

# All-Hazard Mitigation Plan for the Upper

DRAFT



Upper Minnesota Valley  
**REGIONAL  
DEVELOPMENT  
COMMISSION**

Prepared by the  
Upper Minnesota Valley Regional Development Commission  
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## **ACKNOWLEDGEMENTS**

### **Upper Sioux Community Planning Team:**

#### Board of Trustee Members:

Kevin Jensvold, Tribal Chair  
Caralyn Trutna, Tribal Vice Chair  
Adam Savariego, Tribal Secretary  
Camille Tanhoff, Tribal Treasurer  
Jeremy Hamilton, Member-at-Large

#### Emergency Coordinator:

Daniel DeSmet, Police Chief and Emergency Preparedness Coordinator

#### Upper Sioux Community Staff:

Amanda Wold, USC Environmental Services  
Matt Schommer, USC Public Works  
Dan Hildahl, USC Propane Manager  
James Ross, USC Public Works  
Angela Ochoa, USC Network Administrator

### **Upper Sioux Community Mission Statement:**

“The mission of the Upper Sioux Board of Trustees is to provide culturally-based programs and services that preserve the Dakota traditions, promote and support education, healthy families and a diversified and growing economy, leading to increased self-esteem and self-sufficiency for individual community members and the Upper Sioux Community, Pejuhutazizi Oyate.”

### ***This plan was prepared by Upper Minnesota Valley Regional Development Commission (UMVRDC) Staff:***

Kristi Fernholz, Planning Director

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# EXECUTIVE SUMMARY

## LOCATION

The Upper Sioux Community is comprised of 547 (July 1, 2022) Dakota Members whose ancestors resided in the Minnesota River Valley for centuries. The Upper Sioux Community is currently located on approximately 2,339 acres of land that borders the Minnesota River and both Yellow Medicine and Chippewa Counties (See Figure 1.4 to the right). The Upper Sioux Community is 120 miles west of Minneapolis-St. Paul, 100 miles southwest of St. Cloud, and five miles south of Granite Falls, Minnesota, on the Minnesota River.

## CLIMATE CHANGE

According to the Minnesota State Hazard Mitigation Plan 2019, temperatures are rising, and weather patterns are changing, with increases in severe weather events and extreme precipitation.

According to the Minnesota Climate & Health Program Planning document published in August 2018, the region of the Upper Sioux Community has the following trends:

- There has been an increase in winter and summer temperatures.
- There has been an increase in total average precipitation as well as heavy precipitation events, with longer periods of intervening dry spells.
- There has been an increase in the older adult population.

## PLANNING PROCESS

From March 3, 2021 through May 23, 2022, we held 10 planning meetings and workshops held to update all plan information. In July-August 2022, a public review process was completed.

## USC OVERALL HAZARD PRIORITY LEVELS 2022

How each hazard ranked for risk to the Upper Sioux Community

Hazard Type	Value	Level
Winter Weather	3.5	High
Summer Weather	3.5	High
Fire	3.5	High
Terrorism	3.5	High
Tornado	3.25	Moderate
Attacks	3	Moderate
Hazardous Materials	3	Moderate
Infectious Disease	3	Moderate
Water Supply Contamination	2.75	Moderate
Wastewater Treatment Facility Failure	2.5	Moderate
100-year floods	2.5	Moderate
Wildfire	2.25	Low
Flash floods	2.25	Low
500-year flood	2	Low
Drought	1.5	Low
Dam Failure	1.5	Low
Landslide and Erosion	1.5	Low

## 2022 PRIORITIZED STRATEGIES

Hazard	Action	Priority Ranking
All Hazards	1. Add communications redundancy to current system	1
All Hazards	2. Enhance cellular communications	2
All Hazards	3. Improve IT, telecommunications, and network security	1
Violent Storms and Extreme Temperatures	18. Install wireless internet system for redundancy in the community's broadband system.	1
Violent Storms and Extreme Temperatures	19. Install ARMER tower on water tower for better radio service for casino and entire community	2
Violent Storms and Extreme Temperatures	20. Pursue cellular improvements for better service and redundancy in communication system for casino and entire community.	2
Violent Storms and Extreme Temperatures	21. Ensure that generators continue to service all community buildings and are in good working condition.	2
Landslide and Erosion	37. Complete streambank stabilization feasibility Study of with Army Corps of Engineers that was started in 2019. The stretch that is being studied starts near the Wacipi grounds and runs approximately 2600 feet downstream along the bank. After the feasibility study is complete, start construction in late 2023.	1
Infectious Diseases	42. Create a plan to make sure that mass transportation and mobile communications can address infectious disease outbreaks.	2
Infectious Diseases	45. Continue cooperation between Board of Trustees, Yellow Medicine County Emergency Manager, Countryside Public Health, Family Health Services Director and Indian Health Services.	1
Infectious Diseases	46. Maintain and update material, plans, and agreements for addressing infectious diseases.	2
Infectious Diseases	47. Complete facility that is designed and equipped to implement care treatment and responses for pandemic and public health emergencies.	1
Infectious Diseases	48. Update Round House with HEPA system.	2
Wastewater Treatment	64. Create a plan for the wastewater system that considers possible failures of pipes and lift stations to ensure that the casino and community is not adversely affected.	1
Terrorism/Attack	65. Install cameras; add security personnel, badges or other security measures at casino, Powpow grounds, government center and all places where the public gathers.	2
Terrorism/Attack	68. Conduct training such as active shooter drills for staff at public gathering places.	2
Terrorism/Attack	69. Review existing security measures at all facilities where the public gathers and identify issues.	2
Terrorism/Attack	70. Develop a plan for cybersecurity threats	1

The following are the highest priority actions for the Upper Sioux Community Hazard Mitigation Plan.

# CHAPTER 1: PLANNING PROCESS

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The first Upper Sioux Community All-Hazard Mitigation plan was completed in 2006 after passage of the Disaster Mitigation Act of 2000. The Upper Sioux Community obtained a grant from FEMA and contracted with the Upper Minnesota Valley Regional Development Commission (UMVRDC) to write the plan.

The Upper Sioux Community All-Hazard Mitigation Plan has evolved since it was first created in 2006. This update includes changes necessary to address hazards that could affect the Upper Sioux Community and follows FEMA's Tribal Multi-Hazard Mitigation Planning Guidance.

The process of hazard mitigation involves many steps. The following planning process used for this plan was based on the Tribal Planning Handbook, May 2019 as recommended by FEMA.

1. Determine the planning process
  - a. Build the planning team
  - b. Engage the public
  - c. Gather data, plans, reports, resources, and studies
2. Describe the community
  - a. What do we want to protect?
  - b. Who do we want to protect?
  - c. How does the tribe operate?
3. Identify the hazards
4. Determine impacts of hazards
5. Review capability to mitigate hazards
6. Develop an action plan
7. Determine how to monitor and implement the plan

## PLAN UPDATE SUMMARY

The following is a summary of the changes made to each chapter of the previous version of the Upper Sioux Community All-Hazard Mitigation Plan:

Changes to this plan from previous versions:

- Reorganized the plan to better match the FEMA review process. Chapter 1 was renamed Planning Process.
- Added an Executive Summary
- Use the term Planning Team instead of Task Force to match FEMA Tribal Handbook
- Changed Mitigation Strategy section to include Goals and Actions instead of Goals, Objective, and Strategies
- Moved information from community vulnerabilities into the community profile and into each hazard section to remove duplication.
- Moved Upper Sioux Community Capability Assessment and FEMA Programs and Initiatives to Chapters 1 and 2 to reduce duplication.

## PLANNING TEAM

The Upper Sioux Community Hazard Mitigation Planning Team consists of the Board of Trustee Members and Emergency Coordinator staff. Emergency Coordinator staff met with the UMRDC staff to go over the technical parts of the plan and make updates. The Emergency Coordinator staff then took all updates to the Board of Trustee Members for their review.

### Board of Trustee Members

Kevin Jensvold, Tribal Chair  
Caralyn Trutna, Tribal Vice Chair  
Adam Savariego, Tribal Secretary  
Camille Tanhoff, Tribal Treasurer  
Jeremy Hamilton, Member-at-Large

### Emergency Coordination

Daniel DeSmet, Police Chief & Emergency Preparedness Coordinator

## PLAN UPDATE TIMELINE

[Update]

Figure 1.1 Plan Timeline

<b>October 23, 2015</b>	The Upper Sioux Community's All-Hazard Mitigation Plan was adopted
<b>March 3, 2021</b>	Planning meeting with UMRDC staff and Tribal Emergency Coordinator and Tribal Police to set up the planning process and Planning Team
<b>May 4, 2021</b>	Planning Team Meeting #1: Identified hazards and issues, reviewed community profile
<b>May 26, 2021</b>	Planning Team Meeting #2: Complete Risk Assessment Worksheets, Reviewed & Developed Strategies.
<b>June 15, 2021</b>	Workshop: Reviewed risk assessments, discussed telecommunications
<b>June 29, 2021</b>	Workshop: Risk Assessments, Mitigation Strategies (terrorism and infectious disease)
<b>July 29, 2021</b>	Planning Team Meeting #3: Mitigation Strategy discussion
<b>August 16, 2021</b>	Workshop Terrorism and Infectious disease mitigation strategies
<b>November 2021 – February 2022</b>	Plan development including
<b>February 28, 2022</b>	Planning Team Meeting #4 Review Chapters 1-4
<b>April 18, 2022</b>	Planning Team Meeting #5 Review Action and Prioritize
<b>May 20 – June 6, 2022</b>	Public survey
<b>July 13, 2022</b>	Planning Team Meeting #6 Presentation of draft plan
<b>July 18 – August 19</b>	Public Review of the Draft
_____	Plan submitted to FEMA for review
_____	The Upper Sioux Community's All-Hazard Mitigation Plan Update approved by FEMA
_____	The Upper Sioux Community's All-Hazard Mitigation Plan was adopted

## PUBLIC ENGAGEMENT

The public is defined as all community members of the Upper Sioux Community.

This plan was created during the COVID-19 pandemic, so it was determined to not hold any in-person public meetings.

The Planning Team has determined that the public will be engaged in the following ways:

- Engage the public through a survey to get feedback on hazards in May-June 2022. Promote through the tribal newsletter, emails and shared on Facebook. We received four responses.
- Make draft plan available to the public with a comment period.
  - Tribal newsletter update
  - Hazard Mitigation summary sent out to all community members via email
- Send draft copy to the following for review:
  - **Local Planning Team:** Reviewed the plan during the planning process
  - **Tribal and Regional Resources:** Asked to review the plan from a more technical perspective – availability of resources, feasibility of the plan, collaborative efforts with other entities and plans, costs, and expertise in their field of knowledge.
  - **Local Resources (This includes neighboring communities and important parties):** Invited to review the final draft in our public review process.
  - **Federal and State Agencies:** Asked to review the draft plan as part of the adoption process.

Inquiries about the plan were directed to:

**Kevin Jensvold, Chairman**

Upper Sioux Community - Pezihutazizi Kapi Oyate  
5722 Travers Lane, P.O. Box 147  
Granite Falls, MN 56241  
kevinj@uppersiouxcommunity-nsn.gov

## RESOURCES AND AGENCIES

This section outlines the resources available in the creation of this plan. This includes existing plans and data resources as well as the agencies that will be engaged in the creation of this plan.

**Figure 1.2 Contacts for Resource and Agencies**

Tribal Resources		
USC Tribal Board of Trustees		
Police Chief/Emergency Manager	Daniel DeSmet	dand@uppersiouxpolice-nsn.gov
USC Environmental Services	Amanda Wold	amandaw@uppersiouxcommunity-nsn.gov
USC Public Works	Matt Schommer	matts@uppersiouxcommunity-nsn.gov
USC Propane Manager	Dan Hildahl	danh@uppersiouxcommunity-nsn.gov
USC Roads Dept	James Ross	jamesr@uppersiouxcommunity-nsn.gov
USC Network Administrator	Angela Ochoa	angelao@uppersiouxcommunity-nsn.gov
USC Tribal Planner	Rhonda Buerkle	rhondab@uppersiouxcommunity-nsn.gov

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**Figure 1.3 USC Partner Agreements**

Partners	Relationship
Yellow Medicine County Emergency Manager	Informal Cooperative Agreement
County Sheriff Department	MOU
Countryside Public Health	MOU
Granite Falls Fire Department	Within Fire District
Legal Council (Tribal)	Under Contract
Staff from other Tribal Communities	Cooperative Agreement with Lower Sioux.
County Attorney	Covered under Public Law 280
State of Minnesota	State assets can be requested and utilized by the Upper Sioux Community when needed.
US EPA	Provide assistance when necessary
United States of America	Federal assets can be requested and utilized by the Upper Sioux Community when needed.

In addition to the partnerships identified in Figure 1.3 above; below lists current staff, programs and policies of the Upper Sioux Community increasing their capabilities of carrying out mitigation actions in both pre-and post-disaster settings.

**USC Plans/Policies**

Emergency Management Plan  
Search and Rescue Plan  
Transportation Plan  
Public Safety Ordinances  
International Residential Code  
Floodplain Ordinance  
Storm Water Protection Plan  
Solid Waste Management Plan

**USC Departments**

USC Police Department  
USC Public Works  
USC Roads Departments  
USC Finance Department  
Clerk of Courts  
Tribal Staff\*

*\* All Upper Sioux Community Tribal Staff are National Incident Management System (NIMS) certified and under the Continuity of Operations Plan, staff can be reassigned to any position needed to handle both pre-and post- disaster situations.*

## RELATED DOCUMENTS

The following documents have been used in compiling information for this All-Hazard Mitigation Plan and are Regional Planning Mechanisms:

**Figure 1.4 Documents Applicable to Hazard Mitigation for the Upper Sioux Community**

Name of Plan	Date Completed or Updated	Where available	Relevant Information
<b><i>Tribal</i></b>			
Upper Sioux Community Emergency Operations Plan	2015	Office of Emergency Management	Guide for emergency operations. Outlines resources
Upper Sioux Community Comprehensive Plan	1998	Office of Environment	Current and future land use planning
Upper Sioux Community Energy Plan	2011	Office of Environment	Inventory of buildings, History
Upper Sioux Community Wellhead Protection Plan	2018	Office of Environment	
Upper Sioux Community Groundwater Study	2021	Office of Environment	
<b><i>County</i></b>			
Yellow Medicine County All-Hazard Mitigation Plan	2015	Yellow Medicine County	Risk Assessment, hazard profiles, prioritizing hazards for the county, objectives and strategies to address hazards, identify gaps
Yellow Medicine Emergency Operations Plan	2019	Yellow Medicine County Manager/Veteran's Office	Emergency operation plans, responsibility, critical facilities
Yellow Medicine County Zoning Ordinance	2013	Yellow Medicine County Planning and Zoning Office	Land use, sewage and water supply
Yellow Medicine County Local Water Management Plan	2017	Yellow Medicine County Planning and Zoning Office	Water and wastewater information
<b><i>State</i></b>			
Minnesota State Hazard Mitigation Plan	2019	MN Department of Public Safety	Risk Assessment, hazard profiles, the plan used the State Hazard Mitigation Plan as a template
Minnesota River Basin Plan	2001	Minnesota Pollution Control Agency	Pollution, ground water, and clarity
Planning for Climate & Health Impacts in West Central Minnesota	2018	Minnesota Department of Health	Climate information



## **OTHER PLANNING EFFORTS**

### **Tribal Programs**

#### **Emergency Warning Systems**

The Tribal Chair of the Upper Sioux Community is responsible for overall direction and control of the tribal government in case of an emergency. The Tribal Secretary will act as a liaison with the Yellow Medicine County Emergency Management as well as state and federal emergency management personnel.

The National Warning System will notify the point of contact in Yellow Medicine County (County Sheriff) who will then pass on the information to the Upper Sioux Community. The Board of Trustees decides the point of contact for the Sheriff's Department in the event of a warning. This point of contact will then notify all the proper channels so that the whole Community will be notified in case of an emergency. For any additional information, refer to the Upper Sioux Community Emergency Operations Plan (2008).

The Upper Sioux Community has four (4) NOAA/Emergency Alert sirens. The sirens are located at 1) near the Tribal Administration Building, 2) RV Park on Prairie's Edge Lane, 3) Wacipi Pow-Wow grounds, and 4) the Hutar Land (Installed in 2017).

#### **Land Uses**

The Board of Trustees has not zoned areas in the Upper Sioux Community; however, they have designated areas of growth and have planned areas for new housing and retail developments in a land use plan.

#### **Floodplain Ordinance**

The Upper Sioux Community has a Floodplain Ordinance that does not allow any building in the floodplain without a permit. The only permitted construction projects are for mitigation against future flooding and projects that conform to the floodplain ordinance. No new residential buildings are allowed in the floodplain.

#### **Building Codes**

The Upper Sioux Community has adopted the ICC International Building Code.

### **FEMA Programs**

#### **National Response Plan**

It is the intent of the Upper Sioux Community's plan to accomplish the same goal as FEMA's National Response Plan - to enhance the ability to manage emergency incidents.

The National Response Plan establishes a comprehensive all-hazards approach to enhance the ability of the United States to manage domestic incidents. The plan incorporates best practices and procedures from incident management disciplines—homeland security, emergency management, law enforcement, firefighting, public works, public health, responder and recovery worker health and safety, emergency medical services, and the private sector—and integrates them into a unified structure. It forms the basis of how the federal government coordinates with state, local, and tribal governments, and the private sector during incidents. It establishes protocols to help:

- Save lives and protect the health and safety of the public, responders, and recovery workers
- Ensure security of the homeland
- Prevent an imminent incident, including acts of terrorism, from occurring
- Protect and restore critical infrastructure and key resources
- Conduct law enforcement investigations to resolve the incident, apprehend the perpetrators, and collect

- and preserve evidence for prosecution and/or attribution
- Protect property and mitigate damages and impacts to individuals, communities, and the environment
- Facilitate recovery of individuals, families, businesses, governments, and the environment

**The Upper Sioux Community has adopted and is using the National Response Plan and the National Preparedness Goal, Homeland Security Presidential Directive 8**, as part of their operational agenda for Emergency Management. This goal is a significant element that is supported by six national priorities that encompass expanded regional collaboration which include:

- National Incident Management System (NIMS)
- National Response Plan (NRP)
- National Infrastructure Protection Plan (NIPP)
- Chemical, biological, radiological, nuclear, and explosive detection capabilities
- Interoperable communications capabilities
- Medical surge capabilities

There are additional Federal Programs that the Upper Sioux Community is aware of and may access, if feasible, in the event of a disaster. These programs could also assist the Upper Sioux Community in implementing the mitigation strategies that are part of this plan.

Additional Federal Programs include but are not limited to the following:

#### **Tribal Homeland Security Grant Program**

The Tribal Homeland Security Grant Program (THSGP) provides funds directly to tribes to help strengthen the Nation against risks associated with potential terrorist attacks. Pursuant to the 9/11 Act, a directly eligible tribe applying for a grant shall designate an individual to serve as a tribal liaison with the Department of Homeland Security (DHS) and other Federal, State, local, and regional government officials concerning preventing, preparing for, protecting against, and responding to acts of terrorism.

#### **Public Assistance Program**

The Public Assistance Program provides supplemental Federal disaster grant assistance for the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations.

#### **Management Assistance Grant Program**

Fire Management Assistance is available to States, local and tribal governments, for the mitigation, management, and control of fires on publicly or privately owned forests or grasslands, which threaten such destruction as would constitute a major disaster. Eligible firefighting costs covered may include expenses for field camps; equipment use, repair and replacement; tools, materials, and supplies; and mobilization and demobilization activities.

#### **Flood Mitigation Assistance (FMA)**

The FMA program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FEMA provides FMA funds to assist States and communities to implement measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insured under the National Flood Insurance Program.

#### **Hazard Mitigation Grant Program**

Authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Hazard Mitigation Grant Program (HMGP) administered by the Federal Emergency Management Agency (FEMA) provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.

#### **BRIC Program**

The Building Resilient Infrastructure and Communities (BRIC) grant program seeks to categorically shift the federal focus from reactive disaster spending toward research-supported, proactive investment in community resilience so when the hurricane, flood or wildfire comes, communities are better prepared. BRIC provides funds on an annual basis for hazard mitigation planning and the implementation of mitigation projects prior to a disaster.

#### **The National Earthquake Technical Assistance Program (NETAP)**

The NETAP is a technical assistance program created to provide ad hoc short-term architectural and engineering support to state/local communities as they are related to earthquake mitigation. The program was designed to enhance the state/local communities' ability to become more resistant to seismic hazards. This assistance cannot be used for actions that are covered under the State's/Territories Performance Partnership Agreement (PPA). This program assists in carrying out the statutory authorities of the National Earthquake Hazards Reduction Act of 1977, as amended.

#### **The Wind and Water Technical Assistance Program (WAWTAP)**

The WAWTAP is a technical assistance program created to provide ad hoc short-term assistance in support of the hurricane and flood programs. The program was designed to enhance the state/local communities' ability to become more resistant to hazards related to flooding and hurricanes. This assistance cannot be used for actions that are covered under the State's/Territories Performance Partnership Agreement (PPA). This program assists in carrying out the statutory authorities of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

#### **National Flood Insurance Program (NFIP)**

The National Flood Insurance Program (NFIP) is a program regulated by the Federal Emergency Management Agency (FEMA). The NFIP provides maps for local floodplain management in an effort to reduce federal expenditures due to flood events throughout the nation. The NFIP is also the primary source for flood insurance for flood-properties and those located in 100 and 500-year floodplains. The NFIP has three basic requirements: floodplain identification and mapping, floodplain management, and the purchasing of flood insurance. Floodplains are found within the Upper Sioux Community as shown in Figure 3.11 (Chapter 3). Currently, the Upper Sioux Community participates in the National Flood Insurance Program and has a Floodplain Ordinance in effect. There have been no changes in the National Flood Insurance Program participation since the initial All-Hazard Mitigation Plan completed in 2006. Figure 1.5 identifies NFIP participation, date of Initial Flood Insurance Rate Map (FIRM), current effectiveness of map date, and Emergency Date.

**Figure 1.5 USC NFIP Participation**

<b>Jurisdiction</b>	<b>NFIP Status</b>	<b>Initial FIRM Identified</b>	<b>Current Effective Map Date</b>
Upper Sioux Community	Participating	09/03/2003	10/07/2021
<i>Source: FEMA 2021</i>			

## **NFIP Continued Compliance**

FEMA asks that communities participating in the NFIP identify continued compliance with the program. The Upper Sioux Community has continued to comply with the requirements of the program. The Upper Sioux Community utilizes DFIRM maps, dated October 7, 2021, to illustrate the location of 100 and 500-year floodplain boundaries within the reservation boundary. In order to prevent development in the 100-year floodplain, the Upper Sioux Community passed and amended a Floodplain Management Ordinance August 13, 2003, and updated the floodplain ordinance August 19, 2021. The process the Upper Sioux Community uses to monitor potential development in floodplains is by tracking building permit applications. To obtain a building permit, a member of the Community would approach the Board of Trustees Executive Office and submit an application for Board of Trustees to review. The review process is used to identify if the proposed project site is in a 100 or 500-year floodplain.

The Tribal Secretary administers and implements the Flood Damage Prevention Ordinance by granting or denying development permit applications in accordance with its provisions. In addition to the building permit, an applicant must supply the following information: elevation in relation to mean sea level of the proposed lowest floor (including basement), elevation in relation to mean sea level to which any non-residential structure will be flood-proofed, certification from a registered engineer or architect that all flood-proofing criteria will be met for non-residential structures, and a description of the extent to which any watercourse will be altered or relocated as a result of the proposed development. After analysis of all presented information, the Tribal Secretary makes a recommendation to the Board of Trustees on whether to approve the variance request. The Board of Trustees makes the final determination and handles any appeal requests. Below are three strategies that the Upper Sioux Community intends to complete as methods to continue compliance with National Flood Insurance Program.

### **Strategies to Continue NFIP Compliance:**

1. Review and update the Floodplain Management Ordinance as needed.
2. Discourage development in Flood Hazard Areas.
3. Encourage all property owners in Flood Hazard Areas to purchase flood insurance.

## **PLAN UPDATES**

Every **five** years the plan will be updated by completing the entire 10-step planning process outlined in Chapter One, led by the Board of Trustees beginning three years after the anniversary of the updated All-Hazard Mitigation Plan. Public participation will be an integral part of the process as it was in the development of the initial plan. The process will again include several public meetings encouraging public input on the plan and process. Seeking public input will be very important and a high priority for the Local Planning Team.

This plan will be integrated into other plans, such as the Community's Emergency Management Plan that has been approved as NIMS and MN NIMS compliant, the future Comprehensive Plan, Water Plan and Zoning Code, in addition to planning documents outside the Upper Sioux Community's jurisdiction as shown in Figure 2.1 below. Chapter one will serve as an executive summary to be attached to Upper Sioux Community plans as necessary.

## CHAPTER 2: COMMUNITY PROFILE

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Figure 2.1 Upper Sioux Community Regional Context

### PLANNING AREA

#### LOCATION

The Upper Sioux Community is comprised of 530 Dakota Members whose ancestors resided in the Minnesota River Valley for centuries. The Upper Sioux Community is currently located on approximately 2,339 acres of land that borders the Minnesota River and both Yellow Medicine and Chippewa Counties (See Figure 1.4 to the right). The Upper Sioux Community is 120 miles west of Minneapolis-St. Paul, 100 miles southwest of St. Cloud, and five miles south of Granite Falls, Minnesota, on the Minnesota River.



#### ORGANIZATION

The government of the Upper Sioux Community extends within a 15-mile radius. Membership to the Upper Sioux Community includes those persons of Dakota Indian blood and lineal descendants who live within a 15-mile radius and adhere to stipulations outlined in the Constitution of the Upper Sioux Community. The governing body is the Board of Trustees and consists of five members.

People living on the reservation include both membership as well as non-member Indian and non-Indian spouses. The Reservation borders fee-simple land that is owned jointly by a tribal member and their non-Indian spouse. The “public” for this plan is defined as all community members of the Upper Sioux Community.

#### HISTORY

The land that is called Pejuhutazizi Kapi Oyate (the place where they dig for yellow medicine) has been the homeland of the Dakota Oyate Nation for thousands of years. The Dakota Oyate Nation has always occupied this area bordering the Minnesota River Valley, except for a short period of time in the late 1800's following the U.S. - Dakota War of 1862. At that time, the Dakota were exterminated, forcibly removed to reservations located elsewhere, or voluntarily fled to avoid harm.

Many Dakota people died during those difficult years. Some of those who survived the forced removal defied the state and federal governments by not remaining on the assigned reservations located outside of Minnesota, but rather chose to return to their ancient homelands in the Minnesota River Valley.

In 1938, 746 acres of original Dakota lands in Minnesota were returned to the people, and the Upper Sioux Community expanded its federally recognized existence. Provisions for governing the Upper Sioux Community were adopted, and a Board of Trustees was elected to carry out the responsibilities identified in these provisions. In 1995,

the provisions were modified, and the governing document is now called the Constitution of the Upper Sioux Community. The Upper Sioux Community Board of Trustees is the governing body and consists of five members elected to four-year staggered terms who represent the Upper Sioux Community when negotiating with federal, state, and local governments.

Since its formal designation as an Indian Reservation, Upper Sioux has struggled with poverty, substandard housing, inadequate health care, and the realities and impacts of racism. Tribal leaders continually strive to improve the standard of living and the quality of life on the reservation. Through the years, even though the population was small and Upper Sioux's share of program monies from the federal government was minimal, elected tribal leaders still managed to provide "bare-bones" programs in housing, health care, and education. During the 1970's and 1980's, conditions improved very little, despite many vocal supporters, both Indian and non-Indian, and the struggle for survival continued on the small tract of land along the Minnesota River.

By the late 1980's, the legal standing of tribes as sovereign nations had been acknowledged in the highest federal courts. In 1990, following these court decisions, the Upper Sioux Community did as many other tribes had done and exercised their rights as a sovereign nation to capitalize on a financial opportunity by building and opening Firefly Creek Casino. In the years since, this business helped to revitalize and energize the Upper Sioux Community, allowing an opportunity to obtain economic independence. The Upper Sioux Community has been able to concentrate on finding ways to preserve the culture and traditions, free from the burden of meeting basic survival needs.

After the 1997 flood, Firefly Creek Casino was shut down for one month. Although water never got into the building, roads around the casino were closed making entrance impossible. Plans to add a hotel to Firefly were already underway. Although the infrastructure was already in place at the Firefly site, it was decided to put a new casino and hotel out of the 100-year floodplain. Prairie's Edge Casino Resort was built and opened in 2003. Today, the main source of income for the Upper Sioux Community is the Governmental Gaming Enterprise, Prairie's Edge Casino Resort.

## SOCIOECONOMIC

### Population Trends

The Upper Sioux's population has been increasing since 1970. From 1990 to 2000, population increased by 194 people, a 110 percent increase. This is likely related to the opening of the casino in 1990, creating job opportunities for the community members. Membership has been closed so all future population growth is the result of births, marriages and completion of any outstanding applications. Figure 2.2 below identifies USC Population Trends from 1970 to 2020. Figure 2.3 provides a comparison of all Indian Reservations in Minnesota and the State of Minnesota population characteristics.

**Figure 2.2 USC Population Trends 1970-2020**

Upper Sioux Community	1970	1980	1990	2000	2010	2020	July 1, 2022
Population	94	113	177	371	482	530	547
On Reservation Proper	*	*	*	139	128	115	n/a
Within 15 miles	*	*	*	232	350	364	n/a
Source: US Dept. of Interior – Indian Affairs, 2010, *Data Unavailable.							

**Figure 2.3 Age Characteristics in 2020**

	Under 18	18 -44	45-65	65 and over
Minnesota (2020)	23%	35%	25%	17%
Yellow Medicine County (2019)	23%	30%	27%	20%
Upper Sioux Community (2020)	38%	37%	20%	5%
Upper Sioux Community	200	196	106	28
Source: U.S. Census Bureau American Community Survey 5-Year Estimates, 2020 Census and USC				

**Figure 2.4 USC Unemployment Rate**

	Upper Sioux Community
Unemployment rate	40%
Source: USC	

## COMMUNITY INFRASTRUCTURE

This section identifies schools, public facilities, parks and natural resources, and available modes of transportation offering transit, airport facilities, roads, and a multitude of trail opportunities. A complete listing of telecommunication and power facilities has also been provided, as well as city-specific water and sewer systems currently in place throughout the county.

### Schools

There are no schools located in the Upper Sioux Community Reservation. The following are the schools that are utilized by the Upper Sioux Community.

**Figure 2.5 Schools Utilized by the USC**

Schools	Grades Served
Yellow Medicine School District	Grades Pre K-12 located in Granite Falls.
E.C.H.O Charter School	Grades K-12 located in Echo. Charter school sponsored by Yellow Medicine School District.
Lakeview Schools	Grades Pre K-12 located in Cottonwood and Wood Lake.
Minnesota River Valley Education District	Grades 7-12 located in Montevideo and Granite Falls.
Montevideo School District	Grades Pre K-12 located in Montevideo.
Flandreau Indian School	Grades 9-12 located in Flandreau, South Dakota. Off-reservation Bureau of Indian Affairs boarding school.

### Important Public Facilities

#### Prairie's Edge Casino Resort

Prairie's Edge Casino Resort is a public facility for the region as well as the Upper Sioux Community. The facility hosts many events including concerts, workshops, business meetings and conferences.

#### Multi-Purpose Building

The Multi-Purpose Building is open for use by the Upper Sioux Community. It has a gym and other recreation equipment available for use by Upper Sioux Community members and employees of the tribe and the Resort. Additionally, many Upper Sioux Community events take place within this building, such as Dakota language classes, educational activities, youth group events and independent sporting events. The building also serves as an alternate site for the summer Wacipi Pow-Wow in case of inclement weather.

This Multi-purpose building was used for the community's COVID-19 testing and vaccination clinics in 2020-2022, making it difficult to use for its intended purpose.

#### Tribal Operations Office (Network Operation Center - N.O.C.)

The NOC building is now the home for the Executive Offices of the Tribal Upper Sioux Community Council, the Board of Trustees.

#### Administration Building

The Administration Building serves as the offices for Health and Social Services departments.

#### Former Firefly Casino



The gaming floor of the former Firefly Casino is utilized as a maintenance facility for the USC Public Works and Roads Departments. This site also includes a Public Works Garage, Emergency Management storage, Administration building, storage sheds and a storm shelter.

### **Roundhouse Building**

The Roundhouse Building serves as the meeting and meal site for community elders and other small community gatherings

### **Historic Resources:**

- Pezihutazizi Church
- Roundhouse Building
- Former Charles Langmaid Farmhouse/Wimmergren House
- Upper Sioux Agency State Park

Other places of gathering include the Tribal Court, Tribal Cemetery, Veterans Plaza, and the Wacipi Pow Wow grounds. There is an Elders Complex being planned to be located adjacent to the RV park.

## **Transportation**

### **Roads & Infrastructure Department**

The Upper Sioux Community has a Roads & Infrastructure Department that maintains, repairs, and develops roads for the tribe. The infrastructure includes all tribal and BIA roads listed on the road inventory.

### **Highways**

**Figure 2.6 Road Inventory**

<b>Name</b>	<b>Owner</b>	<b>Main uses</b>
Minnesota Trunk Highway 274	Minnesota Department of Transportation	Truck transportation
Minnesota Trunk Highway 23	Minnesota Department of Transportation	Main route to Prairie's Edge Casino Resort
Minnesota Trunk Highway 67 (this road name will be changed to 167 in 2023 due to closure and trade with county)	Minnesota Department of Transportation	Truck transportation
County Road B1	Yellow Medicine County	
Township Road 115	Yellow Medicine County	
Cook Lane	Upper Sioux Community	BIA Reservation Highway
Traverse Lane	Upper Sioux Community	BIA Reservation Highway
565 <sup>th</sup> Ave	Upper Sioux Community	BIA Reservation Highway
Prairie's Edge Lane	Upper Sioux Community	BIA Reservation Highway

### **Transit**

The Upper Sioux Community Social Services and Health Services provides rides for medical appointments, grocery shopping and other necessary travel needs. Prairie's Edge Casino Resort also provides transportation for customers and staff as needed or requested.

### **Railroads**

There is a railroad that runs through the Upper Sioux Community. The Burlington Northern/Santa Fe runs through the Upper Sioux Community on the west side of Highway 23.

### **Trails**

The Upper Sioux Community contains one snowmobile/OHV trail along HWY 23, HWY 274 to the Prairie's Edge Casino Resort. A state snowmobile trail runs along the HWY 67 ditch from 240<sup>th</sup> Avenue to the Upper Sioux State Park. No other trails have been designated by the Upper Sioux Community.

### **Airport**

There are no airports in the Upper Sioux Community. There is a nearby airport.

## **Telecommunication and Power Facilities**

Figure 2.7 below indicates the telecommunication and power facilities within the Upper Sioux Community.

**Figure 2.7 The Upper Sioux Community Telecommunication and Power Facilities**

<b>Electric</b>	Xcel Energy, Minnesota Valley Cooperative Light and Power (MN Valley REC)
<b>Gas</b>	Alliance Energy (bulk), USC Propane
<b>Internet</b>	Mediacom
<b>Phone</b>	Sprint
<b>Radio</b>	ARMER
<b>Cellular</b>	Verizon Wireless
<b>Cable</b>	Dish Network
<b>Broadband</b>	Upper Sioux Community

The Upper Sioux Community has dead space areas for cell phone and ARMER coverage in buildings. Communication within the casino is a weakness. Email and communication systems are inconsistent.

### **Vulnerabilities of the Telecommunication and Power Facilities**

There is a lack of communications redundancy. There is a need for multiple methods of communication for mobile radios, internet, and cellular coverage.

#### **Cellular**

- Closest tower is in Granite Falls – signal is worse in summer when there are leaves on the trees.
- Often need booster for inside buildings
- Looking for additional providers for better service.
- Additional tower is needed. There is a potential location on the water tower.

#### **Radio**

- ARMER has a common frequency between casino and government buildings. Patch is needed.
- There are dead space coverage areas for cellphone and ARMER in Multipurpose Building that needs to be addressed for better communications.
- Can't communicate with casino and government buildings

#### **Electric grid**

- Multiple service providers can create confusion by not having consistency and good communication.
- Power grid susceptible to power shortages in other places in the United States.

## Sewer and Water Systems

The Upper Sioux Community has a water system that serves all residential properties and businesses on the Reservation. The water tower is located on the ridge adjacent to the Multi-Purpose Building. The wastewater system includes an Upper Sioux Community Wastewater Treatment Facility as well as a few septic systems. The wastewater treatment area is located at secure location adjacent to the tribal business park on the hill.

## Medical Facilities

**Figure 2.8 Medical Facilities that Serve the Upper Sioux Community**

<b>Hospital</b>	Avera - Granite Falls
<b>Clinic</b>	Avera – Granite Falls
<b>Nursing Home</b>	Granite Ridge /Clarkfield Care Center
<b>Ambulance</b>	Granite Falls Ambulance Services

## Public Safety

### The Emergency Operations Center

Located in the NOC Building.

### Police Department

The Upper Sioux Community is covered by the Upper Sioux Community Police Department with five full-time police officers and three part-time officers. A mutual aid agreement is in place with the Yellow Medicine County Sheriff Department to assist the Upper Sioux Community Police Department law enforcement agency on the reservation proper. Security is available at Prairie's Edge Casino Resort. Security guards from the resort often serve as security at public functions or in the Tribal Court as needed.

### Public Health

The Upper Sioux Community has a Family Health Services Department that provides services to tribal members. The Upper Sioux Community also contracts with Countryside Public Health for a portion of its health services.

## Physical Characteristics

When data from the Upper Sioux Community was not available, information was used from Yellow Medicine County or the nearest location possible.

### Geology and Topography

The Upper Sioux Community contains approximately 2,339 acres of land and water, all influenced by historic glaciations. The majority of the Upper Sioux Community Reservation is covered by nearly level to rolling ground moraine deposits of clay, sand, and rocks deposited by the melting sheet.

The Minnesota River flows in a deep valley that forms the eastern border of the Reservation. The valley was cut by melting water draining from Glacial Lake Agassiz, which covered most of the Red River Valley.

### Groundwater

The Upper Sioux Community is in the Yellow Medicine River Watershed. Ground water movement in the Upper Sioux Community is to the northeast ultimately discharging into the Minnesota River. Alternating zones of groundwater recharge and discharge occur along both the Yellow Medicine and Lac qui Parle Rivers. Most supplies

of water within the county have been found at depths of less than 200 feet. Groundwater throughout the Yellow Medicine Watershed is normally found less than 100 feet below the land surface. Deeper wells are located on the upland plain.

#### **Land Use and Land Cover**

Land use and land cover on the Upper Sioux Community has changed in the past century. Much of the native prairie land of the Reservation was converted to farmland. Some land next to the Minnesota River was farmed for many years and was recently placed into the Wetlands Reserve Program (WRP) and is growing back to wetland land cover. Originally, much development took place in the Minnesota River Valley for protection against wind and severe weather; today however, the majority of the development has been relocated to the top of the hill due to continuous flooding. Figure 2.9 below identifies a general breakout of land uses for the Upper Sioux Community.

**Figure 2.9 USC 2021 Land Cover & Land Use**

<b>Description</b>	<b>Acreage</b>	<b>Percent of Total</b>
Developed	171	7.31%
Commercial	56	2.39%
Farmsteads	2	0.09%
Cultivated land	662	28.30%
Forest	606	34.08%
Grasslands	302	12.91%
Water Bodies	374	15.99%
<b>Total</b>	<b>2,339</b>	<b>100%</b>
<i>Source: Upper Sioux Community Environmental Office</i>		

## **EXISTING DEVELOPMENT TRENDS**

The Upper Sioux Community continues to acquire land to be added to the reservation. This growth allows for development in areas with fewer vulnerabilities.

### **Potential for Future Growth and Development**

The existing development and potential of future growth was compiled using data from the Upper Sioux Community Planning Team. This information allows the Upper Sioux Community to project potential new vulnerabilities.

#### **Development Areas:**

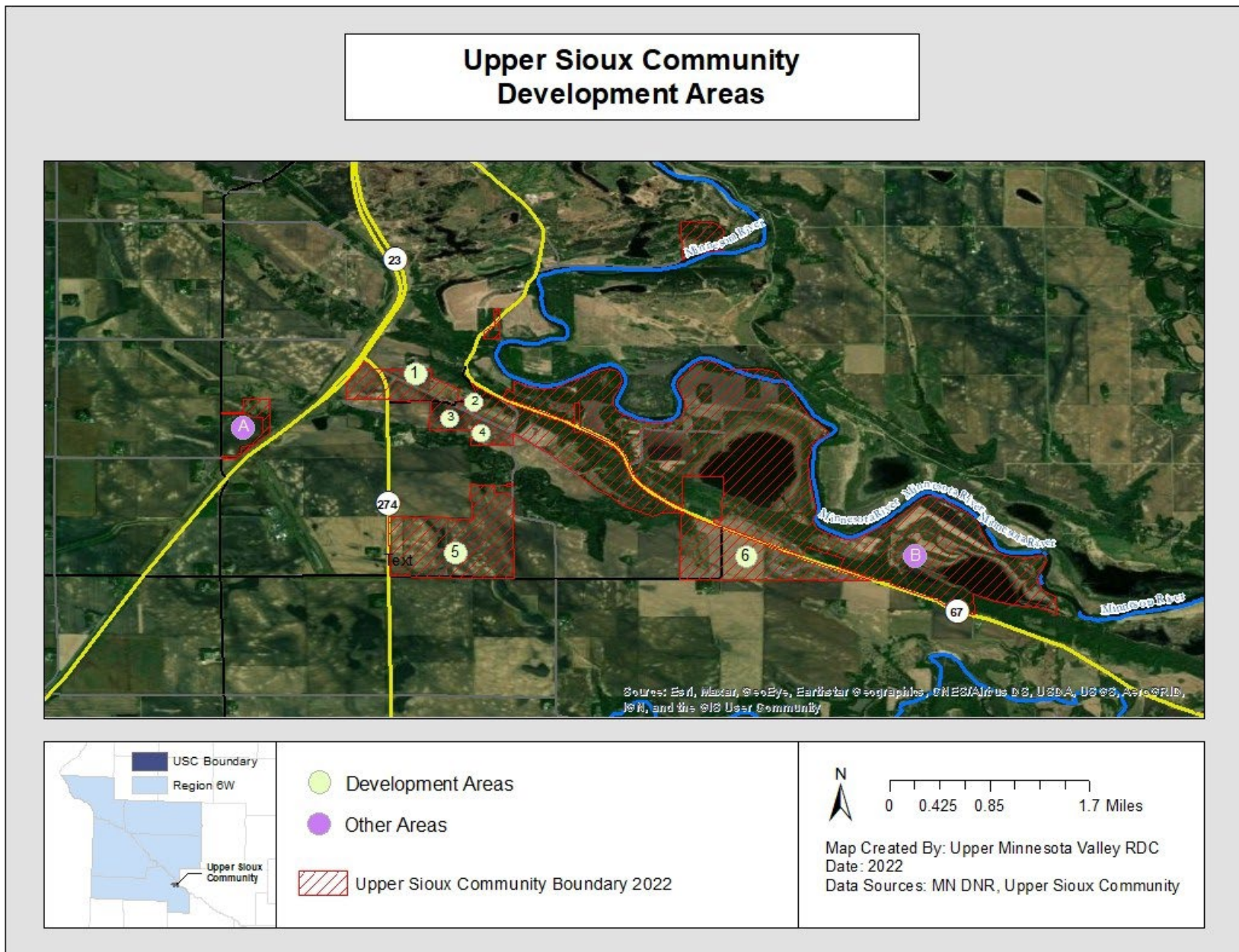
1. Potential Solar Panel Development: Along Hwy 23 and 44
2. Potential Elder Center Development: Adjacent to the RV Park
3. Potential Justice Center Development: Across from the RV Park
4. Potential Law Enforcement and Public Safety Building Development: Across from the RV Park
5. Potential Future Development: "Hutar Land", located along 274. Mostly ag land. Already has power supply and wells.
6. Potential Housing Development: "Gustafason Land" located near Traverse Lane. Ag land.

#### **Other Areas:**

The following areas have no planned development currently:

- A. "Acre Land", located near the railroad. Part of this property is in the floodplain and consists of mostly trees and has a creek. There are no plans for development of this property currently.
- B. "Rekedal Land", located northwest of the Upper Sioux Agency State Park.

Figure 2.10 Upper Sioux Community Development Areas



## Inventory of Community Assets

The Upper Sioux Community compiled a list of community assets shown in Figure 2.11, including major employers, infrastructure assets, USC-owned assets (government buildings), and cultural facilities. This data was gathered from current insurance reports on all structures owned by the Upper Sioux Community. The inventory includes the 2022 market value of all non-exempt assets, and estimated replacement values, content values, and function values.

**Figure 2.11 USC Inventory of Community Assets**

Name or Description of Asset	Building Size (Sq. Ft)	Insurance value (\$)
<b>Major Employer</b>		
Enterprise 1 (Casino)	233,680	\$104,224,914
Enterprise 2 (Casino Maintenance Shed)	7,680	\$922,843
Enterprise 3 (C Store)	1,764	\$1,291,872
Enterprise 4 (Gas Canopy - Gas)	4,324	\$375,033
Enterprise 5 (Gas Canopy - Diesel)	864	\$108,683
Enterprise 4 (USC Propane)	1,680	\$607,832
Enterprise 5 (RV Park Office)	616	\$222,309
Enterprise 6 (Storage Shed)	392	\$15,069
Enterprise 7 (Restrooms/Storm Shelter, RV Park)	2,034	\$192,636
Enterprise 8 (Pavilion)	576	\$32,350
<b>Infrastructure Assets</b>		
Infrastructure 1 (Water Tower)	NA	\$825,687
Infrastructure 2 (Water Treatment Plant)	3,034	\$2,007,679
Infrastructure 3 (Wastewater Treatment Plant)	5,917	\$4,019,579
<b>USC-Owned Facilities</b>		
Government Building 1 (Tribal Gov Center)	29,615	\$7,447,123
Government Building 2 (Admin Building)	6,583	\$1,711,356
Government Building 3 (Public Works Building)	18,934	\$2,729,856
Government Building 4 (Round House)	3,753	\$454,208
Government Building 5 (Quonset Building)	3,200	\$166,749
Government Building 6 (Housing Garage)	1008	\$47,229
Government Building 7 (Blue House)	5,597	\$496,779
Government Building 8 (USC Roads Dept Bldg)	8,640	\$1,085,935
Government Building 9 (Pump House)	225	\$200,304
Government Building 10 (Court House)	1,678	\$284,934
Government Building 11 (Covid-19 I Storage)	3200	180370
Government Building 12 (Covid-19 II Storage)	6930	\$259,046
Government Building 13 (Restrooms/Storm Shelter for Pow wow area)	1288	\$200,000

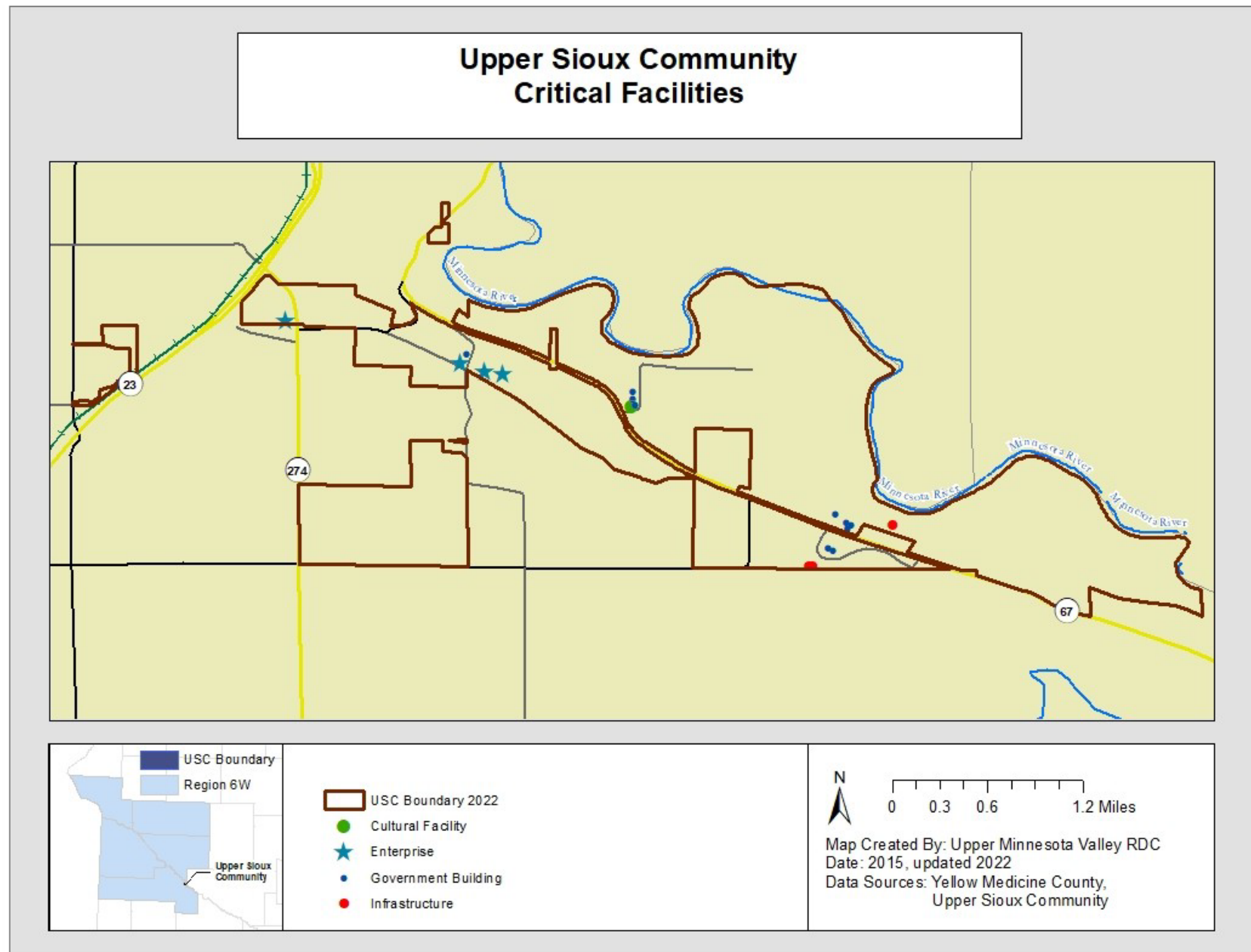
<b>USC-Cultural Facilities</b>		
Cultural Facility	13 (Acres)	\$65,670
Cultural Facility	.125 (Acres)	\$99,118
Cultural Facility	15 (Acres)	\$100,000
Cultural Facility	1,200	\$186,468
<i>Sources: USC 2022</i>		

The Upper Sioux Community Planning Team determined the average value for residential structure replacement at \$150,000 per residence.

Fire Departments, hospitals, and schools that are used by residents of the Upper Sioux Community are not located on these maps because they are in other political jurisdictions.



Figure 2.12 Upper Sioux Community Assets/Critical Facilities



## CLIMATE DATA

### Precipitation

A wide range of seasonal temperatures characterizes the Upper Sioux Community which influences as range of extreme temperatures. The Upper Sioux Community uses data generated from the closest weather data stations located in Montevideo, MN (24 miles away) and Canby (32 miles). The hottest day that Yellow Medicine County recorded was 111 degrees in 1936, followed by 108 degrees in 1988. The coldest day was –33 degrees in 1936 as recorded by the Midwest Regional Climate Center.

Total annual precipitation is approximately 27 inches, 60 percent of which primarily falls in the growing season between May and September. The sun shines 65 percent of the time in summer and 45 percent in winter. Prevailing winds are commonly from the south. Figure 2.13 indicates average monthly precipitation and snowfall in Yellow Medicine County from 1975 – 2020.

**Figure 2.13 YMC Average Monthly Temperature from 1975 - 2020 & Record Highs & Lows from 1975 - 2020**

Month	Average High	Average Low	Mean	Record High	Record Low
January	24° F	5° F	14° F	68° F (1981)	-28° F (2019)
February	29° F	10° F	19° F	67° F (1981)	-29° F (1996)
March	40° F	21° F	31° F	83° F (2012)	-17° F (1989)
April	57° F	34° F	45° F	98° F (1980)	7° F (1997)
May	70° F	47° F	58° F	100° F (2018)	22° F (2005)
June	80° F	57° F	68° F	107° F (1988)	36° F (1993)
July	85° F	62° F	73° F	108° F (1966)	44° F (1984)
August	82° F	59° F	71° F	108° F (1988)	38° F (2004)
September	74° F	50° F	62° F	99° F (1978)	26° F (1984)
October	59° F	37° F	48° F	94° F (1993)	9° F (2020)
November	42° F	23° F	33° F	82° F (1999)	-14° F (1976)
December	28° F	11° F	20° F	64° F (1998)	-27° F (1983)
Source: Midwestern Regional Climate Center Monthly Data Summary, 2021. Data recorded at Canby weather station.					

**Figure 2.14 YMC Average Monthly Precipitation & Snowfall from 1975 - 2020**

Month	Precipitation in Inches	Snowfall in Inches
January	0.85	8.70
February	0.82	8.00
March	1.78	9.60
April	2.51	5.20

May	3.05	0.00
June	4.11	0.00
July	3.21	0.00
August	3.18	0.00
September	2.83	0.00
October	2.23	0.90
November	1.39	6.70
December	0.90	9.00
<b>Annual</b>	<b>27.24</b>	<b>46.90</b>
<i>Source: Midwestern Regional Climate Center Monthly Data Summary. Data recorded at Canby weather station.</i>		

### **Climate Change**

The United States Environmental Protection Agency (EPA) defines climate change as any significant change in the measures of climate lasting for an extended period. It includes major changes in temperature, precipitation, wind patterns, or other effects, that occur over several decades or longer.

### **Climate Change Risks for the Upper Sioux Community**

According to the Minnesota State Hazard Mitigation Plan 2019, temperatures are rising, and weather patterns are changing, with increases in severe weather events and extreme precipitation. As a result, more flooding, ice storms, drought, and higher nighttime temperature lows create the risks of flood damage, dangerous driving conditions and power outages due to downed power lines, wildfire and health risks, and unsafe ice cover on lakes.

According to the Minnesota Climate & Health Program Planning document published in August 2018, the region of the Upper Sioux Community has the following trends:

- There has been an increase in winter and summer temperatures.
- There has been an increase in total average precipitation as well as heavy precipitation events, with longer periods of intervening dry spells.
- There has been an increase in the older adult population.

Source: <https://www.health.state.mn.us/communities/environment/climate/data.html>

The climate change associated with the Upper Sioux Community leads to increased risks from natural disasters of various types and requires that an increase in emergency preparedness will be needed to mitigate the potential risks. Reducing greenhouse gas emissions are still a valuable mitigation strategy that is being addressed by many levels of government, however, the purpose of this plan is to prepare and adapt to the changes that are likely to come.

## CHAPTER 3: HAZARD INVENTORY

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The hazard inventory chapter is divided into two parts: Natural Hazards and Other Hazards, as defined by the Minnesota State Hazard Mitigation Plan.

To inventory hazards that have occurred in the Upper Sioux Community, each section includes:

- Description of the hazard
- History of the hazard
- Relationships to other hazards
- Vulnerability assessment (if applicable)
- Climate change and the hazard
- Plans and programs
- Gaps and deficiencies

### **Vulnerability Assessment**

The vulnerability assessment has been incorporated into each hazard inventory throughout the chapter. An assessment of potential losses of assets is ideally calculated for each hazard, however only the flood and tornado hazards have a defined risk area, so they are the only hazard for which an estimation of potential losses can be derived. The vulnerability assessment utilizes the 2022 insurance value of all assets, and estimated replacement/content/ and function values.

### ***Definitions***

#### **Natural Hazard**

Natural hazards are those presented by the physical world, rather than those presented by humans. In natural hazards there is an interaction between the physical world, the constructed environment, and the people that occupy them. They are primarily atmospheric or geologic.

#### **Other Hazards**

Other hazards are those presented by humans, rather than those presented by nature. They are comprised of substances and processes that are flammable, combustible, explosive, toxic, noxious, corrosive, oxidizers, irritants, or radioactive.

## **NATURAL HAZARDS**

For the purposes of this plan, Natural Hazards identified are organized into these groups:

1. Violent Storms
  - a. Winter Storms (Blizzards, Ice Storms, Heavy Snow, Snowstorm)
  - b. Summer Storms (Thunderstorms, Tornadoes, Hailstorms, Windstorms)
2. Extreme Temperatures
  - a. Summer Heat
  - b. Winter Cold
3. Flooding
4. Drought
5. Wildfires
6. Dam Failures
7. Landslides and Erosion

## VIOLENT STORMS

Violent storms can occur throughout the year in the Upper Sioux Community. For practical purposes violent storms are categorized as summer or winter storms although there is no sharp end or beginning to when they might occur.

Individual weather database data is not available for the Upper Sioux Community specifically. Therefore, data from the adjoining Yellow Medicine County will be provided and referred to frequently.

### Winter Storms

The Upper Sioux Community experiences three basic types of winter storms: blizzards, heavy snow events and ice storms.

The following are National Weather Service (NWS) descriptions of winter storms:

#### Blizzards

Winter storms with sustained or frequent winds of 35 mph or higher with considerable falling and/or blowing snow that frequently reduces visibility to 1/4 of a mile or less. Conditions are expected to prevail for a minimum of 3 hours.

#### Ice Storms

Freezing rain produces damaging accumulations of ice usually ¼" or greater.

#### Heavy Snow or Snowstorm

Snowfall of 6 inches (15 cm) or more in 12 hours or 8 inches (20 cm) or more in 24 hours is imminent or occurring.

**Figure 3.1 YMC Winter Events from 2000 – 2020**

Winter	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
Number of Events	7	3	2	3	1	1	2	4	3	3
Winter	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Number of Events	6	0	3	7	2	3	3	7	6	5
<i>Events include: blizzards, winter storm, heavy snow, blowing snow, ice storm, glaze, low and extreme wind chills</i> <i>Source: National Climatic Data Center – Event Query 2021</i>										

#### History of Winter Storms

The Upper Sioux Community usually experiences at least one occurrence of each of the above types of winter storms annually, often the same type on more than one occasion. The storm database for Yellow Medicine County gives a glimpse into the winter storms that affect the Upper Sioux Community as shown in Figure 3.1.

Blizzards are relatively common in Yellow Medicine County. From November 1993 until January 2013, the National Climatic Data Center has reported seventeen blizzards. In that same time period, a total of 91 instances of winter weather were reported to the National Climatic Data Center.

The winters of 1995–1996 and 1996–1997 were exceptionally extreme. In the season of 1995-1996, four blizzards were reported. Three blizzards were reported in 1996-1997. In addition, heavy snow, high wind, and winter storms made these two winters difficult for Yellow Medicine County. There were many school cancellations and high costs to remove snow. The winter of 1996-1997 was declared a Presidential Disaster because of the snow emergency. Snow removal was extremely expensive because of the large amounts of snow, which damaged and destroyed buildings.

At the Canby, MN weather station in Yellow Medicine County, Canby had a record season of 90.4 inches of snowfall in 2018-2019. There was significant flooding in the Minnesota River Valley in the Spring of 2019 because of winter snow. The blizzard of January 17 and 18 in 1996 dropped record amounts of snow on Montevideo, resulting in 12 inches of snow in a 24-hour period. For information on snowfall extremes by month, please refer to Figure 3.2.

**Figure 3.2 Canby Snowfall Extremes by Month from 1975 - 2020**

Month	Montevideo	
	High (in)	Year
January	29	1979
February	28	1962
March	44	1951
April	36.9	2018
May	1	1954
June	0	-
July	0	-
August	0	-
September	0	-
October	6	1991
November	25	1985
December	32.5	2010
<b>Season (Jul-Jun)</b>	<b>90.4</b>	<b>2018-2019</b>
<i>Source: Midwest Regional Climate Center 2021</i>		

#### **Relationship to Other Hazards – Cascading Effects**

Drifting and blizzard conditions can occur even if there are no new snow accumulations. During the winter of 1996-1997, drifts were higher than most street vehicles.

#### **Flooding**

The winter of 1996-1997, and 2018-2019 also contributed to record spring flooding. The 1996-1997 event is discussed in the flooding section.

#### **Utility Failures**

Minnesota Valley Cooperative Light and Power Association currently have 720 miles of power lines that are exposed to weather event. This company experiences on average 57 power outages due to weather event annually in their region, with approximately 11 outages in Yellow Medicine County.

#### **Rolling Blackout**

In the Spring of 2021, bad weather in the Southern US cause a rolling blackout that impacted the Upper Sioux Community. While the blackout lasted less than two hours, it showed that the USC electric grid is vulnerable to

negative impacts to the grid that are not local.

### **Vulnerability Assessment of Winter Weather**

If a severe winter storm were to occur and all the major governmental centers were to fail, the Upper Sioux Community government functions would be transferred to the Law Enforcement Center in Granite Falls. The Prairie's Edge Casino Resort would be utilized to house Upper Sioux Community residents within 48 hours. This situation has never occurred on the Upper Sioux Community Reservation, a more likely scenario would entail one or two governmental buildings losing power and, in these instances, governmental operations would be shifted to another building. All government buildings on the Upper Sioux Community Reservation are outfitted with backup generators. Other potential situations that may occur would be road closures as determined by the Upper Sioux Community Chairman Over Upper Sioux Community roads and MnDOT concerning state highways. In the event of a future severe winter storm, the Continuity of Operations Plan (COOP) created by the Upper Sioux Community would be enacted and implemented to secure the Community government functions and care for residents.

### **Summer Storms**

Tornadoes, windstorms (straight line winds), hail and extreme heat are the biggest threats from summer weather to the Upper Sioux Community. A summer weather storm can cause damage to buildings or vehicles, crop loss, necessity to run generators and health issues in extreme heat. A wind and hailstorm can knock out power lines, causing power outages, and damage buildings, crops, and trees. Economic impact could be caused with repairs to damaged buildings, and a small amount of crop loss.

#### **Tornadoes**

A violently rotating column of air touching the ground, usually attached to the base of a thunderstorm.

Tornadoes are nature's most violent storms. Spawned from powerful thunderstorms, tornadoes can cause fatalities and devastate a neighborhood in seconds. Winds of a tornado may reach 300 miles per hour. Damage paths can be in excess of one mile wide and 50 miles long. Strong downburst (straight-line) winds may also occur due to the same thunderstorm. Hail is very commonly found very close to the tornadoes, as the strongest thunderstorms that spawn tornadoes are formed under the atmospheric conditions that are also highly likely to make hail.

#### **Hailstorms**

Hail is considered ice and is a by-product of severe thunderstorms. Most hail in Minnesota ranges in size from pea-size to golf-ball sized hail. Larger hailstones have been reported but occur much less frequently. Strong updrafts are necessary within the cloud to form hail. Strong updrafts are usually associated with severe thunderstorms. Area coverage of individual hailstorms is highly variable and spotty because of the changing nature of the cumulonimbus cloud. While, almost all areas of southern Minnesota can expect some hail during the summer months, most hail is not large enough to cause significant crop or property damage.

#### **Windstorms**

Windstorms can and do occur in all months of the year; however, the most severe windstorms usually occur during severe thunderstorms in the warm months. These include tornadoes and downburst or straight-line winds. Winds of greater than 60 mph are also associated with intense winter, spring and fall low-pressure systems. These inflict damage to buildings and in some cases overturn high profile vehicles.

### **History of Summer Storms**

At one time or another, the Upper Sioux Community has experienced all of the summer storms described above, with the exception of a tornado. Thunderstorms, lightning, hail, and windstorms are relatively common and can

topple trees, and cause destruction to homes as well as destroy agriculture crops. Figure 3.3 identifies the frequency of summer storms in Yellow Medicine County.

**Figure 3.3 YMC Summer Storms 1985-2020**

	Thunder and Windstorms	Tornados
	1985-2020	1985-2020
Events	43	18
Years	35	35
Average per year	1.23	0.51
<i>Note: * Wind and thunderstorms of over 60 kts. Source: National Climatic Data Center – Event Query 2021</i>		

According to the Storm Database, Yellow Medicine County has experienced 18 tornados since 1985, as well as three funnel clouds. Of the eighteen tornados, ten were classified as F0, six were classified as F1, one was classified as F2, two were classified as F3, and one classified as F4. Many of the tornados occurred in rural areas and did little damage; however, some of the destructive tornados destroyed farm buildings and downed trees. Significant damage was done to the City of Clarkfield from an F3 tornado and to the City of Granite Falls from a F4 tornado. People at the Upper Sioux Community witnessed the tornado that devastated Granite Falls on July 25, 2000. One person was killed, over a dozen injured, and millions of dollars of damage was done to residences, businesses, and public facilities in Granite Falls and the surrounding area.

#### **Relationship to Other Hazards – Cascading Effects**

##### **Flooding**

Heavy snows, snow melt, and thunderstorms can cause flooding which disrupt emergency response, transportation, and communication.

##### **Transportation, Emergency Services, and Utility Disruption**

Violent storms of all types can cause property damage, loss of life, personal injury, disrupt transportation, communication, and emergency services, and threaten public health and safety. As well as be significant threats to essential public infrastructure and services such as power, water supply systems and sanitary systems. The storms listed above could down power lines, which may lead to fires.

##### **Utility Failures**

Minnesota Valley Cooperative Light and Power Association serves the Upper Sioux Community. In 2014, the adjoining geographical area of Yellow Medicine County experienced 50 power outages. However, the entire distribution system suffered 80 power outages due to weather related issues of ice, wind, rain, and lightning.

##### **Rolling Blackouts**

In the Spring of 2021, bad weather in the Southern US cause a rolling blackout that impacted the Upper Sioux Community. While the blackout lasted less than two hours, it showed that the USC electric grid is vulnerable to negative impacts to the grid that are not local.



### Vulnerability Assessment of Summer Storms

The Upper Sioux Community has not experienced a tornado event, however to predict estimated damage caused by an F4/F5 tornado, the Upper Sioux Community based fiscal analysis on the recommendation of the National Weather Service Data Management Department.

To model an F4/F5 tornado, the NWS suggested that approximating **90%** of each land use category be considered demolished and to total those losses, produced by 2022 market values. Figure 3.4 below identifies the approximate high-end cost to the Upper Sioux Community in the event of a F4-F5 tornado. The government/critical facilities listed in Figure 2.11 include the Upper Sioux Community's infrastructure assets and all government-related buildings. As shown in Figure 3.4, the estimated devastation value of an F4-F5 tornado is \$94,323,035.

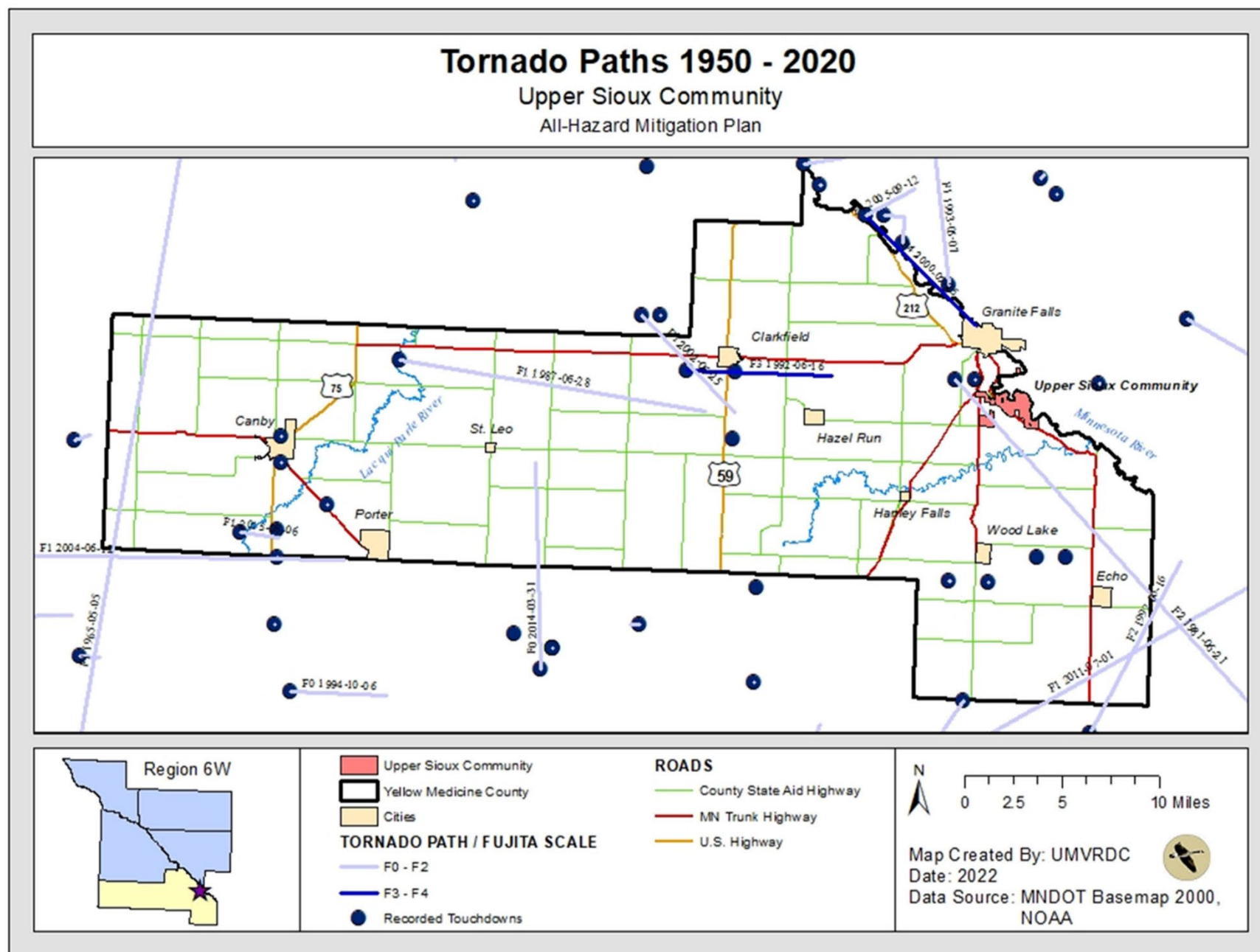
**Figure 3.4 USC F4-F5 Tornado Damage Values**

Type of Structure	Number of Structures		Value of Structures	
	Total Structures	Structures in Hazard Area (90% of total structures)	Total Value	Asset Value in Hazard Area
Residential	55	50	\$11,000,000	\$10,000,000
Enterprises	8	7	\$107,993,541	\$97,194,187
Religious / Cultural Facilities	4	4	\$451,256	\$406,130
Government/Critical Facilities	13	11	\$15,263,889	\$13,737,500
Infrastructure	3	3	6,852,945	6,167,650
<b>Total</b>	<b>77</b>	<b>70</b>	<b>\$141,561,631</b>	<b>\$127,505,468</b>
<i>Sources: Structure Values, USC 2022</i>				

1 In 2007, the Fujita Scale (F-Scales) used to measure damage from tornadoes was updated in 2007 to the Enhanced Fujita Scale (EF-Scale). For more information on this update, please visit <http://www.spc.noaa.gov/faq/tornado/ef-scale.html>.

Figure 3.5 is a visual representation of past tornado paths in Yellow Medicine County. Many of the tornadoes occurred in rural areas of the county and did little damage to structures; however, some of the more destructive tornadoes destroyed farm buildings and downed trees.

Figure 3.5 Tornado Paths from 1950 to 2020 in Yellow Medicine County



## **Violent Storms and Climate Change**

Source: Minnesota State Hazard Mitigation Plan 2019

### **Winter Storms and Climate Change**

Winter storms have had a large impact on public safety in Minnesota historically. Snowstorm frequency and annual total snowfall have the potential to increase in the future. As these events increase in the future, there is a risk of reduced reliability in services, increased number of outages, and rising energy costs that can affect public health.

### **Summer Storms and Climate Change**

#### **Tornadoes and Climate Change**

Minnesota's climate is undergoing distinct changes, but as reported by the Minnesota DNR State Climatology Office, these changes have not yet led 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.

#### **Windstorms and Climate Change**

The NCA reported a slight increase of the frequency and intensity of winter storms and that the tracks of winter storms have shifted northward over the U.S. However, the lack of quality data sets makes assessment of these patterns difficult. Trends of storms remain uncertain, and research will continue to investigate the connections between climate change and severe storms" (NCA, page 59).

## **Plans and Programs for Violent Storms**

### **Cooperation**

The Upper Sioux Community works closely with the Yellow Medicine Emergency Manager and contracts any services needed from both Yellow Medicine County and the City of Granite Falls.

### **Severe Storm Spotters Network**

This program, sponsored by the National Weather Service (NWS), enlists the help of trained volunteers to spot severe storm conditions and report information to the NWS. No tornado warning is given unless the storm has been spotted by someone or is confirmed by NWS radar reports. Yellow Medicine County has trained all fire departments, law enforcement and emergency management personnel in severe weather conditions. In addition, the Upper Sioux Community has civilian severe weather spotters that are trained and recertified each year and report directly to the NWS and the local dispatch when severe weather is observed.

### **Severe Weather Awareness Week**

Each spring, Yellow Medicine County Emergency Management personnel conduct a severe weather training workshop for all fire departments, law enforcement and private citizens.

### **Severe Weather Warning System**

The Upper Sioux Community has four (4) NOAA/Emergency Alert sirens. The sirens are located at 1) near the Tribal Administration Building, 2) RV Park on Prairie's Edge Lane, 3) Wacipi Pow-Wow grounds, and 4) the HUTAR land.

### **Weather Radios**

The Upper Sioux Community is in broadcast range of weather radios. This broadcast will improve with the addition of a tower in Olivia. Residents may be unaware of the usefulness of weather radios; however, each building in the community has a weather radio.

#### **Emergency Operations Center**

The Emergency Operations Center is in the NOC Building, which is equipped with back-up power if needed. There is a safe room located in the middle of the building.

#### **Evacuation Plan and Storm Shelter**

Prairie's Edge Casino Resort has an evacuation plan and a basement for use during severe weather. All tribal-owned structures within the Upper Sioux Community have evacuation plans posted.

### **Gaps and Deficiencies for Violent Storms**

- Four homes on Travers Lane do not have basements to provide shelter in the event of a tornado or damaging winds from a severe thunderstorm.
- Minnesota Department of Transportation (MnDOT) and the Yellow Medicine County Soil and Water Conservation District have begun the process of planting trees and shrubs as windbreaks for reducing blowing and drifting of snow and soil. Strategically planted strips of trees, shrubs and/or native grasses can be used as natural windbreaks. MnDOT has worked with the United States Department of Agriculture to access Conservation Reserve Program resources to help implement this program. The Upper Sioux Community is in the process of implementing some of these programs.
- There is no plan for a sustained power failure or outage. Government buildings will be equipped with power generators in 2021.
- There are dead space coverage areas for cellphone and ARMER in Multipurpose Building that needs to be addressed for better communications.

## **EXTREME TEMPERATURES**

Located in the center of the continent, Minnesota and the Upper Sioux Community experience the extremes of both summer heat and winter cold. Summer temperatures in the adjoining Yellow Medicine County have been as high as 110° F on several occasions while winter temperatures have been as cold as 39° F below zero. Both heat and cold pose risks for people, animals, equipment, and infrastructure.

### **History of Summer Heat**

The average July maximum temperature in most of Yellow Medicine County is about 85° F. July is the warmest month. On average the county experiences 23 days of 90 degrees or higher during a summer. The all-time recorded high is 111° F in Canby, which occurred in 1936 (Figure 3.4).

**Figure 3.6 YMC Temperature Extremes**

	Highest Temp	Date	Lowest Temp	Date
Canby	111°F	July 12, 1936	-33°F	January 22, 1936
Redwood Falls	110°F	July 14, 1936	-36°F	January 12, 1912
Source: Midwest Regional Climate Center 2019				

While summers are typically warm but pleasant in Yellow Medicine County, it is not uncommon to experience high dew points and temperatures in the 90s for several days in a row. Extended periods of warm, humid weather can create significant risks for people, particularly the very young, those that are ill, and seniors who may lack air conditioning and proper insulation or ventilation in their homes. Animals are also at risk during extended periods of heat and humidity.

Heat Index has been developed as a measure that combines humidity and temperature to better reflect the risk of warm weather to people and animals. The index measures the apparent temperature in the shade. People exposed to the sun would experience an even higher apparent temperature. A heat index of 105° F is considered dangerous.

## **History of Winter Cold**

On average, January is the coldest month, with daytime highs of averaging 24° F and nighttime lows of 5° F. Figure 3.6 shows the lowest temperatures reached in Yellow Medicine County. However, these averages do not tell the entire story. Maximum temperatures in January have been as high as 67 °F and minimums as low as -39° F below in Yellow Medicine County. The winter months on average produce about 34 days of 0° F or lower.

Cold weather is often accompanied by winds creating a dangerous wind chill effect, putting both people and livestock at risk. Most of the county is at risk of this kind of weather because of its relatively flat, open character. More wooded, hilly areas of the county are less severely affected by wind chill. Wind chills of -35° F and lower can present significant risk, particularly if people are not properly clothed or protected. A -15° F air temperature with wind speeds of 10 miles per hour creates a wind chill of 35 degrees below zero. Under these conditions, frostbite can occur in just minutes on exposed skin.

## **Relationship to Other Hazards – Cascading Effects**

### **Violent Storms**

Temperature extremes are often associated with weather extremes such as snowstorms and blizzards.

### **Drought**

Extended high temperature extremes can phase into drought.

### **Wildfire**

Dry, hot conditions can increase the risk of wildfires.

### **Collapsed Structures**

Structural weakness results from building material failure, settling, and other factors. Tornadoes, floods, high winds, snow, heavy rainfall, may cause major damage to structures.

### **Utility Failure**

Heavy utility use to heat or cool buildings can cause utility damage or failure.

### **Rolling Blackouts**

The USC electric grid is connected to other states and so negative impacts in other areas could affect the USC.

## **Extreme Temperatures and Climate Change**

*Source: Minnesota State Hazard Mitigation Plan 2019*

The average temperature in Minnesota has increased more than 1.5° F since recordkeeping began in 1895 and that

increased warming has been occurring in recent decades (Interagency Climate Adaptation Team, p. 4).

According to the State Climatologist, there is some evidence that current dew points are not only higher but are occurring with greater frequency than in the past. If that is true, Yellow Medicine residents can expect an increasing number of hours with dangerous heat index levels.

In regard to extreme cold temperatures, the Minnesota State Hazard Mitigation Plan 2019 states that there is not yet any observable trend related to extreme cold events and climate change in Minnesota.

The state hazard mitigation plan also notes that climate change will likely have different effects on different geographical regions of the country as well as within the state of Minnesota. In the absence of downscaled modeling, more specific predictions for smaller geographical areas are not available currently. Therefore, the climate change risks associated with the Upper Sioux Community are not mutually exclusive, but rather the effects in the county may differ from those of the state and Midwest region.

## **Plans and Programs for Extreme Temperatures**

The following programs and projects are in addition to the ones already mentioned for violent storms:

### **School Closings**

The County's school districts each have their own school closing policy. The superintendents decide when to send students home based on current weather forecasts. Local radio stations partner with the districts to make sure school closure announcements are out by 6:00 a.m. or earlier.

### **Heat Advisories**

The local radio and TV media, in concert with the National Weather Service, issues a heat advisory when the combination of temperature and humidity create risks for people and animals. A heat index of 105 ° F to 114 ° F warrants a heat advisory. This occurs when air temperature reaches 95° F and the relative humidity is 50 percent. An excessive heat warning is issued when the heat index reaches 115° F. This occurs with an air temperature of 95° F and relative humidity of 60 percent. An index of 115 ° F or higher creates severe risk for both humans and animals.

### **Wind Chill Warnings**

The local radio and TV media collaborate with the National Weather Service and issue wind chill warnings when temperatures are 30° F or below. Severe wind chill warnings are provided when conditions warrant and when severe risk and safety is a factor. Wind chills of -40° F or lower frequently prompt the closing of schools to protect children, particularly those that might have to wait outside for extended periods of time.

### **Hourly Data**

Granite Falls Airport has an AWAS system in place as of October 2003.

## **Program Gaps or Deficiencies for Extreme Temperatures**

None identified.

## **FLOODING**

A flood is defined as an overflowing of water onto an area of land that is normally dry. For floodplain management purposes, the Federal Emergency Management Agency (FEMA) uses the one percent annual chance flood, also known as the regional flood or more commonly the "100-year flood." Other water hazards considered in this section include flash floods and washouts.

The term "100-year flood" is misleading - it is not a flood that will occur once every 100 years; rather, it is the flood elevation that has a one percent chance of being equaled or exceeded each year. Thus, a 100-year flood could occur more than once in a relatively short period of time.

The one percent annual chance flood, which is the standard used by most federal and state agencies, is used by the National Flood Insurance Program (NFIP) as the standard for floodplain management and to determine the need for flood insurance. A structure located within a special flood hazard area shown on a map has a 26 percent chance of suffering flood damage during the term of a 30-year mortgage. One percent annual chance floodplains have been identified, mapped, and may be used for further analysis using the county's geographic information systems (GIS).

Floods generally occur from natural causes, usually weather-related, such as a sudden snowmelt, often in conjunction with a wet or rainy spring or with sudden and very heavy rain falls. Floods can, however, result from human causes such as a dam impoundment bursting. Other water-related hazards include washouts and ice jams that affect dams and culverts. In the spring of 2009 and 2010, a great amount of water overflowed roads, causing a major washout and road closures throughout the county.

Flash flooding is a term used to describe a large amount of water in a short time, causing a different kind of flooding in the short term. The definition of a flash flood according to the Minnesota Climatology Working Group is "the occurrence of 6 inches or more rainfall within a 24-hour period". It is reported that a rainfall of six inches in a 24-hour period will produce a river flow equivalent to that in a 100-year flood, and generally will cause increased erosion and other economic damages.

Flash flooding can lead to increased threat of erosion and mudslides. Economic impact includes all structures in the 100-year floodplain in the Upper Sioux Community. Other impacts will be erosion, washed out roads and on additional residence that may be at risk due to erosion/mudslide and well site contamination.

## **History of Flooding in the Upper Sioux Community**

Flooding occurs primarily in the spring during periods of peak conditions (rainfall and snowmelt) and in areas where the soil has low permeability qualities. Damages in the Upper Sioux Community are mainly confined to the Yellow Medicine watershed.

### **1997 Flood along the Minnesota River**

Source: National Climatic Data Center – Storm Event Database 2009

The Minnesota River first reached above flood stage in late March and peak crests of the river were reached during the first two weeks of April. The Minnesota River remained in flood stage through mid-May.

The flooding resulted in severe losses to both public and private property. Damage was extensive to roads, bridges, culverts, agricultural drainage areas, homes, and businesses. Drainage ditches and culverts plugged with snow and ice resulted in sporadic flooding. Scattered road closures were a result of the spring thaw as well. Many smaller rivers overflowed their banks resulting in road closures and structural flooding.

An early spring storm brought heavy rain, snow, and high winds to the area at the beginning of April during the peak of the flooding, severely aggravating the situation. Many roads were closed in the Montevideo and Granite Falls areas. Firefly Creek Casino closed due to closed roads making access to the Casino impossible.

The 1997 flood is the worst flood on record for the Upper Sioux Community.

### **2001 Flood along the Minnesota River**

Source: National Climatic Data Center –Storm Event Database 2009

Heavy snowfall during winter remained on the ground through the end of March 2001 and then rapidly melted, resulting in river stages close to record levels. Water gushed through drainage ditches, streams and into the rivers during midday April 1. There was heavy rain over much of central Minnesota on April 7-8 that prolonged the high water and added one or two feet to many crests during mid-April. Another period of heavy rain on April 22-23 caused rivers to crest again in late April and early May; in some cases, the crest was higher than the first. Many rivers remained well above flood stage into mid-May. The crest at Montevideo on the Minnesota River was the second highest ever; only 1.3 feet lower than in 1997.

Numerous roads and bridges were closed, millions of sandbags used, and approximately 200 homes and businesses were partially submerged with floodwaters. About 100 homes and businesses were damaged beyond repair. The last of the river levels finally went below warning criteria on May 8, 2001.

The 2001 flood reached levels near the 1997 record.

*For more information on the factors and issues of the 1997 and 2001 floods, please see appendix.*

**Figure 3.7 Images of Past Flooding**



Images from the 1997 flooding

### **2014 Flooding**

In 2014, Governor Dayton declared a state of emergency due to flooding in 35 counties across Minnesota, including the adjoining Yellow Medicine County. For many areas of the state, the first half of 2014 had the highest precipitation totals on record. The flooding caused major problems for crops, cattle, homes, buildings, and infrastructure. The Minnesota River in Montevideo (Chippewa County) rose to over 17.45 feet, about 3.5 feet above



flood level.

Granite Falls received nearly 18 inches of precipitation in May and June alone. If flood mitigation projects had not been completed, residents could have seen effects reminiscent of the 1997 flooding. The flood mitigation projects completed in Granite Falls during the past 10 years have proven to be very effective and a large amount of potential damage was avoided.

### **2019 Flooding**

Flooding occurred during spring of 2019. This significantly affected River Road, causing road wash outs and some building damage down at the old casino grounds. This flooding also contributed to the Hwy 67 failure and ultimate closure.

## **Relationship with Other Hazards – Cascading Effects**

### **Fire**

Water or structures could ignite.

### **Hazardous Materials**

Structures that house hazardous materials may be flooded causing leaks or transportation routes may be washed out, causing overturned vehicles.

### **Infectious Diseases**

Water issues often translate into issues around infectious diseases. Water contamination and wastewater removal many times go along with flooding issues. Diseases such as hepatitis A, giardia, cryptosporidium, and West Nile virus are potential hazards that have direct links to water.

### **Landslide and Debris Flow**

There were issues with debris flow and bridge damage in the floods of 1997 and 2001. The BIA Reservation Road 17 is an extremely steep gravel road that washes away during heavy rains and flood events.

State Hwy 67 was affected in 2019 by a slow-moving landslide that closed the road.

### **Transportation, Emergency Services, and Utility Disruption**

Violent storms of all types can cause property damage, loss of life, personal injury, disrupt transportation, communication, and emergency services, and threaten public health and safety. As well as be significant threats to essential public infrastructure and services such as power, water supply systems and sanitary systems. Due to the pending permanent closure of Hwy 67, the Community has one fewer access and evacuation route.

## Vulnerability Assessment of Floods

Damage from possible flooding is mainly confined to the Yellow Medicine watershed. In the Yellow Medicine River watershed, annual damages amount to about \$471,080. These figures were determined using 1985 cost benefit figures. Therefore, the damage figures given are underestimated in today's economy.

Figure 3.8 below identifies the number of floodplain acres throughout the Upper Sioux Community. The Upper Sioux Community acreages were calculated with GIS flood plain shapefiles from 2022. There are currently 78 acres in the 1% flood plain. This accounts for about 3% of the land area. In addition, 24 acres of the Upper Sioux Community are located in the .2% flood plain. In total there are 102 acres in designated flood plains accounting for 4% of the land mass.

### **1% annual chance floodplain**

*Previously 100-year flood*

Includes the Special Flood Hazard Area (SFHA) which is a high-risk flood zone; this area would be covered by the floodwaters of the base flood.

### **0.2%-annual-chance floodplain**

*Previously 500-year flood.*

Represents a flood that has a 0.2% chance of being equaled or exceeded in any given year.

### **Floodways**

The channel of a stream, river, or other waterway and adjacent land areas that must remain open and free of obstructions to allow floodwaters to flow downstream.

**Figure 3.8 USC Number of Floodplain Acres**

Location	Total Acres	Acres in 1% Flood plain	Acres in .2% Flood plain
Upper Sioux Community	2,339	78	24
<i>Source: May, 2022 dFIRM data, DNR &amp; Minnesota GeoSpatial Commons</i>			

Another 1,025 acres are located in the Floodway. Because of this, a restrictive Flood Damage Prevention Ordinance (Floodplain Ordinance) was adopted and amended and re-adopted on August 19, 2021.

As detailed in the Appendices, massive flooding occurred in both 1997 and 2001 throughout Yellow Medicine County, and the Upper Sioux Community was greatly impacted. There has been extensive mitigation since these floods making the community less vulnerable.

As shown in Figure 3.9 below, in 1997, the Upper Sioux Community spent \$416,593.00 for flood fighting efforts and cleanup due to massive flooding. In 2001, the Community spent \$32,728.00 for flood fighting efforts and cleanup.

**Figure 3.9 USC Summary of Expenses to Fight Flooding**

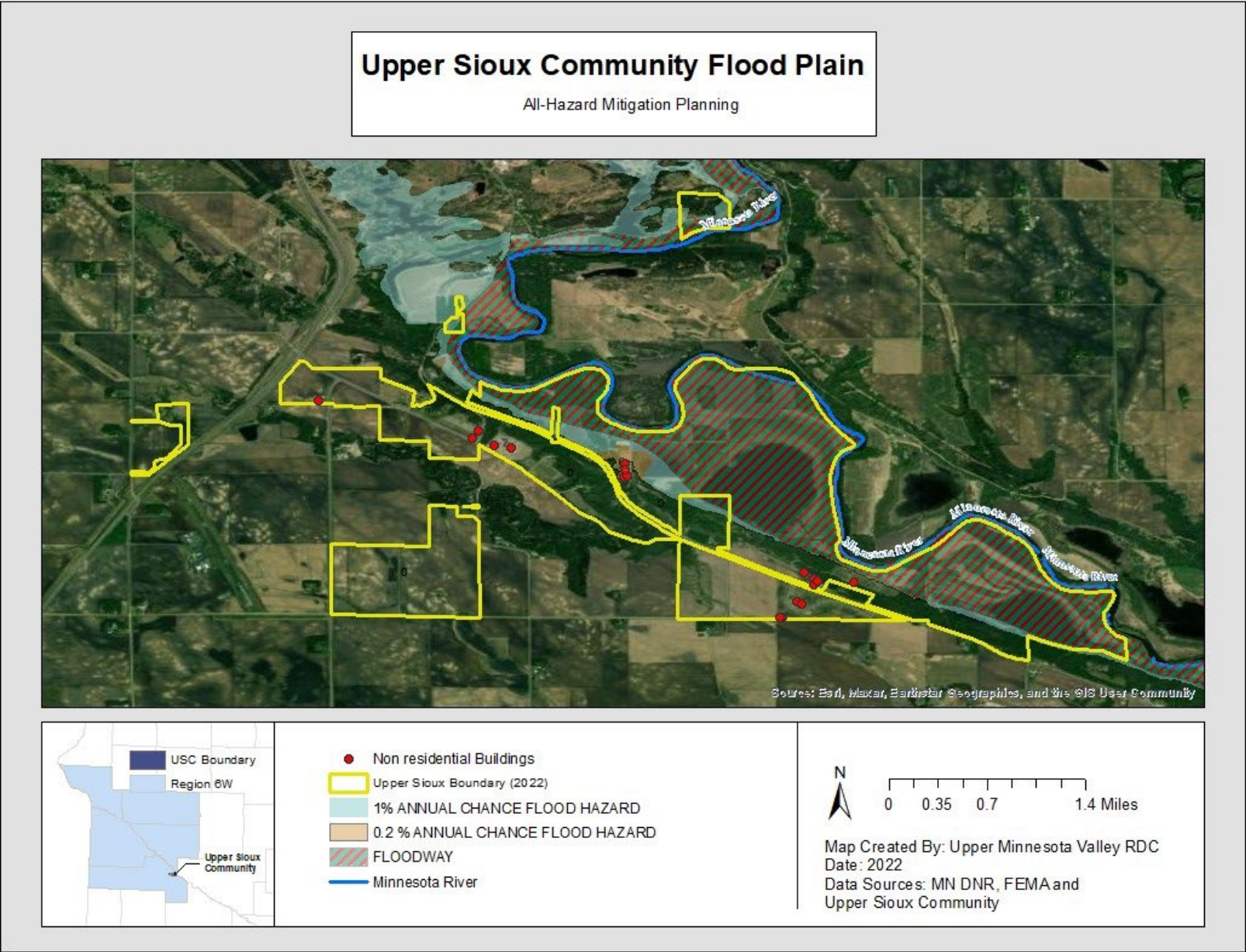
Location	1997 Flood	2001 Flood	2019 Flood	Total
Upper Sioux Community	\$416,593	\$32,728	\$137,000	\$449,321
<i>Source: Upper Sioux Community Board of Trustees</i>				

Figure 3.10 below illustrates the asset values of structures located in the 100-year flood plain. Currently there are 4 residences located in the 100-year flood plain. If a 100-year flood were to occur, it would cost \$600,000 to replace the 4 residences. Please refer to Figure 3.11 for the location of flood plains on and around the Upper Sioux Community.

**Figure 3.10 USC 100-Year Flood Event**

Type of Structure	Number of Structures		Value of Structures	
	Total Structures	Structures in Hazard Area	Total Value	Asset Value in Hazard Area
Residential	55	4	\$8,250,000	\$600,000
Enterprises	4	0	\$82,584,745	\$0
Religious / Cultural Facilities	5	0	\$583,256	\$0
Government/Critical Facilities	13	0	\$13,990,372	\$0
<b>Total</b>	<b>78</b>	<b>4</b>	<b>\$105,408,373</b>	<b>\$600,000</b>
<i>Sources: USC 2021</i>				

Figure 3.11 Upper Sioux Community Flood Plain



## **Floods and Climate Change**

Source: Minnesota State Hazard Mitigation Plan 2019

The fact that Minnesota will see more frequent extreme precipitation events is a primary concern for Minnesota. 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 1-inch rains, 3-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. Climate projections indicate these big rains will continue increasing into the future (MN DNR, 2018).

## **Plans and Programs for Flooding**

### **Upper Sioux Community Area Flood Maps and Controls**

The Upper Sioux Community uses Flood Insurance Rating Maps (FIRM) dated 2021 to identify the 100-year flood areas.

### **Planning of Future Development**

Much of the Upper Sioux Community has been relocated out of the floodplain to the top of the hill. Any new development is planned to occur outside the 100-year floodplain.

### **Response Plan**

A Response Plan to a Flood Emergency has been developed to include local resources and personnel.

### **Evacuation Plan**

Prairie's Edge Casino Resort has an evacuation plan and a basement for use during severe weather. All tribal-owned structures within the Upper Sioux Community have evacuation plans posted.

## **Program Gaps or Deficiencies for Flooding**

- At-risk uses and structures remain in identified 100-year floodplains, including nonconforming structures and uses currently "grandfathered in" the Upper Sioux Community Floodplain Ordinance.
- There are 9-10 residential homes that remain in the floodplain. These homes have been flood proofed and/or refused the buyout so there is nothing yet to do to mitigate these homes.
- Public Works/Roads Building is on the fringe of the floodplain and could be affected by flooding.
- Local resources are not adequate for a severe and prolonged flooding and there is a need for assistance from outside the community during an emergency.
- A Response Plan that goes beyond flooding (hazardous materials, terrorism) would complement the Emergency Operations Plan.
- The current evacuation plan needs to be expanded to include the entire Community.
- Ice dams that can cause upriver flooding must be identified and mitigated (Skalbekken Bridge).
- Highway 67 closure will reduce access for the community and could limit emergency evacuation in times of flooding.

## **DROUGHT**

Drought is defined as a prolonged period of dry weather, a lack of rainfall.

### **History of Drought**

The Upper Sioux Community has experienced prolonged periods without rainfall. The most severe in climatic records occurred during the 1930s. None so prolonged has been experienced since. Record low precipitation for the month of July in Montevideo was 0.12 inches in 1936. The weather data station in nearby city Montevideo, MN recorded a record low of 3.46 inches for the summer in 1976. Annual record low rainfall for Montevideo was 13.08 inches in 1976.

The Upper Sioux Community receives its drinking water supply from wells. A water supply with water tower was constructed next to the Prairie's Edge Casino Resort. Agriculture is not prevalent in the Upper Sioux Community, thus other than the public water supply, a drought would not have a large economic impact.

#### **Drought of 1920-30**

Perhaps the most devastating weather-driven events in American history were the droughts of the 1920's and 1930's, which significantly impacted Minnesota's economic, social, and natural landscapes.

#### **Drought of 1974-77**

Drought-like conditions began in the winter of 1974 and extended through the summer of 1977. The dry conditions of these years lowered water levels in wells and caused record low stream flows throughout the state. Late summer forest fires broke out, and conflicts arose between domestic well owners and neighboring high capacity well owners. The DNR Division of Waters formulated new policies to resolve these resource management problems and user conflicts. Many of these new policies formed the basis of subsequent amendments to agency rules and state statutes.

#### **Drought of 1987-89**

The warm, dry winter of 1986-87 was the beginning of this period of little rainfall and extreme dryness. Drought conditions became very serious in mid-June 1988 when Mississippi River flow levels threatened to drop below the Minneapolis Water Works intake pipes at the city of Fridley. Below normal precipitation coupled with declining lake levels, ground water levels, and stream flow created statewide concern. To facilitate coordination of drought response actions a State Drought Task Force was convened by the director of the Division of Waters. In the summer of 1988, rains finally came in August, but not soon enough to save agriculture crops.

#### **Drought of 2003**

Yellow Medicine County was categorized as a "Moderate Drought" from September 2003 to June of 2004.

#### **Droughts of 2006 and 2007**

Yellow Medicine County was categorized as "Moderate Drought" event from the end of July 2006 to end of August 2006. Another occurrence varied between a "Moderate Drought/Severe Drought" from the end of July 2007 to mid-September 2007.

#### **Drought of 2021**

The Drought Task Force convened on July 21 when the drought reached Severe stage. Very low water levels on the Minnesota River were observed with no water passing over the falls at the hydroelectric dam in Granite Falls. Widespread, late summer rains alleviated drought conditions and as of September 7, 2021, the drought level was Moderate.

## **Relationship with Other Hazards – Cascading Effects**

### **Wildfires**

Drought stressed woods, brush land and non-cultivated fields significantly increases the risks of wildfire. Wildfires in the west of the U.S and Canada caused severe poor air quality.

## **Drought and Climate Change**

Source: Minnesota State Hazard Mitigation Plan 2019

Droughts have been happening throughout Minnesota's history, and it is not yet clear the degree at which climate change may impact future droughts. In 2014, the most recent National Climate Assessment 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. The climate models used in the 2014 National Climate Assessment projects Minnesota to have an increase in days over 90°F by mid-century; however, the future drought situation is less clear. The climate model run with the lower emissions scenario projects no significant change in the number of consecutive days of no rain, while the higher emissions scenario shows an increase in dry periods, increasing Minnesota's drought risk (MPCA, 2017).

## **Plans and Programs for Drought**

### **Water Conservation**

Water use restrictions in times of drought could be ordered if necessary. To provide a new water supply for the Prairie's Edge Casino Resort, the Upper Sioux Community obtained new well sources on HUTAR land and have constructed 6-8 new wells.

## **Program Gaps and Deficiencies for Drought**

None identified.

## **WILDFIRES**

A wildfire is an uncontrolled fire spread through vegetative fuels, posing danger and destruction to property. Wildfires can occur in undeveloped areas and spread to urban areas where structures and other human development are more concentrated.

While some wildfires start by natural causes such as lightning, humans cause four out of every five wildfires. Debris burns, arson or carelessness are the leading causes of wildfires. As a natural hazard, a wildfire is often the direct result of a lightning strike that may destroy personal property and public land areas, especially on state and national forest lands. Destruction of timber, property and wildlife, and injury or loss of life are the predominate dangers to people living in the affected area or using the area for recreational facilities.

Wildfire risks are not limited to public lands. There are extensive tracts of privately owned grasslands as well. These include both conservation program lands (CRP, RIM, CREP, etc.) and "rough ground" that has been hayed, pastured, or left wild. These private lands particularly in combination with public lands (such as WMA, SNA, State Parks, WPA, etc.) can combine to create substantial blocks of grasslands. Fire danger grows when cedar trees encroach into grasslands as evergreens can add a considerable amount of fuel load.

To date, there has been very little injury or loss of property resulting from wildfire in the Upper Minnesota Valley Region. However, there are some risks that should be managed to mitigate potential disasters.

## **History of Wildfires**

Wildfires occur throughout the state of Minnesota. According to the Minnesota State Fire Marshal, there are more than 2,000 annual wildfires with an estimated loss of more than \$13 million dollars.

Yearly occurrences are wildfires started along the railroads and farmland. Two other potential wildfire hazards are along power lines and utility structures and timber bridges. The hot exhaust of farm equipment can also start fields on fire.

Grasslands are not predominant at the Upper Sioux Community. There has not been a history of wildfires at the Upper Sioux Community.

## **Relationship with Other Hazards – Cascading Effects**

### **Flooding and Erosion**

Major wildfires can destroy ground cover, which can cause heavy erosion and loss of all vegetation. If heavy rains follow a major fire, flash floods, landslides and mudflows can occur, as vegetation is essential in deterring flooding during heavy rainfalls or spring runoff.

### **Hazardous Materials**

Risk of fires spreading to anhydrous ammonia tanks or fuel tanks on rural farm sites is an issue. Some chemical companies store tanks in rural areas. While most tanks can be moved quickly, fire departments and response teams may not be aware of their presence.

## **Plans and Programs for Wildfires**

### **Fire Districts and Departments**

The Granite Falls Fire Department responds to any fire at the Upper Sioux Community. The Upper Sioux Community has three volunteer firefighters for wildfire events.

### **Firewise**

The DNR participates in a national wildfire education program called Firewise. This program provides tools for risk assessment and risk reduction and is available to communities who would like to do a detailed risk assessment. Small grants are available for 50 percent of projects.

### **Education and Outreach**

Education is available through existing resources and channels such as the Extension Service and Soil and Water Conservation Districts. Countryside Public Health assists lead agency DNR to provide health information for the public.

### **Evacuation Plan**

The Prairie's Edge Casino Resort has an evacuation plan delineating routes customers should take in the event of large fires.

## **Wildfires and Climate Change**

Source: Minnesota State Hazard Mitigation Plan 2019

The changing climate poses a complex web of issues for wildfire in Minnesota. More frequent and severe smoke plumes from wildfires in Canada, mostly during the summer have already contributed to a near doubling in the number of smoke-related air quality alerts in Minnesota since 2015 compared to the previous seven years (MPCA, 2018). Climate change likely is affecting the frequency and intensity of Canadian wildfires, like 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.

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.

### **Program Gaps or Deficiencies for Wildfires**

- The Upper Sioux Community does not have an evacuation plan in place for the entire Community.
- The Upper Sioux Community does not have its own fire suppression team.

## **DAM FAILURE**

Dam failure is defined as the collapse or failure of an impoundment resulting in downstream flooding. Dam failures can result in loss of life and extensive property damages; and may result from an array of situations, including flood events, poor operation, lack of maintenance and repair and terrorism.

The Granite Falls Dam is a "High Hazard Dam", which means there is potential for loss of human life if failure of the dam should occur. A dam break analysis was performed and was filed with the appropriate state and federal regulatory agencies. Maximum "Sunny Day Failure" was 5.2 feet with a stage increase of one foot or more between Granite Falls Dam and Minnesota Falls Dam (no longer exists). For a dam break at a 15-year event, stage increases were 2.0 feet or less.

### **History of Dam Failure**

The worst recorded dam failure in U.S. history occurred in Johnstown, Pennsylvania, in 1889. More than 2,200 people were killed when a dam failed, sending a huge wall of water downstream, destroying the town. Although risks are minimal, dam failure can occur in Minnesota and has in the past, although none have been reported in the Upper Sioux Community or in Yellow Medicine County.

### **Relations with Other Hazards – Cascading Effects**

#### **Flood**

Dam failure, although the risk is minimal, has the potential to be devastating to the areas within the floodplain and around the stream directly below the dam in Granite Falls. Dam failure would cause immediate flash flooding, destruction of property, erosion of crops and the potential destruction of infrastructure.

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

Source: Minnesota State Hazard Mitigation Plan 2019

Dams are designed based on assumptions about a river's annual flow behavior. These assumptions will determine the volume of water behind the dam and the amount of water 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 a mechanism that also results 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 to maintain the required margins of safety. Such

early releases of increased volumes can increase flood potential downstream.

While climate change will not increase the probability of catastrophic dam failure, it may increase the probability of design failures. Climate change is adding a new level of uncertainty that needs to be considered with respect to assumptions made during the dam construction.

## **Plans and Programs for Dam Failure**

### **Floodplain Ordinance**

The Upper Sioux Community's Floodplain Ordinance prohibits further development on the properties in the floodplain.

### **Dam Inspection**

The Minnesota Department of Natural Resources regulates nearly 900 of the numerous dams in the state. The DNR and US Army Corps of Engineers regularly inspect the dam and reservoir capabilities for flooding and dam failure. Their report indicates that the size of the dam is adequate for any major floods or spring runoff. All large dams constructed by the federal government and the Yellow Medicine Watershed District are inspected annually.

### **Monitoring**

The county does some monitoring of tributaries emptying into the Minnesota River to help identify large volumes of water in times of flooding. This is done by watershed organizations.

### **Contingency Plan**

There is a contingency plan in place in case of dam failure for the dam in Granite Falls, MN.

### **Infrastructure Plan**

The Yellow Medicine County Infrastructure Plan prohibits further development on the properties adjacent to the dam, including property directly below the dam. Yellow Medicine County has dedicated land adjacent and below the dam as public open space.

## **Program Gaps or Deficiencies of Dam Failures**

Emergency plans for dam safety have been created by the US Army Corps of Engineers or the NRSC but have a tendency to become out of date when not used; however, the Yellow Medicine Emergency Plan has been recently updated. The US Army Corps Engineers does not regularly work with local emergency managers to ensure that information is up-to-date and in the event of a disaster, plans can be implemented.

## LANDSLIDE AND EROSION

The movement of a mass of rock, debris, or earth down a slope by the force of gravity is considered a landslide. They occur when the slope or soil stability changes from stable to unstable, which may be caused by earthquakes, storms, volcanic eruptions, erosion, fire, or additional human-induced activities.

Almost every landslide has multiple causes. Slope movement occurs when forces acting down-slope (mainly due to gravity) exceed the strength of the earth materials that compose the slope. Causes include factors that increase the effects of down-slope forces and factors that contribute to low or reduced strength. Landslides can be initiated in slopes already on the verge of movement by rainfall, snowmelt, changes in water level, stream erosion, changes in ground water, earthquakes, volcanic activity, disturbance by human activities, or any combination of these factors.

### History of Landslide and Erosion in the Upper Sioux Community

#### Floods of 1997 and 2001

There were issues with debris flow and bridge damage in the floods of 1997 and 2001. The BIA Reservation Road 17 is an extremely steep gravel road that washes away during heavy rains and flood events.

#### Hwy 67 Road Closure/2019 Flooding

In April 2019, a portion of TH 67 near Upper Sioux Agency State Park was closed to traffic because of pavement distress because of embankment soil movement. This portion of the highway is constructed adjacent to the Minnesota River and crosses the Yellow Medicine River. Significant disturbance was observed along the bank of the Yellow Medicine River in this area.

It was discovered that the ground was unstable 50 to 85 feet below the surface of the roadbed situated between the Yellow Medicine and Minnesota River Valleys. The geomorphology of this region suggests that this hillside has previously experienced instability. Erosion along the Yellow Medicine River, along with fluctuations in the groundwater table, is believed to have initiated the landslide, which has led to embankment movement, pavement distress, and the subsequent closure of the road.

MnDOT and Yellow Medicine County are in the process of abandoning the road in this area due to the high cost of addressing the roadbed failure. There are three community residences that may be impacted by the Hwy 67 road failure.

**Figure 3.12 Images of Hwy 67 Road Failure**



Hwy 67 failure due to unstable ground.

## **Relations with Other Hazards – Cascading Effects**

### **Flood**

Landslide and erosion issues are exacerbated during flood and heavy rainfall events.

### **Landslide and Erosion and Climate Change**

Source: Minnesota State Hazard Mitigation Plan 2019

The conditions that make certain lithologies more vulnerable to erosion, landslides and mudslides will be exacerbated by the expected increase in heavy rainfall events.

In Minnesota, the wettest days are getting wetter. This can contribute to increased erosion in many locations due to flooding and saturation of soils. Reduced ice cover on lakes and shorelines (due to warmer temperatures) could potentially expose shorelines to increased erosion or damage during weather events when they previously may have been covered with ice (National Climate Assessment Development Advisory Committee, 2013).

According to the 2014 National Climate Assessment, “Increased precipitation intensity also increases erosion, damaging ecosystems and increasing delivery of sediment and subsequent loss of reservoir storage capacity” (Pryor, et al., 2014).

### **Plans and Programs for Landslide and Erosion**

#### **Floodplain Ordinance**

The Upper Sioux Community’s Floodplain Ordinance prohibits further development on the properties in the floodplain.

#### **MNDOT Slope Vulnerability Study**

MnDOT has completed two phases of a Slope Vulnerability Study to determine the risk of slope failure along state trunk highways.

#### **Road Closure/reroute**

MnDOT is completing a road closure and reroute of Hwy 67.

### **Program Gaps or Deficiencies of Landslide and Erosion**

Evacuation Plan that considers the failure of Hwy 67.

## OTHER HAZARDS

From a hazard mitigation perspective, the existence of other hazards in the community poses a risk to life, health, or property, just as natural hazards do.

For the purposes of this plan, other hazards identified are organized into these groups:

1. Infectious Diseases
2. Fire
3. Hazardous Material
4. Water Supply Contamination
5. Wastewater Treatment System Failure
6. Terrorism/Attacks

### Infectious Diseases

An infectious disease is defined as an organism or virus that has the potential to spread or affect a population in adverse ways. Infectious diseases have the potential to affect any form of life at any time based on local conditions, living standards, basic hygiene, pasteurization, and water treatment. Changes in demographics, lifestyle, technology, land use practices, food production and distribution methods, childcare practices, immunization as well as increasing poverty, have roles in emerging infections.

An **epidemic** is a disease that affects a large number of people within a community, population, or region. A **pandemic** is an epidemic that has spread to multiple countries or continents across the world. Many pandemics have occurred throughout history including smallpox, cholera, measles, tuberculosis, and more recently HIV/AIDS and COVID-19.

### Public Health

The Upper Sioux Community has a Family Health Services Department that provides services to tribal members. Services include:

- Diabetes care and prevention
- Prenatal care
- Prevention care in general
- Community pandemic program

The Upper Sioux Community also contracts with Countryside Public Health for a portion of its health services. Some of the services provided by Countryside Public Health include:

- Nursing services for in-home visits
- Bioterrorism
- Health Alert Network/Immunizations
- Public Health Concerns
- Training

### History of Infectious Diseases

The Minnesota Health Department's Regional Epidemiologist for the region does not specifically track disease occurrences in the Upper Sioux Community so data from Yellow Medicine County or the State of Minnesota is referenced below.

**Figure 3.13 History of Infectious Disease Occurrences**

Date	Health Advisory	# cases	Area/location
2011	Measles	26	Minnesota
2012	Pertussis	4,144	Minnesota
2018	Lyme's	950	Minnesota
2019	Pertussis	6	Yellow Medicine County
2021	Pertussis	1	Yellow Medicine County

Date	Health Advisory	# of Hospitalized cases	Deaths	Area/location
2009	H1N1 Influenza pandemic	3	n/a	Yellow Medicine County
2009	H1N1 Influenza pandemic	67	2	Southwest district
2020	COVID-19	30	15	Yellow Medicine County
2021	COVID-19	43	12	Yellow Medicine County
2020	COVID-19	Unknown	1*	USC
2021	COVID-19	Unknown	3*	USC

\*Data from the USC Emergency Management

The following infectious diseases have been identified in Yellow Medicine County and could be considered a health risk and disaster if a large outbreak occurred.

**Figure 3.14 Descriptions of Infectious Diseases**

Name	Description	Notes
COVID-19/SARS	<p>COVID-19 is highly infectious respiratory illness caused by a coronavirus. COVID-19 started in early 2020 and continues into 2022.</p> <p>SARS (Severe Acute Respiratory Syndrome) was responsible for a large worldwide outbreak that affected 8,098 people and killed 774 between November 2002 and July 2003.</p>	Vaccine available. New data arriving weekly as of 2022.
Seasonal Influenza, includes Influenza A (H1N1)	<p>According to the CDC, influenza (flu) is a contagious respiratory illness caused by influenza viruses that infect the nose, throat, and lungs. Flu viruses are believed to spread via droplets made when people with flu cough, sneeze.</p> <p>Influenza A (H1N1) was a novel influenza virus detected among people in the spring of 2009 and caused the first influenza pandemic in more than 40 years. Also known as the Swine Flu.</p>	<p>Vaccine available to combat most strains</p> <p>Includes Influenza A (H1N1) also known as Swine Flu</p>
Hepatitis A	Hepatitis A is an enterically transmitted viral disease that causes fever, malaise, anorexia, nausea, and abdominal discomfort, followed within a few days by jaundice. Hepatitis A has not occurred in Yellow Medicine County since 1995 (Minnesota Department of Health 2009). It has however, become more prevalent again as people eat outside of the home	Vaccine preventable

	more frequently.	
Pertussis (Whooping Cough)	Pertussis, or whooping cough, is a disease caused by a bacteria that affects the lungs. Pertussis is spread through the air in droplets produced during coughing or sneezing.	Vaccine preventable
West Nile Virus (WNV)	The virus made its first appearance in Minnesota in July 2002. In the fall of 2003, the first West Nile death in Minnesota was reported. In 2018, Minnesota reported 63 cases with two fatalities.	Vector borne disease - bacterial and viral diseases transmitted by mosquitoes and ticks. <a href="https://www.cdc.gov/ncezid/dvbd/">https://www.cdc.gov/ncezid/dvbd/</a>
Lyme Disease	Lyme disease is a potentially serious bacterial infection caused by a tick bite and affects humans and animals.	Vector borne disease - bacterial and viral diseases transmitted by mosquitoes and ticks.

### **Absenteeism**

In contrast to typical natural disasters in which critical components of the physical infrastructure may be threatened or destroyed, an infectious disease outbreak may also pose significant threats to the people responsible for critical community services due to widespread absenteeism in the workforce. In the non-health sector, this might include highly specialized workers in the public safety, utility, transportation, or food service industries, and will likely vary from jurisdiction to jurisdiction. To offset this issue, Countryside Public Health has collaborated with the Upper Sioux Community to create a Continuity of Operations Plan that determines priority activities that will help to ensure an office will be able to remain open during times of high absenteeism.

### **Economic impact**

In general, infectious diseases would have no effect on physical property. There would be, however, a negative impact on the economy in the case of a widespread outbreak. Businesses may be forced to shut down for an extended period.

### **Animal Health**

Wildlife diseases are a major area of concern in colonial water birds or major concentrations of waterfowl. However, the extent to which animals die or disease is spread can be minimized through early identification.

Animal diseases of concern, particularly in cattle and flocks in Yellow Medicine County nearby areas, include Mad Cow Disease (Bovine Spongiform Encephalopathy), Foot-and Mouth disease, Chronic Wasting Disease, Rabies, and Brucellosis. In early 2015, H5N2 Avian Influenza was found in commercial turkey flocks in seven counties near Yellow Medicine, including Lac qui Parle County, immediately to the north. Precautions are being taken to prevent the spread of this virus and efforts are being made to identify the source. The United States Department of Agriculture is the lead investigator in this outbreak. Minnesota Department of Health is monitoring workers for illness. More information on these and other animal health issues can be found at <http://www.aphis.usda.gov/wps/portal/aphis/home/>.

### **Relationship to Other Hazards – Cascading Effects**

#### **Associated with Other Disasters**

Infectious disease outbreaks can occur as primary events themselves, or they may be secondary events to another disaster or emergency such as a terrorist attack, biological accident or natural hazard event.

#### **Riots/Civil Disturbances**

If an epidemic event were to occur, deaths, fear and misinformation could trigger large-scale riots, panic and

lawlessness. Infectious diseases have the potential to be local, regional, statewide or national in scope and magnitude.

### **Plans and Programs for Infectious Diseases**

#### **Emergency Operations Plan**

The Upper Sioux Community currently has an Emergency Operations Plan. This plan outlines procedures for contacting appropriate state and federal agencies and provides guidelines and strategies for dealing with infectious diseases and command structures with the County Health Department, Indian Health Services, and Emergency Coordinator for the Upper Sioux Community. The Upper Sioux Community has been proactive in keeping this document up to date.

#### **Upper Sioux Community - COVID-19 Vaccination Plan**

The Upper Sioux Community created and adopted a COVID-19 Vaccination Plan in 2020 to address the immediate need to get as many people vaccinated as possible.

#### **Cooperation with State Health Department**

Countryside Public Health (CPH) works with the Minnesota Department of Health (MDH) to address infectious diseases that are listed in Chapter 4605.7040 Disease and Reports.

#### **Education to the Public**

CPH provides information to the public about infectious diseases that may be of concern in the future. Much of this information can be obtained through the Center for Disease Control and the MDH. The Upper Sioux Community also puts much of this information into the tribal newsletter. Community information is included in a mailer and electronic communications with the Code Red system.

#### **Web Monitoring**

MDH notifies CPH of infectious disease and other related issues in the county. The Health Alert Network can do this notification. CPH will notify doctors, city, county officials and other appropriate parties. This program is 24-hour seven days a week. MDH works directly with regional media and CPH supplements that information locally.

#### **Vaccination Program**

Minnesota Vaccine for Children (MVFC) is a program that offers affordable vaccines for all children at local clinics and is designed to assist families of need in protecting their children from infectious diseases.

#### **Quarantine Plan**

A quarantine plan is in place and is updated annually. The plan identifies the agency that makes the call on any quarantine issue for the Community.

### **Program Gaps or Deficiencies of Infectious Diseases**

- A dedicated health and safety building to contain infectious disease mitigation activities and resulting follow-up care that can offer the following:
  - Drive-up vaccination facilities
  - Quarantine facilities
  - Tele-health facilities
  - Medical storage facilities
- Improve air quality capabilities in all USC buildings
- Update Emergency Operations Plan with infectious disease considerations



- There are dead space coverage areas for cellphone and ARMER in Multipurpose Building that needs to be addressed for better communications.

## **Fire**

Urban fires are blazes spreading through structures, posing danger and destruction to property. These fires include any instance of uncontrolled burning which results in structural damage to residential, commercial, industrial, institutional, or other properties in developed areas. Fires can occur in any community and pose a threat year-round.

### **History of Fires in the Upper Sioux Community**

Fires have occurred throughout the Upper Sioux Community. Fires are possible in any of the structures, and fire safety must remain a high priority. The Upper Sioux Community is served by the Granite Falls Fire Department.

From 2015 to 2021, there were a total of 50 fire runs to the Upper Sioux Community with as many as 9 in one year (2016).

### **Relationship with Other Hazards – Cascading Effects**

#### **Hazardous Materials**

Many times, hazardous materials are highly flammable causing fires to spread rapidly and increasing danger to human lives in the event of explosion.

### **Vulnerability Assessment of Structures by Hazard - Fire**

Structure fire is a concern in all structures in the Upper Sioux Community. Of the 23 community assets listed, only 6 have sprinklers installed. Time delay for the fire department to respond to a fire call is 12 minutes more because of the distance between Granite Falls and the Upper Sioux Community.

### **Plans and Programs for Fires**

#### **Fire Districts, Departments**

Granite Falls Fire Department provides fire service to the Community. The Upper Sioux Community has five volunteer firefighters in the event of a wildfire. Two of the firefighters are also police officers and three are tribal members.

#### **Evacuation Plans**

Evacuation Plans are in place for the casino that would include fire escape.

### **Program Gaps or Deficiencies of Fires**

- Currently, there are two homes that could be affected by the steep access road that may not be adequate to handle fire trucks. Those roads should be identified and widened in the future to provide adequate protection to every property in the community.
- The Upper Sioux Community does not have an evacuation plan in place for the entire community.
- The Upper Sioux Community does not have a fire suppression team in place for the community.
- There are dead space coverage areas for cellphone and ARMER in Multipurpose Building that needs to be addressed for better communications.

## **Hazardous Materials**

A hazardous material spill or release poses risks to life, health, and property. An incident can force the evacuation of a few people, a section of a facility or an entire neighborhood or community, resulting in significant economic

impact and possible property damage. Hazardous materials incidences are generally associated with transportation accidents or accidents at fixed facilities.

According to the Emergency Operations Plan, the Upper Sioux does not have any hazardous waste generators, municipal solid waste landfills, or Natural Pollutant Discharge Elimination Systems permits. There are three regulated underground storage tanks at the Community, one public water supply tower, and a wastewater system.

### **Transportation**

Hazardous materials are conveyed by road, rail, aircraft, and pipeline, each presenting differing levels of risk of unwanted release of the hazardous materials. Risks of hazardous materials events vary based on the classification of the road and its proximity to people and property.

Roads are a major concern in the Upper Sioux Community due to the lack of information available regarding what is traveling on the road system daily. With the addition of land to the USC, new potential hazard exposure includes the Hwy 23 corridor and rail line.

### **Fixed Facilities**

A variety of hazardous materials exist in fixed facilities throughout the Upper Sioux Community. These fixed facilities include the Propane Plant located along Hwy 274 and Hwy 23, the Convenience Store Fuel Tank (underground), Prairie's Edge Casino Resort, Wastewater Treatment Facility, the Water Tower/Pump House, Pump/Lift Stations. No immediate plans for these facilities are in place but have been included in the community's long-range strategic planning.

### **Methamphetamine and Clandestine Drug Labs**

A clandestine drug lab (or clan lab) is a collection of materials and ingredients used to manufacture illegal drugs. Methamphetamine (meth) is the drug most commonly made in Minnesota labs.

The impact of illegal drug-making labs is also felt by neighbors and occupants when labs catch fire explode and cause the release of chemicals and chemical waste into the surrounding environment. Clan labs have been associated with increased crime in the surrounding community, including domestic abuse, theft, and child endangerment.

Roughly 50 percent of Minnesota residences where drug labs have been discovered have also housed children. Recognizing the special risks to children living in lab environments, the Minnesota legislature has recently expanded child neglect and endangerment law to include endangerment through exposure to illegal drug manufacture and sales. In 2005, the Minnesota Legislature passed a law intended to reduce the number of meth labs and increase penalties for illegal meth usage.

In many Minnesota communities, there are no laws requiring cleanup of a hazardous waste site (particularly one contaminated by non-standard use of common household products) in a private residence. The Minnesota Bureau of Criminal Apprehension is usually involved in the case and the cleanup to make sure it is thoroughly investigated and cleaned.

### **History of Hazardous Materials in the Upper Sioux Community**

Hazardous materials exist as part of everyday life in the Upper Sioux Community. These materials make life easier and more comfortable for members of the Community. The challenge is to use, store and transport hazardous materials in a safe way that does not harm the Community and prepare an effective response to unwanted releases of hazardous materials when they occur. A hazardous materials accident can occur anywhere at any time.

The Upper Sioux Community has not experienced a major hazardous materials spill or accident to date. Minor incidents have occurred, but these have had little or no impact on the Community at large. The likelihood of a major event is considered to be marginal, but an isolated minor accident is a constant concern.

Meth labs are most often located in rural or semi-rural areas. Yellow Medicine County is a rural area and could be a potential area for meth lab hazards. There have been seven meth lab-related incidences located in the Upper Sioux Community in the past 10 years and the Community recognizes the risk. Methamphetamine drugs have been found in the county with evidence that they were manufactured locally.

Vulnerability from hazardous materials during unwanted release is considered great. The specific hazards created by a release are dependent on the hazardous characteristics of the material, amount released, location where the release occurs, and weather and topographic conditions in the area. Identifying specific materials and those involved in transportation can provide a more specific assessment of the vulnerability.

The major concern for hazardous materials events for fixed facilities nearest geographically to the Upper Sioux Communities is primarily in the cities of Wood Lake, Hanley Falls and Granite Falls. These towns have high concentration of hazardous materials at the chemical plants. The transport of hazardous materials in Yellow Medicine County is highly unpredictable. People and property on or immediately adjacent to transportation corridors throughout the county are at higher risk than those located one mile or more from a major county corridor.

According to the Minnesota Pollution Control Agency (see Figure 3.15), 35 spills have occurred in cities nearest to the Upper Sioux Community including Echo, Granite Falls, Hanley Falls, Hazel Run and Wood Lake from July 2002 to July 2013. Of the 35 spills, 12 took place in Granite Falls, 6 spills in Echo, 2 spills in Wood Lake, 1 spill in Hanley Falls, and 1 spill in Cottonwood.

Planning Team members have identified evacuation from the casino in the event of a hazardous materials leak as a need. There is one main road access to the casino and in the event of a spill or explosion at the fuel station, visitors will need an evacuation route away from the event. This may involve evacuating people towards nearby residences or through farm fields to the east.

**Figure 3.15 YMC Hazardous Spills from 2002-2021**

City	Number of Spills	Product Type
Canby	4	Light fuel oil & diesel, Asphalt, Sewage/Wastewater, Mineral Oil
Clarkfield	5	Pesticide, Fertilizer, Manure, Diesel, Herbicide
Echo	6	Light fuel oil & diesel, Hydraulic Fluid
Granite Falls	12	Food, Mineral Oil, Light Fuel Oil & Diesel, Paint, Sewage/Wastewater, Fertilizer, Acid/Base Chemicals, Unknown
Hanley Falls	1	Barrage & Fuel
Hazel Run	0	N/A
Porter	0	N/A

St. Leo	1	Light fuel oil & diesel
Wood Lake	2	Mineral Oil, Manure
Cottonwood	1	Diesel oil
<b>Total</b>	<b>33</b>	
<i>Source: Minnesota Pollution Control Agency, 2021</i>		

### **Relationship to Other Hazards – Cascading Effects**

#### **Water Supply Contamination**

If a spill were to occur, it could pollute potable groundwater.

#### **Wastewater Treatment System Failure**

System failure would have direct impact on humans and endanger human health and life.

#### **Environmental Contamination**

Hazardous materials can enter waterways, air, and soil creating potentially widespread and unknown long-term effects for residents, animals, and plants.

### **Vulnerability Assessment of Structures by Hazard - Hazardous Materials**

#### **Propane Tank Explosion**

A propane tank explosion on the Upper Sioux Community Reservation is a hazard concern. Currently, two 30,000-gallon tanks of propane are located near the Prairie's Edge Casino Resort. If an explosion were to occur, there would be severe heat issues that could impact the Casino. According to a 2009 blast explosion study, it is assumed that if one propane tank were to explode an enterprise and four residential homes would be impacted. If the original costs were to be adjusted for 2022 and include the addition of a government owned facility that was constructed after 2009, the cost that would result from a propane explosion would potentially be \$111,672,037 (refer to Figure 3.16 below).

**Figure 3.16 USC Propane Tank Explosion**

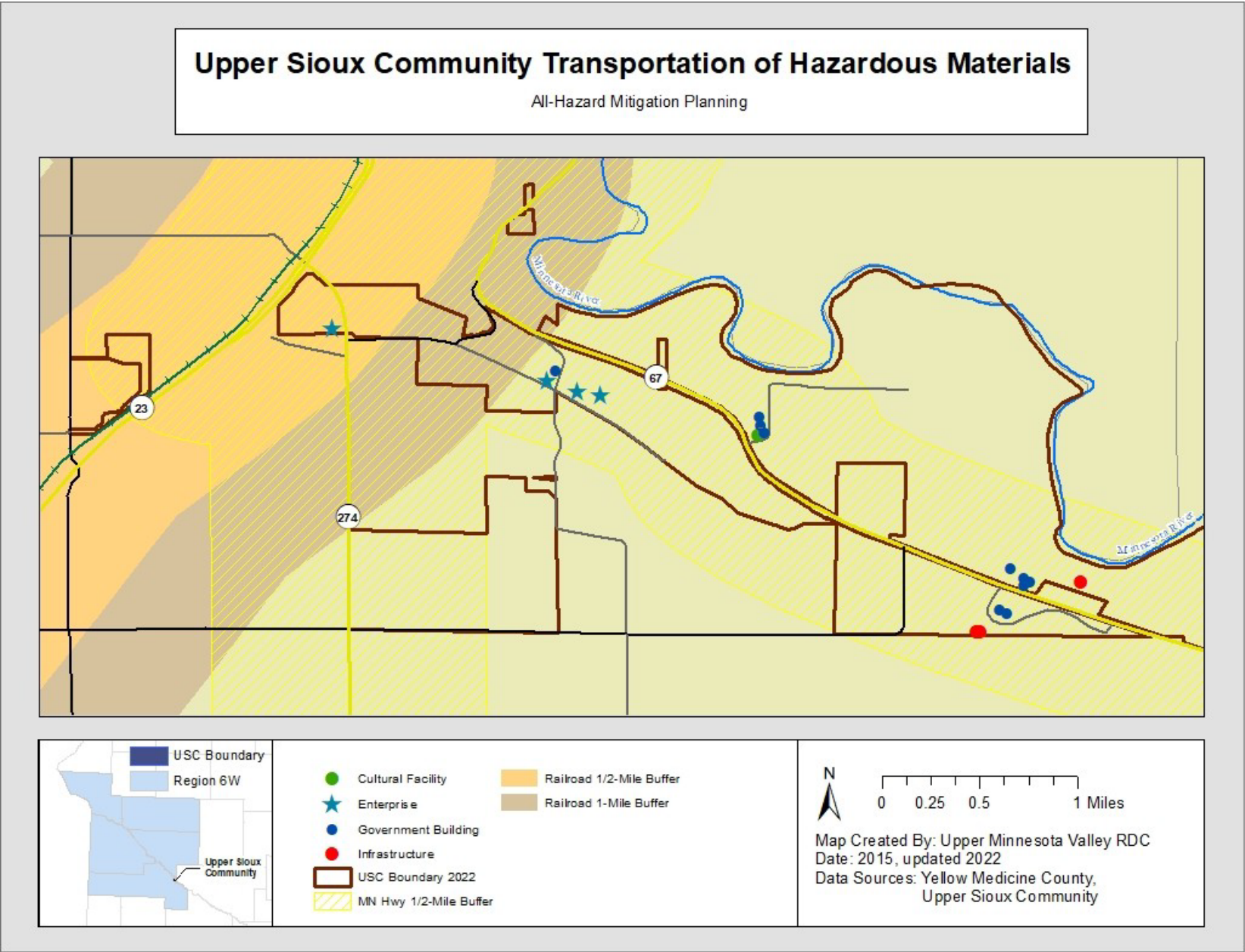
Type of Structure	Number of Structures		Value of Structures	
	Number of Structures	Number of Structures in Hazard Area	Structure Value	Value of Structures in Hazard Area
Residential	55	4	\$11,000,000	\$800,000
Enterprises	8	1	\$107,993,541	\$104,224,914
Religious / Cultural Facilities	4	0	\$451,256	\$0
Government/ Critical Facilities	13	1	\$15,263,889	\$7,447,123
Infrastructure	3	0	6,852,945	\$0
<b>Total</b>	<b>77</b>	<b>6</b>	<b>\$141,561,631</b>	<b>\$111,672,037</b>
<i>Sources: Structure Values, USC 2022</i>				

### **Transportation of Hazardous Materials**

Since 2010, there has been an increase in crude oil transportation throughout western Minnesota coming from the Bakken Oil Fields in North Dakota. In the event of the impact of a hazardous material spill, this section contains a map (please refer to Figure 3.17) of a ½ mile buffer around rail lines and U.S. and state highways. It is becoming increasingly important for communities to be cognizant of which of its critical facilities and major employers are located within this hazard zone. In addition to evacuation plans, communities should consider these zones when locating new schools, hospitals, emergency operations centers, etc.

The western areas of the Upper Sioux Community are within the ½ mile buffer around the Burlington Northern Santa Fe (BNSF) rail line. According to the BNSF website (<http://www.bnsf.com/customers/where-can-i-ship/?map=Grains+Bulk+Foods>), this line is capable of shipping chemicals and plastics, energy products and fuels, and waste and byproducts. The Upper Sioux Community may want to consider future land uses of these areas that would result in a reduced impact if an incident were to occur.

Figure 3.17 Upper Sioux Community Transportation of Hazardous Materials



## **Plans and Programs for Hazardous Materials**

### **State Agency Cooperation**

Yellow Medicine County and the Upper Sioux Community work directly with the appropriate state agencies to address needs for responding to and mitigating the impacts of hazardous events.

### **Emergency Operations Plan**

The Upper Sioux Community currently has an Emergency Operations Plan which outlines procedures for dealing with hazardous material accidents, spills or releases.

### **Training of Emergency Personnel**

The Emergency Medical Services and hospitals/ER staff train annually for decontamination due to hazardous materials. The Resort has meth lab procedures for containment, disposal, prevention as well as a contract with an officer with a dog for detection.

## **Program Gaps or Deficiencies of Hazardous Materials**

- The Community does not require commercial/industrial establishments to report hazardous materials to the Community's emergency manager.
- A quarantine plan is needed for the resort and casino that addresses continued operation, guests, employees and the economic impact to the Community and who ultimately makes the call on quarantine issues. They currently have a lock down plan.
- An evacuation plan is needed for the Community in the event of a hazardous materials spill.
- A plume radius study is needed to understand the impacts of a hazardous waste spill.
- Hazardous materials potentially present in railcar storage on the west side of the community is an unknown.
- There are dead space coverage areas for cellphone and ARMER in Multipurpose Building that needs to be addressed for better communications.

## **Water Supply Contamination**

Water supply contamination is the introduction of point and non-point source pollutants into public ground water and/or surface water supplies. Although minimal, water supply contamination does pose a threat in the county.

A spring shed/groundwater study was completed by USC Environmental Services in 2020/2021 to assess groundwater flow and input into various water resources. Contaminants are likely to come from farming activities (drainage systems, pesticide use, and lack of cover crops, etc.). Areas of concern will be addressed in Wellhead Protection Planning.

### **History of Water Supply Contamination in the Upper Sioux Community**

Drinking water in the Upper Sioux Community comes from groundwater. There is a public water system as well as individual wells for those unable to hook up to the public water system. The Upper Sioux Community Water Plant is in good working condition and undergoes annual inspections. There is no history of contamination of the water supply at the Upper Sioux Community.

## **Relationships with Other Hazards – Cascading Effects**

### **Infectious Diseases**

Polluted human water sources can cause illness and epidemics in both humans and animals.

### **Environmental Contamination**

Contaminants can enter waterways, air, and soil creating potentially widespread and unknown long-term effects for residents, animals, and plants.

## **Plans and Programs for Water Supply Contamination**

### **Drinking Water Standards, Requirements**

The US Environmental Protection Agency (EPA), as required by the Safe Drinking Water Act of 1974, sets uniform nationwide minimum standards for drinking water. State public health and environmental agencies have the primary responsibility for ensuring that each public water supplier meets these federal drinking water standards or more stringent ones established by the state.

### **Public Water Supply Monitoring**

The EPA requires an ongoing water quality-monitoring program to ensure public water systems are working properly. Local officials work together with the Minnesota Department of Health and the EPA to ensure that all public water supplies are safe. Also, the EPA requires all local suppliers to promptly inform the public if their supply becomes contaminated. Countryside Public Health Service inspects inspections of drinking water in restaurants, bars, and other private businesses at least annually.

### **Studies**

A spring shed/groundwater study was completed by the Upper Sioux Community in 2020/21 to assess groundwater flow and input into various resources

### **Well Construction and Testing**

Since 1974, all water wells (public and private) constructed in Minnesota must meet the location and construction requirements of the Minnesota Well Code. Countryside Public Health has a certified lab to test for well contamination. Indian Health Service and Office of Environment test the health of private wells annually for contamination.

### **Sealed Wells**

All unsealed wells in the Upper Sioux Community have been capped.

## **Program Gaps and Deficiencies of Water Supply Contamination**

No new locations for wells have been identified. A study is needed for a long-term water plan.

## **Wastewater Treatment System Failure**

Wastewater treatment and disposal is an important part of our need to protect and preserve Minnesota's water resources. Although minimal, failure of wastewater treatment systems poses a potential risk for the Upper Sioux Community. Numerous hazards can knock out water treatment plants, including severe flooding and flash flooding.

### **History of Wastewater Treatment System Failure in the Upper Sioux Community**

There have not been any incidents of failure of the Upper Sioux Community's wastewater treatment system. Individual systems were affected during the flooding of 1997. Many of those systems have been disconnected. There have been wastewater issues in the past.

## **Relationships with Other Hazards – Cascading Effects**

### **Infectious Diseases**

The failure of septic treatment facilities and systems can have immediate adverse impacts on human health through communicable diseases and epidemics.

### **Water Supply Contamination**

The failure of septic treatment facilities and systems can have immediate adverse impacts on potable water



supplies. With 1/3 of the USC bordering on the Minnesota River, contaminants traveling down river may impact the community.

### **Plans and Programs for Wastewater Treatment System Failure**

#### **Inspections**

The Indian Health Services does routine inspections of the public wastewater systems.

#### **Permit Enforcement**

The EPA regulates the Community's wastewater system by issuing permits, monitoring compliance through data review, quarterly reports and inspections, and monitoring permits conditions.

### **Program Gaps or Deficiencies of Wastewater Treatment System Failure**

There is no contingency plan for system failure.

## **Terrorism/Attacks**

The topics that are included in this section are the following:

- Active shooter/armed attack
- Protest riots
- Workplace Violence
- Network attacks, ransomware, and internet terrorism
- Domestic terrorism threats

Human-caused terrorism is the intentional, criminal, malicious uses of force and violence to perpetrate disasters against people or property. They can be the result of terrorism – actions intended to intimidate or coerce a government or the civilian population to further political or social objectives – which can be either domestic or international, depending on the origin, base, and objectives of the terrorist organization. Finally, these acts can be of individuals perpetrated for personal reasons.

Hazards can result from the use of weapons of mass destruction, including biological, chemical, nuclear and radiological weapons; arson, incendiary, explosive and armed attacks; industrial sabotage and intentional hazardous materials releases; and cyber terrorism.

### **History of Terrorism/Attacks**

The Upper Sioux Community has no history of terrorist or individual attacks designed to cause disasters against people or property. Vandalism, assaults, and other criminal acts do occur, but these isolated incidents fall within the purview of local law enforcement.

### **Relationship to Other Hazards – Cascading Effects**

Cascading effects of an intentional human-caused disaster are highly dependent on the specific mode used and asset targeted. Many of these have been detailed in the technological hazards portion of the plan covering dam failure, nuclear facility incidents and hazardous materials incidents. Fires and secondary explosions are possible with explosive attacks, and fires from arson attacks could extend beyond the intended target.

## **Plans and Programs for Terrorism/Attacks**

### **Cooperation with County, State, and Federal Officials**

Upper Sioux Community officials are working with Yellow Medicine County, state, and federal officials on domestic preparedness efforts, including with the Department of Health, to ensure that health care facilities are

prepared for bio-terrorism events.

#### Restricted Access

Some government buildings, including the Board of Trustees Executive Office Complex, have restricted pedestrian access.

#### Program Gaps and Deficiencies of Terrorism/Attacks

- Design and operations of facilities in the community were not developed with terrorism prevention in mind.
- Some of the Community's government buildings do not have fire suppression systems and all are not blast-resistant.
- Cameras are needed at the water plant and wastewater plant to monitor activities.
- Coordination of communications is needed between casino security and tribal government security.
- The electric grid between three providers has inadequate redundancy.
- Lack of communications redundancy.
- There are dead space coverage areas for cellphone and ARMER in Multipurpose Building that needs to be addressed for better communications.

# CHAPTER 4: RISK ASSESSMENT

The following pages summarize important information about each hazard in the form of the subsequent risk assessment, completed by the local Planning Team, who considered each of the following hazards in terms of four criteria.

## OVERALL HAZARD PRIORITY LEVEL

As shown in Figure 4.1, the Overall Hazard Priority Levels were determined by calculating the average risk level for each hazard. The hazard was determined to be “Very Low” if the average risk number was between 1 and 1.49, “Low” if it was between 1.5 and 2.49, “Moderate” if between 2.5 and 3.49 and “High” if it was 3.5 or above. No hazards were determined to be of very low risk at the time of this document.

**Figure 4.1 USC Overall Hazard Priority Levels 2022**

Hazard Type	Value	Level
Winter Weather	3.5	High
Summer Weather	3.5	High
Fire	3.5	High
Terrorism	3.5	High
Tornado	3.25	Moderate
Attacks	3	Moderate
Hazardous Materials	3	Moderate
Infectious Disease	3	Moderate
Water Supply Contamination	2.75	Moderate
Wastewater Treatment Facility Failure	2.5	Moderate
100 year floods	2.5	Moderate
Wildfire	2.25	Low
Flash floods	2.25	Low
500-year flood	2	Low
Drought	1.5	Low
Dam Failure	1.5	Low
Landslide and Erosion	1.5	Low

The **FOUR CRITERIA** included frequency of occurrence, warning time, potential severity, and risk level.

This ranking method allowed quantification of each hazard’s risk level by assigning number values to the criteria. From this number, an overall ranking for each hazard was determined, which allowed the hazards to be compared to assess which hazards pose the greatest risk in the Upper Sioux Community.

**Frequency of Occurrence:** This asks how often it may happen and how likely is it that the hazard will occur. The number values are determined by:

- 1) Unlikely
- 2) Occasional
- 3) Likely
- 4) Highly Likely

**Warning Time:** This asks how much warning time is available prior to the event.

- 1) More than 12 Hours
- 2) 6-12 Hours
- 3) 3-6 Hours
- 4) None-Minimal

**Potential Severity:** This asks how severe the impact will be in a general sense.

- 1) Limited
- 2) Minor
- 3) Major
- 4) Substantial

**Risk Level:** The risk level looks at the amount of risk there will be overall as a result of the event.

- 1) Minimal
- 2) Limited
- 3) High
- 4) Very High

## Hazard: Violent Storms and Extreme Temperatures Risk Assessment

Figure 4.2 Hazard: Violent Storms and Extreme Temperatures

Hazard:	Winter Weather Blizzard, Ice Storms, Heavy Snow, Extreme Cold	Summer Weather Thunderstorm, Lightning, Hail, Straight Line Winds, Extreme Heat	Tornado
Location	Community	Community	Community
Historic events	3-6 storms per year 0-3 blizzards per year Often below freezing Extreme cold 1-3 days per year	1-3 storms per year 1-3 days of extreme heat per year	19 tornado occurrences in last 44 years. 1 every 2 years
Likely to happen now?	Yes	Yes	No
How often?	3-6 storms per year 1-3 blizzards per year Often below freezing Extreme cold 1-3 days per year	1-2 storms per year 1-3 days of extreme heat per year	.52 per year
Where would it strike?	Community	Community	Community
How bad could hazard get?	2-3 days per storm, multiple storms in one season, limited visibility, record snow is 9-12 in. in one day and 70-79 in. in one season, record cold is -39°F wind chill is a factor	Lightning, strong wind and hail. Record heat is 111 °F. Humidity is factor	F4/F3
When would hazard likely occur?	November – March	Spring - Fall	Spring - Fall
What other hazards could occur simultaneously?	Wind, transportation accidents, extreme temp, collapsed structure/gas leaks, spring flooding, disruption of utilities	Flooding, lightning, hail, wind, transportation accidents, drought, violent storms, fires, wildfire, collapsed structure, gas leaks	Hazardous materials, utility failure, fire, collapsed structure, gas leaks
Economic impacts	Cost of snow removal, loss of livestock, school closing, store closing	Loss of livestock, fire potential, agriculture and property damage	Structure loss and community shut down
Loss of life impacts	Dangerous to transport emergencies, heat turn-off issues, transportation accidents	Lightning strike, heat stroke, rare	Extremely dangerous
Risk Level 1 Minimal 2 Limited 3 High 4 Very High	Citizens/People: <b>4</b> Animals/Livestock: <b>4</b> Housing: <b>3</b> Critical Structures: <b>3</b> Infrastructure: <b>3</b> <b>Total: 4</b>	Citizens/People: <b>2</b> Animals/Livestock: <b>2</b> Housing: <b>2</b> Critical Structures: <b>1</b> Infrastructure: <b>1</b> <b>Total: 2</b>	Citizens/People: <b>4</b> Animals/Livestock: <b>2</b> Housing: <b>3</b> Critical Structures: <b>3</b> Infrastructure: <b>3</b> <b>Total: 4</b>
<b>Risk Assessment</b>			
1 Unlikely 2 Occasional 3 Likely 4 Highly Likely	<u>Frequency of Occurrence</u> 4	<u>Frequency of Occurrence</u> 4	<u>Frequency of Occurrence</u> 2
1 More than 12 Hours 2 6-12 Hours 3 3-6 Hours 4 None-Minimal	<u>Warning Time</u> 2	<u>Warning Time</u> 3	<u>Warning Time</u> 4
1 Limited 2 Minor 3 Major 4 Substantial	<u>Potential Severity*</u> 4	<u>Potential Severity*</u> 3	<u>Potential Severity*</u> 3
1 Minimal 2 Limited 3 High 4 Very High	<u>Risk Level**</u> 4	<u>Risk Level**</u> 4	<u>Risk Level**</u> 4
(Total divided by 4) 1 Very low 2 Low 3 Moderate 4 High	<u>Overall Priority</u> 3.5	<u>Overall Priority</u> 3.5	<u>Overall Priority</u> 3.25

## Hazard: Floods Risk Assessment

Figure 4.3 Hazard: Floods

Hazard:	500-year Floods	100-year Floods	Other Flooding/Flash Floods
Location	Along river, USC, county, river tributaries	Along River, USC, County	County, Community
Historic events	None	1997, 2001	2002, 2014, 2019
Likely to happen now?	No	Yes	Yes
How often?	.2% likelihood annually	1% likelihood annually;	2 times per 3 years
Where would it strike?	Along the Minnesota River, along ditches and rivers	Along the Minnesota River, along ditches and rivers	Along rivers, drainage ditches, wetlands, basements, etc.
How bad could hazard get?	Significant impacts and reduced access to community, unaccustomed to flood impacts	1997 was record year, improvements made since	Fast moving water, unable to prepare for floods
When would hazard likely occur?	Spring	Spring	Spring/Summer
What other hazards could occur simultaneously?	Utility failure, landslide, debris flow, interrupt transportation routes (emergencies), infectious diseases, hazardous material spills, physical health	Utility failure, landslide, debris flow, interrupt transportation routes (emergencies), infectious diseases, hazardous material spills, physical health	Utility failure, landslide, debris flow, interrupt transportation routes (emergencies), infectious diseases, hazardous material spills
Economic impacts	Sandbagging and repair roads, agricultural loss, sanitary sewer, lift stations	Sandbagging and repair roads, agricultural loss, sanitary sewer, lift stations	Repair roads, agricultural loss
Loss of life impacts	Danger if sandbagging, evacuations, driving through flooded roads	Danger if sandbagging, evacuations, driving through flooded roads	Danger if sandbagging, driving through flooded roads
Risk Level 1 Minimal 2 Limited 3 High 4 Very High	Citizens/People: 3 Animals/Livestock: 1 Housing: 3 Critical Structures: 3 Infrastructure: 3 <b>Total: 3</b>	Citizens/People: 3 Animals/Livestock: 1 Housing: 3 Critical Structures: 2 Infrastructure: 3 <b>Total: 3</b>	Citizens/People: 3 Animals/Livestock: 2 Housing: 3 Critical Structures: 3 Infrastructure: 3 <b>Total: 3</b>
Risk Assessment	Risk Assessment		
1 Unlikely 2 Occasional 3 Likely 4 Highly Likely	<u>Frequency of Occurrence</u> <b>1</b>	<u>Frequency of Occurrence</u> <b>3</b>	<u>Frequency of Occurrence</u> <b>3</b>
1 More than 12 Hours 2 6-12 Hours 3 3-6 Hours 4 None-Minimal	<u>Warning Time</u> <b>1</b>	<u>Warning Time</u> <b>1</b>	<u>Warning Time</u> <b>1</b>
1 Limited 2 Minor 3 Major 4 Substantial	<u>Potential Severity*</u> <b>3</b>	<u>Potential Severity*</u> <b>3</b>	<u>Potential Severity*</u> <b>2</b>
1 Minimal 2 Limited 3 High 4 Very High	<u>Risk Level**</u> <b>3</b>	<u>Risk Level**</u> <b>3</b>	<u>Risk Level**</u> <b>3</b>
(Total divided by 4) 1 Very low 2 Low 3 Moderate 4 High	<u>Overall Priority</u> <b>2</b>	<u>Overall Priority</u> <b>2.5</b>	<u>Overall Priority</u> <b>2.25</b>

## Hazard: Drought Risk Assessment

Figure 4.4 Hazard: Drought

Hazard:	Drought
Location	Community
Historic events	1976, 1988, 2003
Likely to happen now?	Occasionally
How often?	1 time per 20-30 years
Where would it strike?	County
How bad could hazard get?	1930's dust bowl
When would hazard likely occur?	Summer
What other hazards could occur simultaneously?	Utility failure (water, wastewater), Wildfires
Economic impacts	Crops/Agriculture
Loss of life impacts	Unlikely
<b>Risk Level</b> 1 Minimal 2 Limited 3 High 4 Very High	Citizens/People: 1 Animals/Livestock: 1 Housing: 1 Critical Structures: 1 Infrastructure: 1 <b>Total: 1</b>
Risk Assessment	
1 Unlikely 2 Occasional 3 Likely 4 Highly Likely	<u>Frequency of Occurrence</u>  2
1 More than 12 Hours 2 6-12 Hours 3 3-6 Hours 4 None-Minimal	<u>Warning Time</u>  1
1 Limited 2 Minor 3 Major 4 Substantial	<u>Potential Severity*</u>  2
1 Minimal 2 Limited 3 High 4 Very High	<u>Risk Level**</u>  1
(Total divided by 4) <b>1 Very low</b> <b>2 Low</b> <b>3 Moderate</b> <b>4 High</b>	<u>Overall Priority</u>  <b>1.5</b>

## Hazard: Wildfire Risk Assessment

Figure 4.5 Hazard: Wildfire

Hazard:	Wildfire
Location	Along the MN River Valley and CRP/CREP land
Historic events	None
Likely to happen now?	No
How often?	Occasionally
Where would it strike?	Along the MN River Valley. Hwy 23 Corridor - Railroad
How bad could hazard get?	Minor
When would hazard likely occur?	Summer/Fall
What other hazards could occur simultaneously?	Erosion/landslide, severe wind, scrap tire fires, structure fires, hazardous materials, utility failure
Economic impacts	Very expensive for local fire departments, Crop loss
Loss of life impacts	Extremely dangerous for firefighters
<b>Risk Level</b> 1 Minimal 2 Limited 3 High 4 Very High	Citizens/People: 2 Animals/Livestock: 1 Housing: 2 Critical Structures: 1 Infrastructure: 2 <b>Total: 2</b>
<b>Risk Assessment</b>	
1 Unlikely 2 Occasional 3 Likely 4 Highly Likely	<u>Frequency of Occurrence</u>  1
1 More than 12 Hours 2 6-12 Hours 3 3-6 Hours 4 None-Minimal	<u>Warning Time</u>  4
1 Limited 2 Minor 3 Major 4 Substantial	<u>Potential Severity*</u>  2
1 Minimal 2 Limited 3 High 4 Very High	<u>Risk Level**</u>  2
(Total divided by 4) <b>1 Very low</b> <b>2 Low</b> <b>3 Moderate</b> <b>4 High</b>	<u>Overall Priority</u>  <b>2.25</b>

## Hazard: Dam Failure Risk Assessment

Figure 4.6 Hazard: Dam Failure

Hazard:	Dam Failure
Location	Minnesota River
Historic events	None
Likely to happen now?	No
How often?	Unlikely
Where would it strike?	Granite Falls Dam/Lac qui Parle Dam
How bad could hazard get?	Dam could break and flood downstream
When would hazard likely occur?	Spring/Summer/Fall – due to thaw or rain event
What other hazards could occur simultaneously?	Flooding
Economic impacts	None
Loss of life impacts	Small potential
<b>Risk Level</b> 1 Minimal 2 Limited 3 High 4 Very High	Citizens/People: 2 Animals/Livestock: 1 Housing: 2 Critical Structures: 2 Infrastructure: 3 <b>Total: 2</b>
<b>Risk Assessment</b>	
1 Unlikely 2 Occasional 3 Likely 4 Highly Likely	<b>Frequency of Occurrence</b>  1
1 More than 12 Hours 2 6-12 Hours 3 3-6 Hours 4 None-Minimal	<b>Warning Time</b>  2
1 Limited 2 Minor 3 Major 4 Substantial	<b>Potential Severity*</b>  1
1 Minimal 2 Limited 3 High 4 Very High	<b>Risk Level**</b>  2
(Total divided by 4) <b>1 Very low</b> <b>2 Low</b> <b>3 Moderate</b> <b>4 High</b>	<b>Overall Priority</b>  <b>1.5</b>



## Hazard: Landslide and Erosion Risk Assessment

Figure 4.7 Hazard: Landslide and Erosion

Hazard:	Landslide and Erosion Failure
Location	Community
Historic events	1997 and 2001 flood, 2019 road failure
Likely to happen now?	Likely with rain
How often?	Any time there is excess rain.
Where would it strike?	Community – Hwy 67, also west
How bad could hazard get?	Wash outs could occur.
When would hazard likely occur?	Rainy season
What other hazards could occur simultaneously?	Flood, road closures
Economic impacts	Inconvenient
Loss of life impacts	None
<b>Risk Level</b> 1 Minimal 2 Limited 3 High 4 Very High	Citizens/People: 1 Animals/Livestock: 1 Housing: 1 Critical Structures: 1 Infrastructure: 2 <b>Total: 1.2</b>
<b>Risk Assessment</b>	
1 Unlikely 2 Occasional 3 Likely 4 Highly Likely	<u>Frequency of Occurrence</u>  2
1 More than 12 Hours 2 6-12 Hours 3 3-6 Hours 4 Non-Minimal	<u>Warning Time</u>  1
1 Limited 2 Minor 3 Major 4 Substantial	<u>Potential Severity*</u>  1
1 Minimal 2 Limited 3 High 4 Very High	<u>Risk Level**</u>  1.2
(Total divided by 4) <b>1 Very low</b> <b>2 Low</b> <b>3 Moderate</b> <b>4 High</b>	<u>Overall Priority</u>  <b>1.5</b>

## Hazard: Infectious Diseases Risk Assessment

Figure 4.8 Hazard: Infectious Diseases

Hazard:	All Infectious Disease
Location	County/Community/Resort – Nothing local
Historic events	Coronavirus Pandemic 2020 - 2022 West Nile death in neighboring county, H1N1 2009-2010
Likely to happen now?	Unlikely with most Flu strains likely, seasonal COVID resurgence
How often?	Could be ongoing with the COVID-19 pandemic and mutations.
Where would it strike?	Entire community
How bad could hazard get?	Major outbreak of life-threatening disease
When would hazard likely occur?	Anytime for most diseases Summer for West Nile
What other hazards could occur simultaneously?	Riots, terrorist attack, natural hazard event, burial challenges
Economic impacts	Tourism industry, unemployment for community services
Loss of life impacts	Major if life-threatening outbreak
<b>Risk Level</b> 1 Minimal 2 Limited 3 High 4 Very High	Citizens/People: 4 Animals/Livestock: 1 Housing: 2 Critical Structures: 1 Infrastructure: 1 <b>Total: 3</b>
<b>Risk Assessment</b>	
1 Unlikely 2 Occasional 3 Likely 4 Highly Likely	<u>Frequency of Occurrence</u>  3
1 More than 12 Hours 2 6-12 Hours 3 3-6 Hours 4 None-Minimal	<u>Warning Time</u>  1
1 Limited 2 Minor 3 Major 4 Substantial	<u>Potential Severity*</u>  4
1 Minimal 2 Limited 3 High 4 Very High	<u>Risk Level**</u>  4
(Total divided by 4) 1 Very low 2 Low 3 Moderate 4 High	<u>Overall Priority</u>  3

## Hazard: Fire Risk Assessment

Figure 4.9 Hazard: Fire

Hazard:	Fire
Location	Buildings/Community/Resort
Historic events	From 2015 to 2021, there were a total of 50 fire runs
Likely to happen now?	Yes
How often?	Potential is always there.
Where would it strike?	Structures throughout county
How bad could hazard get?	Entire structure could burn
When would hazard likely occur?	All year round
What other hazards could occur simultaneously?	Wildfire, hazardous materials, service disruptions, health risks
Economic impacts	Economic impact severe if at the resort
Loss of life impacts	Potential if hazardous materials present Elderly and very young at risk Guests at the resort
<b>Risk Level</b> 1 Minimal 2 Limited 3 High 4 Very High	Citizens/People: 4 Animals/Livestock: 2 Housing: 4 Critical Structures: 4 Infrastructure: 4 <b>Total: 3</b>
<b>Risk Assessment</b>	
1 Unlikely 2 Occasional 3 Likely 4 Highly Likely	<u>Frequency of Occurrence</u>  2
1 More than 12 Hours 2 6-12 Hours 3 3-6 Hours 4 None-Minimal	<u>Warning Time</u>  4
1 Limited 2 Minor 3 Major 4 Substantial	<u>Potential Severity*</u>  4
1 Minimal 2 Limited 3 High 4 Very High	<u>Risk Level**</u>  4
(Total divided by 4) <b>1 Very low</b> <b>2 Low</b> <b>3 Moderate</b> <b>4 High</b>	<b>Overall Priority</b>  <b>3.5</b>

## Hazard: Hazardous Materials Risk Assessment

Figure 4.10 Hazard: Hazardous Materials

Hazard:	Hazardous Materials
<b>Location</b>	Major transportation route (Hwy 67 and Hwy 23) Concerns regarding fixed facilities in Community, Board Administrative offices parking lot at Community Pipeline locations, Convenience store bulk storage,
<b>Historic events</b>	None
<b>Likely to happen now?</b>	Potential with Tank Farm/LP distribution business Potential increases as hazardous materials increase
<b>How often?</b>	35 hazardous material spills in 11 years (YMC), (3.18 annually)
<b>Where would it strike?</b>	Specific locations throughout county, along transportation routes in county and local businesses that have hazardous materials delivered, Resort rooms, store or parking lot at resort, Meth Labs can occur anywhere.
<b>How bad could hazard get?</b>	Major spill could be devastating to human and animal life Meth Labs make people extremely sick, explosion/spill causes evacuation bottleneck at casino
<b>When would hazard likely occur?</b>	Year-round
<b>What other hazards could occur simultaneously?</b>	Wildfire, storm, water supply contamination, wastewater contamination, airborne smoke, etc
<b>Economic impacts</b>	Could shut down area of spill
<b>Loss of life impacts</b>	Some potential depending on material
<b>Risk Level</b> 1 Minimal 2 Limited 3 High 4 Very High	Citizens/People: 3 Animals/Livestock: 1 Housing: 2 Critical Structures: 2 Infrastructure: 2 <b>Total: 2</b>
<b>Risk Assessment</b>	
1 Unlikely 2 Occasional 3 Likely 4 Highly Likely	<u>Frequency of Occurrence</u>  2
1 More than 12 Hours 2 6-12 Hours 3 3-6 Hours 4 None-Minimal	<u>Warning Time</u>  4
1 Limited 2 Minor 3 Major 4 Substantial	<u>Potential Severity*</u>  4
1 Minimal 2 Limited 3 High 4 Very High	<u>Risk Level**</u>  2
(Total divided by 4) 1 Very low 2 Low 3 Moderate 4 High	<u>Overall Priority</u>  3

## Hazard: Water Supply Contamination Risk Assessment

Figure 4.11 Hazard: Water Supply Contamination

Hazard:	Water Supply Contamination
Location	Community - point and non-point sources
Historic events	None
Likely to happen now?	No
How often?	--
Where would it strike?	Resort or community
How bad could hazard get?	Water source could be contaminated for large population
When would hazard likely occur?	Year-round
What other hazards could occur simultaneously?	Infectious diseases
Economic impacts	Tourism, expensive to ship water in
Loss of life impacts	Potential to be life threatening
<b>Risk Level</b> 1 Minimal 2 Limited 3 High 4 Very High	Citizens/People: 4 Animals/Livestock: 1 Housing: 1 Critical Structures: 1 Infrastructure: 1 <b>Total: 2</b>
<b>Risk Assessment</b>	
1 Unlikely 2 Occasional 3 Likely 4 Highly Likely	<u>Frequency of Occurrence</u>  1
1 More than 12 Hours 2 6-12 Hours 3 3-6 Hours 4 None-Minimal	<u>Warning Time</u>  4
1 Limited 2 Minor 3 Major 4 Substantial	<u>Potential Severity*</u>  4
1 Minimal 2 Limited 3 High 4 Very High	<u>Risk Level**</u>  2
(Total divided by 4) <b>1 Very low</b> <b>2 Low</b> <b>3 Moderate</b> <b>4 High</b>	<b>Overall Priority</b>  <b>2.75</b>

## Hazard: Wastewater Treatment Facility Failure Risk Assessment

Figure 4.12 Hazard: Wastewater Treatment Facility Failure

Hazard:	Wastewater Treatment System Failure
Location	Community
Historic events	Drain field damage - 2013
Likely to happen now?	Unlikely (new system)
How often?	--
Where would it strike?	Community
How bad could hazard get?	Water source could be contaminated
When would hazard likely occur?	Year-round
What other hazards could occur simultaneously?	Infectious diseases, flood, water supply contamination
Economic impacts	During flood, losing wastewater system is expensive and inconvenient
Loss of life impacts	Could affect lives if contaminate water
<b>Risk Level</b> 1 Minimal 2 Limited 3 High 4 Very High	Citizens/People: 1 Animals/Livestock: 1 Housing: 2 Critical Structures: 2 Infrastructure: 2 <b>Total: 2</b>
<b>Risk Assessment</b>	
1 Unlikely 2 Occasional 3 Likely 4 Highly Likely	<u>Frequency of Occurrence</u>  1
1 More than 12 Hours 2 6-12 Hours 3 3-6 Hours 4 Non-Minimal	<u>Warning Time</u>  3
1 Limited 2 Minor 3 Major 4 Substantial	<u>Potential Severity*</u>  4
1 Minimal 2 Limited 3 High 4 Very High	<u>Risk Level**</u>  2
(Total divided by 4) <b>1 Very low</b> <b>2 Low</b> <b>3 Moderate</b> <b>4 High</b>	<u>Overall Priority</u>  <b>2.5</b>

## Hazard: Terrorism and Attacks Risk Assessment

Figure 4.13 Hazard: Terrorism and Attacks

Hazard:	Attacks	Terrorism
<b>Location</b>	Prairie's Edge Casino Resort, Roadways, Government buildings	Prairie's Edge Casino Resort, Roadways, Government buildings
<b>Historic events</b>	None	None
<b>Likely to happen now?</b>	Unlikely	Unlikely
<b>How often?</b>	Rare	School violence likelihood increasing No "terrorism" events in County
<b>Where would it strike?</b>	County/community	County, community, employer, YME
<b>How bad could hazard get?</b>	Threaten way of life in community	Threaten way of life in community
<b>When would hazard likely occur?</b>	Year-round	Year-round
<b>What other hazards could occur simultaneously?</b>	Infectious diseases, flood, dam failure, water supply contaminations, hazardous materials, explosion, fire, chemical agent release, active shooter	Infectious diseases, flood, dam failure, water supply contaminations, hazardous materials, explosion, fire, chemical agent release, active shooter
<b>Economic impacts</b>	Potential to be devastating	Potential to be devastating
<b>Loss of life impacts</b>	Mental, physical health; loss of life	Mental, physical health; loss of life
<b>Risk Level</b> 1 Minimal 2 Limited 3 High 4 Very High	Citizens/People: 4 Animals/Livestock: 1 Housing: 2 Critical Structures: 2 Infrastructure: 2 <b>Total: 2.2</b>	Citizens/People: 4 Animals/Livestock: 1 Housing: 3 Critical Structures: 4 Infrastructure: 4 <b>Total: 3.2</b>
<b>Risk Assessment</b>		
1 Unlikely 2 Occasional 3 Likely 4 Highly Likely	<u>Frequency of Occurrence</u>  1	<u>Frequency of Occurrence</u>  2
1 More than 12 Hours 2 6-12 Hours 3 3-6 Hours 4 Non-Minimal	<u>Warning Time</u>  4	<u>Warning Time</u>  4
1 Limited 2 Minor 3 Major 4 Substantial	<u>Potential Severity*</u>  4	<u>Potential Severity*</u>  4
1 Minimal 2 Limited 3 High 4 Very High	<u>Risk Level**</u>  2	<u>Risk Level**</u>  4
(Total divided by 4) <b>1 Very low</b> <b>2 Low</b> <b>3 Moderate</b> <b>4 High</b>	<u>Overall Priority</u>  3	<u>Overall Priority</u>  3.5

# CHAPTER 5: MITIGATION ACTION PLAN

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## OVERVIEW

This chapter outlines the goals and actions for hazards important to the Upper Sioux Community. **Goals and actions make up the mitigation strategy.** Goals are general guidelines and broad policy statements that explain what you want to achieve. Actions are the specific projects or tasks that will help you achieve your goals. Actions may include planning and regulations, structure and infrastructure projects, ways to protect the natural environment, and educational programs

The goals and actions are based on the issues identified by the Local Planning Team and the risk assessment in this plan

## GENERAL MITIGATION VISION

“The Upper Sioux Community will strive to work with surrounding communities and local emergency responders to create and implement a proactive and results-oriented all-hazard mitigation plan that will make the community a safer and more sustainable place to live by protecting and enhancing the resources of the community as they relate to hazards that may have an impact in the future.”

## PROGRESS AND COMPLETED STRATEGIES

The Upper Sioux Community is committed to working on Hazard Mitigation to do everything they can to keep the community members safe and infrastructure destruction to a minimum. Much work has been done since the first All-Hazard Mitigation Plan was created in 2006. The following figures document the strategies that have been removed from the plan because they have been completed or are no longer relevant.

The following strategies were completed since the 2015 plan. In addition to strategies outlined in the 2015 plan, the Upper Sioux Community completed the following projects to mitigate hazards for their community:

1. Purchased generators for all public buildings.
2. Implemented FEMA trailers as part of the COVID response – alternate care sites.
3. Upgraded air quality systems with best available technology completed in all buildings except round house.
4. Draft and adopted Floodplain ordinance stating that no new structures can be built within 100-year floodplain.
5. Enhanced storm shelter at campground.



**Figure 5.1 Completed Strategies since 2015**

<b>Hazard</b>	<b>Strategies from 2015 Plan:</b>	<b>Completed</b>	<b>Responsible Entity</b>	<b>Funding source</b>
Violet Storms and Extreme Temperatures	Goal 1, Objective 2, Strategy A Provide a safe room for Wacipi grounds. Room should accommodate 500 people. There are approximately 1500 people who attend the event.	2021	Board of Trustees	USC, FEMA
Violet Storms and Extreme Temperatures	Goal 3, Objective 3, Strategy A Purchase generators	2020	Board of Trustees	USC
Flood	Goal 2, Objective 1, Strategy B Purchase and install a flood river gauge to monitor flood water levels.	2020	Board of Trustees	USC
Flood	Goal 2, Objective 2, Strategy C Work with a Hydrologist to study the impact of the Minnesota Falls Dam removal and the impact to the floodplain.	2020	Board of Trustees	USC
Flood	Perform rip rapping on Minnesota Falls Township Bridge on TR 250th.	2010	Board of Trustees	USC
Drought	Goal 1, Objective 2, Strategy A. Complete a comprehensive study of the aquifer and groundwater supply and quality to understand what effect drought conditions would have.	2020	Board of Trustees	USC
Hazardous Materials	Goal 2, Objective 1, Strategy C Inventory buildings with lead paint and mitigate by removing or painting over.	2020	Board of Trustees	USC
Water supply	Goal 1, Objective 1, Strategy A. Identify wells that are not sealed. Likely only 5-6 left.	2020	Board of Trustees	USC
Water supply	Goal 1, Objective 2, Strategy A. Decommission private septic systems that may be failing and hook into community's Wastewater treatment system.	2015	Board of Trustees	USC

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**Figure 5.2 Removed Strategies from 2015 Plan**

<b>Hazard</b>	<b>Strategies from 2015 Plan:</b>	<b>Notes</b>
Flood	Goal 2, Objective 2, Strategy D Move the four flood-proofed homes out of the floodplain.	While it would be preferred to have these removed, it is not feasible at this time.
Erosion	Goal 2, Objective 2, Strategy B Work on Hazel Creek Erosion Project. Review erosion caused by Hazel Creek up from the 67 Bridge. Rebuild dike and add rip rap as needed.	Unclear of what this project referred to. Removed. Likely completed years ago.
Fire	Goal 2, Objective 1, Strategy A Provide public education to residents, focusing on carbon monoxide poisoning, evacuation and smoke alarms. Educate about wildfire safety.	Repeat of similar Action
Hazardous Materials	Goal 3, Objective 1, Strategy A Encourage that emergency responder groups, fire suppressive team, and emergency managers are trained at a minimum the Hazardous Materials Awareness level.	Repeat of similar Action
Hazardous Materials	Goal 3, Objective 2, Strategy B Explore funding possibilities for purchasing masks.	Repeat of similar Action
Hazardous Materials	Goal 4, Objective 2, Strategy B Educate the public on the dangers of meth and meth labs.	Repeat of similar Action
Wastewater Facility Failure	Goal 2, Objective 1, Strategy A Continue updating sanitary sewer systems and securing funding to make these updates.	Not necessary to keep as a strategy.
Terrorism	Goal 2, Objective 1, Strategy A Increase vehicle standoff distances.	Removed – no longer a strategy
Terrorism	Goal 3, Objective 1, Strategy A Increase level of security with landscape design and lighting.	Removed – no longer a strategy

## ACTION PLAN

Below is the 2022 Action Plan for the Upper Sioux Community. It includes goals and actions, with prioritization of the top actions.

**Note: The 2022 plan is using Goals and Actions, which is a change from the 2015 plan that used Goals, Objectives and Strategies.**

R\* - Reoccurring activities that are already in place and a priority.

	<b>Hazard: All Hazards</b>						
<b>Goal 1:</b>	<b><i>Have a secure communication system available for any hazard event.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
1.	Add communications redundancy to current system	2022	1	1-5 years	Board of Trustees	Unknown	-
2.	Enhance cellular communications	2022	2	1-5 years	Board of Trustees	Unknown	-
3.	Improve IT, telecommunications, and network security	2022	1	1-5 years	Board of Trustees	Unknown	-
<b>Goal 2:</b>	<b><i>Decrease vulnerability of community</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
4.	Update Hazard Mitigation Plan with FEMA.	2006	R*	Every 5 years	Board of Trustees	Unknown	FEMA
5.	Board of Trustees meets regularly to address current and pending issues that affect the community.	2006	R*	Annually	Board of Trustees	Minimal	--
6.	Develop an up-to-date, comprehensive evacuation plan for any hazard event.	2022	3	3 years	Emergency Management	Unknown	FEMA

7.	Research and develop a pre-disaster resiliency plan to become more resilient before a disaster happens. (Examples: mitigation for hydrologic changes, operation & maintenance of stormwater infrastructure.)	2022	4	4 years	Board of Trustees	Unknown	EPA, FEMA <a href="https://www.epa.gov/waterfinancecenter/funding-pre-disaster-resiliency">https://www.epa.gov/waterfinancecenter/funding-pre-disaster-resiliency</a>
<b>Hazard: Violent Storms and Extreme Temperatures</b>							
<b>Goal 1:</b>	<b><i>Ensure that all on the Upper Sioux Community Reservation have adequate shelter from violent storms.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
8.	Educate contractors & homeowners on safe room for residential homes.	2006	R*	Recurring	Board of Trustees	--	--
9.	Educate residents using FEMA's Shelter-In-Place program.	2006	R*	Recurring	Board of Trustees	\$500	FEMA
10.	Prepare and provide "Safe" packages, some equipment, and stockpiles of food and water for USC residents for violent storms.	2010	R*	Recurring	Board of Trustees, USC Food Program, Emergency Management	--	--
<b>Goal 2:</b>	<b><i>Improve severe storm warning system for all community residents</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
11.	Update all plans annually and educate personnel and community residents.	2006	R*	Annually, recurring	Board of Trustees	Minimal	--
12.	Add an evacuation plan	2006	3	3-5 years	Safety Committee	Minimal	--

13.	Train storm spotters and Work with programs in place and periodically evaluate their effectiveness.	2006	R*	Annually, recurring	Board of Trustees	Minimal	--
14.	Purchase Real-Time Weather Monitoring system and train personnel	2006	R*	Recurring	Safety Committee	Minimal	--
<b>Goal 3: Protect communications and residents from all severe storms.</b>							
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
15.	For better security of electrical and communication lines during severe storms, work with Minnesota Valley Rural Electric to bury power lines as necessary.	2010	R*	10 years	Board of Trustees	Unknown	FEMA
16.	Perform a feasibility study to determine need for snow fence along the newly straightened Prairie's Edge Lane.	2010	5	10 years	Board of Trustees	Unknown	FEMA
17.	Create a closed loop electrical system for Traverse Lane.	2022	3	5 years	Board of Trustees	Unknown	Identified utility providers
18.	Install wireless internet system for redundancy in the community's broadband system.	2022	1	3-5 years	Board of Trustees	Unknown	FCC
19.	Install ARMER tower on water tower for better radio service for casino and entire community	2022	2	3-5 years	Board of Trustees	Unknown	FEMA

20.	Pursue cellular improvements for better service and redundancy in communication system for casino and entire community.	2022	2	3-5 years	Board of Trustees	Unknown	FEMA
21.	Ensure that generators continue to service all community buildings and are in good working condition.	2022	2	3-5 years	Board of Trustees	Unknown	FEMA
22.	Research and develop a Disaster Debris Management Plan.	2022	4	4 years	Board of Trustees	Unknown	EPA, FEMA
<b>Hazard: Flood</b>							
<b>Goal 1:</b>	<b><i>Prevent the building of nonconforming structures in the identified 100-year floodplain.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
23.	Enforce the current zoning ordinance that provides for the amortization and elimination of existing nonconforming private structures and used in identified 100-year floodplains.	2006	R*	Recurring	Board of Trustees	Minimal	--
<b>Goal 2:</b>	<b><i>Evaluate flood needs.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
24.	Annually review flooding issues at Board of Trustees meetings.	2006	R*	Annually	Board of Trustees	--	--

	<b>Hazard: Drought</b>						
<b>Goal 1:</b>	<b><i>Monitor the community's groundwater supplies and demands.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
25.	Complete and update a water plan for the community that includes a water control contingency to regulate water usage by residents in the event of drought conditions.	2006	5	5 years	Board of Trustees	Unknown	BIA, IHS, US EPA
26.	Update Source Water Protection Plan	2022	5	5 years	Board of Trustees	Unknown	Midwest Assistance Program (MAP), EPA
	<b>Hazard: Wildfire</b>						
<b>Goal 1:</b>	<b><i>Protect the safety of residents and firefighters.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
27.	Provide educational fire safety materials to residents and work with the schools to provide educational materials.	2006	R*	Recurring	Board of Trustees	Minimal	--
28.	Purchase and house fire equipment for the community such as a small grass rig.	2006	4	5 years	Board of Trustees	Unknown	FEMA, BIA, HSEM, US EPA
29.	Research the interest and feasibility of the community having a fire suppression team. Purchase equipment and create fire suppression team.	2006	R*	Recurring	Board of Trustees	Minimal	FEMA, BIA, HSEM, US EPA



30.	Purchase equipment and create fire suppression team.	2006	5	1-5 years	Board of Trustees	Unknown	FEMA, BIA, HSEM, US EPA
<b>Hazard: Dam Failure</b>							
<b>Goal 1:</b>	<b><i>Provide safety to residents in the event of a dam failure.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
31.	Work with the Army Corps of Engineers to ensure that the emergency plans for dam failure of the Granite Falls Dam under the care of Xcel Energy is up to date and that local partners are engaged.	2006	R*	Annually	Granite Falls, Xcel Energy	Minimal	ACOE
32.	Prevent non-conforming development within floodplains by enforcing floodplain ordinance.	2006	R*	Recurring	Board of Trustees	Minimal	--
<b>Hazard: Landslide and Erosion</b>							
<b>Goal 1:</b>	<b><i>Minimize property damage and reduce economic impacts of erosion</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
33.	Support demolition and/or relocation of dwellings and infrastructure to prevent loss of property due to erosion, landslides, or slope failure.	2015	R*	Recurring	Board of Trustees	Unknown	FEMA, MN DNR

34.	Monitor erosion impacts to historic cultural sites such as burial sites.	2022	R*	Recurring	Board of Trustees	Unknown	FEMA, MN DNR
35.	Review, update, and enforce zoning ordinances that prohibit building in areas that are susceptible to water erosion, landslides, and slope failure.	2015	R*	Recurring	Board of Trustees	Unknown	--
36.	Mitigate any creek erosion by using modern engineered practices to slow the flow of water in the creek and protect the banks. Utilize rip rap where necessary, but focus on long-term natural restoration.	2015	R*	Reoccurring	Board of Trustees	Unknown	FEMA, Army Corps of Engineers
37.	Complete streambank stabilization feasibility Study of with Army Corps of Engineers that was started in 2019. The stretch that is being studied starts near the Wacipi grounds and runs approximately 2600 feet downstream along the bank. After the feasibility study is complete, start construction in late 2023.	2022	1	In Progress, 2-3 years	Board of Trustees	Unknown	FEMA, Army Corps of Engineers
	Increase public awareness and knowledge on erosion landslides, and slope failure, targeting individuals and businesses located in high-risk areas.	2015	R*	Recurring	Board of Trustees	Unknown	FEMA, Army Corps of Engineers

<b>Goal 2: Reduce impact of landslides taking place along Hwy 67.</b>							
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
38.	Create natural water holding areas, such as rain gardens along erosion areas to hold water	2022	3	5 years	Board of Trustees	Unknown	FEMA, Army Corps of Engineers
39.	Identify and implement erosion prevention tactics such as water diversion.	2022	3	5 years	Board of Trustees	Unknown	FEMA, Army Corps of Engineers
40.	Monitor movement of landslides and slope vulnerability.	2022	3	5 years	Board of Trustees	Unknown	FEMA, Army Corps of Engineers
<b>Hazard: Infectious Diseases</b>							
<b>Goal 1: Reduce the threat of infectious diseases through education and awareness.</b>							
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
41.	Continue to support Countryside Public Health, Family Health Services, Minnesota Department of Health, Indian Health Services programs and the Board of Trustees to maintain programs that keep the community healthy and safe from infectious diseases.	2006	R*	Recurring	Countryside Public Health, Family Health Services, Board of Trustees and Indian Health Services	Unknown	MDH, IHS, CDC, FEMA, NGOs
42.	Create a plan to make sure that mass transportation and mobile communications can address infectious disease outbreaks.	2022	2	2 years	Countryside Public Health, Family Health Services, Board of Trustees and Indian Health Services	Unknown	MDH, IHS, CDC, FEMA, NGOs
43.	Continue to work with state and Indian Health Services on quarantine and isolation strategies.	2006	4	Recurring	Countryside Public Health, Family Health Services Board of Trustees and Indian Health Services	Unknown	MDH, IHS, CDC, FEMA, NGOs

44.	Educate the public by getting uniform, accurate and up-to-date information out through the risk communication service (code red).	2006	3	Recurring	Countryside Public Health, Family Health Services, Board of Trustees and Indian Health Services	Minimal	MDH, IHS, CDC, FEMA, NGOs
45.	Continue cooperation between Board of Trustees, Yellow Medicine County Emergency Manager, Countryside Public Health, Family Health Services Director and Indian Health Services.	2006	1	Recurring	Yellow Medicine County Emergency Manager, Countryside Public Health, Family Health Services, Board of Trustees and Indian Health Services	Minimal	MDH, IHS, CDC, FEMA, NGOs
<b>Goal 2:</b>	<b><i>Improve the effectiveness and quality of the various efforts addressing infectious diseases that have the potential to impact the Community.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
46.	Maintain and update material, plans, and agreements for addressing infectious diseases.	2006	2	Recurring	Yellow Medicine County Emergency Manager, Countryside Public Health, Family Health Services, Board of Trustees and Indian Health Services	Minimal	MDH, IHS, CDC, FEMA, NGOs
47.	Complete facility that is designed and equipped to implement care treatment and responses for pandemic and public health emergencies.	2022	1	3-5 years	Board of Trustees and Indian Health Services	8.5 million	Board of Trustees, FEMA and Indian Health Services
48.	Update Round House with HEPA system.	2022	2	3 years	Board of Trustees and Indian Health Services	\$10,000	Board of Trustees and Indian Health Services
49.	Redesign all entries/lobbies of USC enterprise buildings to adhere to social distancing guidelines	2022	3	3-5 years	Board of Trustees and Indian Health Services	\$150,000	Board of Trustees and Indian Health Services

	<b>Hazard: Fire</b>						
<b>Goal 1:</b>	<b><i>Protect structures from fire and provide safety to residents.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
50.	Continue fire education programs with community residents and through the public schools.	2006	5	Recurring	Board of Trustees	Minimal	--
51.	Research the feasibility and interest in creating a fire suppressive team at the community.	2006	5	Recurring	Board of Trustees	Unknown	FEMA, BIA, HSEM, US EPA
52.	Purchase needed equipment and secure funding sources.	2006	3	5 years	Board of Trustees	\$80,000+	FEMA, BIA, HSEM, US EPA
	<b>Hazard: Hazardous Materials</b>						
<b>Goal 1:</b>	<b><i>Provide useful information about hazardous materials located in the community.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
53.	Continue programs that assist in creating timely information about hazardous material in the community and periodically evaluate effectiveness of these programs.	2006	4	Recurring	Board of Trustees	Minimal	--
54.	Provide public education to residents on hazardous materials and proper disposal.	2006	3	Recurring	Board of Trustees	Minimal	--
55.	Inventory and map hazardous material sites in the community and update periodically for Emergency Operations Plan.	2006	5	Recurring	Board of Trustees	Unknown	--

<b>Goal 2:</b>	<b><i>Improve overall preparedness and equipment for handling hazardous events.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
56.	Review and update the Upper Sioux Community Emergency Operations Plan that outline procedures for dealing with hazardous material on an annual basis.	2006	R*	Recurring	Board of Trustees	Minimal	DHS, US EPA
57.	Identify and purchase containment materials to readily remove contaminants in the event of a hazardous material spill.	2006	3	2 years	Board of Trustees	Unknown	DHS, US EPA
58.	Continue to expand the use of mutual aid agreements and memoranda of understandings to improve coordination between state, local and federal agencies and appropriate private sectors.	2006	3	Recurring	Board of Trustees	Minimal	--
59.	Evaluate equipment needs for the community and identify gaps in inventory and seek funding to fill gaps.	2006	R*	Recurring	Board of Trustees	Unknown	DHS, US EPA
60.	Identify a procedure for appropriate cleanup of meth and other clandestine labs.	2015	5	Recurring	Board of Trustees	Minimal	Dept. of Justice
<b>Hazard: Water Supply Contamination</b>							
<b>Goal 1:</b>	<b><i>Protect residents from ground water contamination and maintain the quality of the Community's ground water resources.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
61.	Continue wellhead protection program for the community.	2006	R*	Recurring	Board of Trustees	Minimal	US EPA

62.	Identify risk of Hazardous Materials entering the water supply and ways to prevent contamination.	2010	5	2 years	Board of Trustees	Unknown	DHS, US EPA
<b>Hazard: Wastewater Facility Failure</b>							
<b>Goal 1:</b>	<b><i>Protect the health of residents.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
63.	Monitor and secure the area surrounding the community's sanitary sewer system to address the threat of human-induced failures, including terrorism.	2006	4	Recurring	Board of Trustees, Public Works	Unknown	--
64.	Create a plan for the wastewater system that considers possible failures of pipes and lift stations to ensure that the casino and community is not adversely affected.	2022	1	1 year	Board of Trustees, Public Works	Unknown	--
<b>Hazard: Terrorism/Attack</b>							
<b>Goal 1:</b>	<b><i>Protect critical infrastructure from terrorism/attack</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
65.	Install alarms, gates, cameras or other means to secure wells, propane, and wastewater facilities.	2006	3	2 years	Board of Trustees	Unknown	USDA – Rural Water
<b>Goal 2:</b>	<b><i>Reduce terrorism/attack risk to critical government facilities.</i></b>						
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>

66.	Restrict parking and vehicle access to government facilities	2006	R*	Recurring	Board of Trustees	Unknown	--
<b>Goal 3: Increase security at major public gathering places.</b>							
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
67.	Install cameras; add security personnel, badges or other security measures at casino, Powpow grounds, government center and all places where the public gathers.	2006	2	2 years	Board of Trustees	Unknown	
68.	Conduct training such as active shooter drills for staff at public gathering places.	2022	2	1 year	Police Department	Minimal	
69.	Review existing security measures at all facilities where the public gathers and identify issues.	2022	2	1-2 years	Police Department and Emergency Management	Minimal	
<b>Goal 4: Decrease vulnerabilities for internet and network attacks.</b>							
	<b>Actions</b>	<b>Year added to plan</b>	<b>Priority</b>	<b>Timeframe</b>	<b>Responsible Entity</b>	<b>Estimated Cost</b>	<b>Funding Partner</b>
70.	Develop a plan for cybersecurity threats	2022	1	1 year	Police Department and USC IT Department/Contractor	\$65,000	Board of Trustees
71.	Train staff in network security best practices.	2022	1	1-3 years	Board of Trustees	Unknown	

R\* - Reoccurring activities that are already in place and a priority.



## PRIORITIZING ACTIONS

The Local Planning Team prioritized the actions in tandem with their previously prioritized hazards. The Local Planning Team analyzed the actions and prioritized according to need and feasibility. The following was considered:

- Number of persons impacted
- Relative costs
- Resources available
- Fit with other stakeholder plans and programs
- Personal safety
- Vulnerable populations affected
- Immediate need
- Feasibility
- Economic impacts
- Effectiveness

Actions that took priority were those that could make the biggest impact with the least investment, those of immediate need, those dealing with human life/safety, and those that could minimize economic impact.

### 2022 Prioritized Strategies

Hazard	Action	Priority Ranking
All Hazards	1. Add communications redundancy to current system	1
All Hazards	2. Enhance cellular communications	2
All Hazards	3. Improve IT, telecommunications, and network security	1
Violent Storms and Extreme Temperatures	18. Install wireless internet system for redundancy in the community's broadband system.	1
Violent Storms and Extreme Temperatures	19. Install ARMER tower on water tower for better radio service for casino and entire community	2
Violent Storms and Extreme Temperatures	20. Pursue cellular improvements for better service and redundancy in communication system for casino and entire community.	2
Violent Storms and Extreme Temperatures	21. Ensure that generators continue to service all community buildings and are in good working condition.	2
Landslide and Erosion	37. Complete streambank stabilization feasibility Study of with Army Corps of Engineers that was started in 2019. The stretch that is being studied starts near the Wacipi grounds and runs approximately 2600 feet downstream along the bank. After the feasibility study is complete, start construction in late 2023.	1
Infectious Diseases	42. Create a plan to make sure that mass transportation and mobile communications can address infectious disease outbreaks.	2

Infectious Diseases	45. Continue cooperation between Board of Trustees, Yellow Medicine County Emergency Manager, Countryside Public Health, Family Health Services Director and Indian Health Services.	1
Infectious Diseases	46. Maintain and update material, plans, and agreements for addressing infectious diseases.	2
Infectious Diseases	47. Complete facility that is designed and equipped to implement care treatment and responses for pandemic and public health emergencies.	1
Infectious Diseases	48. Update Round House with HEPA system.	2
Wastewater Treatment	64. Create a plan for the wastewater system that considers possible failures of pipes and lift stations to ensure that the casino and community is not adversely affected.	1
Terrorism/Attack	65. Install cameras; add security personnel, badges or other security measures at casino, Powpow grounds, government center and all places where the public gathers.	2
Terrorism/Attack	68. Conduct training such as active shooter drills for staff at public gathering places.	2
Terrorism/Attack	69. Review existing security measures at all facilities where the public gathers and identify issues.	2
Terrorism/Attack	70. Develop a plan for cybersecurity threats	1
Terrorism/Attack	71. Train staff in network security best practices.	1

Priorities change depending on the challenges facing the community and resources available. The following are the 2015 priorities and progress as of 2022.

### 2015 Prioritized Strategies and Progress

Ranked	Hazard	Strategy	Progress as of 2022
1	<b>Winter Weather</b>	Provide a safe room for Wacipi grounds. Room should accommodate 500 people. There are approximately 1500 people who attend the event.	Completed
1	<b>Winter Weather</b>	Work with Minnesota Valley Rural Electric to bury power lines as necessary.	Ongoing
1	<b>Winter Weather</b>	Purchase generators and create a closed loop electrical	Completed

		system in order to power Traverse Lane.	
1	<b>Flood</b>	Purchase and install a flood river gauge to monitor flood water levels.	Completed
1	<b>Flood</b>	Work with a Hydrologist to study the impact of the Minnesota Falls Dam removal and the impact to the floodplain. <b>*New in 2015</b>	Completed
1	<b>Drought</b>	Complete a comprehensive study of the aquifer and groundwater supply and quality to understand what effect drought conditions would have. <b>*New in 2015</b>	Completed
2	<b>Flood</b>	Perform rip rapping on Minnesota Falls Township Bridge on TR 250 <sup>th</sup> .	Completed
1	<b>Infectious Diseases</b>	Work with state on quarantine and isolation strategies.	Completed
1	<b>Hazardous Materials</b>	Identify and purchase containment materials to readily remove contaminants in the event of a hazardous material spill.	Priority 3
1	<b>Hazardous Materials</b>	Identify gaps in inventory and seek funding to fill gaps	Recurring
1	<b>Hazardous Materials</b>	Identify a procedure for appropriate cleanup of meth labs. <b>*New in 2015</b>	Priority 5
1	<b>Water Supply</b>	Identify wells that are not sealed. Likely only 5-6 left.	Completed
1	<b>Water Supply</b>	Continue wellhead protection program for the community.	Recurring
1	<b>Water Supply</b>	Identify risk of Hazardous Materials entering the water supply and ways to prevent contamination.	Priority 5
1	<b>Water Supply</b>	Decommission private septic systems and hook into community's Wastewater treatment system. <b>*New in 2015</b>	Completed
1	<b>Wastewater Facility Failure</b>	Monitor and secure the area surrounding the community's sanitary sewer system.	Priority 4
1	<b>Terrorism/Security</b>	Install alarms, gates, cameras or other means to secure wells.	Priority 3

# CHAPTER 6: PLAN IMPLEMENTATION & MAINTENANCE

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## IMPLEMENTATION & MAINTENANCE

This chapter is divided into two main sections: Upper Sioux Community Capability Assessment and Plan Maintenance. The Capability Assessment section discusses the pre- and post-disaster hazard mitigation policies and programs, and mitigation capabilities of the Upper Sioux Community. This includes the Funding Sources subsection that identifies current and potential sources of federal, tribal, state, and local funding to implement noted mitigation strategies from Chapter 5. The final section, Plan Maintenance, will detail the Upper Sioux Community's chosen path to monitor and evaluate the All-Hazard Mitigation Plan in addition to how the Community will incorporate the Plan into other existing planning mechanisms and continued public involvement.

## UPPER SIOUX COMMUNITY CAPABILITY ASSESSMENT

The Upper Sioux Community's financial, legal, and programmatic capabilities to carry out mitigation action in the pre-disaster and post-disaster settings to achieve mitigation objectives are demonstrated in several ways.

### Financial Capability

The Upper Sioux Community has five major revenue sources. They are the Propane Tank Distributorship, RV Park, Casino, C-Store, and Prairie's Edge Casino Resort. A dedicated reserve for emergencies and disasters has been established by the Board of Trustees. These are funds that have been earmarked for training, matches for grants, and the immediate needs of emergency response and mitigation.

The Board of Trustees (BOT) is the designated governing body for the Upper Sioux Community. The positions are filled with knowledgeable staff that routinely perform budget oversight and grant administration. The Upper Sioux Community utilizes a detailed financial management model to monitor grants and contracts. The Upper Sioux Community uses the modified accrual basis of accounting, and financial records are maintained internally by the Finance Director and the Contracts and Grant Finance Officer.

All expenditures made are documented by written records. The authority to approve expenditures remains with the Board of Trustees, who must approve individual expenditures. The Upper Sioux Community administers all state and federal grants in strict compliance with the applicable laws and regulations governing the use and expenditure of contract and grant proceeds. All grant programs are included in annual audits when they are completed by an independent auditing firm.

### Pre-Disaster Hazard Management

The Upper Sioux Community values the benefits of hazard mitigation preparation and has attempted to fulfill identified needs within their community to support hazard mitigation activities. For example, the Upper Sioux Community has thoughtfully created a complex network of mutual-aid agreements and policies to support the Community in times of need. Figure 49 identifies mutual-aid agreements, contracts, and policies in place that the Upper Sioux Community utilizes as methods to increase tribal capacity for pre-disaster hazard management. Additional available emergency response resources are

outlined in the Upper Sioux Community's Resource Manual.

## **Post-Disaster Hazard Management**

Since 1997, the Upper Sioux Community has demonstrated the ability to manage and support hazard mitigation activities in an independent and self-reliant way. The Upper Sioux Community received federal disaster funds for several recovery projects directly related to flooding in 1997 and 2001 and fulfilled all necessary requirements.

In 1997, funds were channeled through the Bureau of Indian Affairs and the Upper Sioux Community Board of Trustees; the Tribal Chair served as the key contact. All members of the Board of Trustees played integral roles in managing mitigation funding including data collection for potential projects, prioritization of mitigation projects based on imminent need, and fund monitoring and reporting. The oversight of the full grant remained the responsibility of the Board of Trustees.

In 2001, funding was awarded directly from FEMA to the Upper Sioux Community. As of 1997, the Upper Sioux Community Board of Trustees Tribal Chair served as the key contact while grant oversight responsibility fell to the Board of Trustees. Assistance was received from the Community's internal Finance Department to assure all federal requirements for fund accountability, reporting, and auditing were met by the Community. The Upper Sioux Community will continue to work with FEMA to improve the Tribe's post-disaster program.

In the event of a serious disaster, the Upper Sioux Community has a current Emergency Operations Plan in place that guides the immediate safety and protection of all Upper Sioux Community members. The plan states that the Upper Sioux Community Police Department would provide emergency services in addition to the Granite Falls Fire Department. (The Upper Sioux Community falls within Granite Falls Fire District). The Upper Sioux Community can house Community members within the Prairie's Edge Casino Resort and all tribal facilities and provide living materials including sleeping bags, bottled water, food, and shelter.

## **Funding Sources**

In lieu of taxes, the Community has multiple business enterprises as a sustainable source of revenue to fund mitigation strategies. Current sources of revenue for the Upper Sioux Community include Prairie's Edge Casino, the Propane Tank Distributorship, RV Park, and the Casino, C-Store. In addition to FEMA disaster funds at the Federal level, the Community has access to revenue through USDA, EDA, Indian Health Services and BIA funds. In addition, the Upper Sioux Community has received emergency funds in the past as needed through an established network of other tribal communities

The Emergency Management Fund was established by Tribal Council for emergencies and disasters. It is funded by a percentage of the revenues from the licensure of resorts, and non-gaming. These are funds that have been earmarked for training, matches for grants, and emergency response immediate needs and mitigation. User or application fees imposed by the Tribal Council are another source of funding if necessary to generate revenue for mitigation action. Other eligible private or public grants applications for mitigation strategies are managed by the Finance Department.

## IMPLEMENTATION, MAINTENANCE, & COMPLIANCE

### Analysis of Previously Approved Plan's Method, Schedule, & Mitigation Activity Tracking

The initial All-Hazard Mitigation Plan was to be monitored, reviewed, and evaluated by the Board of Trustees and the Tribal Emergency Resources Commission (TERC). The TERC was to host an annual meeting to update goals, objectives, and mitigation strategies on the anniversary of its adoption and recommend revisions. Further, the TERC was charged to review mitigation strategies monthly and track progress. After three years the TERC was to begin the plan update and lead the public participation planning process.

The Upper Sioux Community followed the initial schedule without deviation and applied to the Minnesota Department of Homeland Security and Emergency Management (HSEM) in December 2008 (three years after adoption) and received funding in 2009. The sole significant change from the original method for plan evaluation was the dissolution of TERC and no other changes for plan schedule, review, and evaluations were made. The Upper Sioux Community shifted the responsibilities detailed above to the Board of Trustees, as they have overall authority over the All-Hazard Mitigation Plan. The Board of Trustees determined to switch from monthly reports to quarterly monitoring of mitigation activities, as they provide a more accurate snapshot of project progress. Aside from these changes, all monitoring of mitigation activities will remain the same as the initial process was deemed satisfactory by the Board of Trustees. The following subsection below describes the new process for plan implementation and maintenance, and method for monitoring mitigation activities.

### Future Implementation, Maintenance and Monitoring Mitigation

The Board of Trustees has the overall authority and responsibility for implementation, maintenance, and monitoring of the plan. The Upper Sioux Community All-Hazard Mitigation Plan is intended to serve as a guide and work plan for dealing with the impact of both current and future hazards for all Community members and its institutions. As such it is not a static document but must be modified to reflect changing conditions to be an effective plan. The goals, objectives and mitigation strategies will serve as the Upper Sioux Community's work plan. The plan will be available by contacting the Tribal Secretary of the Upper Sioux Community.

Implementation by the Board of Trustees will begin with the list of prioritized strategies. Each year, the Board of Trustees will call a meeting annually to **update** the plan's mitigation goals, objectives and strategies and the estimated costs attached to each strategy on the anniversary of its adoption and make recommendations for revisions to the plan. Other items included in yearly revisions include significant events, changes to laws/regulations and new programs. The Board of Trustees will **review the progress on the plan and evaluate on a quarterly basis**. It will be their responsibility to lead implementation of the plan. As the Board of Trustees is ultimately responsible for all tribal members, the Board will utilize their discretion to assign strategies to suitable departments. The Board of Trustees will monitor the annual budget dedicated to Hazard Mitigation to ensure that funds are spent appropriately.

Chapter 5 of the plan proposes a number of strategies, some of which will require outside funding. If funding is not available, the strategy will be set aside until sources of funding are identified. Based on the availability of funds and the risk assessment of that hazard, the Board of Trustees will determine which strategies should be continued and which should be set aside for a later date.

In the past, the only challenges that hindered the implementation of mitigation measures were fund availability mixed with political issues. However, the Upper Sioux Community has actively worked to complete numerous mitigation strategies during the past five years. Major factors that contributed to success included a proactive Board of Trustees that understood the value of mitigation and how the completion of strategies leads to long term benefits of monetary savings of both the Community and FEMA.

Project closeouts will be led by the Tribal Chair, Incident Commander in the EOP. The financial system design (see Appendix 6 EOP Finance Section) includes steps to:

- Keep accurate and complete documentation on file
- Documentation that a project is an eligible activity
- Document that the project complies with all federal, state and local regulations
- Meet reporting requirements timely and accurately
- Use a fiscally sound accounting system with audit trail
- Identify projects in tribal audit

This method and schedule have worked in the past five years and will continue to be used in future project implementation.

## **Public Participation**

Public participation may be solicited for annual reviews and updates (every five years) through **continued public participation** at public meetings, surveys, or other means of collection. Encouraging review of the plan by stakeholders is critical. The All-Hazard Mitigation Plan can be made available by the Upper Sioux Community's website and by the Board of Trustee Offices. Evaluation of the strategies identified in the goals and policies framework is also critical. The Upper Sioux Community has incorporated the preferred strategies including identification of the responsible party to implement, the timeframe and the estimated cost of the activity with the goals and policies framework. Consequently, the action plan and the risk assessment serve as a guide to spending priorities (cost/benefit review) but will be adjusted annually to reflect current needs and financial resources. The public participation methods utilized will be reviewed and evaluated at annual reviews of the All-Hazard Mitigation Plan.

## **Compliance**

The Upper Sioux Community agrees to comply with Federal statute 44 CFR 13.11(c), during the periods it receives grant funding and will amend its plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d). In 2001, the Upper Sioux Community received FEMA funds for flooding issues and complied with Federal statutes in completing grant requirements.

## **Plan Adoption**

The Local Planning Team completed the public participation plan before submittal to FEMA. The Upper Sioux Community made efforts to collaborate with FEMA to foster a streamlined review period for the plan. After FEMA issues approval of the Upper Sioux Community All-Hazard Mitigation Plan pending adoption, the Board of Trustees will adopt the All-Hazard Mitigation Plan by an adoption resolution.

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## APPENDIX 1: 1997 USC FLOOD DAMAGE

### Submerged and Homeless Victims from the 1997 Flood

#### Ruby Mulligan (3)

Ruby's home is completely submerged. Her fuel tank was taken by the floodwaters. She is believed to be staying in Wood Lake at the home of Gary Dean LaBatte. She has two minor children. She will have Drain Field/Well Damage.

#### Harriet Blue (1)

Water has surrounded Harriet's home and has flooded her basement, which is believed to have never occurred during the home's history. Harriet is staying at her son Dean Blue's home. Drain Field/Well Damage.

#### Laurie Gardner (4)

Laurie's home is completely submerged. She is currently renting an apartment at Valley View estates in Granite Falls on an emergency basis. Laurie has three minor children.

#### Larry and Sara Blue (3)

Larry and Sara's home are completely submerged. They are currently renting an apartment on an emergency basis at Valley View Estates in Granite Falls with their daughter Laurie Gardner. They have one minor child in their custody.

#### James Hastings (1)

James Hastings' home site is completely submerged. The home was unoccupied at the time of the flooding.

#### Sharon Odegard (4)

Sharon's home is submerged. Sharon is believed to be staying on the property during

the day and sleeping in the car in the evening. It is unknown if she is staying with relatives who live on high ground. Sharon has two minor children and a husband. Drain Field/Well Damage.

#### Joan Pasillas (1)

Joan's home is completely submerged. Joan is currently being temporarily housed at the Riverside Apartments for the Elderly/Handicapped in Granite Falls. Drain Field/Well Damage.

#### Jeanette Marlow (1)

Jeanette's home is completely submerged. Jeanette is living in an alternate home site in Granite Falls. Drain Field/Well Damage.

#### Pansy and Harold St. Clair (2)

Pansy and Harold's home is submerged. They are currently staying at the Super 8 Motel in Granite Falls.

#### Marlys and Jim Fluto (2)

Marlys and Jim's home are completely submerged. They are currently staying at the Super 8 Motel in Granite Falls. Drain Field/Well Damage.

#### Pauline Kipp (1)

Pauline's home is completely submerged. She is currently staying at the Viking Sundance Motel in Granite Falls. Drain Field/Well Damage. It is unknown if she had flood insurance.

#### Verna Ross (1)

Verna's home is inaccessible due to the floodwaters covering the road and surrounding her home. Some damage from the flood is expected to her drain field and

well as well as the foundation. She is currently staying at the Super 8 Motel in Granite Falls. It is unknown if she had flood insurance.

#### Tom Ross (1)

Tom's home is completely submerged. He is residing at an alternative home site. It is unknown if the home was covered by flood insurance.

#### Wilbert Hill (1)

Wilbert's home is completely submerged. He is currently staying at the home of Richard Ross. It is believed there was flood insurance, but that is uncertain.

#### Evangeline Lesko (1)

Evangeline's home is completely submerged. She is currently staying at the apartment of Brad Lerschen in Granite Falls. Evangeline is handicapped due to a stroke suffered in 1984. She had no flood insurance.

#### Tim L. Blue (4)

Tim's home is completely submerged. He is currently staying with his sister, Dinah Johnson, in Granite Falls. It is unknown if he had flood insurance coverage. He has two minor children and a wife.

#### Robyn Buchmann (2)

Robbie and her husband, Darwin, were evacuated from their home in Montevideo and their home was completely submerged. They are staying with her mother, Barbara Mulligan, in Granite Falls. It is unknown if they had flood insurance.

**Total Displaced: 30**

## Partially Submerged and/or Evacuated Victims from the 1997 Flood

### April Flute (5)

April resides in the Aakre Trailer Court, which was partially submerged. April was forced to evacuate. It is unknown where she is staying; it is believed she is being temporarily housed at the Viking Sundance Motel. She has four minor children.

### Jason Burrell (1)

Jason resides at the creamery building in Granite Falls and was forced to evacuate due to rising waters. It is unknown where he is staying at this time.

### Darlene Blue (1)

Darlene resides at the creamery building in Granite Falls and was forced to evacuate due to rising waters. It is unknown where she is staying currently.

### Doug and Beverly Peterson (2)

Doug and Bev reside at the Aakre Trailer Court, which was partially submerged and were forced to evacuate due to rising waters. It is believed that they are staying with Doug's son and daughter in

Granite Falls.

### Dwight Ironheart (1)

Dwight resided in the Aakre Trailer Court. He is believed to be in Sisseton.

### Russell Blue (3)

Russell's home is on Minnesota Avenue, which is blocked and was transformed into a dike. It is unknown if he had to leave his home. He has one minor child.

### Rhonda Wilson (2)

Rhonda resides on Minnesota Avenue and was evacuated due to rising waters. Her basement has flooded, and it is uncertain whether the water reached her first floor. She is staying at the home of Barbara Mulligan in Granite Falls. She has one minor child.

### Justin W. Ross (1)

Justin resides in the Aakre Trailer Court, which was partially submerged. It is unknown if he had to evacuate and if so, where he is currently staying.

### Cleo Painter (2)

Cleo resides in the Aakre Trailer Court, which was partially submerged. It is unknown if she had to evacuate and if so,

where she is currently staying. She has one minor child.

### Norma Johnson (1?)

Norma is staying at her home in Granite Falls. Her basement is flooded and she has no heat. It is unknown if she is staying with her daughter Wendy or Nancy.

### Sean Jensvold (4)

Sean had to evacuate his home due to the rising water. It is unknown if he suffered any damage, but it is believed his basement flooded. Sean has two minor children.

### Eugene Hastings (2)

It is unknown if Eugene had to evacuate and if he suffered any damage.

### Michelle Fluto (2)

Michelle resides in Granite Falls in a home adjacent to the Aakre Trailer Court. Although she was not required to evacuate, she had 14 inches of water in their basement, which is being pumped out.

**Affected: 27 (7 non-member partners)**

**Total USC Members affected: 50**

## Upper Sioux Community Members Estimated Damage because of the Flooding Event April 4-13, 1997

Community Members	Estimated Damage	Comments
Blue, Gerald	\$3,600.00	Damage was to rental unit
Blue, Harriet*	\$4,800.00	Basement damage and clean up
Blue, Timothy L.*	\$14,700.00	Home suffered extensive damage
Blue, Larry*	\$42,800.00	Home total loss
Buchmann, Robyn:	\$1,900.00	Home damage and clean up
Fluto, Marlys & Jim*	\$33,600.00	Home suffered extensive damage
Garnder, Laurie*	\$14,200.00	Home suffered extensive damage
Hastings, James	\$8,400.00	Home suffered extensive damage
Hill, Wilbert*	\$10,500.00	Home suffered extensive damage
Jensvold, Sean*	\$4,000.00	Basement damage and clean up
Kipp, Pauline*	\$6,500.00	Home damage and clean up
Lesko, Evangeline	\$900.00	Slight damage and clean up
Marlow, Jeanette*	\$15,200.00	Home suffered extensive damage
Mulligan, Ruby*	\$14,100.00	Home suffered extensive damage
Odegard, Sharon	\$5,500.00	Home suffered slight damage
Pasillas, Joan*	\$20,600.00	Home suffered extensive damage
Ross, Tom	\$8,500.00	Home total loss
Ross, Verna*	\$5,000.00	Home suffered slight damage
St. Clair, Harold & Pansy	\$49,100.00	Home total loss
<b>Total Estimated Damage</b>	<b>\$273,800.00</b>	Note: Damage assessments did not include contents of homes or appliances.

\*Homeless individuals/families **Source:** Compiled on 5/07/97 based on estimated damage assessments done by Bob Brown

## APPENDIX 2: 1997 CLIMATIC CONDITIONS

### Spring Flooding of 1997 Contributing Climatic Conditions

#### 1. Heavy autumn precipitation

- much of Minnesota **six or more** inches in late October and November of 1996
- many areas **four or more** inches **above** normal
- most of Minnesota in **95th percentile** (one in 20 year event)

#### 2. Extraordinary winter snowfall

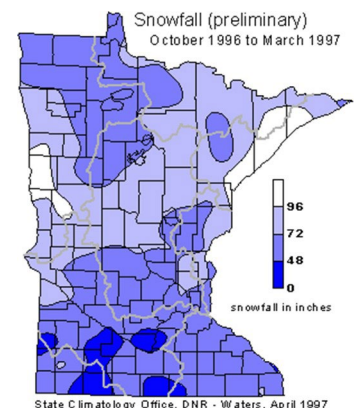
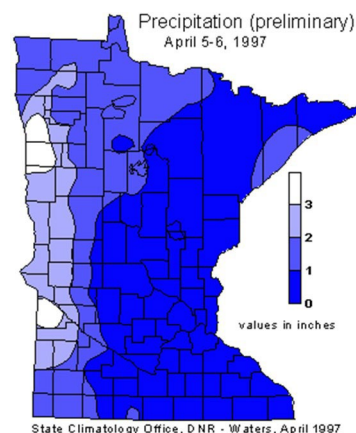
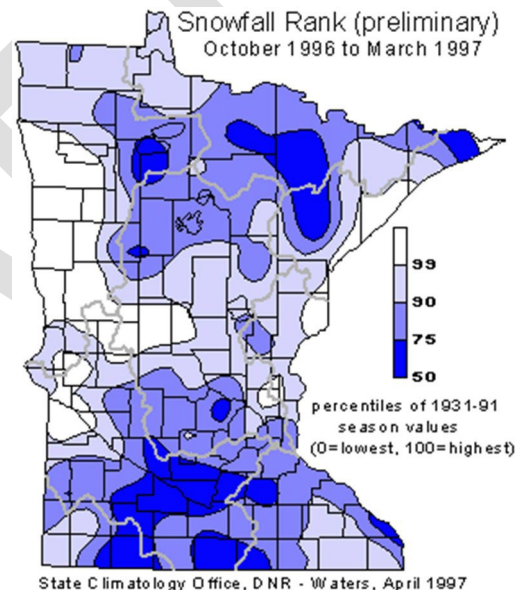
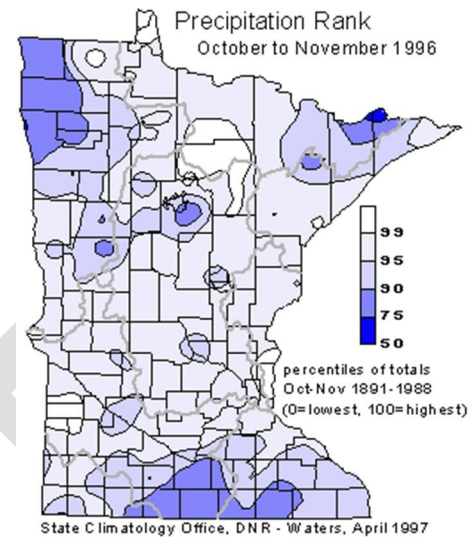
- much of Red River and Upper Minnesota River Basins over six feet of snowfall
- some areas over eight feet of snowfall
- many areas two to three times average snowfall
- over 40 percent of Red River Basin (Minnesota portion) and uppermost reaches of Minnesota basin in 99th percentile (near or exceeding record snowfall)
- two thirds of Red River reach in 99<sup>th</sup> percentile
- historically no greater area of Red River Basin in record snowfall category in any past season
- 1996-97 snowfall exceeded 1896-97 ([severe Red River flooding a century ago](#)) snowfall by 25 to 50 percent in much of Red River Basin (Minnesota portion)
- less than 10 percent of basin covered by record snowfall in 1896-97
- discussions of earlier Red River flooding are available [below](#)

#### 3. Less than ideal snowmelt scenario

- few mid and late winter melting days
- large temperature fluctuations in early April
- up to 10 degrees above normal in first week of month
- up to 20 degrees below normal in second week of month

#### 4. Heavy early spring precipitation

- two or more inches of precipitation (rain and snow) in western Minnesota April 5-6, 1997
- normal monthly April precipitation approximately two inches for region



## APPENDIX 3: 2001 CLIMATIC CONDITIONS

### Climatic Conditions Leading to the Spring Flooding of 2001

Major flooding occurred along many of Minnesota's rivers during April 2001. The flooding was caused by four contributing climatic factors:

#### 1) Significant Autumn Precipitation

Many southwestern, central, and east central Minnesota locations entered November with water deficits due to below normal growing season rainfall. However, heavy early November rains filled the upper portions of the soil profile before soil freeze-up. The figures below show that November 2000 precipitation exceeded the historical average by more than two inches in many locations.

#### 2) Heavy Winter Snowfall (2000-2001)

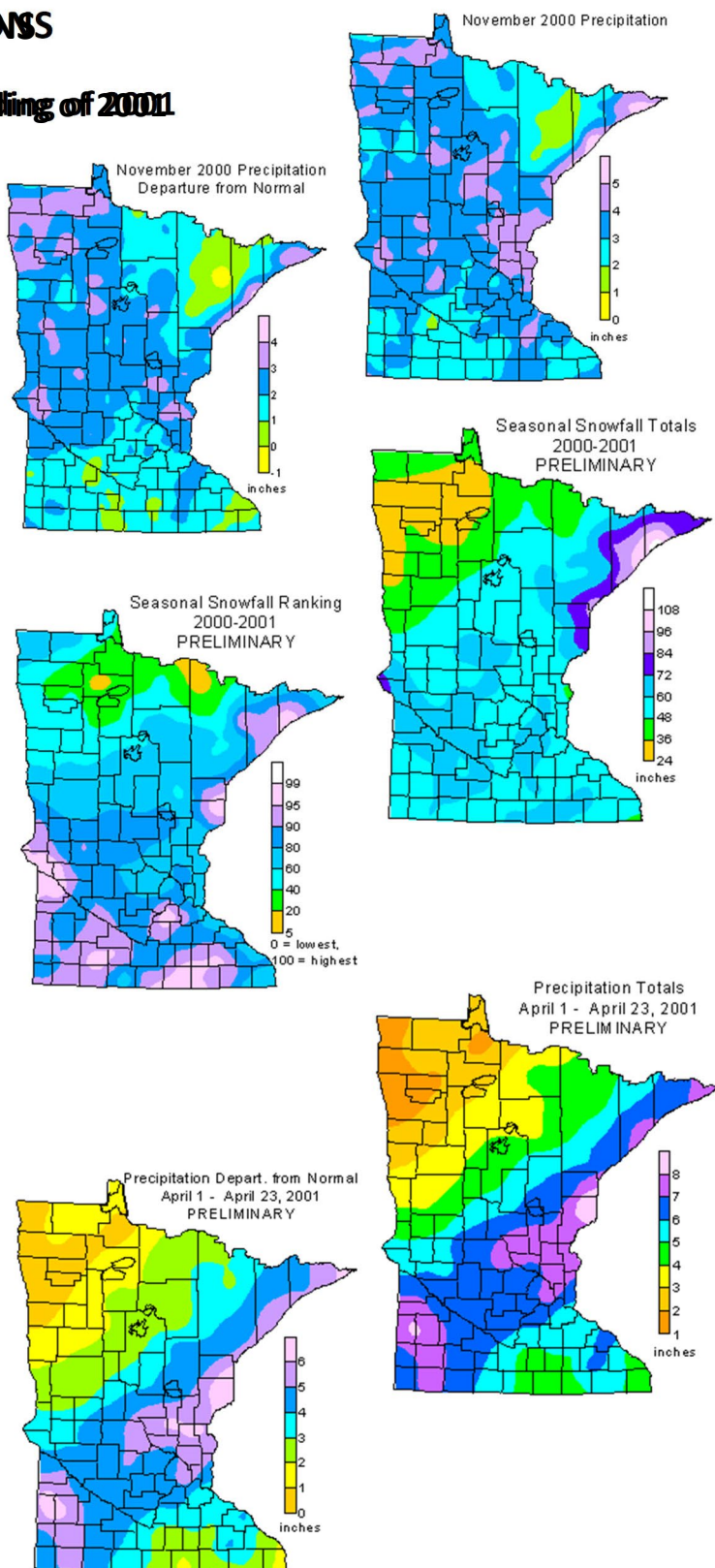
- Mid- and late-November snows persisted into the early spring. Seasonal snow exceeding 60 inches
- 2000-2001 snowfall topped the historical average by approximately two feet in western Minnesota, and by more than 18 inches in most southern Minnesota counties.
- Snow water equivalent in the snowpack at the end of the season was three to five inches in many areas. While 2000-2001 snowfall was heavy in many communities, the snowfall totals were far less than the 72-to-96-inch totals that covered most of the Red River basin and much of the Upper Minnesota River Basin in [1997](#).

#### 3) Less Than Ideal Snowmelt Scenario

The winter of 2000-2001 provided very few mid and late-winter melting days. January was cold enough to retain most of the snow cover established during November and December. February was quite cold, finishing four to eight degrees below normal. March temperatures were three degrees below normal. The snowpack gradually diminished in depth throughout March, nevertheless, snow water content did not change appreciably. Much of the melt water stayed on the landscape in the micro-relief.

#### 4) Record-breaking April Precipitation

Extraordinarily heavy precipitation fell across Minnesota in April 2001. A broad swath of southwestern, central, east central, and northeastern Minnesota received over six inches of precipitation from April 1 to April 23, 2001. Precipitation totals surpassed the historical average by more than four inches in these areas. For many communities, all-time April monthly precipitation records were set before the month came to a close.



[Return to the Climate Journal](#)

[mcwg@soils.umn.edu](mailto:mcwg@soils.umn.edu)

URL: [http://climate.umn.edu/doc/flood\\_2001/flood\\_2001.htm](http://climate.umn.edu/doc/flood_2001/flood_2001.htm) Last modified: April 24, 2001

## APPENDIX 4: ADOPTION OF PLAN

UPDATE WITH NEW - Examples from 2015



# 404

### BOARD OF TRUSTEES

TRIBAL CHAIRMAN - KEVIN L. JENSVOLD  
TRIBAL VICE CHAIR - MARISA ANYWAUSH  
TRIBAL SECRETARY - ANDREW KORSTAD  
TRIBAL TREASURER - SHARON ODEGARD  
MEMBER-AT-LARGE - SHARON PAZI ZEA  
POST OFFICE BOX 147  
5722 TRAVERS LANE  
GRANITE FALLS, MN 56241  
320.564.3853  
320.564.4482 - FAX

### Board of Trustees Action Form

DATE: October 23, 2015 Submitted by: Meri Jo Gillund

SUPERVISOR APPROVAL: \_\_\_\_\_

BOARD CONSENSUS OR APPROVAL FOR:

Approval of Resolution 027-CY2015 (Adopt Revised All-Hazard Mitigation Plan)

Expense Amount: \$ \_\_\_\_\_ BOT Expense: \$ \_\_\_\_\_ Department Expense: \$ \_\_\_\_\_

CONTRACTOR/CONSULTANT: \_\_\_\_\_

PROGRAM: \_\_\_\_\_

APPROVED BY: [Signature] [Signature] [Signature] [Signature]  
(Please note if approval has been given by phone and initial)

DISAPPROVED BY: \_\_\_\_\_  
(Please note if approval has been given by phone & initial)

NOTED IN BOARD OF TRUSTEES MEETING ON: \_\_\_\_\_

(Original must go to Executive Office Manager)

cc: Chief Lee - Scanned  
10/28/15





**BOARD OF TRUSTEES**  
CHAIRMAN - KEVIN JENSVOLD  
VICE CHAIRMAN — MARISA PIGEON  
TRIBAL SECRETARY — ANDREW KORSTAD  
TRIBAL TREASURER — SHARON ODEGARD  
MEMBER AT LARGE — SHARON PAZI  
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GRANITE FALLS, MN 56241  
320.564.3853  
320.564.4482 — FAX  
WWW.UPPERSIOUXCOMMUNITY-NSN.GOV

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**Upper Sioux Community Resolution No. 027-CY2015**  
**(Adopt Revised All-Hazard Mitigation Plan)**

- WHEREAS, the Upper Sioux Community (the “Tribe”) – Pezihutazizi Oyate is a federally recognized Indian Nation bordering the counties of Yellow Medicine and Chippewa of the state of Minnesota and possessing its powers of self-government, self-determination and asserting its Sovereignty by the Constitution of the Upper Sioux Community; and
- WHEREAS, the governing body of the Tribe is the Upper Sioux Board of Trustees (the “**Board of Trustees**”) which is empowered by the Tribal Constitution to act on behalf and in the best interests of the members of the Upper Sioux Community; and
- WHEREAS, the Upper Sioux Community Board of Trustees has participated in updating the hazard mitigation plan as established under the Disaster Mitigation Act of 2000; and
- WHEREAS, the Hazard Mitigation Plan has been shared with the Federal Emergency Management Agency for review and comment; and
- WHEREAS, the Upper Sioux Community All-Hazard mitigation Plan will make the Community eligible to receive FEMA assistance; and
- WHEREAS, the Upper Sioux Community Board of Trustees does hereby rescind the All-Hazard Mitigation Plan adopted in August 2010.
- THEREFORE BE IT RESOLVED, that the Upper Sioux Community Board of Trustees hereby adopts the revised Upper Sioux Community All-Hazard Mitigation Plan.

**Upper Sioux Community Resolution No. 027-CY2015**  
**Adopt Revised All-Hazard Mitigation Plan 17 September 2015**  
Page 1 of 2

BE IT FURTHER RESOLVED, that this Upper Sioux Community All-Hazard Mitigation Plan shall replace any and all previous plans.

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### CERTIFICATION

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We, the undersigned officers of the tribal council known as the Board of Trustees, do hereby certify that the foregoing Governing Resolution entitled **Upper Sioux Community Resolution No. 027-CY2015** was duly adopted and approved by the Tribal Council on **17 September 2015** by a vote of   5   For,   0   Against,   0   Abstentions and   0   Absent and Excused.

  
\_\_\_\_\_  
Kevin Jensvold, Tribal Chairman

*Attest:*

  
\_\_\_\_\_  
Andrew Korstad, Tribal Council Secretary

SECRETARY  
SEAL

# APPENDIX 5: UPPER SIOUX EMERGENCY OPERATIONS PLAN FINANCE SECTION

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## UPPER SIOUX COMMUNITY

## FINANCE SECTION

### EMERGENCY OPERATIONS PLAN

REVISION: 1

#### I. PURPOSE

The purpose of this section is to provide an overview of how damage assessment and management of emergency spending will be accomplished following a disaster in the Upper Sioux Community.

#### II. RESPONSIBILITIES

1. The BOT is responsible for developing and maintaining a damage assessment team composed of county and/or municipal and private sector agency representative. An up-to date list of the damage assessment team will be kept in the EOP. The Tribal Secretary will also maintain the procedures to be followed for damage assessment and coordinate the damage assessment process following the occurrence of a disaster.
2. The Housing Commission and Maintenance Department will be responsible for assessing and documenting the damage of private property following a disaster.
3. The Public Works Department will be responsible for assessing and documenting the damage of public property and infrastructures following a disaster.

#### III. POLICIES AND PROCEDURES

1. A damage assessment effort will be initiated as soon as possible following the occurrence of a disaster. Pictures will be taken of the damaged areas and county maps will be used to plot the location of the damaged sites. The BOT/EMT will coordinate with the Minnesota Division of Emergency Management when damage assessment is carried out in conjunction with a request for state or federal assistance
2. The BOT/EMT and appropriate local government officials will participate in damage assessment procedure training whenever possible.
3. If emergency conditions warrant, the Upper Sioux BOT can declare a state of emergency for up to 72 hours. The Counsel will determine the level of spending expended on the disaster.



EMERGENCY OPERATIONS PLAN

REVISION: 1

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The **Finance** Departments primary responsibility will be damage assessment and will be carried out primarily by the BOT. Additional staffing may be needed from the Tribal treasurer if there is a protracted disaster, as detailed accounting will be needed to account for the staff time, materials, and equipment usage. This information would be used to apply for any emergency benefits from the State or Federal governments.

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## APPENDIX 6: DEFINITIONS

### Definitions

#### Hazard Mitigation

Hazard mitigation may be defined as any action taken to eliminate or reduce the long-term risk to human life and property from natural and manmade/technological hazards. Potential types of hazard mitigation measures include the following:

- Structural hazard control or protection projects
- Retrofitting of facilities
- Acquisition and relocation of structures
- Development of mitigation standards, regulations, policies and programs
- Public awareness and education programs
- Development or improvement of warning systems

#### Hazard Mitigation Plan

Hazard mitigation planning can break the cycle of disaster-repair-disaster in the community and prepare it for a more sustainable future. Breaking the cycle is accomplished by developing and putting into place long-term strategies that reduce or alleviate loss of life, injuries and property caused by natural or human induced hazards. These long-term strategies must incorporate a range of community resources including planning, policies, programs and other activities that make a community more resistant to disaster. Mitigation planning efforts should both protect people and structures and minimize the costs of disaster response and recovery. Mitigation is the cornerstone for emergency management and should be viewed as a method for decreasing demand on scarce and valuable disaster response resources.

#### Disaster Mitigation Act of 2000

As a result of the Disaster Mitigation Act of 2000, the Federal Emergency Management Agency (FEMA) requires that to be eligible for Hazard Mitigation Grant Program (HMGP) funds, jurisdictions must first have in place a multi-hazard mitigation plan. This became effective on November 1, 2004. FEMA has provided states with funding to help local governments partially fund preparing such plans.

This new legislation amended Stafford Act (42 U.S.C. 5121 et seq.), which establishes a national program for pre-disaster mitigation. The program is meant to control Federal costs of disaster assistance and streamline administration of disaster relief.

#### Hazard

A hazard is something that is potentially dangerous or harmful and is often the root cause of an unwanted outcome.

### Hazard Mitigation

#### Goal

The goal of hazard mitigation is to eliminate and reduce vulnerability to significant<sup>1</sup> damage and/or repetitive damage from one or more hazards.

#### Benefits

The benefits of hazard mitigation include the following:

- Saving lives, protecting public health, reducing injuries
- Preventing or reducing property damage
- Lessen economic losses
- Minimizing social dislocation and stress

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<sup>1</sup> Defined as damage from one event greater than 50%.

- Decreasing agricultural losses
- Maintaining critical facilities in functioning order
- Protecting infrastructure from damage
- Protecting mental health
- Reducing legal liability of government and public officials

### **Process**

The process of hazard mitigation involves numerous steps, including:

- Identification and screening of major hazards
- Analysis of the risks posed by those hazards
- Review of existing capabilities and resources
- Development, implementation, and maintenance of specific hazard mitigation measures

Although most mitigation measures are implemented on a continual basis, the post-disaster period often presents special hazard mitigation opportunities. Because such mitigation opportunities are often more apparent immediately following a disaster, both public officials and the general public may be more willing to consider taking mitigation actions and seek special funding to assist implementation efforts.

Several post-disaster mitigation activities are "automatically" implemented in the event of a Presidential Disaster Declaration. One of the state's most notable activities involves the activation of the Minnesota Recovers Disaster Task Force. The task force is comprised of both state and federal agencies<sup>2</sup> and is chaired by the Department of Homeland Security and Emergency Management. In the event of a Presidential Disaster Declaration, all or part of the task force is activated and normally meets on a weekly or monthly basis. The meetings facilitate a coordinated and timely distribution of state/federal post-disaster recovery/mitigation funds by establishing mutually agreed upon (project) priorities, identifying eligible projects, and mixing and maximizing available funds in order to implement projects.

Another post-disaster mitigation activity involves the implementation of state and federal disaster recovery assistance and hazard mitigation programs, including the Federal Emergency Management Agency (FEMA) Programs and other Federal and State programs. More information on FEMA can be found at <http://www.fema.gov/>.

### **The Upper Sioux Policy**

Source: Upper Sioux Community Emergency Operations Plan

Due to the existing possibility of disaster events of significant size and destruction resulting from wildfires, floods, tornados, blizzards, destructive winds or other natural causes or from sabotage, hostile action, or from hazardous material mishaps of catastrophic measure; and in order to ensure that preparations of this Reservation will be adequate to address such disasters, and generally to provide for the common defense and to protect the public peace, health, and safety, and to preserve the lives, property and environment of the Upper Sioux Community, it is the stated policy:

- A. To establish a Reservation Emergency Management Organization responsible for reservation planning and preparation for emergency government operations in time of disasters
- B. To provide for the exercise of necessary powers during emergencies and disasters
- C. To provide for the rendering of mutual aid between this Reservation and other governmental organizations with respect to carrying out emergency preparedness and response functions
- D. To provide emergency operations planning consistent with federal regulations

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<sup>2</sup>The state and federal agencies requested to provide a representative for the Minnesota Recovers Disaster Task Force will generally include those that typically provide personnel to serve on an Interagency Hazard Mitigation Team/Hazard Mitigation Survey Team and/or a damage survey team. In addition, other agencies that have applicable programs, regulations, and/or funding may be asked to provide a representative. The specific agencies selected will be determined by the nature of the disaster.

**Goals of the Emergency Operations Plan:**

- A. Protection of life and property
- B. Alleviation of human distress
- C. Rapid return to normal operations

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## APPENDIX 7: MEETING AGENDAS AND MINUTES

<b>October 23, 2015</b>	The Upper Sioux Community's All-Hazard Mitigation Plan was adopted
<b>March 3, 2021</b>	Planning meeting with UMRDC staff and Tribal Emergency Coordinator and Tribal Police to set up the planning process and Planning Team
<b>May 4, 2021</b>	Planning Team Meeting #1: Identified hazards and issues, reviewed community profile
<b>May 26, 2021</b>	Planning Team Meeting #2: Complete Risk Assessment Worksheets, Reviewed & Developed Strategies.
<b>June 15, 2021</b>	Workshop Reviewed risk assessments, discussed telecommunications
<b>June 29, 2021</b>	Workshop Risk Assessments, Mitigation Strategies (terrorism and infectious disease)
<b>July 29, 2021</b>	Planning Team Meeting #3 Mitigation Strategy discussion
<b>August 16, 2021</b>	Workshop Terrorism and Infectious disease mitigation strategies
<b>November 2021 – February 2022</b>	Plan development including
<b>February 28, 2022</b>	Planning Team Meeting #4 Review Chapters 1-4
<b>April 18, 2022</b>	Planning Team Meeting #5 Review Action and Prioritize
<b>May 23, 2022</b>	Planning Team Meeting #6 Presentation of draft plan
<b>May - June</b>	Public Review of the Draft Plan
_____	Plan submitted to FEMA for review
_____	The Upper Sioux Community's All-Hazard Mitigation Plan Update was approved by FEMA
_____	The Upper Sioux Community's All-Hazard Mitigation Plan was adopted

### March 3, 2021

USC Hazard Mitigation Launch meeting 2-4pm Upper Sioux Conference Room

#### Agenda

Reviewed 2015 plan  
New Issues  
Reviewed planning process

#### Minutes

Present:  
Chad Kingstrom, UMRDC  
Kristi Fernholz, UMRDC  
Dan DeSmet, USC  
Chris Lee, USC

Reviewed 2015 plan

New Issues:

- COVID 19
- Rolling blackouts – what buildings have back up power
- Terrorism threats (shooter/casino)
- Hwy 67 – erosion
- Wildland fire area

Reviewed planning process:

- Meet monthly, midweek, afternoon. Ove lunch okay, not Mon or Wed
- Just add Kevin Jensvold to the make the task force
- Meet in person
- Update planning process schedule. Add a public participation plan. Do not need a public hearing

Next meeting is 4-29-21 at noon.

**May 4, 2021**

USC Hazard Mitigation Planning Meeting #1

### Upper Sioux Community Hazard Mitigation Plan

Task Force Meeting 01  
May 4, 2021 1:30 to 3:30pm  
Upper Sioux Community

#### Agenda:

- I. Introduction and review of the planning process
- II. Decide public participation plan
  - a. How many public meetings?
  - b. Page 16 in the plan
- III. Identify hazards and issues
- IV. COVID-19 pandemic response and mitigation
  - a. *Add COVID-19 response, history and all data relevant to the 2021 All Hazard Mitigation Plan*
- V. *Data and research to complete the community profile*
  - a. *Chad will come with as much completed as possible and ask for assistance with information not found.*
  - b. *List of questions*

#### Minutes:

Present:

Chad Kingstrom, UMVRDC  
Kristi Fernholz, UMVRDC  
Dan DeSmet, USC

Reviewed planning process  
Determined public participation plan:  
Tribal newsletter  
Email out updates  
Public review process.

Went through each hazard.

Discussed COVID-19 pandemic

Went through list of questions for community profile.

**May 26, 2021**

### **Upper Sioux Community Hazard Mitigation Plan**

Task Force Meeting 02  
May 26, 2021 2 to 4pm  
Upper Sioux Community

#### **Agenda:**

- I. Complete risk assessment worksheets – Chapter 4 (p. 73 - 99)
  - a. Blank worksheets also attached
- II. Start mitigation strategy development – Chapter 5 (p. 100 - 122)
  - a. Review goals and objectives – offer suggested changes, etc.
- III. *Data and research to complete the community profile*
  - a. *Ongoing*

#### **Minutes:**

Present:

Chad Kingstrom, UMVRDC  
Dan DeSmet, USC

Completed worksheets

July 29, 2021

### Upper Sioux Community Hazard Mitigation Plan

Task Force Meeting 03  
July 29, 2021 2 to 4pm  
Upper Sioux Community

#### Agenda:

- I. Start mitigation strategy development

#### Minutes:

Present:

Chad Kingstrom, UMRDC

Dan DeSmet, USC

Completed worksheets

February 28, 2022

### Upper Sioux Community Hazard Mitigation Plan

Task Force Meeting 04  
Feb 28, 2022, 1:30  
Upper Sioux Community

#### Agenda

1. Review map for future development potential.
  - Future development potential
  - Label land parcels: Huta, Cruzier, Aakar
    - The Huta Property is currently agricultural land, with proposed future development for residential housing and enterprises, located south of the largest portion of the Reservation. Other residential development may occur in Hazelwood land, located in the northwest corner of Highway 67. There are no current plans for new buildings or housing. Neither of the potential development sites are located within hazard areas.
    - The Cruzier Property is a farmstead and has the potential for commercial or residential development. This property is near the RV Park.
    - The Aakar Property consists of mostly trees and has a creek. It is located near the railroad. Part of this property is in the floodplain. There are no plans for development of this property currently.
  - Label water tower/wells
2. Review document with highlights
  - Resources and agencies
  - Related documents
  - Socioeconomic
  - Inventory of Community Assets – building values updated
  - Gap for flooding – how can the closure of Hwy 67 affect



- Are there any other plans or programs to monitor or mitigation against the potential for landslide and erosion?
- COVID-19 statistics

### 3. Review the Action plan and address any other gaps

#### **Minutes:**

##### **Present:**

Kristi Fernholz, UMRDC

Kevin

Dan DeSmet, USC

Chris Lee, USC

Reviewed map.

Reviewed document to gather additional information

Reviewed action plan and added actions to address gaps.

**April 18, 2022**

#### **Upper Sioux Community Hazard Mitigation Plan**

Task Force Meeting 05

April 18, 2022, 1:30 – 3:00 pm

Upper Sioux Community

#### **Agenda:**

- I. Review Action Plan
- II. Prioritize according to:
  - a. Number of persons impacted
  - b. Relative costs
  - c. Resources available
  - d. Fit with other stakeholder plans and programs
  - e. Personal safety
  - f. Vulnerable populations affected
  - g. Immediate need
  - h. Feasibility
  - i. Economic impacts
  - j. Effectiveness
- III. Next Steps/Public outreach

#### **Minutes:**

##### **Present:**

Dan DeSmet, USC

Adam Savariego – Tribal Councilman

Kevin Ketelson – UMVRDC  
Kristi Fernholz – UMVRDC

Chris Lee no longer with USC.

Review Actions Plan and prioritized.

Discussed Next Steps/Public outreach

Decided to get draft plan to FEMA

Presentation to tribal council May 23 at 10:30 am

If approved, send out draft to public. 2-3 paragraph for tribal newsletter and send out via email.

- Tribal newsletter update
- Hazard Mitigation summary sent out to all community members via email
- Make draft plan available to the public with a comment period
- Send draft copy to the following for review:
  - Local Planning Team
  - Tribal and Regional Resources
  - Local Resources (This includes neighboring communities and important parties)
  - Federal and State Agencies

#### May 20, 2022, Public survey

*Questions asked:*

What concerns do you have about the Natural hazards that could affect the Upper Sioux Community?

What concerns do you have about the other hazards that could affect the Upper Sioux Community?

Other comments.

Received 4 responses. Summary of responses:

#### **What concerns do you have about the Natural Hazards that could affect the Upper Sioux Community?**

- Erosion of Hillsides
- Violent Storms
- Extreme Temperatures
- Flooding/Drought
- All Natural Disasters listed
- Flooding and drought and the impacts to our groundwater sources.
- Flooding seems the most frequent and damaging. Flooding leads to erosion and landslides.

#### **What concerns do you have about the Other Hazards that could affect the Upper Sioux Community?**

- Infectious Diseases
- Water Supply Contamination- Farming
- Wastewater Treatment System Failure could be very difficult to fix
- Water supply overuse/need for an additional wellhead site in the future.
- Climate change worsens all the above concerns.
- All the above (entire list of Other Hazards), particularly with white supremacist organizations in the near vicinity

**Other comments.**

- Looking forward to learning more of Upper Sioux's past/present/future efforts to protect community assets.
- Looking for mitigation tactics focus on solutions supporting local ecosystems, as most of these hazards come as a direct result of climate change and land/water contamination from pesticide use
- Should also consider air pollution which includes wildfire smoke, mold and allergens from trees, weeds, and grass are also carried in the air, are exacerbated by climate change, and can be hazardous to health.

**July 13, 2022**

**July – September Adoption Process**

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