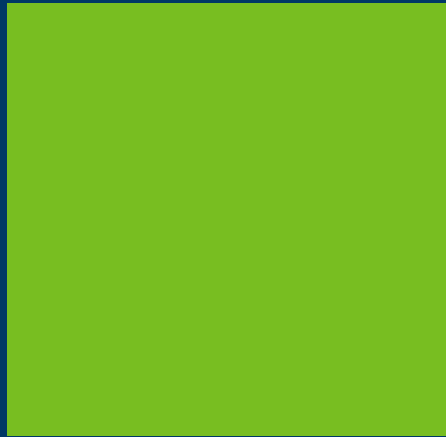


Kanabec County 2024 Hazard Mitigation Plan



KANABEC
COUNTY
Minnesota



Kanabec County Minnesota

2024 Hazard Mitigation Plan

Kanabec County Sheriff's Office
Ashley Meier
Emergency Management Director
18 N Vine St, Suite 143
Mora, MN 55051

320-679-8421

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).

Kanabec County is vulnerable to a variety of 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

Kanabec 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 Kanabec County Emergency Management to facilitate an update to the 2016 Kanabec County HMP. U-Spatial brings extensive geographic data analysis skills and hazard risk assessment expertise to the 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 Kanabec 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 Kanabec County, including the cities of Braham, Grasston, Mora, and Ogilvie. The city of Quamba (population 103) was included in the planning process, but ultimately did not contribute as a plan participant and is not seeking to adopt the plan. The Kanabec 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 Kanabec County after final approval by FEMA (see Appendix B).

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

- Include more recent data documenting the critical infrastructure and hazards faced by Kanabec 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 Kanabec 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 Kanabec County HMP planning team is headed by the Kanabec County emergency manager, who is the primary point of contact. Planning team members include representatives from public and governmental sectors. Table 1 identifies the planning team individuals and the organizations they represent.

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

Table 1. Hazard Mitigation Planning (HMP) Team

Name	Agency/Organization	Participant Title
Ashley Meier	Kanabec County Emergency Management	Emergency Management Director
Kelly Schmitt	Kanabec County Emergency Management	Deputy EM Director
Brian Smith	Kanabec County Sheriff's Office	County Sheriff
Kris McNally	Kanabec County	County Coordinator
Alison Holland	Kanabec County	County Commissioner
Wendy Caswell	Kanabec County	County Commissioner
Tina Von Eschen	Kanabec County	County Assessor
Chad Gramentz	Kanabec County	Public Works Director
Kathy Burski	Kanabec County Community Health	Director
Kate Mestnik	Kanabec County Community Health	Public Health Preparedness Coordinator
Ryan Carda	Kanabec County Environmental Services	Technician
Deanna Pomije	Kanabec Soil & Water Conservation District	District Manager
Tyler Treichel	City of Braham	City Administrator
Nate George	City of Braham	Mayor
Kevin Stahl	City of Braham Police Dept.	Chief of Police / EM Director
Bill Tomczak	City of Grasston	Mayor
Glenn Anderson	City of Mora	City Administrator
Natasha Segelstrom	City of Mora	Administrative Services Director
Mandi Yoder	City of Mora	HR Director
Joseph Kohlgraf	City of Mora	Public Works Director
Heather Heins	City of Ogilvie	City Clerk
Terri Huro	City of Quamba	Mayor
Roger Helmbrecht	City of Quamba	Clerk
Lisa Holcomb	Arthur Township	Supervisor
Ashley Martin	Arthur Township	Clerk
Kayla Hagfors	East Central Energy	Finance & Assets Manager
Pete Leibel	East Central Energy	Safety Administrator
Dan Voce	Mora Public Schools	Superintendent
Kelvin McCuskey	HSEM	Region 2 Regional Program Coordinator

Name	Agency/Organization	Participant Title
Dawn Besemann	Lakes and Pines Community Action Agency Inc.	Outreach Program Manager
Chad Meyer	Isanti County Sheriff's Office	Captain/EM
Andy Beckstrom	Mille Lacs County Sheriff's Office	Emergency Management Director

2.2 Review of Existing Plans, Capabilities & Vulnerabilities

Kanabec 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 Kanabec 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 Kanabec 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 Kanabec 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 Kanabec County to support mitigation.

Local Mitigation Surveys: As part of Kanabec 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 Kanabec County LMS report, see Appendix C).

2.3 Planning Process Timeline and Steps

In order to update the 2016 Kanabec County HMP, U-Spatial consultants worked in coordination with Kanabec County Emergency Management and members of the planning team. The updated plan includes new data documenting the types of hazards faced by Kanabec County residents and emergency planning officials as well as new thinking on how to address these hazards.

2.3.1 Kanabec County Stakeholder Coordination

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

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

To provide opportunity for public input, Kanabec 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 10/28/24 to 11/11/24, for a period of 15 days. Appendix G provides documentation of the public outreach for feedback on the draft plan by Kanabec County and jurisdictions.

Table 2. Kanabec County hazard mitigation update meetings and public outreach

Event	Date	Appendix
Kickoff Webinar	5/3/23	Appendix F, Planning Team Meetings
News Release #1	6/5/23	Appendix G, Public Outreach & Engagement Documentation
Planning Team Meeting #1	1/30/24	Appendix F, Planning Team Meetings
Planning Team Meeting #2	10/10/24	Appendix F, Planning Team Meetings
News Release #2	10/28/24	Appendix G, Public Outreach & Engagement Documentation

At the close of the public outreach period, the U-Spatial consultants worked with the Kanabec County Emergency Manager and members of the planning team 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, Kanabec 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 Kanabec 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 Kanabec 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 Kanabec 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 Kanabec 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. Kanabec 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 Kanabec County HMP update planning process and a reference to supporting documentation.

Table 3. Jurisdictional participation in the 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
Kanabec County (15,881)	X	X	X	X	X	X
City of Braham (1,769)	X	X	X	X	X	X
City of Grasston (148)	X			X	X	X

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
City of Mora (3,638)	X	X	X	X		X
City of Ogilvie (416)	X	X	X	X	X	
City of Quamba (103)*	X	X				
Neighboring Jurisdictions:						
Pine County						
Aitkin County						
Mille Lacs County					X	
Isanti County		X				
Chisago County						

*The City of Quamba is not included in this plan as a participating jurisdiction.

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.

3.1 Natural Hazard Identification

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 the 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 Kanabec County, updated the existing mitigation actions published in the 2016 HMP, and proposed new mitigation actions.

The team examined the hazards identified in the 2016 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 Kanabec County HMP Update (Table 4) was based upon 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 Kanabec County HMP Update

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

3.1.2 FEMA- and Minnesota-Declared Disasters and Assistance

Another historical perspective is derived from FEMA-declared disasters. Between 1957 and July 2024, 11 federal disasters and three emergencies were declared in Kanabec County; see details on the [Kanabec 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). Kanabec County has been included in two 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 which 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 Kanabec County

Project Identifier	Sub-Grantee	Project Type	Project Total	Federal Share
DR-4113-0004-P	Kanabec County	91.1: Local Multihazard Mitigation Plan	\$37,791	\$22,500

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 Kanabec 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 and 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 21st 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 15th, 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 21st 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 common 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 well 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 common 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 suicidal 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 Kanabec County website

3.4 Jurisdictional Change in Risk or Vulnerability Assessment

Jurisdictions in Kanabec 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, Kanabec 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 the development of related local mitigation actions to reduce risk.

Kanabec County

All-Hazards: Generator needed for sheltering at Mora Schools. We also have a large population of senior citizens that do not use cell phones to receive emergency notifications.

Flooding: Multiple homes were affected in the high rain events that impacted the City of Mora that may benefit from buy out programs.

Drought: The county is mostly agriculturally based and with droughts the farms are vulnerable to this due to damage to the crops. This has been evident over the past two summers when farmers have had lower results during harvest and the ripple effects on the livestock portion of the farms. This is a growing concern and a very small number of the farms have any kind of irrigation for their fields.

Extreme Heat: The cities in the county need to designate facilities to serve as cooling centers to keep people cool. The elderly are particularly susceptible to stretches of high heat.

Ice Storms, Blizzards: Much of the electrical service throughout the county consists of overhead power lines and electrical poles. Those overhead lines and power poles are prone to failure in ice storms and blizzards with heavy snowfall and high winds that may bring down trees and branches. In addition, Hwy. 23 and Hwy. 65 cut through the county, and those passing through the county are vulnerable to winter weather with limited first responders and tow trucks. Many people don't travel with adequate supplies in their vehicles.

City of Braham

All-Hazards: We need to obtain 2 generators, one for our City Hall/ Fire Department and 1 for our public works facility. Most of the city's municipal electrical service is provided by overhead power poles making them prone to damage in high wind, winter storms and extreme cold when ice accumulates on the lines. Without power it is hard for the city to provide essential services.

Ice Storms, Blizzards: Much of the city's municipal electrical service consists of overhead power lines and electrical poles. Those overhead lines and power poles are prone to failure in ice storms and blizzards with heavy snowfall and high winds that may bring down trees and branches.

Windstorms, Tornadoes: We have 1 mobile home park within the city that does not have a storm shelter and residents are vulnerable to high wind and tornado events. The city has two school buildings within it, but they were constructed many years ago and due to outdated building standards, these buildings do not provide severe weather safe rooms. We also have a new development in the east end of the city that should have an outdoor warning siren installed. We have experienced power outages from strong wind events that brought down power lines.

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.

Flooding: The city's WWTP is prone to inflow and infiltration from significant rain events. This causes us to bypass the treatment system into a local ditch. MPCA must be notified, and the city must track gallons discharged. This is a high priority area to fix so we can guarantee 24/7/365 service for the WWTP. The city can be fined if we need to discharge in this manner because it violates our treatment permit. Remediation would include repairing main sanitary sewer lines by either slip lining or replacement.

City of Grasston

No local vulnerabilities to report.

City of Mora

Flooding: We are prone to localized flooding due to infrastructure that is not designed for the current weather anomalies. These areas are residential areas that are affecting homes and water levels around them. This has caused local damages to houses and storm sewer line/structure failures.

Windstorms: Infrastructure was and has been hit hard during higher-than-normal wind events in combination with rain events. Tree trimming has been utilized but we would like to see more overhead power lines be put underground to save money on maintenance items and reduce the risk of wind related power outages and major repairs. Emergency staffing has been a relatable issue with the surrounding contractor. More mutual aid determination is needed to help resolve shortages.

Winter Storms: Community has a high number of older residents that are in a limited income households and are not able to get the help needed during major snow events. This would be transportation assistance, overall assistance in maintenance duties required during storms. Heat and energy concerns are also a notable item for fixed income members.

Windstorms, Extreme Cold: There are 2 mobile home parks in the community with only one shelter, as the other is a shelter in place. Updating these shelters should be a priority for the parks but has not made it to a place that this action could be acted on. Weatherization in these areas is a concern with no actions taken for water and sewer line freeze-up. Community help/action is needed in these areas to help citizens out during the 3 coldest months

City of Ogilvie

No local vulnerabilities to report.

City of Quamba

No local vulnerabilities to report.

3.4.2 Future Development

Because Kanabec 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. Kanabec 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 Kanabec 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.

Kanabec County

Climate change (drought/extreme heat) is a concern with lack of precipitation, private wells and groundwater sustainability for rural residents that do not have access to public services.

City of Braham

No vulnerabilities noted related to natural hazards. However, the railroad is going to be adding another set of tracks for the highspeed rail project through town. This will add potentially vulnerable infrastructure within our city. There is a plan to place tall fencing along both sides of the railway to minimize access to these operations.

City of Grasston

We do not have an outdoor warning siren anymore. We had gotten weather radios for residents to help to support them getting emergency notifications for severe wind or tornado events.

City of Mora

We have had some newer developments and a new school that has significantly contributed to localized flooding. The SWIP's were done, and they showed no issues, but see an increased flooding rate in the northwest part of town. This is a drainage pond that was sized correctly to drain a specific area. Forcing water to the ditches at an increased speed has hurt the retention time and the availability of saturation. There are areas now that are low and unable to drain efficiency due to the weather events.

City of Ogilvie

There has not been much new construction within the city limits, but there are several properties that could increase vulnerability. There is Tower View Mobile home park, a senior apartment complex, as well as two other apartment facilities. Tower View does provide a tornado shelter for their residents.

City of Quamba

No increase 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 Kanabec 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 Kanabec 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 Kanabec 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. Five of the 13 federal disaster declarations in Kanabec County included flooding.

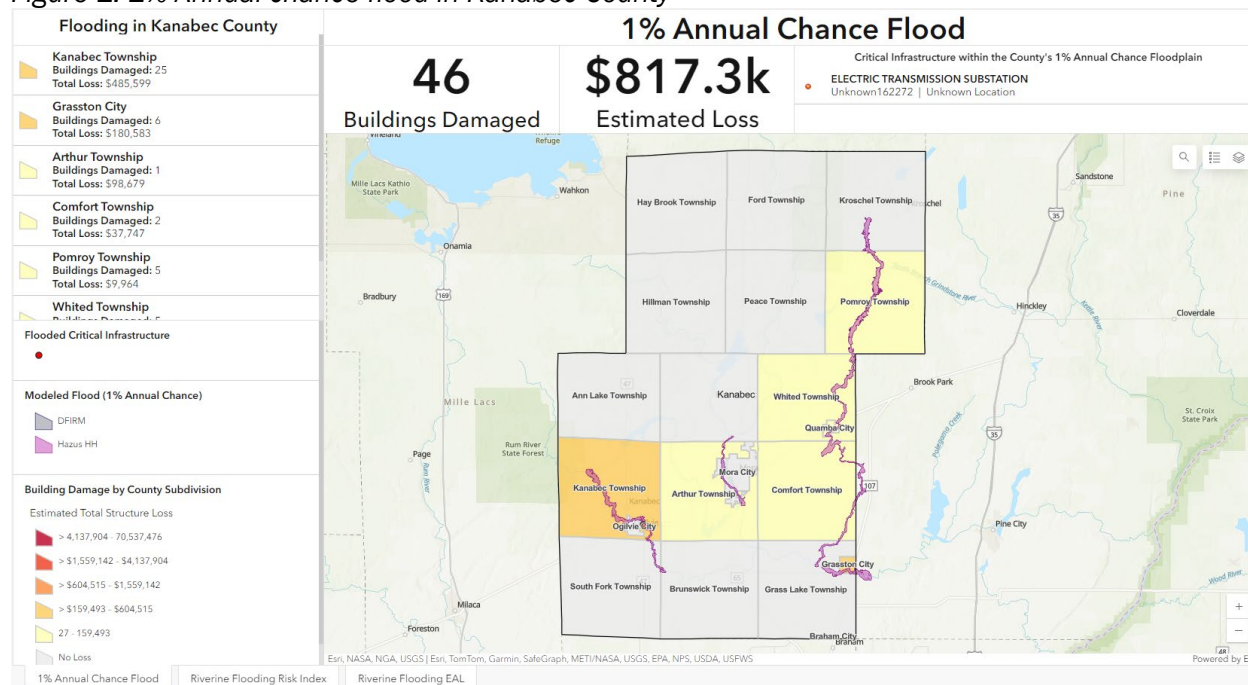
4.1.1 Probability of Occurrence

From 1997 through February 2024, the NCEI Storm Events Database has recorded five flood and six flash flood events. Kanabec County has experienced one flash flood event every 3.8 years and one riverine flood event every 4.5 years on average during this period.

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

Minnesota HSEM has encouraged a potential risk and economic loss analysis for a 1% annual chance flood using the FEMA tool, Hazus for ArcGIS. Digital Flood Insurance Rate Maps (DFIRM) were not available to define the 1% annual chance flood boundary. A Hydrologic and Hydraulic (H&H) model was run in Hazus to generate a depth grid with a 10-meter horizontal resolution. The resulting Hazus 1% annual chance floodplain is shown in the Flood Vulnerability dashboard on the Kanabec County HMP website (Figure 1), where it is available in an interactive form.

Figure 1. 1% Annual chance flood in Kanabec County



4.1.2 Vulnerability

Potential economic loss estimates were based on county-specific building data. Kanabec County provided parcel tax and spatial databases that included building valuations, 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.

View at-risk populations in Kanabec County

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, 25,543 points were input to Hazus to represent buildings with a total estimated building plus contents value of \$2.7 billion. Approximately 74% of the buildings (and 65% of the building value) are associated with residential housing.

The estimated loss by occupancy class for the entire county 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	18,859	\$1,747,125,986	63	\$6,436,050	36	\$648,594
Commercial	553	\$198,061,640	0	\$0	0	\$0
Other	6,131	\$733,690,352	33	\$4,300,900	10	\$168,733
Totals	25,543	\$2,678,877,978	96	\$10,736,950	46	\$817,327

SOURCE: (FEMA, 2023A)

The distinction between building attributes within a parcel was not known, so the maximum percent damage to a building in that parcel was used to calculate loss estimates for the entire parcel. The sum of all the losses in each census block were aggregated to visualize the loss (see [flood risk map on the HMP website](#)). Please note: It is possible for a building location to report no loss even if it is in the flood boundary. For example, if the water depth is minimal relative to 1st-floor height, there may be 0% damage.

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 on the [HMP website](#) and verified by Kanabec County.

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 Kanabec County's essential facilities included in the Hazus flood analysis are located within the 1% annual chance floodplain.

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. In Kanabec County, one electric substation was found to be at risk in the 1% annual chance flood.

Community Vulnerability

Potential economic losses were estimated by Census Minor Civil Division. Kanabec would potentially suffer the most significant estimated losses in the 1% annual chance flood, with 25 structures in the flooded area. All jurisdictions with buildings identified in the 1% annual chance flood zone can also be viewed on the Kanabec County HMP website.

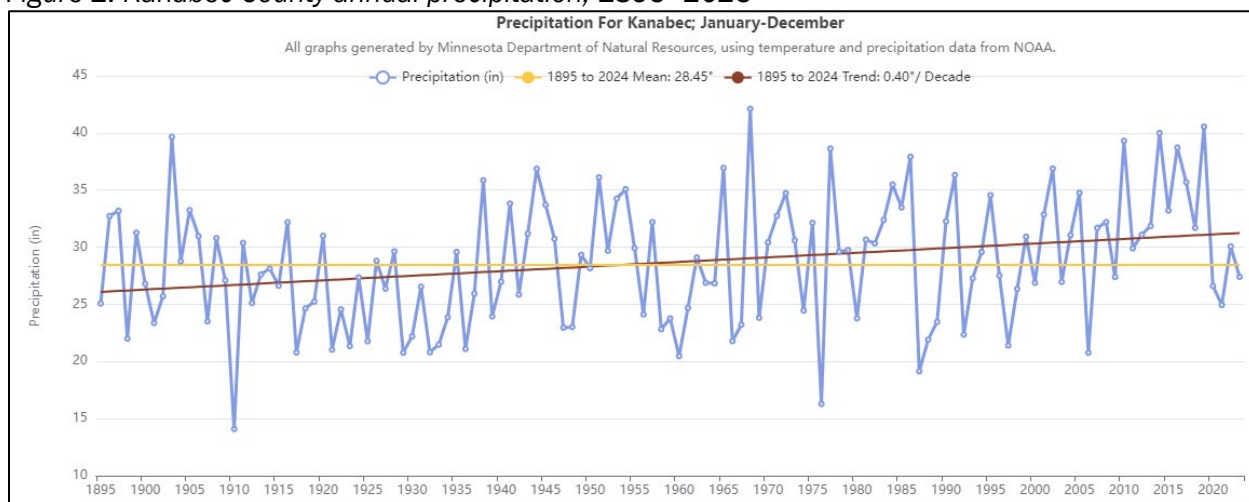
The status of jurisdictional participation in the National Flood Insurance Program and any repetitive loss properties are detailed in Section 5.1.1. National Flood Insurance Program (NFIP).

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 Kanabec County, the result has been increased precipitation, with annual totals increasing at an average rate of 0.40 inch per decade statewide since 1895 (see Figure 2).

Figure 2. Kanabec County annual precipitation, 1895–2023



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, 2024).

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

Kanabec County Emergency Management identified 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:

Outdated Floodplain Maps: The current effective floodplain maps for Kanabec County are dated 11/01/1978. The maps need to be updated to support our planning for floodplain management.

Road Infrastructure: Flood mitigation for county and township roads (e.g., culvert replacements, road repair) is an ongoing need. The county and many of our townships have limited funding for road

infrastructure. Kanabec County continues to provide assistance on 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.

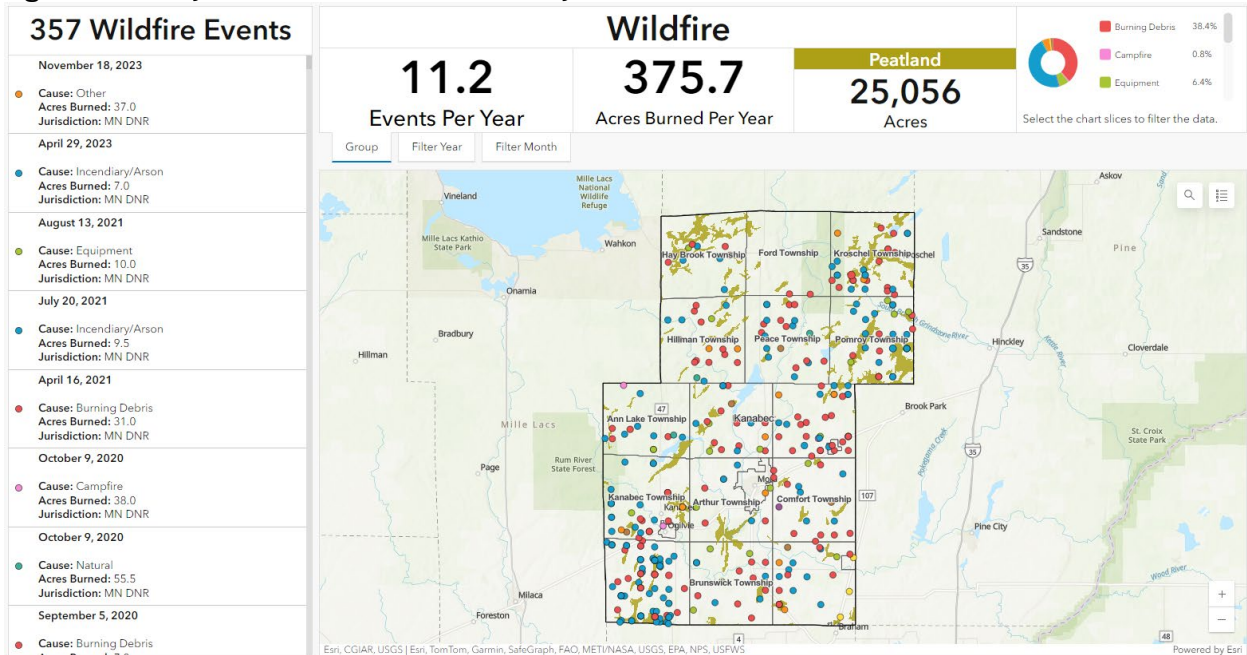
Property Buyouts: There have been residential properties in the county that continue to flood in rain events that would benefit from mitigation buy-out programs in instances that flood insurance is cost prohibitive and homeowners are financially unable to recover from reoccurring flooding.

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 Kanabec County is shown in Figure 2; an interactive map is available on the Kanabec County HMP website.

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

Figure 3. History of wildfire in Kanabec County



4.2.1 Probability of Occurrence

To determine the probability of future wildfires Kanabec 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 June 10, 2021, the relative frequency of wildfire events in the county is 11.2 per year (MN DNR, 2023b). This relative frequency can be used to infer the probability of these events occurring in the future.

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

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

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

	Total WUI 2000	Total WUI 2010	Total WUI 2020	% Change (2000–2020)
Land Area	4.5	5.6	6.6	+46.7%
Housing	22.2	23.1	23.3	+4.9%

SOURCE: (RADELOFF ET AL., 2023)

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

Township / City	Percent WUI
Whited	19.9
Peace	19.6
Grasston	11.9
Kroschel	11.5
Ann Lake	10.1

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

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

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

Community Wildfire Protection Plan: Kanabec County does not have a CWPP in place. Developing a CWPP in coordination with local fire departments and the MN DNR will allow Kanabec County to identify areas of high wildfire risk, targeted wildfire mitigation activities, and allow for greater access to more funding for any follow up projects identified.

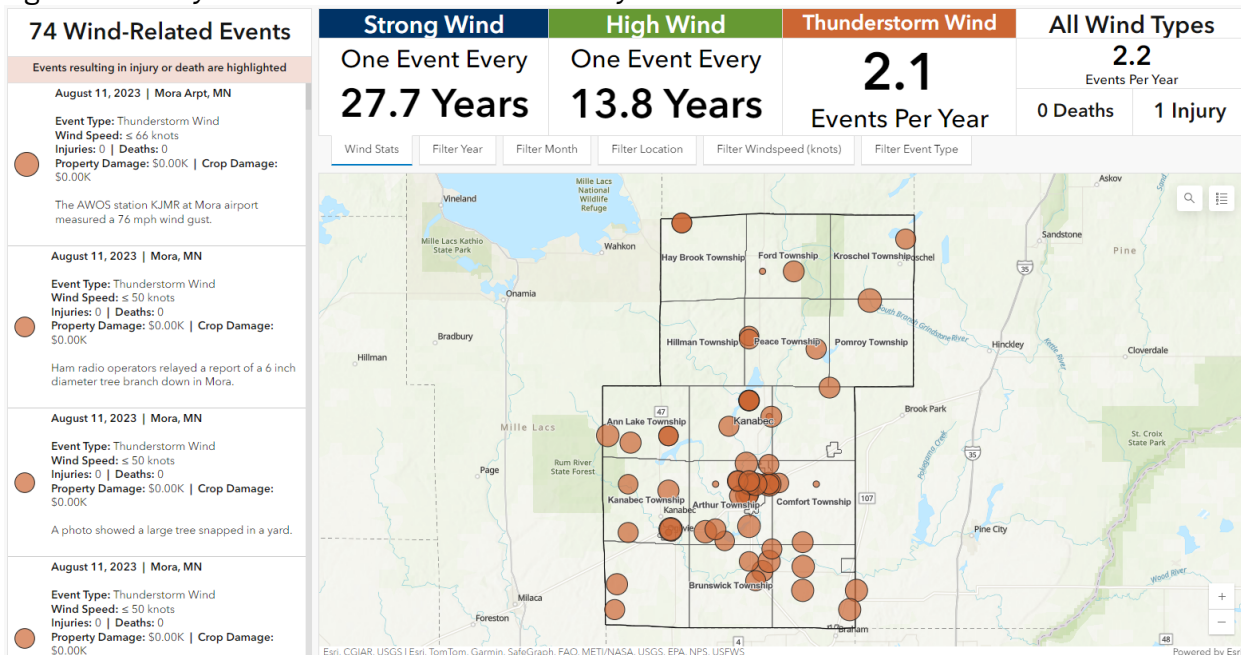
Wildland Fuels Mitigation and Water Resources: Wildfire is an increasing concern with continued expansion of the wildland-urban interface. Kanabec County can seek to work in greater coordination with MN DNR Forestry and local jurisdictions to address wildland fuels mitigation in wildland-urban interface areas within the county. Local fire departments may also need to assess needs for rural water supplies such as cisterns.

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 Kanabec County is shown in Figure 4; an interactive version of this map can be found on the Kanabec County HMP website.

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

Figure 4. History of windstorms in Kanabec County



4.3.1 Probability of Occurrence

To determine the probability of future wind-related events in Kanabec County, records of previous wind-related events (strong wind, high wind, and thunderstorm wind) in Kanabec 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 2.2 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

Kanabec 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:

Above-Ground Power Lines: Most powerlines throughout Kanabec 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. Kanabec 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 Kanabec 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.

Skywarn Program: Kanabec County Emergency Management used to participate in the National Weather Services's SkyWarn program but has not done so regularly.

4.4 Tornadoes

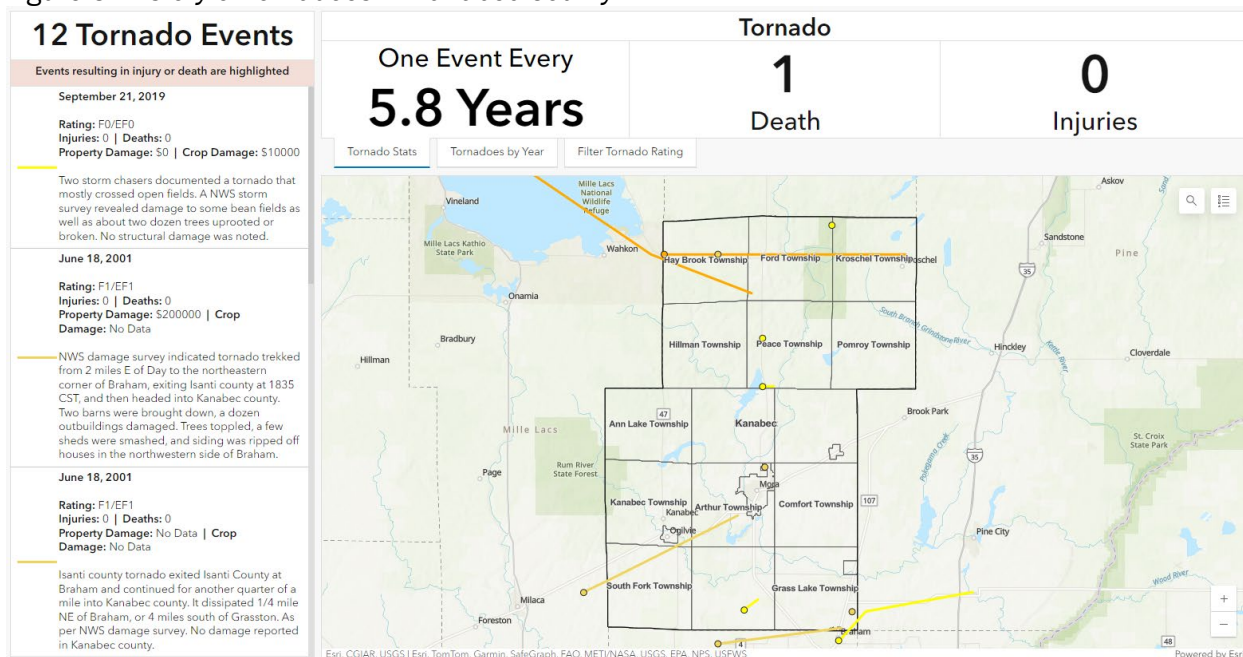
With wind speeds reaching up to 300 mph, tornadoes are one of nature's most violent storms (Hogeback, 2020). The history of tornadoes in Kanabec County is shown in Figure 5; an interactive version of this map can be found on the Kanabec County HMP website.

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

4.4.1 Probability of Occurrence

Estimating the probability of future tornadoes in Kanabec County was done using two methods. The first method summed the total number of tornadoes which either touched down in or traveled through the county. This sum was divided by the number of years tornado data was recorded, resulting in the annual relative frequency of tornado occurrences in the county. Based on records in the NCEI Storm Events Database through January 2024, there has been one tornado every 5.8 years in Kanabec County. These 25 tornadic events occurred in 10 of the 72 years on record.

Figure 5. History of tornadoes in Kanabec County



Because tornadoes often cross county lines and tornadic frequency may be better understood using events from a larger area, a second method was used to describe the frequency of tornadic events within a 50-mile radius of any location within the county. A grid of 900 square-meter cells was used to cover Minnesota and 50 miles beyond its border. From the center of each cell, the number of tornadoes that intersected a 50-mile radius was counted. Each cell was assigned a total tornado line count, which was then divided by the tornado dataset’s period of record, resulting in the annual relative frequency of tornadoes occurring within 50 miles of the respective cell.

For any location in Kanabec County, there was an annual frequency of 1–3 tornadoes within a 50-mile radius. The historical frequency was only slightly higher in the southwest than the northeast. These relative frequencies can be used to infer the probability of these events occurring in the future.

4.4.2 Vulnerability

The likelihood of a tornado does not vary significantly across geography within Kanabec County; however, certain populations may be more vulnerable and less resilient to the impacts of a tornado. In general, tornado casualties decrease when people receive adequate warnings with sufficient time to seek shelter in a reinforced structure. Because communication is critical before a tornadic event, certain residents may be more negatively impacted by a tornado, including those living in rural areas, individuals with limited mobility, people who do not live near an outdoor warning siren, or those who do not use social media. Section 3.4 provides jurisdictional responses of localized vulnerabilities to specific hazards.

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

People living in mobile homes are particularly vulnerable to tornadoes due to them not being able to withstand the strong winds produced by a tornado. An analysis by the Associated Press of NOAA storm data found that since 1996, 53% of tornado fatalities in the United States were people who remained within or attempted to flee from mobile homes (Borestein et al., 2023). While Minnesota law requires most mobile home parks to have storm shelters, many do not (Raiche, 2022).

4.4.3 Tornadoes and Climate Change

Minnesota's climate is undergoing distinct changes, but as reported by the MN DNR State Climatology Office, these changes are only weakly connected to increases in tornadoes or severe convective storms. Minnesota, like all parts of the U.S., has seen increases in the weakest class of tornadoes (rated F-0 or EF-0), but these increases are known to be linked to improved spotting, detection, and verification procedures within the National Weather Service.

When examining tornadoes that cause significant structural damage and are rated EF-2 or above, Minnesota has seen no recent trends towards increasing frequencies—whether measured as raw counts, or as days with one or more of these tornadoes (MN DNR, 2019).

The tornado trends in Minnesota match those found nationally. NCA5 states that while the average annual number of tornadoes appears to have remained relatively constant, there is evidence that tornado outbreaks have become more frequent, tornado seasons are extending into later in the fall, and that tornado strength has increased (Marvel et al., 2023). An October 10, 2021 tornado in the Boundary Waters Canoe Area Wilderness became the latest on record so far north in the state. Then, on December 15, 2021, 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 (Blumenfeld, K. Minnesota State Climatology Office, personal communication, December 21, 2023).

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

However, climate scientists are unclear about whether the recent statistical behavior of these severe convective storm events has any relationship with the changing climate. This uncertainty results from the fact that tornadoes and their parent thunderstorms operate on smaller scales and more localized processes than the global climate. There has been some indication that, on a national basis, tornadoes are being clustered into fewer days, suggesting a greater tendency towards outbreaks. Scientific modelling studies indicate that the meteorological conditions supportive of severe thunderstorms should increase in the future, but it is unclear whether the specific conditions required for the formation of tornadoes, and particularly significant tornadoes, will increase (Kossin, 2017). Until more studies are completed, the Minnesota State Climatology Office recommends assuming that tornadoes will remain an important and dangerous part of Minnesota's climate, even if they do not increase in frequency or severity in response to changing climatic conditions.

4.4.4 Program Gaps and Deficiencies

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

Above-Ground Power Lines: Most powerlines throughout Kanabec 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. Kanabec 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 Kanabec 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.

Skywarn Program: Kanabec County Emergency Management used to participate in the National Weather Services's SkyWarn program but has not done so regularly.

4.5 Winter Storms

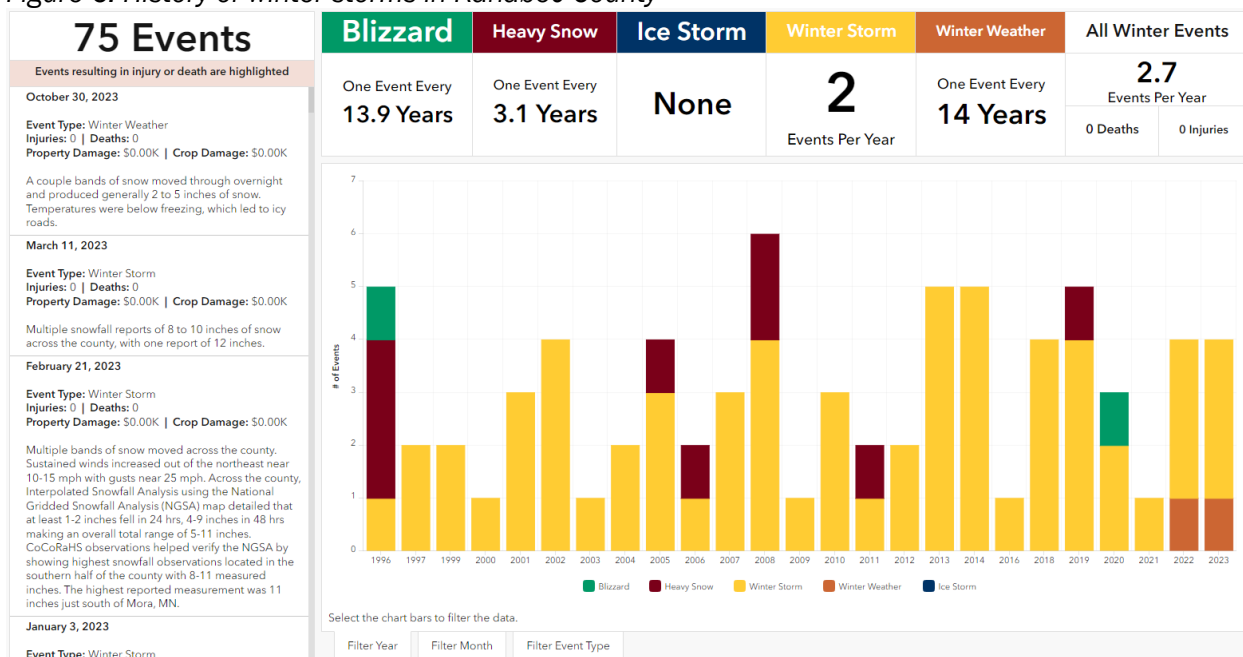
Winter storms encompass a number of winter weather events which the National Weather Service (NWS) organizes into the following categories: blizzard, heavy snow, ice storm, winter storm, and winter weather. Winter weather events are common in Minnesota and can be costly. According to the Spatial Hazard 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 Kanabec County is shown in Figure 6; an interactive version of this map can be found on the Kanabec County HMP website.

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

4.5.1 Probability of Occurrence

To determine the probability of future winter-related storm events in Kanabec 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 Kanabec County is 2.7 per year. This relative frequency can infer the probability of these events occurring in the future.

Figure 6. History of winter storms in Kanabec County



4.5.2 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.

4.5.3 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.

4.5.4 Program Gaps and Deficiencies

Kanabec 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 Kanabec 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.

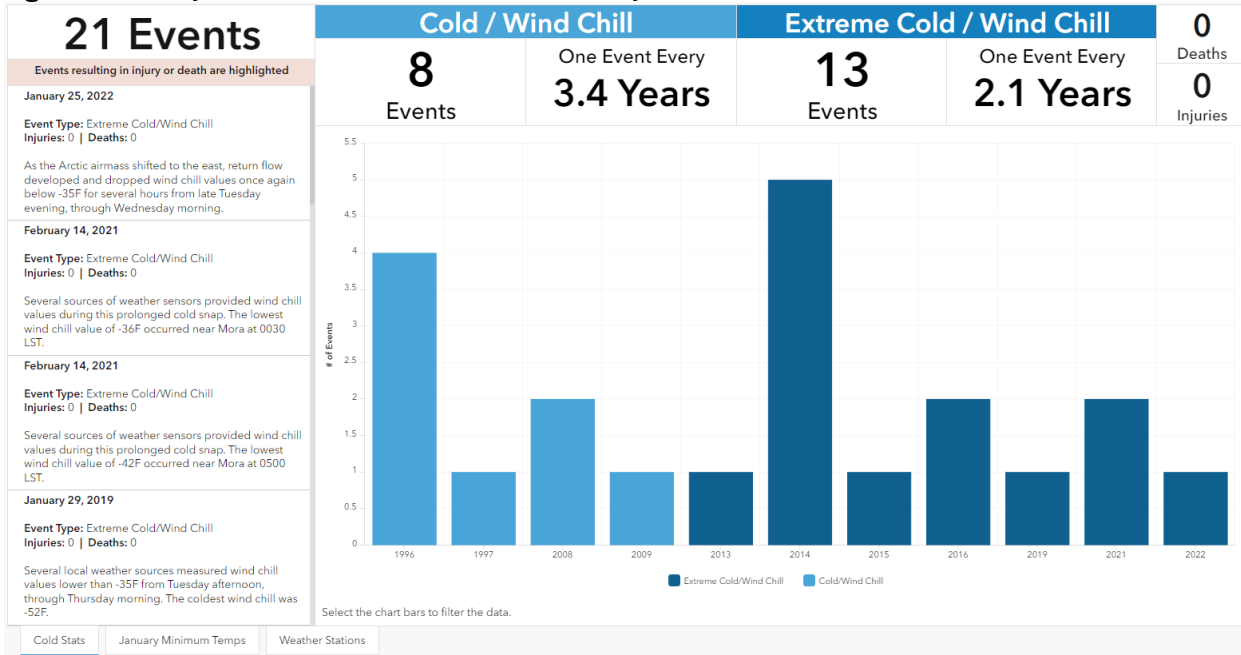
Backup Power: Not all designated shelter facilities have generator back-up power to provide the ability to care for residents if displaced during a severe winter event coupled with an extended power outage or propane shortage.

4.6 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 Kanabec County can be especially dangerous when low temperatures and wind create arctic-like wind chills. The history of extreme cold in Kanabec County is shown in Figure 7; an interactive version of this dashboard can be found on the Kanabec County HMP website.

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

Figure 7. History of extreme cold in Kanabec County



4.6.1 Probability of Occurrence

To determine the probability of future cold-related events in Kanabec 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 Kanabec County is 2.1 per year. (NCEI, 2023). This relative frequency can be used to infer the probability of these events occurring in the future.

4.6.2 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 Kanabec 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 to localized vulnerabilities to extreme cold.

4.6.3 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.

4.6.4 Program Gaps and Deficiencies

Kanabec 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. Kanabec County Emergency Management continues to do public education through the local schools, senior and health care centers, and local government for severe weather awareness.

4.7 Extreme Heat

Extreme heat is the combination of very high temperatures and exceptionally humid conditions. Kanabec 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, 2021c). Heat stress can be indexed by combining the effects of temperature and humidity. The history of extreme heat in Kanabec County is shown in Figure 8; an interactive version of this chart can be found on the Kanabec County HMP website.

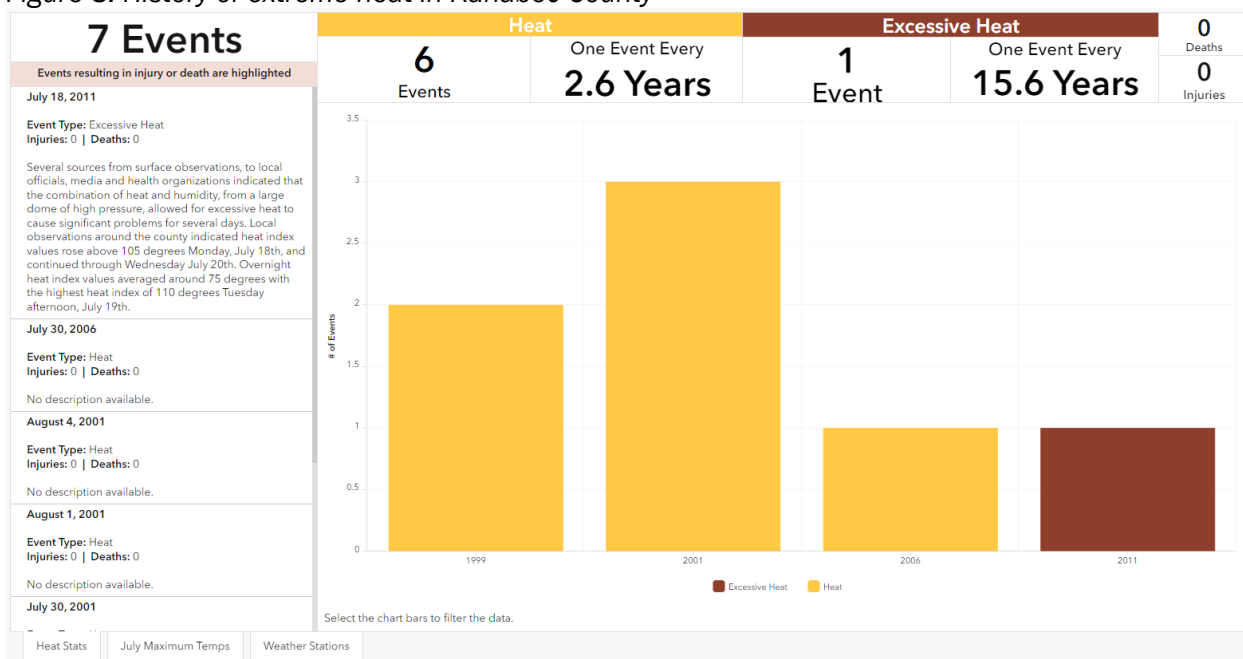
[View interactive maps and see information about extreme cold history, risk, and vulnerability](#)

Data from the Spatial Hazard Events and Losses Database (SHELDUS) for the United States was examined to identify the county's monetary losses due to heat damage to crops. Ranking 81st among Minnesota counties in crop indemnity payments, heat-related losses for Kanabec County totaled over \$48,099.79 (2021 ADJ) for the period of record spanning 1989 to 2022 (CEMHS, 2023).

4.7.1 Probability of Occurrence

To determine the probability of future heat-related events in Kanabec County records of previous heat and excessive heat events were summed and divided by the dataset's period of record, resulting in the annual relative frequency of heat-related events. Based on records in the NCEI Storm Events Database through January 2024, the relative frequency of extreme heat events in the county is one event every 15.6 years. This relative frequency can be used to infer the probability of these events occurring in the future. The Mora Weather Station in Kanabec County reported daily maximum temperatures above 90 °F a total of 170 times, which is an average of 5 days per year.

Figure 8. History of extreme heat in Kanabec County



4.7.2 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 not to 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 Kanabec County

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

4.7.3 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 21st 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, Kanabec County may reach 10.76 days/year of temperature greater than 95 °F compared to the historical (1995–2014) simulations average of 3.88 days/year, an increase of 6.88 more days/year (Lies, 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).

4.7.4 Program Gaps and Deficiencies

Kanabec 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:

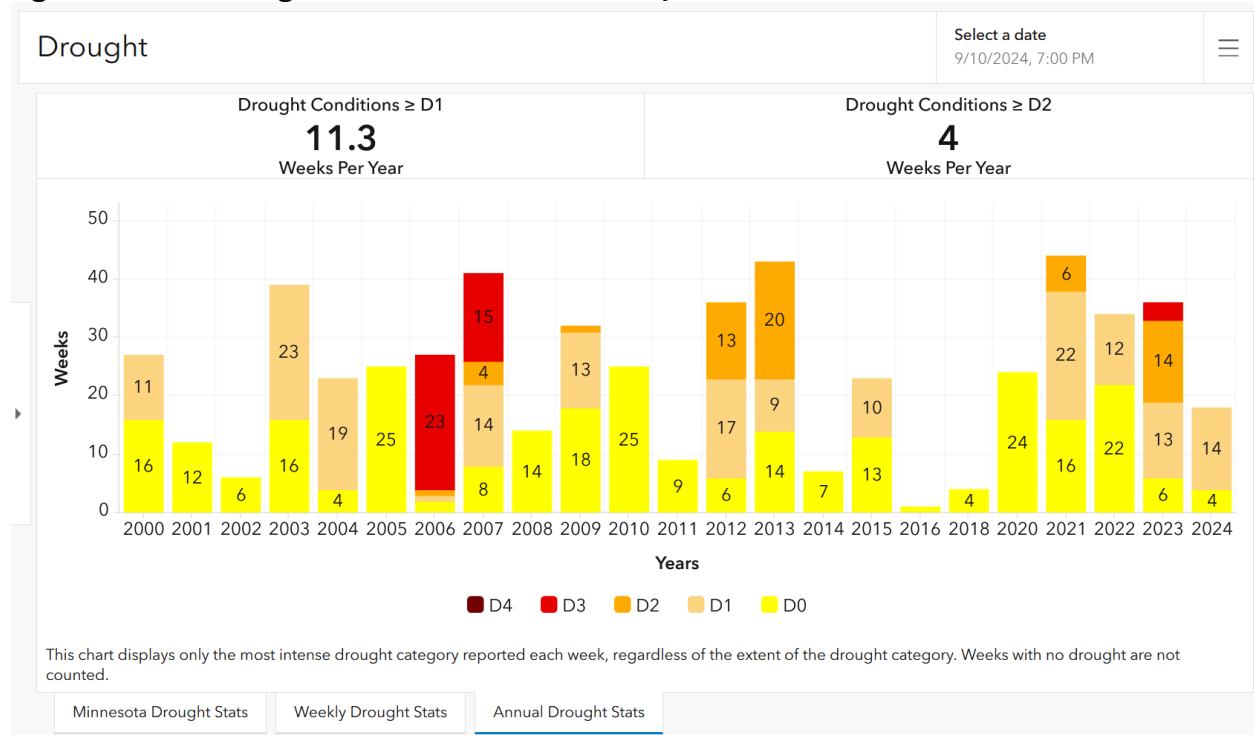
Generators for Backup Power to Critical Facilities & Shelters: Not all healthcare and other critical facilities utilized for the care of residents & visitors, including designated severe weather/emergency shelters (schools, churches, etc.) have backup power to run cooling systems in the event of a power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

4.8 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 9; an interactive version of this dashboard can be found on the Kanabec County HMP website.

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

Figure 9. Annual drought statistics in Kanabec County since 2000



4.8.1 Probability of Occurrence

To determine the probability of future droughts in Kanabec 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 ≥ D1 in Kanabec County, regardless of the duration of the drought. According to the weekly reported data, the relative frequency of the county experiencing drought conditions ≥ D1 is 11.3 weeks per year, and the relative frequency of drought conditions ≥ D2 is 4 weeks per year

(NDMC, 2024). The relative frequency of past droughts can be used to infer the probability of similar droughts occurring in the future.

4.8.2 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, 2024) 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 ten reported drought incidents in Kanabec County between 2000 and 2023, impacting six sectors with greatest impacts to the following sectors: agriculture; fire; plants & wildlife; and relief, response & restrictions (NDMC, 2024). Since droughts are regional in nature, jurisdictions within Kanabec 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.

According to the DIR, Kanabec County’s agriculture sector has been impacted by drought more than once, and with 13% of Kanabec County’s land devoted to cultivated crops, the county’s agriculture community is also vulnerable to the economic impact a drought may have on crops. From 1989–2022, Kanabec County received \$11,075,358.81 (2021 ADJ) in crop indemnity payments due to drought, placing it as the 67th-highest-paid county in Minnesota (CEMHS, 2023).

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

4.8.3 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.

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).

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).

4.8.4 Program Gaps and Deficiencies

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

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 Kanabec County. Dams are mapped on the [MN State 2024 HMP website](#). Kanabec County had no dams classified as High Hazard Dams, one dam classified as a Significant Hazard Dam, and 15 dams classified as Low Hazard Dams. No dams have been removed.

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 are five noted dam incidents in Kanabec County, four related to structural inadequacy. In 2001, the fifth incident at Peace Township Road 451 involved the earthen embankment washing out due to either piping or

overtopping. This was a dam of Low Hazard Potential. Total dam failures are extremely unlikely if the dam is maintained in compliance with Minnesota’s Dam Safety Program. The likelihood of failure in Kanabec 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).

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.

4.9.4 Program Gaps and Deficiencies

Kanabec 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 Kanabec County as related to hazard mitigation.
- Appendix C: As part of the Kanabec 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 Kanabec 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 Kanabec County

FEMA Plan Requirements Plan Review Tool, Section C2	Description
Name of Community	Kanabec County
Participation in the NFIP	Participating – Entry date 11/01/1978
FEMA Map	FEMA-mapped high-risk areas
Current Effective Map Date	11/01/1978
Potential Buildings Damaged in Floodplain (including all townships and cities)	46
1. Adoption of NFIP minimum floodplain management criteria via local regulation	Adoption of current floodplain ordinance: 8/22/1990
2. Adoption of the latest effective Flood Insurance Rate Map (FIRM), if applicable	6/12/1991 Ordinance amendment on 6/12/1991 adopted FIRM and Bean Brook dam inundation area.
3. Implementation and enforcement of local floodplain management regulations to regulate and permit development in SFHAs	Kanabec County enforces requirements of the NFIP through the county’s floodplain ordinance (Kanabec County Floodplain Ordinance #9), adopted 8/22/1990 and made effective 6/12/1991 (date of publication). This ordinance establishes the floodplain district and zoning regulations and conditional uses permitted within the floodway, flood fringe, and general floodplain districts of Kanabec County. The Kanabec County Environmental Services Office maintains and enforces the floodplain management ordinance for the county.
4. Appointment of a designee or agency to implement the addressed commitments and requirements of the NFIP	Floodplain Administrator: Teresa Wickeham, Kanabec County Environmental Services Supervisor
5. Description of how participant implements the substantial improvement / substantial damage provisions of their floodplain management regulations after an event.	Following a flood event, the county would work with the MN DNR to use a form to track cumulative improvements and repetitive losses in the floodplain. The county would also review the MN DNR Minnesota Post-Flood Substantial Damage Playbook for Local Officials.
Name of Community	City of Braham
Participation in the NFIP	Participating – Entry date 04/09/2010
FEMA Map	FEMA-mapped high-risk areas
Current Effective Map Date	11/01/1978
Potential Buildings Damaged in Floodplain	0

FEMA Plan Requirements Plan Review Tool, Section C2	Description
1. Adoption of NFIP minimum floodplain management criteria via local regulation	Adoption of current floodplain ordinance: 10/12/2009
2. Adoption of the latest effective Flood Insurance Rate Map (FIRM), if applicable	10/12/2009
3. Implementation and enforcement of local floodplain management regulations to regulate and permit development in SFHAs	The city of Braham enforces requirements of the NFIP through the city's current floodplain ordinance, Chapter 152: Floodplain Management, Section 152.04 "National Flood Insurance Compliance", adopted 10/12/2009 and made effective 11/18/2009 (date of publication). This ordinance regulates development in the flood hazard areas of the city.
4. Appointment of a designee or agency to implement the addressed commitments and requirements of the NFIP	Floodplain Administrator: Rachel Kytonen, City Administrator
5. Description of how participant implements the substantial improvement / substantial damage provisions of their floodplain management regulations after an event.	Following a flood event, the city would work with the MN DNR to use a form to track cumulative improvements and repetitive losses in the floodplain. The city would also review the MN DNR Minnesota Post-Flood Substantial Damage Playbook for Local Officials.
Name of Community	City of Grasston
Participation in the NFIP	Participating – Entry date 06/18/1980
FEMA Map	FEMA-mapped high-risk areas
Current Effective Map Date	06/04/1980
Potential Buildings Damaged in Floodplain	6
1. Adoption of NFIP minimum floodplain management criteria via local regulation	Adoption of current floodplain ordinance: 9/9/1991
2. Adoption of the latest effective Flood Insurance Rate Map (FIRM), if applicable	9/9/1991
3. Implementation and enforcement of local floodplain management regulations to regulate and permit development in SFHAs	The city of Grasston enforces requirements of the NFIP through the city's current floodplain ordinance, adopted 9/9/1991 and made effective 9/10/1991 (date of publication). This ordinance regulates development in the flood hazard areas of the city.
4. Appointment of a designee or agency to implement the addressed commitments and requirements of the NFIP	Floodplain Administrator: Roberta Folkstad, City Clerk-Treasurer

FEMA Plan Requirements Plan Review Tool, Section C2	Description
5. Description of how participant implements the substantial improvement / substantial damage provisions of their floodplain management regulations after an event.	Following a flood event, the city would work with the MN DNR to use a form to track cumulative improvements and repetitive losses in the floodplain. The city would also review the MN DNR Minnesota Post-Flood Substantial Damage Playbook for Local Officials.
Name of Community	City of Mora
Participation in the NFIP	Participating – Entry date 09/01/1977
FEMA Map	FEMA-mapped high-risk areas
Current Effective Map Date	09/01/1977
Potential Buildings Damaged in Floodplain	0
1. Adoption of NFIP minimum floodplain management criteria via local regulation	Adoption of current floodplain ordinance: 2/16/2021
2. Adoption of the latest effective Flood Insurance Rate Map (FIRM), if applicable	2/16/2021
3. Implementation and enforcement of local floodplain management regulations to regulate and permit development in SFHAs	The city of Mora enforces requirements of the NFIP through the city’s current floodplain ordinance, adopted 2/16/2021 and made effective 2/25/2021 (date of publication). This ordinance regulates development in the flood hazard areas of the city.
4. Appointment of a designee or agency to implement the addressed commitments and requirements of the NFIP	Floodplain Administrator: Todd Sjoberg, Planner
5. Description of how participant implements the substantial improvement / substantial damage provisions of their floodplain management regulations after an event.	Following a flood event, the city would work with the MN DNR to use a form to track cumulative improvements and repetitive losses in the floodplain. The city would also review the MN DNR Minnesota Post-Flood Substantial Damage Playbook for Local Officials.
Name of Community	City of Ogilvie
Participation in the NFIP	Participating – Entry date 08/19/1985
FEMA Map	FEMA-mapped high-risk areas
Current Effective Map Date	08/19/1985
Potential Buildings Damaged in Floodplain	0

FEMA Plan Requirements Plan Review Tool, Section C2	Description
1. Adoption of NFIP minimum floodplain management criteria via local regulation	Adoption of current floodplain ordinance: 7/19/1990
2. Adoption of the latest effective Flood Insurance Rate Map (FIRM), if applicable	7/19/1990
3. Implementation and enforcement of local floodplain management regulations to regulate and permit development in SFHAs	The city of Ogilvie enforces requirements of the NFIP through the city's current floodplain ordinance, adopted 7/19/1990 and made effective 8/16/1990 (date of publication). This ordinance regulates development in the flood hazard areas of the city.
4. Appointment of a designee or agency to implement the addressed commitments and requirements of the NFIP	Floodplain Administrator: Heather Heins, City Clerk-Treasurer
5. Description of how participant implements the substantial improvement / substantial damage provisions of their floodplain management regulations after an event.	Following a flood event, the city would work with the MN DNR to use a form to track cumulative improvements and repetitive losses in the floodplain. The city would also review the MN DNR Minnesota Post-Flood Substantial Damage Playbook for Local Officials.
Name of Community	City of Quamba
Participation in the NFIP	NOT Participating
FEMA Map	FEMA-mapped high-risk areas
Current Effective Map Date	02/13/1976
Potential Buildings Damaged in Floodplain	2
<i>Description of why community does not participate in the NFIP.</i>	Uncertain. No response from City of Quamba. Participation in NFIP is voluntary, and reasons for non-participation vary, though DNR encourages enrollment.

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.

Kanabec County has one RL property and no SRL properties. The RL property is a single-family home with a Mora address with a loss date in 2016.

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

5.1.2 Plans and Ordinances

Kanabec 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

Kanabec 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 Kanabec County to support mitigation for the hazards addressed in this plan.

All Hazards

All Hazards Emergency Operations Plan: Kanabec 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.

CodeRED Emergency Notification System and IPAWS: Kanabec County maintains the CodeRED 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 Kanabec County Emergency Management website page. Kanabec 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: Kanabec County has a strong relationship with the Twin Cities/Chanhassen 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: Kanabec County Emergency Management utilizes the Kanabec County website, KCSO website page, 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. The Kanabec County Emergency Management website page provides emergency preparedness information and resource links for the public.

Mass Care Sheltering: In the event of a disaster where temporary sheltering is needed, Kanabec County Emergency Management works in coordination with Kanabec County Family Services, Kanabec County Community 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: Kanabec 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.

Weather-Ready Nation Ambassador: Kanabec County Sheriff's Office/Emergency Management is a registered NOAA and NWS Weather-Ready Nation (WRN) Ambassador, supporting initiatives to improve readiness, responsiveness, and overall resilience to weather, water, and climate events. As an ambassador, the county promotes weather-ready messages and themes to our stakeholders, engages with NOAA personnel on collaborative opportunities, shares success stories of preparedness and resiliency, and educates employees, partners, and the public on preparedness actions.

Backup Power: Kanabec 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 Courthouse, Jail, and Law Enforcement Center/Sheriff's Office.

Schools Support: Kanabec 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: Kanabec 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.): Kanabec 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: Kanabec 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. Kanabec County Emergency Management promotes and shares information during the week via social media; that with communities, schools, churches, or other civic programs are encouraged to share locally.

Snow Removal & Ice Control: The Kanabec County Highway Department conducts winter road maintenance on county roads including snow plowing and ice control. Other road jurisdictions conduct winter road maintenance on their respective road systems in accordance with each of their established policies and/or practices.

Severe Summer Storms

Severe Weather Statements (Watch, Advisory, Warning, etc.): Kanabec 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.

Outdoor Warning Sirens: Outdoor warning sirens are located throughout the county and are tested monthly by the Kanabec County Sheriff's Office in coordination with local jurisdictions. Warning sirens are owned and maintained by the cities where they are located.

Severe Weather Awareness Week: Kanabec 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. Kanabec 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 Kanabec 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. Kanabec County Emergency Management works to relay extreme cold temperature warnings from the NWS to help alert residents and visitors to hazardous conditions. The Kanabec 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: Kanabec County Emergency Management and Kanabec County Community 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, Kanabec County Emergency Management will work in coordination with Kanabec County Family Services, Kanabec County Community 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.

Extreme Heat

Emergency Notifications: Extreme cold temperature warnings are issued by the National Weather Service. Kanabec County Emergency Management works to relay extreme cold temperature warnings from the NWS to help alert residents and visitors to hazardous conditions. The Kanabec 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: Kanabec County Emergency Management and Kanabec County Community Health 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, Kanabec County Emergency Management will work in coordination with Kanabec County Family Services, Kanabec County Community 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.

Drought

Public Awareness & Outreach: In the event of extreme drought conditions, Kanabec 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 Kanabec 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

Public Awareness & Emergency Notifications: In event of wildfire, Kanabec County Emergency Management works with local law enforcement, local fire departments, 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 Kanabec 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 needed via mutual aid agreements.

Flooding

National Flood Insurance Program (NFIP): Kanabec County has FEMA Mapped High Risk Areas and participates in the NFIP. Initial entry date into the program was 11/01/1978.

Floodplain Administrator: The Kanabec County Environmental Services Director is the county's designated Floodplain Administrator, who is responsible for implementing the requirements of the NFIP.

Floodplain Ordinance: Kanabec County Floodplain Ordinance #9, adopted August 22, 1990 establishes the flood plain district and zoning regulations and conditional uses permitted within the floodway, flood fringe, and general floodplain districts. The Kanabec County Environmental Services Office maintains and enforces the floodplain management ordinance for the county. The ordinance is adopted to comply with the rules and regulations of the National Flood Insurance Program codified as 44 Code of Federal Regulations Parts 59 -78, as amended, so as to maintain the community's eligibility in the National Flood Insurance Program.

Floodplain Mapping: Kanabec County's current effective FEMA flood map date is 11/01/1978. The county's Environmental Services Office is the repository for the floodplain maps for the county. The Environmental Services Office assists county residents in determining whether their property is affected by an officially mapped flood area.

Shoreland Ordinance: Kanabec County Environmental Services administers Ordinance #5, Management of Shoreland, revised 06/26/2019. This ordinance establishes allowable uses and development standards in shoreland areas designated within the county. In addition to establishing setback requirements, the ordinance specifies that local shoreland controls must regulate placement of structures in relation to high water elevation for flood protection.

Subdivision Ordinance: Kanabec County Environmental Services administers Subdivision/Platting Ordinance #4, which is established to regulate the subdividing of land in Kanabec County.

Transportation Plan: The Kanabec County Public Works Department maintains update of the county's 5-Year Transportation Plan and schedules projects for implementation.

Minnesota Buffer Law: The Kanabec SWCD administers the state Buffer Law and provides technical assistance on buffer compliance by landowners. Buffers benefit bank stabilization and reduced erosion and sedimentation into ditches, streams, rivers, and lakes.

One-Watershed One Plan (1w1P): The Kanabec SWCD participates in the Snake River Comprehensive Watershed Management Plan, January 25, 2023–January 25, 2033. This plan addresses regional watershed planning which includes measures for flood mitigation.

Dam/Levee Failure

No noted plans or programs 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 Kanabec County Plan. This framework, as outlined below, will allow for integration of the mitigation actions that are listed by Kanabec 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.

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"> • Comprehensive plans • Land use ordinances • Planning and zoning • Building codes and enforcement • Floodplain ordinances • NFIP Community Rating System • Capital improvement programs • Open space preservation • Shoreline codes • Stormwater management regulations and master plans
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"> • Acquisitions and elevations of structures in flood prone areas • Utility undergrounding • Structural retrofits • Floodwalls and retaining walls • Detention and retention structures • Culverts • Safe rooms
Natural Systems Protection	These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.	<ul style="list-style-type: none"> • Sediment and erosion control • Stream corridor restoration • Forest management • Conservation easements • Wetland restoration and preservation

Mitigation Strategy	Description	Example Mitigation Actions
Education and Awareness Programs	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. 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.	<ul style="list-style-type: none"> • Radio or television spots • Websites with maps and information • Real estate disclosure • Presentations to school groups or neighborhood organizations • Mailings to residents in hazard-prone areas. • StormReady Certification • Firewise Communities
Mitigation Preparedness and Response	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.	<ul style="list-style-type: none"> • Emergency operations plan • Flood fight plans and preparedness • Dam emergency action plans • Warning • Backup power • Emergency capabilities

Local leaders work together with the Kanabec 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 Kanabec 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 Kanabec 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 Braham, Grasston, Mora, Ogilvie, and Quamba.

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

Following is an overview the mitigation action charts and 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.

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

See Table 13 for a description of each mitigation strategy and related types of actions.

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 2016 Kanabec 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"> • Methods for reducing risk from the hazard are technically reliable. • The County has experience in implementing mitigation measures. • Mitigation measures are eligible under federal grant programs. • There are multiple mitigation measures for the hazard. • The mitigation measure(s) are known to be cost effective. • The mitigation measures protect lives and property for a long period of time, or are permanent risk reduction solutions.
Moderate Priority	<ul style="list-style-type: none"> • Mitigation methods are established. • The County has limited experience with the kinds of measures that may be appropriate to mitigate the hazard. • Some mitigation measures are eligible for federal grants. • There is a limited range of effective mitigation measures for the hazard.

Ranking	Criteria
	<ul style="list-style-type: none"> • Mitigation measures are cost-effective only in limited circumstances. • Mitigation measures are effective for a reasonable period of time.
Low Priority	<ul style="list-style-type: none"> • Methods for reducing risk from the hazard are not well-established, are not proven reliable, or are experimental. • The State or Counties have little or no experience in implementing mitigation measures, and/or no technical knowledge of them. • Mitigation measures are ineligible under federal grant programs. • There is a very limited range of mitigation measures for the hazard, usually only one feasible alternative. • The mitigation measure(s) have not been proven cost effective and are likely to be very expensive compared to the magnitude of the hazard. • The long-term effectiveness of the measure is not known or is known to be relatively poor.

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 Kanabec County Mitigation Action Chart

The Kanabec 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. Kanabec 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 CodeRED Emergency Notification System.	Existing High Ongoing	Kanabec County Emergency Management (KCEM)	Kanabec County maintains the CodeRED 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 Kanabec 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	KCEM	KCEM utilizes the Kanabec County website, KCSO website page, 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. The KCEM website page provides emergency preparedness information and resource links for the public. We also post information on our Facebook page. Information can be shared on other county social media platforms as well, such as Kanabec County Community Health, Family Health etc.	County Funding

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
3	All-Hazards	Education & Awareness Programs	DIVERSE POPULATIONS Work with local jurisdictions to develop targeted emergency communications in appropriate languages (or get access to existing versions) for populations of non-English speakers in each community.	New High Ongoing	KCEM in coord with the cities of Braham, Grasston, Mora, Ogilvie, and Quamba	Kanabec County Emergency Management will work with the local governments and emergency managers for the cities of Braham, Grasston, Mora, Ogilvie, and Quamba to assess the degree of non-English speaking residents in the community and best ways to share emergency notifications and other information with those residents in appropriate languages.	KCEM
4	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	KCEM	Kanabec 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
5	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	KC Admin, KC Envr. Services., KC Public Works in coord with local gov'ts	Kanabec County administration and departments continue 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. Kanabec County uses its Shoreland Ordinance, Floodplain Ordinance, Subdivision Ordinance, and Transportation Plan 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
6	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	KCEM, KCCH	KCEM and Kanabec County Community Health (KCCH) continue to provide outreach to and 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. KCEM and KCCH work with 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
7	All-Hazards	Mitigation Preparedness & Response Support	GENERATOR BACKUP POWER Install generators at key county facilities to ensure continuity of operations and services in the event of loss of power.	Existing High Ongoing	KCEM, KCFS	This is an ongoing effort of KCEM in coordination with Kanabec County Administration, KCFS, 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. KCEM and KCFS encourage local jurisdictions to evaluate and address where backup power is needed.	County Funding

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
8	All-Hazards	Mitigation Preparedness & Response Support	<p>MASS CARE SHELTERING</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	KCEM, KCCH, KCFS	In the event of a disaster where temporary sheltering is needed, KCEM works in coordination with Kanabec County Family Services, Kanabec County Community 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.	County Funding
9	Extreme Heat/Cold Temps	Education & Awareness Programs	<p>EXTREME TEMPS PUBLIC OUTREACH</p> <p>Provide outreach and education to the public on personal safety measures to take during periods of extreme heat or cold.</p>	In-Progress High 2024	KCEM, KCCH	KCEM and KCCH work to share information received from the Twin Cities/Chanhassen National Weather Service (NWS) Forecast Office when periods of extreme heat or cold are forecast and occurring. Public education regarding extreme temps safety also occurs during the NWS Severe Weather Awareness week that occur in April and November each year.	County Funding
10	Extreme Heat/Cold Temps	Mitigation Preparedness & Response Support	<p>WARMING/COOLING CENTERS</p> <p>Work with local communities to develop plans for operating warming / cooling centers for those who are vulnerable during extreme cold or heat events.</p>	New High 2025-2030	KCEM	KCEM encourages communities 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. KCEM 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
11	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	KC Public Works Dept.	The Kanabec County Public Works Department conducts winter road maintenance on county roads including snow plowing and ice control. 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
12	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	KCEM in coord with NWS	KCEM will resume participation in the NWS Skywarn annual training program with local law enforcement, fire departments, and local residents that wish to be trained as storm spotters.	National Weather Service
13	Severe Summer Storms	Mitigation Preparedness & Response Support	OUTDOOR WARNING SIRENS Ensure outdoor warning sirens throughout the county are functional and maintained by the jurisdictions where they are located.	Existing High 2025-2030	KCEM in coord with local jurisdictions	Outdoor warning sirens are located throughout the county and are tested monthly by the Kanabec County Sheriff's Office in coordination with local jurisdictions. Warning sirens are owned and maintained by the cities where they are located. KCEM will work with local jurisdictions that are seeking to upgrade their existing warning sirens or to purchase a new one.	County Funding & local jurisdictions

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
14	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	KCEM in coord with local jurisdictions	KCEM 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
15	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	KCEM, local jurisdictions in coord with electric utility providers	KCEM works with the utility cooperatives that serve the county 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
16	Severe Winter & Summer Storms	Local Planning & Regulations	BUILDING SAFETY 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	KC Envr. Services Dept.	Kanabec County Environmental Services oversees permits for new development. Kanabec 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

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
17	Severe Winter & Summer Storms	Natural Systems Protection	VEGETATION MANAGEMENT Manage trees and other vegetation along roads from severe storm events to reduce risk to powerlines and passing motorists.	Existing Moderate 2025-2030	KC Public Works Dept., Local Utility Providers	Kanabec County Public Works 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
18	Wildfire	Local Planning & Regulations	COMMUNITY WILDFIRE PROTECTION PLAN Develop a CWPP in coordination with the MN DNR Firewise Program and local jurisdictions.	New High 2025-2030	KCEM in coord with NE MN DNR Firewise Coordinator	This a priority project area for Kanabec County. KCEM will work with the MN DNR Central MN Firewise Coordinator to evaluate and apply for possible grant funding from the federal Community Wildfire Defense Grants to develop a new Kanabec County CWPP. When the plan is being updated, KCEM 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
19	Wildfire	Natural Systems Protection	FIREWISE OUTREACH & EDUCATION Promote wildfire safety awareness and encourage homeowners to conduct assessments for defensible space.	Existing High 2025-2030	KCEM in coord with local FDs	Kanabec County Emergency Management provides information on wildfire conditions on the EM website page. KCEM encourages local fire departments to work with homeowners who live in high-risk wildfire areas to conduct Level 1 Firewise assessments for defensible space.	County Funding, Local FD's

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
20	Flooding	Local Planning & Regulations	SHORELAND ORDINANCE Implement the county's Shoreland Ordinance to reduce potential impacts of high rain events to adjacent structures.	Existing High 2025-2030	KC Envr. Services	Kanabec County Environmental Services administers Ordinance #5, Management of Shoreland, revised 06/26/2019. This ordinance establishes allowable uses and development standards in shoreland areas designated within the county. In addition to establishing setback requirements, the ordinance specifies that local shoreland controls must regulate placement of structures in relation to high water elevation for flood protection.	County Funding
21	Flooding	Local Planning & Regulations	NFIP / FLOODPLAIN ORDINANCE Continue to participate in the National Flood Insurance Program and to enforce the county's floodplain ordinance.	Existing High 2025-2030	KC Envr. Services	Kanabec County Floodplain Ordinance #9, adopted August, 22 1990 establishes the flood plain district and zoning regulations and conditional uses permitted within the floodway, flood fringe, and general floodplain districts. The Kanabec County Environmental Services Office maintains and enforces the floodplain management ordinance for the county. The ordinance is adopted to comply with the rules and regulations of the National Flood Insurance Program codified as 44 Code of Federal Regulations Parts 59 -78, as amended, in order to maintain the community's eligibility in the NFIP.	County Funding

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
22	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	KC Public Works Dept.	The Kanabec County Public Works Department maintains update of the county's Transportation Plan, which addresses scheduled improvements to county roads, bridges, and culverts. Heavy rain and spring snowmelt often affects county roads. The PW Dept. continues to address solutions for these areas.	County Funding
23	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	Kanabec SWCD	The Kanabec SWCD participates in the Snake River Comprehensive Watershed Management Plan, January 25, 2023 – January 25, 2033. This plan addresses regional watershed planning which include measures for flood mitigation.	SWCD, Watershed District funding
24	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	KCEM, HC Envr. Services	Kanabec County will be available to work with the City of Mora if they decide to pursue several property buyouts for homes that have experienced repetitive flooding. MN DNR flood risk reduction grant program and FEMA grant funding are possible funding sources for property acquisitions.	Kanabec County, Possible MN DNR Or FEMA Grant Funding
25	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	KCEM, Kanabec SWCD	KCEM and Kanabec SWCD continue to provide public outreach and education during heightened drought periods using the county website and social media platforms. KCEM and SWCD encourage city and townships to promote drought awareness to residents at the local level.	Kanabec County, Kanabec SWCD

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
26	Drought	Local Planning & Regulations	WATERING RESTRICTIONS Implement watering restrictions during periods of drought as per MN DNR guidance.	Existing High 2025-2030	KCEM in coord with MN DNR and local jurisdictions	Kanabec 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
27	Dam Failure	Local Planning & Regulations	DAM MONITORING Work with the MN DNR Dam Safety Program and local jurisdictions as needed to address any dams of concern.	Existing Low 2025-2030	MN DNR Dam Safety Program	Kanabec County has no high hazard potential dams. The county looks to the MN DNR Dam Safety Program and local jurisdictions to address any other earthen dams that need monitoring or maintenance.	MN DNR

Section 6 – Plan Maintenance

6.1 Monitoring, Evaluation, and Updating the Plan

The Kanabec 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 Kanabec County HMP.

The Kanabec 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 Kanabec 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 Braham, Grasston, Mora, Ogilvie, and Quamba, 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 Kanabec 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 Kanabec 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 Kanabec 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 Kanabec 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 Kanabec County EMD so that progress notes may be maintained for the next plan update.

6.2 Implementation

Kanabec 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 Kanabec County and its jurisdictions (see Appendix H and Section 5.3). The cities of Braham, Grasston, Mora, Ogilvie, and Quamba 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 Kanabec 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 Kanabec County. Regulation plays a vital role in 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 Kanabec 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 Kanabec 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, Kanabec County will take the following measures:

- The Kanabec County HMP website link will be posted on the Kanabec 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, Kanabec 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 Kanabec County HMP website). Each respective jurisdiction will be required to report on the status of mitigation actions in their charts to the Kanabec County EMD.
- Kanabec 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

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Appendix B – Adopting Resolutions

Appendix C – Local Mitigation Survey Report



KANABEC
COUNTY
Minnesota

Kanabec County

Local Mitigation Survey Report

Overview

As part of Kanabec 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

Kanabec County	Yes
City of Braham	Yes
City of Grasston	Yes
City of Mora	Yes
City of Oglivie	Yes
City of Quamba	<i>No</i>

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

Kanabec 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: KANABEC COUNTY

Point of Contact:

Name: Ashley Meier
 Job Title: Emergency Management Director
 Phone: 320-679-8421
 Email: ashley.meier@co.kanabec.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	Increased
Winter Storms	X	Moderate	No change
Tornadoes	X	Moderate	No change
Windstorms	X	High	No change
Lightning		Low	
Hail		Low	
Extreme Cold	X	Moderate	No change
Extreme Heat	X	Moderate	No change
Drought	X	Moderate	Increased
Wildfire	X	Moderate	No change
Landslides		Low	
Dam/Levee Failure	X	Moderate	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.

On July 11, 2016 we experienced a major rain event that caused street flooding, closures to bridges due to high water, damage to culverts and streets, and basement flooding for many residential properties and a few businesses.

Exactly two years later, July 11, 2018, a second major rain event occurred causing similar damage but on a lesser scale, affecting some of the same residential and business basements but some new.

There was also a high wind event that affected the City of Mora (date unknown).

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.
All Hazards	Generator needed for sheltering at Mora Schools. We also have a large population of senior citizens that do not use cell phones to receive emergency notifications.
Flooding	Multiple homes were affected in the high rain events that impacted the City of Mora that may benefit from buy out programs. (Primarily on Jade Street and Mahogany Street.)
Drought	The county is mostly agriculturally based and with droughts the farms are vulnerable to this due to damage to the crops. This has been evident over the past two summers when farmers have had lower results during harvest and the ripple effects on the livestock portion of the farms. This is a growing concern and a very small number of the farms have any kind of irrigation for their fields.
Extreme Heat	The cities in the county do not have areas to establish cooling centers to keep people cool. The elderly are particularly susceptible to stretches of high heat.
Ice Storms/Blizzards	<p>Much of the electrical service throughout the county consists of overhead power lines and electrical poles. Those overhead lines and power poles are prone to failure in ice storms and blizzards with heavy snowfall and high winds that may bring down trees and branches.</p> <p>Hwy 23 cuts through the county, and those passing through the county are vulnerable to winter weather with limited first responders and tow trucks. Many people don't travel with adequate supplies in their vehicles.</p>

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.

No answer provided.

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.

Climate change (drought/extreme heat) is a concern with lack of precipitation, private wells and groundwater sustainability for rural residents that do not have access to public services.

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.

Kanabec County Emergency Management utilizes the Kanabec County website, KCSO website page, 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. The Kanabec County Emergency Management website page provides emergency preparedness information and resource links for the public. We also post information on our Facebook page. Information can be shared on other county social media platforms as well, such as Kanabec County Community Health, Family Health etc.

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?

Kanabec County maintains the CodeRED 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 Kanabec 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: Kanabec 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, Kanabec County Emergency Management works in coordination with Kanabec County Family Services, Kanabec County Community 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.

The Kanabec County Highway Department conducts winter road maintenance on county roads including snow plowing and ice control.

Shoreland Ordinance: Kanabec County Environmental Services administers Ordinance #5, Management of Shoreland, revised 06/26/2019. This ordinance establishes allowable uses and development standards in shoreland areas designated within the county. In addition to establishing setback requirements, the ordinance specifies that local shoreland controls must regulate placement of structures in relation to high water elevation for flood protection.

Floodplain Ordinance: Kanabec County Floodplain Ordinance #9, adopted August, 22 1990 establishes the flood plain district and zoning regulations and conditional uses permitted within the floodway, flood fringe, and general floodplain districts. The Kanabec County Environmental Services Office maintains and enforces the floodplain management ordinance for the county. The ordinance is adopted to comply with the rules and regulations of the National Flood Insurance Program codified as 44 Code of Federal Regulations Parts 59 -78, as amended, so as to maintain the community's eligibility in the National Flood Insurance Program.

Subdivision Ordinance: Kanabec County Environmental Services administers the Subdivision/Platting Ordinance #4, which is established to regulate the subdividing of land in Kanabec County.

Transportation Plan: The Kanabec County Public Works Department maintains update of the county's 5-Year Transportation Plan and schedules projects for implementation.

Minnesota Buffer Law: The Kanabec SWCD administers the state Buffer Law and provides technical assistance on buffer compliance by landowners. Buffers benefit bank stabilization and reduced erosion and sedimentation into ditches, streams, rivers, and lakes.

One-Watershed One Plan (1w1P): The Kanabec SWCD participates in the Snake River Comprehensive Watershed Management Plan, January 25, 2023 – January 25, 2033. This plan addresses regional watershed planning which include measures for flood mitigation.

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.

Kanabec County departments work together to accomplish mitigation goals through integrated policies and programs. Key departments include Kanabec County Emergency Management, Kanabec County Sheriff's Office, Kanabec County Public Works Department, Kanabec County Environmental Services, Kanabec County Community Health, Kanabec County Administration, and Kanabec Soil and Water Conservation District.

Kanabec County Emergency Management works closely with city emergency managers within the county on emergency preparedness and response capabilities.

Kanabec 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.

Kanabec 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.

Kanabec County has a strong relationship with the Twin Cities/Chanhassen 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.

Kanabec County also has an Emergency Preparedness Advisory Committee. This allows for a multidisciplinary group of people to discuss, plan, exercise, etc. and allows us to know each other better before a disaster than to try and build partnerships during a disaster.

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.): Kanabec 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.

NOAA Weather Radios: Kanabec 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: Kanabec 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. Kanabec 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.

Weather-Ready Nation Ambassador: Kanabec County Sheriff's Office/Emergency Management is a registered NOAA and NWS Weather-Ready Nation (WRN) Ambassador, supporting initiatives to improve readiness, responsiveness, and overall resilience to weather, water, and climate events. As an ambassador, the county promotes weather-ready messages and themes to our stakeholders, engages with NOAA personnel on collaborative opportunities, shares success stories of preparedness and resiliency, and educates employees, partners, and the public on preparedness actions.

Outdoor Warning Siren Testing: Outdoor warning sirens throughout the county are tested monthly by the Kanabec County Sheriff's Office in coordination with local jurisdictions.

Skywarn Program: Kanabec County Emergency Management used to participate in the National Weather Services's SkyWarn program but has not done so regularly due to turnover in the EM program. Kanabec County Emergency Management plans to resume participation in the annual Skywarn training program.

Vegetation Management: The Kanabec County Public Works 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 Kanabec 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.

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.

Kanabec County would need to budget for mitigation projects unless there was potential grant funding available.

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.

All Hazards – 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.

Severe Summer Storms – Resume participation in the NWS Skywarn annual training program with local law enforcement, fire departments, and local residents that wish to be trained as storm spotters.

Severe Summer Storms – Work in coordination with local jurisdictions to address the need for the construction of storm shelters or tornado safe rooms in locations where residents and visitors are vulnerable to high wind events, such as mobile home parks, municipal campgrounds, and other public areas.

Severe Winter/Summer Storms - Ongoing continued public education needs to be done to encourage people to enroll in the county's CodeRED emergency notification system.

Wildfire - Kanabec County does not have a CWPP in place. Developing a CWPP in coordination with local fire departments and the MN DNR will allow Kanabec County to identify areas of high wildfire risk,

targeted wildfire mitigation activities, and allow for greater access to more funding for any follow up projects identified.

Wildfire - Wildfire is an increasing concern with continued expansion of the wildland urban interface. Kanabec County can seek to work in greater coordination with MN DNR Forestry and local jurisdictions to address wildland fuels mitigation in wildland-urban interface areas within the county. Local fire departments may also need to assess needs for rural water supplies such as cisterns.

Flooding - Property Buyouts: There have been residential properties in the county that continue to flood in rain events that would benefit from mitigation buy-out programs in instances that flood insurance is cost prohibitive and homeowners are financially unable to recover from reoccurring flooding.

Flooding - Continue to work in partnership with the Soil & Water Conservation District and other watershed partners to address mitigation plans, policies, and projects that address risk reduction for localized flooding and erosion.

Drought - Conduct outreach to residents to be aware of water restrictions, water conservation tips, and fire safety during periods of severe drought.

2. GAPS OR DEFICIENCIES

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

Outdated Floodplain Maps: The current effective floodplain maps for Kanabec County are dated 11/01/1978. The maps need to be updated in order to support our planning for floodplain management.

PART D: SURVEY PARTICIPANTS

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

Ashley Meier, Emergency Management Director
Kelly Schmitt, Deputy Emergency Management Director
Kate Mestnik, Public Health Emergency Preparedness Coordinator
Kathy Burski, Kanabec County Community Health Director

Kanabec 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 BRAHAM *(partly located in Isanti County)*

Point of Contact:

Name: Kevin Stahl
 Job Title: Chief of Police – Emergency Management Director
 Phone: 320-591-0021
 Email: kstahl@brahammn.gov

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	Increased
Winter Storms	X	Moderate	No Change
Tornadoes	X	High	No Change
Windstorms	X	High	No Change
Lightning			
Hail			
Extreme Cold			
Extreme Heat			
Drought			
Wildfire	X	Moderate	No Change
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.

In May 2022, the city experienced a high wind event with property damage, loss of power for a lengthy amount of time, and loss of numerous large established private trees.

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.
All Hazards	We need to obtain 2 generators, one for our City Hall/ Fire Department and 1 for our public works facility. Most of the city’s municipal electrical service is provided by overhead power poles making them prone to damage in high wind, winter storms and extreme cold when Ice accumulates on the lines. Without power it is hard for the city to provide essential services.
Ice Storms, Blizzards	Much of the city’s municipal electrical service consists of overhead power lines and electrical poles. Those overhead lines and power poles are prone to failure in ice storms and blizzards with heavy snowfall and high winds that may bring down trees and branches.
Windstorms and Tornadoes	<p>We have 1 mobile home park within the city that does not have a storm shelter and residents are vulnerable to high wind and tornado events. We also have a new development in the east end of the city that should have an outdoor warning siren installed. We have experienced power outages from strong wind events that brought down power lines.</p> <p>The city has two school buildings within it. These schools were constructed many years ago and due to outdated building standards, these buildings do not provide severe weather safe rooms.</p>
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.
Flooding	The city’s WWTP is prone to inflow and infiltration from significant rain events. This causes us to bypass the treatment system into a local ditch. MPCA must be notified, and the city must track gallons discharged. This is a high priority area to fix so we can guarantee 24/7/365 service for the WWTP. The city can be fined if we need to discharge in this manner because it violates our treatment permit. Remediation would include repairing main sanitary sewer lines by either slip lining or replacement.

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.

The city purchased a mobile generator to operate all lift stations in case of electrical failure. This is a portable generator that needs to be brought to each of the lift stations manually.

The city has a severe weather siren that is initiated by the Isanti County emergency dispatch center. The city entered into a maintenance service agreement with Granite Electronics to test and repair the siren if needed.

The city has created an emergency management mitigation fund that provides some dedicated money to be used directly during an event, or to mitigate known hazards.

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.

None Noted: The railroad is going to be adding another set of tracks for the highspeed rail project through town. This will add potentially vulnerable infrastructure within our city. There is a plan to place tall fencing along both sides of the railway to minimize access to these operations.

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 have updated our city website that will include a bulletin board format page to allow for timely communications and information sharing. The city also uses other social media outlets like Facebook, as well as the local radio station KBK to communicate information in a timely manner. We also utilize a city owned LED community sign, and community bulletin boards.

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?

Yes, we utilize Isanti county's emergency notification system and promote its usage through our website and social media sites.

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.

The city has adopted the Isanti County Hazard Mitigation Plan.

The City of Braham recently adopted a new Wellhead Protection Plan (WHP). The plan was prepared in cooperation with the Minnesota Department of Health (MDH) and the Minnesota Rural Water Association (MRWA). The plan is effective for 10 years.

Chapter 152: Floodplain Management of the City Ordinances. The purpose of this chapter is to maintain the community's eligibility in the National Flood Insurance Program, and to minimize potential losses due to periodic flooding, including loss of life, loss of property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.

The city contracts its building inspection and plan review functions with a contract building official. The city enforces the MN State Building Code and the City ordinances as it relates to zoning, and minimum building standards.

The city is currently working on creating a new comprehensive plan and is currently investing in a wastewater treatment plant upgrade project, as well as a sewer and water street improvement project. This will reduce a few infrastructures vulnerabilities and provide a starting point for which we can build.

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 City Administrator serves as the Zoning Official and oversees the zoning regulation of property to ensure the general health, safety, and welfare standards for the community are met. They assist residents and applicants with zoning requests and development requests. They also issue applications for Conditional Use Permits, Variances, Rezoning, Annexation, Lot Splits, Platting and Sign Permits. The City Administrator also oversees the Planning Commission. The city requires building permits on all construction projects and contracts with a licensed building official to inspect and assure building code compliance. The city has a Public Works Superintendent, Police Department, and Fire Department. The city also has a designated emergency management director and has created a Department of Emergency Management in fy2022 to facilitate more efficient and complete mitigation planning and crises response planning. The city has set up an emergency response plan utilizing our Fire Chief, Chief of Police, Streets Supervisor, City Administration, and Council in key positions. We work with our county's emergency management director and have a mutual aid agreement for personnel and equipment with our neighboring cities. The city also utilizes the State Duty Officer for resources and the Minnesota Rural Water Association for equipment and personnel.

5. PROGRAMS IN PLACE

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

Our city works with the county to promote the national weather service's weather awareness campaigns, as well as skywarn training of responders and residents.

The city has a safety committee and an emergency management committee that work to identify safety issues and mitigate unsafe conditions within the city when identified.

The city also utilizes its social media sites as well as its website to receive information from residents in addition to notifying residents of unsafe conditions.

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.

In the past the city has had to use its own limited funds to finance all mitigation projects. The city plans to apply for federal and state grants to assist in some of the larger projects. As well as leveraging some of our local stakeholders for donations or services. The creation of the City's Department of Emergency Management shall allow us to provide more dedicated time to mitigation and response planning.

The city emergency manager created a dedicated fund for emergency management mitigation. The initial funding provided \$10,000 from the state's emergency services grant. This money is to be used for match portions of any future federal or state emergency management grants that may be awarded. The money may also be used for direct mitigate efforts of current and active incidents.

The City's Emergency management department does have a small operating budget that can be used to maintain and expand emergency notification systems as well as emergency operations, and planning.

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.

- Construct a storm shelter at the Mobile Home Park for residence to use during severe weather.
- All police officers to receive Skywarn training so that they can identify weather threats and hopefully provide early warning to our citizens.
- All Police Officers, and Crime Prevention specialist are EMSRB certified and each squad car carry's medical equipment including Oxygen, Defibrillators, and Narcan.
- All squads carry the Emergency Response Guidebook (Both a physical copy and a digital copy on the Squads desktop), in the event of a critical incident involving a chemical/ biological/ radiological agent.
- The Police department is working on strengthening the Police reserve program through time investment and training of reserve members. These reserve members can provide needed trained manpower in the event of a critical incident.
- Mitigate inflow & infiltration to the WWTP. Remediation would include repairing main Sanitary sewer lines by either slip lining or replacement.
- Complete the wiring of the lift stations to connect to the mobile portable generator.

- Purchase and install a backup generator for City Hall/EOC, and Fire Hall
- Purchase and install a backup generator for Public Works building.
- Construct a storm saferoom in City Hall for residence to take shelter in the event of Severe weather.
- Construct a storm saferoom in the Braham High School for students and residents to take shelter in the event of severe weather.
- Construct a storm saferoom in the Braham Elementary School for students and residents to take shelter in the event of severe weather.

2. GAPS OR DEFICIENCIES

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

Money. We are a 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.

Rachel Kytonen, Past City Administrator, 2 hours

Daniel Eklund, Streets Supervisor, 2 hours

Kevin Stahl, Chief of Police/ emergency manager, 2 hours

Kanabec 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 GRASSTON

Point of Contact:

Name: Darcy Balvin
 Job Title: City Clerk
 Phone: 612-202-1896
 Email: cityofgrasston@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	X	High	No change
Winter Storms	X	Moderate	No change
Tornadoes	X	Moderate	No change
Windstorms	X	Moderate	No change
Lightning			
Hail			
Extreme Cold			
Extreme Heat			
Drought	X	Moderate	No change
Wildfire	X	Moderate	No change
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.

We had trees down and over the road.

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.
	No local vulnerabilities to report.

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.

There has not been any effort so far.

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.

We don't have an outdoor warning siren anymore. We had gotten weather radios for residents to help with this (getting emergency notifications for severe wind or tornado events).

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 are just starting a city website.

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 not done anything with this. We could use more information on this.

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 do not have many things in place.

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.

We use the Braham Fire Department.

5. PROGRAMS IN PLACE

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

Nothing to note.

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.

Being a small city, we are trying to look for money.

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.

We have no big projects in mind. We are working on our city website that we can use to help share information with residents about severe weather and being prepared. We can also encourage them to sign up for the county's emergency notification system.

2. GAPS OR DEFICIENCIES

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

More outreach from county government.

PART D: SURVEY PARTICIPANTS

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

Darcy Balvin, City Clerk.

Kanabec 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 MORA

Point of Contact:

Name: Joseph Kohlgraf
 Job Title: Public Works Director
 Phone: (612) 390-8217
 Email: joe.kohlgraf@cityofmora.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	X	High	Increased
Winter Storms	X	Moderate	No change
Tornadoes	X	Moderate	No change
Windstorms	X	High	Increased
Lightning	X	Moderate	No change
Hail	X	Moderate	No change
Extreme Cold	X	Low	No change
Extreme Heat			
Drought	X	Moderate	Increased
Wildfire	X	Moderate	Increased
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.

Heavy rains have caused more localized flooding throughout city limits. Storm pipe sizing is not up to the minimum it needs to be with the changing rain events, with little or no extra funds to make the changes needed at this time. Local lake does not have a natural outlet to control the amount of runoff

that happens during current rain events. Surrounding detention areas that drain toward the city lake has been leveled off for crops and building areas.

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.
Flooding	We are prone to localized flooding due to infrastructure that is not designed for the current weather anomalies. These areas are residential areas that are affecting homes and water levels around them. This has caused local damages to houses and storm sewer line/structure failures.
Wind storms	Infrastructure was and has been hit hard during higher-than-normal wind events in combination with rain events. Tree trimming has been utilized but would like to see more infrastructure be put underground to save money on maintenance items and reduce the risk of wind related power outages and major repairs. Emergency staffing has been a relatable issue with the surrounding contractor. More mutual aid determination is needed to help resolve shortages.
Winter storms	Community has a high number of older residents that are in a limited income households and are not able to get the help needed during major snow events. This would be transportation assistance, overall assistance in maintenance duties required during storms. Heat and energy concerns are also a notable item for fixed income members.
Extreme cold/shelter	There are 2 mobile home parks in the community with only one shelter, as the other is a shelter in place. Updating these shelters should be a priority for the parks but has not made it to a place that this action could be acted on. Weatherization in these areas is a concern with no actions taken for water and sewer line freeze-up. Community help/action is needed in these areas to help citizens out during the 3 coldest months

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.

Recent street reconstruction projects are starting to address the under sizing of the storm sewers in town. The increased sizing will better convey storm water from point A to point B. Concentrating on adding green space to projects to reduce the amount of runoff is also being addressed as new projects are being designed. Planned road projects are being scheduled for the next 20 years with the storm water convenience in mind.

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.

We have had some newer developments and a new school that has significantly contributed to localized flooding. The SWIP's were done, and they showed no issues, but see an increased flooding rate in the northwest part of town. This is a drainage pond that was sized correctly to drain a specific area. Forcing water to the ditches at an increased speed has hurt the retention time and the availability of saturation. There are areas now that are low and unable to drain efficiency due to the weather events.

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 have post information on the city website in the past, had local meeting covering the lack/undersized drainage, the localized flooding that occurs and how to look at past weather anomalies. We have a local radio station that we can talk on and will address those issues when asked. The local paper gives information for the county, city, and surrounding areas.

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 encouraged citizens of the city and county to sign up for the local emergency system. The county has a link on their website.

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.

City code enforces city and state building codes relating to requirements. Building official receives yearly training and updates to achieve this. We have a comprehensive plan that is updated as needed and reviewed yearly. Meeting with MNDOT and County are also yearly or as needed for road projects that are planned.

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 works with the emergency coordinator for Kanabec County. Meetings are attended by the city administrator at this time. During Covid, more meetings were done and attended by various staff. Public works director, county admin., city admin., sheriff, and fire were invited. City of Mora maintains 3 sirens, signals sent by Kanabec County.

5. PROGRAMS IN PLACE

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

We work with MNDOT and county for weather related emergencies. We have weather stations in Mora and at the airport (automated) which are used to check direction. Weather drills are managed through the county (siren alarms) and conducted at the schools. Notification is sent out via Facebook and other social networks.

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 budget for all activities unless funds are available and received from another source. Grant writing would be a additional but currently do not have a grant writer for grants.

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.

Flooding- All new storm sewers are upgraded to higher flood values for installations. More storm water retention and alternatives are looked at when project is planned.

Windstorms- Upgrading overhead to underground in treed areas as budget applies. New poles being added due to age and updated requirements. Tree trimming has also been aggressively visited to reduce risk of failure.

2. GAPS OR DEFICIENCIES

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

The city needs funding to move forward with all processes for mitigation. Budgeting affects the local government only. Outside funding is needed. Information for all of these items has been sent out via social media at one time or another.

PART D: SURVEY PARTICIPANTS

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

Joseph Kohlgraf, Public Works Director

Kanabec 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 OGILVIE

Point of Contact: Heather Heins

Name: Heather Heins
 Job Title: City Clerk
 Phone: 320.272.4822
 Email: cityclerk@ogilviecity.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	X	High	No change
Winter Storms	X	High	No change
Tornadoes			
Windstorms	X	High	No change
Lightning			
Hail			
Extreme Cold	X	High	No change
Extreme Heat			
Drought	X	High	No change
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.

Around 2017 the area received record rain which caused flash flooding. That caused damage to place and washed out a large chunk of roads in the area.

Summer of 2023 the area was in a drought. It caused a lot of water uses for watering lawns/garden and also farmers suffered crop losses.

The City of Ogilvie has had issues with water lines freezing in the extreme cold temperatures and in some cases causing mains to break.

It seems over the recent 5+ years the threat of straight-line winds vs tornadoes as increased.

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.
	No local vulnerabilities to report.

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.

Currently the City of Ogilvie has not made any recent changes to handling natural disasters.

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.

There has not been a much for new construction within the city limits, but there are several properties that could increase vulnerability. There is Tower View Mobile home park, a senior apartment complex, as well as two other apartment facilities. Tower View does provide a tornado shelter for their residents.

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.

Typically, any public notices are posted on the outside of City Hall. There is an unofficial Facebook page, Ogilvie, MN that is ran and moderated by citizens. If needed the City Clerk or Deputy Clerk can make notices available on there as well.

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?

Our city doesn't currently encourage residents, but we could post a flyer or post on Ogilvie, MN.

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.

The city enforces the MN State Building Code and has a city code for zoning requirements. The town itself has been pretty stagnant as far as growth. We've been working over the last few years to accomplish some road projects, replaced water main and service connections on two streets, and are in the process of building a new waster water treatment facility.

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.

Currently most things come to Heather (City Clerk) or Dawn (Deputy Clerk) to address issues as they come up. From there, things can be delegated to our Public Works employee Chad. Our power and gas is all outsourced via ECE and Northwest Gas. A portion of our roads are county roads. We have contractors in place for the WWTC, snow removal, grading of roads, etc. The mayor and council are looped in on any major issues.

5. PROGRAMS IN PLACE

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

Our city coordinates with the county for severe weather alerts. We have sirens in town that go off on the first Wednesday of the month. The schools host fire and tornado drills.

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 uses 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. Encourage residents to sign up for the alerts thru the county.

Flooding: Work with MN DNR to enroll in the NFIP and establish flood plain ordinance. Create a sump pump ordinance.

Drought: Enforce and create watering restrictions during severe drought.

Severe Winter/Summer Storms: Acquire a generator for city hall to allow residents affected a place to be.

Extreme Cold: Encourage preparedness for extreme cold periods and how to handle potential power outages.

2. GAPS OR DEFICIENCIES

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

Our city does not have a website or an official Facebook page.

PART D: SURVEY PARTICIPANTS

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

Heather Heins, City Clerk

Appendix D – Plans & Programs in Place

Kanabec County

HMP Plans & Programs in Place Form

EMERGENCY PLANNING CAPABILITIES	Yes/No	Comments
Emergency Mass Notification System	Yes	CodeRED
Outdoor Warning Sirens (#'s and location)	Yes	Braham – 2 Grasston – 1 Mora – 2 Ogilvie – 1 Quamba - 1
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	Yes	Kanabec County Sheriff's Office / Emergency Management is a designated WRN Ambassador
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>	Kanabec County Community Health work includes disaster response & recovery.
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PLANNING & REGULATORY CAPABILITIES	Yes/No	Comments
Comprehensive/Land Use Plan	Yes	Kanabec County Comprehensive Land Use Plan 2050, Adopted Feb. 2022
Capital Improvements Plan	No	
Economic Development Plan	Yes	Kanabec County EDA
Climate Adaptation Plan	No	
Continuity of Operations Plan (COOP)	Yes	COOP planning falls under Kanabec County Emergency Management in coordination with other departments
Transportation Plan (Roads, Bridges, Culverts, Ditches)	Yes	Kanabec County Public Works 5-Year Transportation Plan
Stormwater Management Plan / Drainage Plan	Yes	Kanabec County Public Works administers the County and Judicial ditches in Kanabec County which are governed by Minnesota State Statute 103E.
Burning Permits/Restrictions (Sheriff's Office or MN DNR)	Yes	MN DNR
Comprehensive Local Water Management Plan	Yes	Kanabec County Water Plan 2019-2028 (Kanabec SWCD)
Watershed Plan (One Watershed, One Plan)	Yes	Snake River Comprehensive Watershed Management Plan, January 25, 2023 – January 25, 2033
Wellhead Protection Plan		Municipal level plans are done in coordination with MDH
Forest Management Plan	No	
Community Wildfire Protection Plan (CWPP)	No	
Participation in MN DNR Firewise Program	No	

Database of Dry Hydrants/Well Access	No	Falls under local fire departments
<i>Other (please describe)</i>	Yes	

LOCAL POLICY / PROGRAM CAPABILITIES	Yes/No	Comments
Land Use, Planning, & Zoning Ordinance	Yes	Kanabec County Code of Ordinances
Subdivision Ordinance	Yes	Kanabec County Environmental Services administers the Subdivision/Platting Ordinance #4
Building Codes	No	Kanabec County Environmental Services issues building permits
National Flood Insurance Program (NFIP)	Yes	Kanabec County NFIP entry date 11/01/78
Flood insurance rate maps	Yes	Current effective map date 11/01/78
Floodplain Ordinance	Yes	Kanabec County Environmental Services administers the Floodplain Ordinance #9, August 1990
Shoreland Ordinance	Yes	Kanabec County Environmental Services administers Ordinance #5, Management of Shoreland, revised 06/26/2019
Minnesota Buffer Law / Soil Erosion Ordinance	Yes	Kanabec SWCD manages buffer law compliance
Home Buyouts for flood or erosion mitigation	No	Has Kanabec County done any property buyouts in the past for flood prone properties?
Other natural hazard specific ordinance (i.e., stormwater, steep slope, wildfire)	No	
Maintenance programs to reduce risk	Yes	Highway Dept. ROW maintenance and drainage systems
<i>Other (please describe)</i>	Yes	Kanabec County Highway administers Ordinance #5, Snow

		Removal and the Kanabec County Drainage System Management Policy, May 2010.
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ADMINISTRATIVE/TECHNICAL CAPABILITIES	Yes/No	Comments
Emergency Management Director	Yes	Kanabec County Emergency Management Dept.
Sheriff/Police Department	Yes	Kanabec County Sheriff's Office
Floodplain Administrator	Yes	Kanabec County Environmental Services Director
Chief Building Official	Yes	Kanabec County Environmental Services Director
County Engineer	Yes	Kanabec County Public Works Director
Mapping Specialist (GIS)	Yes	Kanabec County Public Works – GIS Dept.
Public Health Coordinator/Department	Yes	Kanabec County Community Health Director and Preparedness Coordinator
Planning Commission	Yes	Kanabec County Planning Commission
Soil and Water Conservation District	Yes	Kanabec SWCD and NRCS
Minnesota Department of Natural Resources	Yes	
Mitigation Planning Committee		2023 HMP Update Planning Team
Mutual Aid Agreements	Yes	Regional
<i>Other (please describe)</i>	Yes	Kanabec County Environmental Services Director/Snake River Watershed Coordinator; Kanabec County Coordinator; Kanabec County Economic Development Authority Director

EDUCATION & OUTREACH CAPABILITIES	Yes/No	Comments
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>		

Appendix E – Past Mitigation Action Review Status Report

Kanabec County

Past Mitigation Action Review Status Report

Following is a report on the status of mitigation actions related to natural hazards included in the Kanabec County 2016 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 Kanabec County and by city jurisdictions, as applicable.

Hazard	Mitigation Action	Jurisdiction	Status	Comments
Wildfire	Wildfire risks reduced by minimizing fuel in areas, within parks systems and using multiple jurisdictions to prevent spread.	Kanabec County	Ongoing	Fuel risk reduction measures for forests in Kanabec County are under the authority of MN DNR Forestry – Mora Office.
Wildfire	Structures protected from wildfires	Kanabec County, Mora, Ogilvie	Ongoing	Under directive of local fire departments
Wildfire	The safety of residents by wildfire education	Kanabec County	Ongoing	MN DNR, Kanabec County Sheriff’s Office, and local FD’s continue to alert the public to high risk wildfire conditions and burn bans.
Flood	Elimination of nonconforming structures in the 100 year floodplain	Kanabec County & Cities	Ongoing	Kanabec County and local jurisdictions address zoning for areas of flood risk and property buyouts as needed.
Flood	100 year flood risks addressed by high-resolution digital elevation model floodplain mapping for all jurisdictions	Kanabec County & Cities	Ongoing	Kanabec County has existing flood risk maps by MN DNR but they need to be updated.
Severe Storms	Safe and accessible shelter from violent storms	Kanabec County & Cities	Ongoing	Local jurisdictions will continue to identify and address areas that should have storm shelters such as mobile home parks.
Severe Storms	Adequate severe storm warning system for all county residents by ensuring they are aware of NWS warning systems especially in townships	Kanabec County	Ongoing	Kanabec County uses the CodeRED emergency notification system and encourages all residents to sign up for it. The county also works with local jurisdictions to ensure that outdoor warning sirens are tested and functioning properly.

Hazard	Mitigation Action	Jurisdiction	Status	Comments
Severe Storms & Extreme Temperatures	Infrastructure is protected and wisely used in regard to storms & extreme temps	Kanabec County & Cities	Ongoing	The county and all jurisdictions are encouraged to address any vulnerable infrastructure as needed.
Severe Storms & Extreme Temperatures	Providing support and relief to people affected by temperature extremes	Kanabec County	Ongoing	Emergency plans are in place for sheltering for periods of extreme cold or extreme heat coupled with a power outage.
Drought	Ample and high- quality ground water supplies per drought	Kanabec County	Delete	Kanabec County and local jurisdictions will enforce local watering restrictions as per MN DNR guidance during a period of severe drought. Ensuring adequate water supplies would otherwise be addressed under the county Emergency Operations Plan as needed in coordination with HSEM.

Appendix F – Planning Team Meetings

Kanabec County HMP Update

Appendix F – Kickoff Meeting Documentation

Overview:

On 5/3/23 U-Spatial@UMD hosted a kickoff meeting online that was attended by the Kanabec 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

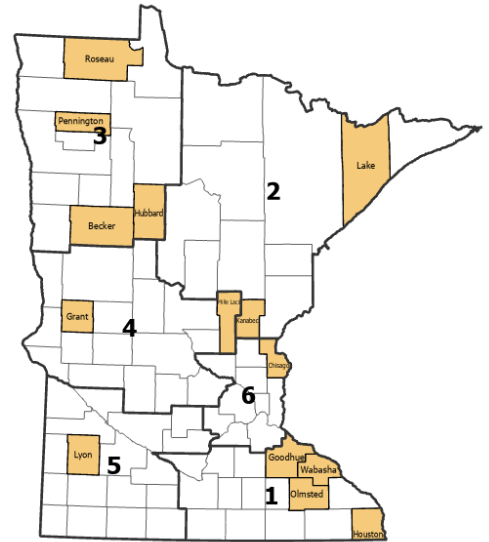
The U-Spatial@UMD team will coordinate with each Emergency Manager throughout the plan update process to engage participating jurisdictions and other stakeholders in the planning process. Following is an overview of key tasks that the U-Spatial@UMD team will facilitate to meet FEMA requirements in the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



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

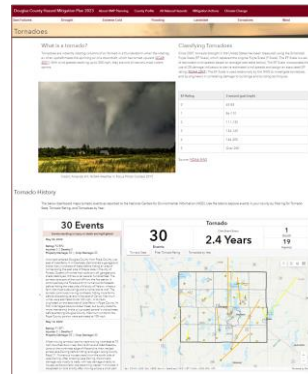
- Contains almost all required elements
- No mapping
- Community outreach/input remains the same
- Includes appendices with jurisdictional outreach

- 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

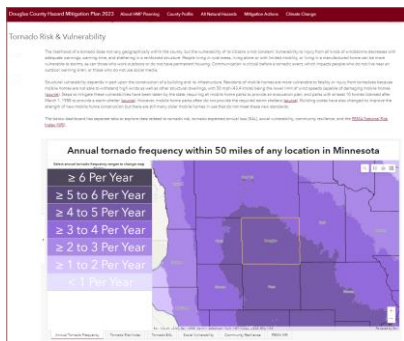
Stacey Stark



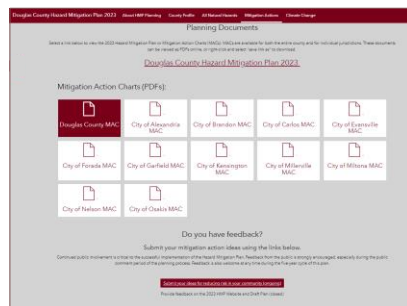
Example Web Site



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
Stage 1 Tasks (4-5 months)	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
Stage 2 Tasks (4-6 months)	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
Stage 3 Tasks (2-3 months)	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
Stage 4 Tasks (2-3 months)	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
 218-726-7438

Example Plans:

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

Kanabec County HMP Update

JURISDICTIONAL CONTACT LIST

COUNTY CONTACTS

Name	Title	Phone	Email
Ashley Meier	Emergency Management Director		ashley.meier@co.kanabec.mn.us
Kelly Schmitt	Deputy Emergency Management Director	(320) 679-8421	kelly.schmitt@co.kanabec.mn.us kellyschmitt3100@gmail.com
Brian Smith	County Sheriff/ Interim EM Director	320-679-8420	brian.smith@co.kanabec.mn.us
Kristine McNally	County Coordinator	320-679-6440	kris.mcnally@co.kanabec.mn.us
Tina Diedrich-Von Eschen	County Assessor	(320) 679-6420	assessor@co.kanabec.mn.us
Denise Snyder	County Auditor/Treasurer	(320) 679-6430	auditor@co.kanabec.mn.us
Jim Hartshorn	Kanabec County Economic Development Authority Director	320-209-5031	james.hartshorn@co.kanabec.mn.us
Kathy Burski	Kanabec County Community Health Director	320-679-6330	kathryn.burski@co.kanabec.mn.us
Kate Mestnik	Kanabec County Public Health Preparedness Coordinator	320-679-6317	Kate.mestnik@co.kanabec.mn.us
Chad T. Gramentz	Public Works Director	320-679-6300	chad.gramentz@co.kanabec.mn.us
Teresa Wickeham	Environmental Services Supervisor / Snake River Watershed Coordinator	320-679-6456	env@co.kanabec.mn.us
Peter Ripka	District 1 Commissioner	320-412-6355	peter.ripka@co.kanabec.mn.us
Alison Holland	District 2 Commissioner	612-390-6357	alison.holland@co.kanabec.mn.us
Wendy Caswell	District 3 Commissioner	320-980-3889	wendy.caswell@co.kanabec.mn.us
Rickey Mattson	District 4 Commissioner, Chairperson	320-679-1834	rick.mattson@co.kanabec.mn.us
Tom Roeschlein	District 5 Commissioner	320-679-3330	tom.roeschlein@co.kanabec.mn.us

CITY CONTACTS

CITY OF BRAHAM (1,769)

Name	Title	Phone	Email
Kevin Stahl	Interim Police Chief/EM	320-396-3383	kstahl@braham.com
Rachel Kytonen	City Administrator	320-496-8709	administrator@braham.com
Nate George	Mayor	651-276-1948	ngeorge@braham.com

CITY OF GRASSTON (148)

Name	Title	Phone	Email
Darcy Balvin	Clerk/Treasurer	320-396-2212 612-202-1896 cell	cityofgrasston@gmail.com

William Tomczak	Mayor	612-701-2651	mayorofgrasston@gmail.com
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CITY OF MORA (3,638)

Name	Title	Phone	Email
Glenn Anderson	City Administrator	(320) 225-4806	g.anderson@cityofmora.com
Jake Mathison	Mayor	320-679-1511	j.mathison@cityofmora.com
Brett Anderson	Fire Chief	320-679-1511	fire.chief@cityofmora.com
Joe Kohlgraf	Public Works Director	320-679-1451	Joe.kohlgraf@cityofmora.com
Mora Municipal Utilities	Glenn Anderson, General Manager	(320) 225-4806	g.anderson@cityofmora.com

CITY OF OGILVIE (416)

Name	Title	Phone	Email
Heather Heins	Clerk/Treasurer	320-272-4822	cityclerk@ogilvocity.com
Mark Nilson	Mayor	320-272-4027	mnilson@olsonpower.com

CITY OF QUAMBA (103)

Name	Title	Phone	Email
Sara Hager	Clerk/Treasurer	(320) 496-5453	quambacityclerk@gmail.com
Terri Huro	Mayor	320-209-1096	quambamayor@gmail.com

TOWNSHIP CONTACTS

Name of Township	Name & Title	Phone	Email
Ann Lake Township	Paul Hoppe, Supervisor/Chair	(612)390-2078	1paulhoppe@gmail.com
Arthur Township	Ashley Martin, Clerk	(320) 679-1347	arthurtownhall@gmail.com
Brunswick Township	Gladys Nelson, Clerk	(320) 396-3490	brunswick@genesiswireless.us
Comfort Township	Patty Kruse, Clerk	(320) 237-3919	comfortclerk@genesiswireless.us
Ford Township	Mistea Roeschlein, Clerk	(320) 279-2665	clerk.fordtownship@gmail.com
Grass Lake Township	Natasha Swanson, Clerk	(612) 366-3230	grasslaketownship@gmail.com
Hay Brook Township	Chris Eggert, Clerk	(320) 364-0517	haybrooktwp3@hotmail.com
Hillman Township	Karen Felger, Clerk	(320) 583-8691	kfelger@moraschools.org
Kanabec Township	Brenda Milbradt, Treasurer	(320) 272-0146	blmilbradt83@yahoo.com
Knife Lake Township	Kim Christenson, Clerk	(612) 390-6234	knifelaketwp@gmail.com
Kroschel Township	Laura McCaughan, Clerk	(218) 766-6529	psalm1949@gmail.com
Peace Township	Betty Caza, Clerk	(320) 515 1634	Betty.peacetownship@gmail.com
Pomroy Township	Luke Stultz, Clerk	(612) 227-3695	pomroytownclerk@gmail.com
South Fork Township	Jen Teigen, Clerk	(320) 515-1938	southforktownship130@gmail.com
Whited Township	Deanna Johnson, Clerk	(612) 390-9805	tripledfarms@q.com

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	Kelvin.McCuskey@state.mn.us
Kanabec Soil & Water Conservation District (SWCD)	Deanna Pomije, District Manager	320-679-1391	deanna@KanabecSWCD.org
Natural Resources Conservation Service (NRCS)	Shannon Bodle, District Conservationist	320-674-3012	shannon.bodle1@usda.gov
USDA Rural Development Community Programs	Brett Repulske, Area Specialist	(218) 829-5965 x113	brett.repulske@usda.gov
MnDOT District 3	Mike Ginnaty, Transportation District Engineer	320-293-8548	mike.ginnaty@state.mn.us
North TH 65 Corridor Coalition	Joe MacPherson , Anoka County Transportation & County Engineer	763-324-3199	Joe.MacPherson@co.anoka.mn.us
MN DNR Ecological and Water Resources Division	Craig Wills, Region 3, Area Hydrologist	(763) 284-7221	craig.wills@state.mn.us

REPRESENTATIVES OF BUSINESSES, ACADEMIA, AND OTHER PRIVATE ORGANIZATIONS

Name of Agency / Organization	Name & Title	Phone	Email
Mora Public Schools	Dan Voce, Superintendent	320-679-6200	danvoce@moraschools.org
Ogilvie Public Schools	Kathy Belsheim, Superintendent	320-272-5075, ext. 156	kbelsheim@ogilvie.k12.mn.us
Mora Area Chamber of Commerce	Jenna Maciej, Executive Director	320-679-5792	chamber@moramn.com
East Central Energy	Kayla Hagfors, Finance & Assets Manager	763-689-8014	kayla.hagfors@ecemn.com

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
Lakes and Pines Community Action Council (Senior Services)	Denise Stewart, Director	320-679-1800	denises@lakesandpines.org
Kanabec County Family Services	Chuck Hurd, Director	320-679-6350	chuck.hurd@co.kanabec.mn.us
East Central Regional Development Commission	Bob Voss, Executive Director	320-679-4065	robert.voss@ecrdc.org
American Red Cross of Central Minnesota	Linda Blackmore, Executive Director	612-217-3631	linda.blackmore@redcross.org

Salvation Army Northern Division (MN/ND)	Major Michele Heaver	651-238-7783	Michele.heaver@usc.salvationarmy.org
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NEIGHBORING JURISDICTIONS

Name of Jurisdiction	Name & Title	Phone	Email
Pine County	Denise Baran, EMC	(320) 629-8380	denise.baran@co.pine.mn.us
Aitkin County	Dan Guida, Sheriff/EMD	(218) 927-7417	dan.guida@co.aitkin.mn.us
Mille Lacs County	Andy Beckstrom, EMD	(320) 983-8288	andy.beckstrom@millelacs.mn.gov
Isanti County	Chad Meyer, EMD	(763) 691-2461	Chad.Meyer@sheriff.co.isanti.mn.us
Chisago County	Scott Sellman, EMD	(651) 213-6313	srsellm@co.chisago.mn.us

LOCAL MEDIA CONTACTS

Name of Local Media	Media Contact	Phone	Email
Kanabec County Times	Hope Murray, Editor	320-225-5128	editor@moraminn.com

Kanabec County HMP Planning Team Meeting #1 Presentation and Discussion 1/30/24 Meeting Summary & Documentation

Summary: On January 30, 2024 Kanabec County Emergency Management convened key county, city, and township representatives, as well as neighboring jurisdictions and other stakeholders to participate in the 1st Planning Team Meeting for the update of the Kanabec County Hazard Mitigation Plan (HMP). The purpose of the meeting was to formally present information about the Kanabec 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: Kanabec 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 **29** people attended the meeting. Representation included elected officials and departmental staff from Kanabec County and the cities of Braham, Mora, Ogilvie, and Quamba. Representatives from the City of Grasston were not available to attend. Other stakeholders, including neighboring jurisdictions, participated in the meeting. A participant list is provided below:

	Name	Organization	Job Title
1	Ashley Meier	Kanabec County Emergency Management	Emergency Management Director
2	Kelly Schmitt	Kanabec County Emergency Management	Deputy EM Director
3	Brian Smith	Kanabec County Sheriff's Office	County Sheriff
4	Kris McNally	Kanabec County	County Coordinator
5	Alison Holland	Kanabec County	County Commissioner
6	Wendy Caswell	Kanabec County	County Commissioner
7	Tina Von Eschen	Kanabec County	County Assessor
8	Chad Gramentz	Kanabec County	Public Works Director
9	Kathy Burski	Kanabec County Community Health	Director
10	Kate Mestnik	Kanabec County Community Health	Public Health Preparedness Coordinator

11	Ryan Carda	Kanabec County Environmental Services	Technician
12	Deanna Pomije	Kanabec Soil & Water Conservation District	District Manager
13	Tyler Treichel	City of Braham	City Administrator
14	Nate George	City of Braham	Mayor
15	Kevin Stahl	City of Braham Police Dept.	Chief of Police / EM Director
16	Glenn Anderson	City of Mora	City Administrator
17	Natasha Segelstrom	City of Mora	Administrative Services Director
18	Mandi Yoder	City of Mora	HR Director
19	Joseph Kohlgraf	City of Mora	Public Works Director
20	Heather Heins	City of Ogilvie	City Clerk
21	Terri Huro	City of Quamba	Mayor
22	Roger Helmbrecht	City of Quamba	Clerk
23	Lisa Holcomb	Arthur Township	Supervisor
24	Ashley Martin	Arthur Township	Clerk
25	Kayla Hagfors	East Central Energy	Finance & Assets Manager
26	Pete Leibel	East Central Energy	Safety Administrator
27	Dan Voce	Mora Public Schools	Superintendent
28	Kelvin McCuskey	HSEM	Region 2 RPC
29	Chad Meyer	Isanti County Sheriff's Office	Captain/EM

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

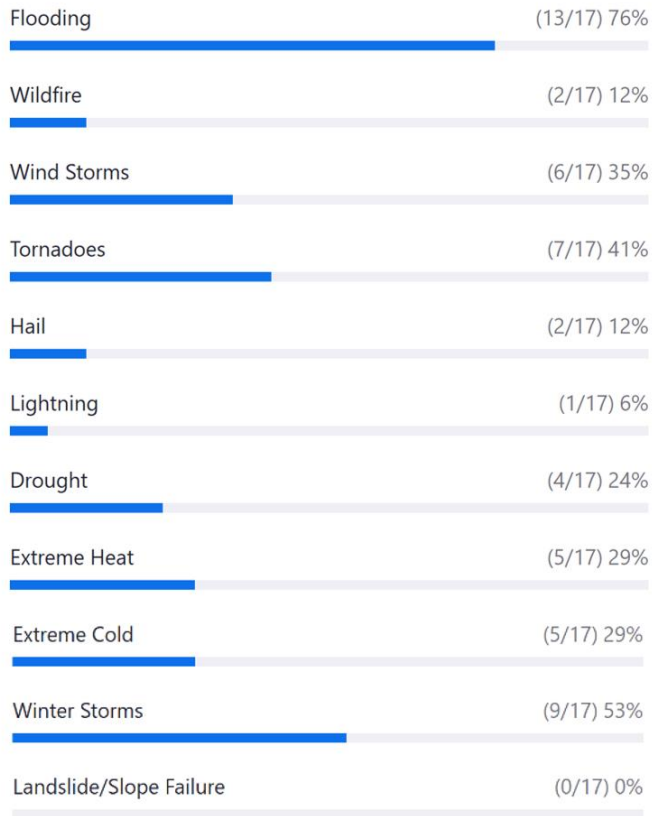
KANABEC COUNTY HMP PLANNING TEAM MEETING #1 DISCUSSION NOTES

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

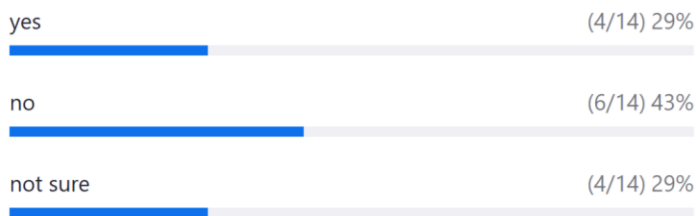
What are the top three hazards of most concern to you in this county? (Multiple Choice)



The top 3 hazards noted were: Flooding, Tornadoes/Windstorms, and Winter Storms.

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?

Deanna Pomije – Flooding along the Snake River.

Glenn Anderson – Flooding is higher.

Kevin Stahl – Yes water levels, and water backups due to compromised drainage ditches. Braham Public works has identified some needs.

Roger Helmbrecht - Flooding is dependent on snow accumulations.

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 Kanabec County or within your own local jurisdiction? If so, are there any best outreach methods to provide an opportunity to participate?*

Deanna Pomije - Amish community. (Outreach) In-person contact

Nate George - Braham industrial park

Glenn Anderson - Senior citizens.

Dan Voce - Underserved families

Nate George - Yes, business park

Chad Meyer - Homeless individuals

Kris McNally – (Outreach) Surveys through rural/local churches

Nate George - (Outreach) Braham Area Chamber of Commerce for local businesses

Kelly Schmitt - (Outreach) Veterans services is a great outreach

Kathy Burski - We have quite a few group homes.

Alison Holland - People who live in mobile homes, people with housing insecurity, immigrant populations, people with mobility challenges. (Outreach) - Mailings, in person outreach

Kathy Burski – (Outreach) Public Health has a good connection with the Amish.

Glenn Anderson – (Outreach) Reaching out to property managers.

Alison Holland – Spanish speakers as a group

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

Natural Hazards	Current Priority
Flooding	High
Windstorms	High
Winter Storms	Moderate
Tornadoes	Moderate
Extreme Cold	Moderate

Extreme Heat	Moderate
Drought	Moderate
Wildfire	Moderate
Dam Failure	Moderate
Landslides	Low
Lightning	Low
Hailstorms	Low

Comments:

Bonnie Hundrieser - It may be helpful to think of RISK as the probability of an event (likelihood or frequency) x Severity & Impacts to Vulnerabilities = Risk

Flooding

- Kelly Schmitt - Flooding should be higher for Kanabec. (past risk ranking was moderate). Our biggest flood event in the recent past was about 2017 where we had a pretty major flood. We dealt with FEMA for that one. I do believe it should be high, it is one of the issues we deal with on a year-to-year basis.
- Kris McNally - I don't think the risks have changed, just the frequency has increased for floods. Agreed that it should be high.
- Joseph Kohlgraf - Flooding in downtown Mora has increased.
- Roger Helmbrecht - Quamba had significant flooding Spring of 2023.
- Lisa Holcomb - Fish Lake in Arthur Township floods every year that causes property damage.
- Kathy Burski - Risk to properties hasn't changed a lot, but we have had more flood events.

Windstorms/Tornadoes

- Lisa Holcomb - I think windstorms should be high, tornados moderate. When was the last time we had a tornado? it looks like tornado could be lower on the list.
- Joseph Kohlgraf - Wind events seem to be happening more, short time frame and localized.
- Kayla Hagfors - I think windstorms should be ranked higher than tornadoes. I'm from East Central Energy and we have had damage to our power lines in the past from windstorms

Hail/Lightning

- Pete Leibel - Lightning is Moderate to low
- Lisa Holcomb - We could group hail and lightning with summer storm.

Winter Storms

- Pete Leibel - Ice storms are a major concern
- Joseph Kohlgraf - Moderate for winter storms
- Kelly Schmitt – Moderate
- Lisa Holcomb - I would say winter storms would be moderate
- Roger Helmbrecht - We are due for some above average snow/blizzards.

Extreme Heat / Cold

- Kelly Schmitt - Please keep extreme heat and extreme cold priority as moderate, it is a consideration for emergency management on a yearly basis.

Drought / Wildfire

- Nate George - Grass/wildfires maybe consider being higher than lightning. With drought there is a lot of dry vegetation in the wetland areas leading to large grass fires. We had one north of Braham not long ago that burned over 100 acres and put three homes at risk.
- Kelly Schmitt - We do have wildfires, we call out the DNR regarding that. but I would say they are increasing in risk
- Roger Helmbrecht - I think dependent of the outcome of this coming snow season (feb & mar) would the wildfire risk be of concern for us.

Landslides

- no comments, landslides considered low risk, low priority.

Dam/Levee Failure

- Lisa Holcomb - The Knife Lake dam failed years ago
- Kris McNally - If the dam goes, it would cause substantial damage. The Knife Lake Improvement District inspects it annually, they do repairs as needed
- Deanna Pomije - The Knife Lake Dam was assessed in 2015, it's listed as a MN dam classification of Hazard Class II (possible health hazard or probable loss of high-value property, damage to secondary highways, railroads or other public utilities, or limited direct or indirect economic loss to the public other than that described in Class III).
- Kelly Schmitt – Dam failure should remain moderate.

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

- No immediate feedback was provided. Participants were encouraged to submit any written feedback if they wished after the meeting.

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

MEETING DOCUMENTATION

Attached are additional documentation items for the Kanabec 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: [Ashley Meier](#)
To: [Kelly Schmitt](#); [Brian Smith](#); [Kelsey Schiferli](#); [Assessor Email](#); [Auditor](#); [James Hartshorn](#); [Kathryn Burski](#); [Kate Mestnik](#); [Chad Gramentz](#); [Environmental Services](#); [Peter Ripka](#); [Alison Holland](#); [Wendy Caswell](#); [Rick Mattson](#); [Tom Roeschlein](#); [kstahl@braham.com](#); [administrator@braham.com](#); [ngeorge@braham.com](#); [cityofgrasston@gmail.com](#); [mayorofgrasston@gmail.com](#); [g.anderson@cityofmora.com](#); [j.mathison@cityofmora.com](#); [fire.chief@cityofmora.com](#); [Joe.kohlgraf@cityofmora.com](#); [g.anderson@cityofmora.com](#); [cityclerk@ogilviecity.com](#); [mnilson@olsonpower.com](#); [quambacityclerk@gmail.com](#); [quambamayor@gmail.com](#); [1paulhoppe@gmail.com](#); [arthurtownhall@gmail.com](#); [brunswick@genesiswireless.us](#); [comfortclerk@genesiswireless.us](#); [clerk.fordtownship@gmail.com](#); [grasslaketownship@gmail.com](#); [haybrooktwp3@hotmail.com](#); [kfelger@moraschools.org](#); [blmilbradt83@yahoo.com](#); [knifelaketwp@gmail.com](#); [psalm1949@gmail.com](#); [Betty.peacetownship@gmail.com](#); [pomroytownclerk@gmail.com](#); [southforktownship130@gmail.com](#); [tripledfarms@q.com](#); [Kelvin.McCuskey@state.mn.us](#); [deanna@KanabecSWCD.org](#); [shannon.bodle1@usda.gov](#); [brett.repulske@usda.gov](#); [mike.ginnaty@state.mn.us](#); [Joe.MacPherson@co.anoka.mn.us](#); [craig.wills@state.mn.us](#); [danvoce@moraschools.org](#); [kbelsheim@ogilvie.k12.mn.us](#); [chamber@moramn.com](#); [kayla.hagfors@ecemn.com](#); [denises@lakesandpines.org](#); [Chuck.hurd](#); [robert.voss@ecrdc.org](#); [linda.blackmore@redcross.org](#); [Michele.heaver@usc.salvationarmy.org](#); [denise.baran@co.pine.mn.us](#); [dan.guida@co.aitkin.mn.us](#); [andy.beckstrom@millelacs.mn.gov](#); [Chad.Meyer@sheriff.co.isanti.mn.us](#); [srsellm@co.chisago.mn.us](#)
Cc: [hundrieserconsulting@outlook.com](#); [slstark@d.umn.edu](#)
Subject: Kanabec County HMP Meeting Invitation
Date: Wednesday, January 3, 2024 11:09:40 AM

Greetings,

Your presence is requested at a Planning Team Meeting for the update of the **Kanabec 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: Tuesday, January 30, 2024

Time: 1:00 p.m. – 2:30 p.m.

Zoom Link: https://umn-private.zoom.us/webinar/register/WN_Rib9u5RFTCCwcYWHsqQCPA

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 Kanabec 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 Kanabec 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 Kanabec 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,

Ashley Meier
PSAP Administrator/ Emergency Management Director
Kanabec County Sheriff's Office
100 South Vine St.
320-679-8421

From: [Bonnie K Hundrieser](#) on behalf of hundrieserconsulting@outlook.com
To: "Ashley Meier"; "kelly.schmitt@co.kanabec.mn.us"; "brian.smith@co.kanabec.mn.us"; "kris.mcnally@co.kanabec.mn.us"; "assessor@co.kanabec.mn.us"; "auditor@co.kanabec.mn.us"; "james.hartshorn@co.kanabec.mn.us"; "kathryn.burski@co.kanabec.mn.us"; "Kate.mestnik@co.kanabec.mn.us"; "chad.gramentz@co.kanabec.mn.us"; "env@co.kanabec.mn.us"; "peter.ripka@co.kanabec.mn.us"; "alison.holland@co.kanabec.mn.us"; "wendy.caswell@co.kanabec.mn.us"; "rick.mattson@co.kanabec.mn.us"; "tom.roeschlein@co.kanabec.mn.us"; "kstahl@braham.com"; "administrator@braham.com"; "ngeorge@braham.com"; "cityofgrasston@gmail.com"; "mayorofgrasston@gmail.com"; "g.anderson@cityofmora.com"; "j.mathison@cityofmora.com"; "fire.chief@cityofmora.com"; "Joe.kohlgraf@cityofmora.com"; "g.anderson@cityofmora.com"; "cityclerk@ogilviecity.com"; "mnilson@olsonpower.com"; "quambacityclerk@gmail.com"; "quambamayor@gmail.com"; "tpaulhoppe@gmail.com"; "arthurtownhall@gmail.com"; "brunswick@genesiswireless.us"; "comfortclerk@genesiswireless.us"; "clerk.fordtownship@gmail.com"; "grasslaketownship@gmail.com"; "haybrooktwp3@hotmail.com"; "kfelger@moraschools.org"; "blmilbradt83@yahoo.com"; "knifelaketwp@gmail.com"; "psalm1949@gmail.com"; "Betty.peacetownship@gmail.com"; "pomroytownclerk@gmail.com"; "southforktownship130@gmail.com"; "tripledfarms@g.com"; "Kelvin.McCuskey@state.mn.us"; "deanna@KanabecSWCD.org"; "shannon.bodle1@usda.gov"; "brett.repulske@usda.gov"; "mike.ginnaty@state.mn.us"; "Joe.MacPherson@co.anoka.mn.us"; "craig.wills@state.mn.us"; "danvoce@moraschools.org"; "kbelsheim@ogilvie.k12.mn.us"; "chamber@moramn.com"; "kayla.hagfors@ecemn.com"; "denises@lakesandpines.org"; "chuck.hurd@co.kanabec.mn.us"; "robert.voss@ecrdc.org"; "linda.blackmore@redcross.org"; "Michele.heaver@usc.salvationarmy.org"; "denise.baran@co.pine.mn.us"; "dan.guida@co.aitkin.mn.us"; "andy.beckstrom@millelacs.mn.gov"; "Chad.Meyer@sheriff.co.isanti.mn.us"; "srsellm@co.chisago.mn.us"
Subject: Kanabec County HMP Planning Team Meeting Materials – Please Review
Date: Tuesday, January 23, 2024 12:21:00 PM
Attachments: [Kanabec County 2023-2024 HMP Overview handout.pdf](#)
[Kanabec County HMP Mtg. #1 Discussion Questions.docx](#)
[HSEM HMA Grants Program Overview.pdf](#)
Importance: High

Greetings,

The Kanabec County Hazard Mitigation Plan (HMP) Update – Planning Team Meeting #1 will be held via Zoom on **Tuesday, January 30 from 1-2:30 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. Kanabec County 2023-2024 Hazard Mitigation Plan Update Overview**
- 2. Kanabec 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, please click on the following registration link: https://umn-private.zoom.us/webinar/register/WN_Rib9u5RFTCCwcYWHsqQCPA (control+click)

If you are not able to personally attend, we encourage you to send another representative in your stead.

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

Hundrieser Consulting LLC

Phone: 218-343-3468



KANABEC
COUNTY
Minnesota

Kanabec 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 **Kanabec 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 Kanabec 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 Kanabec 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 Kanabec 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 Kanabec 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

U-SPATIAL

UNIVERSITY OF MINNESOTA DULUTH
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Kanabec County Hazard Mitigation Plan Update

Planning Team Meeting #1 Discussion Questions

As part of the Kanabec County 1st 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

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 Kanabec 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.

KANABEC COUNTY 2016 HAZARD MITIGATION PLAN

Hazards	Risk Priority
Tornado	High
Straight-line Winds	High
Extreme Cold/Heat	Moderate
Major Winter Storm	Moderate
Flooding	Moderate
Dam/Levee Failure	Moderate

Wildfire	Moderate
Drought	Moderate
Earthquake	Moderate
Landslides	Not Addressed

DISCUSSION QUESTION: What do you feel should be recorded as the updated hazard prioritizations for the Kanabec 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.

KANABEC 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 Kanabec 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>

KANABEC COUNTY Hazard Mitigation Plan Update 2024

Planning Team Meeting #1 Presentation & Discussion, 1/30/24



Welcome & Introductions

U-Spatial@UMD Project Leads



Stacey Stark
Project Manager
U-Spatial@UMD



Bonnie Hundrieser
HM Planning Specialist
Hundrieser Consulting LLC

Kanabec County Project Lead

- Ashley Meyer, Kanabec 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 Kanabec 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 **Kanabec 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

KANABEC 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.

Kanabec County HMP Update 2024

- Last plan was adopted in 2016.
- 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 Kanabec 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 Kanabec 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 Kanabec 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 KANABEC COUNTY

Kanabec County 2016 HMP Risk Rankings

Tornado	High
Straight-line Winds	High
Extreme Cold/Heat	Moderate
Major Winter Storm	Moderate
Flooding	Moderate
Dam/Levee Failure	Moderate
Wildfire	Moderate
Drought	Moderate
Earthquake	Moderate
Landslides	Not Addressed

Has the level of priority for the following natural hazards changed for Kanabec 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 Kanabec County 2024 HMP?

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

PRESENTER: STACEY STARK

Natural Hazards
Assessment on Website-
Demo

KANABEC 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	
Landslides	
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

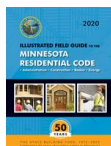
PRESENTER: BONNIE HUNDRIESER

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

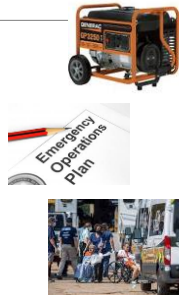


PRESENTER: BONNIE HUNDRIESER

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 Kanabec 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

218-726-7438

Bonnie Hundrieser, HM Planner

Hundrieser Consulting LLC

hundrieserconsulting@outlook.com

218-343-3468



PRESENTER: STACEY STARK

Kanabec County HMP Planning Team Meeting #2 10/10/24 Meeting Summary & Documentation

Summary: On Thursday, October 10, 2024, Kanabec County Emergency Management convened key county, city, and township representatives, as well as neighboring jurisdictions and other stakeholders to participate in the 2nd and final Planning Team Meeting for the update of the Kanabec County Hazard Mitigation Plan (HMP). The purpose of the meeting was to formally convene the Kanabec 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: Kanabec 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 11 people attended the meeting. Representation included elected officials and departmental staff from Kanabec County and the cities of Braham, Grasston, Mora, and Quamba. The city of Ogilvie was not available to participate and was not in attendance. Other stakeholders, including neighboring jurisdictions, participated in the meeting. A participant list is provided below:

	Name	Organization	Job Title
1	Ashely Meier	Kanabec County Emergency Management	Emergency Management Director
2	Ryan Carda	Kanabec County	Environmental Services Supervisor
3	Kris McNally	Kanabec County	County Coordinator
4	Wendy Caswell	Kanabec county	Commissioner
5	Kevin Stahl	City of Braham	City Administrator/ Police Chief
6	Bill Tomczak	City of Grasston	Mayor
7	Natasha Segelstrom	City of Mora	City Clerk
8	Roger Helmbrecht	City of Quamba	Clerk/Treasurer
9	Lisa Holcomb	Arthur Township	supervisor
10	Dawn Besemann	Lakes and Pines Community Action Agency Inc.	Outreach Program Manager
11	Andy Beckstrom	Mille Lacs County Sheriff's Office	PSAP Manager/EM 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.

KANABEC COUNTY HMP PLANNING TEAM MEETING #2 DISCUSSION NOTES

- There were no comments or questions during the presentation.

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 Kanabec 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: [Ashley Meier](#)
To: cityclerk@ogilviecity.com; quambacityclerk@gmail.com; [Kris McNally](#); [Chad Gramentz](#); [Ryan Carda](#); [Alison Holland](#); [Wendy Caswell](#)
Cc: hundrieserconsulting@outlook.com; slstark@d.umn.edu
Subject: Kanabec County Hazard Mitigation Meeting
Date: Tuesday, September 17, 2024 1:51:00 PM

KANABEC COUNTY HAZARD MITIGATION PLAN UPDATE – MEETING INVITATION

Greetings,

Your presence is requested at the **2nd Planning Team Meeting** for the update of the **Kanabec 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: Thursday, October 10, 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 Kanabec 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 Kanabec 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,

Ashley Meier
PSAP Administrator
Kanabec County Sheriff's Office
100 South Vine St.
320-679-8421

Kanabec County Hazard Mitigation Plan Update 2024 Planning Team Meeting #2

October 10, 2024



Welcome & Introductions

U-Spatial@UMD Project Leads



Stacey Stark
Project Manager
U-Spatial@UMD



Bonnie Hundrieser
HMP Planning Specialist
Hundrieser Consulting LLC

Kanabec County Project Lead

- Ashley Meier, Kanabec County Emergency Management Director



Please type your name and jurisdiction in the CHAT – so others know who is here

PRESENTER: STACEY STARK

Zoom Logistics

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- Send a message to everyone
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- 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 **Kanabec 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

Kanabec 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 2016.

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.

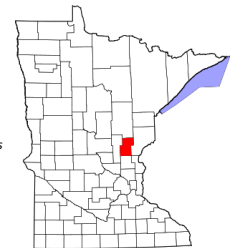
PRESENTER: BONNIE HUNDRIESER

Who the Plan Covers



This is a **multi-jurisdictional plan** that covers Kanabec 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 HUNDRIEISER

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 Kanabec County



Prioritization of hazards by the Kanabec 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
Flooding	High
Windstorms	High
Winter Storms	Moderate
Tornadoes	Moderate
Extreme Cold	Moderate
Extreme Heat	Moderate
Drought	Moderate
Wildfire	Moderate
Dam Failure	Moderate
Landslides	Low
Lightning	Low
Hailstorms	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/KanabecHMP

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 HMA grant activities must be identified in the plan of action.

PRESENTER: BONNIE HUNDRIESER

FEMA Mitigation Grant Funding



Example Section 404 activities:

- Property Acquisition
- Tornado Safe Rooms
- Bury Overhead Powerlines
- Wildfire Mitigation
- Soil Stabilization
- Flood Risk Reduction
- Green Infrastructure
- Other projects difficult to conduct a standard BCA (i.e., tornado warning sirens, generators for critical facilities)

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.

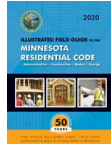
PRESENTER: BONNIE HUNDRIESER

Local Planning & Regulations



Kanabec County Examples:

- Enforcement of ordinances that reduce impacts of high rain events.
- Participation in regional watershed planning with SWCD and area watershed districts (1W1P).
- Implementation of watering restrictions during periods of extreme drought.
- Development of a Kanabec County - Community Wildfire Protection Plan (CWPP)



PRESENTER: BONNIE HUNDRIESER

Structure & Infrastructure Projects

Kanabec County Examples:

- Installation of new outdoor warning sirens (*Braham, Ogilvie)
- Construction of tornado safe rooms or storm shelters (*Braham, Mora)
- Burying powerlines to reduce power failure
- Conducting property buyouts for flooding (*Mora)
- Stormwater management improvements (culverts, drainage systems, curb & gutter)
- Road and bridge improvements



PRESENTER: BONNIE HUNDRIESER

Natural Systems Protection



Kanabec County Examples:

- Conduct vegetation management along roads to reduce the risk of downed trees and branches resulting from heavy snow, ice, or high winds.
- 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

Kanabec County Examples:

- Promote CodeRED sign up
- Extreme Cold > How to avoid frozen pipes
- Wildfire > Outreach and Education (Firewise Program)
- Encouraging residents to be aware of and prepared for severe weather events, extreme temperatures, and extended power outages.
 - Outreach methods vary by community
 - Should consider vulnerable populations
 - NWS Severe Weather Awareness Weeks
 - SKYWARN Storm Spotter Training

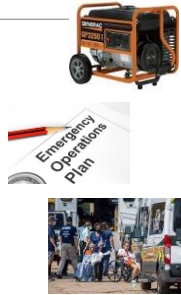


PRESENTER: BONNIE HUNDRIESER

Mitigation Preparedness & Response Support

Kanabec County Examples:

- Obtain 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

Comments and Questions?



Oct-Nov, 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



Nov-Dec, 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
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slstark@d.umn.edu
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 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
Local Planning 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"> • Comprehensive plans • Land use ordinances • Planning and zoning • Building codes and enforcement • Floodplain ordinances • NFIP Community Rating System • Capital improvement programs • Open space preservation • Shoreline codes • Stormwater management regulations and master plans • Mobile home park compliance for storm shelters
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>	<ul style="list-style-type: none"> • Property Acquisitions and elevations of structures in flood prone areas • Utility undergrounding • Structural retrofits (i.e., metal roofs) • Floodwalls and retaining walls • Detention and retention structures • Culvert Installation/Modification • Roads & Bridge risk reduction • Safe Room (New construction or facility retrofit) • Green Infrastructure Methods <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>Natural Systems Protection</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"> • Soil stabilization for sediment and erosion control • Floodplain and Stream corridor restoration • Slope management • Forest management (defensible space, fuels reduction, sprinkler systems) • Conservation easements • Wetland restoration and preservation • Aquifer Storage & Recovery • Flood Diversion and Storage <p><i>Many of these types of actions are projects eligible for funding through FEMA HMA grant programs.</i></p>
<p>Education and Awareness Programs</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"> • Radio or television spots • Websites with maps and information • Social media outreach • Promotion of sign-up for emergency warnings • Real estate disclosure • Promotion of NFIP insurance to property owners • Presentations to school groups or neighborhood organizations • Mailings to residents in hazard-prone areas. • NWS StormReady Program • Firewise Communities <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>Mitigation Preparedness and Response Support</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"> • Emergency Operations Plan • Flood fight plans and preparedness measures • Dam emergency action plans • Emergency Warning Systems (i.e., CodeRed, warning sirens) • Generator backup power • NWS Storm Spotter Training • Training and education for local elected officials and key partners.

Appendix G – Public Outreach & Engagement Documentation

Kanabec County MHMP News Release #1 Record of Public Input & Incorporation

Overview: On **June 5, 2023**, Kanabec 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. Kanabec 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 Kanabec 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 Kanabec 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: Kanabec County Emergency Management and local jurisdictions did not receive any public input following News Release #1.

From: [Bonnie K Hundrieser](mailto:Bonnie.K.Hundrieser)
To: kelly.schmitt@co.kanabec.mn.us; brian.smith@co.kanabec.mn.us; coordinator@co.kanabec.mn.us; assessor@co.kanabec.mn.us; auditor@co.kanabec.mn.us; james.hartshorn@co.kanabec.mn.us; kathryn.burski@co.kanabec.mn.us; Kate.mestnik@co.kanabec.mn.us; chad.gramentz@co.kanabec.mn.us; env@co.kanabec.mn.us; peter.ripka@co.kanabec.mn.us; alison.holland@co.kanabec.mn.us; wendy.caswell@co.kanabec.mn.us; rick.mattson@co.kanabec.mn.us; tom.roeschlein@co.kanabec.mn.us; kstahl@braham.com; administrator@braham.com; ngeorge@braham.com; cityofgrasston@gmail.com; mayorofgrasston@gmail.com; g.anderson@cityofmora.com; j.mathison@cityofmora.com; fire.chief@cityofmora.com; Joe.kohlgraf@cityofmora.com; g.anderson@cityofmora.com; cityclerk@ogilviecity.com; mnilson@olsonpower.com; quambacityclerk@gmail.com; quambamayor@gmail.com; Tpaulhoppe@gmail.com; arthurtownhall@gmail.com; brunswick@genesiswireless.us; comfortclerk@genesiswireless.us; clerk.fordtownship@gmail.com; grasslaketownship@gmail.com; haybrooktwp3@hotmail.com; kfelger@moraschools.org; blmilbradt83@yahoo.com; knifelaketwp@gmail.com; psalm1949@gmail.com; Betty.peacetownship@gmail.com; pomroytownclerk@gmail.com; southforktownship130@gmail.com; tripledfarms@q.com; Kelvin.McCuskey@state.mn.us; deanna@KanabecSWCD.org; shannon.bodle1@usda.gov; brett.repulske@usda.gov; mike.ginnaty@state.mn.us; Joe.MacPherson@co.anoka.mn.us; craig.wills@state.mn.us; danvoce@moraschools.org; kbelsheim@ogilvie.k12.mn.us; chamber@moramn.com; kayla.hagfors@ecemn.com; denises@lakesandpines.org; chuck.hurd@co.kanabec.mn.us; robert.voss@ecrdc.org; linda.blackmore@redcross.org; Michele.heaver@usc.salvationarmy.org; denise.baran@co.pine.mn.us; dan.guida@co.aitkin.mn.us; andy.beckstrom@millelacs.mn.gov; Chad.Meyer@sheriff.co.isanti.mn.us; srsellm@co.chisago.mn.us
Cc: [Bonnie K Hundrieser](mailto:Bonnie.K.Hundrieser)
Subject: Kanabec County Sheriff's Office - Hazard Mitigation News Release
Date: Monday, June 5, 2023 8:28:54 AM
Attachments: [Kanabec County Hazard Mitigation Plan News Release 6-5-23.pdf](#)
Importance: High

Greetings,

Kanabec County Emergency Management is commencing work on the update of the Kanabec 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 Kanabec County HMP update.

If you have any questions, please let me know.

On behalf of the Kanabec County Sheriff's Office,

Bonnie Hundrieser

Bonnie K. Hundrieser, CEM

Hazard Mitigation Planning Specialist

Part of the **U-Spatial@UMD** HMP Planning Team

Hundrieser Consulting LLC

Phone: 218-343-3468

From: [Bonnie K Hundrieser](mailto:Bonnie.K.Hundrieser@moraminn.com)
To: editor@moraminn.com
Cc: brian.smith@co.kanabec.mn.us; kelly.schmitt@co.kanabec.mn.us
Subject: Kanabec County Sheriff's Office News Release
Date: Monday, June 5, 2023 8:33:00 AM
Attachments: [Kanabec County Hazard Mitigation Plan News Release 6-5-23.pdf](#)
Importance: High

Hello Hope,

Attached please find a news release from the Kanabec County Sheriff's Office that I am submitting on behalf of Sheriff Brian Smith and Kelly Schmitt, Kanabec County Emergency Management Director.

Would you please carry this story in the Kanabec County Times online news? FEMA requires that we document all local outreach and regional papers are an important partner for us in this effort. If you run the article, I will need to get a screenshot of it on your website. If you could let me know when it will appear online that would be super helpful.

Thank you for your assistance!

Bonnie

Bonnie K. Hundrieser, CEM

Hazard Mitigation Planning Specialist

Part of the **U-Spatial@UMD** HMP Planning Team

Hundrieser Consulting LLC

Phone: 218-343-3468



OFFICE

KANABEC COUNTY SHERIFF

SHERIFF BRIAN SMITH

18 NORTH VINE STREET, SUITE 143, MORA, MN 55051

KANABEC COUNTY NEWS RELEASE

June 5, 2023

Public Input Wanted as County Updates Hazard Mitigation Plan

Kanabec 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 Kanabec 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 Kanabec County HMP is a multi-jurisdictional plan that covers Kanabec County, including the cities of Braham, Grasston, Mora, Ogilvie, and Quamba. The Kanabec 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 Kelly Schmitt, Kanabec 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

WEARING THE STAR OF HONOR AND SERVICE

- 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, Kanabec 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 Kanabec 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

Brian R. Smith

Kanabec County Sheriff

Phone: (320) 679-8420

Email: brian.smith@co.kanabec.mn.us

Kanabec County HMP News Release #1 – June 5, 2023
Chart Documentation of News Release Postings

Jurisdiction or Agency	Posting Representative	Date & Location of News Release Posting
Kanabec County	Brian Smith, Kanabec County Sheriff and Kelsey Schiferli, Administrative Assistant, Kanabec County Coordinator's Office	6/5/23, Kanabec County Courthouse bulletin board and Kanabec County website
City of Braham	Kevin Stahl, Chief of Police/EM and Rachel Kytönen, City Administrator	6/6/23, City Hall notice board, City website, and City Facebook page
City of Grasston	Darcy Balvin, City Clerk	6/5/23, City Hall bulletin board
City of Mora	Natasha Segelstrom, Administrative Director	6/5/23, City website
City of Ogilvie	Heather Heins, City Clerk	6/6/23, City Hall public notice area
City of Quamba	Roger Helmbrecht, City Clerk	6/12/23, City Hall public notice area
Whited Township	Deanna Johnson, Township Clerk	6/12/23, Town Hall bulletin board
USDA Mora Field Office	Shannon Bodle, District Conservationist	6/7/23, USDA Service Center building entrance bulletin board
Kanabec County Times	Hope Murray, News Editor	6/7/23, Kanabec County Times online news article
Mora Public Schools	Kelly Fischer, Executive Assistant	6/20/23, MPS Facebook page

Kanabec County HMP News Release #2 Record of Public Input & Incorporation

Overview: On October 28, 2024 Kanabec 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 Kanabec 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 10/28/24 – 11/11/24 for a total of 15 days.

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 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 Kanabec 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 Kanabec 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 Kanabec County or local jurisdictions.**

From: [Ashley Meier](#)
To: kellyschmitt3100@gmail.com; [Brian Smith](#); [Kris McNally](#); [Auditor](#); [James Hartshorn](#); [Kathryn Burski](#); [Kate Mestnik](#); [Chad Gramentz](#); [Environmental Services](#); [Peter Ripka](#); [Alison Holland](#); [Wendy Caswell](#); [Rick Mattson](#); [Tom Roeschlein](#); kstahl@braham.com; administrator@braham.com; ngeorge@braham.com; cityofgrasston@gmail.com; mayorofgrasston@gmail.com; g.anderson@cityofmora.com; j.mathison@cityofmora.com; fire.chief@cityofmora.com; Joe.kohlgraf@cityofmora.com; g.anderson@cityofmora.com; cityclerk@ogilviecity.com; mnilson@olsonpower.com; quambacityclerk@gmail.com; quambamayor@gmail.com; 1paulhoppe@gmail.com; arthurtownhall@gmail.com; brunswick@genesiswireless.us; comfortclerk@genesiswireless.us; clerk.fordtownship@gmail.com; grasslaketownship@gmail.com; haybrooktwp3@hotmail.com; Kelly.Schmitt@kfelger@moraschools.org; blmilbradt83@yahoo.com; knifelaketwp@gmail.com; psalm1949@gmail.com; Betty.peacetownship@gmail.com; pomroytownclerk@gmail.com; southforktownship130@gmail.com; tripledfarms@q.com; deanna@KanabecSWCD.org; danvoce@moraschools.org; kbelsheim@ogilvie.k12.mn.us; chamber@moramn.com; kayla.hagfors@ecemn.com; denises@lakesandpines.org; Chuck.Hurd@robert.voss@ecrdc.org; linda.blackmore@redcross.org; Michele.heaver@usc.salvationarmy.org
Cc: [Bonnie K Hundrieser](#)
Subject: HMP Public Review
Date: Monday, October 28, 2024 11:18:36 AM
Attachments: [Kanabec County News Release HMP Public Review \(10-28-24\).pdf](#)

Good Morning,

Please review the attached news release. This will be sent to the local newspaper and posted on social media by end of day today.

Feel free to contact me with any questions.

Thank you and have a great week!

Ashley Meier
PSAP Administrator
Kanabec County Sheriff's Office
100 South Vine St.
320-679-8421

From: [Ashley Meier](#)
To: kellyschmitt3100@gmail.com; [Brian Smith](#); [Kris McNally](#); [Auditor](#); [James Hartshorn](#); [Kathryn Burski](#); [Kate Mestnik](#); [Chad Gramentz](#); [Environmental Services](#); [Peter Ripka](#); [Alison Holland](#); [Wendy Caswell](#); [Rick Mattson](#); [Tom Roeschlein](#); kstahl@braham.com; administrator@braham.com; ngeorge@braham.com; cityofgrasston@gmail.com; mayorofgrasston@gmail.com; g.anderson@cityofmora.com; j.mathison@cityofmora.com; fire.chief@cityofmora.com; Joe.kohlgraf@cityofmora.com; g.anderson@cityofmora.com; cityclerk@ogilviecity.com; mnilson@olsonpower.com; quambacityclerk@gmail.com; quambamayor@gmail.com; 1paulhoppe@gmail.com; arthurtownhall@gmail.com; brunswick@genesiswireless.us; comfortclerk@genesiswireless.us; clerk.fordtownship@gmail.com; grasslaketownship@gmail.com; haybrooktwp3@hotmail.com; Kelly.Schmitt@kfelger@moraschools.org; blmilbradt83@yahoo.com; knifelaketwp@gmail.com; psalm1949@gmail.com; Betty.peacetownship@gmail.com; pomroytownclerk@gmail.com; southforktownship130@gmail.com; tripledfarms@q.com; deanna@KanabecSWCD.org; danvoce@moraschools.org; kbelsheim@ogilvie.k12.mn.us; chamber@moramn.com; kayla.hagfors@ecemn.com; denises@lakesandpines.org; Chuck.Hurd@robert.voss@ecrdc.org; linda.blackmore@redcross.org; Michele.heaver@usc.salvationarmy.org
Cc: [Bonnie K Hundrieser](#)
Subject: RE: HMP Public Review
Date: Monday, October 28, 2024 11:32:39 AM

Last email, sorry!

Addition:

Please participate in posting this news release locally. As a jurisdiction or related stakeholder involved in the Kanabec County plan update, your assistance is requested to help post the news release and also to review the draft plan. **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.**

Please email me to let me know the date and location(s) of where the news release was posted.

-

Please respond no later than November 11th.

Thank you for your assistance on conducting this public outreach.

Ashley Meier
PSAP Administrator/ Emergency Management Director
Kanabec County Sheriff's Office
100 South Vine St.
320-679-8421

From: Ashley Meier
Sent: Monday, October 28, 2024 11:16 AM
To: kellyschmitt3100@gmail.com; [Brian Smith <brian.smith@co.kanabec.mn.us>](mailto:brian.smith@co.kanabec.mn.us); [Kris McNally <Kris.McNally@co.kanabec.mn.us>](mailto:Kris.McNally@co.kanabec.mn.us); [Auditor <auditor@co.kanabec.mn.us>](mailto:auditor@co.kanabec.mn.us); ['James Hartshorn' <James.Hartshorn@co.kanabec.mn.us>](mailto:James.Hartshorn@co.kanabec.mn.us); [Kathryn Burski <kathryn.burski@co.kanabec.mn.us>](mailto:kathryn.burski@co.kanabec.mn.us); [Kate Mestnik <kate.mestnik@co.kanabec.mn.us>](mailto:kate.mestnik@co.kanabec.mn.us); [Chad Gramentz <chad.gramentz@co.kanabec.mn.us>](mailto:chad.gramentz@co.kanabec.mn.us); [Environmental Services <env@co.kanabec.mn.us>](mailto:env@co.kanabec.mn.us); [Peter Ripka <Peter.Ripka@co.kanabec.mn.us>](mailto:Peter.Ripka@co.kanabec.mn.us); [Alison Holland <Alison.Holland@co.kanabec.mn.us>](mailto:Alison.Holland@co.kanabec.mn.us); [Wendy Caswell <Wendy.Caswell@co.kanabec.mn.us>](mailto:Wendy.Caswell@co.kanabec.mn.us); [Rick Mattson <Rick.Mattson@co.kanabec.mn.us>](mailto:Rick.Mattson@co.kanabec.mn.us); [Tom Roeschlein <Tom.Roeschlein@co.kanabec.mn.us>](mailto:Tom.Roeschlein@co.kanabec.mn.us); kstahl@braham.com;

administrator@braham.com; ngeorge@braham.com; cityofgrasston@gmail.com;
mayorofgrasston@gmail.com; g.anderson@cityofmora.com; j.mathison@cityofmora.com;
fire.chief@cityofmora.com; Joe.kohlgraf@cityofmora.com; g.anderson@cityofmora.com;
cityclerk@ogilviecity.com; mnilson@olsonpower.com; quambacityclerk@gmail.com;
quambamayor@gmail.com; 1paulhoppe@gmail.com; arthurtownhall@gmail.com;
brunswick@genesiswireless.us; comfortclerk@genesiswireless.us; clerk.fordtownship@gmail.com;
grasslaketownship@gmail.com; haybrooktp3@hotmail.com; Kelly Schmitt
<Kelly.Schmitt@co.kanabec.mn.us>; kfelger@moraschools.org; blmilbradt83@yahoo.com;
knifelaketwp@gmail.com; psalm1949@gmail.com; Betty.peacetownship@gmail.com;
pomroytownclerk@gmail.com; southforktownship130@gmail.com; tripledfarms@q.com;
deanna@KanabecSWCD.org; danvoce@moraschools.org; kbelsheim@ogilvie.k12.mn.us;
chamber@moramn.com; kayla.hagfors@ecemn.com; denises@lakesandpines.org; Chuck Hurd
<chuck.hurd@co.kanabec.mn.us>; robert.voss@ecrdc.org; linda.blackmore@redcross.org;
Michele.heaver@usc.salvationarmy.org

Cc: Bonnie K Hundrieser <hundrieserconsulting@outlook.com>

Subject: HMP Public Review

Good Morning,

Please review the attached news release. This will be sent to the local newspaper and posted on social media by end of day today.

Feel free to contact me with any questions.

Thank you and have a great week!

Ashley Meier
PSAP Administrator
Kanabec County Sheriff's Office
100 South Vine St.
320-679-8421



OFFICE

of **KANABEC COUNTY SHERIFF**

SHERIFF BRIAN SMITH

18 NORTH VINE STREET, SUITE 143, MORA, MN 55051

KANABEC COUNTY NEWS RELEASE

October 28, 2024

Public Comment Sought for Kanabec County's Hazard Mitigation Plan

Kanabec County has completed an updated draft of its Hazard Mitigation Plan (HMP) and is now seeking public feedback. Like all Minnesota counties, Kanabec 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 November 11, 2024. The public can access the plan using the following hyperlinks:

[Kanabec County HMP Website Homepage](#) (feedback form at the bottom of page)

[Kanabec County Mitigation Action Charts](#) (feedback form at the bottom of page)

The Kanabec County HMP is a multi-jurisdictional plan that covers Kanabec County, including all cities and townships within the county. The Kanabec 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 Kanabec 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 Kanabec 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

WEARING THE STAR OF HONOR AND SERVICE

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 Kanabec 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. Kanabec 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 Kanabec County Emergency Management.

Contact

Ashley Meier

Kanabec County PSAP Coordinator/Emergency Management Director

Phone: (320) 679-8421

Email: ashley.meier@co.kanabec.mn.us

Please scan the following QR code to go directly to the Kanabec County Hazard Mitigation Plan interactive website:



Kanabec County HMP News Release #1 (10/28/24)
Chart Documentation of News Release Postings

Jurisdiction or Agency	Posting Representative	Date & Location of News Release Posting
Kanabec County	Brian Smith, Kanabec County Sheriff Kelsey Schiferli, Kanabec County Administrative Assistant Ashley Meier, Emergency Management Director	10/29/24 Kanabec County Website – Public Notices page
City of Braham	Kevin Stahl, Chief of Police	10/28/24 posted on City Facebook and Website
City of Grasston	Darcy Balvin, City Clerk	10/30/24 posted at City Hall
City of Mora	City of Mora Staff	10/28/24 Posted to City Website
City of Ogilvie	Heather Heins, City Clerk	10/30/24 posted at City Hall
City of Quamba	Roger Helmbrecht, City Clerk	10/20/24, posted at City Hall on the bulletin board as well as 11/11/24 posted to City Hall front door.
Kanabec Highway Dept.	Kanabec County Engineer, Chad Gramentz	10/28/24 Driver’s License Lobby
Arthur Township	Arthur Township	10/31/24 Website www.arthurtownship.com
Kanabec County Times	News Editor	10/28/24 Kanabec County Times Newspaper

Appendix H – Mitigation Actions by Jurisdiction

CITY OF BRAHAM

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 have updated our city website that will include a bulletin board format page to allow for timely communications and information sharing. The city also uses other social media outlets like Facebook, as well as the local radio station KBK to communicate information in a timely manner. We also utilize a city owned LED community sign, and community bulletin boards. Our city works with the county to promote the national weather service's weather awareness.	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	We are primarily located in Isanti County, so the city utilizes the Isanti county's emergency notification system and promote its usage through our website and social media sites.	City Funding
3	All-Hazards	Mitigation Preparedness & Response Support	Ensure that all Police Officers, and Crime Prevention specialist are EMSRB certified and each squad car carry's medical equipment including Oxygen, Defibrillators, and Narcan.	New High 2025-2030	Braham Police Dept.	This is part of the Braham Police Department's all-hazards emergency preparedness planning.	City P.D. Funding
4	All-Hazards	Mitigation Preparedness & Response Support	Ensure that all squads carry the Emergency Response Guidebook (Both a physical copy and a digital copy on the Squads desktop), in the event of a critical incident involving a chemical/ biological/ radiological agent.	New High 2025-2030	Braham Police Dept.	This is part of the Braham Police Department's all-hazards emergency preparedness planning.	City P.D. Funding
5	All-Hazards	Mitigation Preparedness & Response Support	Strengthen the Police Reserve Program through time investment and training of reserve members. These reserve members can provide needed trained manpower in the event of a critical incident.	New High 2025-2030	Braham Police Dept.	This is part of the Braham Police Department's all-hazards emergency preparedness planning.	City P.D. Funding

CITY OF BRAHAM

Mitigation Action Chart

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
6	All-Hazards	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	The City Administrator serves as the Zoning Official and oversees the zoning regulation of property to ensure the general health, safety, and welfare standards for the community are met. The city is currently working on creating a new comprehensive plan.	City Funding
7	Severe Winter & Summer Storms	Local Planning & Regulations	Ensure new development is built to guidelines to reduce risk of damage or failure from extreme storm events.	Existing High 2025-2030	City Admin	The city enforces the MN State Building Code and the City ordinances as it relates to zoning, and minimum building standards. The city requires building permits on all construction projects and contracts with a licensed building official to inspect and assure building code compliance.	City Funding
8	Severe Winter & Summer Storms	Mitigation Preparedness & Response Support	Purchase and install a backup generator for the Braham City Hall/EOC, Fire Hall, and Public Works building.	New High 2025-2030	City Admin / City EM / Public Works	Purchase of backup generators is a part of the city's emergency preparedness efforts. We will purchase backup generators as funding is available. We are also planning to complete the wiring of the lift stations to connect to the mobile portable generator that we have.	City Funding
9	Severe Summer Storms	Education & Awareness Programs	Continue to participate in annual SkyWarn Storm Spotter Training with the National Weather Service.	Existing High 2025-2030	City EM	All police officers receive Skywarn training on an annual basis. The training is also made available to fire fighters and local residents who wish to be trained as Storm Spotters.	NWS

CITY OF BRAHAM

Mitigation Action Chart

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
10	Severe Summer Storms	Structure & Infrastructure Projects	Work to construct storm shelters or tornado safe rooms in specific areas where residents are more vulnerable to severe wind or tornado events.	New High 2025-2030	City EM	The City of Braham has identified the following areas where we would like to construct appropriate storm shelter facilities: Mobile Home Park within the city, City Hall, Braham High School, and Braham Elementary School. The city will work with the MHP operator, City Administration, and the Braham Schools Superintendent to evaluate our options and pursue funding opportunities. If a tornado safe room is deemed the best alternative for any of the above locations, we may seek to apply for future FEMA grant funding to plan for / construct the safe room.	City Funding, School Funding, Possible FEMA grant funding
11	Severe Summer	Structure & Infrastructure Projects	Purchase and install a new outdoor warning siren for the area of new development within the city.	New High 2025-2030	City Admin / City EM	The city will assess the type and cost of a warning siren for installation. If purchased we would work with Isanti County to tie it in to the county's remote activation system	City Funding
12	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 to notify residents to avoid freezing pipes during sub-zero weather by running a stream of hot water. We can also include reminders in our utility billing.	City Funding
13	Flooding	Local Planning & Regulations	Enforce the city's Floodplain Ordinance to regulate development within mapped flood risk areas.	Existing High 2025-2030	City Admin	The city participates in the NFIP and enforces Chapter 152: Floodplain Management of the City Ordinances.	City Funding
14	Flooding	Structure & Infrastructure Projects	Identify and implement projects that will reduce the impacts of future high rain events to vulnerable city infrastructure.	In-Progress High 2025-2030	City Admin / City Public Works	The city of Braham is currently investing in a wastewater treatment plant upgrade project, as well as a sewer and water street improvement project. This will reduce a few infrastructures vulnerabilities and provide a starting point for which we can build.	City Funding

CITY OF BRAHAM

Mitigation Action Chart

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
15	Flooding	Structure & Infrastructure Projects	Mitigate inflow & infiltration to the WWTP.	New High 2025-2030	Public Works	Remediation would include repairing main Sanitary sewer lines by either slip lining or replacement.	City Funding
16	Drought	Local Planning & Regulations / Education & Awareness Programs	Establish watering restrictions during drought conditions and raise public awareness of water conservation measures.	New Moderate 2025-2030	City Admin	The city will establish watering restrictions 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
17	Wildfire	Education & Awareness Programs	Promote public awareness of the risk of wildfire, especially during periods of drought.	Existing High 2025-2030	City Admin / City EM	When there are periods of high risk for wildfire, the city will work to share information we receive from Isanti County Emergency Management by using our city website / social media.	City Funding

CITY OF GRASSTON

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 are currently working on the development of a new city website. Once it is established, we will work to share information with residents there. We also post flyers and make announcements at City Council meetings as needed to share important information with residents.	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	We will work with Kanabec County Emergency Management to help us get a link to the county website for residents to sign up for the CodeRED system	City Funding
3	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 new city website to help notify residents to avoid freezing pipes during sub-zero weather by running a stream of hot water. We also share information at City Council meetings.	City Funding
4	Flooding	Structure & Infrastructure Projects	Continue to address stormwater management planning to handle future high-rain events that impact the city.	Existing High 2025-2030	City Public Works in coord with Kanabec County Hwy. Dept.	The city continues to work with the Kanabec County Highway Engineer when we need to plan for any roads related projects such as culvert improvements.	City Funding
5	Drought	Local Planning & Regulations / Education & Awareness Programs	Establish watering restrictions during drought conditions and raise public awareness of water conservation measures.	New Moderate 2025-2030	City Admin	The city will establish watering restrictions 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
6	Wildfire	Education & Awareness Programs	Promote public awareness of the risk of wildfire, especially during periods of drought.	Existing High 2025-2030	City Admin / City EM	When there are periods of high risk for wildfire, the city will work to share information we receive from Kanabec County Emergency Management with our residents.	City Funding

CITY OF MORA

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 the city website and our city Facebook page. We also have a local radio station that we can talk on and will do so when asked. Residents are encouraged to follow the local paper which gives information for the county, city, and surrounding areas.	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	We continue to direct residents to go to the Kanabec County website to sign up for CodeRED.	City Funding
3	All-Hazards	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	City code enforces city and state building codes relating to requirements. Our city building official receives yearly training and updates to achieve this. We have a comprehensive plan that is updated as needed and reviewed yearly. We meet with MNDOT and Kanabec County annually or as needed for road projects that are planned.	City Funding
4	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 to notify residents to avoid freezing pipes during sub-zero weather by running a stream of hot water. We can also include reminders in our utility billing.	City Funding
5	Severe Summer Storms	Structure & Infrastructure Projects	Reduce the risk of downed power lines and extended power outages from the impacts of heavy snow, ice, or high wind events.	In-Progress High 2025-2030	Mora Municipal Utilities	Our city utility will be working to convert overhead powerlines to underground in treed areas as budget applies. New poles are being added due to age and updated requirements. Tree trimming has also been aggressively visited to reduce risk of failure.	Mora Municipal Utilities

CITY OF MORA

Mitigation Action Chart

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
6	Severe Summer Storms	Structure & Infrastructure Projects	Work to address the need for storm shelters or tornado safe rooms at our 2 mobile home parks.	New High 2025-2030	City Admin / City EM / Public Works	The city will seek to work with the MHP operators to evaluate what options may exist for providing emergency shelter to residents of the parks. We will also coordinate with Kanabec County Emergency Management in the event we decide to pursue a FEMA grant for construction of a tornado safe room for either/both trailer parks.	City Funding, Possible FEMA grant funding
7	Flooding	Structure & Infrastructure Projects	Continue to address stormwater management planning to handle future high-rain events that impact the city.	Existing High 2025-2030	Public Works	Recent street reconstruction projects are starting to address the under sizing of the storm sewers in town. The increased sizing will better convey storm water from point A to point B. Concentrating on adding green space to projects to reduce the amount of runoff is also being addressed as new projects are being designed. Planned road projects are being scheduled for the next 20 years with the storm water convenience in mind. The city is also concentrating on adding green space to projects to reduce the amount of runoff as new projects are being designed.	City Funding
8	Flooding	Structure & Infrastructure Projects	Assess the opportunity and potential grant funding to conduct property buyouts for homes that have experienced repetitive flooding.	New High 2025-2030	City Admin / City EM / Public Works	Multiple homes were affected in the high rain events that impacted the City of Mora that may benefit from buy out programs (primarily on Jade Street and Mahogany Street). The city will work with homeowners to gauge interest in buyouts and look into possible outside grant sources to support this effort, including the MN DNR flood risk reduction grant program and possible FEMA grant funding for property acquisitions.	City Funding, MN DNR or FEMA possible grant funding

CITY OF MORA**Mitigation Action Chart**

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
9	Drought	Local Planning & Regulations / Education & Awareness Programs	Establish watering restrictions during drought conditions and raise public awareness of water conservation measures.	New Moderate 2025-2030	City Admin	The city will establish watering restrictions 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
10	Wildfire	Education & Awareness Programs	Promote public awareness of the risk of wildfire, especially during periods of drought.	Existing High 2025-2030	City Admin / City EM	When there are periods of high risk for wildfire, the city will work to share information we receive from Kanabec County Emergency Management by using our city website / social media.	City Funding

CITY OF OGILVIE

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	Typically, any public notices are posted on the outside of City Hall. There is an unofficial Facebook page, Ogilvie, MN that is ran and moderated by citizens. If needed the City Clerk or Deputy Clerk can make notices available on there as well. Our city coordinates with the county for severe weather alerts. We have sirens in town that go off on the first Wednesday of the month. The schools host fire and tornado drills.	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	Our city doesn't currently encourage residents, but we could post a flyer or post on Ogilvie, MN and in other community locations. We would direct residents to go to the county website to sign up for CodeRED.	City Funding
3	All-Hazards	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	The city enforces the MN State Building Code and has a city code for zoning requirements.	City Funding
4	Extreme Cold	Education & Awareness Programs	Conduct public outreach to residents to be prepared for power outages during extreme cold and how to avoid frozen pipes.	New High 2025-2030	City Admin / Public Works	We will use our city Facebook page and city council meetings to remind residents to be prepared for possible power outages during sub-zero weather and how to avoid freezing pipes by running a stream of hot water.	City Funding
5	Severe Summer Storms	Structure & Infrastructure Projects	Upgrade the city's outdoor warning siren.	New Moderate 2025-2030	City Admin / City EM	The city will seek to work with Kanabec County Emergency Management on this effort.	City Funding
6	Flooding	Structure & Infrastructure Projects	Continue to address stormwater management planning to handle future high-rain events that impact the city.	In-Progress High 2025-2030	City Admin / Public Works	Over the last few years, the city has been working to accomplish some road projects, replaced water main and service connections on two streets, and are in the process of building a new waste water treatment facility.	City Funding

CITY OF OGILVIE

Mitigation Action Chart

#	Hazard	Mitigation Strategy	Mitigation Action	Status Priority Timeframe	Responsibility	Comments on Implementation & Integration	Possible Funding
7	Flooding	Local Planning & Regulations	Work with MN DNR to enroll in the NFIP and establish flood plain ordinance.	New High 2025-2030	City Admin	City Admin will work with the MN DNR Floodplain Management Program on getting enrolled in the NFIP and establishing a floodplain ordinance to meet requirements of the NFIP.	City Funding, MN DNR
8	Flooding	Local Planning & Regulations	Create a sump pump ordinance to reduce residential burden to the city's stormwater system.	New High 2025-2030	City Admin	The city will work to establish and enforce a new sump pump ordinance to regulate impacts of stormwater to the city's system. We will promote awareness of the ordinance by making announcements at city council meetings and posting information on our city FB page.	City Funding
9	Drought	Local Planning & Regulations / Education & Awareness Programs	Establish watering restrictions during drought conditions and raise public awareness of water conservation measures.	New Moderate 2025-2030	City Admin	The city will establish watering restrictions 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
10	Wildfire	Education & Awareness Programs	Promote public awareness of the risk of wildfire, especially during periods of drought.	Existing High 2025-2030	City Admin / City EM	When there are periods of high risk for wildfire, the city will work to share information we receive from Kanabec County Emergency Management by using our city FB page and making announcements at city council meetings.	City Funding

CITY OF QUAMBA

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 does not have a website or a Facebook page. We primarily share information with residents at city council meetings. We can also post flyers at City Hall. We encourage residents to stay posted to local news and radio to receive information on severe weather conditions.	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	We will encourage residents to go to the Kanabec County website to sign up for CodeRED.	City Funding
3	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	During periods of extreme cold we will use our city council meetings to remind residents to avoid freezing pipes during sub-zero weather by running a stream of hot water.	City Funding
4	Drought	Local Planning & Regulations / Education & Awareness Programs	Establish watering restrictions during drought conditions and raise public awareness of water conservation measures.	New Moderate 2025-2030	City Admin	The city will establish watering restrictions 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
5	Wildfire	Education & Awareness Programs	Promote public awareness of the risk of wildfire, especially during periods of drought.	Existing High 2025-2030	City Admin / City EM	When there are periods of high risk for wildfire, the city will work to share information we receive from Kanabec County Emergency Management to raise awareness.	City Funding