the U-Spatial@UMD Team and county contacts.
- Provide an overview of the project.
- Clarify roles and responsibilities.
- Outline the planning process, discuss key tasks and timelines.
- Discuss next steps and answer your questions.

Stacey Stark

## Introductions

### U-Spatial@UMD Project Team



Stacey Stark  
Project Manager  
U-Spatial@UMD



Bonnie Hundrieser  
Emergency Management Planning Consultant  
Hundrieser Consulting LLC



Zach Vavra  
GIS Specialist and Researcher  
U-Spatial@UMD



Steve Graham  
Research Associate, Flood Modeling Specialist  
U-Spatial@UMD



Jane Lindelof  
Project Coordinator, Communications Specialist  
U-Spatial@UMD

### Emergency Managers:

- Name, Title, and Jurisdiction
- Past Experience with MHMP?

### Minnesota HSEM:

Jennifer Davis, MN HSEM  
State Hazard Mitigation Officer

## Project Overview

### 14 Counties:

- Becker
- Chisago
- Goodhue
- Grant
- Houston
- Hubbard
- Kanabec
- Lake
- Lyon
- Mille Lacs
- Olmsted
- Pennington
- Roseau
- Wabasha



## Why U-Spatial@UMD?

### ➤ Proven experience

Our updates of 40+ MHMPs, as well as the State MHMP, have been quickly approved by FEMA and adopted by counties.

### ➤ Advanced Capabilities

Expertise in the application of GIS, HAZUS, and research supports plan development and meeting all FEMA requirements.

### ➤ Ability to Expedite

A consistent and proven approach for multiple counties supports State & FEMA review of draft plans.

### ➤ Planning Team

Our project team includes advanced GIS students and Hundrieser Consulting.

## Purpose

The Federal Disaster Mitigation Act of 2000 (DMA 2000) established programs and funding:

*"to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters"*

**A local government plan is required in order to maintain eligibility for FEMA hazard mitigation grant programs.**

MHMP's must be updated every 5 years.

Flooding	Hail	Drought
Dam/Levee Failure	Lightning	Extreme Heat
Wildfire	Winter Storms	Extreme Cold
Windstorms	Landslides	Earthquakes
Tornadoes	Sinkholes & Karst	Coastal Erosion

Natural hazard categories for Minnesota MHMPs. Hazards may be omitted if low risk is demonstrated.

## Overview of MHMP Update Process

Bonnie Hundrieser

## U-Spatial@UMD Team Roles & Responsibilities

- Keep you informed about the progress of your plan.
- Facilitate & document jurisdictional engagement.
- Facilitate & document public outreach.
- Work with EM and planning team to complete key tasks.
- Keep up-to-date on FEMA requirements and Minnesota guidance.
- Produce a quality plan that FEMA will approve.
- Answer questions in a timely fashion.
- Support EM's in tracking your required local 25% match.
- Provide quarterly reports to HSEM on your plan progress.

## EM Roles & Responsibilities

- Act as main Point of Contact. (EM / Deputy EM)
- Report to HSEM quarterly on required local 25% match.
- Coordinate engagement of MHMP Planning Team.
- Conduct & document public outreach.
- Participate in completion of key assignments for plan update.
- Coordinate with county staff & other key stakeholders to obtain information.
- Assist in timely review of draft document.
- Facilitate completion of local adoptions.

## Local 25% Match

EM's will be responsible to track and submit local match documentation to HSEM on a quarterly basis.

### Notes:

- EM's are provided with a "Master Match Tracking" Excel Workbook to document match MHMP activities, participants, and amount accrued.
- Bonnie will assist with local match tracking on several task items.
- Regular reminders & guidance will be provided on tracking match.

## MHMP Planning Team

In addition to jurisdictional participation, the plan must provide documentation of an **opportunity for stakeholders to be involved** in the current planning process. The MHMP Planning Team should include:

1. Local & Regional Agencies involved in hazard mitigation
2. Agencies that have the authority to regulate development
3. Neighboring communities (counties, tribes)
4. Representatives of businesses, academia, and other private organizations
5. Representatives of nonprofit organizations, including community-based organizations that work with/provide support to underserved communities and socially vulnerable populations

### Key Tasks

- Develop Jurisdictional Contact List.
- Hold & document Planning Team Meeting #1 & Meeting #2.

## Public Outreach

The plan update must document how the public was given the opportunity to be involved in the planning process and how their feedback was incorporated into the plan.

- Collect feedback on local-level concerns & mitigation actions.
- Use of local/social media, websites & community bulletin boards.
- Other outreach (i.e., attendance at City Council mtgs)
- Must include underserved communities and vulnerable populations within the planning area.

### Key Tasks

- Distribute & document News Release #1 (start of plan)
- Distribute & document News Release #2. (public review of plan)
- Conduct additional public outreach (i.e., County Fair, other events).

## Hazard Risk Assessment and Vulnerability Analysis

The U-Spatial@UMD Team will work closely with each EM and key departments to provide information as needed.

### Key Tasks

- Review and contribute to critical infrastructure inventory.
- Identify specific, local-level impacts and vulnerabilities.
- Identify if and how risk priorities have changed since the last plan.
- Identify any factors (i.e., new development) that may increase the community's vulnerability to natural hazard events.
- Review social vulnerability factors.

## Key Task Assignments

Bonnie Hundrieser will coordinate with each EM and participating cities on key task assignments that will provide information required for the plan update.

### Key Tasks

- Complete Plans in Place Checklist.
- Complete Capabilities Assessment for Mitigation.
- Conduct Past Mitigation Action Review.
- Coordinate Local Mitigation Survey (LMS) Forms.
- NFIP Status Information and documentation program compliance

## Mitigation Action Charts

Bonnie Hundrieser will also coordinate development of draft 5-year jurisdictional Mitigation Action Charts (MACs) for the county and each participating city jurisdiction.

### Key Tasks

- Conduct local-level development of MACs.
- Facilitate & document jurisdictional MAC review.
- Hold Planning Team Mtg. #2 for any additional feedback.
- Complete final MAC revisions.

## Draft Plan Review

The U-Spatial@UMD Team will work with each EM to conduct a review of the draft MHMP and provide an opportunity for public review & comment on the plan.

### Key Tasks

- EM review of initial draft plan > Revisions made as needed.
- Distribute News Release #2 - public review & comment period.
- EM coordination of review by county & key stakeholders.
- Posting of draft plan online with comment form.
- Documentation and incorporation of public feedback.

## Plan Submission

The draft MHMP will be submitted to HSEM and FEMA for review & approval. Timing for review & approval is generally within 1-2 months.

### Key Steps

- U-Spatial@UMD will submit the draft plan & Plan Review Tool (PRT) to HSEM.
- HSEM will submit the draft plan & PRT to FEMA reviewer.
- FEMA may respond with requests for revisions > U-Spatial@UMD to address revisions and resubmit plan.
- FEMA will send a letter of Approval Pending Adoption (APA status)

## Plan Adoption

After FEMA has provided APA status, the county and all participating cities must formally adopt the plan.

### Notes

- Good jurisdictional participation will facilitate local adoptions.
- Adoption of the plan is required for HMA grant program eligibility.
- Example adoption resolutions are provided for county and city adoption. Townships may elect to adopt (not required).
- Resolutions are incorporated into the final MHMP (PDF) by the Emergency Manager or included as hard copies.

# Plan format and delivery

## “Next Gen” - MN Hazard Mitigation Plans

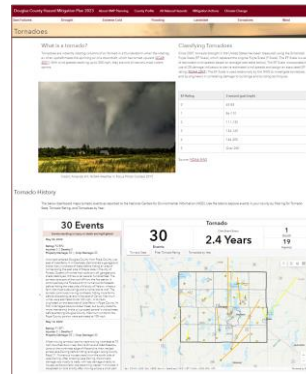
- Contains almost all required elements
- No mapping
- Community outreach/input remains the same
- Includes appendices with jurisdictional outreach

- Interactive maps and content
- Simple, concise explanations and highlights
- Multiple ways to navigate the content
- Links to PDF components and document
- Public input form on site

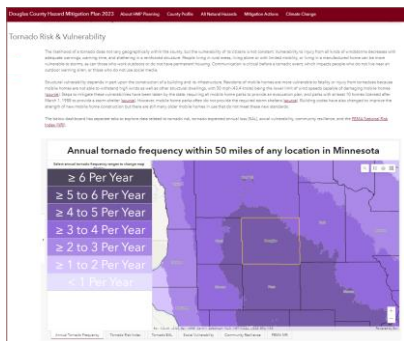
Stacey Stark



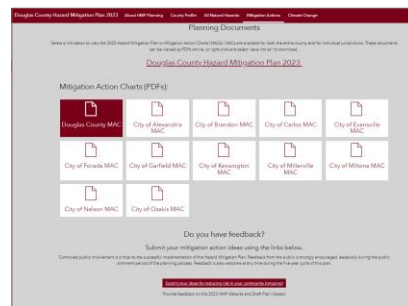
Example Web Site



Example Web Site



Example Web Site



Example Web Site

## Timeline Overview

- 18-Month total timeline (April 2023 – October 2024)
- Most plans take 14-18 months.
- Staggering of plans will be required to complete update of risk assessments, research of hazard histories, etc. for each jurisdiction.
- Many tasks occur concurrently, others must be done in succession.
- Work is expedited at the pace by which Emergency Managers complete tasks with Bonnie Hundrieser.

Possible timeline for your plan		Red includes county action items
<b>Stage 1 Tasks (4-5 months)</b>	May – October 2023	HMP kickoff meeting/webinar with U-Spatial@UMD Develop jurisdictional contact list for MHMP planning team Disseminate & document News Release #1 Hold & document Planning Team Meeting #1 Complete Plans & Programs in Place Checklist Complete Capabilities Assessment to address natural hazards Conduct a Past Mitigation Action Review from prior plan Complete Local Mitigation Surveys Revisit prioritization of natural hazards that pose risk Assist U-Spatial@UMD with provision of key data Complete inventory of Critical Infrastructure
<b>Stage 2 Tasks (4-6 months)</b>	November 2023 – May 2024	Develop 5-year Jurisdictional Mitigation Action Charts Hazus hazard risk assessment for flooding Develop hazard profiles for each natural hazard Complete county profile sections and maps Complete Draft Plan
<b>Stage 3 Tasks (2-3 months)</b>	June – August 2024	EM review of Draft Plan Hold & document Planning Team Meeting #2 Finalize Mitigation Action Charts Disseminate & document News Release #2 EM coordination of plan review by stakeholders
<b>Stage 4 Tasks (2-3 months)</b>	September - November 2024	Post-public review revisions made to plan (as necessary) Draft Plan sent to HSEM for review & approval Draft Plan sent to FEMA for review & approval

## Next Steps

U-Spatial@UMD Team members will coordinate each EM to commence work on several tasks that will take place over the next several months.

**Notes:**

- We are sensitive to the workloads of EM's.
- All information requests or assignments are in prepared form.
- Please communicate your availability to complete/not complete work.
- Plans most expired are priority; however, EM's with completed tasks move up in the que for plan development.

## Questions?

What questions do you have for U-Spatial@UMD or HSEM about the MHMP update process?

## Contact Information

Stacey Stark, MS, GISP  
**U-Spatial@UMD**  
[slstark@d.umn.edu](mailto:slstark@d.umn.edu)  
 218-726-7438

Example Plans:

<https://z.umn.edu/hazardmitigation>

# Lake County HMP Update

## JURISDICTIONAL CONTACT LIST

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### COUNTY CONTACTS

Name	Title	Phone	Email
Matt Pollmann	Emergency Management Director	(218) 220-6277	<a href="mailto:Matt.Pollmann@co.lake.mn.us">Matt.Pollmann@co.lake.mn.us</a>
Matthew Huddleston	County Administrator	(218) 834-8320	<a href="mailto:matthew.huddleston@co.lake.mn.us">matthew.huddleston@co.lake.mn.us</a>
Gregg Swartwoudt	County Assessor	(218) 834-8313	<a href="mailto:Gregg.Swartwoudt@co.lake.mn.us">Gregg.Swartwoudt@co.lake.mn.us</a>
Linda Libal	County Auditor	(218) 834-8316	<a href="mailto:Linda.Libal@co.lake.mn.us">Linda.Libal@co.lake.mn.us</a>
Christine McCarthy	Environmental Services Director / Planning & Zoning Administrator	(218) 834-8327	<a href="mailto:ChristineM.McCarthy@co.lake.mn.us">ChristineM.McCarthy@co.lake.mn.us</a>
Curt Backen	County Facilities Director	(218) 834-8447	<a href="mailto:Curt.Backen@co.lake.mn.us">Curt.Backen@co.lake.mn.us</a>
Nate Eide	Land Commissioner, County Forestry Dept.	(218) 830-9681	<a href="mailto:Nate.eide@co.lake.mn.us">Nate.eide@co.lake.mn.us</a>
Lisa Hanson	Health & Human Services Director	(218) 834-8400	<a href="mailto:Lisa.hanson@co.lake.mn.us">Lisa.hanson@co.lake.mn.us</a>
Tracy Gilsvik	Public Health Director	(218) 834-8400	<a href="mailto:Tracy.gilsvik@co.lake.mn.us">Tracy.gilsvik@co.lake.mn.us</a>
Jason DiPiazza	Highway Engineer	(218) 834-8380	<a href="mailto:Jason.DiPiazza@co.lake.mn.us">Jason.DiPiazza@co.lake.mn.us</a>
Laurel Buchanan	Clerk of the Board of Commissioners	(218) 834-8320	<a href="mailto:Clerk.Board@co.lake.mn.us">Clerk.Board@co.lake.mn.us</a>
Amy Lewis	GIS Specialist	(218) 834-8433	<a href="mailto:Amy.lewis@co.lake.mn.us">Amy.lewis@co.lake.mn.us</a>
Vacant	District 1 Commissioner		
Derrick L. (Rick) Goutermont	District 2 Commissioner	(218) 220-0425	<a href="mailto:rick.goutermont@co.lake.mn.us">rick.goutermont@co.lake.mn.us</a>
Richard C. (Rick) Hogenson	District 3 Commissioner	(218) 830-1074	<a href="mailto:rick.hogenson@co.lake.mn.us">rick.hogenson@co.lake.mn.us</a>
Jeremy M. Hurd	District 4 Commissioner	(218) 341-8628	<a href="mailto:jeremy.hurd@co.lake.mn.us">jeremy.hurd@co.lake.mn.us</a>
Rich Sve	District 5 Commissioner	(218) 343-6153	<a href="mailto:Rich.Sve@co.lake.mn.us">Rich.Sve@co.lake.mn.us</a>

### CITY CONTACTS

#### CITY OF BEAVER BAY (123)

Name	Title	Phone	Email
Kristy Gregory	Clerk/Treasurer	(218) 226-3251	<a href="mailto:City_beaverbay@lakenet.com">City_beaverbay@lakenet.com</a> <a href="mailto:cityclerkbeaverbay@gmail.com">cityclerkbeaverbay@gmail.com</a>
Tom Gmach	Mayor		<a href="mailto:TJGmach85@gmail.com">TJGmach85@gmail.com</a>

#### CITY OF SILVER BAY (1,962)

Name	Title	Phone	Email
Lana Fralich	Administrator	(218) 226-4408	<a href="mailto:lanaf@silverbay.com">lanaf@silverbay.com</a>
Wade LeBlanc	Mayor		
Cole Ernest	Police Chief	218-226-4486	<a href="mailto:cole.ernest@co.lake.mn.us">cole.ernest@co.lake.mn.us</a>
Mike Rowlee	Silver Bay VFD Chief	(218) 220-9009	<a href="mailto:mrowlee@hotmail.com">mrowlee@hotmail.com</a>

CITY OF TWO HARBORS (3,608)

Name	Title	Phone	Email
Patty Nordean	Administrator	(218) 834-5631	<a href="mailto:pnordean@twoharborsmn.gov">pnordean@twoharborsmn.gov</a>
Ben Redden	Acting Mayor/City Council President	(218) 834-5631	<a href="mailto:councilorredden@twoharborsmn.gov">councilorredden@twoharborsmn.gov</a>
Mark Schlangen	Two Harbors VFD Chief	(218) 428-1631	<a href="mailto:markschlangen@hotmail.com">markschlangen@hotmail.com</a>
Rick Hogenson	Two Harbors Police Chief (also Lake County District 3 Commissioner)	(218) 830-1074	<a href="mailto:rick.hogenson@co.lake.mn.us">rick.hogenson@co.lake.mn.us</a>

TOWNSHIP CONTACTS

Name of Township	Name & Title	Phone	Email
Beaver Bay Township	Sadi Dillehay, Clerk	(218) 353-1046	<a href="mailto:clerk@bbtownship.com">clerk@bbtownship.com</a>
Crystal Bay Township	Colby Abazs, Clerk	(218) 353-1236	<a href="mailto:crystalbaytownship@gmail.com">crystalbaytownship@gmail.com</a>
Fall Lake Township	Marlene Skube, Clerk	(218) 365-4582	<a href="mailto:falllake@lakeconnections.net">falllake@lakeconnections.net</a>
Silver Creek Township	Alison Oftedahl, Clerk Katie Anderson, Deputy Clerk	(218) 834-5255	<a href="mailto:silvercreek@frontiernet.net">silvercreek@frontiernet.net</a> <a href="mailto:katieanderson@ttosc.org">katieanderson@ttosc.org</a>
Stony River Township	Patricia Thums, Clerk	(218) 343-0427	<a href="mailto:Patthums02@gmail.com">Patthums02@gmail.com</a>

OTHER STAKEHOLDER CONTACTS

**LOCAL & REGIONAL AGENCIES INVOLVED IN HAZARD MITIGATION**

Name of Agency / Organization	Name & Title	Phone	Email
MN Homeland Security & Emergency Management	Kelvin McCuskey, HSEM Region 2 Regional Program Coordinator	218-327-4496	<a href="mailto:Kelvin.McCuskey@state.mn.us">Kelvin.McCuskey@state.mn.us</a>
Lake County Soil & Water Conservation District (SWCD)	Tara Solem, District Manager/Water Planner	(218) 834-8370	<a href="mailto:tara.solem@co.lake.mn.us">tara.solem@co.lake.mn.us</a>
	Tim Byrns, District Forester	(218) 834-8372	<a href="mailto:tim.byrns@co.lake.mn.us">tim.byrns@co.lake.mn.us</a>
USDA Rural Development Community Programs	Tyler Ray, Area Specialist	(218) 829-5965 x117	<a href="mailto:tyler.ray@usda.gov">tyler.ray@usda.gov</a>
MnDOT District 1	Duane Hill, Transportation District Engineer	218-725-2704	<a href="mailto:duane.hill@state.mn.us">duane.hill@state.mn.us</a>
MN DNR Coastal Program	Clinton Little, Coastal Program Specialist	218-834-1446	<a href="mailto:clinton.little@state.mn.us">clinton.little@state.mn.us</a>
MN DNR Firewise Program	Laura Murphy, Northeast MN Firewise Specialist	218-878-5646	<a href="mailto:Laura.murphy@state.mn.us">Laura.murphy@state.mn.us</a>
Superior National Forest, USDA Forest Service	Matthew Judd, Natural Resources Staff Officer	218-626-4382	<a href="mailto:Matthew.Judd@usda.gov">Matthew.Judd@usda.gov</a>

### REPRESENTATIVES OF BUSINESSES, ACADEMIA, AND OTHER PRIVATE ORGANIZATIONS

Name of Agency / Organization	Name & Title	Phone	Email
Lake Superior School District #381	Jay Belcastro, Superintendent	(218) 834-8201 ext. 8213	<a href="mailto:ibelcastro@isd381.org">ibelcastro@isd381.org</a>
Cooperative Light and Power	Carey Hogenson, Manager	(218) 830-0320	<a href="mailto:careyh@clpower.com">careyh@clpower.com</a>
Lake Country Power	Derek How, P.E., Chief Operating Officer	218-326-7178	<a href="mailto:dhowe@lakecountrypower.com">dhowe@lakecountrypower.com</a>
Minnesota Power/ALLETE	David Baker, Emergency Management Coordinator	218-355-3598 218-491-1545	<a href="mailto:drbaker@allete.com">drbaker@allete.com</a>
Two Harbors Gas and Water	Paul Johnson, Manager	(218) 834-8812	<a href="mailto:pjohnson@twoharborsmn.gov">pjohnson@twoharborsmn.gov</a>

### REPRESENTATIVES OF NONPROFIT ORGS, INCLUDING COMMUNITY-BASED ORGS THAT WORK WITH OR PROVIDE SUPPORT TO UNDERSERVED COMMUNITIES AND SOCIALLY VULNERABLE POPULATIONS

Name of Agency / Organization	Name & Title	Phone	Email
Salvation Army Northern Division (MN/ND)	Major Michele Heaver, Regional Contact	651-238-7783	<a href="mailto:Michele.heaver@usc.salvationarmy.org">Michele.heaver@usc.salvationarmy.org</a>
American Red Cross	Owen Fifield, Disaster Program Manager	(218) 341-6059	<a href="mailto:Owen.fifield@redcross.org">Owen.fifield@redcross.org</a>
ARDC – Arrowhead Area Agency on Aging	Kristi Lane, Director	218-722-5545	<a href="mailto:AAAAInfo@ARDC.org">AAAAInfo@ARDC.org</a>
North Shore Collaborative	Trisha Scamehorn, Executive Assistant/Coordinator	(218) 834-8403	<a href="mailto:Trisha.Scamehorn@co.lake.mn.us">Trisha.Scamehorn@co.lake.mn.us</a>
North Shore Area Partners	Lise Abazs, Executive Director	218-226-3635	<a href="mailto:director@nsapartners.org">director@nsapartners.org</a>
Two Harbors Area Food Shelf	Kelsey Dooley, Executive Director	218-391-8191	<a href="mailto:thafs2015@gmail.com">thafs2015@gmail.com</a>

### NEIGHBORING JURISDICTIONS

Name of Jurisdiction	Name & Title	Phone	Email
St. Louis County	Dewey Johnson, EM Coordinator	(218) 336-2936	<a href="mailto:johnsond@stlouiscountymn.gov">johnsond@stlouiscountymn.gov</a>
Cook County/Grand Portage Reservation	Mike Keyport, EM Director	(218) 387-3059	<a href="mailto:Mike.keyport@co.cook.mn.us">Mike.keyport@co.cook.mn.us</a>

### LOCAL MEDIA CONTACTS

Name of Local Media	Media Contact	Phone	Email
KTWH Radio	Fran Kaliher or Leo Babeu	218-595-6195	<a href="mailto:thcommradio@gmail.com">thcommradio@gmail.com</a>
Northshore Journal	Katya Gordon	218-226-3335	<a href="mailto:northshorejournal@gmail.com">northshorejournal@gmail.com</a>
Lake County Press	Kitty Mayo	218-213-4816	<a href="mailto:kmayo@cherryroad.com">kmayo@cherryroad.com</a>

## Lake County HMP Planning Team Meeting #1 Presentation and Discussion 2/8/24 Meeting Summary & Documentation

**Summary:** On February 8, 2024 Lake County Emergency Management convened key county, city, and township representatives, as well as neighboring jurisdictions and other stakeholders to participate in the 1<sup>st</sup> Planning Team Meeting for the update of the Lake County Hazard Mitigation Plan (HMP). The purpose of the meeting was to formally present information about the Lake County HMP update and to discuss key items that would inform plan development. The meeting was held via Zoom webinar video conference and was facilitated by Stacey Stark and Bonnie Hundrieser of the U-Spatial@UMD project team.

**Stakeholder Invitations:** Lake County Emergency Management invited all stakeholders included on the county’s HMP Update Jurisdictional Contact List (JCL), which includes the key County Contacts, City Contacts, Township Contacts, Other Stakeholder Contacts, and Neighboring Jurisdiction Contacts identified to be invited to participate in the plan update process. Contacts were encouraged to engage additional staff or to send someone in their stead if they could not attend. A copy of the county’s Jurisdictional Contact List is provided in *Appendix F Planning Team Meetings*.

**Pre-Meeting Materials:** Several days in advance of the meeting an email was sent out to the HMP stakeholder list with materials to review prior to the meeting. Materials included an HMP overview handout, a list of discussion questions that would be covered during the meeting, and a handout on the FEMA Hazard Mitigation Assistance Grant Program. Participants who were registered for the meeting were encouraged to review the questions and be ready to discuss them during the meeting. Stakeholders who were not attending the meeting were also encouraged to fill out and return the discussion question form.

**Meeting Participants:** A total of **19** people attended the meeting. Representation included elected officials and departmental staff from Lake County and the cities of Silver Bay and Two Harbors. Representatives from the city of Beaver Bay were not available to attend. Other related area stakeholders also attended in the meeting. A participant list is provided below:

	Name	Organization	Job Title
1	Matt Pollmann	Lake County Emergency Management	Emergency Management Director
2	Jason DiPiazza	Lake County Highway Department	Highway Engineer
3	Tracy Gilsvik	Lake County Health and Human Services	Public Health Supervisor
4	Lareesa Sandretsky	Lake County Public Health	Emergency Preparedness Coordinator
5	Linda Libal	Lake County	Auditor-Treasurer
6	Amy Lewis	Lake County	GIS Analyst
7	Curt Backen	Lake County	Facilities Director
8	Cole Ernest	City of Silver Bay Police Department	Chief of Police

9	Richard Hogenson	City of Two Harbors Police Department	Chief of Police
10	Cheri DeBeltz	Fall Lake Township	Clerk
11	Katie Anderson	Town of Silver Creek	Deputy Clerk
12	Marjori Bottila	Arrowhead Area Agency on Aging	Program Manager
13	Kimberly Scanlon	Arrowhead Area Agency on Aging	Program Developer
14	Kelvin McCuskey	MN Homeland Security and Emergency Management	Regional Program Coordinator
15	Clinton Little	MN DNR Coastal Program	Coastal Program Specialist
16	Elizabeth Radke	Student Stakeholder, Two Harbors High School	Senior Student
17	Ken Jones	Cooperative Light and Power	Energy Services Manager
18	Laura Murphy	MN DNR	NE Region Firewise Community Specialist
19	Derek Howe	Lake Country Power	Chief Operating Officer

**Presentation Overview:** The Power Point presentation covered the following items. A PDF of the presentation slides is included with this meeting summary.

- Welcome & Introductions
- Review of HMP Overview (\*handout)
- Review of Past Hazard Risk Prioritization, Hazard Profiles, and New Priorities
- Overview of Mitigation Strategies, Actions
- Overview of FEMA HMA grant program
- Discuss local mitigation ideas
- Overview of Next Steps

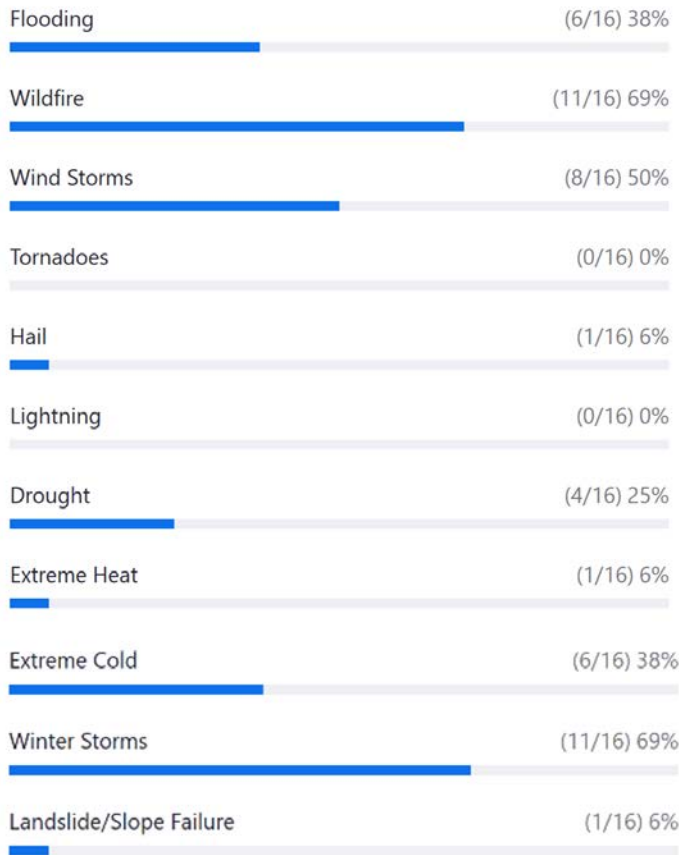
## LAKE COUNTY HMP PLANNING TEAM MEETING #1 DISCUSSION NOTES

### **PARTICIPANT POLLS**

During the presentation, participants were presented with two poll questions to respond to. Following are the poll questions and responses:

#### **POLL #1: TOP HAZARDS**

***What are the top three hazards of most concern to you in this county? (Multiple Choice)***



The top 3 hazards noted were Wildfire, Winter Storms, and Windstorms.

**POLL #2: CHANGE IN PERCEIVED RISK**

***Has the risk of any natural hazards changed in your jurisdiction in the last 5 years? (increased severity, decreased risk, increased extent, etc) (Single Choice)***



***What hazard risk has changed, and in what jurisdiction?***

- Richard Hogenson - Flood, Erosion and Wildfire all have increased in the City of Two Harbors I believe the awareness and preparedness has also increased, which may be a factor in the higher risk or perception of risk.
- Linda Libal - It seems like the wild fire risk continues to increase.
- Laura Murphy – Higher risk of wildfire due to increased spruce budworm kill.

- Amy Lewis - I'm new to the area so I don't know what changes have happened in the past five years. However, I imagine the risk of forest fires is going to change and increase every year.
- Marjori Bottila - Not aware of changes due to natural disasters, but changes in the public's ability to manage/respond. Safety net changes with revenues.
- Derek Howe - Fire risk has increased due to drought, and vegetation damage from pests such as the Spruce Bud Worm leading to lots of fuel.
- Elizabeth Radke - I would say things like wildfires, hail, and extreme heat has increased with the impacts of climate change. I am not sure how much they have changed in the last 5 years.
- LaReesa Sandretsky - Increased risk of wildfire & increased severity of smoke events. Countywide issue.
- Clinton Little - Coastal erosion. We have seen a major increase in DNR permits for Lake Superior shore structures. (shoreland stabilization and restoration).

### **FOCUSED DISCUSSION QUESTIONS**

During the presentation there were 3 key discussion questions (DQ's) that were presented to the planning team for feedback. Following are the questions and responses:

**DQ #1: *Are there any vulnerable populations or underserved communities you would identify for Lake County or within your own local jurisdiction? If so, are there any best outreach methods to provide an opportunity to participate?***

- Richard Hogenson - Elderly population.
- Marjori Bottila - older, homeless/at risk of homelessness, disabled of any age, isolated/living alone. Also those not on a transit route/no transportation/homebound
- LaReesa Sandretsky - Older adults, especially those living alone.
- Jason DiPiazza - Vulnerable populations, from the Highway Department's perspective, include residents living in isolated locations with limited access routes that have either very long or non-existing alternatives. Outreach to these populations is challenging with limited access to internet services. Many of these properties are also seasonal. Outreach via mail and or postings at resource centers (community centers, grocery stores, fuel stations etc. might be an option.
- Laura Murphy - I would say low income or elderly. A lot of people in Lake County are older who do not always have access to cell phones or internet for emergency alerts. People with long driveways, poor ingress/egress, dead end roads, or roads that are no longer there.
- Linda Libal - Methods for reaching out: Church Groups, places like the Finland Community Center, local radio.
- Elizabeth Radke - I would like to advocate for the student population. It isn't very often that we get to have an opinion. To reach out you can contact the administration at the high schools to send out newsletters and surveys.

**DQ#2: What do you feel should be recorded as the updated Hazard Prioritizations for the Lake County 2023 HMP? Why?** Following are the updated hazard priorities noted by planning team members during the meeting, as well as additional discussion comments:

Natural Hazards	Current Priority
Winter Storms	High
Windstorms	High
Wildfire	High
Flooding	Moderate
Coastal Erosion	Moderate
Extreme Cold	Moderate
Extreme Heat	Moderate
Drought	Moderate
Lightning	Low
Hailstorms	Low
Tornadoes	Low
Landslides	Low
Dam Failure	Low

**Comments:**

**Coastal Erosion**

- Clinton Little - There have been updated erosion rates for Lake County. In the DNR we are seeing a big uptick in shoreland stabilization permits were up over 1000%. 2013-2020 Lake Superior went up 3 feet and did a lot of damage. Now that it is lower a lot of people are looking to stabilize their shorelines. Steep clay banks and bluffs landslides are tied to higher erosion. We are seeing some pretty dramatic work from homeowners along Lake Superior working to stabilize their homes. SWCD has a coastal erosion page on their website page to support public education on the issue.
- Jason DiPiazza - Portions of MnDOT Hwy 61 could be impacted by coastal erosion which would significant impacts.

**Flooding**

- Jason DiPiazza - Area wide flooding is low risk – topography generally consists of wetland expanses and lakes with significant storage capacity, or steep slopes not prone to area wide flooding. The steep slope streams however are high risk for damage to roadways.

**Windstorms**

- Jason DiPiazza - High winds are common and often result in downed trees that pose fire risk and temporary mobility impacts.

**Winter Storms**

- Jason DiPiazza - Storms can be common and disruptive to travel, power supply, and home heating.

## **Extreme Heat**

- LaReesea Sandretsky – I want to add extreme heat to your consideration of threats, maybe as moderate. Very few homes have AC in our county and extreme heat events are increasing with climate change. Especially when combined with smoke events, extreme heat can definitely be a big health risk for our more vulnerable populations like older adults, young children and chronically ill residents.

## **Wildfire**

- Linda Libal - Firewise Grant opportunities for individuals has been really successful.
- Derek Howe - Removal of dead or dying vegetation in the road ROW's and were possible would help mitigate the wildfire risk
- Jason DiPiazza – Forestland is the predominate land type. Disease, drought, and weather create significant wildfire fuel sources throughout the county. Wildfire risk is increased with lightning strikes.
- Laura Murphy - Increased fuel loading with insects, disease, and wind throw. Overall, the occurrence of fire in Lake County is small but the potential for a large fire due to build up of materials and natural fire cycle is there. Most Minnesota fires are human caused but occasionally lightening.

## **Dam Failure**

- Jason DiPiazza – Only 1 significant dam/levee in the county with significant risk mitigation planning (North Shore Mining)

## **DQ#3: Do you have any ideas for specific mitigation activities for implementation at the county or local level?**

- (Wildfire) Laura Murphy – Update of the Lake County CWPP (2017) would help to ensure availability of Firewise grant funding. Lots of funding opportunities with keeping a CWPP current. I don't have any ideas for specific activities at this time but am willing and able to give presentations about Firewise, send out materials, or work with landowners/fire departments/community groups to do level 2 assessments for home Firewise preparedness.
- (All-Hazards) Elizabeth Radke - I'm sure if this counts but Lake County could work on implementing a climate emergency resolution. There are many grants that can help the county implement action items. It would also help bring natural disasters related to the changing climate to the forefront and could help prevent them.
- (Windstorms) Matt Pollman – I would be interested in the interest in outdoor warning sirens. / Linda Libal - Two Harbors used to have a weather siren. I think there is some history/reasons why we don't any longer.
- (Flooding) Jason DiPiazza - Replace/reconstruct roadways, bridges, and culverts with resilient designs. Need for this is expansive and difficult to pinpoint to any one area.
- (Wildfire/other hazards) Jason DiPiazza - Work with Cook County and St. Louis County to develop alternate route options to mitigate highway closure impacts.

The meeting concluded with an overview of next steps and estimated timeline for completion.

### **MEETING DOCUMENTATION**

Attached are additional documentation items for the Lake County HMP Mtg #1:

- Mtg #1 Email Invitation to RSVP
- Mtg #1 Pre-meeting Materials: Email, HMP Overview Handout, Discussion Questions Response Form, and HMA Grants Program Overview
- Mtg #1 Power Point Presentation Slides

*Meeting Summary Prepared By: Bonnie Hundrieser, U-Spatial@UMD Project Team*

**From:** [Matt Pollmann](#)  
**Cc:** [Bonnie K Hundrieser](#)  
**Subject:** Lake County HMP Meeting Invitation  
**Date:** Tuesday, January 2, 2024 1:24:28 PM

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## LAKE COUNTY

### HAZARD MITIGATION PLAN UPDATE – MEETING INVITATION

Greetings,

Your presence is requested at a Planning Team Meeting for the update of the **Lake County Hazard Mitigation Plan**. You are requested to participate in this vital meeting because you have a position of administrative or departmental responsibility within either the county, a municipal government, or are a key stakeholder related to the planning process. Emergency Managers from neighboring jurisdictions are also encouraged to attend so we may strengthen our shared mitigation efforts.

**We will be holding the meeting virtually using Zoom video/phone conferencing:**

Date: Thursday, February 8, 2024

Time: 1:00 – 2:30 p.m.

Zoom Link: [https://umn-private.zoom.us/webinar/register/WN\\_mltJhNnKRswj5qAyi3RD1g](https://umn-private.zoom.us/webinar/register/WN_mltJhNnKRswj5qAyi3RD1g)

**You must click on the link above to register. (Ctrl+Click to follow link)** When you register, you will automatically be placed on an RSVP list and will be sent an email confirmation.

#### **About the Plan**

The update of the Lake County Hazard Mitigation Plan (HMP) is a requirement by the State of Minnesota Department of Homeland Security & Emergency Management (HSEM) as well as the Federal Emergency Management Agency (FEMA) every 5 years. Our last plan is due for an update and our planning is currently underway. The plan addresses the natural hazards that face Lake County and will result in the identification of mitigation actions and projects that will help to reduce or eliminate the impact of future hazard events, such as flooding and severe winter or summer storms.

Your participation in this plan update is important for several reasons:

1. You will help to identify critical mitigation actions to implement at the county / municipal level, and how they can be integrated with existing plans, policies, or project efforts.
2. Participating jurisdictions will be eligible to apply for FEMA hazard mitigation grant funding.
3. Mitigation planning is necessary to keep our communities resilient against future disasters and reduce the costs of recovery.
4. FEMA requires documentation of how local government and key stakeholders participated in

the planning process.

During this meeting we will review and prioritize the natural hazards that pose risk to Lake County and individual communities and discuss a range of mitigation measures for local implementation. The meeting will be facilitated by personnel from U-Spatial at the University of MN Duluth who are working closely with us on this project.

We look forward to you joining us for this important meeting.

Thank you,

**Matt Pollmann**  
**Emergency Management Director**  
Cell: 773-844-6449

**From:** [Bonnie K Hundrieser](#)  
**To:** [Matt.Pollmann@co.lake.mn.us](#); [matthew.huddleston@co.lake.mn.us](#); [Gregg.Swartwoudt@co.lake.mn.us](#); [Linda.Libal@co.lake.mn.us](#); [ChristineM.McCarthy@co.lake.mn.us](#); [Curt.Backen@co.lake.mn.us](#); [Nate.eide@co.lake.mn.us](#); [Lisa.hanson@co.lake.mn.us](#); [Tracy.gilsvik@co.lake.mn.us](#); [Jason.DiPiazza@co.lake.mn.us](#); [Clerk.Board@co.lake.mn.us](#); [Amy.lewis@co.lake.mn.us](#); [rick.goutermont@co.lake.mn.us](#); [rick.hogenson@co.lake.mn.us](#); [jeremy.hurd@co.lake.mn.us](#); [Rich.Sve@co.lake.mn.us](#); [City\\_beaverbay@lakenet.com](#); [TJGmach85@gmail.com](#); [lanaf@silverbay.com](#); [mrowlee@hotmail.com](#); [pnordean@twoharborsmn.gov](#); [councilorredden@twoharborsmn.gov](#); [markschlengen@hotmail.com](#); [clerk@bbtownship.com](#); [crystalbaytownship@gmail.com](#); [falllake@lakeconnections.net](#); [silvercreek@frontiernet.net](#); [katieanderson@ttosc.org](#); [Patthums02@gmail.com](#); [Kelvin.McCuskey@state.mn.us](#); [tara.solem@co.lake.mn.us](#); [tim.byrns@co.lake.mn.us](#); [tyler.ray@usda.gov](#); [duane.hill@state.mn.us](#); [clinton.little@state.mn.us](#); [Laura.murphy@state.mn.us](#); [Matthew.Judd@usda.gov](#); [Michele.heaver@usc.salvationarmy.org](#); [jbelcastro@isd381.org](#); [Owen.fifield@redcross.org](#); [careyh@clpower.com](#); [dhowe@lakecountrypower.com](#); [drbaker@allete.com](#); [pjohnson@twoharborsmn.gov](#); [AAAInfo@ARDC.org](#); [Trisha.Scamehorn@co.lake.mn.us](#); [director@nsapartners.org](#); [thafs2015@gmail.com](#); [johnsond@stlouiscountymn.gov](#); [Mike.keyport@co.cook.mn.us](#); [elizabethradke7@gmail.com](#)  
**Cc:** [Stacey Stark](#)  
**Subject:** Lake County HMP Planning Team Meeting Materials  
**Date:** Tuesday, February 6, 2024 10:04:00 AM  
**Attachments:** [Lake County 2023-2024 HMP Overview handout.pdf](#)  
[Lake County HMP Mtg. #1 Discussion Questions.docx](#)  
[HSEM HMA Grants Program Overview.pdf](#)  
**Importance:** High

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Greetings,

The Lake County Hazard Mitigation Plan (HMP) Update – Planning Team Meeting #1 will be held via Zoom on **Thursday, February 8, 2023 from 1:00 – 2:30 p.m.** This meeting is a critical step in the plan update process where we meet with county and local government officials, departmental staff, and other agency stakeholders to provide an overview of the plan update and gather important feedback.

**Attached are several items that we will reference during the meeting.**

- 1. Lake County 2023-2024 Hazard Mitigation Plan Update Overview**
- 2. Lake County HMP Planning Team Meeting #1 - Discussion Questions.** If you are registered for the meeting, you are encouraged to review and fill out the form in advance. If you are not able to join us, we welcome your feedback by returning the Discussion Questions form via email.
- 3. HSEM Hazard Mitigation Assistance (HMA) Grants Program Overview**

If you have not registered yet but wish to do so, please [control+click](#) on the registration link:

[https://umn-private.zoom.us/webinar/register/WN\\_mltJhNnKRrWj5qAyi3RD1g](https://umn-private.zoom.us/webinar/register/WN_mltJhNnKRrWj5qAyi3RD1g)

We look forward to meeting with you! If you have any questions, please let me know.

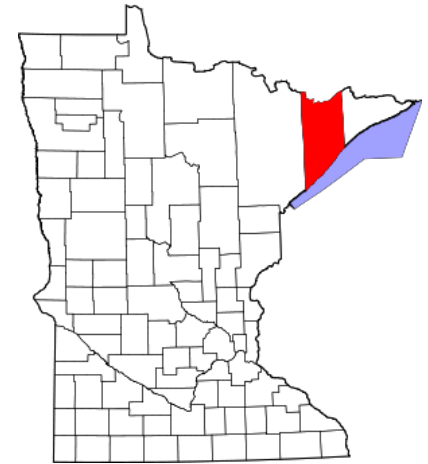
Thank you,  
Bonnie Hundrieser

**Bonnie K. Hundrieser, CEM**  
Hazard Mitigation Planning Specialist  
Part of the **U-Spatial@UMD** HMP Planning Team



## Lake County 2023-2024 Hazard Mitigation Plan Update Overview

During 2023-2024, U-Spatial at the University of Minnesota Duluth (U-Spatial@UMD) will be working to update the **Lake County Hazard Mitigation Plan (HMP)**. Our team consists of UMD staff who specialize in GIS applications and research and Hundrieser Consulting LLC, who specializes in stakeholder engagement and mitigation strategies.



### Overview

Following are key points regarding the Lake County HMP Update:

**Plan Requirement:** It is a state and federal requirement that local governments develop and adopt an updated HMP every 5 years to be eligible for FEMA hazard mitigation assistance grant program funding. Plans must include a comprehensive risk assessment, engage a range of stakeholders and the public, and result in a plan of action to reduce risk from future natural hazard events.

**Who the Plan Covers:** The HMP is a multi-jurisdictional plan, covering all of Lake County, including all cities and townships within the county. The plan also takes into consideration the needs and concerns of other stakeholders such as schools, watershed districts, and agencies or organizations involved in mitigation or services to vulnerable populations within the county.

**Who Participates:** The HMP is developed in coordination with a local “planning team,” which includes county, city, and township government officials and departmental staff and other related key stakeholders. The team participates in two meetings, assists with public outreach, and provides information to help inform the plan update. Input is also sought from the larger public via news releases, social media, and public events. Planning team members and the public help to review and comment on the draft plan.

**Plan Content:** The HMP addresses the natural hazards that pose risk to Lake County, such as flooding, severe winter storms, windstorms, tornadoes, extreme temperatures, and drought. A hazard profile is developed for each hazard prioritized as moderate to high. Each profile includes a description, incident history, geographic variability, future probability, relationship to changing climate trends and local vulnerabilities, as well as a review of planning and program capabilities. The HMP results in a plan of action for implementation.

**Timeframe:** The planning process generally occurs over the course of 14-18 months from start to finish.

**Final Product:** The Lake County HMP will include a PDF plan and an accompanying interactive website.

### Contact:

Stacey Stark, U-Spatial Associate Director (HMP Project Manager)  
Phone: (218) 726-7438 / Email: [slstark@d.umn.edu](mailto:slstark@d.umn.edu)

# U-SPATIAL

UNIVERSITY OF MINNESOTA DULUTH  
**Driven to Discover™**

# Lake County Hazard Mitigation Plan Update

## Planning Team Meeting #1 Discussion Questions

As part of the Lake County 1<sup>st</sup> HMP Planning Team meeting, we will be covering several key discussion items. Your input is important to ensure the plan update reflects current concerns, priorities, and ideas for mitigation activities to reduce risk. Following are **3 discussion questions** where we will be seeking your feedback.

Meeting participants are encouraged to take down notes prior to the meeting using this form. You may also submit your form electronically if you wish to provide your written notes. Forms should be returned to: [hundrieserconsulting@outlook.com](mailto:hundrieserconsulting@outlook.com)

**Please provide your contact information:**

Name:

Jurisdiction/Agency:

Job Title:

Phone:

Email:

---

### 1. Outreach to Vulnerable Populations / Underserved Communities

As part of the planning process, FEMA specifically seeks to ensure that communities have addressed how vulnerable populations and underserved communities within the planning area were provided an opportunity to be involved. We are interested in what this means for your county and local community.

**DISCUSSION QUESTION: Are there any vulnerable populations or underserved communities you would identify for Lake County or within your own local jurisdiction? If so, are there any best outreach methods to use to provide an opportunity to participate?**

*Type any comments*

### 2. Review of Hazard Risk Prioritization

As part of the planning process, FEMA specifically seeks to ensure that participants have reviewed the natural hazards that pose risk to the county and its jurisdictions and consider how the priority of those hazards may have changed. Below are the natural hazards were addressed in the county's past hazard mitigation plan and the risk priorities that were noted for each.

**LAKE COUNTY 2017 HAZARD MITIGATION PLAN**

Hazards	Risk Priority
Wildfire	High
Blizzard	High
Ice Storm	High
Extreme Heat/Cold	Moderate
Flooding	Moderate
Drought	Moderate

Straight-line Wind	Moderate
Tornado	Low
Dam/Levee Failure	Low
Landslides	Not Addressed

**DISCUSSION QUESTION:** What do you feel should be recorded as the updated hazard prioritizations for the Lake County 2023 HMP? Consider the probability of future events occurring (likelihood) and damaging impacts to local vulnerabilities (people, systems, and critical infrastructure). Please use the chart below to note your answers.

**LAKE COUNTY 2023 HMP UPDATE - HAZARD RISK PRIORITIZATIONS**

Hazards	Risk Priority (Low, Moderate, or High)	Comments
Flooding		
Windstorms		
Tornadoes		
Hail		
Lightning		
Winter Storms (heavy snow, blizzards, ice storms)		
Extreme Heat		
Extreme Cold		
Drought		
Wildfire		
Landslides		
Dam/Levee Failure		

*Type any additional comments*

**3. Identification of Mitigation Actions**

The end-result of the Lake County HMP will be a set of jurisdictional mitigation action charts which will provide a course of action for the county and each city jurisdiction to reduce risk against future hazard events. The development of mitigation actions will be drawn from local-level hazard priorities, known vulnerabilities, and local capabilities to implement actions. The development of mitigation actions is guided by different types of strategies, including: Local Planning & Regulations, Structure & Infrastructure Projects, Natural Systems Protection, Education & Awareness Programs, and Mitigation Preparedness & Response Support. We are interested to know what ideas you may have for mitigation activities that can be incorporated into our planning as we move forward. Please be as specific as possible. For example, “Construct a tornado safe room for the City of X mobile home park.” “Increase the size of culverts on township roads to reduce over the road flooding and erosion from high rain events.”

**DISCUSSION QUESTION:** Do you have any ideas for specific mitigation activities for implementation at the county or local level?

*Type any comments*



**State of Minnesota**  
**Department of Public Safety**  
**Division of Homeland Security and Emergency Management**  
**445 Minnesota Street, Suite 223**  
**St. Paul, MN 55101-6223**

## **HAZARD MITIGATION ASSISTANCE**

Hazard Mitigation Assistance (HMA) grant programs provide funding with the aim to reduce or eliminate risk to property and loss of life from future natural disasters. HMA programs are typically a 75%/25% cost share program. The federal share is 75% of total eligible project reimbursement costs. The local applicant is responsible for 25% of the project costs. The amount of HMGP funds availability is based on a percent of Public Assistance provided by Federal Emergency Management Agency (FEMA).

- Hazard Mitigation Grant Program (HMGP) funds assists in implementing long-term hazard mitigation measures following a Presidential major disaster declaration.
- Pre-Disaster Mitigation (PDM) provides funds for hazard mitigation planning and projects on an annual basis.
- Flood Mitigation Assistance (FMA) provides funds on an annual basis to reduce or eliminate risk of flood damage to buildings that are insured under the National Flood Insurance Program (NFIP).

### **Who is eligible for grant funding?**

All applicants must have or be covered under an approved Hazard Mitigation Plan. Eligible applicants include: State and local governments; certain private non-profit organizations or institutions; and Tribal Communities

### **What types of projects can be funded?**

All projects must be eligible, technically feasible, and cost-effective. All projects are subject to environmental and cultural resource review. Examples of projects include:

- **Advance Assistance** may be used to develop mitigation strategies and obtain data, including for environmental and historic preservation compliance considerations, and develop complete project applications in a timely manner.
- **Aquifer Storage and Recovery** (ASR) projects serve primarily as a drought management tool, but can also be used to reduce flood risk and restore aquifers that have been subject to overdraft. The concept is to capture water when there is an abundant supply, store the water in subsurface aquifers, and recover water from the storage aquifer when needed. Storing water underground can help protect it from pollutants, evaporation, and weather events.
- **Floodplain and stream restoration** (FSR) projects are used primarily to reduce flood risk and erosion by providing stable reaches, and may also mitigate drought impacts. FSR projects restore and enhance the floodplain, stream channel and riparian ecosystem's natural function. They provide base flow recharge, water supply augmentation, floodwater storage, terrestrial and aquatic wildlife habitat, and recreation opportunities by restoring the site's soil, hydrology and vegetation conditions that mimic pre-development channel flow and floodplain connectivity.
- **Flood Diversion and Storage** (FDS) projects often are used to reduce flood risk, but also can be used to mitigate drought and improve ecosystem services. These projects involve diverting floodwaters from a stream, river, or other body of water into a conduit such as a canal, pipe, or wetland and storing them in an above-ground storage facility. Water is then slowly released, reducing flood risk.

- **Green Infrastructure Methods** are a sustainable approach to natural landscape preservation and storm water management. Include in *eligible hazard mitigation activities* as well as provide additional ecosystem benefits. Ecosystem-based approach to replicate a site's pre-development, natural hydrologic function. Benefits include: Increase water supply, improved water quality, can be scaled to size and designed to fit site conditions.
- **Property Acquisition and Structure Demolition or Relocation** – The voluntary acquisition of an existing at-risk structure and the underlying land, and conversion of the land to open space through the demolition or relocation of the structure. The property must be deed-restricted in perpetuity to open space uses to restore and/or conserve the natural floodplain functions.
- **Retrofit Flood-Prone Residential Structures** are changes made to an existing structure to reduce or eliminate the possibility of damage to that structure from flooding, erosion, or other hazards. Examples of this mitigation are primarily elevation of structures above flood levels and floodwalls.
- **Safe Room Construction** - Safe room construction projects are designed to provide immediate life-safety protection for people in public and private structures from tornado and severe wind events. Includes retrofits of existing facilities or new safe room construction projects, and applies to both single and dual-use facilities
- **Minor Localized Flood Reduction Projects** - Projects to lessen the frequency or severity of flooding and decrease predicted flood damages, such as the installation or up-sizing of culverts, and stormwater management activities, such as creating retention and detention basins. These projects must not duplicate the flood prevention activities of other Federal agencies and may not constitute a section of a larger flood control system.
- **Infrastructure Retrofit** - Measures to reduce risk to existing utility systems, roads, and bridges.
- **Soil Stabilization** - Projects to reduce risk to structures or infrastructure from erosion and landslides, including installing geotextiles, stabilizing sod, installing vegetative buffer strips, preserving mature vegetation, decreasing slope angles, and stabilizing with rip rap and other means of slope anchoring. These projects must not duplicate the activities of other Federal agencies. *New tools for Bioengineered Shoreline Stabilization, Bioengineered Streambank Stabilization.*
- **Wildfire Mitigation** - Projects to mitigate at-risk structures and associated loss of life from the threat of future wildfire through: Defensible Space for Wildfire, Application of Ignition-resistant Construction and Hazardous Fuels Reduction. *New tool for Bioengineered Wildfire Mitigation.*
- **HMGP only - 5 Percent Initiative Projects** – These projects, which are only available pursuant to an HMGP disaster, provide an opportunity to fund mitigation actions that are consistent with the goals and objectives of approved mitigation plans and meet all HMGP program requirements, but for which it may be difficult to conduct a standard Benefit-Cost Analysis (BCA) to prove cost-effectiveness.

### How do I apply?

Start by submitting a Notice of Interest, available on HSEMs website at:

<https://dps.mn.gov/divisions/hsem>

### Where can I obtain further information?

For additional information about the HMA grant program, you can refer to the FEMA website:

<http://www.fema.gov/hazard-mitigation-assistance>

# LAKE COUNTY Hazard Mitigation Plan Update 2024

Planning Team Meeting #1  
Presentation & Discussion, 2/8/24



## Welcome & Introductions

U-Spatial@UMD Project Leads



**Stacey Stark**  
Project Manager  
U-Spatial@UMD



**Bonnie Hundrieser**  
HM Planning Specialist  
Hundrieser Consulting LLC

Lake County Project Lead

- Matt Pollman, Lake County  
Emergency Management Director



Please type your name and jurisdiction in CHAT – so others know who is here

PRESENTER: STACEY STARK

## Zoom Logistics

If you haven't yet, please type your Lake and jurisdiction or department in the Chat window

PLEASE REMAIN MUTED AND VIDEO OFF SO EVERYONE CAN HAVE THE BEST EXPERIENCE.

### USE CHAT:



- > Send a message to everyone
- > Send a message to individuals or the presenters
- > Send a message to host to ask for help or ask a question that isn't for the whole group. The host is Stacey Stark

### ASK TO SPEAK:



PRESENTER: STACEY STARK

## Meeting Purpose & Agenda

The purpose of this meeting is to formally convene the **Lake County HMP Planning Team** for a presentation on the plan update and to discuss key items required for the plan update.

### AGENDA

- > Welcome & Introductions
- > Review of HMP Overview (\*handout)
- > Review of Past Hazard Risk Prioritization, Hazard Profiles, and New Priorities
- > Overview of Mitigation Strategies, Actions
- > Overview of FEMA HMA grant program
- > Discuss local mitigation ideas
- > Overview of Next Steps

Throughout the presentation we will cover key discussion questions to gather your input!

PRESENTER: STACEY STARK

# HMP OVERVIEW – KEY POINTS

LAKE COUNTY 2024 HMP UPDATE

## Plan Requirement



The Hazard Mitigation Plan (HMP) is a requirement of the Federal Disaster Mitigation Act of 2000 (DMA 2000).

- > The development of a local government plan is required to maintain eligibility for FEMA HMA grant programs.
- > Plans must be updated every 5 years.
- > Must address all jurisdictions and engage key stakeholders + the public
- > Must be approved by FEMA for meeting all federal requirements.

### Lake County HMP Update 2024

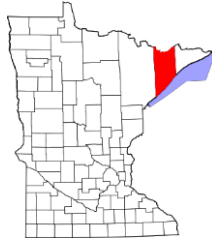
- Last plan was adopted in 2017.
- The updated plan will cover a 5-year window for implementation and grant program eligibility
- Participating jurisdictions must have documented engagement in the planning process and adopt the final plan.

PRESENTER: BONNIE HUNDRIESER

## Who the Plan Covers

This is a **multi-jurisdictional plan** that covers Lake County, including all cities and townships within the county.

*The plan also takes into consideration the needs and concerns of other stakeholders such as schools, watershed districts, and agencies or organizations involved in mitigation or services to vulnerable populations within the county.*



PRESENTER: BONNIE HUNDRIESER

## Who Participates



### Planning Team

The HMP is developed in coordination with county, city, and township government officials and departmental staff and other related key stakeholders.

- Two planning team meetings
- Assistance with public outreach
- Participation in Local Mitigation Survey, Mitigation Action Chart development, and final plan review

### The Public

It is required to provide an opportunity to the public to be aware of and provide input to the HMP plan update process.

- Information is shared via news releases, social media, local bulletin boards, and public events.
- Public outreach must include vulnerable populations or underserved communities within the planning area.

PRESENTER: BONNIE HUNDRIESER

## Discussion Question #1:

Who are the vulnerable populations or underserved communities in Lake County or within your own local jurisdiction?

What are outreach methods to provide these groups an opportunity to participate?

## Plan Content

### What Hazards are Addressed

- The HMP addresses the **natural hazards** that pose risk to the county and its jurisdictions.
- Manmade hazards are not required to be addressed (per the DMA 2000).
- Hazards that are deemed to be of low risk may be omitted from the plan.
- Hazard risk may differ in cities and the county overall.

Flooding	Hail	Drought
Dam/Levee Failure	Lightning	Extreme Heat
Wildfire	Winter Storms	Extreme Cold
Windstorms	Landslides	Earthquakes
Tornadoes	Sinkholes & Karst	Coastal Erosion

Natural hazard categories as per the State Hazard Mitigation Plan

Poll #1

PRESENTER: BONNIE HUNDRIESER

## Plan Content

### Risk Assessment & Vulnerability Analysis

The U-Spatial@UMD Team will work closely with the county and each city to provide information as needed.

- Inventory of critical infrastructure.
- Identify specific, local-level impacts and vulnerabilities.
- Identify any factors (i.e., new development) that may increase the community's vulnerability.
- Review social vulnerability factors.
- Identify if and how risk priorities have changed since the last plan. (Increased / Decreased)



PRESENTER: STACEY STARK

## Timeframe for development & Plan Format

### Timeframe:

The planning process generally occurs over the course of 14-18 months from start to finish.

- The Lake County Plan will be completed in **2024**.

### Format:

- PDF document (paper version)
- Interactive website companion
- Developed and hosted by U-Spatial at UMD



Comments and Questions?

# Hazard Prioritization

REVIEW OF THE HAZARD RISK PRIORITIES FOR LAKE COUNTY

## Lake County 2017 HMP Risk Rankings

Wildfire	High
Blizzard	High
Ice Storm	High
Extreme Heat/Cold	Moderate
Flooding	Moderate
Drought	Moderate
Straight-line Wind	Moderate
Tornado	Low
Dam/Levee Failure	Low
Landslides	Not Addressed

*Has the level of priority for the following natural hazards changed for Lake County?*

*Please consider:*

- Increase or decrease of events (probability)
- Local vulnerabilities (impacts to people, systems, and infrastructure)
- New development and population growth

Poll #2

PRESENTER: STACEY STARK

## Discussion Question #2

What should be recorded as the updated Hazard Prioritizations for the Lake County 2024 HMP?

<https://z.umn.edu/LakeHMP>

PRESENTER: STACEY STARK

Natural Hazards  
Assessment on Website-  
Demo

## LAKE COUNTY HMP UPDATE Review of hazard prioritizations

Hazards	2024 Risk Priority (Low, Moderate, or High)
Flooding	
Windstorms	
Tornadoes	
Hail	
Lightning	
Winter Storms (heavy snow, blizzards, ice storms)	
Extreme Heat	
Extreme Cold	
Drought	
Wildfire	
Coastal Erosion	
Dam/Levee Failure	

## Comments and Questions?

# Mitigation Strategies, Actions & FEMA HMA grants

DEVELOPMENT OF MITIGATION ACTIONS AND ELIGIBLE ACTIVITIES FOR FEMA HAZARD MITIGATION ASSISTANCE GRANT FUNDING

PRESENTER: BONNIE HUNDRIESER

## Overview of Mitigation Actions



Mitigation Action Charts are the end product of the HMP.

- Mitigation actions address hazards of moderate to high priority.
- Mitigation actions are specific.
- Mitigation actions address known vulnerabilities.
- Mitigation actions utilize capabilities to reduce risk.
- Jurisdiction mitigation action charts will be developed for the county and each city. Townships and other related agency mitigation efforts will be integrated where appropriate.

PRESENTER: BONNIE HUNDRIESER

## FEMA HMA Grant Funding



### Eligible Activities:

- All applicants must be covered by an approved HMP
  - Cost share: Federal 75%, Applicant 25%
  - Projects must address risk reduction.
  - Eligible projects must be identified in the plan of action.
- Property Acquisition (flooding/erosion)
  - Tornado Safe Rooms (new/retrofit)
  - Infrastructure Retrofits (utility systems, roads & bridges)
  - Wildfire Mitigation
  - Soil Stabilization
  - Flood Risk Reduction
  - Green Infrastructure
  - Other projects difficult to conduct a standard BCA

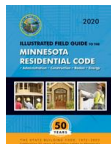
PRESENTER: BONNIE HUNDRIESER

## Local Planning & Regulations



### Examples:

- Enrollment in the NFIP and enforcement of county and local floodplain ordinances.
- Participation in regional One Watershed, One Plan (1W1P) and partnership projects
- Working with mobile home parks to be in compliance with Minnesota State statutes for storm shelters & evacuation plans.
- Permitting for new development and adhering to MN state building codes to reduce impacts of severe weather to structures.



PRESENTER: BONNIE HUNDRIESER

## Structure & Infrastructure Projects

### Examples:

- Installation of new outdoor warning sirens
- Construction of safe rooms / storm shelters
- Burying powerlines to reduce power failure
- Conducting property buyouts for flooding
- Addressing road, bridge, culvert, and drainage ditch improvements to reduce localized flood risks
- Protection of vulnerable critical infrastructure such as lift stations and Fire Halls



PRESENTER: BONNIE HUNDRIESER

## Natural Systems Protection



### Examples:

- Conduct vegetation management along roads to reduce the risk of downed trees and branches resulting from severe storms. (County, Local, Electric Coop)
- Planting Living Snow Fences to reduce snow drifting
- Installing Rain Gardens to reduce impacts of high rain events



PRESENTER: BONNIE HUNDRIESER

## Education & Awareness Programs

### Examples:

- Promoting sign-up for the county's emergency notification system and EM Facebook page.
- Providing presentations and information on preparedness at schools, special facilities, and public events.
- Participation in the NWS Severe Weather Awareness Weeks and SKYWARN Storm Spotter Training
- Outreach to vulnerable populations



PRESENTER: BONNIE HUNDRIESER

## Mitigation Preparedness & Response Support

### Examples:

- Acquire generators for backup power of critical infrastructure and key facilities
- Update of county EOP
- Conduct local and regional shelter planning
- Preparation for extended power outages and evacuation of vulnerable populations.
- Testing of outdoor warning sirens.
- Participate in regional EM planning, training, and exercising



PRESENTER: BONNIE HUNDRIESER

## Discussion Question #3

Do you have any ideas for specific mitigation activities for implementation at the county or local level?

PRESENTER: BONNIE HUNDRIESER



## Following Planning Team Meeting #1

### Development of Local Mitigation Surveys

Representatives from Lake County and each city jurisdiction will participate in filling out Local Mitigation Survey forms. These forms include:

- Local hazard identification & risk prioritization.
- Local vulnerabilities (critical infrastructure, populations or assets)
- Local-level capabilities (programs, polices, staff, funding)
- Identify local mitigation projects.

PRESENTER: BONNIE HUNDRIESER

## Questions?

What questions do you have for U-Spatial@UMD about development of the HMP or next steps?

PRESENTER: STACEY STARK

## Contact Information

---

Stacey Stark, MS, GISP

**U-Spatial@UMD**

[slstark@d.umn.edu](mailto:slstark@d.umn.edu)

218-726-7438

Bonnie Hundrieser, HM Planner

**Hundrieser Consulting LLC**

[hundrieserconsulting@outlook.com](mailto:hundrieserconsulting@outlook.com)

218-343-3468



PRESENTER: STACEY STARK

## Lake County HMP Planning Team Meeting #2 9/11/24 Meeting Summary & Documentation

**Summary:** On Wednesday, September 11, 2024, Lake County Emergency Management convened key county, city, and township representatives, as well as neighboring jurisdictions and other stakeholders to participate in the 2<sup>nd</sup> and final Planning Team Meeting for the update of the Lake County Hazard Mitigation Plan (HMP). The purpose of the meeting was to formally convene the Lake County HMP Planning Team for a presentation on the draft plan and discussion of key items prior to public review and submission of the plan to HSEM and FEMA. The meeting was held via Zoom webinar video conference and was facilitated by Stacey Stark and Bonnie Hundrieser of the U-Spatial@UMD project team.

**Stakeholder Invitations:** Lake County Emergency Management invited all stakeholders included on the county's HMP Update Jurisdictional Contact List (JCL), which includes the key County Contacts, City Contacts, Township Contacts, Other Stakeholder Contacts, and Neighboring Jurisdiction Contacts identified to be invited to participate in the plan update process. Contacts were encouraged to engage additional staff or to send someone in their stead if they could not attend. A copy of the county's Jurisdictional Contact List is provided in *Appendix F Steering Committee Meetings*.

**Meeting Participants:** A total of 17 people attended the meeting. Representation included elected officials and departmental staff from Lake County and the city of Beaver Bay. The cities of Silver Bay and Two Harbors were not available to participate and were not in attendance. Other stakeholders, including neighboring jurisdictions, participated in the meeting. A participant list is provided below:

	Name	Organization	Job Title
1	Matt Pollman	Lake County Emergency Management	Emergency Management Director
2	Ronni Radle	Lake County	Auditor
3	Linda Libal	Lake County	Auditor-Treasurer
4	Tara Solem	Lake SWCD	District Manager & Watershed Planner
5	Jason DiPiazza	Lake County Highway Department	County Engineer
6	Stacy Breden	Crystal Bay Township	Clerk
7	Tracy Gilsvik	Lake County Health & Human Services	Supervisor of Public Health
8	Jenny Ramsdell	Beaver Bay Township	Clerk / Treasurer
9	Tom Gmach	City of Beaver Bay	Mayor
10	Ian Cummings	U-Spatial	GIS Technician
11	Kelvin McCuskey	MN HSEM	HSEM Region 2 Regional Program Coordinator
12	Lynelle Hanson	ARDC	Planning
13	Chris Morris	MnDOT	Assistant Maintenance Engineer
14	Derek Howe	Lake Country Power	Chief Operating Officer
15	Laura Murphy	MN DNR	NE Region Community Firewise Specialist
16	Aaron Mollin-Kling	Lake/Cook County Firewise	Firewise Coordinator
17	Mike Keyport	Cook County	Emergency Management Director

**Presentation Overview:** The PowerPoint presentation covered the following items about the process and content of the plan update. A PDF of the presentation slides is included with this meeting summary.

- Meeting Purpose and Agenda
- About the Project Team
- Overview of Plan Update
- Who the Plan Covers
- Who Needs to Participate
- Overview of the Structure of the HMP (Website and PDF)
- Prioritization of Natural Hazards
- Review of Risk Assessment Factors and Hazard Profiles
- Overview of Mitigation Action Charts and FEMA HMA Grant Funding
- Review of Mitigation Strategies and Actions
- Open Discussion (Comments and Questions)
- Discussion of Next Steps & answer your questions

The opening PowerPoint presentation covered a re-cap of key points about the plan update, a review of the Risk Assessment & Vulnerability Analysis, an overview of FEMA Hazard Mitigation Assistance (HMA) grant funding; an overview of how mitigation actions are developed and an overview of the jurisdictional Mitigation Action Charts (MACs). Following the presentation, participants were provided with an opportunity to review and discuss the county and local mitigation action charts. This discussion period offered a facilitated opportunity for participants to consider any changes or new additions to the MACs prior to completion of the draft plan for public review.

## LAKE COUNTY HMP PLANNING TEAM MEETING #2 DISCUSSION NOTES

- **REGARDING FLOODING:** Stacy Breden, Town Clerk with Crystal Bay Township commented that she is interested in how to seek FEMA Section 404 grant funding to help with flood mitigation on our roads. Is this something we should include in the Lake County mitigation action chart? We also have a problem with getting NFIP insurance because there is no floodplain mapping.

Bonnie Hundrieser asked Stacy to follow up after the meeting to share more information about the flood mitigation projects. Stacey Stark offered information about the status of the MN DNR working to update floodplain maps and said she would get Stacy in touch with a person with the MN DNR Floodplain Program.

- **REGARDING WILDFIRE:** Matt Pollman, Lake County EMD commented that he is currently seeking a potential contractor to update the county's 2017 Community Wildfire Protection Plan.

Bonnie Hundrieser noted she will include information in the MAC on implementing future wildfire mitigation activities as identified in the updated CWPP. This may help with a future application to FEMA for eligible wildfire mitigation activities.

**Meeting Conclusion:** The meeting concluded with an overview and timeline of the upcoming next steps for public review and submission of the draft plan to HSEM and FEMA for final review and approval.

**Attached are the following documentation items for the Lake County HMP Meeting #2:**

- Meeting Invitation to Stakeholders

- PowerPoint Presentation Slides
- Information Handouts

*Meeting Summary Prepared By: Bonnie Hundrieser, U-Spatial@UMD Project Team*

**From:** [Matt Pollmann](#)  
**To:** [Matt Pollmann](#); [Matthew Huddleston](#); [Gregg Swartwoudt](#); [Linda Libal](#); [ChristineM McCarthy](#); [Curt Backen](#); [Nate Eide](#); [Lisa Hanson](#); [Tracy Gilsvik](#); [Jason DiPiazza](#); [Clerk of Board](#); [Amy Lewis](#); [Rick Goutermont](#); [Rick C. Hogenson](#); [Jeremy Hurd](#); [Rich Sve](#); [city\\_beaverbay@lakenet.com](#); [TJGmach85@gmail.com](#); [lanaf@silverbay.com](#); [Cole Ernest](#); [mrowlee@hotmail.com](#); [Patty Nordean](#); [councilorredde@twoharborsmn.gov](#); [markschlengen@hotmail.com](#); [clerk@bbtownship.com](#); [crystalbaytownship@gmail.com](#); [falllake@lakeconnections.net](#); [silvercreek@frontiernet.net](#); [katieanderson@ttosc.org](#); [patthums02@gmail.com](#); [Kelvin.McCuskey@state.mn.us](#); [Tara Solem](#); [Tim Byrns](#); [tyler.ray@usda.gov](#); [duane.hill@state.mn.us](#); [Little, Clinton J \(DNR\)](#); [Laura.murphy@state.mn.us](#); [Matthew.Judd@usda.gov](#); [Michele.heaver@usc.salvationarmy.org](#); [jbelcastro@isd381.org](#); [Owen.fifield@redcross.org](#); [careyh@clpower.com](#); [dhowe@lakecountrypower.com](#); [drbaker@allete.com](#); [pjohnson@twoharborsmn.gov](#); [AAAAInfo@ARDC.org](#); [mbottila@ardc.org](#); [kscanlon@ardc.org](#); [Trisha.Scamehorn](#); [director@nsapartners.org](#); [thafs2015@gmail.com](#); [johnsond@stlouiscountymn.gov](#); [Mike.keyport@co.cook.mn.us](#); [elizabethradke7@gmail.com](#)  
**Cc:** [Bonnie K Hundrieser](#); [Stacey Stark](#)  
**Subject:** Lake County Hazard Mitigation Planning Team Meeting #2 Invitation  
**Date:** Wednesday, August 21, 2024 9:17:39 AM

---

Greetings,

Your presence is requested at the **2nd Planning Team Meeting** for the update of the **Lake County Hazard Mitigation Plan (HMP)**. You are requested to participate in this vital meeting because you have a position of administrative or departmental responsibility within either the county, a municipal government, or are a key stakeholder related to the planning process. Emergency Managers from neighboring jurisdictions are also encouraged to attend so we may strengthen our shared mitigation efforts. This meeting will be the final planning meeting for the HMP update process.

**We will be holding the meeting virtually using Zoom webinar:**

**Date:** Wednesday, September 11, 2024

**Time:** 1:00 p.m. – 2:30 p.m.

**Register:** [Control+Click here to follow to link to register for the meeting](#)

The purpose of this meeting is to provide an overview of the plan and interactive website, including a review of the updated risk assessment for natural hazards that affect the county. We will also discuss the Mitigation Action Charts that will be specific to Lake County and each city, as well as funding opportunities available under the FEMA Hazard Mitigation Assistance grant programs.

Your participation in this meeting and feedback on the draft plan is important to us. The draft Lake County HMP is nearing completion and will be ready for review by planning team members and the public in the coming weeks.

**When you register, you will automatically be placed on an RSVP list.** If you are not able to attend, please consider sending another representative in your stead.

Thank you,

Matt Pollmann  
Emergency Management Director  
Cell: 773-844-6449

# Lake County Hazard Mitigation Plan Update 2024 Planning Team Meeting #2

September 11, 2024



## Welcome & Introductions

U-Spatial@UMD Project Leads



**Stacey Stark**  
Project Manager  
U-Spatial@UMD



**Bonnie Hundrieser**  
HMP Planning Specialist  
Hundrieser Consulting LLC

Lake County Project Lead

- Matt Pollman, Lake County Emergency Management Director



Please type your name and jurisdiction in the CHAT – so others know who is here

PRESENTER: STACEY STARK

## Zoom Logistics

If you haven't yet, please type your Lake and jurisdiction or department in the Chat window

PLEASE REMAIN MUTED AND VIDEO OFF SO EVERYONE CAN HAVE THE BEST EXPERIENCE.

### USE CHAT:

- > Send a message to everyone
- > Send a message to individuals or the presenters
- > Send a message to host to ask for help or ask a question that isn't for the whole group. The host is Stacey Stark

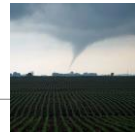


### ASK TO SPEAK:



PRESENTER: STACEY STARK

## Meeting Purpose & Agenda



This meeting formally convenes the **Lake County HMP Planning Team** for a presentation on the draft plan and discussion of key items prior to public review and submission of the plan to HSEM and FEMA.

### Agenda

- > Welcome & Introductions
- > Recap of Key HMP Points
- > Preview of Deliverables
- > Review of Risk Assessment & Vulnerability Analysis in Website
- > Overview of FEMA HMA Funding and Mitigation Action Charts
- > Review & Feedback
- > Next Steps

PRESENTER: STACEY STARK

## Overview of Plan Update

Lake County is updating its **Hazard Mitigation Plan (HMP)** to fulfill a state & federal requirement. The plan must be updated every 5 years. The last plan was adopted in 2017.

The purpose of the plan is to identify & assess natural hazards that pose risk to the county and its jurisdictions and **develop long-term strategies and mitigation actions** that will help to reduce or eliminate the impact of future hazard or disaster events.



**Hazard Mitigation** is any action taken to reduce or eliminate long term risk to people and property from natural disasters.

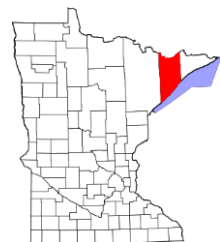
PRESENTER: BONNIE HUNDRIESER

## Who the Plan Covers



This is a **multi-jurisdictional plan** that covers Lake County, including all cities and townships within the county.

*The plan also takes into consideration the needs and concerns of other stakeholders such as schools, watershed districts, and agencies or organizations involved in mitigation or services to vulnerable populations within the county.*



PRESENTER: BONNIE HUNDRIESER

## Stakeholder Involvement



### Planning Team

- County and local government, other agencies & organizations.
- Participation in planning team meetings, public outreach, local mitigation survey, provision of spatial or other data, and review of draft plan.

### The Public

- Opportunity to learn about the plan and provide feedback on local-level concerns, mitigation ideas, and review of draft plan.

PRESENTER: BONNIE HUNDRIESER

## HMP Deliverables

### PDF document:

- Contains FEMA required elements
- Limited figures & Images
- Links to Website integrated
- Summary of Hazard Identification
- Local Mitigation Summary Report
- Plans & Programs in Place
- Past Mitigation Action Review
- Planning Team Meetings
- Public Outreach & Engagement Documentation
- Mitigation Actions by Jurisdiction



### Website companion:

- Links to PDF components and document
- Interactive maps and context
- Simple, concise explanations
- Multiple ways to navigate the content
- Public input form on site

PRESENTER: STACEY STARK

## Prioritization of Hazards for Lake County



Prioritization of hazards by the Lake County planning team included consideration of:

- Probability and Severity of natural hazard events (risk)
- Observed increase or decrease in risk since last plan
- Jurisdictional variations in risk (i.e., local vulnerabilities, changes in development)

Natural Hazards	Current Priority
Winter Storms	High
Windstorms	High
Wildfire	High
Flooding	Moderate
Coastal Erosion	Moderate
Extreme Cold	Moderate
Extreme Heat	Moderate
Drought	Moderate
Lightning	Low
Hailstorms	Low
Tornadoes	Low
Landslides	Low
Dam Failure	Low

PRESENTER: STACEY STARK

## Hazards Risk Assessment

- Validates the prioritization of hazards
- Provides probability and severity of future events as possible
- Identifies vulnerable populations and structures at risk as possible
- Considers variable jurisdictional vulnerability
- Informs Mitigation Actions in the HMP



PRESENTER: STACEY STARK

## Website Demo

[z.umn.edu/LakeHMP](https://z.umn.edu/LakeHMP)

## Comments and Questions?

## Overview of Mitigation Action Charts



Mitigation Action Charts are the end product of the HMP.

They demonstrate a community's 5-year plan to:

- Reduce future risk to natural hazard events.
- Address local vulnerabilities through targeted activities.
- Utilize local capabilities to implement actions.

★ Eligible FEMA Section 404 grant activities must be identified in the plan of action.

PRESENTER: BONNIE HUNDRIESER

## FEMA Mitigation Grant Funding



### Section 406

Available *after* a disaster occurs. Focuses on mitigation measures for facilities that have actually been damaged in a particular disaster.

### Section 404

Requires an approved & adopted HMP. Funds mitigation projects for both damaged and non-damaged facilities. Several different grant programs.

### Example Section 404 activities:

- Property Acquisition
- Tornado Safe Rooms
- Infrastructure Retrofits
- Wildfire Mitigation
- Soil Stabilization
- Flood Risk Reduction
- Green Infrastructure
- Other projects difficult to conduct a standard BCA

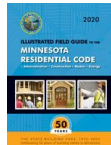
PRESENTER: BONNIE HUNDRIESER

## Local Planning & Regulations



### Lake County Examples:

- Update of the Lake County 2017 Community Wildfire Protection Plan
- Participation in coastal erosion mitigation planning and projects with MLSCP
- Implementation of watering restrictions during periods of extreme drought.
- Work with MN DNR to update flood risk mapping for Lake County and establish an updated floodplain ordinance.



PRESENTER: BONNIE HUNDRIESER

## Structure & Infrastructure Projects

### Lake County Examples:

- Installation of outdoor warning sirens <sup>currently no sirens</sup>
- Construction of tornado safe rooms
- Burying powerlines to reduce power failure
- Conducting property buyouts for flooding
- Stormwater management improvements (culverts, drainage systems, curb & gutter)
- Road and bridge improvements



PRESENTER: BONNIE HUNDRIESER

## Natural Systems Protection



### Lake County Examples:

- Conduct vegetation management along roads to reduce the risk of downed trees and branches resulting from severe storms. (County, Local, Electric Coop)
- Other examples:
  - Planting Living Snow Fences to reduce snow drifting
  - Installing Rain Gardens to reduce impacts of high rain events



PRESENTER: BONNIE HUNDRIESER

## Education & Awareness Programs



### Lake County Examples:

- Promoting sign-up for Everbridge
- Providing information on MN Firewise to residents in high-risk wildfire areas.
- Participation in the NWS Severe Weather Awareness Weeks and SKYWARN Storm Spotter Training
- Encourage homeowners along Lake Superior to monitor & address coastal erosion
- Outreach to vulnerable populations (i.e., working with KTWB, local media)



PRESENTER: BONNIE HUNDRIESER

# Mitigation Preparedness & Response Support

## Lake County Examples:

- Acquire generators for backup power of critical infrastructure and key facilities
- Update of county EOP
- Conduct local and regional shelter planning
- Preparation for extended power outages and evacuation of vulnerable populations.
- Local officials/EM's participate in emergency planning with key agencies for public warning, evacuation for disaster events



PRESENTER: BONNIE HUNDRIESER

# Comments and Questions?



## Fall 2024

### Following Planning Team Mtg. #2

### EM + Local Gov't Review of Draft Plan and Public Review & Comment Period



- EM + Local government review of draft plan
- Public review & comment period (News Release #2)
- Document local postings
- Document public feedback & incorporate as appropriate

PRESENTER: BONNIE HUNDRIESER



## Fall/Winter 2024

### Draft Plan Submission to HSEM & FEMA, Plan Approval, and Collection of Adopting Resolutions

- Draft plan will be submitted first to HSEM and then to FEMA for approval for meeting all Federal requirements.
- Typically requires 1-2 months.
- APA letter
- EM coordination of adopting resolutions from each city.
- Final approval letter

PRESENTER: BONNIE HUNDRIESER

# Questions?

What questions do you have for U-Spatial@UMD about the draft MHMP or next steps ?

PRESENTER: STACEY STARK

# Contact Information

Stacey Stark, MS, GISP  
**U-Spatial@UMD**  
[slstark@d.umn.edu](mailto:slstark@d.umn.edu)  
 218-726-7438

Bonnie Hundrieser, HM Planner  
**Hundrieser Consulting LLC**  
[hundrieserconsulting@outlook.com](mailto:hundrieserconsulting@outlook.com)  
 218-343-3468



PRESENTER: STACEY STARK



State of Minnesota  
Department of Public Safety  
Division of Homeland Security and Emergency Management  
445 Minnesota Street, Suite 223  
St. Paul, MN 55101-6223

## HAZARD MITIGATION ASSISTANCE

Hazard Mitigation Assistance (HMA) grant programs provide funding with the aim to reduce or eliminate risk to property and loss of life from future natural disasters. HMA programs are typically a 75%/25% cost share program. The federal share is 75% of total eligible project reimbursement costs. The local applicant is responsible for 25% of the project costs. The amount of HMGP funds availability is based on a percent of Public Assistance provided by Federal Emergency Management Agency (FEMA).

- Hazard Mitigation Grant Program (HMGP) funds assists in implementing long-term hazard mitigation measures following a Presidential major disaster declaration.
- Pre-Disaster Mitigation (PDM) provides funds for hazard mitigation planning and projects on an annual basis.
- Flood Mitigation Assistance (FMA) provides funds on an annual basis to reduce or eliminate risk of flood damage to buildings that are insured under the National Flood Insurance Program (NFIP).

### Who is eligible for grant funding?

All applicants must have or be covered under an approved Hazard Mitigation Plan. Eligible applicants include: State and local governments; certain private non-profit organizations or institutions; and Tribal Communities

### What types of projects can be funded?

All projects must be eligible, technically feasible, and cost-effective. All projects are subject to environmental and cultural resource review. Examples of projects include:

- **Advance Assistance** may be used to develop mitigation strategies and obtain data, including for environmental and historic preservation compliance considerations, and develop complete project applications in a timely manner.
- **Aquifer Storage and Recovery** (ASR) projects serve primarily as a drought management tool, but can also be used to reduce flood risk and restore aquifers that have been subject to overdraft. The concept is to capture water when there is an abundant supply, store the water in subsurface aquifers, and recover water from the storage aquifer when needed. Storing water underground can help protect it from pollutants, evaporation, and weather events.
- **Floodplain and stream restoration** (FSR) projects are used primarily to reduce flood risk and erosion by providing stable reaches, and may also mitigate drought impacts. FSR projects restore and enhance the floodplain, stream channel and riparian ecosystem's natural function. They provide base flow recharge, water supply augmentation, floodwater storage, terrestrial and aquatic wildlife habitat, and recreation opportunities by restoring the site's soil, hydrology and vegetation conditions that mimic pre-development channel flow and floodplain connectivity.
- **Flood Diversion and Storage** (FDS) projects often are used to reduce flood risk, but also can be used to mitigate drought and improve ecosystem services. These projects involve diverting floodwaters from a stream, river, or other body of water into a conduit such as a canal, pipe, or wetland and storing them in an above-ground storage facility. Water is then slowly released, reducing flood risk.

- **Green Infrastructure Methods** are a sustainable approach to natural landscape preservation and storm water management. Include in *eligible hazard mitigation activities* as well as provide additional ecosystem benefits. Ecosystem-based approach to replicate a site's pre-development, natural hydrologic function. Benefits include: Increase water supply, improved water quality, can be scaled to size and designed to fit site conditions.
- **Property Acquisition and Structure Demolition or Relocation** – The voluntary acquisition of an existing at-risk structure and the underlying land, and conversion of the land to open space through the demolition or relocation of the structure. The property must be deed-restricted in perpetuity to open space uses to restore and/or conserve the natural floodplain functions.
- **Retrofit Flood-Prone Residential Structures** are changes made to an existing structure to reduce or eliminate the possibility of damage to that structure from flooding, erosion, or other hazards. Examples of this mitigation are primarily elevation of structures above flood levels and floodwalls.
- **Safe Room Construction** - Safe room construction projects are designed to provide immediate life-safety protection for people in public and private structures from tornado and severe wind events. Includes retrofits of existing facilities or new safe room construction projects, and applies to both single and dual-use facilities
- **Minor Localized Flood Reduction Projects** - Projects to lessen the frequency or severity of flooding and decrease predicted flood damages, such as the installation or up-sizing of culverts, and stormwater management activities, such as creating retention and detention basins. These projects must not duplicate the flood prevention activities of other Federal agencies and may not constitute a section of a larger flood control system.
- **Infrastructure Retrofit** - Measures to reduce risk to existing utility systems, roads, and bridges.
- **Soil Stabilization** - Projects to reduce risk to structures or infrastructure from erosion and landslides, including installing geotextiles, stabilizing sod, installing vegetative buffer strips, preserving mature vegetation, decreasing slope angles, and stabilizing with rip rap and other means of slope anchoring. These projects must not duplicate the activities of other Federal agencies. *New tools for Bioengineered Shoreline Stabilization, Bioengineered Streambank Stabilization.*
- **Wildfire Mitigation** - Projects to mitigate at-risk structures and associated loss of life from the threat of future wildfire through: Defensible Space for Wildfire, Application of Ignition-resistant Construction and Hazardous Fuels Reduction. *New tool for Bioengineered Wildfire Mitigation.*
- **HMGP only - 5 Percent Initiative Projects** – These projects, which are only available pursuant to an HMGP disaster, provide an opportunity to fund mitigation actions that are consistent with the goals and objectives of approved mitigation plans and meet all HMGP program requirements, but for which it may be difficult to conduct a standard Benefit-Cost Analysis (BCA) to prove cost-effectiveness.

### How do I apply?

Start by submitting a Notice of Interest, available on HSEMs website at:

<https://dps.mn.gov/divisions/hsem>

### Where can I obtain further information?

For additional information about the HMA grant program, you can refer to the FEMA website:

<http://www.fema.gov/hazard-mitigation-assistance>

# Mitigation Strategies & Action Types

Following are the five types of mitigation strategies that will be used in the update of the Multi-Hazard Mitigation Plan with examples of related mitigation actions. Minnesota HSEM recommends the use of these mitigation strategies to be in alignment with the State plan and those recommended by FEMA. The first four strategies listed are taken from the FEMA publications *Local Mitigation Planning Handbook* (2013) and *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* (2013). The fifth strategy type was determined by Minnesota HSEM for use within the state.

These strategies will provide the framework for identification of new jurisdictional-level mitigation actions for implementation over the next 5-year planning cycle.

Mitigation Strategy	Description	Example Mitigation Actions
<b>Local Planning and Regulations</b>	These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.	<ul style="list-style-type: none"> <li>• Comprehensive plans</li> <li>• Land use ordinances</li> <li>• Planning and zoning</li> <li>• Building codes and enforcement</li> <li>• Floodplain ordinances</li> <li>• NFIP Community Rating System</li> <li>• Capital improvement programs</li> <li>• Open space preservation</li> <li>• Shoreline codes</li> <li>• Stormwater management regulations and master plans</li> <li>• Mobile home park compliance for storm shelters</li> </ul>
<b>Structure and Infrastructure Projects</b>	<p>These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure.</p> <p>This type of action also involves projects to construct manmade structures to reduce the impact of hazards.</p>	<ul style="list-style-type: none"> <li>• Property Acquisitions and elevations of structures in flood prone areas</li> <li>• Utility undergrounding</li> <li>• Structural retrofits (i.e., metal roofs)</li> <li>• Floodwalls and retaining walls</li> <li>• Detention and retention structures</li> <li>• Culvert Installation/Modification</li> <li>• Roads &amp; Bridge risk reduction</li> <li>• Safe Room (New construction or facility retrofit)</li> <li>• Green Infrastructure Methods</li> </ul> <p><i>Many of these types of actions are projects eligible for funding through FEMA HMA grant programs.</i></p>

Mitigation Strategy	Description	Example Mitigation Actions
<p><b>Natural Systems Protection</b></p>	<p>These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.</p>	<ul style="list-style-type: none"> <li>• Soil stabilization for sediment and erosion control</li> <li>• Floodplain and Stream corridor restoration</li> <li>• Slope management</li> <li>• Forest management (defensible space, fuels reduction, sprinkler systems)</li> <li>• Conservation easements</li> <li>• Wetland restoration and preservation</li> <li>• Aquifer Storage &amp; Recovery</li> <li>• Flood Diversion and Storage</li> </ul> <p><i>Many of these types of actions are projects eligible for funding through FEMA HMA grant programs.</i></p>
<p><b>Education and Awareness Programs</b></p>	<p>These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady or Firewise Communities. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions that support life safety and lessen property damage.</p>	<ul style="list-style-type: none"> <li>• Radio or television spots</li> <li>• Websites with maps and information</li> <li>• Social media outreach</li> <li>• Promotion of sign-up for emergency warnings</li> <li>• Real estate disclosure</li> <li>• Promotion of NFIP insurance to property owners</li> <li>• Presentations to school groups or neighborhood organizations</li> <li>• Mailings to residents in hazard-prone areas.</li> <li>• NWS StormReady Program</li> <li>• Firewise Communities</li> </ul> <p><i>Some of these types of actions may be projects eligible for funding through the FEMA HMA "5 Percent Initiative Program".</i></p>
<p><b>Mitigation Preparedness and Response Support</b></p>	<p>This is a State of Minnesota mitigation strategy with the intent of covering emergency preparedness actions that protect life and property prior to, during, and immediately after a disaster or hazard event. These activities are typically not considered mitigation, but support reduction of the effects of damaging events.</p>	<ul style="list-style-type: none"> <li>• Emergency Operations Plan</li> <li>• Flood fight plans and preparedness measures</li> <li>• Dam emergency action plans</li> <li>• Emergency Warning Systems (i.e., CodeRed, warning sirens)</li> <li>• Generator backup power</li> <li>• NWS Storm Spotter Training</li> <li>• Training and education for local elected officials and key partners.</li> </ul>

# **Appendix G – Public Outreach & Engagement Documentation**

## **Lake County MHMP News Release #1 Record of Public Input & Incorporation**

**Overview:** On **June 5, 2023**, Lake County Emergency Management put out a news release titled “**Public Input Wanted as County Updates Multi-Hazard Mitigation Plan**” to announce the start of the county’s Hazard Mitigation Plan. The news release provided information on the purpose and content of the plan, who the plan covers, stakeholders involved in the plan update and examples of hazard mitigation activities. Lake County used the news release to gather feedback from residents and businesses from across the county to incorporate into the plan, inviting feedback to the following:

- What are the natural hazards you feel pose the greatest risk to your community?
- What concerns do you have, and what sorts of mitigation actions or projects do you feel would help to reduce the damages of potential future events for your personal property, your community, or the County as a whole?

The public was strongly encouraged contact Lake County Emergency Management to submit comments, concerns, or questions regarding natural disasters and potential mitigation actions to be included into the plan update process. The public was also able to post comments electronically on county or city Facebook sites where the news release was posted.

**Distribution:** The news release was sent via email to the county’s HMP Jurisdictional Contact List, which includes the names, titles, phone numbers, and email addresses of key stakeholders to be engaged in the HMP update, including county, city, and township contacts; other related agency and organizational stakeholder contacts, and neighboring jurisdiction contacts. (A copy of the Jurisdictional Contact List can be found in Appendix F). The news release was additionally sent to local media contacts with a request to carry the news release.

**Postings:** Attached is documentation of the news release postings by Lake County, participating jurisdictions, local media, and other stakeholders. Cities and townships were encouraged to help share the news release locally by posting it on their websites, social media, or community bulletin boards.

### **Public Input & Incorporation:**

Following is a record of public responses to the news release and how their input will be incorporated into the plan update, and if not relevant to be addressed, why.

**No Public Input:** Lake County Emergency Management and local jurisdictions did not receive any public input following News Release #1.

**From:** [Matt Pollmann](#)  
**To:** [Matt Pollmann](#); [Matthew Huddleston](#); [Gregg Swartwoudt](#); [Linda Libal](#); [ChristineM McCarthy](#); [Curt Backen](#); [Nate Eide](#); [Lisa Hanson](#); [Tracy Gilsvik](#); [Jason DiPiazza](#); [Clerk of Board](#); [Amy Lewis](#); [Rick Goutermont](#); [Rick C. Hogenson](#); [Jeremy Hurd](#); [Rich Sve](#); [city\\_beverbay@lakenet.com](#); [TJGmach85@gmail.com](#); [lanaf@silverbay.com](#); [mrowlee@hotmail.com](#); [Patty Nordean](#); [councilorredde@twoharborsmn.gov](#); [markschlangen@hotmail.com](#); [clerk@bbtownship.com](#); [crystalbaytownship@gmail.com](#); [falllake@lakeconnections.net](#); [silvercreek@frontiernet.net](#); [katieanserson@ttosc.org](#); [patthums02@gmail.com](#); [Kelvin.McCuskey@state.mn.us](#); [Tara Solem](#); [Tim Byrns](#); [tyler.ray@usda.gov](#); [duane.hill@state.mn.us](#); [Little, Clinton J \(DNR\)](#); [Michele.heaver@usc.salvationarmy.org](#); [jbelcastro@isd381.org](#); [Owen.fifield@redcross.org](#); [careyh@clpower.com](#); [kplarson@mnpower.com](#); [piohnson@twoharborsmn.gov](#); [AAAAInfo@ARDC.org](#); [Trisha Scamehorn](#); [director@nsapartners.org](#); [thafs2015@gmail.com](#); [johnsond@stlouiscountymn.gov](#); [Mike.keyport@co.cook.mn.us](#)  
**Cc:** [Bonnie K Hundrieser](#)  
**Subject:** Lake County Hazard Mitigation News Release  
**Date:** Monday, June 5, 2023 9:04:47 AM  
**Attachments:** [Hazard Mitigation Plan Press Release.pdf](#)

---

Greetings,

Lake County Emergency Management is commencing work on the update of the Lake County Hazard Mitigation Plan (HMP). Attached is a news release for your information.

**Your assistance is requested to post this news release to help notify the public about the plan update and to have an opportunity to provide feedback.** If you have a website and/or Facebook page we encourage you to post the news release electronically to those places. You may also post a hardcopy of the news release in locations such as City Hall, the Post Office, or other common area. We welcome as many of ways of posting that you can cover. As part of the plan update we must document the public outreach that was conducted. Please send me an email with information on your posting as follows:

- **Websites/Facebook Postings:** Please send me an email detailing the date, location, and link of the posting. We will need to get a screenshot of the posting online.
- **Hardcopy Postings:** Please send me an email detailing the date and location of where the news release was posted (i.e., City Hall bulletin board).

**All city governments within the county are requested to participate in order to meet FEMA requirements.** Townships, businesses, and other agencies or organizations are also strongly encouraged to participate.

If you receive any return public feedback, please notify me so we may document this and incorporate this feedback into the plan update.

The timely return of your posting documentation is appreciated. We will be working to wrap this up before the end of June.

I look forward to your participation in the Lake County HMP update.

If you have any questions, please let me know.

Thank you,

Matt Pollmann  
Lake County Emergency Manager  
773-844-6449

**From:** [Matt Pollmann](#)  
**To:** [Two Harbors Community Radio](#); [northshorejournal@gmail.com](mailto:northshorejournal@gmail.com); [chronicle@jcnewschronicle.com](mailto:chronicle@jcnewschronicle.com); [kmayo@cherryroad.com](mailto:kmayo@cherryroad.com)  
**Cc:** [Bonnie K Hundrieser](#)  
**Subject:** Lake County Hazard Mitigation News Release  
**Date:** Monday, June 5, 2023 9:01:08 AM  
**Attachments:** [Hazard Mitigation Plan Press Release.pdf](#)

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Hello All,

Please see the attached news release. I would appreciate it if you all could carry this online/in print. Thanks!

Matt



**Matt Pollmann, Emergency Manager**  
**Lake County Emergency Management**

Lake County Courthouse  
601 Third Avenue  
Two Harbors, MN 55616  
773-844-6449  
matt.pollmann@co.lake.mn.us

## LAKE COUNTY NEWS RELEASE

June 5, 2023

### **Public Input Wanted as County Updates Hazard Mitigation Plan**

Lake County residents, community leaders, business owners, area agencies and organizations now have an opportunity to share how severe weather events impact their property and lives. There is also an opportunity to share their ideas on how to reduce local impacts in the future.

The Lake County Office of Emergency Management is working with U-Spatial at the University of Minnesota Duluth to update the county's Hazard Mitigation Plan (HMP). The plan assesses the natural hazards that pose risk to the county, such as tornadoes, straight line winds, ice storms, blizzards, wildfire, flooding, and extreme temperatures and identifies ways to minimize the damage of future events. As the county works to update the plan, it wants to hear from the public.

The Lake County HMP is a multi-jurisdictional plan that covers Lake County, including the cities of Beaver Bay, Silver Bay, and Two Harbors. The Lake County HMP also incorporates the concerns and needs of townships, school districts, and area agencies or organizations participating in the plan. The plan will be updated by a planning team made up of representatives from county departments, local municipalities, school districts and other key stakeholders. When completed, the plan will be submitted to the Minnesota Department of Homeland Security and Emergency Management and the Federal Emergency Management Agency (FEMA) for approval.

“Hazard mitigation planning is a central part of our emergency management program,” said Matt Pollmann, Lake County Emergency Management Director. “Understanding the natural hazards that can cause serious impact to our communities and taking action to reduce or eliminate the impact of future disasters makes us more resilient. Hazard mitigation helps us to break the cycle of damage and repair caused by things like flooding, ice storms, and severe wind events that can damage property, stress economies, and threaten life safety in our county.”

Examples of hazard mitigation include:

- Conducting public outreach on severe weather awareness and preparedness
- Limiting or restricting development in floodplain areas
- Removing existing buildings from flood or erosion prone hazard areas
- Using snow fences to limit blowing and drifting of snow over road corridors
- Constructing tornado safe rooms in vulnerable areas such as mobile home parks
- Burying overhead powerlines that may fail due to heavy snow, ice, or windstorms

Some mitigation activities may be eligible for future FEMA Hazard Mitigation Assistance grant funding.

Public input is an essential part of the plan update. As part of the planning process, Lake County is seeking feedback from residents and businesses from across the county to incorporate into the plan:

- What are the natural hazards you feel pose the greatest risk to your community?
- What concerns do you have, and what sorts of actions do you feel would help to reduce damages of future hazard events in your community or the county as a whole?

Comments, concerns, or questions regarding natural disasters and potential mitigation actions to be included into the plan update should be submitted to Lake County Emergency Management by phone, email, or by posting a comment via a social media posting of this article.

There will be additional opportunities for public feedback throughout the planning process. A draft of the plan will be made available for public review prior to submission of the plan to the State of Minnesota. Future news releases will be shared with the media to notify the public of these opportunities.

The Federal Disaster Mitigation Act of 2000 (DMA 2000) requires counties to update their plan every 5 years to maintain eligibility for FEMA's Hazard Mitigation Assistance (HMA) grant programs.

**Contact**

Matt Pollmann

Lake County Emergency Management Director

Phone: (773)-844-6449

Email: [matt.pollmann@co.lake.mn.us](mailto:matt.pollmann@co.lake.mn.us)

**Lake County HMP News Release #1 – June 5, 2023**  
**Chart Documentation of News Release Postings**

<b>Jurisdiction or Agency</b>	<b>Posting Representative</b>	<b>Date &amp; Location of News Release Posting</b>
Lake County	Matt Pollman, Lake County EMD	6/5/23, Lake County website
City of Beaver Bay	Tom Gmach, Mayor	6/12/23, City Hall bulletin board, Post Office public posting area, City website
City of Silver Bay	Lana Fralich, City Administrator	6/14/23, City website
City of Two Harbors	Rick Hogenson, Two Harbors Police Chief	6/5/23, Police Department Facebook page
Fall Lake Township	Cheri DeBeltz, Township Clerk	6/13/23, Town Hall building bulletin board and Township website
KTWH Two Harbors Community Radio	Leo Babeu, Journalist	6/5/23, KTWH website, 6/14/23 online interview and KTWH Facebook page
North Shore Area Partners	Sarah Thomson, Communications Coordinator	6/6/23, NSAP Facebook Page
Arrowhead Area Agency on Aging	Jess Langer Community Outreach Specialist	6/13/23, AAAA Twitter and Facebook page

## **Lake County HMP News Release #2 Record of Public Input & Incorporation**

**Overview:** On October 7, 2024 Lake County Emergency Management put out a news release titled “**Public Comment Sought for County’s Hazard Mitigation Plan**” to announce the completion of the draft Lake County Hazard Mitigation Plan and invitation for public review and comment. The news release informed jurisdictional stakeholders and the public that a copy of the draft plan, interactive website, and comment form for public feedback was available online with a website link. The public review period for the draft plan was open from 10/7/24 – 10/21/24 a total of 15 days.

**Distribution:** The news release was sent via email to the county’s HMP Jurisdictional Contact List, which includes the Lakes, titles, phone numbers, and email addresses of key stakeholders to be engaged in the HMP update, including County Contacts, City Contacts, Township Contacts, Other Stakeholder Contacts, and Neighboring Jurisdiction Contacts. (A copy of the Jurisdictional Contact List can be found in Appendix F). The news release was additionally sent to local media contacts such as area newspapers, radio and television channels with a request to carry the news release.

**Postings:** Attached is documentation of the news release postings by Lake County, participating jurisdictions, and local media. Cities and townships were encouraged to help share the news release locally by posting it on their websites, social media, or community bulletin boards.

### **Public Input & Incorporation:**

Following is a record of public responses to the Lake County news release and how the input will be incorporated into the plan update, and if not relevant to be addressed, why.

- **No public input was received via the online feedback form, directly by Lake County or local jurisdictions.**

**From:** [Matt Pollmann](#)  
**To:** [Matt Pollmann](#); [Matthew Huddleston](#); [Gregg Swartwoudt](#); [Linda Libal](#); [ChristineM McCarthy](#); [Curt Backen](#); [Nate Eide](#); [Lisa Hanson](#); [Tracy Gilsvik](#); [Jason DiPiazza](#); [Clerk of Board](#); [Amy Lewis](#); [Rick Goutermont](#); [Rick C. Hogenson](#); [Jeremy Hurd](#); [Rich Sve](#); [city\\_beverbay@lakenet.com](#); [TJGmach85@gmail.com](#); [lanaf@silverbay.com](#); [Cole Ernest](#); [mrowlee@hotmail.com](#); [Patty Nordean](#); [councilorredde@twoharborsmn.gov](#); [markschlengen@hotmail.com](#); [clerk@bbtownship.com](#); [crystalbaytownship@gmail.com](#); [falllake@lakeconnections.net](#); [silvercreek@frontiernet.net](#); [katieanderson@ttosc.org](#); [patthums02@gmail.com](#); [Kelvin.McCuskey@state.mn.us](#); [Tara Solem](#); [Tim Byrns](#); [tyler.ray@usda.gov](#); [duane.hill@state.mn.us](#); [Little, Clinton J \(DNR\)](#); [Laura.murphy@state.mn.us](#); [Matthew.Judd@usda.gov](#); [Michele.heaver@usc.salvationarmy.org](#); [gkleive@isd381.org](#); [Owen.fifield@redcross.org](#); [careyh@clpower.com](#); [dhowe@lakecountrypower.com](#); [drbaker@allete.com](#); [pjohanson@twoharborsmn.gov](#); [AAAAInfo@ARDC.org](#); [mbottila@ardc.org](#); [kscanlon@ardc.org](#); [Trisha.Scamehorn](#); [director@nsapartners.org](#); [thafs2015@gmail.com](#); [johnsond@stlouiscountymn.gov](#); [Mike.keyport@co.cook.mn.us](#); [elizabethradke7@gmail.com](#)  
**Cc:** [Bonnie K Hundrieser](#); [Stacey Stark](#)  
**Subject:** Lake County News Release-Hazard Mitigation Plan Public Review  
**Date:** Monday, October 7, 2024 11:40:55 AM  
**Attachments:** [Lake County News Release HMP Public Review \(10-7-24\).pdf](#)  
[Lake County News Release HMP Public Review \(10-7-24\).docx](#)

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Good Afternoon,

Attached please find a news release announcing that the **public review and comment period** is now open for the Lake County Hazard Mitigation Plan from **October 7 to October 21** prior to submission of the plan to FEMA.

As a jurisdiction, related agency, or neighboring jurisdiction involved in the Lake County plan update, your assistance is requested to help post the news release and also to review the draft plan.

**Please email me to let me know the date and location(s) of where the news release was posted. Please post the news release promptly to the areas where you share information with the public, such as your website, Facebook page, bulletin boards, or other locations.**

- Lake County and each city within the county are requested to fulfill this request.
- Townships and other agency stakeholders are also encouraged to participate in posting the news release.

In addition, if you have not already reviewed the plan during the government review period, you are strongly encouraged to do so. There are website links as well as a QR code in the news release that will take you to PDF of the plan, interactive website, mitigation action charts. There is also an online feedback form where you are encouraged to provide any comments, questions, or other feedback. **If you review the plan, please let me know.**

**PLEASE RESPOND NO LATER THAN OCTOBER 21<sup>st</sup>.**

If you have any questions or comments, please let me know.

Matt Pollmann  
Emergency Management Director  
Cell: 773-844-6449

**From:** [Matt Pollmann](#)  
**To:** [info@ktwh.org](mailto:info@ktwh.org); [Katya Gordon](#); [kittyomatic@gmail.com](mailto:kittyomatic@gmail.com)  
**Cc:** [Bonnie K Hundrieser](#)  
**Subject:** Lake County News Release  
**Date:** Monday, October 7, 2024 11:51:28 AM  
**Attachments:** [Lake County News Release HMP Public Review \(10-7-24\).pdf](#)

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Hi All,

Would you please post this online and in print? This release is part of our hazard mitigation plan update. Thank you!

Matt Pollmann  
Emergency Management Director  
Cell: 773-844-6449



**Matt Pollmann, Emergency Manager  
Lake County Emergency Management**

Lake County  
Courthouse 601  
Third Avenue  
Two Harbors, MN 55616  
773-844-6449  
matt.pollmann@co.lake.mn.us

## LAKE COUNTY NEWS RELEASE

October 7, 2024

### **Public Comment Sought for Lake County's Hazard Mitigation Plan**

Lake County has completed an updated draft of its Hazard Mitigation Plan (HMP) and is now seeking public feedback. Like all Minnesota counties, Lake County is vulnerable to a variety of natural hazards such as tornadoes, windstorms, severe winter storms, flooding, drought, and extreme temperatures, which can threaten the loss of life and property in the county. Planning for natural disasters minimizes the impact of events that can cause vast economic loss and personal hardship.

All county residents, as well as other interested agency or organizational stakeholders are strongly encouraged to review and offer feedback on the interactive website, PDF of the draft plan, and proposed local mitigation actions. The review and comment period is open for a period of 15 days through October 21, 2024. The public can access the plan using the following hyperlinks:

[Lake County HMP Website](#)

[Mitigation Action Charts](#)

[Public Comment Feedback Form](#)

The Lake County HMP is a multi-jurisdictional plan that covers Lake County, including all cities and townships within the county. The Lake County HMP also incorporates the concerns and needs of other key stakeholders such as school districts and related agencies, organizations, or businesses participating in the planning process.

Update of the plan has been under direction of Lake County Emergency Management in cooperation with U-Spatial at the University of Minnesota Duluth and representatives from county departments, city and township governments and other participating stakeholders. Together, the planning team worked to identify cost-effective and sustainable actions to reduce or eliminate the long-term risk to human life or property from natural hazards. Examples include infrastructure projects for areas that experience repetitive flooding; construction of safe rooms in areas where residents and visitors are vulnerable to tornadoes and severe storm events; burying powerlines that may fail due to heavy snow, ice, or wind storms; ensuring timely emergency communication to the public

through warning sirens and mass notification systems; and conducting outreach to increase public awareness of severe weather and personal preparedness.

Hazard mitigation planning helps Lake County and other jurisdictions protect their residents. Working with local communities through the process helps identify vulnerabilities and develop strategies to reduce or eliminate the effects of a potential hazard. In addition, increasing public awareness of natural disasters and encouraging personal preparedness helps to create a community that is resilient to disaster, and breaks the cycle of response and recovery. Updating the plan further allows Lake County and its jurisdictions to be eligible to apply for future FEMA Hazard Mitigation Assistance grant program funding for projects that help to reduce or eliminate the impacts of future natural hazard events.

Community feedback is vital to the success of the plan. Lake County invites public review and feedback of the draft plan prior to submitting it to the State of Minnesota and the Federal Emergency Management Agency (FEMA) for review. Feedback may be provided via the online comment forms or directly to Lake County Emergency Management.

Contact:

Matt Pollmann

Lake County Emergency Management Director

Phone: (218) 220-6277

Email: [matt.pollmann@co.lake.mn.us](mailto:matt.pollmann@co.lake.mn.us)

**Please scan the following QR code to go directly to the Lake County Hazard Mitigation Plan interactive website:**



**Lake County HMP News Release #2 – 10/7/24**  
**Chart Documentation of News Release Postings**

<b>Jurisdiction or Agency</b>	<b>Posting Representative</b>	<b>Date &amp; Location of News Release Posting</b>
Lake County	Matt Pollman, Lake County EMD	10/07/24 News release posted to the county Facebook page and county website
City of Beaver Bay	Tom Gmach, Mayor	10/07/2024 Post office bulletin board, City Hall, Beaver Bay website
City of Silver Bay	Lana Fralich, Clerk	10/09/24, Mary Mac Building, Inside Town Hall
City of Two Harbors	Leo Babeau	10/7/24, KWTH website and on-air
Lake County Service Center	Lisa Hanson, HHS Director	10/07/24 Service Center bulleting in Two Harbors and Silver Bay
Crystal Bay Township	Stacy Breden, CB Township Clerk	10/09/24 Website/FB page and Finland Cooperative Center and Clair Nelson Community Center
Town of Silver Creek (included Two Harbors)	Alison Oftedahl, Clerk	10/08/24 Silver Creek website, posting board outside of Silver Creek Township building and inside building
Northshore Journal	Kitty Mayo, Editor	10/07/24 Posted in Northshore Journal print and online

# **Appendix H – Mitigation Actions by Jurisdiction**

# CITY OF BEAVER BAY

# Mitigation Action Chart

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
1	All-Hazards	Education & Awareness Programs	Encourage residents to be aware of and prepared for severe weather events, periods of extreme temperatures, and extended power outages.	Existing High 2025-2030	City Admin / City EM	We utilize the Beaver Bay website and post in public places. We will also utilize social media, as it casts a wider net as to who can receive the information. We also share information at public city council meetings. In the future we will work to Participate in the National Weather Service's – Severe Weather Awareness Weeks when Lake County Emergency Management puts out the information.	City Funding
2	All-Hazards	Education & Awareness Programs	Encourage residents in our community to sign up for the county's emergency notification system.	Existing High 2025-2030	City Admin / City EM	The city will work with the Lake County Emergency Manager to get a link to the county's Everbridge emergency notification system on our website. We will also post flyers about this in public locations for those who do not check out website.	City Funding
3	Severe Summer Storms	Structure & Infrastructure Projects	Work with Lake County to explore possible funding to acquire a warning siren.	New Moderate 2025-2030	City Admin / City EM	This is something we will evaluate and coordinate as needed with Lake County Emergency Management. In order to buy a warning siren, significant funding assistance will be needed outside of city funding.	City Funding, Other grants (TBD)
4	Severe Summer Storms	Structure & Infrastructure Projects	Work with the local mobile home park owner to construct a storm shelter or tornado safe room.	New Moderate 2025-2030	City Admin / City EM	The city will work with the MHP operator to work on an evacuation plan and also to assess what sort of storm shelter is suitable for the residents. If the city decides to pursue construction of a tornado safe room, we would look to an opportunity to apply for FEMA grant funding to do so. We would work with Lake County Emergency Management on this effort.	City Funding, Possible FEMA grant funding
5	Extreme Cold	Education & Awareness Programs	Conduct public outreach to residents on how to avoid frozen pipes during periods of extreme cold.	New High 2025-2030	City Admin / Public Works	We will use our city website and utility bills to notify residents to avoid freezing pipes during sub-zero weather.	City Funding

**CITY OF BEAVER BAY**

**Mitigation Action Chart**

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
6	Extreme Cold	Mitigation Preparedness & Response Support	Provide assistance to elderly members of the community who are vulnerable in the event of extreme cold temperatures.	Existing High 2025-2030	City Admin / City EM / Public Works	The Water Superintendent has been called to assist with furnace issues in the winter and frozen pipes for elderly community members.	City Funding
7	Severe Winter & Summer Storms / Extreme Cold	Mitigation Preparedness & Response Support	Work with Lake County and partner agencies to establish a warming center facility and program for those who are homeless and exposed to extreme cold.	New High 2025-2030	City Admin / City EM	The city of Beaver Bay will work with Lake County Emergency Management to be prepared to provide temporary sheltering to those in the community who are vulnerable or displaced as a result of severe storm events or extreme cold temperatures. A long-term goal for the city is to make the Community Center a safe place in times of emergency, power outage for a considerable time, winter to have a place that is warm, or summer when heat is extreme. The city will work to obtain a portable generator that will be necessary in such an event.	
8	Wildfire	Education & Awareness Programs	Promote public awareness of the risk of wildfire when advised by Lake County Emergency Management.	Existing High 2025-2030	City Admin / City EM	When there are periods of high risk for wildfire, the city will share information we receive from Lake County Emergency Management by using our city website. This is primarily a responsibility of the MN DNR, USFS, and Lake County Emergency Management who put out condition alerts to the public on the status of wildfire risk.	City Funding
9	Wildfire	Local Planning & Regulations	Participate in an update of the Lake County Community Wildfire Protection Plan to address areas of wildfire risk that affect our community.	New High 2025-2030	City EM in coord with Fire Dept. and LCEM	The city will plan to participate in wildfire mitigation planning in coordination with Lake County Emergency Management when the county begins an update of the 10-year CWPP.	Lake County Funding

**CITY OF BEAVER BAY**

**Mitigation Action Chart**

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
10	Drought	Local Planning & Regulations / Education & Awareness Programs	Establish and enforce watering use restrictions when in periods of severe drought.	New Moderate 2025-2030	City Admin	The city will establish a water conservation ordinance as per MN DNR guidelines during periods of severe drought. The city will do local outreach to help make residents aware of the ordinance and the limitations on non-essential water usage.	City Funding
11	Coastal Erosion	Local Planning & Regulations	Work with the MN DNR Coastal Program to address planning for any projects that address coastal hazards on city-owned property along Lake Superior.	New Moderate 2025-2030	City Admin / Public Works in coordination with MLSCP	The Minnesota Lake Superior Coastal Program (MN DNR) has project funding to support related projects that address coastal erosion along Lake Superior in the areas of climate change, education & awareness, and nature-based solutions. The city will work with the MN DNR Coastal Program if there are priority projects that are recommended and funding is available. The MLSCP recommends review and update of the city & Lake County shoreland ordinance (i.e. increase setbacks from bluffs and Lake Superior coastline). This ties to the North Shore Management Board and State Shoreland Rules.	MLSCP grant funding
12	Flooding	Local Planning & Regulations	Work with Lake County and MnDOT on local projects that address risk reduction for the impacts of high rain events / flooding.	Existing Moderate 2025-2030	City Admin / Public Works in coord with Lake County / MnDOT	Lake County will utilize local levy funding to supplement and provide grant funding matches for culvert and bridge replacement projects. Other outside grant funding may also be possible to apply for, such as FEMA BRIC grant funding or Coastal Program grants.	City Funding, Levee Funding, MnDOT, Possible FEMA Grant Funding, MLSCP funding

**CITY OF SILVER BAY**

**Mitigation Action Chart**

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
1	All-Hazards	Education & Awareness Programs	Encourage residents to be aware of and prepared for severe weather events, periods of extreme temperatures, and extended power outages.	Existing High 2025-2030	City Admin / City EM	We post information on our city website and Facebook page. We also post information on the community sign at the school. We make announcements at City Council meetings and post flyers on our community bulletin board inside of City Hall.	City Funding
2	All-Hazards	Education & Awareness Programs	Encourage residents in our community to sign up for the county's emergency notification system.	Existing High 2025-2030	City Admin / City EM	The city will work with the Lake County Emergency Manager to get a link to the county's Everbridge emergency notification system on our website. We will also post flyers about this in public locations for those who do not check out website. We can also add information into the city newsletter that is sent out twice per year.	City Funding
3	Severe Winter & Summer Storms	Local Planning & Regulations	Incorporate mitigation strategies across the city's long-term plans and policies for future growth and development.	Existing Moderate 2025-2030	City Admin, City Public Works	In 2023 the city has completed a Stormwater Management Plan. The city is also updating its current City Ordinances. The city has a Building Official and a Zoning Administrator to make sure we meet local zoning and building ordinances along with meeting the North Shore Management Board's requirements along the shoreline.	City Funding
4	Severe Summer Storms	Mitigation Preparedness & Response Support	Work with the county to explore possible funding to acquire a warning siren.	New Moderate 2025-2030	City Admin / City EM	This is something we will evaluate and coordinate as needed with Lake County Emergency Management. In order to buy a warning siren, significant funding assistance will be needed outside of city funding.	City Funding, Other grants (TBD)
5	Extreme Cold	Local Planning & Regulations	Notify residents of the MN Cold Weather Rule to avoid electric, gas or water shut off from Oct 1 – Apr. 30 <sup>th</sup> .	New High 2025-2030	City Admin / Public Works	We send out the Cold Weather Rule annually to residents who use water as their source of heat.	City Funding

**CITY OF SILVER BAY**

**Mitigation Action Chart**

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
6	Extreme Cold	Mitigation Preparedness & Response Support	Acquire a portable generator for our Community Center, which is our designated community mass care shelter.	New High 2025-2030	City Admin / City EM	The city has a plan to use our community center for temporary sheltering in the event of a severe storm or extreme cold temperatures that pose risk to those more vulnerable in the community. We will purchase a backup generator as city or outside funding is available.	City Funding
7	Wildfire	Education & Awareness Programs	Promote public awareness of the risk of wildfire when advised by Lake County Emergency Management.	Existing High 2025-2030	City Admin / City EM	When there are periods of high risk for wildfire, the city will share information we receive from Lake County Emergency Management by using our city website. This is primarily a responsibility of the MN DNR, USFS, and Lake County Emergency Management who put out condition alerts to the public on the status of wildfire risk.	City Funding
8	Wildfire	Local Planning & Regulations	Participate in an update of the Lake County Community Wildfire Protection Plan to address areas of wildfire risk that affect our community.	New High 2025-2030	City EM in coord with Fire Dept. and LCEM	The city will plan to participate in wildfire mitigation planning in coordination with Lake County Emergency Management when the county begins an update of the 10-year CWPP.	Lake County Funding
9	Wildfire	Education & Awareness Programs	Work to increase public awareness of creating defensible space in woodland areas.	Existing High 2025-2030	LCEM in coord with Silver Bay FD	This is an ongoing effort by the city's fire department in promoting Firewise defensible space for homes in woodland areas. Areas of new construction are encouraged to incorporate open space into building plans.	City Funding
10	Wildfire	Mitigation Preparedness & Response Support	Work with our fire department to address the need for water resources outside of the municipal water system.	Existing High 2025-2030	LCEM in coord with Silver Bay FD	The SBFD will work with Lake County Emergency Management as needed to implement any new dry hydrant or cistern projects to increase wildland firefighting water capabilities in targeted areas.	MN DNR Firewise Grant Funding

**CITY OF SILVER BAY**

**Mitigation Action Chart**

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
11	Drought	Local Planning & Regulations / Education & Awareness Programs	Establish and enforce watering use restrictions when in periods of severe drought.	New Moderate 2025-2030	City Admin	The city has implemented odd/even days in the past for watering restrictions. The city will work on establishing a water conservation ordinance as per MN DNR guidelines during periods of severe drought. The city will also work on doing local outreach to help make residents aware of the ordinance and the limitations on non-essential water usage.	City Funding
12	Coastal Erosion	Local Planning & Regulations	Work with the MN DNR Coastal Program to address planning for any projects that address coastal hazards on city-owned property along Lake Superior.	New Moderate 2025-2030	City Admin / Public Works in coordination with MLSCP	The Minnesota Lake Superior Coastal Program (MN DNR) has project funding to support related projects that address coastal erosion along Lake Superior in the areas of climate change, education & awareness, and nature-based solutions. The city will work with the MN DNR Coastal Program if there are priority projects that are recommended and funding is available. The MLSCP recommends review and update of the city & Lake County shoreland ordinance (i.e. increase setbacks from bluffs and Lake Superior coastline). This ties to the North Shore Management Board and State Shoreland Rules. The city of Silver Bay does not own any shoreline property besides the water and wastewater facility.	MLSCP grant funding

**CITY OF SILVER BAY**

**Mitigation Action Chart**

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
13	Flooding	Local Planning & Regulations	Develop and implement policies and projects that support flood risk reduction and stormwater management improvements.	Existing Moderate 2025-2030	City Admin in coord with Public Works	The City of Silver Bay is planning to work with the MN DNR to enroll in the NFIP and establish a floodplain ordinance. The city's Public Works department continues to implement new storm sewer upgrades as construction projects and purchase additional pumps in the event of flooding. We regularly work with the city and county engineer on local flood reduction measures. The city enforces the city's sump pump ordinance to minimize impacts to the city's stormwater system. The city will look for outside grant funding as needed to support flood mitigation planning and projects, such as from FEMA BRIC grant funding, or MN DNR Floodplain Program, or MN DNR Coastal Program grant funding.	City Funding, County Levy Funding, Possible FEMA grant funding, MN DNR Floodplain Program, MLSCP

# CITY OF TWO HARBORS

# Mitigation Action Chart

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
1	All-Hazards	Education & Awareness Programs	Encourage residents to be aware of and prepared for severe weather events, periods of extreme temperatures, and extended power outages.	Existing High 2025-2030	City Admin / City EM	The city uses its website, social media pages and local radio station (KTWH) to communicate important information to our residents and visitors.	City Funding
2	All-Hazards	Education & Awareness Programs	Encourage residents in our community to sign up for the county's emergency notification system.	Existing High 2025-2030	City Admin / City EM	A link to sign up for the system is located on the Lake County Emergency Management website page, and soon to be included on the City of Two Harbors website pages.	City Funding
3	Severe Winter & Summer Storms	Local Planning & Regulations	Incorporate mitigation strategies across the city's long-term plans and policies for future growth and development.	Existing High 2025-2030	City Admin	Many of our plans and policies are aligned with Lake County Emergency Management, and include: Emergency Operations Plan, Mass Sheltering, Wildfire Protection, etc. Strong partnerships and mutual aid agreements are also in place for law enforcement and fire organizations.	City Funding
4	Severe Summer Storms	Mitigation Preparedness & Response Support	Work with the county to explore possible funding to acquire a warning siren.	New Moderate 2025-2030	City Admin / City EM	This is something we will evaluate and coordinate as needed with Lake County Emergency Management. In order to buy a warning siren, significant funding assistance will be needed outside of city funding.	City Funding, Other grants (TBD)
5	Severe Winter & Summer Storms / Extreme Cold	Mitigation Preparedness & Response Support	Be prepared to provide temporary sheltering to those in the public who are vulnerable or displaced as a result of severe storm events or extreme heat/cold temperatures.	Existing High 2025-2030	City Admin / City EM	The City of Two Harbors will work in coordination with Lake County Emergency Management and Lake County Public Health in the event that we have to activate temporary shelter facilities following a severe storm that displaces residents or during an extreme cold period if deemed necessary.	City Funding

**CITY OF TWO HARBORS**

**Mitigation Action Chart**

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
6	Wildfire	Education & Awareness Programs	Promote public awareness of the risk of wildfire when advised by Lake County Emergency Management.	Existing High 2025-2030	City Admin / City EM	When there are periods of high risk for wildfire, the city will share information we receive from Lake County Emergency Management by using our city website. This is primarily a responsibility of the MN DNR, USFS, and Lake County Emergency Management who put out condition alerts to the public on the status of wildfire risk.	City Funding
7	Wildfire	Local Planning & Regulations	Participate in an update of the Lake County Community Wildfire Protection Plan to address areas of wildfire risk that affect our community.	New High 2025-2030	City EM in coord with Fire Dept. and LCEM	The city will plan to participate in wildfire mitigation planning in coordination with Lake County Emergency Management when the county begins an update of the 10-year CWPP.	Lake County Funding
8	Drought	Local Planning & Regulations / Education & Awareness Programs	Establish and enforce watering use restrictions when in periods of severe drought.	New Moderate 2025-2030	City Admin	The city will establish a water conservation ordinance as per MN DNR guidelines during periods of severe drought. The city will do local outreach to help make residents aware of the ordinance and the limitations on non-essential water usage.	City Funding

**CITY OF TWO HARBORS**

**Mitigation Action Chart**

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
9	Coastal Erosion	Local Planning & Regulations	Work with the MN DNR Coastal Program to address planning for any projects that address coastal hazards on city-owned property along Lake Superior.	New Moderate 2025-2030	City Admin / Public Works in coordination with MLSCP	The Minnesota Lake Superior Coastal Program (MN DNR) has project funding to support related projects that address coastal erosion along Lake Superior in the areas of climate change, education & awareness, and nature-based solutions. The city will work with the MN DNR Coastal Program if there are priority projects that are recommended and funding is available. The MLSCP recommends review and update of the city & Lake County shoreland ordinance (i.e. increase setbacks from bluffs and Lake Superior coastline). This ties to the North Shore Management Board and State Shoreland Rules.	MLSCP grant funding
10	Flooding	Local Planning & Regulations	Work with Lake County and MnDOT on local projects that address risk reduction for the impacts of high rain events / flooding.	Existing Moderate 2025-2030	City Admin / Public Works in coord with Lake County / MnDOT	Rivers, creeks, culverts, ditches continue to need attention, maintenance, and replacement to allow proper drainage and prevent erosion/pollution. Our city Public Works department continues to work with the Lake County engineer and MnDOT as needed for stormwater improvements. The city will look for outside grant funding as needed to support flood mitigation planning and projects, such as from FEMA BRIC grant funding, or MN DNR Floodplain Program, or MN DNR Coastal Program grant funding.	City Funding, County Levee Funding, Possible FEMA grant funding, MN DNR Floodplain Program, MLSCP