MINER COUNTY

PRE-DISASTER MITIGATION PLAN

2024 - 2030

Prepared by:
First District Association
of Local Governments

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INTRODUCTION

Miner County (County) is vulnerable to natural hazards that have the possibility of causing serious threat to the health, welfare, and security of our citizens. The cost of response and recovery, in terms of potential loss of life or loss of property, from potential disasters can be lessened when attention is turned to mitigating their impacts and effects before they occur or re-occur.

The Miner County Board of Commissioners, in conjunction with the South Dakota Office of Emergency Management and the Federal Emergency Management Agency (FEMA), has agreed to update this plan to assist all participating entities in the county in their mission to mitigate losses from natural hazards throughout Miner County, South Dakota, and the communities located therein.

This plan is an update of the Pre-Disaster Mitigation Plan (PDM) that was developed by the County in 2014 and updated in 2019. The document will serve as a strategic planning tool for use by the county and its communities in its efforts to mitigate future disaster events. The plan identifies and analyzes the natural disasters that may occur in the County in order to understand the county's vulnerabilities and propose mitigation strategies that minimize future damage caused by those hazards. This knowledge will help identify solutions that can significantly reduce threat to life and property. The plan is based on the premise that hazard mitigation works. With increased attention to mitigating natural hazards, communities can do much to reduce threats to existing citizens and avoid creating new problems in the future. In addition, many mitigation actions can be implemented at minimal cost.

There have been 2,680 Major Presidential Disaster Declarations (all hazards) proclaimed in the United States, of those declarations, there have been 54 major Disaster Declarations which have occurred fully or partially within the state of South Dakota. Miner County is no stranger to natural and man-made disasters. All or portions of Miner County have been included in three Presidential Disaster Declarations in the last 10 years. In order to prevent and reduce the cost that is incurred by businesses, citizens, and property owners from these disasters, the Miner County Pre-Disaster Mitigation Plan developed. This plan identifies hazards that occur throughout Miner County and mitigation projects that will aid in preventing and reducing the effects of those disasters on the property and lives within. Special consideration has been given to critical infrastructure throughout the county.

This is not an emergency response or emergency management plan. Certainly, the plan can be used to identify weaknesses and refocus emergency response planning. Enhanced emergency response planning is an important mitigation strategy. However, the focus of this plan is to support better decision making directed toward avoidance of future risks and the implementation of activities or projects that will eliminate or reduce the risk for those that may already have exposure to a natural hazard threat.

AUTHORITY FOR PRE-DISASTER MITIGATION PLAN

In October of 2000, the Disaster Mitigation Act (DMA2K) was signed to amend the 1988 Robert T. Stafford Disaster Relief and Emergency Assistance Act. Section 322 (a-d) requires that local governments, as a condition of receiving federal disaster mitigation funds, have a pre-disaster mitigation (PDM) plan in place that:

1. Identifies hazards and their associated risks and vulnerabilities;
2. Develops and prioritizes mitigation projects; and
3. Encourages cooperation and communication between all levels of government and the public.

The objective of this plan is to meet the hazard mitigation planning needs for the County and participating entities. Consistent with the Federal Emergency Management Agency's guidelines, this plan will review all possible activities related to disasters to reach efficient solutions, link hazard management policies to specific activities, educate and facilitate communication with the public, build public and political support for mitigation activities, and develop implementation and planning requirements for future hazard mitigation projects.

PURPOSE

The County PDM is a planning tool to be used by the County, as well as other local, state and federal units of government, in their efforts to fulfill federal, state, and local hazard mitigation planning responsibilities; to promote pre and post disaster mitigation measures, short/long range strategies that minimize suffering, loss of life, and damage to property resulting from hazardous or potentially hazardous conditions to which citizens and institutions within the county are exposed; and to eliminate or minimize conditions which would have an undesirable impact on our citizens, economy, environment, or the well-being of the County. This plan will aid city, township, and county agencies and officials in enhancing public awareness to the threat hazards have on property and life, and what can be done to help prevent or reduce the vulnerability and risk of each County jurisdiction.

USE OF PLAN

The plan will be used to help the county and communities and their elected and appointed officials:

- Plan, design, and implement programs and projects that will help reduce their community's vulnerability to natural hazards.
- Facilitate inter-jurisdictional coordination and collaboration related to natural hazard mitigation planning and implementation.
- Develop or provide guidance for local emergency response planning.
- Be compliant with the Disaster Mitigation Act of 2000.

SCOPE OF PLAN

- Provide opportunities for public input and encourage participation and involvement regarding the mitigation plan.
- Identify hazards and vulnerabilities within the county and local jurisdictions.
- Combine risk assessments with public and emergency management ideas.
- Develop goals based on the identified hazards and risks.
- Review existing mitigation measures for gaps and establish projects to sufficiently fulfill the goals.
- Prioritize and evaluate each strategy/objective.
- Review other plans for cohesion and incorporation with the PDM.
- Establish guidelines for updating and monitoring the plan.
- Present the plan to the Miner County Commissioners and the participating communities within the county for adoption.

WHAT IS HAZARD MITIGATION?

Hazard mitigation is defined as any cost-effective action(s) that has the effect of reducing, limiting, or preventing vulnerability of people, property, and the environment to potentially damaging, harmful, or costly hazards. Hazard mitigation measures, which can be used to eliminate or minimize the risk to life and property, fall into three categories. First are those that keep the hazard away from people, property, and structures. Second are those that keep people, property, and structures away from the hazard. Third are those that do not address the hazard at all but rather reduce the impact of the hazard on the victims such as insurance. This mitigation plan has strategies that fall into all three categories.

Hazard mitigation measures must be practical, cost effective, environmentally, and politically acceptable. Actions taken to limit the vulnerability of society to hazards must not in themselves be more costly than the value of anticipated damages.

The primary focus of hazard mitigation actions must be at the point at which capital investment decisions are made and based on vulnerability. Capital investments, whether for homes, roads, public utilities, pipelines, power plants, or public works, determine to a large extent the nature and degree of hazard vulnerability of a community. Once a capital facility is in place, very few opportunities will present themselves over the useful life of the facility to correct any errors in location or construction with respect to hazard vulnerability. It is for these reasons that zoning and other ordinances, which manage development in high vulnerability areas, and building codes, which ensure that new buildings are built to withstand the damaging forces of hazards, are often the most useful mitigation approaches a jurisdiction can implement.

Previously, mitigation measures have been the most neglected programs within emergency management. Since the priority to implement mitigation activities is generally low in comparison to the perceived threat, some important mitigation measures take time to implement. Mitigation success can be achieved, however, if accurate information is portrayed through complete hazard identification and impact studies, followed by effective mitigation management. Hazard mitigation is the key to eliminating long-term risk to people and property in South Dakota from

hazards and their effects. Preparedness for all hazards includes: response and recovery plans, training, development, management of resources, and mitigation of each jurisdictional hazard.

This plan evaluates the impacts, risks, and vulnerabilities of natural hazards within the jurisdictional area of the entire county. The plan supports, provides assistance, identifies, and describes mitigation projects for each of the local jurisdictions who participated in the plan update. The suggested actions and plan implementation for local governments could reduce the impact of future natural hazard occurrences. Lessening the impact of natural hazards can prevent such occurrences from becoming disastrous but will only be accomplished through coordinated partnership with emergency managers, political entities, public works officials, community planners, and other dedicated individuals working to implement this program.

MINER COUNTY PROFILE

Population

Miner County is in east central South Dakota. The county has a geographic area of 570 square miles and its 2020 Census population was 2,298, which averages 4.0 persons per square mile. According to 2020 Census data, 23.5% of the population is older than age 65. Education levels of persons twenty-five and older include 90.5% high school graduates and 16.5% with college degrees. The number of high school graduates has increased since 2010, which is a positive trend for the County, but the number of college graduates decreased slightly.

Miner County has steadily experienced a decline in population since 1920. The county underwent a significant reduction in population between 2000 and 2010. The county's population decreased to 2,298 according to the 2020 Census. The county population is expected to level off over the next 10 years.

The County's population decreases are mainly due to the location and close proximity to much larger communities. Madison, Sioux Falls, and Mitchell tend to attract residents due to employment opportunities. The county seat is Howard, which is situated at the intersection of SD Highway 34 and SD Highway 25. The City of Howard has a revitalization committee and is working to attract industry to the area. They have had success, attracting some small industry to provide local employment. Table 1.1 shows the population and number of housing units of the county's municipalities. Table 1.2 lists the sixteen County Townships by population.

Table 1.1: Miner County Municipalities

Name	Population	Location	Elevation	Housing Units
Canova	89	43 52' 52" N 97 30' 16" W	1,522 feet	50
Carthage	127	44 10' 16" N 97 42' 59" W	1,434 feet	126
Howard	848	44 00' 16" N 97 31' 36" W	1,575 feet	447
Roswell	8	44 00' 26" N 97 41' 45" W	1,401 feet	6
Vilas	29	44 00' 38" N 97 35 50" W	1,480 feet	11
Fedora village*	26	44 00' 32" N 97 47' 27" W	1,375 feet	18
Epiphany	*Village Township	43 50' 57" N 97 39' 42" W	1,362 feet	9
Miner County (rural area)	1,197	44 02' 40" N 97 37' 29" W	1,463 feet	522

*Unincorporated

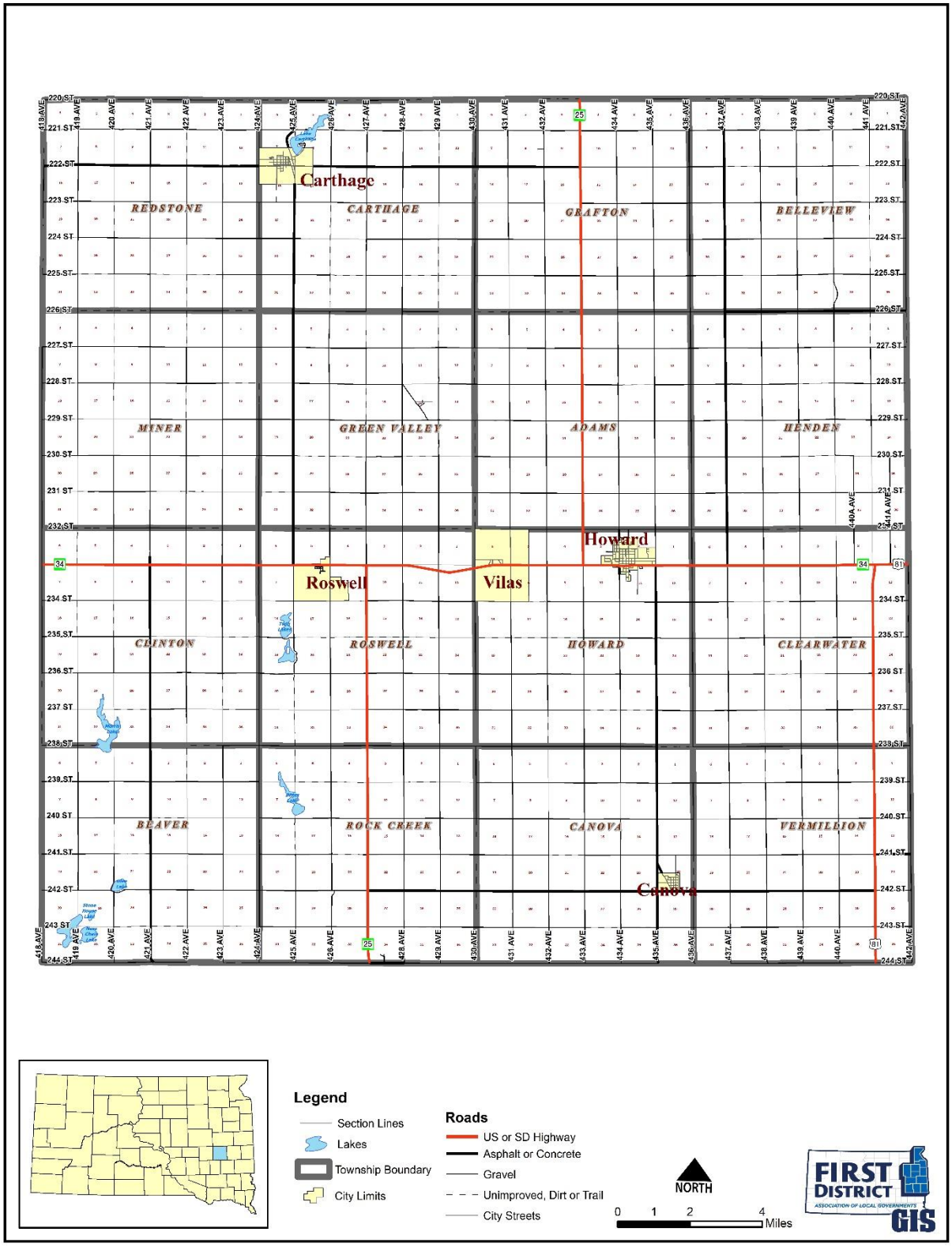
Source: 2020 Census Redistricting Data, www.data.census.gov; www.Lat-Long.com; www.usbeacon.com

Table 1.2: Miner County Townships

Township	Population	Township	Population
Adams	117	Green Valley	43
Beaver	41	Henden	100
Belleview	48	Howard	159
Canova	70	Miner	23
Carthage	34	Redstone	23
Clearwater	212	Rock Creek	78
Clinton	65	Roswell	58
Grafton	49	Vermillion	85

Source: www.data.census.gov

Figure 1.1 Political Map



Social and Economic Description

Miner County is governed by a five member board of commissioners and the County's economy is primarily dependent upon the agricultural sector. Most non-agricultural employment is concentrated in the City of Howard and consists of a mixture of manufacturing, education, health care, and service sector employment. The City of Howard is also the county seat and the retail hub for the area.

The remaining communities serve as bedroom communities for Howard and other surrounding communities while providing a small town atmosphere for those residents. Most of the communities have limited retail and service sectors which provide basic needs to the residents.

Minimal development has occurred in the County over the last five years. Miner County and the communities have issued 40 building permits for commercial and housing development. The County issued 25 permits for new housing development including mobile homes and 11 permits for new businesses. Each of the communities were contacted regarding the issuance of building permits. A total of three building permits for homes including mobile homes have been issued over the last five years. One commercial permit was issued by all communities over the last five years. Very little development that would affect the PDM plan has occurred in the County in the last five years.

Physical Description and Climate

Miner County is located in east central South Dakota. It borders Kingsbury County to the north, Lake County to the east, Hanson and McCook Counties to the south, and Sanborn County to the west. A majority of the land area within the County is undeveloped with most of the land consisting of grassland, pasture and cropland. The topography of the County is mostly flat to undulating with many potholes and sloughs. The County's elevation has a range of approximately 1,700 feet above sea level in the northeast corner of the county to approximately 1,400 feet above sea level in the southwest corner.

The County's climate is considered Mid-Continental with hot summers and cold winters. Normal summer temperatures are eighty degrees Fahrenheit and winter temperature twenty-one degrees (about twelve degrees in January). Average annual precipitation is twenty inches (approximately eighty percent of the precipitation falls between the months of April and September), and the average annual snowfall is twenty-four inches, although as much as eighty inches and as little as five inches have fallen annually. Due to the strong winds that usually accompany the snowfall, it is common to find open fields bare while snow piles up in the sheltered areas.

Hydrology

Miner County is split between two major watersheds, the James River and the Vermillion River watersheds. These watersheds both work their way to the Atlantic Ocean. The eastern approximately one third the county drains south in the Vermillion River, ultimately making its way to the Missouri River. The western two thirds of Miner County drains south into the Missouri River via the James River.

Miner County has a limited amount of large lakes in the county with Lake Carthage being the largest in the community of Carthage. Rock Creek flows southeast from Lake Carthage. Red Stone Creek is about five miles west of Howard and runs south through the county. The East Fork of the Vermillion River is the outflow for Lake Thompson in Kingbury and Miner Counties. The East Fork flows through the northeast corner of Miner County into Lake County. The West Fork of the Vermillion Creek begins north of Howard in Kingsbury County runs south through the Howard municipal golf course and does cause flooding during high water events. The West Fork continues south and exits the southeast corner of the county. Miner County participates in the National Flood Insurance Program, but the only mapping available is for the City of Howard.

Transportation and Utility Infrastructure

US Highway 34 is the main east/west route and US Highway 25 is the major north/south route in Miner County. US Highway 81 also provides interstate access in the eastern portion of the County. Total state highway miles within the county is 58.9 miles. The remainder of the county meets its current transportation needs through a mixture of county, township and municipal road systems. The rural road system performs two basic functions: (1) providing general mobility for the residents in rural areas, and (2) accommodating the movements of agricultural products to market. The rural transportation system was not designed to accommodate large volumes of traffic on a daily basis.

The County's 295.7-mile road system encompasses 210.5 gravel road miles, 84.9 hard surfaced road miles, .306 primitive/unimproved road miles, and 64 bridges. In Miner County, the transportation choices are limited to mostly private automobiles traveling over state and federal highways and county roads.

Transportation systems, other than the highway system are very limited. The railroad was abandoned several years ago, and the tracks removed. The Howard Airport has grass runways and only private aircraft utilize the facility. The airport does not have any nav-aid, communications or flight service capabilities.

Water is provided to Miner County residents through private wells, the Hanson Rural Water System or the Kingbrook Rural Water System. Carthage, Howard, Fedora and Vilas receive water from Kingbrook Rural Water System as well as many rural residents within the County. Epiphany receives water from the Hanson Rural Water System. Private wells serve the remainder of the County's residents.

Regarding wastewater disposal, Howard, Canova and Carthage have municipal wastewater collection and treatment systems. In the remaining smaller communities, residents rely on septic tanks and drain fields for wastewater treatment. Rural residences rely on individual septic tanks and drain fields. The density of septic systems and their potential to cause water contamination is an environmental concern. Although residential growth is not expected to be significant in the county, new developments need to be controlled through planning and development guidelines.

Electricity within the County is provided Central Electric Cooperative and Xcel Energy. The City of Howard operates a municipal power system. The primary providers of phone, cable and internet services are Alliance Communications, Santel Communications, and, Triotel Communications. AT&T and Verizon provide cellular towers and service is available in most parts of the county, but there are still places in the county where cellular coverage does not reach.

Medical and Emergency Services

The primary medical facility in the County is the Howard Community Health Center, which can provide emergency services and is open 44 hours a week. The Howard Community Health Center is part of the Horizon Health Care, Inc. Miner County operates a volunteer ambulance service out of Howard with the addition of three full-time "on-call" EMTs. A second volunteer ambulance service is located in Carthage. Ambulance services in adjacent counties will respond if requested.

The Miner Country Sheriff's Department provides law enforcement for the entire county. There are fire departments in Canova, Carthage, Fedora and Howard.

CHAPTER 2 | PREREQUISITES

ADOPTION BY LOCAL GOVERNING BODY

The local governing body that oversees the update of the Miner County Pre-Disaster Mitigation Plan is the Miner County Board of Commissioners. The Commission has tasked the Miner County Emergency Management Office with the responsibility of ensuring that the PDM is compliant with Federal Emergency Management Agency (FEMA) Guidelines and corresponding regulations.

MULTI-JURISDICTIONAL PLAN PARTICIPATION

Requirement 201.6(c)(1) Local Mitigation Plan Review Tool – A1.
Requirement 201.6(c)(5). Local Mitigation Plan Review Tool – E2.
Requirement 201.6(c)(5). Local Mitigation Plan Review Tool – E1.

This plan is a multi-jurisdictional plan which serves the entire geographical area located within the boundaries of Miner County, South Dakota. The County has four incorporated municipalities. All of the incorporated municipalities located within the County elected to participate in the planning process and the update of the existing PDM. Table 2.1 shows the participating local jurisdictions include the following municipalities:

Table 2.1: Plan Participants

Continuing Participants	Do Not Participate
Canova	Fedora
Carthage	Epiphany
Howard	Roswell
Miner County	Vilas

Non-participating communities are still eligible for hazard mitigation funding, however may not directly apply for assistance. Instead any assistance would need to be applied for on behalf of the non-participating communities by Miner County. All of the non-participants are unincorporated communities with very small populations (50 people or less). Vilas is located approximately three miles west of Howard. Roswell is located approximately 8 miles west of Howard. Fedora is located approximately 5 miles west of Roswell. Epiphany is located approximately 13 miles south of Roswell.

The unincorporated villages and townships are not direct participating entities in the plan because these entities are too small, both in population and in resources, to be capable of handling disaster needs on their own. The villages are governed by the township boards and are served by the County whenever necessary. The townships were invited to participate in the PDM update and asked to identify hazard risks, vulnerability and critical infrastructure.

The townships were invited to participate in the PDM plan update and asked to identify hazard risks, vulnerability, and critical infrastructure on their system on maps they received with a letter sent in July of 2023. All township supervisors in the County were invited to participate via US mail. First District attended an annual County/Township meeting on March 11, 2024. During this meeting, staff requested townships that had not responded to the previous letter request to complete their system information and provide it to First District for inclusion in the PDM plan. Twelve townships returned information to First District for projects they would like to see included in the PDM.

The Miner County Commission and each of the listed participating municipalities will pass resolutions to adopt the updated PDM. The dates of adoption by resolution for each of the jurisdictions are summarized in Table 2.2.

Table 2.2: Dates of Plan Adoption by Jurisdiction

Jurisdiction	Date of Adoption
Miner County	
Canova	
Carthage	
Howard	

All of the participating jurisdictions were involved in the plan update. Representatives from each municipality and the County attended the planning meetings or provided valuable perspective on the changes required for the plan. All representatives present took part in the risk assessment exercise at the March 9, 2023 meeting.

Representatives also took information from the PDM planning meetings back to their respective councils and presented the progress of the plan update. The local jurisdictions have also presented the Resolution of Adoption to their councils and will pass the resolutions upon FEMA approval of the PDM update. The Resolutions are included in the Appendix.

Table 2.3 was derived to help define “participation” for the local jurisdictions who intend on adopting the plan. To be considered “participating,” each jurisdiction must have at least seven of the ten participation requirements fulfilled.

Table 2.3: Record of Participation

Nature of Participation	Canova	Carthage	Howard	Miner County
Attended meetings or work sessions (a minimum of 1 meeting will be considered satisfactory).	■	■	■	■
Submitted inventory and summary of reports and plans relevant to hazard mitigation.	■	■	■	■
Submitted the Risk Assessment Worksheet.	■	■	■	■
Submitted description of what is at risk (including local critical facilities and infrastructure at risk from specific Hazard worksheet).	■	■	■	■
Submitted a description or map of local land-use patterns (current and proposed/expected).	■	■	■	■
Developed goals for the community.	■	■	■	■
Developed mitigation actions with an analysis or explanation of why those actions were selected.	■	■	■	■
Prioritized actions emphasizing relative cost-effectiveness.	■	■	■	■
Reviewed and commented on draft Plan.	■	■	■	■
Hosted opportunities for public involvement (allowed time for public comment at a minimum of two city council meetings after giving a status report on the progress of the PDM update).	■	■	■	■
■ Requirement Met				

CHAPTER 3 | PLANNING PROCESS

BACKGROUND

The effort that led to the development of this plan is part of the larger, integrated approach to hazard mitigation planning in South Dakota that is led by the South Dakota Office of Emergency Management. Production of the plan was the ultimate responsibility of the Miner County Emergency Management Director, who served as the county's point of contact for all activities associated with this plan. Input was received from the PDM Planning Team that was put together by the Emergency Management Director and whose members are listed below in Table 3.1.

The plan itself was written by an outside contractor, First District Association of Local Governments (First District) of Watertown, South Dakota, one of the state's six regional planning entities. The office has an extensive amount of experience in producing various kinds of planning documents, including municipal ordinances, land use plans, and zoning ordinances, and it is an acknowledged leader in geographic information systems (GIS) technology in South Dakota. First District assisted the County in the development of the county's original PDM in 2006. The following staff members of the First District Association of Local Governments were involved in the 2024 plan update process: Todd Kays, Director; Payton Carda, Planner/EDO; Luke Muller, Senior Planner; Amy Arnold, Geographic Information System Analyst; Kelli Henricks, Geographic Information System Specialist and Greg Maag, Planner. Staff attended the PDM Planning Team and community meetings as the plan was being developed. Additional research and information gathering was provided by Greg Maag. Maag complied and formatted the data, information, forms and maps into the draft and final PDM plan. Arnold assisted by producing many of the maps for the plan and Muller directed the floodplain risk analysis (see next section) and completed the county land cover analysis discussed in the previous chapter. Several other individuals at the state level provided additional support and information that was quite useful. They include:

- James Poppen, CFM Mitigation Branch Chief/State Hazard Mitigation Officer, SD OEM – provided guidance and direction as the plan was being developed.
- Blaire Jonas, South Dakota State NFIP/Mitigation Specialist, SD OEM – provided guidance and direction as the plan was being developed.
- Kyle Kafka, South Dakota Hazard Mitigation Specialist, SD OEM – provided guidance and direction as the plan was being developed.
- Diana Herrera, FEMA Regional Flood Insurance Liaison – supplied classification and information regarding the value and number of flood insurance policies and claims.
- Doug Hinkle, SD State Fire Marshall Office – provided information on fires events throughout the County.

- Whitney Kilts, SD DANR, Water Rights Program – provided information on dams located in the County.

- Greg Pollreisz, SD Department of Transportation – provided bridges and road mileage information within the County's Road system.

- Marc Macy, South Dakota National Flood Insurance Program Coordinator – provided classification and information regarding value and number of flood insurance policies and claims, as well as guidance and direction as the plan was being developed.

DOCUMENTATION OF THE PLANNING PROCESS

Requirement 201.6(b)(2). Local Mitigation Plan Review Tool – A2.

Methodology

Mitigation planning is a process that communities use to identify policies, activities, and tools to implement mitigation actions. The process that was used to develop this plan consisted of the following steps:

- Planning Framework
- Risk Identification and Assessment
- Mitigation Strategy
- Review of Plan
- Plan Adoption and Maintenance

Planning Framework

The planning framework component identified five objectives:

- Develop Plan to Plan;
- Identify Governmental Entities/Stakeholders;
- Establish PDM Planning Team;
- Define Scope of the Plan;
- Identify public participation component
- Establish PDM Planning Team

Prior to receiving funding public meetings were held at the Miner County Courthouse to inform the public about the required PDM update. Funding from FEMA and the South Dakota Office of Emergency Management to prepare the mitigation plan was received by the county in September 28, 2022. Once funding was secured, the Miner County Emergency Management Director and the First District acted as the PDM Planning Team began to discuss the strategy to be used to develop the plan. The first task was to identify those entities/stakeholders that would have direct and indirect interests in the update of the PDM.

Prior to the first public informational meeting, the Miner County Emergency Management Director wrote letters to all potential stakeholders, community organizations, municipalities, townships, utility providers, emergency responders, and concerned residents who might wish to volunteer their time and serve on a committee, and to those who would act as a resource for the PDM Planning Team. The letters included a brief description of the PDM. The same correspondence was sent to the Emergency Management Directors in the adjoining counties inviting them to participate in the Roberts County PDM Plan update process. Public input was solicited via notices regarding the PDM planning process in local media outlets and via the Internet.

Each individual who was contacted for the PDM Planning Team had at least one of the following attributes to contribute to the planning process:

- Significant understanding of how hazards affect the county and participating jurisdictions.
- Substantial knowledge of the county's infrastructure system.
- Resources at their disposal to assist in the planning effort, such as maps or data on past hazard events.

Table 3.1 lists all parties that were invited to participate as a PDM Planning Team member, and it includes their attendance at the planning meetings, all of which were open to the public, that were held as the plan was being developed. An agenda was sent out to the PDM Planning Team prior to each meeting, and the meeting minutes were sent to them afterward to keep everybody informed of what was discussed and any decisions that were made.

Table 3.1: Participation in Plan Development

Invited				Meeting Attendance		
Last Name	**First Name**	**Entity Represented**	**Job Title**	**Meeting 1**	**Meeting 2**	**Meeting 3**
Representative		Howard	Mayor			
Bau	Cindy	Kingsbury County	EMD			
Representative		Miner County	Auditor			
Eggert	Rob	Miner County	Sheriff			
Faber	Kathy	Carthage	Finance Officer			
Representative		Howard Fire Department				
Gassman	Megan	Canova	Finance Officer			
Representative		Howard	Finance Officer			
Representative		Canova	President			
Representative		Northwestern Energy				
Hanson	Craig	Vilas	President			
Hattervig	David	Carthage	Mayor			
Huber	Don	Hanson County	EMD			
Jans	Taylor	Beadle County	EMD			
Representative		Hanson Rural Water System				
Keefer	Kody	Lake County	EMD			
Krempges	Ron	Miner Co	High Supt			

Invited				Meeting Attendance		
Last Name	**First Name**	**Entity Represented**	**Job Title**	**Meeting 1**	**Meeting 2**	**Meeting 3**
Laible	Laura	Vilas	Clerk			
Miller	Kayla	Miner County	Nurse			
Representative		Xcel Energy				
Representative		Howard School District				
Last Name	**First Name**	**Entity Represented**	**Job Title**	**Meeting 1**	**Meeting 2**	**Meeting 3**
Representative		Alliance Communications		■		
Protsch	Alex	Miner County	Chairman			
Representative		Triotel Communication				
Representative		Miner County Ambulance				
Stiefvater	BJ	McCook County	EMD			
Terwilliger	Kent	Miner County	EMD	■		
Thompson	Heath	Kingbrook Rural Water Syst	Manager			
Representative		Santel Communications				
Representative		Sanborn County	EMD			
Representative		Carthage Fire Department		■		
Representative		Canova Fire Department		■		
Representative		Fedora Fire Department		■		
Representative		First District		■		

Leadership and guidance in the planning effort and at the planning meetings was provided by the First District staff and the Miner County Emergency Management Director. An agenda was distributed to each PDM Planning Team member prior to each meeting, but free-flowing discussion was always encouraged. When PDM Planning Team members had questions about a topic of discussion, either First District staff or the Emergency Management Director would step in.

Generally speaking, the planning process associated with the plan's development was relaxed and informal. No subcommittees were formed, and all decisions were made by mutual consensus of the PDM Planning Team members - no votes were taken, or motions made. Everyone's opinion was respected, nobody was discouraged from voicing their opinion, and no one was made to feel any less important than anyone else.

As the PDM Planning Team was being assembled, arrangements were made for the first PDM Planning Team meeting, which took place at the Miner County 4-H Building in Howard on March 9, 2023. An agenda was distributed to prospective PDM Planning Team members. The Appendix B includes a copy of each meeting notice, meeting agenda, attendance sheet, and minutes.

Those who attended the March 9th meeting for the PDM update were asked to volunteer to serve on the PDM Planning Team. The PDM Planning Team was tasked with fostering coordination between the various entities involved, reviewing the drafts, and providing comments after First District Association of Local Governments staff initiated changes to the existing plan. There were no external contributors such as contractors or private businesses,

other than the local utility providers. Each of the local jurisdictions had a member of their respective councils represent the municipalities in the plan.

The representatives from the municipalities were asked to share the progress of the plan at their own Board meetings and to ensure that those attending the board/council meetings were aware that they are invited to make comments on and participate in the process of updating the new plan. Comments provided by local residents at the city council and PDM Planning Team meetings were collected and incorporated into the plan.

The public was provided several opportunities to comment on the plan during the drafting stages at the PDM Planning Team meetings and local community meetings. There were several work sessions and public hearings held to keep the public updated and involved in the plan. Additionally, the County utilized an online survey to allow individuals that were unable to attend the community meetings, work sessions and hearings to participate in the PDM planning process. Information collected through the survey was analyzed and included in the plan when appropriate. Notices for the survey were published in the county newspapers, posted on the County website and posted at most County/community offices to encourage local residents to provide information and participate in the planning process. Primarily, public input included the involvement in hazard assessment and mitigation projects. Those who were most involved were the representatives PDM Planning Team and representatives from the municipalities. The municipalities put the PDM update on the agenda at their regular meetings and allowed people to comment at the meetings. Table 3.2 identifies the location and date of each that was provided for the public to comment and how it was advertised.

The first meeting of the PDM Planning Team served to introduce the participants to the concept of mitigation planning; why the plan was being updated and a tentative timeline of how the process would proceed in the months to come (scheduling, assigning responsibilities, etc.). The meeting also included a review of the existing plan, which led to several important decisions. First, it was the consensus opinion of the PDM Planning Team that a rewrite of the plan would be needed. The PDM Planning Team decided that:

- The 2019 PDM plan did not include all the necessary requirements found in the Local Hazard Plan Review Tool (2023). To ensure that the updated plan included everything required by the plan review tool, the PDM Planning Team and community meetings used the plan review tool to lead the discussions.

- Updated information and data regarding the risk assessment was needed, more informative tables and maps would be helpful, and the mitigation strategy needed to be reviewed. FEMA comments received during the approval of the 2019 PDM plan will also be included in the updated plan.
- The risk identification and assessment as well as the identification of critical infrastructure and local municipal goals and objectives should be completed by the First District prior to the next meeting of the PDM Planning Team.

Table 3.2: Opportunities for Public Comment

Location of Opportunity	Date	Type of Participation			How Was Meeting Advertised	
		City Council or County Commission Meeting	PDM Meeting	City Staff Mtg/Township Mtg/Online Survey	Public Notice	Website
Canova	04/08/2024	■			■	
Carthage	06/12/2023	■			■	
Howard	06/12/2023	■			■	
Miner County	PDM Grant Awarded 09/28/22					
	03/30/2023		■		■	
			■		■	
			■		■	
	03/11/2024			■		■
	04/09/2024	■			■	
	01/24/2024			■	■	■

Online Survey Results

Miner County and First District staff conducted an online survey regarding natural hazards identification and vulnerabilities. The online survey began on January 24, 2024, and ended on April 15, 2024. Public notices for the survey were posted in several offices of the county courthouse and at the finance offices of the participating communities. Some of the communities posted the notice in their local post offices to encourage participation by the public. Samples of posted notices can be found in Appendix F.

The County received nine completed responses from citizens/locals to the online survey. A summary of the responses can be found in Appendix F. Four responses appeared to be from rural residents and five from the communities (Howard 2, Canova 2, Epiphany 1). One of the local/citizens were affiliated with community organization and one was affiliated with a business. Fifty-six percent of the respondents indicated they had experienced or been impacted by a natural hazard. Two responses were impacted by winter storms/blizzards, three impacted by flooding (detours/travel and lost farmland), and one response was affected by high winds (derecho). Seventy-eight percent of the responses were somewhat concerned about the possibility of natural disasters. One response was very concerned, and the last response was not concerned. When asked about the most effective way to receive information, social media was the top answer, followed by TV, radio, emails and mail followed. Most people carry smart devices that can receive social media messages. The online responses ranked the same hazards as the County and communities. The rankings were very similar to each other. The top three hazards (severe winter storms, high wind and thunderstorms) ranked by the local/citizens

were all ranked as high by the County/communities. Drought was ranked #4 by the respondents, but was ranked low probability/vulnerability by the County/communities. Flood ranked #5 by survey was similar to rating high probability and moderate in vulnerability by the County/communities. The County/communities rated tornados as low probability of occurrence and high vulnerability; the locals/citizens ranked it at #6. Wildfire #7 and urban fire #8 on the survey were comparable to the County/communities rating these two as low/medium. The last four hazards, dam failure (#9), extreme temperatures (#10), ice jam (#11) and earthquake (#12) were the rankings by the survey respondents. All of these hazards except extreme temperatures were rated as low or not occurring in the county by the County/communities. The one main difference was extreme temperatures were rated as high probability and medium vulnerability by the County/communities. Locals/citizens may have been influenced by the hazards that impacted them the most. Respondents did not identify any other hazards that were not listed on the survey. Prior mitigation actions noted by the respondents include upgraded warning sirens, hazards education and training, disaster planning such as the PDM plan, fire condition warnings, burn bans and building construction recommendations to reduce hazard risks. Lastly, respondents were asked to provide potential mitigation projects to address hazards in the county. Respondents suggested maintaining surface drainage systems and culverts to reduce flooding events, flood proofing (no specific projects), use of green spaces, construction of storm shelters and tornado safe rooms, better storm warning sirens, fire breaks, more fire equipment and stock up on supplies during severe weather events.

Most of the responses on the completed surveys reflect the same hazard identification and vulnerabilities information from the PDM team, County and the communities that is included in the 2024 PDM plan. With regards to the suggested mitigation activities proposed by respondents, the County and communities have already accomplished many activities and projects that relate to the local citizens' concerns. The County and communities are proposing to undertake mitigation activities that will address additional respondents' suggestions. Local citizens should work with the local governments to alleviate any specific matters they have.

PDM Plan Process Timeline

- September 2022
  -Miner County receives FEMA/SD OEM funding to update county PDM plan

- October-December 2022
  -Develop PDM Team list
  -Invite persons listed for the PDM Team to January 2023 PDM Team meeting
  -Invite adjacent county EM Directors to the January 2023 PDM Team meeting
  -Public notices published in local newspapers regarding January 2023 PDM Team meeting

- January 2023
  -Hold PDM Team kickoff meeting
  -Establish the PDM Team
  -Review the existing 2019 PDM plan
  -Develop PDM Template and planning process

- February 2023-April 2024
  -Risk Assessment/Project Identification/Prioritization
    -Notices published
    -First District Staff attend community meetings
  -Conduct online hazard mitigation survey
  -First District research data/information for PDM plan
  -First District completes draft PDM plan preparation

- May 2024
- -Provide adjacent county EM Directors PDM draft for their review (45 day comment period)
  -PDM Team meeting #2 & #3 notices published
  -Hold PDM Team meeting #2
  -Review draft PDM plan
  -First District update draft PDM plan based on comments from PDM Team meeting #2
  -Notice published draft PDM plan public comment period
  -Draft plan submitted to SD OEM

- June-July 2024
  -Hold PDM Team meeting #3
  -Review/approve final draft PDM plan
  -Plan updated based on any comments received
  -Draft plan submitted to FEMA

- August-September 2024
  -FEMA plan approval received

- October-December 2024
  -Approved PDM plan adopted by County and participating communities

Risk Identification & Assessment/Mitigation Strategy/Review of Plan

Requirement 201.6(c)(1). Local Mitigation Plan Review Tool – A1.
Requirement 201.6(b)(1). Local Mitigation Plan Review Tool – A3.
Requirement 201.6(b)(3). Local Mitigation Plan Review Tool – A4.

The Risk Identification and Assessment component identified three strategies: Collect and Organize Data, Develop GIS Data, and Analyze Data. The Mitigation Strategy component identified five objectives: Review Existing PDM and other plans, Formation of Goals/Objectives, Compile existing resources to accomplish goals/objectives, Public review of Goals/Objectives, and PDM Planning Team Review of goals/objectives. The Review of PDM component identified three strategies: Writing of PDM, Public Review of PDM, and PDM Planning Team Review of PDM.

Based upon the discussions and information provided at the first meeting, it was determined that the existing PDM Risk Assessment and Mitigation Strategies needed to be updated. Before the second meeting, First District Staff updated the Introduction, Pre-requisites, Risk Assessment, Mitigation Strategy, and Plan Implementation components of the PDM.

Prior to the second PDM Planning Team meeting, First District Staff met with the participating municipalities at public noticed meetings to identify hazards and critical facilities, assess vulnerability, discuss development trends, and develop mitigation goals. First District also met with each participating jurisdiction to review proposed mitigation actions, including estimated costs, responsibility and priority. Meeting dates are referenced in Table 3.2. Staff members from Miner County, Miner County Townships, and rural utility providers were asked to identify hazards and critical facilities, assess vulnerability, discuss development trends, and develop mitigation goals and review these items with each respective governing body (if applicable). Those entities that responded to the requests, their information was incorporated into the updated plan. Miner County and First District conducted an online hazard mitigation survey as an opportunity for the public to provide input regarding hazard mitigation and participate in the process. First District staff also conducted research regarding the history of disaster events in the county, including events that had occurred since the 2019 updated plan was developed.

During the 2019 PDM Plan update, First District conducted a technical review of existing documents. This review incorporated existing plans, studies, reports, technical information, zoning and flood damage prevention ordinances into the PDM Update. It should be noted that most of the planning documents of each of the communities had been previously developed by the First District. However, some of the smaller communities did not have such planning documents. Additionally, the 2019 PDM was used as a resource for the new plan because most of the natural hazard profile research had already been completed when it was drafted. In addition to the 2019 PDM, the First District reviewed several other existing documents including but not limited to the 2019 State of South Dakota Hazard Mitigation Plan and Flood Insurance Rate Maps for the local jurisdictions during the drafting of the 2024 PDM plan. A summary of the technical review and incorporation of existing plans is included in Table 3.3.

Table 3.3: Record of Review

Existing Program/Policy Technical Documents	Local Jurisdiction					
	Canova	Carthage	Howard	Vilas	Miner County	Reference*
Comprehensive Plan and Existing Land Use Maps	Review existing and future land use maps, master street plan, and limitations on development in reference to perceived and objectively probable natural hazards; with the goal of maximizing efficacy of mitigation strategies and projects and the intent of aligning development strategies with mitigation strategies.	Review existing and future land use maps, master street plan, and limitations on development in reference to perceived and objectively probable natural hazards; with the goal of maximizing efficacy of mitigation strategies and projects and the intent of aligning development strategies with mitigation strategies.	Review existing and future land use maps, master street plan, and limitations on development in reference to perceived and objectively probable natural hazards; with the goal of maximizing efficacy of mitigation strategies and projects and the intent of aligning development strategies with mitigation strategies.	N/A	Review existing and future land use maps, master street plan, and limitations on development in reference to perceived and objectively probable natural hazards; with the goal of maximizing efficacy of mitigation strategies and projects and the intent of aligning development strategies with mitigation strategies.	Chapters 1, 3, 4, 6, & Appendix F

Existing Program/Policy Technical Documents	Local Jurisdiction					
	Canova	Carthage	Howard	Vilas	Miner County	Reference*
Capital Improvement Plan	N/A	N/A	N/A	N/A	N/A	N/A
Flood Damage Prevention Ordinance	Reviewed effective flood maps and past damages to determine vulnerable private and public structures; their assessed values; anticipated number of displaced individuals. This information was used to assist in prioritizing flood related projects.	Reviewed effective flood maps to determine vulnerable private and public structures; their assessed values; anticipated number of displaced individuals. This information was used to assist in prioritizing flood related projects.	Reviewed effective flood maps to determine vulnerable private and public structures; their assessed values; anticipated number of displaced individuals. This information was used to assist in prioritizing flood related projects.	N/A	Reviewed effective flood maps to determine vulnerable private and public structures; their assessed values; anticipated number of displaced individuals. This information was used to assist in prioritizing flood related projects.	Chapters 4, 5, 6, & Appendices D & E
Economic Development Plan	N/A	N/A	N/A	N/A	N/A	N/A
Transportation Plan	Review master street plan to identify what/if any roads were more / less vulnerable to hazards OR what/if any roads were more critical during natural hazards.	Review master street plan to identify what/if any roads were more / less vulnerable to hazards OR what/if any roads were more critical during natural hazards.	Review master street plan to identify what/if any roads were more / less vulnerable to hazards OR what/if any roads were more critical during natural hazards.	N/A	Review master street plan to identify what/if any roads were more / less vulnerable to hazards OR what/if any roads were more critical during natural hazards.	Chapters 1, 3, 4, & 5
Stormwater Management/ Drainage Plan	N/A	N/A	N/A	N/A	N/A	N/A
Land Use Regulation Near Pipelines	N/A	N/A	N/A	N/A	N/A	N/A
Flood Insurance Studies or Engineering Studies for Streams	Reviewed effective flood maps to determine vulnerable private and public structures; their assessed values; anticipated number of displaced individuals. This information was used to assist in prioritizing flood related projects.	Reviewed effective flood maps to determine vulnerable private and public structures; their assessed values; anticipated number of displaced individuals. This information was used to assist in prioritizing flood related projects.	Reviewed effective flood maps to determine vulnerable private and public structures; their assessed values; anticipated number of displaced individuals. This information was used to assist in prioritizing flood related projects.	N/A	Reviewed effective flood maps to determine vulnerable private and public structures; their assessed values; anticipated number of displaced individuals. This information was used to assist in prioritizing flood related projects.	Chapters 4, 5, 6, & Appendices D & E

Existing Program/Policy Technical Documents	Local Jurisdiction					
	Canova	Carthage	Howard	Vilas	Miner County	Reference*
Hazard Vulnerability Analysis (by the local Emergency Management Office)	Though not directly referenced in this document, Clark County maintains a Hazardous Materials Plan which identifies facilities storing certain hazardous materials in all jurisdictions within its boundary; and strategies or policies for mitigating or responding to spill events (which may or may not occur due to natural events.) Each community meeting and Planning Team Meeting members were reminded that the HAZMAT plan is the appropriate place to discuss hazardous materials. All discussions involving the major street plan kept evacuation routes in such cases.					Chapters 1, 3, 4, & 5
Emergency Operations Plan	N/A	N/A	N/A	N/A	The County Emergency Manager reviewed the Emergency Operations Plan with the LEOP at regular meetings. Since this has been done during every update of the PDM over the last 12 years, no changes were necessary to the PDM to account for this plan unless specified by the given jurisdiction in Chapter 5.	Chapter 4
Zoning Ordinance and Site Plan Review	Zoning Ordinance restrictions on setbacks, densities; availability of infrastructure and public facilities to more intensive uses; and Clark County FIS were discussed. It was determined that safety/mitigation related requirements were adequate in the present ordinance. Further, undeveloped lots appropriately zoned for construction within SFHA were reviewed.	Zoning Ordinance restrictions on setbacks, densities; availability of infrastructure and public facilities to more intensive uses; and Clark County FIS were discussed. It was determined that safety/mitigation related requirements were adequate in the present ordinance. Further, undeveloped lots appropriately zoned for construction within SFHA were reviewed.	Zoning Ordinance restrictions on setbacks, densities; availability of infrastructure and public facilities to more intensive uses; and Clark County FIS were discussed. It was determined that safety/mitigation related requirements were adequate in the present ordinance. Further, undeveloped lots appropriately zoned for construction within SFHA were reviewed.	N/A	Zoning Ordinance restrictions on setbacks, densities; availability of infrastructure and public facilities to more intensive uses; and Clark County FIS were discussed. It was determined that safety/mitigation related requirements were adequate in the present ordinance. Further, undeveloped lots appropriately zoned for construction within SFHA were reviewed.	Chapters 3, 4, 5, & 6
Building Code	N/A	N/A	N/A	N/A	N/A	N/A

Existing Program/Policy Technical Documents	Local Jurisdiction					
	Canova	Carthage	Howard	Vilas	Miner County	Reference*
Subdivision Ordinance	N/A	Subdivision regulations were reviewed with specific attention to installation of infrastructure to an ability to meet fire flows and for streets to meet IFC requirements. Though not reflected here, the community will review IFC requirements to determine whether minimum requirements should be placed in ordinance or standard operating procedures.	Subdivision regulations were reviewed with specific attention to installation of infrastructure to an ability to meet fire flows and for streets to meet IFC requirements. Though not reflected here, the community will review IFC requirements to determine whether minimum requirements should be placed in ordinance or standard operating procedures.	N/A	Subdivision regulations were reviewed with specific attention to installation of infrastructure to an ability to meet fire flows and for streets to meet IFC requirements. Though not reflected here, the community will review IFC requirements to determine whether minimum requirements should be placed in ordinance or standard operating procedures.	N/A
Drainage Ordinance	N/A	N/A	N/A	N/A	N/A	Chapter 4
Aquifer Protection Ordinance	N/A	N/A	N/A	N/A	The aquifer protection ordinance was reviewed by not determined to be significantly impacted by any natural hazards. (Existing water services can handle drought conditions for potable water.)	N/A
State Hazard Mitigation Plan	The State Hazard Mitigation Plan was used as a resource for examples and background data. Where objective data which was still relevant to this plan was included in the state's plan it was considered, and in some cases, re-iterated in this plan.					All Chapters

* Document was reviewed in reference to the described section. Portions of the technical document may be included, but often times were merely considered/incorporated with no specific reference to the document.

N/A The jurisdiction does not have this program/policy/technical document.

The list of hazards that can potentially occur in Miner County is presented in Chapter 4. A profile of each of the hazards was begun at this meeting. The profile included information from each of the participating jurisdictions about how the hazard affected their community. Discussion also occurred regarding the existing strategies being used to mitigate each hazard, with a particular emphasis on the critical and essential facilities in each community. The Planning Team reduced

the number of hazards to focus on to those hazards that occur more often or may cause significantly higher damages.

Upon completion of the draft plan, the Miner County EMD and the First District posted the draft plan on the Miner County and the First District Association of Local Governments websites. Correspondence regarding the posting of the PDM plan were sent to all the participants and to the emergency managers in the neighboring counties of: Beadle, Kingsbury, Lake, McCook, Hanson and Sanborn. The County published a notice in the newspapers to notify the public regarding availability of the draft PDM plan for their review and comment. Everyone who received the correspondence regarding the plan was allowed forty-five days to comment on the draft.

At the second meeting, in June of 2024, staff covered the PDM plan changes that resulted from previous FEMA comments regarding the 2019 PDM plan. During the meeting Risk Identification/Assessment was discussed. The PDM Planning Team reviewed the updates prepared by the First District. This included first a review of the hazards identified in the State of South Dakota Hazard Mitigation Plan and that risk assessment portion of the existing PDM. First District staff also provided an overview of the information regarding Critical Facilities, Risk Identification, Hazard Vulnerability and mitigation projects identified by the County's municipalities.

The PDM Planning Team also dealt with the Mitigation Strategy at the June 2024 meeting. Formation of the strategy began with a review of the results of the risk assessment, which led to discussion about the goals to be achieved with the mitigation plan. The list of goals is included in Chapter 5.

The PDM Planning Team reviewed the goals and objectives identified in the 2019 PDM. After review, the Team determined the 2019 goals and objectives were still appropriate and should be included in the updated PDM plan. One minor change was made to add fire prevention educational activities to Goal #1 of the Mitigation Activities for Fire and Drought Hazards. In addition, the PDM Planning Team reviewed the list of proposed actions included in the previous mitigation plan and discussion followed about the progress that had been made on implementing the actions. Specific mitigation actions recently identified by the participating jurisdictions were also discussed.

The rest of the meeting was spent prioritizing the mitigation actions and discussing how the plan would be implemented. It was emphasized that cooperation between the county and the participating jurisdictions was especially important, and discussion occurred about how this could best be achieved. Representatives from the jurisdictions were made aware of the critical role they needed to play to ensure the success of the mitigation strategy, such as implementing specific mitigation actions. The Emergency Management Director emphasized the importance of ensuring that no local decisions are made, or actions taken contrary to the goals of this plan. Also, responsible parties were identified for reporting on progress being made to implement the proposed mitigation actions, for evaluating the plan's overall effectiveness, and for getting the public more involved in the planning process. At the end of the meeting the First District was instructed to update the plan based on comments received and return for the final review and submission of the plan.

The third and final meeting of the PDM Planning Team was subsequently held in July of 2024 to review and discuss final draft as amended based upon comments from the planning team, communities, and the public. At the meeting, the PDM Planning Team recommended that the plan be submitted to SD OEM and FEMA. The final draft of the plan was again posted on the First District Association of Local Governments and Miner County websites.

CHAPTER 4 | RISK ASSESSMENT

IDENTIFICATION OF HAZARDS

Requirement 201.6(c)(2)(i). Local Mitigation Plan Review Tool – B1.

In this chapter, the hazards that were identified by the PDM Planning Team as having the most significance for the County are analyzed. As part of the analysis, various maps and tables were produced and are included within this chapter. The planning participants began the risk assessment process by reviewing the State of South Dakota Hazard Mitigation Plan. The PDM Planning Team also reviewed records of hazard events that have occurred in the county as of 2012, relying primarily on the Spatial Hazard Events and Losses Database for the United States (SHELDUS), compiled by the University of South Carolina's Hazards and Vulnerability Research Institute and data from the National Center's for Environmental Information (NCEI) Storm Events Database. A summary of the findings for significant hazard occurrences from the past ten years is provided below in Table 4.1. The PDM Planning Team also identified potential hazards by observing development patterns, interviews from towns and townships, public meetings, PDM work sessions, previous disaster declarations, and research of the history of hazard occurrences located within the County.

Table 4.1: Hazard Occurrences 2013-2023

Type of Hazard	# of Occurrences Since 2013	Source
Drought	8	NOAA*/UNL
Fires (Urban and Wildfire)	125	NOAA & State Fire Marshall's Office
Extreme Heat	9	NOAA
Flood	3	NOAA
Heavy Rain	0	NOAA
Hail	12	NOAA
Lightning	0	NOAA
Thunderstorm and High Wind	28	NOAA
Tornado	7	NOAA
Extreme Cold	27	NOAA
Ice Storm	1	NOAA
Heavy Snow	1	NOAA
Winter Storm and Blizzards	79	NOAA
Earthquake	0	SDGS
Landslide	0	SD SHMP
Subsidence	0	SD SHMP
Dam Failure	0	SD SHMP
Ice Jams	0	SD SHMP

*National Oceanic and Atmosphere Administration

Hazards were analyzed in terms of the hazard's probability of occurrence in Miner County. Representatives from each participating jurisdiction and the PDM Planning Team were asked to complete worksheets that categorized hazards by the likelihood of occurrence for either their specific geographical location, or for county-wide risks.

Every possible hazard or disaster was evaluated and placed into one of three separate columns depending on the likelihood of the disaster occurring in the PDM jurisdiction. Hazards that occur at least once a year or more were placed in the High Probability column; hazards that may have occurred in the past or could occur in the future but do not occur on a yearly basis were placed in the low probability column; and hazards or disasters that have never occurred in the area before and are unlikely to occur in the PDM jurisdiction any time in the future were placed in the Unlikely to Occur column. Man-made hazards are not covered by this plan.

Due to the topographical features of the County and the nature of the natural hazards that affect the geographical area covered by this PDM, most areas of the county have similar likelihood of being affected by the natural hazards identified. Only the natural hazards from the High Probability and Low Probability Columns will be further evaluated throughout this plan, with an emphasis on the High Probability hazards. All hazards in the Unlikely to Occur column will not be further evaluated in the plan. Table 4.2 is an adjusted list of hazards produced from the FEMA worksheets completed by each participating jurisdiction and the PDM Planning Team.

Table 4.2: Hazards Categorized by Likelihood of Occurrence

High Probability	Low Probability	Unlikely to Occur
Extreme Cold	Drought	Dam Failure
Extreme Heat	Ice Jam	Earthquake*
Flood	Tornado	Landslide
Freezing Rain/Sleet/Ice	Urban Fire	Subsidence
Hail	Rapid Snow Melt	
Heavy Rain	Wildfire	
Heavy Snow		
Lightning		
Strong Winds		
Thunderstorm		
* Earthquakes are marked with an asterisk because they occur but are so small that the effects are minimal. Thus, mitigation measures specifically for earthquakes are not a priority.		

Several types of natural hazards that occur in other portions of the country were not included in the PDM plan hazard assessment due to the zero probability of them occurring in Miner County. The hazards included avalanches, coastal storms, hurricanes and volcanic activity.

TYPES OF NATURAL HAZARDS IN THE PDM JURISDICTION AREA

Requirement 201.6(c)(2)(i). Local Mitigation Plan Review Tool – B1.

Most descriptions of the natural hazards likely to occur in the County were taken directly from the 2019 Miner County PDM. For the purpose of consistency throughout the plan, additional definitions were included to reflect all the hazards that have a chance of occurring in the area. For all of the hazards identified the probability of future occurrence is expected to be the same for all of the jurisdictions covered in the PDM.

HAZARD PROFILE

Requirement 201.6(c)(2)(i). Local Mitigation Plan Review Tool – B1.

Requirement 201.6(c)(2)(i). Local Mitigation Plan Review Tool – B2.
Requirement 201.6(c)(2)(ii). Local Mitigation Plan Review Tool – B3.

It should be stated that most of the hazards identified in this section have the potential of occurring anywhere in the County. A brief section about the history of each hazard's occurrence in the county is provided. Table 4.3 below shows all of the Presidential Disaster Declarations that have involved the county. Information on previous occurrences – the location, the extent (i.e., magnitude or severity) of each hazard, and probability of future events (i.e., chance or occurrence) are listed individually by the type of hazard in the following tables.

Table 4.3: Presidential Disaster Declarations in SD including Miner County

Date	Disaster Dec #	Type	Total Damage	Public Assistance Cost	Individual Assistance Cost
07/19/1984	717	Severe Storms and Flooding			
07/02/1992	948	Flooding, Severe Storms, and Tornadoes			
07/19/1993	999	Severe Storms, Tornadoes, and Flooding	$53,068,748		
05/26/1995	1052	Flooding	$35,649,349		
01/05/1996	1075	Severe Winter Storm	$13,085,649		
01/10/1997	1156	Severe Winter Storm and Blizzard	$19,455,263		
04/07/1997	1173	Severe Winter Storm and Severe Flooding	$87,069,429		
12/20/2005	1620	Severe Winter Storm	$28,071,441	$24,647,039	
05/22/2007	1702	Severe Storms, Tornadoes, and Flooding		$6,226,611	$6,932,866
05/13/2010	1915	Flooding		$21,319,859	
09/23/2010	1938	Severe Storms and Flooding		$4,429,890	
05/13/2011	1984	Flooding		$26,952,484	
06/07/2019	4440	Severe Storms, Tornadoes, and Flooding		$56,527,220	
11/18/2019	4469	Severe Storms, Tornadoes, and Flooding		$18,647,293	
06/29/2022	4656	Severe Storms, Straight-line Winds, Tornadoes, and Flooding		$8,545,434	

SOURCE: https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties

While the PDM Planning Team reviewed all hazard occurrences that have been reported in the last 50 years, the list for some of the hazards was extremely long. The information provided in the tables is not a complete history report, but rather an overview of the hazard events. The PDM Planning Team felt the hazard trend for the last ten years could be summarized in this

section and decided to include any new occurrence that have taken place since the previous PDM was drafted.

DAM FAILURE

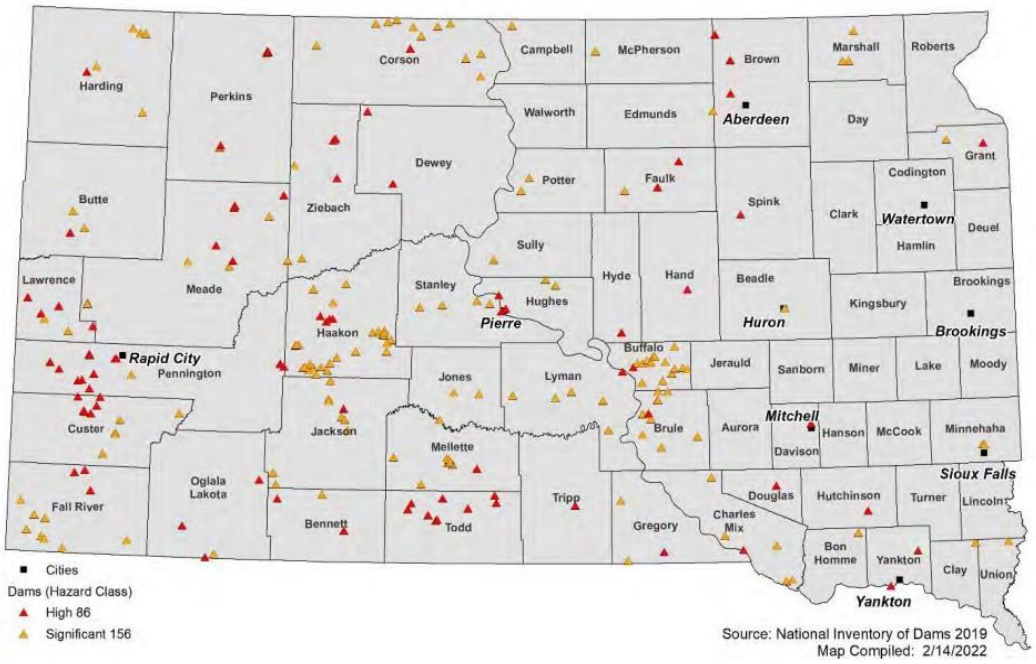
Dam breach or failure is of lesser concern for the citizens of the County than flooding. Miner County has a number of structures which control or regulate flow from one water body to another. South Dakota Department of Agricultural and Natural Resources (SD DANR) identified only one dam in the County listed below on Table 4.4. Based on the data base provided by the SD DANR, the identified dam in Miner County was rated as low regarding their downstream hazard potential. The chart below shows the dam safety, hazard potential classification rating system. Based on the dam data for Miner County, the probability of a dam failure causing human life, economic environmental or lifeline losses is very low.

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

FEMA-April 2004 Federal Guidelines for Dam Safety-Hazard Potential Classification System for Dams

A map showing high and significant hazard dams in South Dakota can be found below.

South Dakota High and Significant Hazard Dams



4.4 Dam Locations in Miner County

Dam Name	Owner	Location	Water Body
Carthage	SD Game, Fish, & Parks (State)	NW1/4 of SW1/4 of Section 8-T108N-R57W	Redstone Creek

Source SD DANR-Office of Water-Water Rights Program

DROUGHT

South Dakota's climate is characterized by cold winters and warm to hot summers. There is usually light moisture in the winter and marginal to adequate moisture for the growing season for crops in the eastern portion of the state. Semi-arid conditions prevail in the western portion. This combination of hot summers and limited precipitation in a semi-arid climatic region places South Dakota present a potential position of suffering a drought in any given year. The climatic conditions are such that a small departure in the normal precipitation during the hot peak growing period of July and August could produce a partial or total crop failure.

The fact South Dakota's economy is closely tied to agriculture only magnifies the potential loss which could be suffered by the state's economy during drought conditions. The Keetch-Byron and Palmer Drought Indexes measure drought impact. The SD SHMP states that based on historical records, notable droughts have occurred somewhere in the state on average about every 12 years, which is equivalent of an 8% chance any given year. The FEMA National Risk Index (FEMA NRI) states Miner County has an annualized frequency of 12.1 drought events per year.

The following chart depicts the intensity of dry conditions and is used on the U.S. Drought Monitor maps and in reports to show potential drought conditions in the country.

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: • short-term dryness slowing planting, growth of crops or pastures Coming out of drought: • some lingering water deficits • pastures or crops not fully recovered
D1	Moderate Drought	• Some damage to crops, pastures • Streams, reservoirs, or wells low, some water shortages developing or imminent • Voluntary water-use restrictions requested
D2	Severe Drought	• Crop or pasture losses likely • Water shortages common • Water restrictions imposed
D3	Extreme Drought	• Major crop/pasture losses • Widespread water shortages or restrictions
D4	Exceptional Drought	• Exceptional and widespread crop/pasture losses • Shortages of water in reservoirs, streams, and wells creating water emergencies

Table 4.5 identifies the ten-year drought history for the County.

Table 4.5: Miner County Ten-Year Drought History

Location	Date Start	Date End	Type
Miner County	01/01/2013	05/07/2013	Moderate to Severe Drought
Miner County	09/24/2013	10/01/2013	Moderate Drought
Miner County	05/06/2014	05/27/2014	Moderate Drought
Miner County	03/31/2015	06/30/2015	Moderate to Severe Drought
Miner County	07/11/2017	07/25/2017	Moderate Drought
Miner County	12/01/2020	04/06/2021	Moderate Drought
Miner County	05/25/2021	12/07/2021	Moderate to Extreme Drought
Miner County	09/20/2022	04/11/2023	Moderate Drought
Miner County	05/30/2023	10/10/2023	Moderate to Severe Drought

SOURCE: http://droughtmonitor.unl.edu/archive.html and https://www.ncdc.noaa.gov/stormevents/

Major Drought Occurrences:

Historic drought information for South Dakota is difficult to find. The following information was taken from the SD SHMP and National Centers for Environmental Information (NCEI).

1889–1905 – This multi-year, statewide drought was most severe between 1894 - 1896 and 1898 - 1901.

The 1930's Drought – The Dust Bowl drought severely affected much of the United States during the 1930s. The drought came in three waves, 1934, 1936, and 1939-1940, but some regions of the High Plains experienced drought conditions for as many as eight consecutive years. The agricultural and economic damage devastated residents of the Great Plains. Many farmers were forced off their land.

The 1950s Drought – The 1950s represented a time of growth and prosperity for some Americans. But while much of the country celebrated a resurgence of well-being, many residents of the Great Plains and southwestern United States were suffering. During the 1950s, the Great Plains and the southwestern U.S. withstood a five-year drought. The 1950s drought was characterized by both decreased rainfall and excessively high temperatures. By 1954, the drought encompassed a ten-state area reaching from the mid-west to the Great Plains, and southward into New Mexico. The area from the Texas panhandle to central and eastern South Dakota, western Kansas, and central Nebraska experienced severe drought conditions. The drought maintained a stronghold in the Great Plains, reaching a peak in 1956. The drought subsided in most areas with the spring rains of 1957. (NCEI, 2003).

The 1975-1976 Drought – This drought was short but severe, and similar to the 2012-2013 drought in agricultural impacts. This drought resulted in the state's only drought emergency declaration (FEMA-3015-EM in 1976) to date.

The 1980-1982 Drought – This was a statewide drought that was most severe in 1981 and rated as a 10-25 year event.

The 2002-2007 Drought – The state also experienced significant droughts in 2002-2007. The 2002-2007 drought also exacerbated wildland fire risk, leading to a particularly bad fire season during 2006.

The 2012-2013 Drought – The 2012-2013 drought wasn't as lengthy as other droughts but did have significant agricultural impacts. Shutoff orders were issued to water rights holders in the spring of 2012.

Winter-Spring 2015 Drought - South Dakota experienced its driest January-April of any year on record since the late 1800s. Dry conditions continued across much of the state until mid-May when unusually copious rainfall continued into June and virtually eliminated drought conditions and caused flooding issues instead.

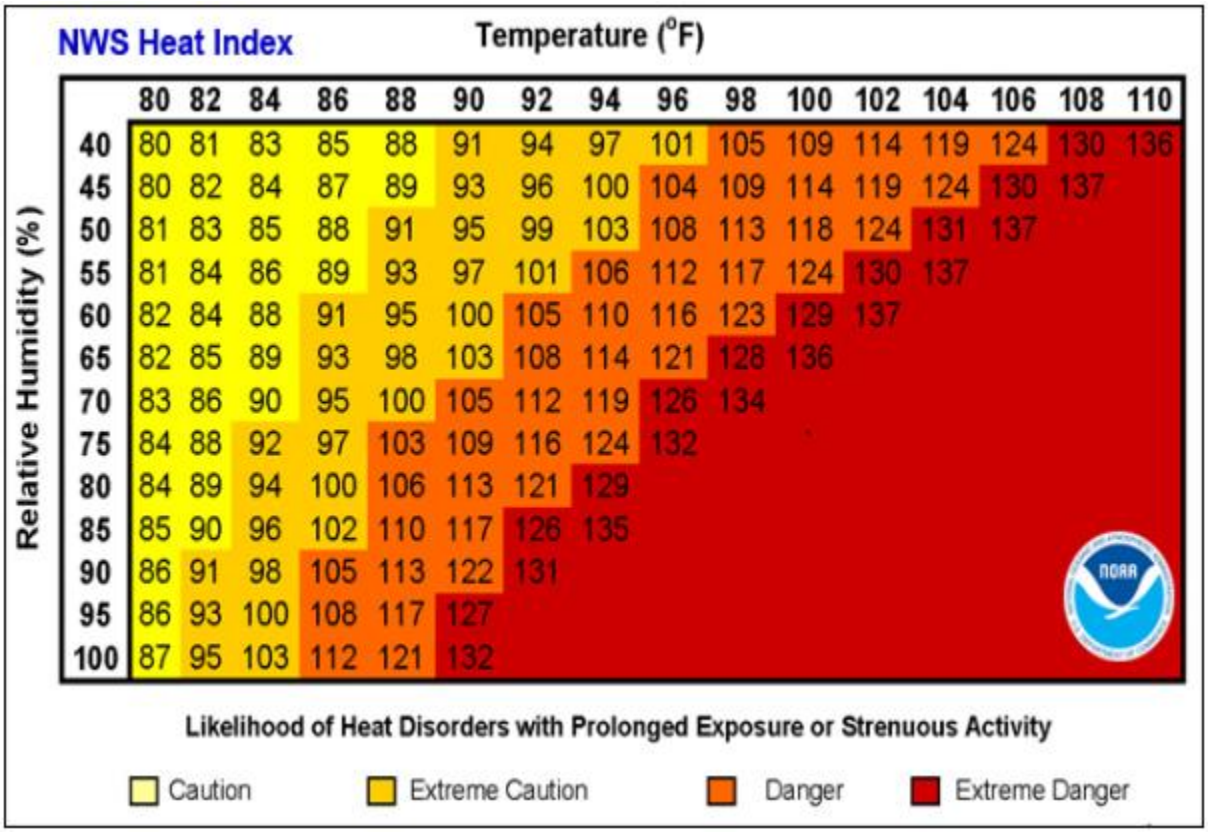
EXTREME HEAT

Extreme Heat, also known as a Heat Wave, is a prolonged period of excessively hot weather, which may be accompanied by high humidity. Temperatures in the County have a very wide range typically between 0 to 100 degrees Fahrenheit, therefore anything outside those ranges could be considered extreme. The term is applied both to routine weather variations and to extraordinary spells of heat which may occur only once a century. Extreme heat can have dangerous implications to humans, livestock, and critical structures and facilities if certain conditions are present. The Heat Index measures the impact of extreme heat on people and livestock. See Heat Index below. The FEMA NRI states the annualized frequency for heat waves in Miner County is 0.7 events per year. Table 4.11 found below shows the history of extreme heat in Miner County. Source of information was the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI) Storm Events Database.

Table 4.6: Miner County History of Extreme Heat

Location	Date	Time	Type
Miner County	06/10/2016	11:00	Excessive Heat
Miner County	07/20/2016	12:00	Excessive Heat
Miner County	07/11/2018	11:00	Heat
Miner County	06/29/2019	12:00	Excessive Heat
Miner County	06/30/2019	12:00	Heat
Miner County	07/26/2023	13:00	Excessive Heat
Miner County	08/19/2023	13:00	Excessive Heat
Miner County	08/21/2023	11:00	Excessive Heat
Miner County	09/02/2023	12:00	Heat

SOURCE : https://www.ncei.noaa.gov/stormevents/



Source-NES/NOAA

Major Heat Events

The Dust Bowl Years (1930s) **–** Several times during the Dust Bowl years the State of SD along with larger sections of the US were subjected to extreme heats events. The 1930s are remembered as the driest and warmest decade for the United States, and the summer of 1936 featured the most widespread and destructive heat wave to occur in the Americas in centuries. In July of 1936, a heat way covered most of the country. July started off relatively mild in many areas, with many areas in the Midwest seeing highs in the upper-80's to low-90's. However, areas in the Central Great Plains saw temperature's in the 100's with Topeka, KS, Omaha, NE and other locations seeing daily record highs. On Independence Day, July 4, this all quickly changed. On July 4, multiple areas centered around the Central Midwest saw temperatures spike into the 100's. On July 5, the heat persisted in these areas while spreading to others. Areas in Eastern Iowa had highs in the low to mid 100's, with Burlington, Iowa hitting 108 °F (42 °C) for the second day in a row. In Bismarck, North Dakota, the temperature hit 106 °F (41 °C) and in Aberdeen, South Dakota, it hit 108 °F (42 °C). On July 6, Steele, North Dakota hit 121 °F (49 °C), the highest temperature ever recorded in North Dakota. Fargo and Bismarck both hit 114 °F (46 °C). In Moorhead, Minnesota, the record high of 113 °F (45 °C) was also set. The heat continued to spread, with Rockford, Illinois hitting 102 °F (39 °C), and Minneapolis, Minnesota and Grand Forks, North Dakota hitting 104 °F (40 °C) respectively. The heat continued, July 10 saw St. Cloud, MN reach 106 °F degrees while Aberdeen, SD hit 114 °F. Although heat in the Midwest had begun to subside, heat had been building in the Great Plains over that period. It began on July 13 when there was a noticeable increase in temperatures but began to peak on July 14. On July 14, the temperature climbed to 107F in Lincoln, NE after

having 5 days of temperature's in the low 100's, though that night it would be the first time the temperature fell below 80F in a week. Norfolk, NE hit 105F and Omaha, NE hit 109F. Further south, Topeka, KS hit 108F, and Kansas City, MO hit 109F. In Tulsa, OK, temperatures had been climbing the past couple days and hit 110F this day. This heat would persist into the next day before temperatures would fall noticeably on the 16th over the Central Great Plains. On July 17, temperatures once again began to rise. Nebraska set a record high of 118F in Hartington, NE. Sioux City, IA and Sioux Falls, SD also set record highs of 110F. In Grand Island, NE it was 114F, falling 2 degrees short of the record in 1934, while Hastings, NE would set a record of 115F. For many areas, temperatures would be relatively lower for the last part of the month. Most areas saw highs fall below 100 °F (38 °C) on July 20 and 21 for the first time in nearly 2 weeks. However, temperatures would rise back into the 100's over the Great Plains after this, though generally wouldn't be as high as earlier in the month. The notable exception would be in Nebraska, Iowa and Kansas. The heat wave and drought largely ended in September, although many states were still drier and warmer than average. Seasonable temperatures returned in the autumn. Summer 1936 remained the warmest summer on record in the USA (since official records begin in 1895), until 2021.

July 2011 - A large upper-level high pressure area built over the region bringing very hot and humid conditions. This was the worst heat wave to hit the region since July 2006. Beginning on Friday July 15, 2011 and persisting through Wednesday July 20th. Several consecutive days were experienced with an extremely stressful combination of high heat and humidity. Heat indices frequently rose above 115 degrees during the day, with temperatures reaching the 90s and dew points remaining in the 70s to lower 80s. The high heat and humidity were evident at night, with minimum temperatures usually in the middle to upper 70s, and in some cases 80 degrees or a little higher. There were some cases of heat related illnesses in people, and several reports of livestock deaths.

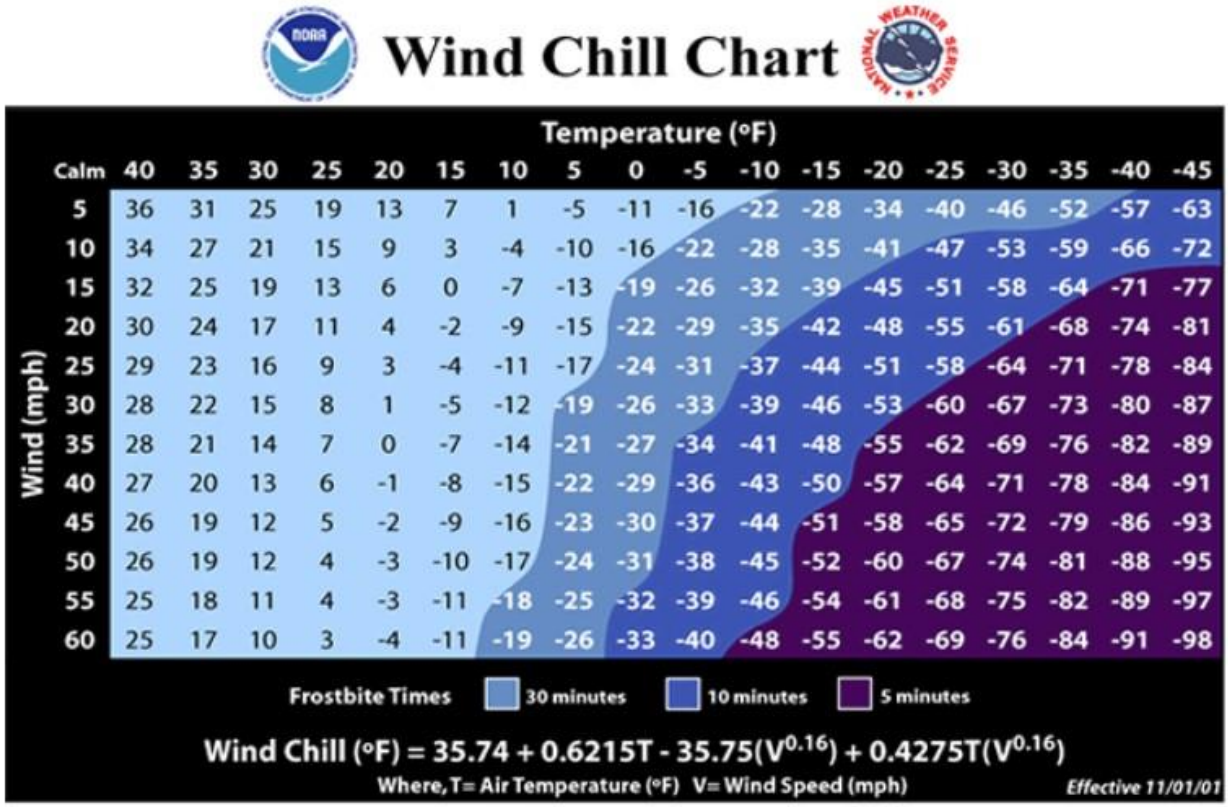
June 2012 - A combination of high heat and humidity, with temperatures reaching the 90s and dew points in the 70s, pushed the heat index to a little above 100 degrees during the afternoon and early evening hours. The heat was felt mainly west of the James River on June 26, 2012, and over the southeast corner of the state on June 27th. Starting July 15th, a combination of high heat and humidity consisted of daytime temperatures reaching the 90s to several degrees above 100, and dew points in the 70s. The heat index went as high as 108 degrees. Low temperatures were in the 70s, leading to some uncooled indoor locations remaining excessively warm through the night. The dangerous nature of the heat was added to by its continuing over a period of several days. The excessive heat caused an unknown number of heat related illnesses, including at least 10 people transported to area hospitals from the Sioux Falls air show during the weekend of July 21st and 22nd.

July 2016 - Very hot and very humid weather, with daytime temperatures reaching the 95 to 100 degree range, brought the heat index to 100 to 115 degrees during the afternoon hours of July 19, 2016 through July 23rd. Emergency rooms at hospitals reported that an unknown number of people suffered heat stress, heat exhaustion, or dehydration, although no lasting heat related illnesses were reported. Dew points in the 70s over the area reflected the very high humidity, with dew points at a few places peaking at or just above 80 degrees.

July 2018 - Significant evapotranspiration along with very warm temperatures within a strong ridge of high pressure aloft produced dangerous heat index values from 100 to 105 over a two-day period During July 11th and 12th of 2018.

EXTREME COLD

What constitutes extreme cold, and its effects can vary across different areas of the country. In regions relatively unaccustomed to winter weather, near freezing temperatures are considered "extreme cold," however, Eastern South Dakota is prone to much more extreme temperatures than other areas in the country. Temperatures typically range between zero degrees Fahrenheit and 100 degrees Fahrenheit, so extreme cold could be defined in the Miner County PDM jurisdiction area as temperatures below zero. The Wind Chill Chart is used to measure extreme cold. The NWS/NOAA Wind Chill Chart can be found below. At least one extreme cold event should occur each year. The FEMA NRI suggests 1.7 cold wave events per year.



Wind Chill Chart

Wind (mph) \ Temperature (°F)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

Extreme Cold temperatures often accompany a winter storm, so you may have to cope with power failures and icy roads. Whenever temperatures drop decidedly below normal and as wind speed increases, heat can leave your body more rapidly. These weather-related conditions may lead to serious health problems. Extreme cold is a dangerous situation that can bring on health emergencies in susceptible people, such as those without shelter or who are stranded, or who live in a home that is poorly insulated or without heat. Exposure is the biggest threat/vulnerability to human life; however, incidences of exposure are isolated and thus unlikely to happen in masses. The following information was found on the SHELDUS and NOAA websites. Table 4.7 identifies dates and times of the temperature extremes. The location in table 4.7 is not specifically identified in the table by jurisdiction due to the vast area across the State of South Dakota affected by extreme temperatures.

Table 4.7: Miner County 10-Year History of Extreme Cold Temperatures

Location	Date	Time	Type
Miner County	01/20/2013	18:00	Cold/Wind Chill
Miner County	12/23/2013	01:00	Extreme Cold/Wind Chill
Miner County	01/16/2016	21:00	Extreme Cold/Wind Chill
Miner County	12/17/2016	15:00	Cold/Wind Chill
Miner County	12/25/2017	04:00	Cold/Wind Chill
Miner County	12/30/2017	08:00	Extreme Cold/Wind Chill
Miner County	01/01/2018	00:00	Extreme Cold/Wind Chill
Miner County	01/11/2018	18:00	Cold/Wind Chill
Miner County	01/15/2018	00:00	Cold/Wind Chill
Miner County	02/03/2018	23:00	Cold/Wind Chill
Miner County	02/10/2018	03:00	Cold/Wind Chill
Miner County	12/28/2018	19:00	Cold/Wind Chill
Miner County	12/31/2018	18:00	Cold/Wind Chill
Miner County	01/01/2019	00:00	Cold/Wind Chill
Miner County	03/03/2019	00:00	Extreme Cold/Wind Chill
Miner County	01/18/2020	16:00	Cold/Wind Chill
Miner County	02/12/2020	17:00	Extreme Cold/Wind Chill
Miner County	02/14/2021	01:00	Extreme Cold/Wind Chill
Miner County	12/31/2021	17:00	Cold/Wind Chill
Miner County	01/01/2022	00:00	Cold/Wind Chill
Miner County	01/02/2022	00:00	Cold/Wind Chill
Miner County	01/06/2022	04:00	Extreme Cold/Wind Chill
Miner County	02/22/2022	18:00	Cold/Wind Chill
Miner County	12/21/2022	18:00	Extreme Cold/Wind Chill
Miner County	02/23/2023	18:00	Cold/Wind Chill
Miner County	01/12/2024	18:00	Extreme Cold/Wind Chill
Miner County	01/19/2024	23:00	Cold/Wind Chill

Extreme Cold History

February 1899 - February 1899 was the second-coldest February (after the February 1936) in Arkansas, Colorado, Mississippi, Montana, Nebraska, Oklahoma, and South Dakota.

February 1936 - February was by far the coldest month of this severe winter. Nebraska, North Dakota, and South Dakota experienced their coldest month on record. Two states recorded their

coldest temperatures on record: McIntosh, South Dakota sank to −58 and Parshall, North Dakota hit −60. At Devil's Lake, North Dakota, the average temperature for five weeks ending in February was −21.

January 2013 - Moderate to strong northwest winds and bitterly cold air combined to lower wind chill readings to 20 to 40 degrees below zero over part of southeast South Dakota from the evening of January 20th through the morning of January 21st.

January 2016 - Arctic air and northwest winds combined to lower wind chill readings to 35 to 45 degrees below zero in southeast South Dakota...mostly near and north of Interstate 90...from the evening of January 16th to the morning of January 17th. Actual temperatures dropped to 10 to 20 degrees below zero, and northwest winds averaged 10 to 15 mph.

December 2016 - Strong winds, which were slowly decreasing after a snowfall, combined with bitterly cold arctic air to drive wind chills to 35 to 50 degrees below zero from late on December 17th through the morning of December 18th.

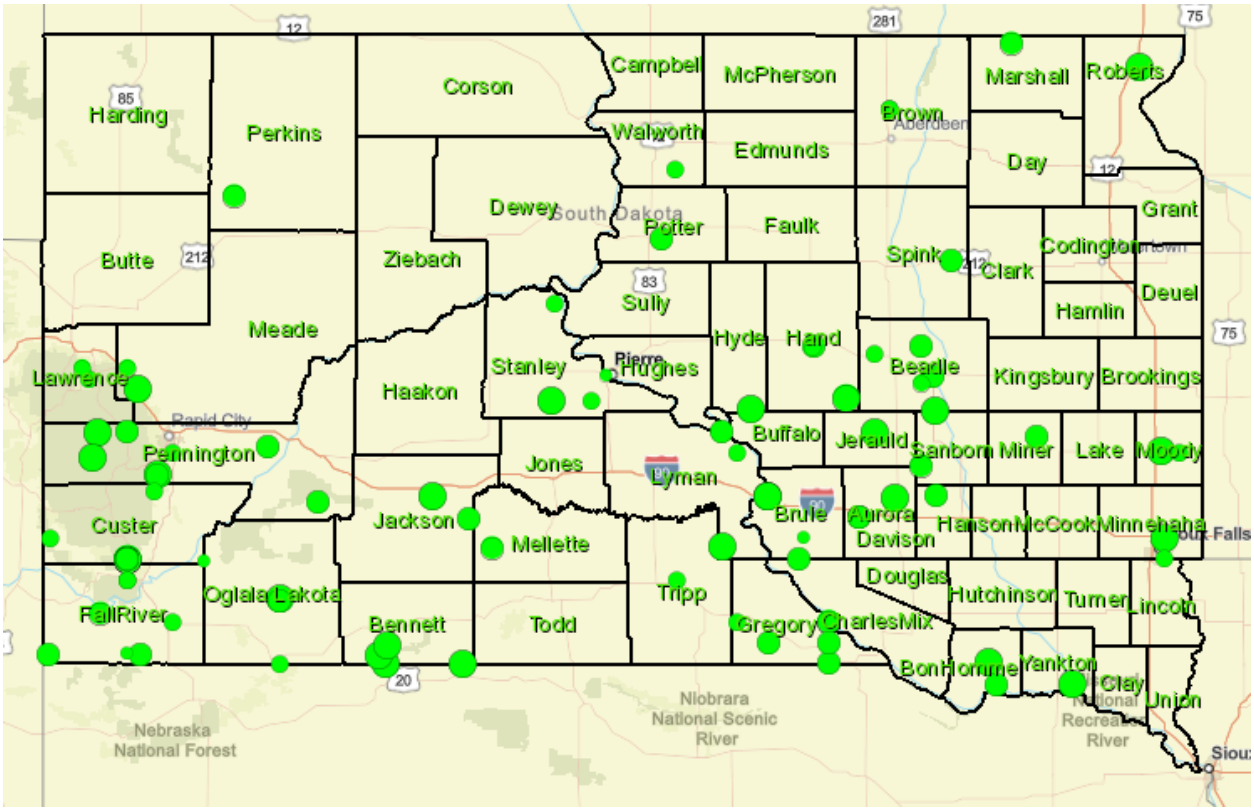
January 2018 - Wind chills from -35 to -45 continued through the morning hours across southeast South Dakota as a strong arctic surface ridge continued to slide into the Northern Plains. This continued the extreme cold which initiated during late December 2017. Arctic air rushed southward into the region behind light snow producing system on the evening of January 11 and through the morning of January 12. A quick moving clipper system deepened rapidly and carved out a closed upper level low across the western Great Lakes as it dropped southeast from the Canadian prairie provinces on the evening of January 14. The system produced a dusting of less than an inch snowfall into January 15, as well as a brutal rush of arctic air into the region with winds gusting up to 45 mph.

February 2018 - Arctic air surged southward early on February 4th on gusty northerly winds of 20 to 35 mph. Dangerous wind chills reached - 25 to -30. Following snowfall on the 9th, another center of arctic high pressure built into the northern Plains. Wind chills from -20 to -30 occurred during the early- to mid-morning hours.

EARTHQUAKES

An earthquake is the result of a sudden release of energy due to an adjustment in the earth’s crust. This adjustment causes the ground to tremble and produce vibrations that radiate out from the focus of the quake. Earthquakes primarily occur along fault zones, fractures in the Earth’s crust, where stress builds until one side slips. In South Dakota, the likely causes for earthquakes result from plate movements underlying the state and ongoing isostatic (glacial) rebound. Severe earthquakes can cause damage to infrastructure and injury or loss of life. However, earthquakes in South Dakota are minor and typically result in low rumbles with no damage. According to the South Dakota Geological Survey (SDGS), one recorded earthquake has occurred in Miner County. The earthquake occurred approximately five miles north of Howard, SD on October 19, 2005 with a recorded magnitude of 3.1 and an intensity of 4.00. See attached SDGS Earthquake Occurrences map below.

SDGS Earthquake Occurrence Map



Although the Midwest is often referred to by geologists as the “stable midcontinent”, earthquake shock waves can travel farther and faster from the epicenter due to the older, cooler, and more dense geological makeup. However, because earthquakes in South Dakota tend to be mild with little to no damage other than rattling dishes, cracked windows, or stuck doors, this hazard poses a low risk to the County. The Richter Scale measures earthquake magnitude. See attached Richter scale chart below. The potential for an earthquake to occur in the County is 0.024% chance annually, according to the FEMA NRI .

Richter scale of earthquake magnitude			
magnitude level	**category**	**effects**	**earthquakes per year**
less than 1.0 to 2.9	micro	generally not felt by people, though recorded on local instruments	more than 100,000
3.0–3.9	minor	felt by many people; no damage	12,000–100,000
4.0–4.9	light	felt by all; minor breakage of objects	2,000–12,000
5.0–5.9	moderate	some damage to weak structures	200–2,000
6.0–6.9	strong	moderate damage in populated areas	20–200
7.0–7.9	major	serious damage over large areas; loss of life	3–20
8.0 and higher	great	severe destruction and loss of life over large areas	fewer than 3

> *John P. Rafferty*

FLOOD

Flooding is a temporary overflow of water onto lands not normally covered by water producing measurable property damage or forcing evacuation of people and resources. Floods can result in injuries and even loss of life when quickly moving water is involved. Six inches of moving water is enough to sweep a vehicle off a road. Floods can develop slowly as rivers swell during an extended period of rain, or during a warming trend following a heavy snow. Heavy rains and rapid snow melt can cause flooding or flash flooding. Both are included under this hazard profile. Even a small stream or dry creek bed can overflow and create flooding. Two different types of flooding hazards are present within the County.

1. Inundation flooding occurs most often in the spring. The greatest risks are realized typically during a rapid snowmelt before ice is completely off all of the rivers. Ice jams occur when warm temperatures and heavy rain cause snow to melt rapidly. Snow melting combined with heavy rains can cause frozen rivers to swell, which breaks the ice layer on top of the river. The ice layer often breaks into large chunks, which float downstream and often pile up near narrow passages and other obstructions, such as bridges and dams causing localized flooding.

2. Flash flooding is more typically realized during the summer months. This flooding is primarily localized, though enough rain can be produced to cause inundation flooding. Heavy, slow moving thunderstorms often produce large amounts of rain. The threat of flooding would be increased during times of high soil moisture.

Disruption of communication, transportation, electric service, and community services, along with contamination of water supplies and transportation accidents are very possible.

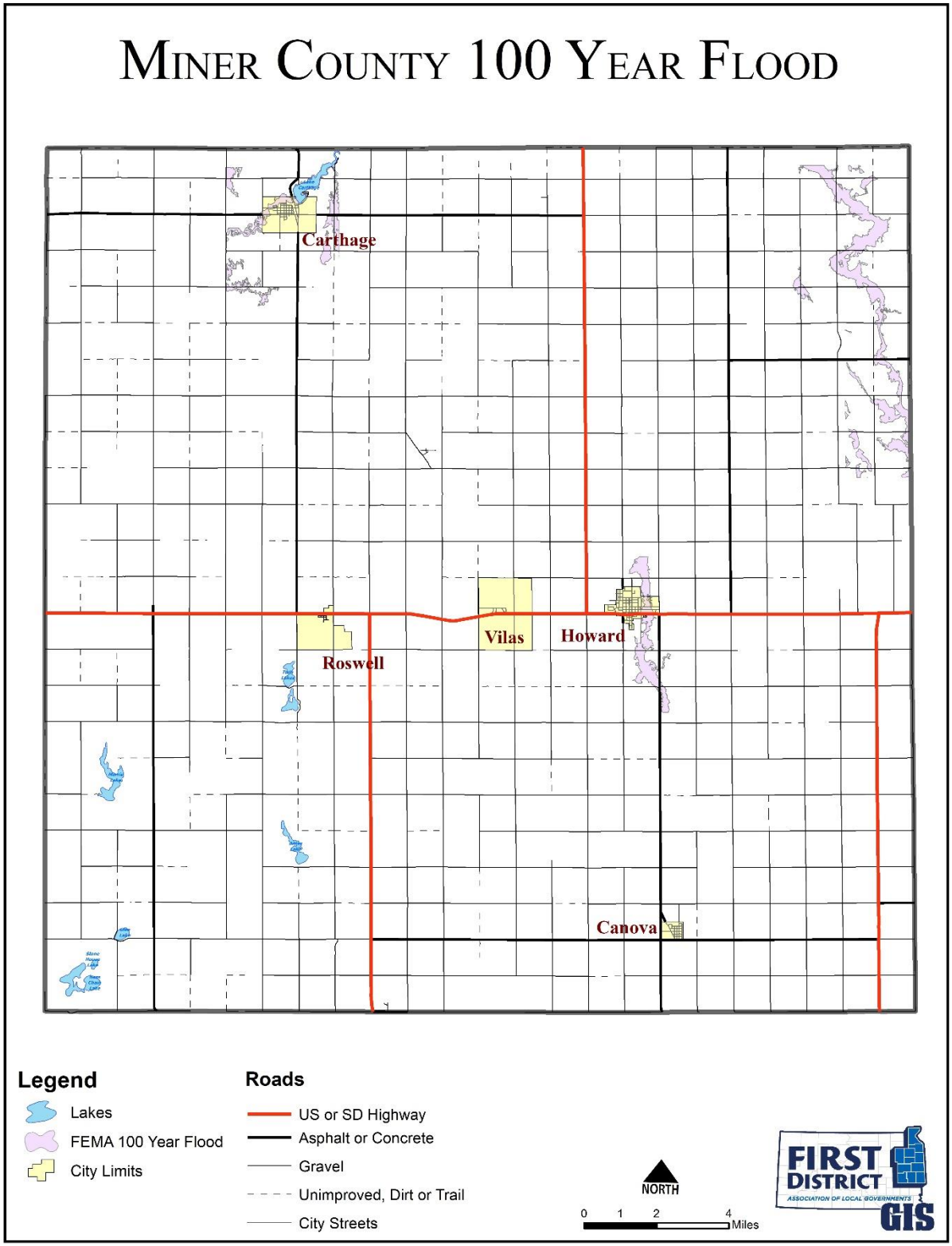
National Flood Insurance Rate maps designate 100 year and 500 year floodplain zones. Areas subject to inundation by the 1-percent-annual-chance flood event are designated 100 year floodplain. Moderate risk areas within the 0.2-percent-annual-chance floodplain are designated 500 year floodplain. See attached Miner County 100 year flood plain map (Figure 4.1) below. According to the FEMA NRI, Miner County has the potential for 0.4 riverine flooding events to occur annually. Table 4.8 contains the County's flood history for the last ten years.

Table 4.8: Miner County Ten-Year Flood History

Location	Type	Date	Time	Property Damage	Crop Damage
Epiphany	Flood	03/13/2019	12:00	250.00K	
Epiphany	Flood	06/01/2019	00:00		18.950M
Epiphany	Flood	09/12/2019	00:00	328.00K	69.00K

SOURCE: https://www.ncdc.noaa.gov/stormevents/

Figure 4.1


MINER COUNTY 100 YEAR FLOOD
Carthage
Vilas
Howard
Roswell
Canova
Legend
Lakes
FEMA 100 Year Flood
City Limits
Roads
US or SD Highway
Asphalt or Concrete
Gravel
Unimproved, Dirt or Trail
City Streets
NORTH
0 1 2 4
Miles
FIRST DISTRICT
ASSOCIATION OF LOCAL GOVERNMENTS
GIS

Major Flood Occurrences:

March/April 1997 - Snowmelt flooding continued from March. Major flooding occurred on rivers and streams, including record flooding along the James River. Crests on the James and Big Sioux Rivers occurred from April 3rd through April 9th. Flooding also occurred on lakes and lowlands. Many roads were covered and damaged by the flooding, hampering transportation. Many homes and other buildings were flooded, and basements flooded from groundwater seepage. Farmland affected by the flooding continued to be in the hundreds of thousands of acres. Communities severely affected by the flooding included Davis, Spencer, Dell Rapids, Baltic, and Renner. The magnitude of damage was estimated to be many millions of dollars, but more specific estimates were not available because of the long term economic nature of much of the damage, especially to farmland

March 16, 2004 - Four to five inches of rain fell over much of Miner County, flooding fields and small urban areas.

May 5, 2007 - Heavy rain flooded several businesses and a church in Epiphany, as well as homes and other low areas. Numerous roads were flooded, a few being washed out.

July 30, 2010 - Heavy rainfall of 2 to 6 inches caused widespread flooding of roads and basements, especially in an area from the town of Howard to 4 miles north of Howard. Several county roads were washed out and some bridges were damaged. A golf course on the east side of Howard was flooded.

March/April 2011 - Melting of a heavy winter snow cover caused flooding of lowlands, lakes, and small streams, including considerable flooding of farmland. Several roads in the county were flooded. Some of the roads were closed, and some were washed out in spots. The flooding onset was rapid for a snow melt flood due to high water and groundwater levels from record precipitation in the year 2010. Flooding of lakes and lowlands, including some farmland, continued in the county through April. While flooding of small streams abated, lake and lowland flooding continued with very slow improvement. Several roads remained flooded. High water and groundwater levels resulting from record precipitation in the previous year was the main reason that the flooding either grew worse or improved so slowly.

September 2019 **–** A frontal zone remained locked in place under southwest flow aloft as a series of mid-level waves moved across the region over a three-day period. Widespread heavy rainfall resulted, and amounts reached two-day records for several locations including Bridgewater (8.05 inches), Montrose (5.63 inches), Alexandria (8.30 inches), Madison (7.63 inches), Howard (7.05 inches), and 2 miles south of Winfred (7.01 inches). Flooding, both river and area, resulted in crop losses and damage to public infrastructure including county and township roads and culverts. Crop loss estimates, provided by the United States Department of Agriculture, tallied nearly $17 million dollars in damages across southeast South Dakota.

SUMMER STORMS

Summer Storms are generally defined as atmospheric hazards resulting from changes in temperature and air pressure which cause thunderstorms that may cause hail, lightning, strong winds and tornados.

According to an article by Emily Greenhalgh featured on the NOAA/Climate.gov website, history says mid-to-late June brings a higher probability of severe weather across much of the

contiguous United States. As we move from spring to summer, the predominant way severe weather forms across the U.S. changes. Once the jet stream moves north, severe weather occurs mainly due to mesoscale processes as larger areas of the country experience warm, humid conditions. These conditions are, historically, prime ingredients for severe weather events. “Severe weather” is defined as tornadoes, thunderstorm winds over 58 miles per hour, or hail larger than a quarter (one inch in diameter) and lightning.

HAIL

Hail is a form of precipitation consisting of solid ice that forms inside thunderstorm updrafts. The raindrops reach extremely cold areas which causes them to freeze. The semi-frozen droplets grow in size as they come into contact with each other forming the hailstone. Once the updraft can no longer support the weight of the hail, it falls to Earth. Hailstones usually consist mostly of water ice and measure between 5 and 150 millimeters in diameter, with the larger stones coming from severe and dangerous thunderstorms. The largest hailstone recorded in the United States occurred in 2010 in Vivian, South Dakota. The hailstone measured eight inches in diameter. However, even dime sized hail can cause significant damage to vehicles, buildings, livestock, and crops. When viewed from the air, it is evident that hail falls in paths known as hail swaths. These occur as storms move while the hail is falling out. They can range in size from a few acres to an area 10 miles wide and 100 miles long.

The County has a 100% potential for thunderstorms occurring each year. Many of these thunderstorms will produce hail of varying sizes. The FEMA NRI states 5.6 hail events per year. The following charts shows the hail size comparisons.

Hail Size Description Chart

Hailstone size	Measurement	
	in.	cm.
bb	< 1/4	< 0.64
pea	1/4	0.64
dime	7/10	1.8
penny	3/4	1.9
nickel	7/8	2.2
quarter	1	2.5
half dollar	1 1/4	3.2
golf ball	1 3/4	4.4
billiard ball	2 1/8	5.4
tennis ball	2 1/2	6.4
baseball	2 3/4	7.0
softball	3.8	9.7
Compact disc / DVD	4 3/4	12.1

Note: Hail size refers to the diameter of the hailstone.

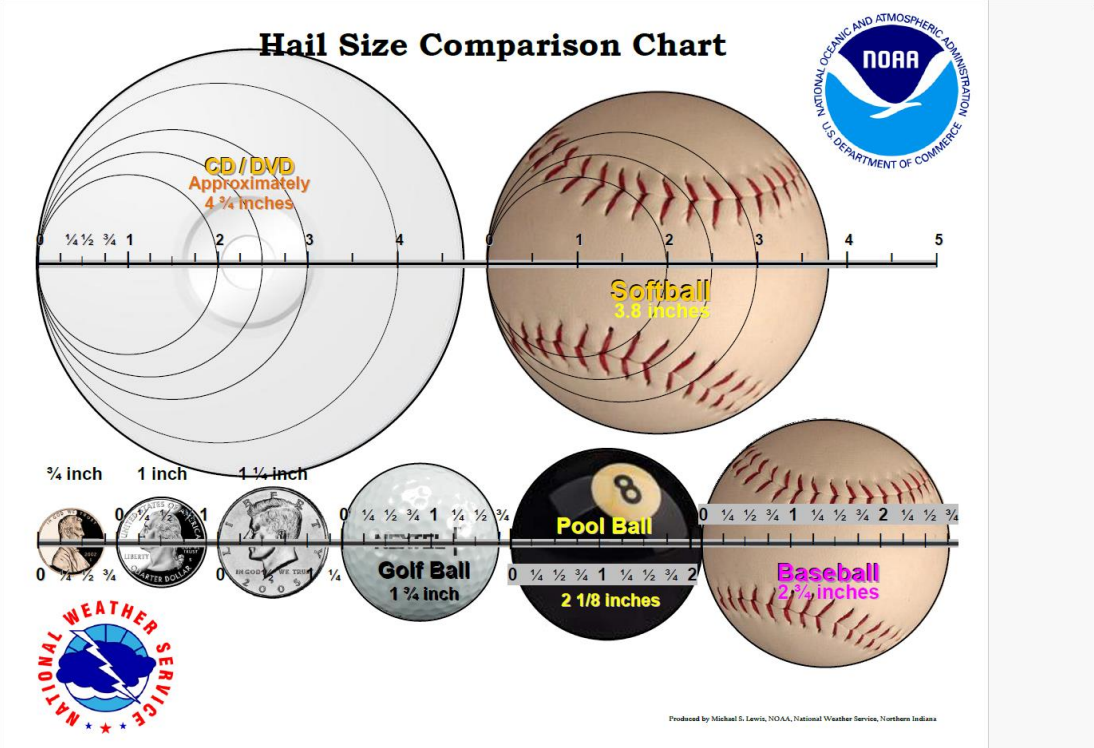


Table 4.9 below indicates hail occurrences throughout the County over the last ten years. However, the information provided by the NOAA website is incomplete due to inconsistent reporting after such hazards occur. Because hail can occur in a high number of occurrences, it is reasonable to expect that at least some property or crop damage was sustained during the events listed, even though the damage may not have been reported or recorded. It is possible that such damage was not reported because it was believed to be insignificant at the time or because those responsible for reporting such information did not report to the proper agencies.

Table 4.9: Miner County Ten-Year Hail History

Location	Date	Time	Magnitude	Crop Damage
Fedora	07/23/2015	21:15	0.88in.	
Fedora	05/30/2016	21:31	0.75in.	
Howard	08/18/2016	18:50	1.75in.	
Argonne	08/18/2016	18:57	1.00in.	
Fedora	06/22/2017	04:48	1.50in.	
Fedora	07/25/2017	16:00	1.00in.	
Carthage	07/25/2017	16:42	1.00in.	
Argonne	05/08/2018	18:50	1.00in.	
Carthage	08/15/2019	17:21	0.88in.	
Fedora	06/08/2020	22:04	1.00in.	
Roswell	05/12/2022	16:09	0.75in.	5.00K
Howard	05/30/2022	12:40	0.75in.	92.00K

SOURCE: https://www.ncdc.noaa.gov/stormevents/

LIGHTNING

Lightning results from a buildup of electrical charges that happens during the formation of a thunderstorm. The rapidly rising air within the cloud, combined with precipitation movement within the cloud, results in these charges. Giant sparks of electricity occur between the positive and negative charges both within the atmosphere and between the cloud and the ground. When the potential between the positive and negative charges becomes too great, there is a discharge of electricity, known as lightning. Lightning bolts reach temperatures near 50,000˚ F in a split second. The rapid heating and expansion, and cooling of air near the lightning bolt causes thunder. There is a 100% chance of lightning occurring in Miner County each year. The FEMA NRI shows 36.2 lightning events per year.

The extent or severity of lightning can range from significant to insignificant depending on where it strikes and what structures are hit. Water towers, cell phone towers, power lines, trees, and common buildings all have the possibility of being struck by lightning. Lightning strikes can also start wildfires, structure fires, or damage electrical systems. Most people are struck by lightning before it starts raining or after it stops raining. People who leave shelter during thunderstorms to watch or follow lightning also have the possibility of being struck by lightning. According to the NWS, an average of 49 people a year are killed by lightning strikes. The following chart shows the lightning activity levels that are used.

Lightning Activity Levels

Level	Description
1	No thunderstorms
2	Isolated thunderstorms. Lightning is very infrequent, 1–5 cloud-to-ground strikes in a five-minute period.
3	Widely scattered thunderstorms. Lightning is infrequent, 6–10 cloud-to-ground strikes in a five-minute period.
4	Scattered thunderstorms. Lightning is frequent, 11–15 cloud-to-ground strikes in a 5-minute period.
5	Numerous thunderstorms. Lightning is frequent and intense, greater than 15 cloud-to-ground strikes in a five-minute period.
6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for starting fires, and is normally highlighted in fire weather forecasts with a red flag warning.

Table 4.10 county lightning history for the past ten years denotes no occurrences where damage was reported; however, the possibility exists that the information reported is incomplete. It is also important to note that while no damage was reported, lightning strikes are very common in all South Dakota counties.

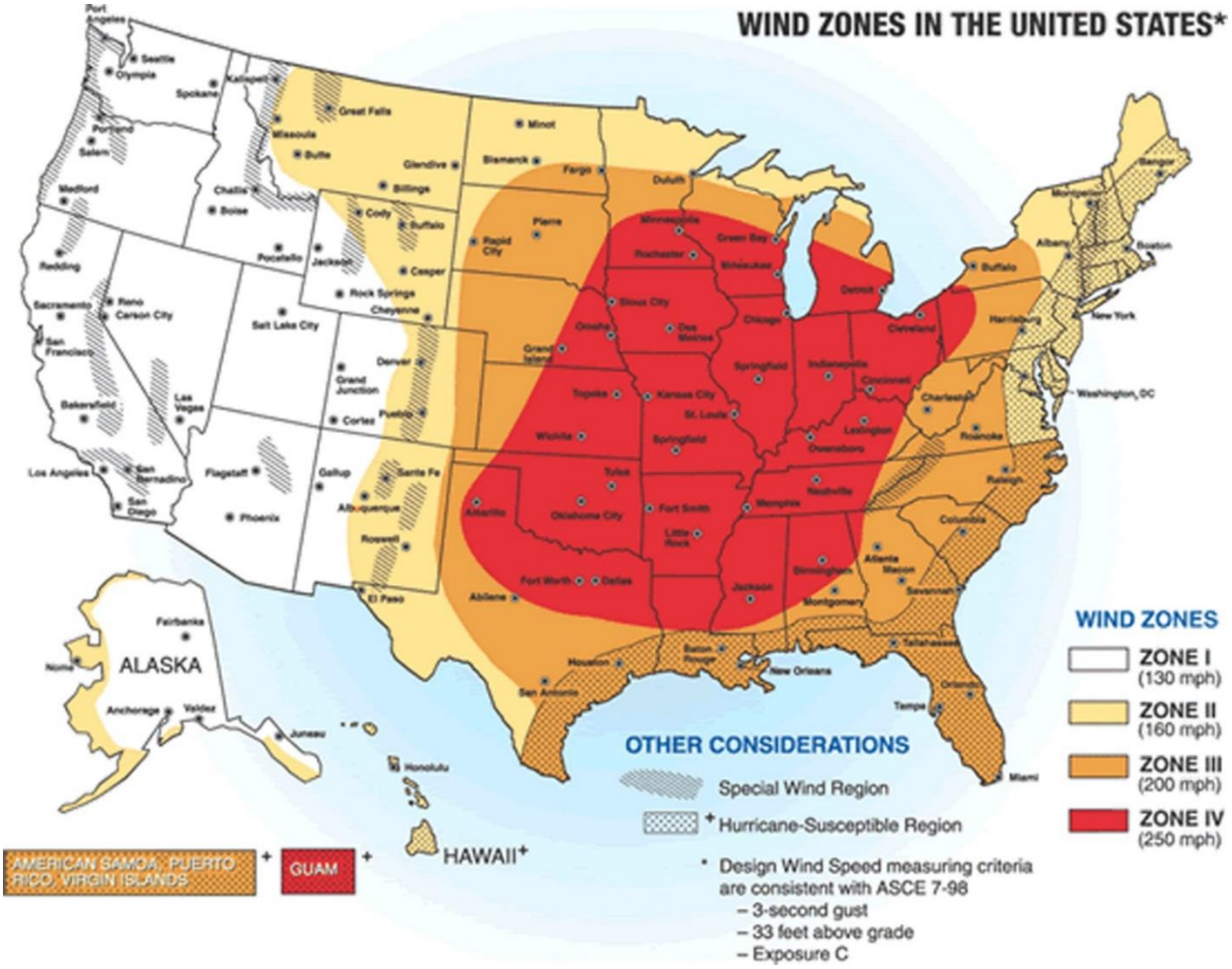
Table 4.10: Miner County Lightning History

Location	Date	Time	Type	Property Damage
NA	-	-	Lightning	

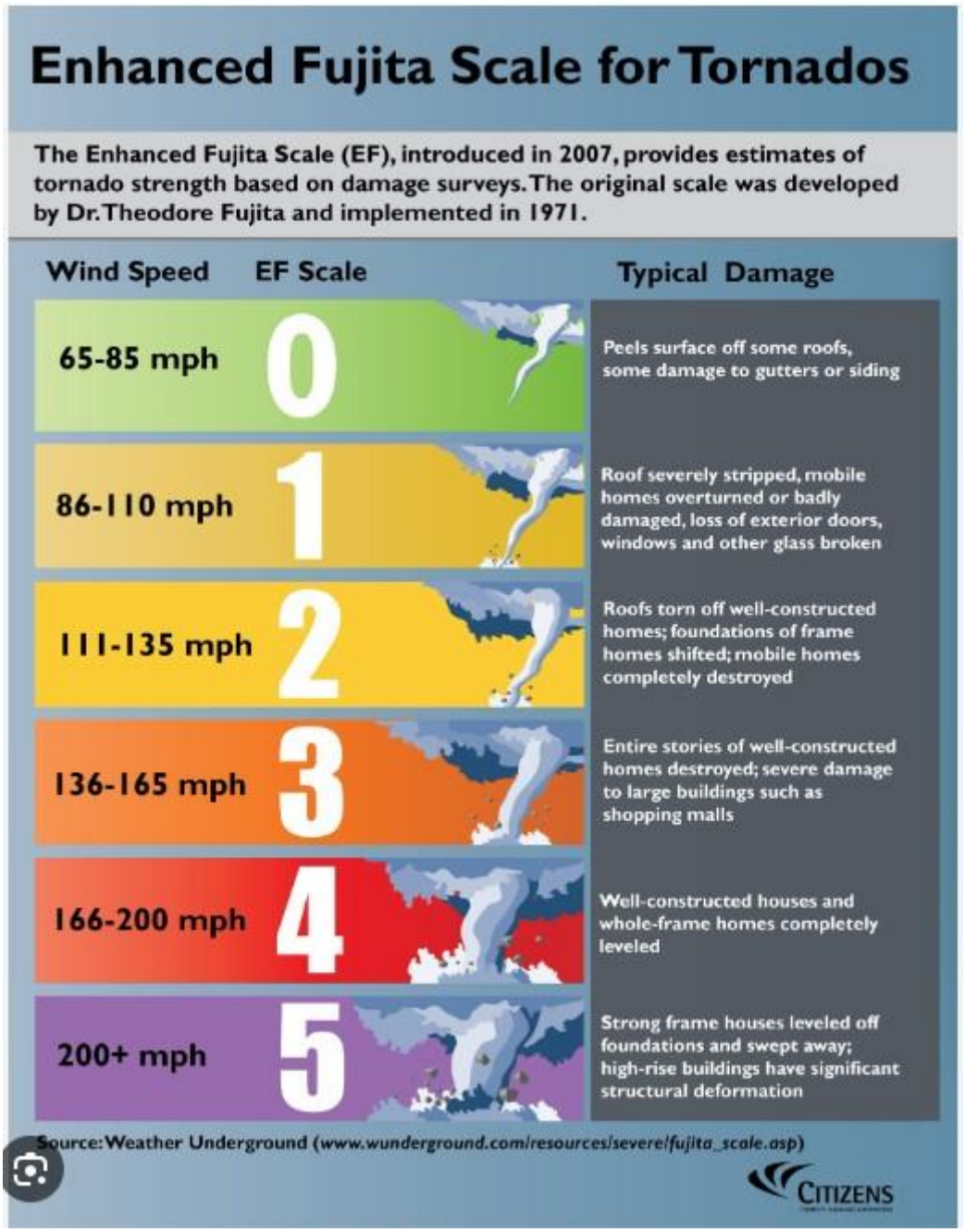
SOURCE: https://www.ncdc.noaa.gov/stormevents/

TORNADO

Tornados are violent windstorms that may occur singularly or in multiples as a result of severe thunderstorms. They develop when cool air overrides warm air, causing the warm air to rapidly rise. Many of these resulting vortices stay in the atmosphere, though a touchdown can occur. See the Wind Zones in the United States Map below.



The Enhanced Fujita Tornado Damage Scale categorizes tornadoes based on their wind speed, see following chart.



The annual risk for intense summer storms is very high. The entire County is susceptible to summer storms. Warning time for summer storms is normally several hours, sufficient for relocation and evacuation, if necessary. However, tornadoes may occur with little or no warning. Between the years of 1950 and 2023, the County confirmed thirty-six tornadoes/funnel clouds. Table 4.11 below includes the tornado history in the County since 2013. Throughout these events, most tornadoes caused only minor damages. Miner County has less than one percent chance (0.4%) of a tornado occurring each year based on FEMA NRI.

Table 4.11: Miner County Ten-Year Tornado History

Location	Date	Time	Type	Magnitude
Canova	05/10/2015	18:16	Tornado	EF0
Fedora	07/23/2015	21:07	Tornado	EF0
Roswell	07/23/2015	21:25	Tornado	EF0
Argonne	07/23/2015	21:49	Tornado	EF0
Vilas	05/08/2018	19:20	Tornado	EF0
Roswell	06/08/2020	22:04	Funnel Cloud	
Argonne	06/08/2020	22:34	Tornado	EFU

SOURCE: https://www.ncdc.noaa.gov/stormevents/

Major Tornado Occurrences:

May 8, 1965 – A storm moved from SE to NW touching ground and rising several times causing damage to farm structures and killing livestock. Damage estimate was approximately $25,000.

June 7, 1984 – A tornado at Howard moved northeast, taking the roof off of an antique shop, considerably damaging an auto store and truck, uprooting several signs and approximately 20 trees and breaking numerous windows. Electric power was interrupted for about an hour. Damage estimate was approximately $250,000.

June 16, 1992 – Two tornadoes occurring within an hour of each other. The first an F2 SW of Fedora destroyed a farmstead where a man was blown out of his house. The second an F3 NNE of Howard destroyed two houses and damaged many others. Numerous smaller buildings, vehicles and equipment were damaged. Trees were broken off and uprooted. Seventy power poles were blown over in the County with 100 people left without power. Several persons were injured during the events. Damage estimate was approximately $2,525,000.

May 18, 1996 – A F0 tornado overturned cars and downed large trees three miles south of Howard. Damage estimate was approximately $50,000.

May 5, 2007 – An outbreak of six tornadoes (2-EF0, 3-EF1, 1-EF2) touched down in the Carthage, Howard and Vilas areas between 3:31 PM and 7:03 PM. The tornadoes damaged many farm outbuildings and a small hunting lodge. Damaged estimate was approximately $34,000.

Each year, many storms and a few tornadoes affect the county. Summer storms in the County usually produce a wide range of damages making damage estimates difficult. A complete listing of all summer storms having occurred within the county is not possible due to inaccurate reporting. The NOAA NCEI Storm Events Database online were the primary source for this information.

THUNDERSTORM/HIGH WIND

Thunderstorms and high wind occurrences in the County are also common. Strong winds can be detrimental to the area. According to the SD SHMP, these winds, which can exceed 100 mph, represent the most common type of severe weather in South Dakota and are responsible for most wind damage related to thunderstorms. Since thunderstorms do not have narrow tracks like tornadoes, the associated wind damage can be extensive and affect entire (and multiple) counties. Trees, poles, power lines, and weak structures are all susceptible and vulnerable to strong winds. When strong winds knock down trees, poles, power lines, and structures it creates additional traffic hazards for travelers and commuters.

Strong winds are usually defined as winds over forty miles per hour (34.76 knots), are not uncommon in the area. Winds over fifty miles per hour (43.45 knots) can be expected twice each summer. Strong winds can cause destruction of property and create safety hazards resulting from flying debris. Strong winds also include severe localized wind blasting down from thunderstorms. These downward blasts of air are categorized as either microbursts or macrobursts depending on the amount geographical area they cover. Microbursts cover an area less than 2.5 miles in diameter and macrobursts cover an area greater than 2.5 miles in diameter. Based on past records, multiple strong wind events will occur in the County annually. The FEMA NRI suggests the County will experience 3.4 strong wind events per year.

According to the NCEI Storm Events Database, the County experienced 28 wind events from 2013-2023. Table 4.12 denotes the extent and severity of such hazards occurring in the last ten years. The County continues to educate residents of the dangers of such storms through public service announcements and other printed media.

Table 4.12: Miner County Ten-Year History for Thunderstorm/High Wind

Location	Date	Time	Type	Mag	Property Damage	Crop Damage
Argonne	06/21/2013	14:12	Thunderstorm Wind	52 kts. EG		
Miner County	01/16/2014	09:00	High Wind	50 kts. EG		
Miner County	01/26/2014	12:00	High Wind	50 kts. EG		
Carthage	06/09/2015	17:30	Thunderstorm Wind	56 kts. EG	5.00K	
Miner County	02/19/2016	04:30	High Wind	36 kts. ES		
Miner County	12/25/2016	23:00	High Wind	35 kts. ES		
Fedora	06/11/2017	03:50	Thunderstorm Wind	61 kts. EG		
Fedora	07/25/2017	16:00	Thunderstorm Wind	52 kts. EG		
Howard	08/25/2017	18:20	Thunderstorm Wind	56 kts. EG		
Carthage	09/19/2017	21:20	Thunderstorm Wind	61 kts. EG		
Howard	07/28/2019	18:54	Thunderstorm Wind	52 kts. EG		
Canova	08/17/2019	20:25	Thunderstorm Wind	50 kts. MG		
Canova	06/06/2020	16:32	Thunderstorm Wind	56 kts. EG	1.00K	
Miner County	01/14/2021	13:00	High Wind	52 kts. MG		
Howard	09/16/2021	22:26	Thunderstorm Wind	51 kts. MG		

Location	Date	Time	Type	Mag	Property Damage	Crop Damage
Miner County	12/15/2021	21:30	High Wind	51 kts. MG		
Miner County	03/25/2022	09:00	Strong Wind	44 kts. MG		
Miner County	04/06/2022	13:30	High Wind	50 kts. MG		
Miner County	04/23/2022	11:50	High Wind	55 kts. MG		
Howard	05/30/2022	00:25	Thunderstorm Wind	70 kts. EG		135.00K
Canova	06/20/2022	18:00	Thunderstorm Wind	56 kts. EG		15.00K
Canova	07/05/2022	13:55	Thunderstorm Wind	70 kts. EG		
Howard	07/05/2022	14:06	Thunderstorm Wind	86 kts. MG		
Howard	07/05/2022	14:06	Thunderstorm Wind	78 kts. EG		
Howard	08/02/2022	19:20	Thunderstorm Wind	61 kts. MG		
Miner County	04/30/2023	09:00	Strong Wind	43 kts. MG		
Miner County	10/12/2023	15:00	Strong Wind	49 kts. MG		115.00K
Miner County	12/09/2023	01:30	Strong Wind	39 kts. MG		

SOURCE: https://www.ncdc.noaa.gov/stormevents/

Major Wind Occurrences:

June 19, 1975 – Carthage experienced winds estimated from 60-80 mph. Power lines were broken, and some trees and roofs were damaged.

May 18, 1996 – Thunderstorm winds overturned cars, uprooted trees, blew down power lines, tore the roof off an abandoned hog barn and caused minor building damage in the Howard area. Damage estimate was approximately $60,000.

July 15, 1999 – Thunderstorm winds flattened one barn and a tool shed, blew the roof off another barn, and blew half the roof off a house, as well as causing other building damage near Fedora. Damage estimate was approximately $50,000.

June 9, 2001 – Thunderstorm winds blew down trees, limbs, and branches. One large limb fell onto a power line, causing a fire which destroyed a building housing a post office, food pantry, and apartment in Carthage. Damage estimate was approximately $80,000.

July 23, 2010 – Thunderstorm winds moved a house off its foundation NNE of Howard. Note: The estimated wind gust of 61 knots is equivalent to 70 mph. Damage estimate was approximately $20,000.

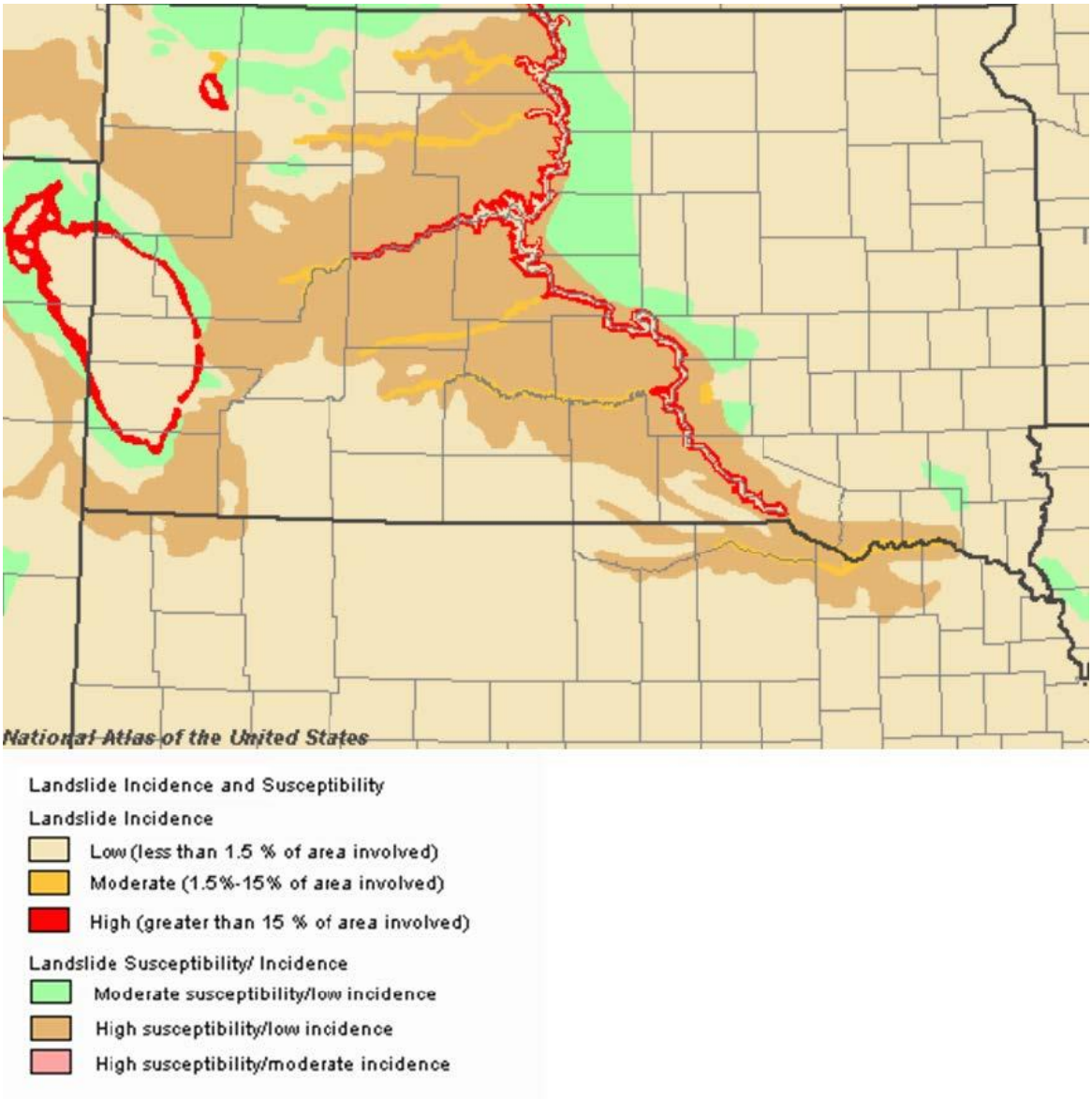
May 30, 2022 – An amplified and vigorous upper-level pattern pushed several weak disturbances northeast across the region during the overnight and early morning of May 30th. With ample elevated instability and effective shear of 35 to 45 knots, storms became severe across south central South Dakota and north central Nebraska and organized into a large scale QLCS as it moved east and northeast into Minnesota and Iowa late night. Several QLCS tornadoes developed from the Sioux Falls area eastward. Widespread winds of 60 to 90 mph caused scattered tree damage, with isolated pockets of more significant structural damage.

Thunderstorm wind gusts up to 70 knots damaged several buildings in Howard, with numerous trees and powerlines down. Crop damage is estimated from insured losses at $135,000.

LANDSLIDE

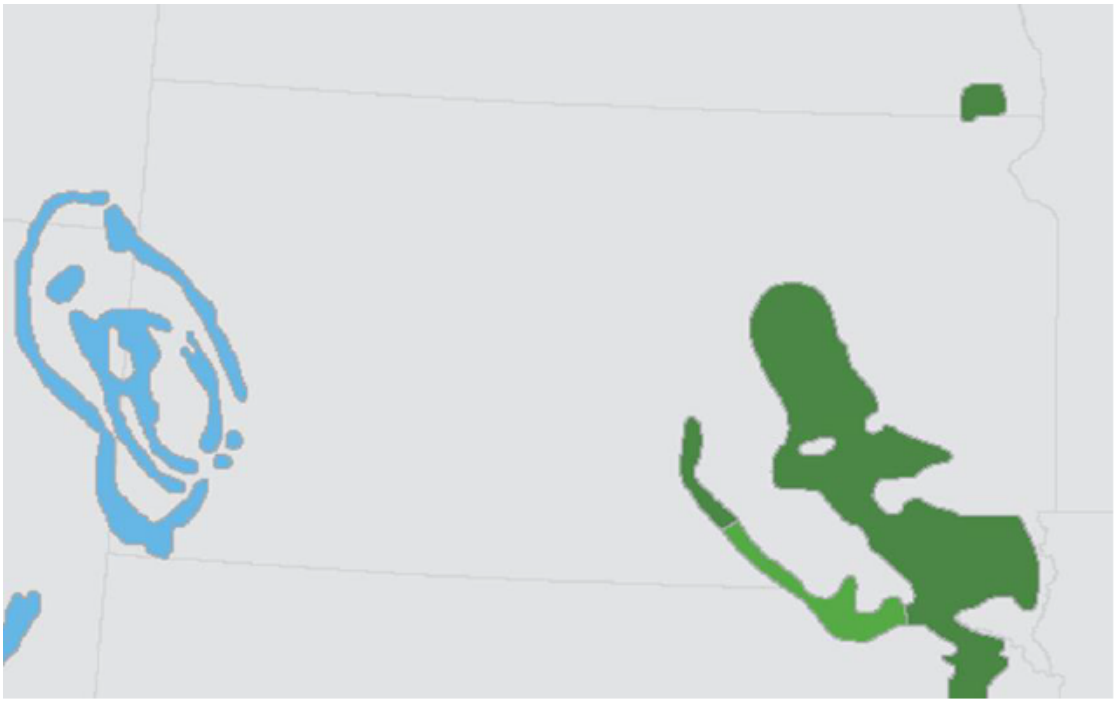
Landslide is a geological phenomenon which includes a wide range of ground movement, such as rock falls, deep failure of slopes and shallow debris flows, which can occur in offshore, coastal and onshore environments. Although the action of gravity is the primary driving force for a landslide to occur, there are other contributing factors build up specific sub-surface conditions that make the area/slope prone to failure, whereas the actual landslide often requires a trigger before being released. The following map from the SD SHMP shows landslide incidence and susceptibility in South Dakota including Miner County. Landslide risks are minimal in Miner County. The FEMA NRI indicates that zero events per year are expected.

SD Landslide Incidence and Susceptibility



SUBSIDENCE

Subsidence is defined as the motion of a surface as it shifts downward relative to a datum. The opposite of subsidence is uplift, which results in an increase in elevation. There are several types of subsidence such as dissolution of limestone, mining-induced, fault induced, isostatic rebound, extraction of natural gas, groundwater related, and seasonal effects. The following map from the SD SHMP show the risks of subsidence in South Dakota including Miner County. Subsidence risks are minimal in Miner County.



Source: The National Karst Map http://www.nckri.org/map/maps/engineering_aspects/davies_map_PDF.pdf

WINTER STORMS

Winter Storms deposit four or more inches of snow in a twelve-hour period or six inches of snow during a twenty-four hour period. Such storms are generally classified into four categories with some taking the characteristics of several categories during distinct phases of the storm. These categories include freezing rain, sleet, snow, and blizzard. Generally winter storms can range from moderate snow to blizzard conditions and can occur between October and April. The months of May, June, July, August, and September could possibly see snow, though the chances of a storm is very minimal. Blizzard, Freezing Rain/Sleet/Ice and Heavy Snow are components of winter storms and included under this profile. The FEMA NRI states the County should anticipate 5.9 winter weather events per year.

Blizzards are a snow storm that lasts at least three hours with sustained wind speeds of thirty-five miles per hour (mph) or greater, visibility of less than one-quarter mile, temperatures lower than 20°F and white out conditions. Snow accumulations vary, but another contributing factor is loose snow existing on the ground which can get whipped up and aggravate the white out conditions. When such conditions arise, blizzard warnings or severe blizzard warnings are issued. Severe blizzard conditions exist when winds obtain speeds of at least forty-five mph plus a great density of falling or blowing snow and a temperature of 10°F or lower. At least one blizzard should occur each year in the County.

Freezing Rain/Ice occurs when temperatures drop below thirty degrees Fahrenheit, and rain starts to fall. Freezing rain coats objects with ice, creating dangerous conditions due to slippery surfaces, sidewalks, roads, and highways. Sometimes ice is unnoticeable, and is then referred to as black ice. Black ice creates dangerous conditions, especially for traffic. Additionally, a quarter inch of frozen rain can significantly damage trees, electrical wires, weak structures, and other objects due to the additional weight bearing down on them. The potential for ice storms in Miner County annually is minimal, but can cause significant damages when they occur. The FEMA NRI indicates 0.6 ice storm events per year.

Sleet does not generally cling to objects like freezing rain, but it does make the ground very slippery. This also increases the number of traffic accidents and personal injuries due to falls. Sleet can severely slow down operations within a community. Not only is there a danger of slipping, but with wind, sleet pellets become powerful projectiles that may damage structures, vehicles, or other objects. Sleet normally occurs several times each year.

Heavy Snow is a common occurrence throughout the County during the months from October to April. Average annual snowfall for the county can range up to thirty-four inches. Accumulations in dry years can be as little as five to ten inches, while wet years can see yearly totals up to eighty inches. Snow is a major contributing factor to flooding, primarily during the spring months of melting. The County should expect approximately several heavy snow events each year.

Table 4.13 shows just how common blizzards, snow and ice storms are in the County. While such storms would be considered extreme in many parts of the State, the consistent nature of such weather hazards are expected in this area. Thus, planning and response mechanisms for snow and ice storms are vital to the County and are routine procedures in the County due to the common nature of such storms. Winter storms in South Dakota are known to cover large geographical areas, often an entire county or multiple counties can be affected by a single storm. All of the storms identified in Table 4.13 were considered to have occurred countywide

and affected all participants of the plan. Due to the multiple occurrences of storms each year, an exhaustive compilation is not possible.

Table 4.13: Miner County Ten-Year History of Winter Storms, Snow and Ice Storms

Location	Date	Time	Type
Miner County	02/10/2013	12:00	Blizzard
Miner County	04/09/2013	03:00	Winter Storm
Miner County	12/03/2013	17:00	Winter Storm
Miner County	01/16/2014	10:00	Blizzard
Miner County	03/18/2014	09:00	Heavy Snow
Miner County	11/15/2014	04:00	Winter Weather
Miner County	12/15/2014	06:00	Winter Weather
Miner County	01/05/2015	11:00	Winter Storm
Miner County	01/08/2015	13:00	Winter Weather
Miner County	01/31/2015	19:00	Winter Weather
Miner County	02/01/2015	00:00	Winter Weather
Miner County	02/09/2015	02:00	Winter Weather
Miner County	03/03/2015	07:00	Winter Weather
Miner County	11/30/2015	03:00	Winter Storm
Miner County	12/01/2015	00:00	Winter Storm
Miner County	12/15/2015	16:00	Winter Weather
Miner County	12/25/2015	20:00	Winter Storm
Miner County	01/06/2016	22:00	Winter Weather
Miner County	02/02/2016	07:00	Winter Weather
Miner County	02/29/2016	10:00	Winter Weather
Miner County	11/18/2016	03:00	Winter Storm
Miner County	12/10/2016	08:00	Winter Weather
Miner County	12/16/2016	10:00	Winter Storm
Miner County	12/24/2016	21:00	Winter Weather
Miner County	03/12/2017	16:00	Winter Weather
Miner County	12/21/2017	06:00	Winter Weather
Miner County	12/29/2017	06:00	Winter Weather
Miner County	01/10/2018	21:00	Winter Weather
Miner County	01/21/2018	22:00	Winter Weather
Miner County	02/08/2018	11:00	Winter Weather
Miner County	02/19/2018	10:00	Winter Weather
Miner County	02/22/2018	12:00	Winter Weather
Miner County	02/24/2018	09:00	Winter Weather

Location	Date	Time	Type
Miner County	03/05/2018	09:00	Winter Storm
Miner County	03/10/2018	07:00	Winter Weather
Miner County	03/23/2018	21:00	Winter Weather
Miner County	04/02/2018	23:00	Winter Weather
Miner County	04/08/2018	06:00	Winter Weather
Miner County	04/13/2018	15:00	Blizzard
Miner County	04/18/2018	03:00	Winter Weather
Miner County	11/28/2018	08:00	Winter Weather
Miner County	12/01/2018	05:00	Winter Weather
Miner County	12/27/2018	00:00	Winter Storm
Miner County	12/31/2018	08:00	Winter Weather
Miner County	03/01/2019	05:00	Winter Weather
Miner County	03/09/2019	04:00	Winter Weather
Miner County	04/11/2019	02:00	Blizzard
Miner County	10/11/2019	03:00	Winter Weather
Miner County	11/05/2019	20:00	Winter Weather
Miner County	11/26/2019	11:00	Winter Weather
Miner County	11/29/2019	17:00	Winter Weather
Miner County	12/01/2019	00:00	Winter Weather
Miner County	12/28/2019	22:00	Blizzard
Miner County	01/17/2020	08:30	Blizzard
Miner County	02/08/2020	20:00	Winter Weather
Miner County	02/12/2020	10:00	Winter Weather
Miner County	04/11/2020	23:00	Winter Storm
Miner County	10/22/2020	05:00	Winter Weather
Miner County	10/24/2020	13:00	Winter Weather
Miner County	12/23/2020	08:00	Blizzard
Miner County	12/29/2020	07:00	Winter Weather
Miner County	01/23/2021	08:00	Winter Weather
Miner County	02/27/2021	23:00	Winter Weather
Miner County	03/10/2021	11:00	Winter Weather
Miner County	03/14/2021	20:00	Winter Weather
Miner County	12/10/2021	06:00	Winter Weather
Miner County	02/21/2022	14:00	Winter Weather
Miner County	03/05/2022	15:00	Winter Weather
Miner County	12/08/2022	19:00	Winter Storm
Miner County	12/12/2022	15:00	Winter Weather

Location	Date	Time	Type
Miner County	12/15/2022	00:00	Winter Storm
Miner County	12/22/2022	10:00	Blizzard
Miner County	01/02/2023	12:00	Winter Storm
Miner County	01/08/2024	02:00	Winter Storm
Miner County	02/14/2023	20:00	Winter Weather
Miner County	02/21/2023	09:00	Blizzard
Miner County	03/08/2023	21:30	Winter Weather
Miner County	03/16/2023	03:00	Winter Weather
Miner County	12/25/2023	08:00	Winter Weather
Miner County	04/04/2023	07:00	Ice Storm
Miner County	01/18/2024	07:00	Winter Weather

SOURCE: https://www.ncdc.noaa.gov/stormevents/

Winter Storm Occurrences:

January 1888 – According to an article on the SDSU website for National History Day in SD, an extreme blizzard in January 1888 led to 170 deaths in South Dakota alone. Many of those who passed away were school children trying to walk home, giving this blizzard its name. This blizzard is also sometimes referred to as the Schoolhouse/Children's Blizzard of 1888.

March 1966 - The storm began on March 2, as a strong low pressure system from Colorado moved into the region. The system began on day where South Dakota was seeing spring-like conditions and fairly mild temperatures, with many areas reporting freezing drizzle in the afternoon But the precipitation quickly changed over to snow, followed by wind, and instantly creating blizzard conditions. By the following morning (March 3), many areas already had a full foot on the ground with more coming down. The winds increased as the day went on, eventually reaching 60-70 miles per hour and creating drifts of 20-30 feet. Travelers were stranded throughout South Dakota. Blizzard conditions persisted until March 4th. The storm dumped up to three feet of snow across the state. Overall, 6 people in South Dakota would die as a direct result of the storm, the highest total for the region. Thousands of head of livestock were killed by the storm.

Ultimately, the March 1966 storm was recorded as one of the most severe storms to ever hit the Upper Midwest. Measurements of sustained wind speed, wind gusts, snowfall, ice, and visibility all were amongst the strongest and largest on record. Thousands were without power for days and many rural homes could not be reached for even longer, imperiling those with health conditions. It was not until mid-March that lives returned to normal.

March 1981 – The March 29, 1981, storm covered power lines in snow and ice causing them to break. More than 15,000 power poles were damaged leaving South Dakotans huddling in their homes, trying to stay warm without power. The storm left more than 10 inches of snow on the ground, and many cars overturned on I-29.

November 2005 – Starting November 27th, heavy freezing rain coated roads, trees, power lines, and most other objects with ice up to 3 inches thick. Travel quickly became difficult to impossible. Many roads including Interstate Highways 90 and 29 were closed for extended

periods of time. Most schools and businesses were forced to close. Electric power was lost over widespread areas when many miles of power lines and thousands of poles were knocked down, with more damaged. Strong winds which accompanied the ice storm and the immediately following blizzard combined with the weight of the ice to bring down many of the power lines and poles. Tens of thousands of households and businesses lost power, with the time power was out ranging from most of a day, to two or three weeks in some rural areas. The damage to power poles and lines was so extensive that repairs done in the following days and weeks required assistance from crews which came from other states such as North Dakota, Minnesota, Iowa, Wisconsin, Nebraska, Montana, Missouri, and Kansas. The power loss resulted in numerous additional problems, including loss of refrigeration, freezing, and cooking capacity, lack of heating, loss of telephone service, and the loss of water service. The loss of heat and utilities and food problems forced many people to take emergency shelter during and after the storm in such varied places as schools, nursing homes, community centers, churches, fire stations, and courthouses where commercial or generator power was available. Medical care was made unavailable or seriously hampered by the lack of power and the difficulties or impossibility of transportation. Even mail delivery was temporarily halted in many areas. Tree damage was extensive, with some vehicles and buildings suffering damage from falling trees. Livestock losses were suspected because of difficulties in making food and water available, although emergency assistance in the days following the storm helped. Aside from law enforcement and other emergency personnel, the National Guard was activated for emergency operations including rescue work.

A blizzard began on November 28th. Snowfall varying from 4 to 15 inches combined with winds gusting over 50 mph to produce blizzard conditions. The heaviest snowfalls were mostly near and west of the James River, in the area where a severe ice storm immediately preceded the blizzard. Several reports of 6 to 8 foot drifts were received from this area. Visibilities were lowered frequently to zero and travel was made impossible in many areas. Roads, including Interstate Highways 90 and 29 were closed for extended periods of time. Most schools and businesses that were not already closed because of the ice storm were forced to close. The winds during the blizzard continued to bring down power lines and poles, most of which had been coated and weighted down by ice in the area hit by the ice storm. In addition, minor damage was caused to homes and vehicles by the strong winds and by windblown debris, mainly from trees.

April 2008 - Snow, preceded in many areas by rain and freezing rain, accumulated 8 to 15 inches along and near the James River Valley in southeast South Dakota, extending east to the Brookings area in the north. The snow fell from early morning to early evening on April 25th. The heaviest accumulations were along a line from Lake Andes to Mitchell to DeSmet.

April 2013 - Heavy precipitation with rapid cooling produced a combination of freezing rain, sleet, and snow over all of southeast South Dakota from the early morning hours of April 9th, to the morning of April 11th. Moderate to heavy ice accumulations were reported near Interstate 90. These were followed by moderate to heavy snow and sleet accumulations, mainly near and north of Interstate 90. The ice accumulations, greater than a half inch in some areas, caused major tree and power line damage in the ice storm area. Fallen branches and limbs were numerous, trees were destroyed, roads were blocked, and some vehicles and homes suffered damages from the falling trees, limbs, and branches. There were also major power outages because of the power line and power pole damage. Strong winds with and following the storm, not strong enough to cause significant damage under dry conditions, contributed greatly to the tree and power line damage. The snow and sleet accumulations made travel difficult, especially in areas where downed trees and power lines were already causing road blockages.

April 2018 - The most intense storm of the month, in fact many months, wrapped up across the central Plains on April 13, spreading a mix of wintry precipitation (rain, sleet, and snow) across the area, accompanied by numerous thunderstorms, creating life threatening conditions. Brutal winds (gusting as high as 60 mph at Mitchell and 61 mph at Madison) whipped visibility to less than a quarter mile at times through the afternoon of April 14. State offices were closed, and schools cancelled on April 13. Travel was not recommended for much of the two-day period, if not impossible. A storm total snowfall of 11.0 inches was measured at Howard. Snow drifts over 6 feet were reported in many locations. Extremely low visibility persisted for almost a day for most locations, making travel very difficult if not impossible.

December 2022 – This month held several heavy accumulation events that included light freezing rain, sleet, and snow. Two events occurred early in December that both resulted in over 7 inches of snow each. Later in the month, after a 1-to-3-inch fluffy snow accumulation across most of southeast South Dakota on December 21 and 22, a strong Arctic front surged through the area with strong and gusty northwest winds from 35 to 55 mph, creating widespread whiteout conditions. Most county, state, and federal highways were either impassable or with travel not recommended. Drifts as high as 5 to 10 feet were documented through social media. Numerous accidents and stranded vehicles complicated recovery efforts. School, county, and state operations were cancelled for several days when conditions were coupled with life-threatening wind chills. Northwest winds gusted to 43 mph at South Dakota Road Weather Information System site SD597 near Howard, resulting in frequent whiteout conditions.

URBAN/WILDFIRE

All fires, regardless of trigger, need three elements to sustain themselves: fuel, oxygen, and heat. The heat thermally decomposes the fuel into a hot gas which mixes with the oxygen which then creates a combustible gas namely the flame, the edge of which is where the combustion reaction happens.

Urban fires are fire involving buildings or structures in cities or towns with potential to spread to adjoining structures. Triggers of urban fires are numerous, from human actions (e.g., knocking over a candle) and technological triggers (e.g., power surge overloading appliances), to natural triggers (e.g., wildland fires interacting with urban areas).

Urban fires are linked to density of structures and type of construction. Highly dense settlements are likely to have large areas of structures that are in close proximity to one another which will facilitate fire spread. This, when combined with combustible construction can lead to large-scale fire events.

Wildfires are uncontrolled conflagrations that spread freely through the environment. Other names such as brush fire, bushfire, forest fire, grass fire, hill fire, peat fire, vegetation fire, and wildfire may be used to describe the same phenomenon. A wildfire differs from the other fires by its extensive size; the speed at which it can spread out from its original source; its ability to change direction unexpectedly; and to jump gaps, such as roads, rivers and fire breaks.

Fires start when an ignition source is brought into contact with a combustible material that is subjected to sufficient heat and has an adequate supply of oxygen from the ambient air. Ignition may be triggered by natural sources such as a lightning strike, or may be attributed to a human source such as “discarded cigarettes, sparks from equipment, and arched power lines.

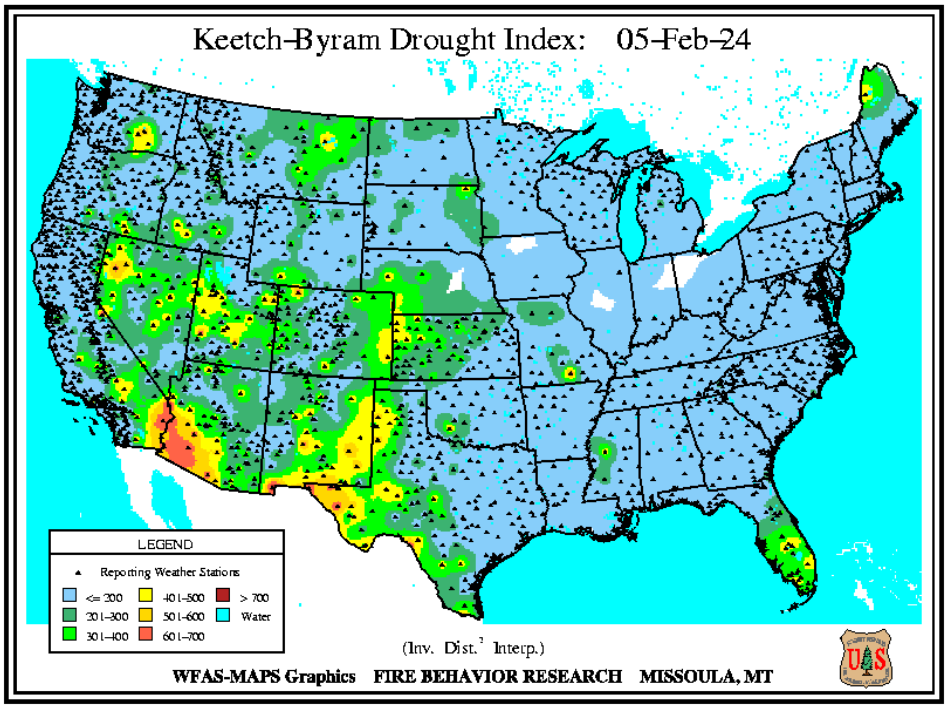
According to the SD Drought Mitigation Plan (SD DMP), lightning fires burn more acreage than human-caused fires, in part, because 1) multiple lightning fire ignitions often occur at the same time; 2) lightning fires can occur throughout the protection area, while most human-caused fires occur in accessible areas; 3) people often detect and report human-caused fires quickly due to their proximity to inhabited areas; and 4) lightning producing thunderstorms typically occur during the hottest portion of the fire season, while many human-caused fires start during spring or fall. When combined with drought, these conditions can create devastating wildfires.

According to Drought.gov and the Wildland Fire Assessment System, the Keetch-Byram Drought Index assesses the risk of fire due to drought. The Keetch-Byram Drought Index (KBDI) assesses the risk of fire by representing the net effect of evapotranspiration and precipitation in producing cumulative moisture deficiency in deep duff and upper soil layers.

The KBDI attempts to measure the amount of precipitation necessary to return the soil to full field capacity. The index ranges from zero, the point of no moisture deficiency, to 800, the maximum drought that is possible, and represents a moisture regime from 0 to 8 inches of water through the soil layer. At 8 inches of water, the KBDI assumes saturation. At any point along the scale, the index number indicates the amount of net rainfall that is required to reduce the index to zero, or saturation.

- KBDI = 0 - 200: Soil moisture and large class fuel moistures are high and do not contribute much to fire intensity. Typical spring dormant season following winter precipitation.
- KBDI = 200 - 400: Typical of late spring, early growing season. Lower litter and duff layers are drying and beginning to contribute to fire intensity.
- KBDI = 400 - 600: Typical of late summer, early fall. Lower litter and duff layers actively contribute to fire intensity and will burn actively.
- KBDI = 600 - 800: Often associated with more severe drought with increased wildfire occurrence. Intense, deep burning fires with significant downwind spotting can be expected. Live fuels can also be expected to burn actively at these levels.

A sample KBDI can be found below.



A strong possibility exists for simultaneous emergencies during droughts. Wildfires are the most common. While researching the hazard occurrences that have taken place in the County, it became evident that the information found on the NCEI Storm Events Database website was incomplete. Therefore, other sources were contacted whenever possible. Specifically, NCEI Storm Events Database had zero occurrences listed for wildfires in the County, but the State Fire Marshal's Office (SFMO) was contacted to verify that information.

The SFMO information provided is derived from the reports submitted by the local fire departments who respond to the fires. Representatives from the SFMO explained that since many of the fire departments in the County are volunteer, many times wildfires are extinguished, and reports are never filed with the State. Thus, the information provided by the SFMO is not entirely complete either. For the purpose of this PDM, we have used the numbers provided by the SFMO as a point of reference in determining the likelihood of a wildfire hazard occurrence within the jurisdiction.

The information provided by the SFMO identifies 28 structure fire responses, 21 vehicle fire responses, and 76 outdoor fire responses reported from 2013 to 2022. The cause of the outdoor fires is not listed, so it is not known for certain whether all or some of these fires resulted due to a natural hazard occurrence or as a result of human behavior. Additionally, the SFMO provided information about the number of injuries and fatalities reported as a result of these fires. According to the information provided, three civilian and one firefighter injuries were reported from 2013 to 2022. During the same time period, zero civilian and firefighter fatalities were reported.

The table below identifies the number of fire department responses to structural, vehicle, and outdoor fires that have been experienced within the county over the last ten years. It should be noted that the number of responses does not necessarily mean that there were 76 outdoor (wildfire) fires as some events required multiple departments to respond.

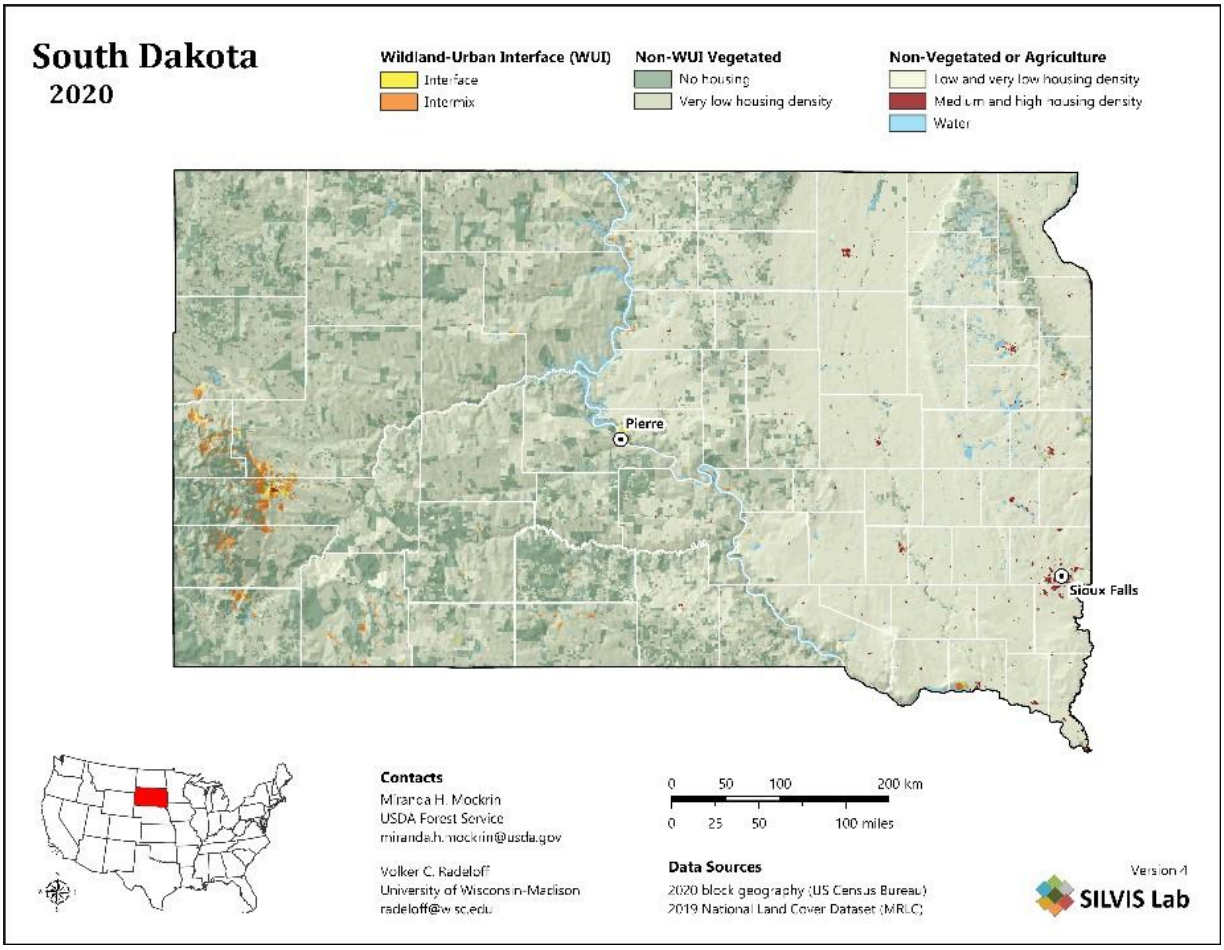
Table 4.14: Miner County Ten-Year Structural, Vehicle, and Outdoor (Wildfire) Department Responses

Year	Structural Fires	Vehicle Fires	Outdoor Fires
2013	5	1	2
2014	3	4	7
2015	4	2	5
2016	4	1	2
2017	0	3	11
2018	1	4	7
2019	2	1	4
2020	1	1	15
2021	6	2	12
2022	2	2	11
Total	**28**	**21**	**76**

Data from 2023 was not available at the time of this update.
SOURCE: South Dakota State Fire Marshall Office

The data compiled by the SMFO is not discriminate enough to determine whether a fire can be classified as an urban or wildfire. The picture displayed on the following page is Miner County as described in the South Dakota Wildland Urban Interface (areas that experience wildfires) from the South Dakota State Hazard Mitigation Plan. This shows very little chance of a wildfire occurrence broadly over the entire county jurisdiction. The FEMA NRI shows a 0.034% chance of wildfire per year.

Figure 4.2: Miner County Wildfire Vulnerability



ASSESSING VULNERABILITY: OVERVIEW

Requirement 201.6(c)(2)(i). Local Mitigation Plan Review Tool – B1.
Requirement 201.6(c)(2)(i). Local Mitigation Plan Review Tool – B2.
Requirement 201.6(c)(2)(ii). Local Mitigation Plan Review Tool – B3.

Hazards were also analyzed in terms of the level of the community or county's perceived vulnerability to the hazard. Vulnerability to the hazard is the susceptibility of life, property, and the environment to injury or damage if a hazard occurs. Representatives from each participating jurisdiction and the PDM Planning Team were asked to complete worksheets that rated their perception to vulnerability of hazards for either their specific geographical location, or for county-wide risks. A low vulnerability hazard is one that has very low damage potential to either life or property (minor damage to less than 5% of the jurisdiction). A "medium" vulnerability hazard is unlikely to threaten human life, although some people may be at risk, but may pose moderate damage potential (causing partial damage to 5% to 10% of the jurisdiction, on an irregular occurrence). A "high" vulnerability hazard may threaten human life, and more than ten percent of the jurisdiction may be at risk on a regular occurrence. Table 4.15 below is an overall summary of perceived vulnerability by jurisdiction produced from the FEMA worksheets completed by each participating jurisdiction and PDM Planning Team.

Table 4.15: Overall Summary of Vulnerability by Jurisdiction

Type of Disaster	Miner County	Canova	Carthage	Howard	Average
Dam Failure	N	N	M	N	N
Drought	M	L	L	L	L
Earthquake	N	N	N	N	N
Extreme Cold	H	L	L	L	M
Extreme Heat	H	L	L	L	M
Flood	M	L	M	L	M
Freezing Rain/Sleet/Ice	H	M	H	H	H
Hail	M	M	H	H	H
Heavy Rain	H	L	H	L	M
Heavy Snow	H	M	H	H	H
Ice Jam	L	N	L	L	N
Landslide	N	N	N	N	N
Lightning	M	L	M	H	M
Rapid Snow Melt	H	L	M	L	M
Strong Winds	M	M	M	H	M
Subsidence	N	N	N	N	N
Thunderstorm	M	L	M	H	M
Tornado	M	H	H	H	H
Urban Fire	M	M	L	H	M
Wildfire	M	N	H	L	L

N : Not applicable; not a hazard to the jurisdiction.

L : Low risk/vulnerability; little damage potential (minor damage to less than 5% of the jurisdiction).

M : Medium risk/vulnerability; moderate damage potential (causing partial damage to 5-10% of the jurisdiction, and irregular occurrence).

H : High risk/vulnerability; significant risk/major damage potential (for example, destructive, damage to more than 10% of the jurisdiction and/or regular occurrence).

After identifying and assessing the natural hazards that may affect Miner County and discussing their perceived vulnerabilities, the Team decided to concentrate on the following natural hazards: flooding, severe summer storms, severe winter storms and drought/fire. The remaining natural hazards, earthquakes; dam failure; ice jams, landslides and subsidence had a low/no probability of occurrence and a low/no vulnerability in the County. These hazards will no longer be considered by this plan.

Regional Climate Change Trends

FEMA requires PDM plans to include climate change projections as a part of the hazard's accessibility and vulnerability analysis. The Third National Climate Assessment (TNCA) was published in 2014 that addresses the impacts of climate change on the United States, now and in the future. The reports discuss climate-related impacts for various sectors and regions across the nation. This report was reviewed, and information/conclusions were incorporated into this plan. The information summarized in the report points to increasing mean temperatures in the northern Great Plains region where South Dakota is located. Winter season temperatures are warming faster than summer season temperatures. This may lead to increased evaporation and drought frequency. New agricultural practices will be needed to cope with changing conditions. Across South Dakota, there is a long-term trend of increasing annual precipitation. The majority of this increase is occurring in spring and fall seasons. The report suggests precipitation extremes will increase in frequency and intensity that could exacerbate flooding, especially in the spring. The Fourth National Climate Assessment was released in 2018. It reaffirms the findings within the Third National Climate Assessment. Other studies that were reviewed include the South Dakota State Multi-Jurisdictional Hazard Mitigation Plan, US Environmental Protection Agency-Climate Impacts in the Great Plains, NOAA NCEI-State Climate Summaries 2022 for South Dakota with similar information as the third and fourth climate assessments.

Flooding

Inundation flooding occurs most often in the spring. The greatest risks are realized typically during a rapid snowmelt before ice is completely off all of the rivers or ice jams that occur when warm temperatures and heavy rain cause snow to melt rapidly. Snow melting combined with heavy rains can cause frozen rivers to swell, which breaks the ice layer on top of the river. The ice layer often breaks into large chunks, which float downstream and often pile up near narrow passages and other obstructions, such as bridges and dams causing localized flooding. Flash flooding is more typically realized during the summer months. This flooding is primarily localized when enough rain can be produced to cause inundation flooding.

Flooding can result in injuries and even loss of life when quickly moving water is involved. Six inches of moving water is enough to sweep a vehicle off a road. Disruption of communication, transportation, electric service, and community services, along with contamination of water supplies and transportation accidents are very possible.

Miner County has experienced severe damages to roads and culverts periodically from flooding. Conditions, at times, make emergency response and evacuation operations difficult, adversely affecting the safety of residents. The flooding of township roads is a concern for the entire county. Township officials have identified areas that are either vulnerable or have experienced recurring damages. These areas are identified in maps contained in the Appendix E.

Flooding, especially county-wide flooding, causes significant damages and disrupts travel on roads in the county. According to the FEMA NRI, Miner County can expect 0.4 riverine flooding events per year. These are mostly localized events. FEMA flood studies provide mapping and detailed flood information for floodplains where the water body has a one percent chance of occurrence in any given year in identified special flood hazard areas.

Climate Change Considerations

There is no comprehensive assessment of how climate change might affect flooding in South Dakota. The TNCA, EPA-Climate Impacts on the Great Plains study plus other studies proposed climate change projections show that future precipitation patterns will vary across the Great Plains. Winter/spring precipitation and very heavy precipitation events are both projected to increase in the northern portions of the Great Plains, leading to increased runoff and potential flooding. Increased snowfall, rapid spring warming, and intense rainfall can combine to produce significant flooding. Since 1990, South Dakota has averaged 22% more 2-inch rain events compared to the long-term average. Some historic rain and flooding events have occurred in recent years. Climate projections for the Great Plains indicate that 1-day, 20-year return events will increase in frequency by 8% to 16% in the coming decades.

Severe Storms

Summer Storms

Summer storms can occur anywhere in the County. Summer storms historically occur from early spring to early fall. Summer storms can develop into thunderstorms that include strong winds, heavy rains and flooding, lightning and hail; they can also spur the development of funnel clouds and tornadoes. They can vary in intensity from mild to severe, and can cause injury or death, destroy property and kill livestock. This section covers five types of hazards caused by summer storms especially thunderstorms: hail, heavy rains, lightning, strong winds and tornadoes. Flooding was covered previously.

Hail causes damage to property such as crops, vehicles, windows, roofs, and structures. The County and its local jurisdictions are vulnerable to hail, like most other areas in the State due to the nature of the hazard. The average hail stone size for these incidents was a little over 1 inch in diameter. Mitigating hail is difficult and is usually found in the form of insurance policies for structures, vehicles, and crops. The County can expect hail several times each year.

Heavy rain causes damage to property such as homes and roads. Often when heavy rains occur in the County it may cause sewers to back up in homes due to excess water entering the wastewater collection lines. The excess water sometimes has no place to go and thus basements fill up with water which results in damage to water heaters, furnaces, and damage to living quarters for people who live in basement apartments. Roads, culverts and bridges can be washed out, thus causing traffic hazards for travelers and commuters. Many times the roads have to be closed causing rural traffic to have to take alternate routes which can sometimes be an additional five to ten miles out of the way. All areas of the County are vulnerable when heavy rains occur. Storm sewers, if installed, are built for the typical storm and therefore do not accommodate excessive or heavy rains.

Lightning often strikes the tallest objects within the area. In towns trees and poles often receive the most strikes. In rural areas, shorter objects are more vulnerable to being struck. Electrical lines and poles are also vulnerable because of their height and charge. Tall trees located near electrical lines can be broken in wind or by lightning strikes and land on electrical lines, severing connections. Limited loss of power is common on an annual basis. Typical power interruptions last around one to three hours. Most residents are prepared to deal with this.

Cloud-to-ground lightning can kill or injure people by direct or indirect means. Objects can be struck directly, which may result in an explosion, burn, or total destruction. Damage may also be

indirect, when the current passes through or near an object, which generally results in less damage. Most injuries from lightning occur before rain begins or near the end of thunderstorms. Individuals who sought shelter leave those areas prior to the entire completion of the thunderstorm. Believing it is safe to freely move around, lightning strikes catch them off guard.

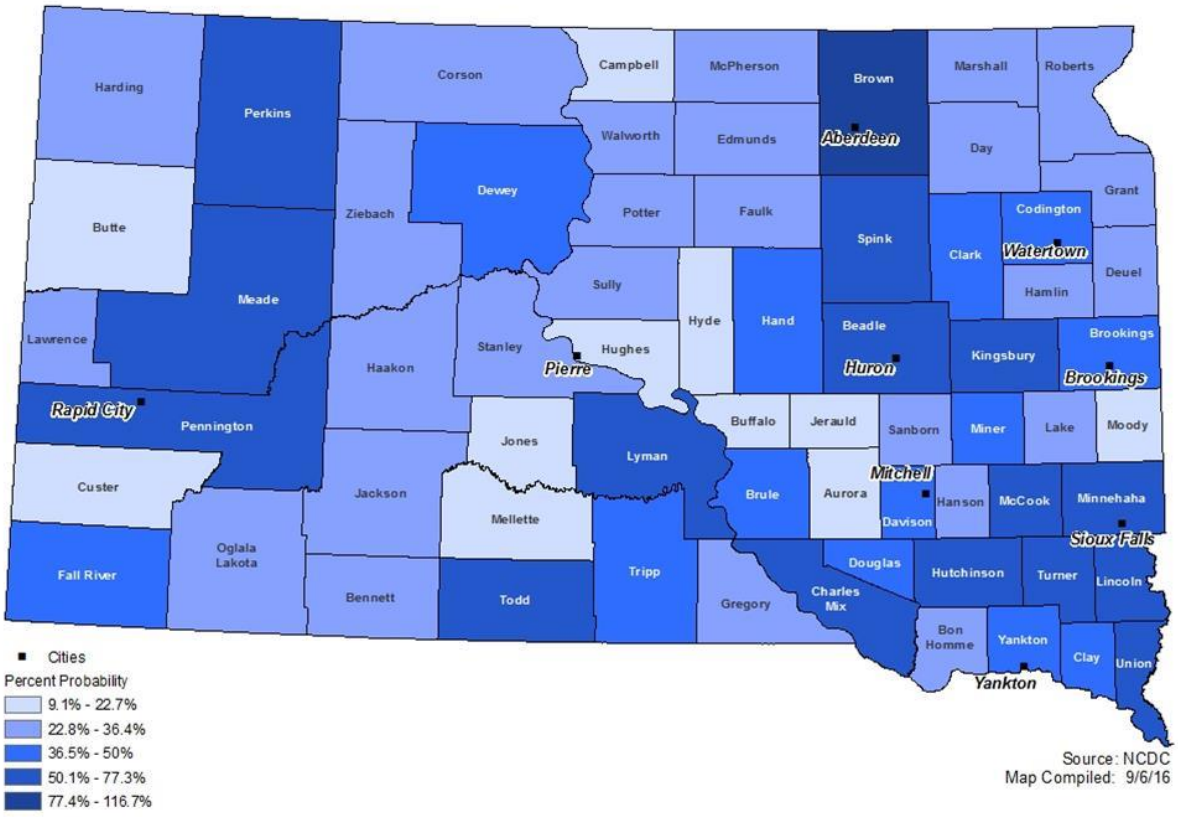
One of lightning's dangerous attributes includes the ability to cause fires. Since the entire county is vulnerable to lightning strikes and subsequent fires, these fires will be treated under the fire section of this PDM.

Strong winds can be detrimental to the County. Trees, poles, power lines, and weak structures are all susceptible and vulnerable to strong winds. When strong winds knock down trees, poles, power lines, and structures it creates additional traffic hazards for travelers and commuters. Strong winds are a common occurrence in all parts of the County. The farming community tends to be vulnerable because many old farm sites have weak, dilapidated, or crumbling structures or structures such as grain bins which can easily be blown over. Another area of particular vulnerability would be those areas with dense tree growth where dead or decaying trees lose their stability and can be blown over or knocked down easily. High voltage electrical transmission lines run the length of the County. These lines are susceptible to breaking during high winds and hail.

Tornadoes present significant danger and occur most often in South Dakota during the months of May, June, and July. The greatest period of tornado activity (about 82 percent of occurrence) is from eleven a.m. to midnight. Within this time frame, most tornadoes occur between four p.m. and six p.m.

According to the NCEI, there were 1,922 tornadoes, of which 706 were F1 or higher, in South Dakota between 1950 and 2023 (73 years). Based on this information, the probability that at least one tornado will occur in South Dakota is 100%. Expected annual loss values are estimated at nearly $648,109. Figure 4.3 depicts the probability of a damaging tornado occurring in each county based on the historical data. FEMA NRI projects the potential for 0.4 tornado events per year.

Figure 4.3 Damaging Tornado Probability by County



Climate Change Considerations

The annual risk for intense summer storms is very high and will increase. Climate projections are that the frequency and severity of heavy rainfall events will increase. Often associated with summer storms are hail, lightning and strong winds. It is expected that as summer/thunder storms increase, so will the associated hail, lightning and strong wind events.

The Fourth National Climate Assessment report states since the 1970s, the United States has experienced a decrease in the number of days per year on which tornadoes occur, but an increase in the number of tornadoes that form on such days.

According to the SD SHMP, there is a lot of uncertainty with the influence of climate change on severe summer storms and tornadoes, future updates to the mitigation plan should include the latest research on how the hazards frequency and severity could change.

Winter Storms

Winter Storms have a high risk of occurrence in the County. Several snowstorms each resulting in five to ten inches of snow occur in the County area annually. High winds, heavy and blowing snow, freezing rain/ice and cold temperatures can impair/immobilize transportation, down power lines and trees, cause the collapsing of weaker structures and potentially cause flooding.

Livestock and wildlife are also very vulnerable during periods of heavy snow. Most winter storms can be considered to have occurred countywide.

Blizzards are characterized by high winds, heavy and blowing snow, drifting, cold temperatures, and low visibility. Blizzards create conditions such as icy roads, closed roads, downed power lines and trees. The County's population is especially vulnerable to these conditions because people tend to leave their homes to get to places such as work, school, and stores rather than staying inside. Traffic is one of the biggest hazards in the County during a blizzard because people often get stuck, stranded, and lost when driving their vehicles which usually prompts others such as family and/or emergency responders to go out in the adverse conditions to rescue them.

Freezing rain/ice causes adverse conditions such as slippery surfaces and extra weight buildup on power lines, poles, trees, and structures. The additional weight can often cause weak structures to cave in and cause tree branches and power lines to break and fall. Electric transmission/distribution lines run the length of the County. These lines are susceptible to breaking under freezing rain and icy conditions and severing during high blizzard winds. Loss of power can cause the loss of residential heating and utilities usage. Limited loss of power is not uncommon on an annual basis. A typical power interruption lasts from one to three hours. Most residents are prepared to deal with this type of inconvenience. The elderly and families with children potentially may suffer from a long duration loss of power during winter storms. Traffic on the roads and highways tend to be another hazard during freezing rain and icy conditions because vehicles often slide off the road which prompts emergency responders and others to have to go out on rescue missions in the adverse conditions.

Extreme cold temperatures in the County are common occurrences. It is expected that at least two times each year there will be extreme cold in the area. It is possible that people in the area have adapted to this type of extreme temperatures and thus such weather events are not reported as often as they occur. Extreme cold and a long duration power outage has the potential to cause harm to vulnerable populations, damage structures that are poorly insulated or without heat and disrupt/impair communication facilities. Many communities have designated emergency shelters with generators to provide a location for persons in need of shelter. In South Dakota, most neighbors and relatives will check on vulnerable persons to ensure their safety during these types of events.

Flooding was previously covered in this section.

While winter storms would be considered extreme in many parts of the State, the consistent nature of such weather hazards are expected in this area. Thus, planning and response mechanisms for snow and ice storms are vital to the County and are routine procedures in the County due to the common nature of such storms.

Climate Change Considerations

According to climate reports, there is evidence for the entire Northern Hemisphere of an increase in both storm frequency and intensity during the cold season since 1950, with storm tracks having shifted slightly towards the poles. South Dakota's northern location and proximity to the typical U.S. winter storm track make it highly susceptible to heavy snows, high winds, and low wind chill temperatures. Extremely heavy snowstorms increased in number during the last

century in northern and eastern parts of the United States, but have been less frequent since 2000.[1] Total seasonal snowfall has generally increased in the northern Great Plains.

The winter season is warming at a faster rate than any other season in the Northern Plains region, and this is also true for South Dakota. Winter storms and blizzards, however, will continue to be a severe weather hazard in the state. Overall snow cover has decreased in the Northern Hemisphere, due in part to higher temperatures that shorten the time snow spends on the ground.

Warmer winter temperatures could mean more ice and freezing rain events, which often impact electrical utilities and communication systems, but can also affect agricultural livestock and roads and transportation. There remains some uncertainty in projections for the coming decades, but the rising trend of extreme precipitation events in general (including winter season) will continue to be a hazard.

Drought/Fires

Drought can be defined as a period of prolonged lack of moisture. High temperatures, high winds, and low relative humidity all result from droughts and are caused by droughts. Precipitation, streams, rivers, lakes, reservoirs and groundwater are used to meet a diverse set of water resource needs within the State. Each of these water sources can be adversely impacted during drought periods. Crops and other vegetation are harmed when moisture is not present within the soil. Roughly every fifty years a significant drought is experienced within the county, while less severe droughts have occurred as often as every three years. The FEMA NRI states Miner County has an annualized frequency of 12.1 drought events per year.

Severe heat waves, a component of drought, have caused catastrophic crop damage, deaths from hyperthermia, and widespread power failures due to increased use of air conditioning. Loss of power and crop damage is the largest vulnerabilities to the county during extreme heat. Both have an effect on quality of life, however, neither are detrimental to the existence of the population of the County.

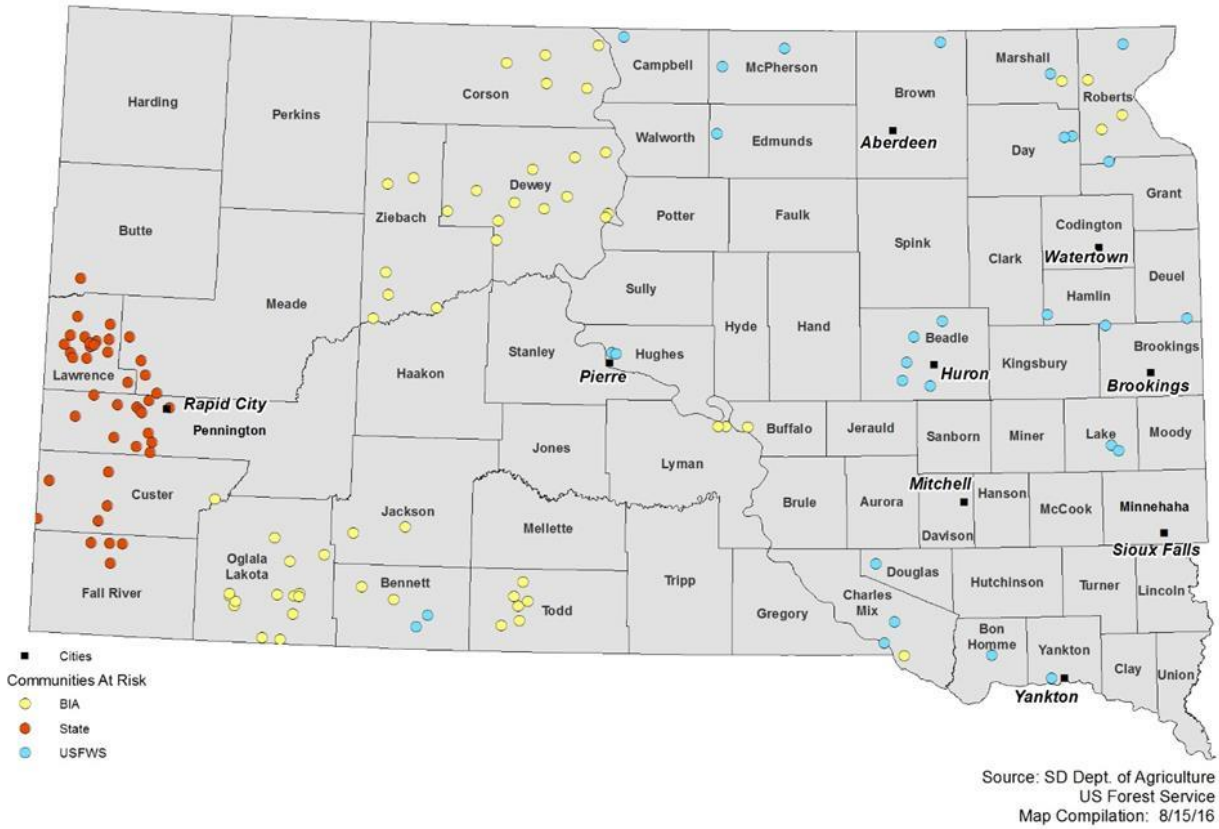
Wildfires occur primarily during drought conditions. Wildfires can cause extensive damage, both to property and human life, and can occur anywhere in the county. Even though wildfires can have various beneficial effects on wilderness areas for plant species that are dependent on the effects of fire for growth and reproduction, large wildfires often have detrimental atmospheric consequences, and too frequent wildfires may cause other negative ecological effects. Current techniques may permit and even encourage fires in some regions as a means of minimizing or removing sources of fuel from any wildfire that might develop.

Moisture amounts have the biggest impact on fire situations. During wet years, fire danger is low. More controlled burns are conducted, and fewer mishaps occur. During dry years, severe restrictions are placed on any types of burns. For information on dealing with open/controlled burning within the county, see SDCL 34-29B and SDCL 34-35. The FEMA NRI states Miner County has a 0.034% chance of wildfire per year.

Since there are no remote forested regions in Miner County, wildfires can be easily spotted and are capable of being maintained. Most of the land in Miner County is used for agriculture or pastureland. Most wildfires that occur in Miner County are grass/brush fires. All of the communities in the County are surrounded by ag land or open pastures meaning there is a lesser risk of wildfire encroaching upon the communities. There are no interface or intermix

areas located in Miner County. All communities receive fire protection from local fire departments. The following map (Figure 4.4) shows the SD communities at risk from wildfire including Miner County.

Figure 4.4 SD Communities at Risk from Wildfire



In addition, fire interference with traffic on highways is not a major concern. The most important factor in mitigating wildfires continues to be common sense and adherence to burning regulations and suggestions disseminated by the County.

Urban fires are a potential threat to the County and its communities. According to the US Fire Administration (USFA), many urban fires are caused by human related activities such as cooking, smoking, seasonal activities (candles and X-mas tree lights) or intentionally set. Other causes include home appliances, electrical systems and heating systems. The probability of an urban fire increases with population growth. This is due to human error and carelessness, which are other factors contributing to fires. Urban fires can cause extensive losses of property, lives, injuries and livelihood. The urban poor are the persons who are at greatest risk from urban fire. Generally, they have little means of protection against losses. In addition, those at greatest risk of death and injury are the old and the young due to lack of knowledge in how to respond and lack of mobility when trying to respond.

Inadequate planning, infrastructure, and construction practices related to fire prevention and mitigation significantly increase the potential for fire ignition and spread. Fire risk reduction

requires established firefighting capabilities, education and training. Many of the communities in Miner County have a volunteer fire department for fire suppression or are covered by a neighboring department. Most of the communities in Miner County have smaller populations. The City of Howard is the largest and the city has its own fire department.

Larger communities may implement building and fire regulations, but smaller communities lack personnel for inspections and therefore do not enact building and fire regulations. The State of South Dakota adopted the 2021 International Building Codes (IBC). South Dakota state law requires all commercial and public building to be built to the 2021 IBC standards in the state. Many communities adopt zoning regulations and ordinances to help with development and reduce building densities to reduce spread and for fire access. According to the USFA, the number of fires, fire casualties, and economic losses has continued to decline over the last several years.

Climate Change Considerations

In the Fourth National Climate Assessment, climate model projections paint a clear picture of a warmer future in the Northern Great Plains, with conditions becoming consistently warmer in two to three decades and temperatures rising steadily towards the middle of the century. Overall, climate models project an increase in the number of heavy precipitation events for much of the region. Most precipitation events are projected to occur during the winter and spring seasons. Rising temperatures will lead to increased evaporation and increasing drought frequency and intensity. The probability for more very hot days (days with maximum temperatures above 90°F) is expected to increase during the summer months, with potential impacts on agriculture, energy production, human health, stream flows, snowmelt, and fires. Less precipitation and warmer temperatures during the summer growing season, potentially causing drought conditions, may adversely affect agriculture (no irrigation), human health and fires.

According to the SD DMP and SD SHMP, wildfire conditions across South Dakota and the western United States in general are likely to worsen in the future due to climate change. The increase in moisture can provide favorable conditions for fuel (vegetation) growth. Longer, hotter summers deplete moisture in soils and vegetation potentially promoting drought conditions. The increase in temperatures can dry out fuels more rapidly allowing them to burn more easily. Hotter temperatures and drought conditions may adversely affect water supplies by decreasing their availability for fire suppression. Climate change is also believed to increase the severity of thunderstorms, leading to more lightning strikes that can ignite fires.

It appears that climate change will not have a major impact on urban fires, except when a wildfire crosses into a community.

ASSESSING VULNERABILITY: NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE

Requirement 201.6(c)(3)(ii). Local Mitigation Plan Review Tool – C2.

Miner County and the City of Howard participate in the National Flood Insurance Program (NFIP). Canova remains in good standing regarding its participation despite no areas within the municipality being mapped in the floodplain. Carthage is exploring the process of beginning to participate in the NFIP with the newly created flood hazard areas. It should be noted that the community has incorporated existing flood hazard areas (in the past) into planning documents

and discouraged development within those areas through existing regulatory mechanisms and will continue to do so regardless of standing regarding participation in the National Flood Program. Table 4.16 shows County entities that participate in the NFIP.

Table 4.16: Communities Participating in the National Flood Program

Community Name	Community ID	Current Map Effective Date
Miner County	460283	06/06/24
Canova	460102	06/06/24
Carthage	***Not Participating***	
Howard	460183	06/06/24

The Miner County Zoning Office maintains the flood zone maps and utilizes DFIRMS for all planning mechanism occurring in the unincorporated areas of the county; specifically, development of new structures. Each individual participating community has a designated floodplain administrator that requires elevation certificates and issues floodplain development permits for structures constructed within Zone A of the identified flood hazard areas. The DFIRMS are used to determine where the natural drainage occurs and ensures that new development will not interrupt the natural drainage. The Miner County Zoning Office and all municipalities have DFIRMS in electronic format and thus will utilize and maintain the maps in the electronic format.

ADDRESSING VULNERABILTY: REPETITIVE LOSS PROPERTIES

Requirement 201.6(c)(2)(ii). Local Mitigation Plan Review Tool – B4.

Due to various geomorphologic and topographical conditions, periodic flooding affects numerous areas in both incorporated and unincorporated areas of the County. The Cities of Howard and Carthage all have identified Flood Hazard Areas, in addition to the Rural portions of the county. Though not all areas subject to periodic inundation are identified as Special Flood Hazard Areas, those identified areas are heavily relied upon in the following sections. See Table 4.17 for County NFIP statistics.

Table 4.17: Miner County National Flood Insurance Program Statistics

Community Name	Current NFIP Policies	Number of Claims Paid Since 1978	Total Value of Claims Paid	Flood Insurance Coverage	Repetitive Loss Properties
Town of Canova	0	0	N/A	0	0
City of Howard	1	0	N/A	0	0
Unincorporated areas of Miner County	0	0	N/A	0	0
Totals	**1**	**0**	N/A	**0**	**0**

SOURCE: FEMA Regional Flood Insurance Liaison

The PDM Planning Team focused attention particularly on flood related issues. An issue of primary concern is the number of times specific properties and structures on those properties flood. Miner County has no repetitive loss claims throughout the county (Table 4.17). Repetitive loss properties are those for which two or more losses of at least $1,000 each have been paid under the National Flood Insurance Program (NFIP) within any ten-year period. A goal of the County is to protect specific areas in the county from flooding. This goal aims to protect properties prone to flood losses, but does not discount the possibility that in some cases structures located in the floodplain may need to be removed.

ADDRESSING VULNERABILTY: SEVERE REPETITIVE LOSS PROPERTIES

Requirement 201.6(c)(2)(ii). Local Mitigation Plan Review Tool – B4.

The Flood Insurance Reform Act of 2004 identified another category of repetitive loss, severe repetitive loss, and defined it as “a single family property (consisting of one-to-four residences) that is covered under flood insurance by the NFIP and has incurred flood-related damage for which four or more separate claims payments have been paid under flood insurance coverage with the amount of each claim payment exceeding $5,000 and with cumulative amount of such claims payments exceeding $20,000; or for which at least two separate claims payments have been made with the cumulative amount of such claims exceeding the reported value of the property. Miner County does not have any properties classified “severe repetitive loss.”

ASSESSING VULNERABILITY: IDENTIFYING STRUCTURES

Requirement 201.6(c)(2)(ii). Local Mitigation Plan Review Tool – B3.

One of the primary purposes of this PDM is identifying critical facilities, emergency shelters, and summer storm shelters. Then equipping those facilities with the means to provide the necessary energy for access to sanitation and maintain important functions during a natural hazard occurrence. In the event of a disaster as a result of severe summer or winter storms, a terrorist attack, or a hazardous materials incident, the County and participating entities will have the ability to prevent further loss of life by generator powered critical facility shelters. The City of Howard has many structures that are vital to emergency operations. Each jurisdiction was responsible for listing critical infrastructure within their communities. Table 4.16 is a list of critical facilities that would cause the greatest distress in the county if destruction occurred. The information provided in Table 4.18 was compiled via survey of the participating communities.

Table 4.18: Critical Infrastructure in Miner County

Jurisdiction/ Entity	Location	Address	Sector	Sub Sector	Name	Owner Type
Miner County	Miner County		Utility	Natural Gas Supply	Northwestern Energy Pipeline	Private
Miner County	Miner County	23596 421st Ave	Utility	Electric Supply	East River Electric Substation	Private
Miner County	Miner County	23203 434th Ave	Utility	Electric Supply	East River Electric Substation	Private
Miner County	Miner County	1 mile S of Howard on Hwy 25	Communications	Repeater	Repeater	Public
Miner County	Miner County	2 miles W of Howard on Hwy 34	Communications	Cell Tower	AT&T Tower	Private
Miner County	Miner County	1 mile E of Howard on Hwy 34	Communications	Cell Tower	Verizon Tower	Private
Miner County	Miner County	½ mile east of Canova on 436th Avenue	Communications	Cell Tower	Cell tower	Private
Miner County	Howard	401 N Main St	Government Facility	Building	Miner County Courthouse	Public
Miner County	Howard	200 ½ E Market	Government Facility	Building	Miner County Ambulance	Public
Miner County	Howard	201 W Highway 34	Government Facility	Building	Miner County Highway Dept	Public
Miner County	Carthage	West Town Road	Government Facility	Building	Miner County Highway Dept	Public
Town of Canova	Canova	140 Railroad St	Non-emergency Response Facility	Water Supply	Water Tower/ Pumphouse	Public
Town of Canova	Canova	East of Water Tower	Non-emergency Response Facility	Sanitary Sewer	Lift Station	Public
Town of Canova	Canova	W Main St & 435th Ave	Non-emergency Response Facility	Sanitary Sewer	Lagoons	Public
Town of Canova	Canova	South alley of W Pine Street (100 block)	Communications	Telephone Center	Triotel Communications	Private
Town of Canova	Canova	131 W Main	Emergency Service/ Shelter	Building	Fire Department/ Community Room	Public
Town of Canova	Canova	340 Kate St	Non-emergency Response Facility	Building	Care Center	Public
Town of Canova	Canova	N Short St & W Plumb St	Population to Protect	Recreation	Campground/ Park	Public
Town of Canova	Canova	W Main St & S Railroad St	Non-emergency Response Facility	Building	City Hall	Public

Jurisdiction/ Entity	Location	Address	Sector	Sub Sector	Name	Owner Type
City of Carthage	Carthage	N Station St	Non-emergency Response Facility	Water Supply	Water Tower	Public
City of Carthage	Carthage	E Main St & Buell St	Non-emergency Response Facility	Building	City Auditorium	Public
City of Carthage	Carthage	831 W Hubbard St	Non-emergency Response Facility	Sanitary Sewer	Lagoons	Public
City of Carthage	Carthage	121 E Main St	Government Facility	Building	US Post Office	Public
City of Carthage	Carthage	Main St & Fredrick St	Communications	Tower	Repeater	Public
City of Carthage	Carthage	110 W Main St	Emergency Services/ Shelter	Building	Fire Department	Public
City of Carthage	Carthage	Main St & Fredrick St	Government Facility	Building	City Shop	Public
City of Carthage	Carthage	141 W Town Rd	Government Facility	Building	Little School/ City Office	Public
SD GFP	Carthage	½ mile NE of Carthage on 425th Avenue	Population to Protect	Recreation	Lake Carthage State Lakeside Use Area	Public
City of Carthage	Carthage	E Main St & S Franklin St	Government Facility	Building	Shower Facility & Storm Shelter	Public
City of Carthage	Carthage	Main St & S Drake St	Recreation	Building	Park, Campground & Storm Shelter	Public
Village of Fedora	Miner County	23302 421st Avenue	Emergency Services	Building	Fedora Fire Dept	Public
City of Howard	Howard	205 E Market	Government Facility	Building	Street Shop	Public
City of Howard	Howard	200 E Market	Government Facility	Building	City Light Plant	Public
City of Howard	Howard	208 N Pleasant St	Emergency Shelter	Building	Howard Armory	Public
City of Howard	Howard	500 N Section Line	Public Institution	School	High School	Public
City of Howard	Howard	201 N Minnie St	Public Institution	School	Elementary School	Public
City of Howard	Howard	300 W Hazel	Population to Protect	Nursing Home	Good Samaritan Center	Private
City of Howard	Howard	700 S Main St	Population to Protect	Assisted Living Center	Whispering Winds Assisted Living	Private
City of Howard	Howard	206 N Main St	Population to Protect	Daycare	Children's Care Corner	Private
City of Howard	Howard	107 S Dakota St	Communications	Telephone Center	Alliance Communications	Private
City of Howard	Howard	100 S Main St	Government Facility	Building	Municipal Building	Public

Jurisdiction/ Entity	Location	Address	Sector	Sub Sector	Name	Owner Type
City of Howard	Howard	201 W Highway 34	Emergency Services	Building	Fire Department/ Ambulance Dept	Public
City of Howard	Howard	109 Main St	Emergency Services	Heath Clinic	Horizon Health Care	Private
City of Howard	Howard	103 S Main St	Population to Protect	Rehab Center	iRecover US	Private
City of Howard	Howard	S Arthur St	Non-emergency Response Facility	Sanitary Sewer	Lagoons	Public
City of Howard	Howard	E Market Ave & S Vermillion St	Population to Protect	Recreation	City Campground	Public
City of Howard	Howard	103 E Highway 34	Non-emergency Response Facility	Water Supply	Water Tower	Public
City of Howard	Howard	Dakota St & Park Ave	Population to Protect	Recreation	Courthouse Park	Public
City of Howard	Howard	Chet Corey Dr & Elm St	Population to Protect	Recreation	Loe Park	Public
City of Howard	Howard	Hwy 34 between Main & Miner St	Population to Protect	Recreation	Taschner Park	Public
City of Howard	Howard	307 SD Hwy 34	Non-emergency Response Facility	Emergency Fuel Storage	Farmer's Coop	Private
City of Howard	Howard	Farmers Ave & Arthur St	Non-emergency Response Facility	Sanitary Sewer	Lift Station	Public
City of Howard	Howard	Fairway St & Tall Grass Circle	Non-emergency Response Facility	Sanitary Sewer	Lift Station	Public
City of Howard	Howard	610 N Section Line St	Non-emergency Response Facility	Water Supply Building	Kingbrook Rural Water Systems	Private
City of Howard	Miner County	Intersection of 232nd St & N Section Line St	Utility	Electric Supply	Substation	Public

ASSESSING VULNERABILITY: COMMUNITY CAPABILITIES

Requirement 201.6(c)(3). Local Mitigation Plan Review Tool – C1.

Each community has a unique set of capabilities, including authorities, policies, programs, staff, funding, and other resources for accomplishing mitigation. One important step in assessing the vulnerability of a given community is to objectively review the capabilities to implement mitigation strategies and to identify limiting factors. Each community reviewed existing administrative documents, procedures, and policies. This helped the communities and planning team to evaluate how existing capabilities contribute to the vulnerability by reducing or exacerbating disaster impacts. Table 4.19 identifies whether each community has the specified administrative and technical capabilities, and who serves in such capacity. Table 4.20 encapsulates the efficacy of the specified planning mechanisms with regard to disaster mitigation and to identify potential deficiencies in the specified plans.

Table 4.19: Administrative and Technical Capabilities

Administrative/Staff Composition	Local Jurisdiction				
	Canova	***Carthage***	***Howard***	***Vilas***	***Miner County***
Board of Adjustment	Elected Officials	Elected Officials	Elected Officials	NA	Appointed
Building Official	NA	NA	NA	NA	NA
Community Planner	NA	NA	NA	NA	NA
Elected Officials	Trustee	Aldermanic	Aldermanic	Trustee	Commission
Emergency Manager	NA	NA	NA	NA	Appointed
Engineer/Highway Superintendent	NA	NA	NA	NA	Appointed
Floodplain Administrator	NA	Finance Officer	Finance Officer	NA	Zoning Officer
GIS Coordinator	NA	NA	NA	NA	NA
Planning Commission	Elected Officials	Elected Officials	Elected Officials	NA	Appointed
Zoning Officer	Finance Officer	Finance Officer	Finance Officer	NA	Appointed
Grant Writing Capability	Yes*	Yes*	Yes*	Yes*	Yes*
Non-profit organizations focused on environmental protection.	Yes**	Yes**	Yes**	Yes**	Yes**
Public-Private partnership initiatives addressing disaster-related issues.	No	No	No	No	No

NA: This jurisdiction has nobody serving in this role.
****First District Association of Local Governments provides these services without cost.***
*****Services provided by East Dakota Watershed Development District.***

Table 4.20: Capabilities of Growth Guidance Instruments

Capabilities of Community Planning Mechanisms	Canova	Carthage	Howard	Vilas	Miner County
Does the Future Land-Use Map identify natural hazard areas?	Y	Y	Y	NA	Y
Do the land-use policies discourage development or redevelopment within natural hazard areas?	Y	Y	Y	NA	Y
Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas?	Y	Y	Y	NA	Y
Does the transportation plan limit access to hazard areas?	N	N	N	NA	N
Is transportation policy used to guide growth in safe locations?	Y	Y	Y	NA	Y
Are movement systems designed to function under disaster conditions (e.g. evacuation)?	Y	Y	Y	NA	Y
Are environmental systems that protect development from hazards identified and mapped?	N	N	N	NA	N
Do environmental policies provide incentives to development that is located outside protective ecosystems?	N	N	N	NA	N
Do environmental policies maintain and restore protective ecosystems?	N	N	N	NA	N
Are the goals and policies of the comprehensive plan related to those of the FEMA Local Hazard Mitigation Plan?	N	N	N	NA	N
Is safety explicitly included in the plan's growth and development policies?	Y	Y	Y	NA	Y
Does the monitoring and implementation section of the plan cover safe growth objectives?	N	N	N	NA	N
Does the Zoning Ordinance conform to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas?	Y	Y	Y	NA	Y

Capabilities of Community Planning Mechanisms	Canova	Carthage	Howard	Vilas	Miner County
Does the zoning ordinance contain natural hazard overlay zones that set conditions for land use within such zones?	N	N	Y	NA	Y
Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?	Y	Y	Y	NA	Y
Does the zoning ordinance restrict development within, or filling of, wetlands, floodways, and floodplains?	N	Y	Y	NA	N
Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?	NA	N	Y	NA	Y
Do the subdivision regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?	NA	N	N	NA	N
Do the subdivision regulations allow density transfers where Hazard areas exist?	NA	N	N	NA	N

NA: This jurisdiction does not have the specified document.

ASSESSING VULNERABILITY: ESTIMATING POTENTIAL LOSSES

Requirement 201.6(b)(3). Local Mitigation Plan Review Tool – A4.
Requirement 201.6(c)(2)(ii). Local Mitigation Plan Review Tool – B3.
Requirement 201.6(d)(3). Local Mitigation Plan Review Tool – D1.

The information provided in the following tables was collected from the Miner County Director of Equalization. Inconsistencies and missing information result from lack of existing mechanisms, plans, and technical documents available.

The assessor's office provided the assessed valuation of total structures on each property within the incorporated and rural areas of the county. The data provides a total value for structures of a certain use on each property. It was not possible to discern the value of each structure on a lot, so the actual number of structures is based on the number of parcels with the specified use type. For the purposes of this plan only Residential, Commercial/Industrial, Agricultural, and Manufactured Homes were included. More specifically, all agricultural structures were included; only primary residential structures (houses, apartments, etc.) and not including sheds, lean-tos, and garages were included. All commercial or industrial structures were included, whether

considered primary or accessory structures. Public or quasi-publicly owned structures and other structures for which the Department of Equalization did not have an assessed value were not included in the calculation. Structures throughout the incorporated and unincorporated portions of the county were reviewed based upon updated flood hazard area (Zone "A") boundaries provided by FEMA in 2022. If it was determined any structures on the applicable lot were located within the flood hazard area, the total assessed value for structures on said lot was included in the value of structures in the hazard area. The information does not account for letters of map amendment or letters of map revision which may have been approved.

All properties with structures, whether owner occupied or not were included in the valuations provided in Tables 4.21 through 4.27. The reports provided by the assessor's office did not include the number of people in each structure; thus, many of the tables are missing this information. The following tables also do not address information regarding religious, governmental, or utility structures. Although not included in Tables 4.21 through 4.27, the State of South Dakota Hazard Mitigation Plan incorporated HAZUS analysis accounting for potential losses to those structures within Miner County.

Table 4.21: Miner County (Rural Area) Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in County	# in HA	% in HA	$ in County	$ in HA	% in HA	# in Rural Areas	# in HA	% in HA
Residential	282	2	0.71%	$12,147,332	$47,163	0.39%	1,197	5	0.17%
Commercial/Industrial	31	0	0.00%	$3,419,702	$0	0.00%			
Agricultural	515	2	0.38%	$20,414,822	$19,342	0.09%			
Mobile Homes	3	0	0.00%	$79,079	$0	0.00%	Included in "Residential"		
Total	**831**	**4**	**0.48%**	**$36,060,935**	**$66,505**	**0.18%**	**1,197**	**5**	**0.17%**

Table 4.22: Canova Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in HA	% in HA	$ in City	$ in HA	% in HA	# in City	# in HA	% in HA
Residential	28	0	0.00%	$350,051	0	0.00%	89	0	0
Commercial/Industrial	10	0	0.00%	$687,516	0	0.00%			
Agricultural	2	0	0.00%	$25,957	0	0.00%			
Manufactured Home	0	0	0.00%	$0	0	0.00%			
Total	**40**	**0**	**0.00%**	**$1,063,524**	**0**	**0.00%**	**89**	**0**	**0**

Table 4.23: Carthage Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in HA	% in HA	$ in City	$ in HA	% in HA	# in City	# in HA	% in HA
Residential	105	1	0.95%	$1,832,659	$2,105	0.11%	127	1	0.79%
Commercial/Industrial	24	0	0.00%	$1,142,240	0	0.00%			
Agricultural	2	0	0.00%	$100,131	0	0.00%			
Manufactured Home	0	0	0.00%	$0	0	0.00%			
Total	**131**	**1**	**0.76%**	**$3,075,030**	**$2,105**	**0.07%**	**127**	**1**	**0.79%**

Table 4.24: Howard Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in HA	% in HA	$ in City	$ in HA	% in HA	# in City	# in HA	% in HA
Residential	246	2	0.81%	$5,532,074	$46,501	0.84%	848	4	0.24%
Commercial/Industrial	93	1	1.08%	$13,664,500	$257,528	1.88%			
Agricultural	3	0	0.00%	$200,111	$0	0.00%			
Manufactured Home	3	0	0.00%	$101,900	$0	0.00%			
Total	**348**	**3**	**0.86%**	**$19,498,585**	**$304,029**	**1.56%**	**848**	**4**	**0.24%**

Table 4.25: Roswell Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in HA	% in HA	$ in City	$ in HA	% in HA	# in City	# in HA	% in HA
Residential	9	0	0.00%	$34,929	0	0.00%	8	0	0.00%
Commercial/Industrial	0	0	0.00%	$0	0	0.00%			
Agricultural	3	0	0.00%	$2,049	0	0.00%			
Manufactured Home	0	0	0.00%	$0	0	0.00%			
Total	**12**	**0**	**0.00%**	**$36,978**	**0**	**0.00%**	**8**	**0**	**0.00%**

Table 4.26: Vilas Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in HA	% in HA	$ in City	$ in HA	% in HA	# in City	# in HA	% in HA
Residential	14	0	0.00%	$183,348	0	0.00%	29	0	0.00%
Commercial/Industrial	2	0	0.00%	$140,774	0	0.00%			
Agricultural	3	0	0.00%	$50,887	0	0.00%			
Manufactured Home	0	0	0.00%	$0	0	0.00%			
Total	**19**	**0**	**0.00%**	**$375,009**	**0**	**0.00%**	**29**	**0**	**0.00%**

Table 4.27: Miner County Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in County	# in HA	% in HA	$ in County	$ in HA	% in HA	# in County	# in HA	% in HA
Residential	684	5	0.73%	$20,110,685	$95,769	0.48%	2,324	10	0.22%
Commercial/Industrial	160	1	0.63%	$19,054,732	$257,528	1.35%			
Agricultural	528	2	0.38%	$20,824,053	$19,342	0.09%			
Manufactured Homes	6	0	0.00%	$180,979	$0	0.00%	Included in "Residential"		
Total	**1,378**	**8**	**1.73%**	**$60,170,449**	**$373,639**	**1.92%**	**2,324**	**10**	**0.22%**

Notes:

 # in HA: Number of structures in hazard area was determined using aerial photography and DFIRM boundaries provided by FEMA. Some structures included may have received LOMA's, removing them from the flood plain, since the effective date of the current DFIRM.

$ in HA: Value of structures in hazard area was estimated by extrapolating assessed valuations of structures on parcels which had a primary structure within the hazard area. This data was provided by the Miner County Department of Equalization and is classified by land use.

 # in [Jurisdiction]: The number of people was based on the 2020 Census.

 # in Hazard Area: The number of people in a hazard area was determined by multiplying the average household size of a given community as identified by the number of structures in the identified hazard area and multiplying that number by the rate of occupancy for the community (All statistics from the US Census 2020).

ASSESSING VULNERABILITY: ANALYZING DEVELOPMENT TRENDS

Requirement 201.6(b)(3). Local Mitigation Plan Review Tool – A4.
Requirement 201.6(c)(3). Local Mitigation Plan Review Tool – C1.
Requirement 201.6(d)(3). Local Mitigation Plan Review Tool – D1.
Requirement 201.6(d)(3). Local Mitigation Plan Review Tool – D2.

The land use and development trends for each jurisdiction were identified by the representatives from each of the jurisdictions. From 2010 to 2020 none of the communities, nor the county increased in total population. However, some communities are experiencing growth and have comprehensive land use plans which identify future areas for development. The communities without zoning have not issued any building permits for new homes or commercial structures. In addition to Miner County, the municipalities of Carthage, Canova, and Howard have zoning ordinances and Comprehensive Land use Plans. The municipalities of Carthage, Canova, and Howard issued building permits for three new homes including mobile homes and one commercial structures over the last five years. The County issued 25 building permits for new homes and mobile homes over the last five years. Eleven building permits were issued for new commercial structures over the last five years. No major developments are being planned. Based on this information, there has been some growth, but it was minimal. No major plan revisions were made from 2019.

Although Howard is in the early phases of adopting updates to its Future Land Use Maps, none of these plans have been updated or amended since the approval of the last PDM Plan. The Comprehensive Land Use Plans for each community were reviewed by each community utilizing one. Specifically, available undeveloped areas projected for residential, commercial, and industrial uses were reviewed. Based upon their own projected density of development for each land use, the communities then identified the potential number of lots which could be

created within flood hazard areas given current land use regulations and controls. Communities in Miner County have adopted the most recently prepared Flood Insurance Rate Map, based upon the most recent Flood Insurance Study, and approved recommended ordinances for the proper regulation of property within the floodplain. Those maps have changed since the last update to the PDM Plan. Changes to the mapped hazard areas did not affect Canova so no changes are referenced in the following tables for that community from the preceding PDM. Tables 4.28 – 4.30 identify the projected vulnerability for communities which have adopted land use plans. Future Land Use Maps for each jurisdiction which have adopted Comprehensive Land Use Plans are included in Appendix G.

Table 4.28: Miner County (Unincorporated Area)
Potential Floodplain Development – By Land Use Type

	Community Totals		Flood Hazard Area			
Land Use Category	Projected Development Density (Acres/Unit)	Acres of projected future development	Acres of future development in Hazard Area	% Area for future development	Potential # of Lots for future development	# of Undeveloped Lots Already Appropriately Zoned
Ag	2	361,557	3,774	8.7%	1,887	146
Residential	2	N/A	N/A	N/A	0	0
Commercial	2	N/A	N/A	N/A	0	0
Industrial	2	N/A	N/A	N/A	0	0

N/A: Most of the rural area is planned to remain agricultural in use with varying degree of land use restrictions.

Table 4.29: Town of Carthage Potential Floodplain Development – By Land Use Type

	Community Totals		Flood Hazard Area			
Land Use Category	Projected Development Density (Units/Acre)	Acres of projected future development	Acres of future development in Hazard Area	% Area for future development	Potential # of Lots for future development	# of Undeveloped Lots Already Appropriately Zoned
Residential	2.5	45	0.0	0	0	0
Commercial	1	7	0.0	0	0	0
Industrial	0.25	4	0.0	0	0	0

Table 4.29: Town of Howard Potential Floodplain Development – By Land Use Type

	Community Totals		Flood Hazard Area			
Land Use Category	Projected Development Density (Units/Acre)	Acres of projected future development	Acres of future development in Hazard Area	% Area for future development	Potential # of Lots for future development	# of Undeveloped Lots Already Appropriately Zoned
Residential	2.5	85	2.7	3.2%	7	7
Commercial	1	8	0.0	0.0%	0	0
Industrial	0.25	20	2.6	13.0%	2	1

UNIQUE OR VARIED RISK ASSESSMENT

Requirement 201.6(c)(2)(i). Local Mitigation Plan Review Tool – B1.
Requirement 201.6(c)(2)(ii). Local Mitigation Plan Review Tool – B3.
Requirement 201.6(d)(3). Local Mitigation Plan Review Tool – D1.

Vulnerability to all-natural hazards was considered by each community and by the Planning Team. In community meetings, each community rated its vulnerability to certain natural hazards. Specific information regarding the vulnerability of structures to flood and tornado was available. A detailed description of the county's communities' vulnerability to flooding within the 100-year floodplain is identified above. Information compiled and utilized by the State of South Dakota in its State of South Dakota Hazard Mitigation Plan (2019) was included in the plan to describe the vulnerability of the county and its communities to tornadoes. Less quantitative data is available regarding the potential impact of other natural hazards. Anecdotal information gathered from the meetings was used to generally assess the communities' vulnerability to certain hazards.

After conducting the risk assessment for each jurisdiction, the PDM Planning Team decided that all areas of the county have an equal chance of a natural hazard occurrence in their area. While the extent to which each jurisdiction is affected by such hazards varies slightly between the local jurisdictions, the implications are the same. Thus the PDM Planning Team decided that all jurisdictions in the County are equally affected by the types of hazards/risks that affect the PDM jurisdiction. Thus, the unique or varied risk requirement is not applicable to the Miner County PDM.

On the following pages, a hazard vulnerability map is shown for each of the jurisdictions participating in this PDM (see Figures 4.5 – 4.8). The overall mitigation strategy and its goals are intended to minimize loss of life and injury; in addition to ensuring essential public services and the availability of emergency shelter in the event of natural hazards. The maps identify critical infrastructure and one-hundred-year floodplain. Since the other major hazards facing the county are not geographically based. Winter storms and severe summer storms are about as likely to occur in one part of the county as another. Similarly, wildfires can occur almost anywhere in the county, although they are more likely to occur in areas with extensive grassland cover or shrubs. While specific locations for above ground electrical distribution lines are not identified on the map(s), they are located throughout the County and are vulnerable to both flooding and severe weather.

UNIQUE OR VARIED RISK ASSESSMENT

Requirement 201.6(c)(2)(i). Local Mitigation Plan Review Tool – B1.
Requirement 201.6(c)(2)(ii). Local Mitigation Plan Review Tool – B3.
Requirement 201.6(d)(3). Local Mitigation Plan Review Tool – D1.

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its State of South Dakota Hazard Mitigation Plan (2019) was included in the plan to describe the vulnerability of the county and its communities to tornadoes. Less quantitative data is available regarding the potential impact of other natural hazards. Anecdotal information gathered from the meetings was used to generally assess the communities' vulnerability to certain hazards.

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Figure 4.5: Miner County Hazard Vulnerability Map

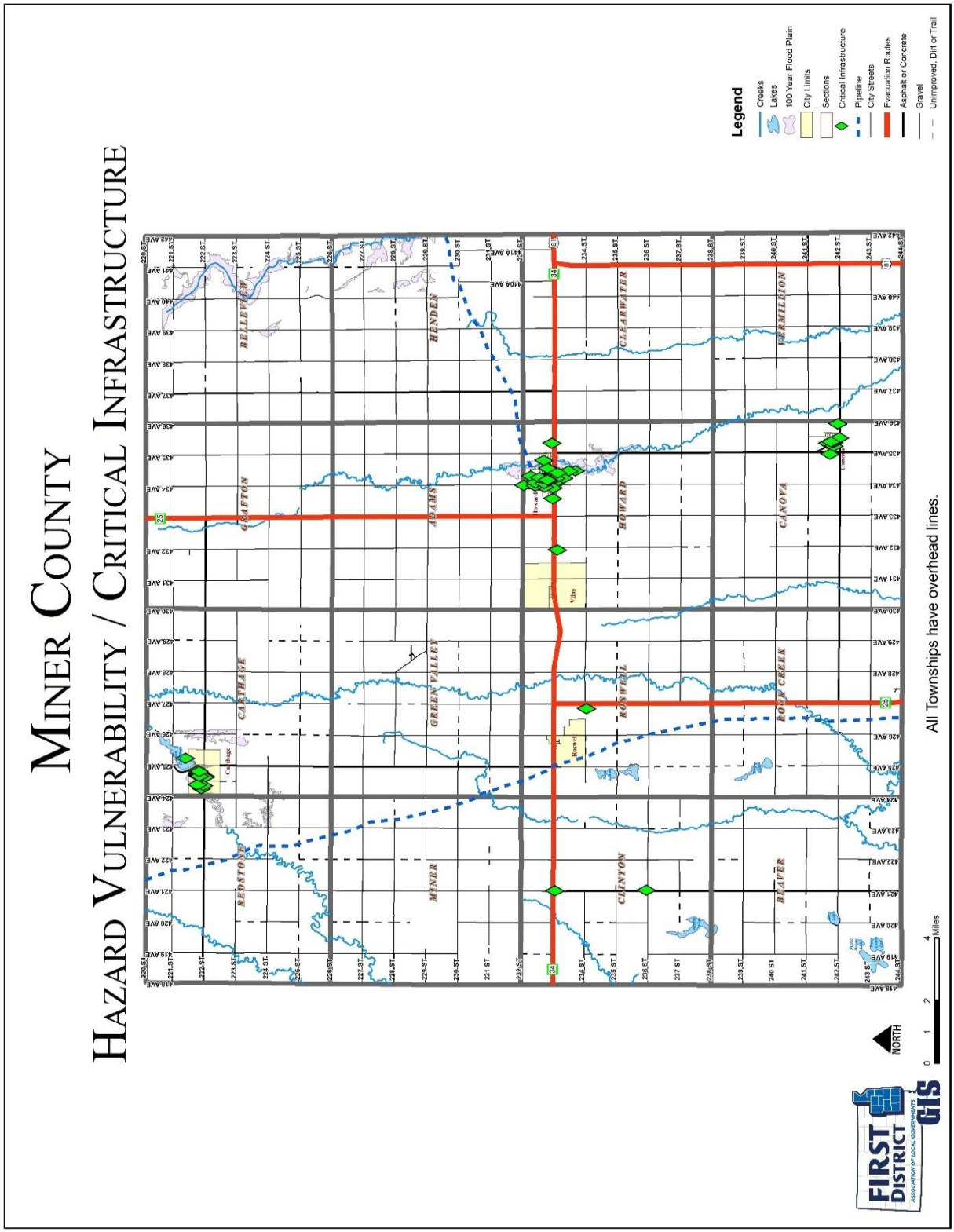


Figure 4.6: Town of Canova Hazard Vulnerability Map

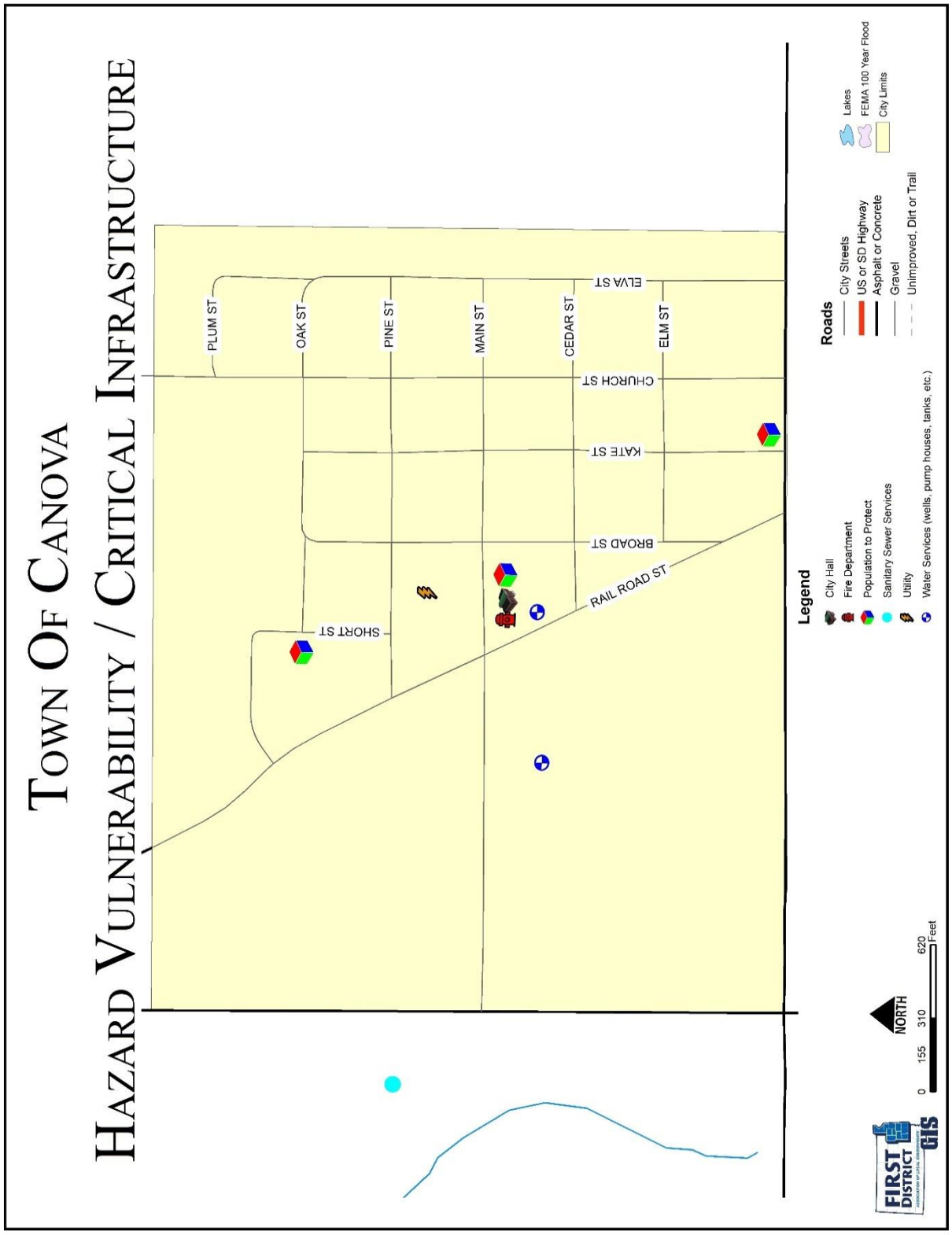


Figure 4.7: City of Carthage Hazard Vulnerability Map

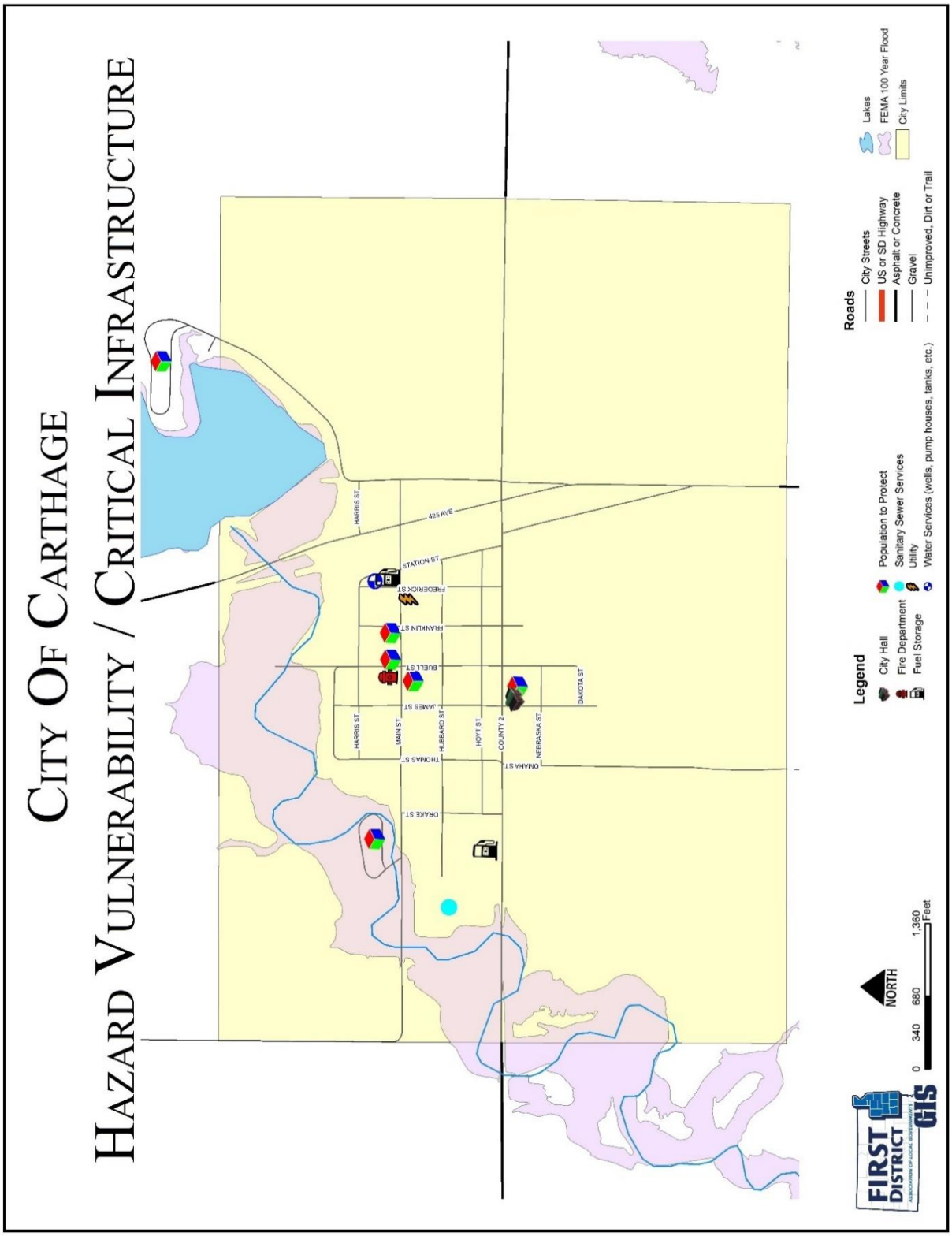
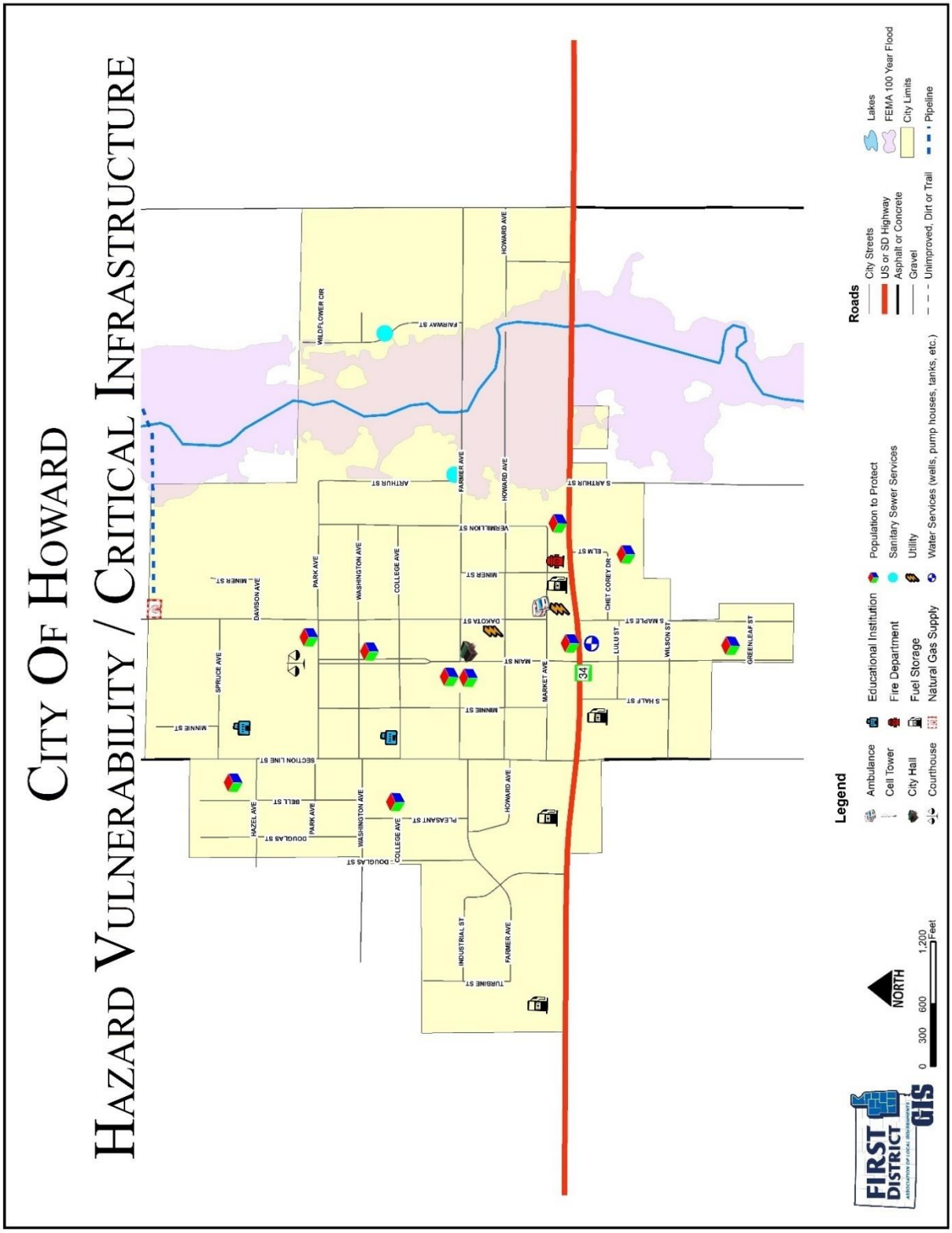


Figure 4.8: City of Howard Hazard Vulnerability Map



CHAPTER 5 | MITIGATION STRATEGY

MITIGATION OVERVIEW

Requirement 201.6(c)(3)(i). Local Mitigation Plan Review Tool – C3.
Requirement 201.6(c)(3)(ii). Local Mitigation Plan Review Tool – C4.
Requirement 201.6(c)(3)(iii) & (iv). Local Mitigation Plan Review Tool – C5.
Requirement 201.6(d)(3). Local Mitigation Plan Review Tool – D3.

The SD SHMP addresses several mitigation categories including warning and forecasting, community planning, and infrastructure reinforcement. The County and participating entities' greatest needs are mitigating high wind and flood hazards, backup generators for critical infrastructure, construction of tornado safe rooms/storm shelters, and public awareness.

After the completion of the risk assessment (identification of hazards, probability of hazards and vulnerability to hazards), it was the mutual consensus of the PDM Planning Team that mitigation strategies of the PDM should focus on the following hazards: winter storms, severe summer storms, flooding, and drought/wildfires (urban/rural).

The PDM Planning Team first reviewed the goals, objectives and priorities of the 2019 Plan. The goals and objectives of the previous plan were still considered appropriate with some minor changes and were incorporated into the updated plan. The priorities and foci of mitigation strategies were also considered appropriate and were incorporated into the updated plan. The PDM Planning Team completed the goal identification process by considering the county and participating jurisdictions' vulnerability to each identified hazard, and the severity of the threat posed by each hazard. Much of the discussion focused on damage caused by past events, and what could be done to ensure that future damage will be lessened or eliminated. By reviewing each jurisdiction's Comprehensive Land Use Plan (if available), the participants also considered how future development might affect the county and participating jurisdictions' vulnerability to the hazards they face. When identifying goals, numerous activities or projects were identified with broadly defined benefits to numerous jurisdictions within the County. Numerous actions were agreed by the PDM Planning Team to have broad reaching benefits but due to scope or varying levels of importance to individual jurisdictions no specific cost, timeframe, or priority was assigned. Likewise many infrastructure projects and policies throughout all communities would mitigate hazards but were not located in the most vulnerable areas. All communities reviewed the activities/policies and corresponding problem statements to identify whether they applied to their respective jurisdiction. The results of the community review of those general activities/policies are displayed in Tables 5.1 – 5.12. Specific projects for each community are listed in Table 5.13. Those projects intended to mitigate problems at a specific location are represented in Figures 5.1 to 5.4.

Principal Goals

1. **Reduce the loss of life, property, infrastructure, critical facilities, cultural resources and impacts from severe weather, flooding, and other natural disasters.**

2. **Improve public safety during severe weather, flooding, and other natural disasters.**

3. **Improve the County's Emergency Preparedness and Disaster Response and Recovery capabilities.**

Mitigation Activities for Flooding Hazards

Goal #1: Protect specific areas of Miner County from flooding.
Goal #2: Educate and inform Miner County residents regarding flooding safety.
Goal #3: Reduce the extent to which utility interruptions affect areas during flooding events.

- **Actions/Projects to Reduce Flood Risk through Policy Implementation (See Table 5.1)**

- **Actions/Projects to Change the Characteristics or Impacts of Flood Hazards (See Table 5.2)**

- **Actions to Reduce Loss Potential of Infrastructure to Flood Hazards (See Table 5.3)**

Mitigation Activities for Severe Weather Hazards (Summer and Winter)

Goal #1: Increase public awareness and education on severe weather issues.
Goal #2: Improve public safety during severe weather.
Goal #3: Reduce the extent to which utility interruptions affect areas during severe weather situations.
Goal #4: Reduce crippling effects of winter storms, especially regarding smaller communities.

- **Actions/Projects to Reduce Severe Weather Risk through Policy Implementation (See Table 5.4)**

- **Actions/Projects to Change the Characteristics or Impacts of Severe Weather Hazards (See Table 5.5)**

- **Actions/Projects to Reduce Loss Potential of Infrastructure to Severe Weather Hazards (See Table 5.6)**

Table 5.1: Actions/Projects to Reduce Flood Risk through Policy Implementation

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
Public is unaware of scope of flood risk and existing emergency plans.	Public education. Disseminate information regarding how to deal with flooding. This would include transportation issues, home protection strategies, safety issues, and how to move forward after a flooding situation.	✓	✓	✓	✓	✓
	Encouraging homeowners in flood-prone areas to purchase flood insurance.	✓	✓	✓	✓	✓
Jurisdiction is unaware potential hydrologic impacts of drainage or development projects.	Conduct necessary studies addressing drainage (stormwater flow/runoff, etc).	✓		✓	✓	✓
Residents are not eligible for flood insurance.	Begin participation in the National Flood Insurance Program.	✓			✓	
Failure to comply with NFIP programs makes the community ineligible for flood insurance and certain funding.	Ensure continued National Flood Insurance Program compliance by enforcing flood plain management ordinance.		✓	✓		✓
Jurisdiction is unaware of opportunities to participate programs to assist in achieving mitigation goals.	Work to improve the level of communication and coordination with the State NFIP coordinator.	✓	✓	✓	✓	✓
Jurisdiction has no legal mechanism to regulate land use.	Adoption and enforcement of land use regulation.				✓	

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
Need to continue to regulate minimum land use and development standards.	Continue enforcement of zoning and subdivision ordinances.	✓	✓	✓		✓
No technical analysis or identification of specific mitigation projects.	Identify and prioritize capital/structural mitigation projects that are cost effective and technically feasible.	✓	✓	✓	✓	✓

Table 5.2: Actions/Projects to Change the Characteristics or Impacts of Flood Hazards

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
Portions of storm sewer system is not designed to 100-year flood event.	Install or upgrade storm sewer piping.	✓	✓	✓	✓	✓
Flooding impacts have become more severe along lakes, creeks, and streams.	Install or upgrade dam structures to increase flood control and store water.	✓				✓
Drainage patterns have changed; culverts are inadequate for conveyance of water.	Install or enlarge drainage culverts.	✓	✓	✓	✓	✓
	Install drain tile.		✓			✓
	Install or enlarge detention/retention ponds.	✓	✓	✓	✓	✓

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
Certain streets have substandard or no curb and gutter.	Curbing and guttering of city streets to improve stormwater flow.	✓	✓	✓	✓	
Capacity of rivers, streams, and retention areas is decreased due to accumulation of debris.	Clean out debris in drainage areas, tributaries, etc to improve water flow.	✓	✓	✓		✓
	Install additional stream gages along rivers within the County.					✓
	Install riprap along creek shorelines.	✓		✓		✓
Sanitary and/or storm sewer are vulnerable to back-up in flood event.	Install valves or plugs in sanitary and stormwater sewer system.	✓	✓	✓	✓	
	Install riprap around sanitary sewer ponds.	✓	✓	✓		
Potential for development in flood prone areas.	Preservation and expansion of open space along the river and enhancement of existing berm areas.					✓
	Work with property owners to implement deed restrictions for open lots/vacant properties in the flood hazard areas to prevent development.	✓	✓	✓		

Table 5.3: Actions/Projects to Reduce Loss Potential of Infrastructure to Flood Hazards

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
Many roads and bridges were built prior to identification of flood hazard areas.	Replace and raise bridges.	✓	✓	✓	✓	✓
	Elevating roads in flood-prone areas.	✓	✓	✓	✓	✓
Some utility structures are located in areas vulnerable to flooding.	Flood-proof or replace utility structures in flood-prone areas.	✓	✓	✓	✓	✓
Structures constructed in the floodplain prior to identification of flood hazard areas.	Making structural retrofits to infrastructure.	✓	✓	✓		✓
	Work with property owners to mitigate repetitive loss residences through elevation, acquisition, or relocation.					

Table 5.4: Actions/Projects to Reduce Severe Weather Risk through Policy Implementation

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
Public is unfamiliar with certain disaster preparation measures.	Public education. Disseminate information regarding how to deal with severe weather (summer/winter). Some of the issues that may be addressed within the information would include: safety issues on downed power lines, electrical and fire dangers, the necessity for generators and advice on using them, protecting property, survival strategies during storms, and purchasing of back-up power for various household and farming operations.	✓	✓	✓	✓	✓
Lack of data regarding vulnerability to severe storms.	Gather data to create a more precise loss estimate for winter storms.	✓	✓	✓	✓	✓
	Gather data to create a more precise loss estimate for summer storms.	✓	✓	✓	✓	✓

Table 5.5: Actions/Projects to Change the Characteristics or Impacts of Severe Weather Hazards

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
Certain areas and populations are not served by storm shelters.	Construct tornado safe rooms or community shelters.	✓	✓	✓	✓	✓
	Construct storm shelters at manufactured home and RV parks.	✓		✓		✓
Critical facilities are vulnerable to power failure.	Install backup generators.	✓	✓	✓	✓	✓
Certain areas are susceptible to snow drifting.	Survey areas in need of snow shelterbelts and plant trees accordingly.					✓
	Install or plant living snow fences.					✓
Certain areas of town cannot hear storm sirens and other emergency warning systems.	Construct new warning systems.	✓	✓	✓	✓	✓
Storm sirens and other emergency warning systems are outdated.	Replace or upgrade existing warning systems.	✓	✓	✓		
Lack of emergency preparedness supplies and equipment.	Ensure emergency shelters are stocked with adequate supplies.	✓	✓	✓	✓	✓

Table 5.6: Actions/Projects to Reduce Loss Potential of Infrastructure to Severe Weather Hazards

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
Utility lines and structures are subject to failure in high wind, heavy rain, and ice events.	Upgrading of utility lines.	✓	✓	✓	✓	✓
	Burial of utility lines when needed.	✓	✓	✓	✓	✓
	Require upgrading of overhead lines when age or disasters provide an opportunity.	✓	✓	✓	✓	✓
	Removal of trees near power lines.	✓	✓	✓	✓	✓
	Attachment of guy wires to dead-end poles.	✓	✓	✓	✓	✓
	Testing integrity of poles.	✓	✓	✓	✓	✓
	Usage of anti-galloping devices.	✓	✓	✓	✓	✓
	Making structural retrofits to facilities.	✓	✓	✓	✓	✓

Mitigation Activities for Fire and Drought Hazards

Goal #1: Improve fire prevention education and fire response.
Goal #2: Reduce the negative effects droughts have on Miner County.
Goal #3: Reduce the negative effects wildfires have on Miner County.

- **Actions/Projects to Reduce Fire and Drought Risk through Policy Implementation (See Table 5.7)**
- **Actions/Projects to Reduce Loss Potential of Infrastructure to Fire and Drought Hazards (See Table 5.8)**
- **Actions/Projects to Change the Characteristics or Impacts of Fire and Drought Hazards (See Table 5.9)**

General Mitigation Activities

Technological (See Table 5.10):

Planning (See Table 5.11):

Administration/Coordination (See Table 5.12)

Table 5.7: Actions/Projects to Reduce Fire and Drought Risk through Policy Implementation

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
Community becomes vulnerable to fire hazard while staff is being trained.	Find funding sources to pay for persons to fill positions while individuals are at training courses.	✓	✓	✓	✓	✓
Potential for development in areas vulnerable to wildfire or urban fire.	Adoption and enforcement of property regulations in areas vulnerable to wildfire.	✓	✓	✓	✓	✓
	Establish/require minimum fire suppression standards for subdivisions.	✓	✓	✓	✓	✓
Community has no plan/policy for water rationing in emergency.	Develop water rationing measures that will be implemented during a drought situation.	✓	✓	✓	✓	✓
Public is unaware of benefits of conserving water.	Educate residents on the benefits of conserving water at all times, not just during a drought.	✓	✓	✓	✓	✓

Table 5.8: Actions/Projects to Reduce Loss Potential of Infrastructure to Fire and Drought Hazards

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
Firefighting equipment becomes out of date quickly.	Ensure that fire departments are adequately equipped to respond to wildfires.	✓	✓	✓	✓	✓
Fire hydrants become unusable.	Have rural fire departments locate dry fire hydrants.			✓		
Fire protection capabilities are limited.	Construct additional water supply and improve existing infrastructure to allow hydrant hook-ups.			✓		✓
	Construct additional fire station.					

Table 5.9: Actions/Projects to Change the Characteristics or Impacts of Fire and Drought Hazards

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
Reservoirs are vulnerable to silting and decrease in efficient provision of water services in emergency situations.	Dredge reservoirs to improve water quality. Reservoirs silt in and dredging, water can flow to more places, more quickly, and more easily.	✓		✓		✓
Dead or dry plant material creates fire hazard/location changes seasonally and annually.	Burn areas to ensure a fire break rather than ignition fuel.					✓
Local economy is very dependent on corn/soybean production.	Educate farmers on the benefits of a diversified crop protection plan in the event of a drought.	✓	✓	✓	✓	✓
	Work with local farmers to investigate the use of more drought resistant crops.	✓	✓	✓	✓	✓

Table 5.10: Technological Activities

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
Current data and software can become obsolete or out of date	Continue utilizing a working computer aided mapping project for the County. This includes using overlays of GIS data, HazMat, and roads.	✓	✓	✓	✓	✓
	Enhance existing computer aided dispatch.	✓	✓	✓	✓	✓
	Use HAZUS software to estimate losses in flooding situations. Information may also be able to be used for other hazard areas.	✓	✓	✓	✓	✓
	Work with South Dakota State University to explore additional methods of estimating losses in natural hazards.	✓	✓	✓	✓	✓

Table 5.11: Planning Activities

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
Maintenance of a mitigation plan is beyond the economic capability of this community.	Find funding to review and update the regional and local disaster mitigation plans on a five-year cycle.	✓	✓	✓	✓	✓
Disaster mitigation projects have not always been incorporated into other plans.	Incorporate disaster mitigation actions into appropriate local and regional plans – master plans, land use, transportation, open space, and capital programming.	✓	✓	✓		✓
	Integrate disaster mitigation concerns into subdivision, site plan review, and other zoning reviews. Specifically, require the consideration of downstream flooding impacts caused by new projects.	✓	✓	✓		✓
	Integrate disaster mitigation concerns into transportation projects (e.g. drainage improvements, underground utilities, etc.).	✓	✓	✓		✓
This community's mitigation projects are not coordinated with other communities' projects.	Develop a means for sharing information on a regional basis about successful disaster mitigation planning and programs.	✓	✓	✓	✓	✓

Table 5.12: Administration/Coordination Activities

Problem Statements	Actions	*Carthage*	*Canova*	*Howard*	*Vilas*	*Miner County*
This community is not staffed, nor does it have funding mechanisms to apply for and administer funding sources for mitigation projects.	Identify and pursue funding that builds local capacity and supports grant-writing for mitigation actions identified in the PDM.	✓	✓	✓	✓	✓
Need to improve coordination of activities with other governmental jurisdictions and utility providers.	Increase communication/coordination between federal, state, regional, county, municipal, private, and non-profit agencies in the area of pre-disaster mitigation.	✓	✓	✓	✓	✓
	Maintain and enhance working relationships with the utility providers.	✓	✓	✓	✓	✓

After meetings with the PDM Team, local jurisdictions, and opportunities for public input, the mitigation goals from the 2019 plan were confirmed as the best aid for the County in reducing and lessening the effects of hazards. Projects previously identified in the 2019 PDM that have been completed were removed. The remaining projects were carefully analyzed and discussed to determine which of the projects had enough merit to be included in the updated PDM and to determine if the projects meet the hazard mitigation needs of the county. New projects were discussed and added if they were deemed as necessary and meeting county/community requirements. See the attached community outlines found in Appendix C. These projects (current and new) were evaluated based on a cost/benefit ratio and priority. For most projects, the benefits were not quantifiable, so a cost/benefit analysis was not completed. Although this PDM focuses on disaster mitigation rather than disaster preparedness, some communities discussed disaster preparedness projects as well. It was difficult for individual communities to recognize the difference between providing storm shelters and making sure the storm shelters function properly (for example). Actions considered in this category included the acquisition of emergency generators, and erecting or replacing warning sirens in areas that currently are not well served.

Most of the mitigation actions proposed by the jurisdictions were identified by city council/town board members, public works personnel, or PDM Planning Team members from the jurisdiction. Natural hazards and vulnerability were discussed. Projects were suggested for inclusion on the mitigation list. Project cost estimates were determined. Local jurisdiction Boards evaluated each project based on importance, need, urgency, benefits, cost, funding availability and timeline. Projects were then either included on the list or removed. Projects were then assigned their priority and other parameters.

Once each jurisdiction had its list of proposed actions complete, it was submitted to the Emergency Management Director. At the second PDM Planning Team meeting, the actions

were reviewed. At the third PDM Planning Team meeting a final opportunity was given for the jurisdictions to add any additional actions or refine information relating to previously identified projects.

Although in some cases additional data will be necessary, a timeframe for completion, oversight, funding sources, and any other relevant issues were addressed. These implementation strategies are geared toward the specific goal and area. Often, these projects will not encounter any resistance from environmental agencies, legal authorities, and political entities. Table 5.13 is a presentation of the mitigation actions proposed by the PDM Planning Team. In addition to identifying the proposed actions, the table includes additional information about each action. Elected officials and staff of each municipality and the county were responsible for providing most of this information for actions in their community, but the other planning participants helped in this process. The following information is provided for each action:

- A statement regarding the specific problem the proposed action will mitigate.
- The local priority rating- “High”-greater importance, unanimous Board agreement, meets an essential need, shorter implementation time and funding availability. “Medium”-less urgent need, limited benefits, maintenance activities and limited funding availability. “Low”-least important, minimal benefits, longer term project and lack of funding availability.
- The time frame to accomplish the action – “Short” means actions that are intended to be initiated within two years, “Medium” is for actions that should be started within five years, and “Long” is for actions that are not anticipated to be started for at least five years.
- The party(s) primarily responsible for implementing the action.
- The estimated cost/benefit – estimated costs for many of the actions were obtained from knowledgeable sources based on current information. Estimates are subject to change due to details of specific projects. Benefits for most projects were not readily quantifiable.
- Potential sources of funding (discussed below).
- The primary hazard being addressed.
- The goal corresponding to the action.

As mentioned above, jurisdictions and entities integrally involved in the planning for disasters due to wide ranging implications to them include townships and most utility providers. Utility providers were represented on the PDM Planning Team.

In July of 2023, each individual township in Miner County was mailed maps upon which they were asked to identify potential mitigation activities and vulnerable roads or infrastructure and to return the completed maps to First District for inclusion in the Plan. Primarily these activities included replacing culverts with larger culverts, elevating or rip-rapping roads, and reconstructing roads. Not all townships submitted the maps with potential activities. However the Appendix E includes maps of vulnerable sites and potential mitigation actions proposed by the townships in the County that returned their maps.

Particular attention needs to be paid to sources of funding for the actions. Given the existing financial reality of very tight county and municipal budgets, some of the proposed actions cannot realistically be implemented without substantial grant assistance. With such assistance, it is likely that many of the high priority projects can be undertaken without placing an onerous burden on local budgets. Resources for some of the actions available from FEMA through the South Dakota Office of Emergency Management include the Hazard Mitigation Grant Program,

Building Resilient Infrastructure Communities grant program, and Flood Mitigation Assistance grant programs. Other possible sources of funding include:

Grant and loan programs/sources

- Community Development Block Grant program
- Economic Development Administration
- FEMA Assistance to Firefighters Grant program
- South Dakota Dept of Environment and Natural Resources
- South Dakota Dept of Transportation
- US Department of Agriculture Rural Development Office

Local resources

- General obligation bonds
- Revenue bonds
- Tax Increment Financing (TIF) districts

Table 5.13: Proposed Mitigation Activities

MINER COUNTY PROBLEM STATEMENTS	MINER COUNTY ACTIONS	RATING	TIMEFRAME	CONTACT	COST	FUNDING SOURCE	HAZARD	GOAL
High storm water drainage periodically damages county highways	Replace undersized or deteriorating culverts throughout the county	High	Short	Miner County Highway Superintendent	$10,000 per location/reduce flooding in the county	HMGP, BRIC, FMA, County	Flooding	Protect specific areas of Miner County from floods
High storm water drainage periodically damages county highways	Repair or improve roads that receive damage from flood event	Medium	Medium	Miner County Maintenance Supervisor	$200,000 per mile/reduce flooding in the county	HMGP, BRIC, FMA, County	Flooding	Protect specific areas of Miner County from floods
All fires pose a potential problem in Miner County	Purchase and disseminate fire prevention educational materials	Medium	Medium	Miner County Emergency Manager/Fire Departments	$1,000/prevent deaths, damages and injuries due to fire events	County, Local, USFA, SD State Fire Marshall, Natl Fire Assns	Fire	Reduce fire events in the County
All fires pose a potential problem in Miner County	Ensure county fire departments have sufficient equipment and training to fight fires	Ongoing	Ongoing	Miner County Commission and local fire depts	Unknown/unknown	AFG/HMGP, local, County, SFMO, state programs, foundation grants	Fire	Reduce fire events in the County

CANOVA PROBLEM STATEMENTS	CANOVA ACTIONS	RATING	TIMEFRAME	CONTACT	COST	FUNDING SOURCE	HAZARD	GOAL
Emergency shelter lacks a backup power source	Purchase of backup generator for emergency shelter	Medium	Short	Canova Town Board	$50,000/unknown	HMGP/OEM, Town, USDA	Severe Weather Hazards	Reduce the extent to which utility interruptions affect areas during severe weather situations
Emergency shelter needs additional supplies	Purchase supplies for the emergency shelter	High	Short	Canova Town Board	$1,000/unknown	Town	Severe Weather Hazards	Improve public safety during severe weather
Portions of the town periodically flood	Clean out storm drainage system ditches and culverts, replace undersized/damaged culverts	Medium	Medium	Canova Town Board	$140,000/reduce flooding in town	HMGP/OEM, Town, USDA	Flooding	Protect specific areas of Miner County from floods
Portions of the town periodically flood	Begin constructing projects identified in the recently completed flood study	Medium	Long	Canova Town Board	Unknown/reduce flooding in town	HMGP/OEM, Town, USDA	Flooding	Protect specific areas of Miner County from floods
Ballfield complex does not have tornado protection	Construct a tornado shelter at ballfield complex	Medium	Medium	Canova Town Board	$400,000/unknown	HMGP/OEM, Town, USDA	Severe Weather Hazards	Improve public safety during severe weather

CARTHAGE PROBLEM STATEMENTS	CARTHAGE ACTIONS	RATING	TIMEFRAME	CONTACT	COST	FUNDING SOURCE	HAZARD	GOAL
Increase local firefighting capabilities.	Purchase supplies and equipment for fire department	Ongoing	Ongoing	Carthage City Council	Unknown/unknown	AFG/HMGP, City, USDA, State programs, foundation grants	Fire	Reduce fire events in the County
Increase local firefighting capabilities.	Enroll in training and continuing education for firefighters and EMT professionals	Ongoing	Ongoing	Carthage City Council	Unknown/unknown	AFG/HMGP, City, County, USDA, SFMO, foundation grants	Fire	Reduce fire events in the County
Sanitary sewer system is at risk of failure in the event high storm water run-off/flooding.	Replace/re-line degrading sewer lines in the system	Medium	Medium	Carthage City Council	Unknown/unknown	HMGP/OEM, City, USDA, SD DANR	Flooding	Reduce the extent to which utility interruptions affect areas during flooding events
Sanitary sewer system is at risk of failure in the event high storm water run-off/flooding.	Install riprap around sanitary sewer lagoons	Medium	Long	Finance Officer	$65,000	HMGP/OEM, City, USDA, SD DANR	Flooding	Reduce the extent to which utility interruptions affect areas during flooding events

HOWARD PROBLEM STATEMENTS	HOWARD ACTIONS	RATING	TIMEFRAME	CONTACT	COST	FUNDING SOURCE	HAZARD	GOAL
Certain areas of community cannot hear sirens during hazardous weather events	Upgrade storm warning siren system	Medium	Short	Howard City Council	$50,000	City, USDA	Severe Weather Hazards	Improve public safety during severe weather
Integrate GIS services into city infrastructure and offices	Integrate GIS services into city infrastructure and offices	Medium	Long	Howard City Council	Unknown/unknown	City	Flooding	Protect specific areas of Miner County from floods
Existing water tower underserves community and firefighting capabilities	Upgrade water tower	Medium	Long	Howard City Council	$1,000,000	City, USDA, SD DANR	All hazards	Reduce the extent to which utility interruptions affect areas during emergency situations
Fire department lacks necessary gear needed for all members to adequately fight fires	Purchase additional turn out gear and self-contained breathing apparatuses	Medium	Long	Howard city Council, Fire Department	Unknown/unknown	AFG/HMGP, City, state programs, foundation grants	Fire	Reduce fire events in the County
Water system reaching the end of its useful life	Construct improvements to the water system	Medium	Long	Howard City Council	Unknown/unknown	City, USDA, SD DANR, CDBG	All Hazards	Reduce the extent to which utility interruptions affect areas during emergency situations

HOWARD PROBLEM STATEMENTS	HOWARD ACTIONS	RATING	TIMEFRAME	CONTACT	COST	FUNDING SOURCE	HAZARD	GOAL
Wastewater system reaching the end of its useful life	Construct improvements to the wastewater system	Medium	Long	Howard City Council	Unknown/unknown	City, USDA, SD DANR, CDBG	Flooding	Reduce the extent to which utility interruptions affect areas during flooding events
Creek vulnerable to blockage from debris from spring and fall storms causing flooding to residential property.	Create and implement quarterly cleaning/maintenance schedule. Acquire equipment needed for debris removal	Short	Short	Howard City Council	Unknown/unknown	City, USDA	Flooding	Protect specific areas of Miner County from floods
Overhead power lines are vulnerable to damages that result in the loss of power	Bury overhead lines	Medium	Long	Howard City Council	Unknown/unknown	City, USDA	Severe Weather Hazards	Reduce the extent to which utility interruptions affect areas during severe weather situations
Portion of city experience periodic flooding	Storm sewer drains needs to be installed or upgraded	Medium	Medium	Howard City Council	Unknown/unknown	City, USDA, SD DANR, HMGP	Flooding	Protect specific areas of Miner County from floods

Figure 5.1: Miner County Potential Mitigation Project Map

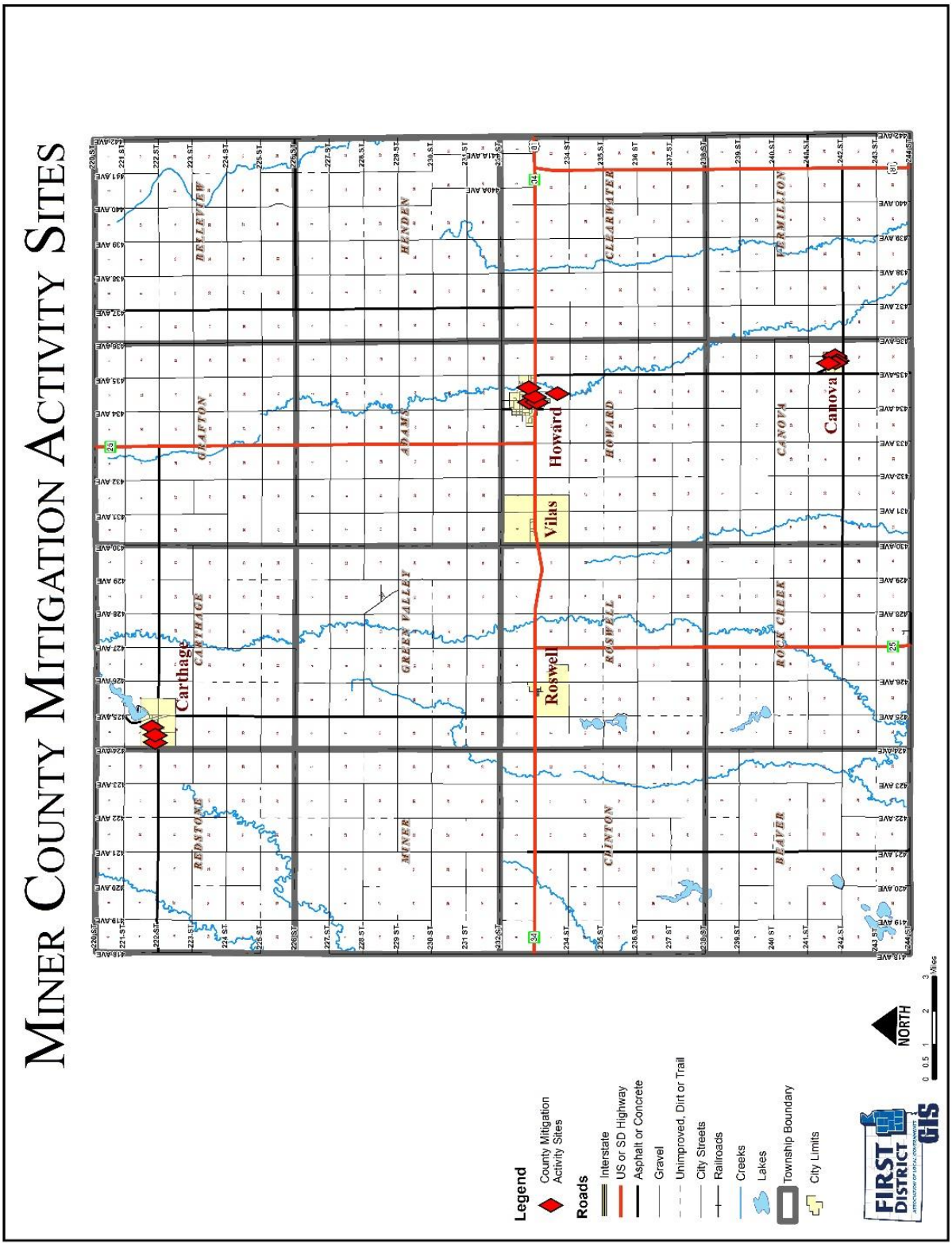


Figure 5.2: Town of Canova Potential Mitigation Project Map

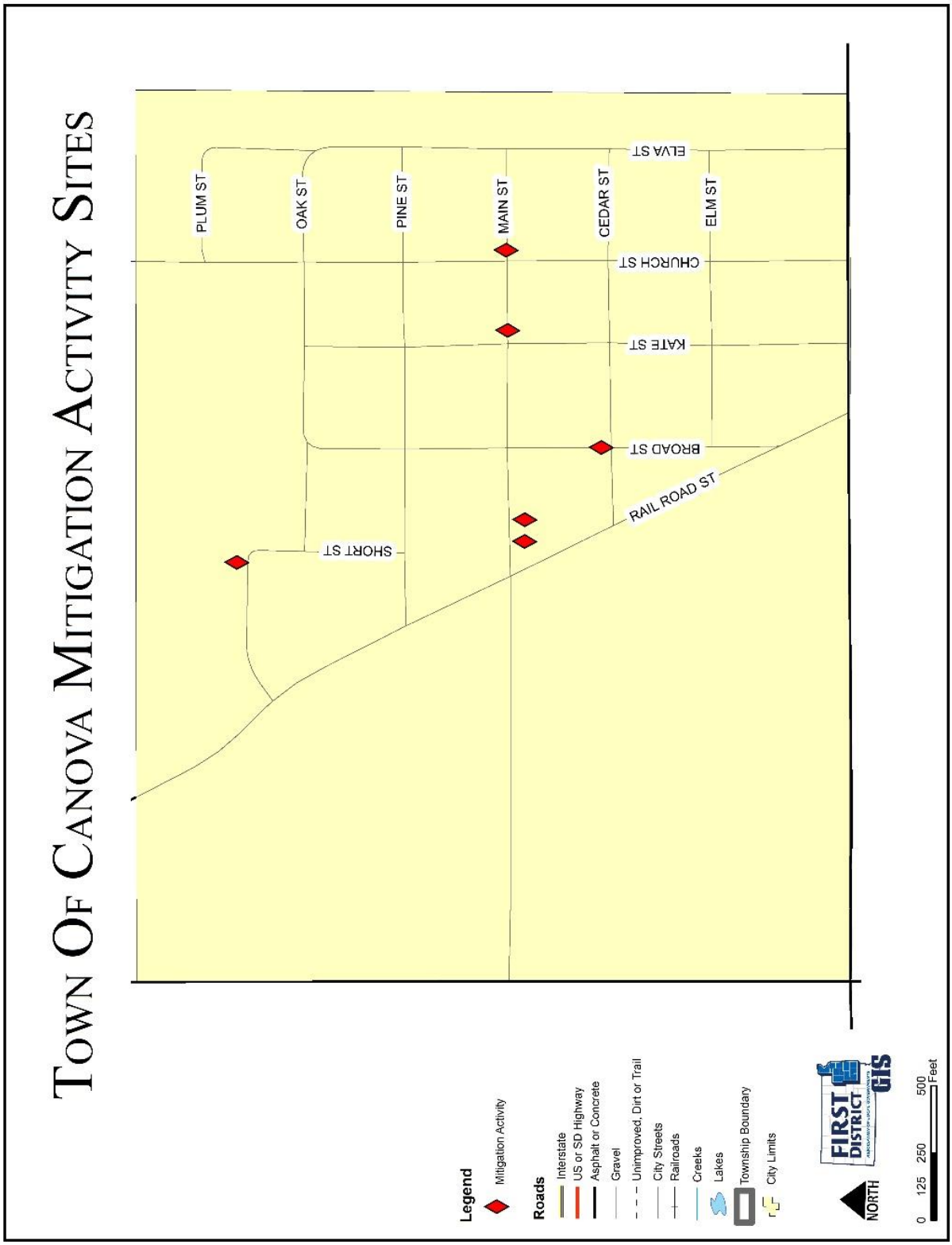


Figure 5.3: City of Carthage Potential Mitigation Project Map

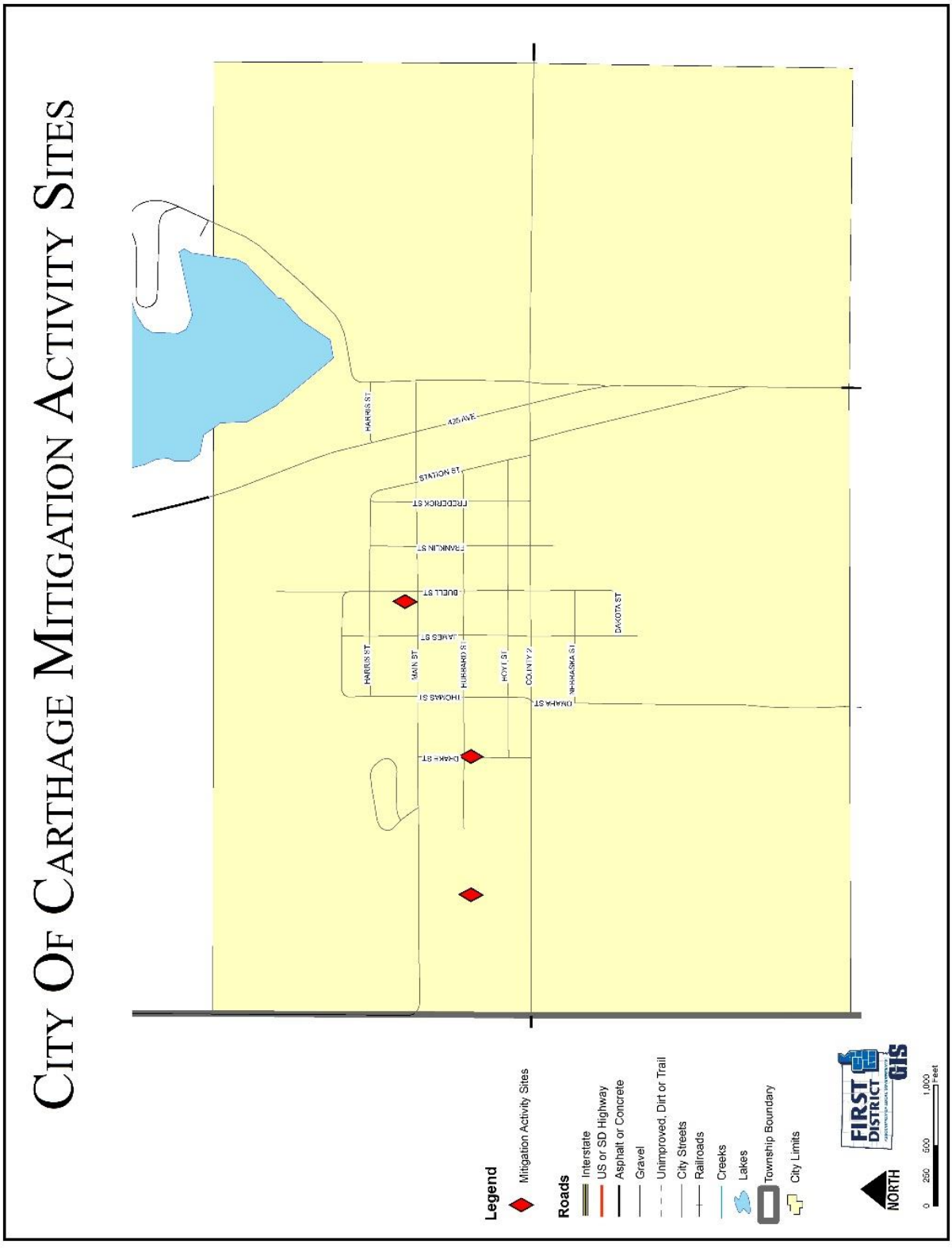
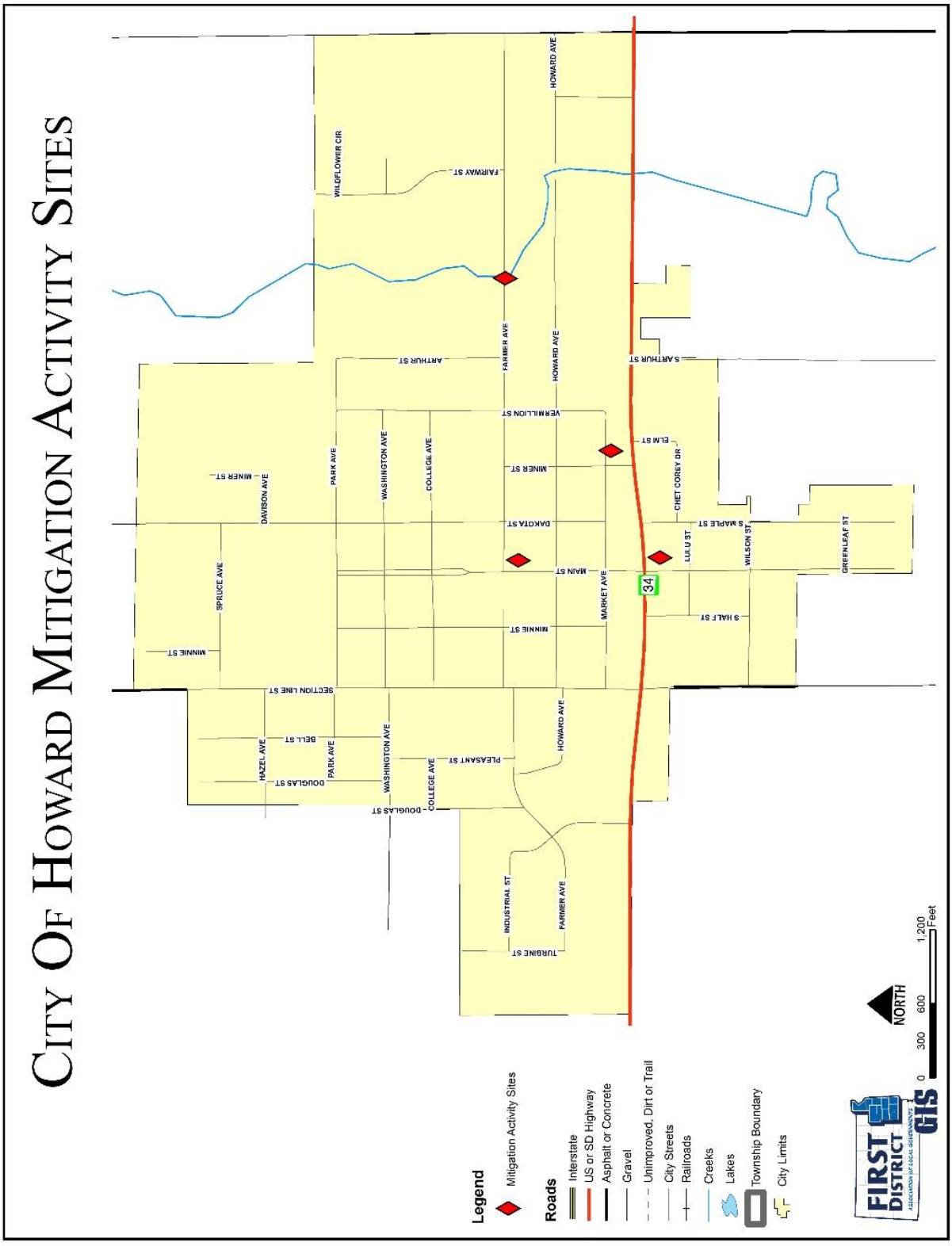


Figure 5.4: City of Howard Potential Mitigation Project Map



IMPLEMENTATION OF MITIGATION ACTIONS

Requirement 201.6(c)(4)(ii). Local Mitigation Plan Review Tool – C6.
Requirement 201.6(d)(3). Local Mitigation Plan Review Tool – D3.

Upon adoption of the updated Miner County PDM, each jurisdiction will become responsible for implementing its own mitigation actions. The planning required for implementation is the sole responsibility of the local jurisdictions and private businesses that have participated in the PDM update. All of the municipalities have indicated that they do not have the financial capability to move forward with projects identified in the PDM at this time, however, all will consider applying for funds through the State and Federal Agencies once such funds become available. If and when the municipalities are able to secure funding for the mitigation projects, they will move forward with the projects identified. The City of Howard had several mitigation projects and thus, will prioritize those projects in a manner that will ensure benefit is maximized to the greatest extent possible. A benefit cost analysis will be conducted on an individual basis after the decision is made to move forward with a project.

CHAPTER 6 | PLAN MAINTENANCE

MONITORING, EVALUATING, AND UPDATING THE PLAN

Requirement 201.6(c)(4)(ii). Local Mitigation Plan Review Tool – C6.

The County and all of the participating local jurisdictions thereof will incorporate the findings and projects of the PDM in all planning areas as appropriate. Periodic monitoring and reporting of the PDM is required to ensure that the goals and objectives for the County PDM are kept current and that local mitigation efforts are being carried out. Communities will establish an annual review of projects and infrastructure listed in the plan. As funding becomes available, projects are completed, or the inevitable new project needs to be added, communities will report to the Miner County Emergency Management Director. Communities should adopt a schedule which corresponds with the annual report of the Emergency Management Director to the County Commissioners in November of each year.

During the process of implementing mitigation strategies, the county or communities within the county may experience lack of funding, budget cuts, staff turnover, and/or a general failure of projects. These scenarios are not in themselves a reason to discontinue and fail to update the PDM. A good plan needs to provide for periodic monitoring and evaluation of its successes and failures and allow for appropriate changes to be made.

CONTINUED PUBLIC PARTICIPATION/INVOLVEMENT

Requirement 201.6(c)(4)(iii). Local Mitigation Plan Review Tool – A5.
Requirement 201.6(c)(4)(ii). Local Mitigation Plan Review Tool – C6.

During interim periods between the five-year re-write, efforts will be continued to encourage and facilitate public involvement and input. The PDM will be available for public view and comment at the Miner County Emergency Management Office located in the Miner County Courthouse and the First District Association of Local Governments office. The PDM will also be available for review on the web at the Miner County website *(www.Miner.org)* and at the First District Association of Local Governments homepage *(www.1stdistrict.org)*. Comments will always be received whether orally, handwritten, or by e-mail.

All ongoing workshops and trainings will be open to the public and appropriately advertised. Ongoing press releases and interviews will help disseminate information to the general public and encourage participation.

As implementation of the mitigation strategies continues in each local jurisdiction, the primary means of public involvement will be the jurisdiction's own public comment and hearing process. State law as it applies to municipalities and counties requires this as a minimum for many of the proposed implementation measures. Effort will be made to encourage cities, towns, and counties to go beyond the minimum required to receive public input and engage stakeholders.

ANNUAL REPORTING PROCEDURES

Requirement 201.6(c)(4)(ii). Local Mitigation Plan Review Tool – C6.

The PDM shall be reviewed annually, as required by the County Emergency Management Director, or as the situation dictates such as following a disaster declaration. The Miner County Emergency Management Director will review the PDM annually in November and ensure the following:

1. The County Elected body will receive an annual report and/or presentation on the implementation status of the PDM;
2. The report will include an evaluation of the effectiveness and appropriateness of the mitigation actions proposed in the PDM; and
3. The report will recommend, as appropriate, any required changes or amendments to the PDM.

FIVE-YEAR PDM REVIEW

Requirement 201.6(c)(4)(i). Local Mitigation Plan Review Tool – A6.
Requirement 201.6(c)(4)(ii). Local Mitigation Plan Review Tool – C6.

Every five years the PDM will be reviewed, and a complete update will be initiated. All information in the PDM will be evaluated for completeness and accuracy based on new information or data sources. New property development activities will be added to the PDM and evaluated for impacts. New or improved sources of hazard related data will also be included.

In future years, if the County relies on grant dollars to hire a contractor to write the PDM update, the County will initiate the process of applying for and securing such funding in the third year of the PDM to ensure the funding is in place by the fourth year of the PDM. The fifth year will then be used to write the PDM update, which in turn will prevent any lapse in time where the county does not have a current approved PDM on file.

The goals, objectives, and mitigation strategies will be readdressed and amended as necessary based on new information, additional experience, and the implementation progress of the PDM. The approach to this PDM update effort will be essentially the same as the one used for the original PDM development.

The Emergency Management Director will meet with the PDM Planning Team for review and approval prior to final submission of the updated PDM.

PLAN AMENDMENTS

Requirement 201.6(c)(4)(ii). Local Mitigation Plan Review Tool – C6.

PDM amendments will be considered by the Miner County Emergency Management Director, during the PDM's annual review to take place the end of each county fiscal year. All affected local jurisdictions (cities, towns, and counties) will be required to hold a public hearing and adopt the recommended amendment by resolution prior to considerations by the PDM Planning Team.

INCORPORATION INTO EXISTING PLANNING MECHANISMS

Requirement 201.6(B)(3). Local Mitigation Plan Review Tool – A4.

The municipalities of Howard, Canova, and Carthage have a comprehensive and/or capital improvements plan. All towns with existing comprehensive land use plans will review mitigation projects annually when reviewing their comprehensive land use plan, as is recommended in each of their plans. Further, all municipalities will consider the mitigation requirements, goals, actions, and projects when it considers and reviews the budget and other existing planning documents. Preparation of the budget is an opportune time to review the plan since municipalities are required by state law to prepare budgets for the upcoming year and typically consider any expenditure for the upcoming year at that time.

The local jurisdictions will post a permanent memo to their files as a reminder for them to incorporate their annual review of the mitigation actions identified into the budget preparation process. This does not require the projects be included in the budget, it merely serves as a reminder to the municipal officials that they have identified mitigation projects in the PDM that should be considered if the budget allows for it.

POTENTIAL FUNDING SOURCES

Although all mitigation techniques will likely save money by avoiding losses, many projects are costly to implement. None of the local jurisdictions have the funds available to move forward with mitigation projects at this time; thus, the Potential Funding Sources section was included so that the local jurisdictions can work towards securing funding for the projects. Inevitably, due to the small tax base and small population most of the local jurisdictions do not have the ability to generate enough revenue to support anything beyond the basic needs of the community. Thus mitigation projects will not be completed without a large amount of funding support from State or Federal programs.

The County jurisdictions will continue to seek outside funding assistance for mitigation projects in both the pre- and post-disaster environment. Primary Federal and State grant programs have been identified and briefly discussed, along with local and non-governmental funding sources, as a resource for the local jurisdictions.

Federal

The following federal grant programs have been identified as funding sources which specifically target hazard mitigation projects:

Title: Rural Fire Assistance Grants
Agency: U.S. Fish & Wildlife Service (DOI)

Each year, the U.S. Fish & Wildlife Service (FWS) provides Rural Fire Assistance (RFA) grants to neighboring community fire departments to enhance local wildfire protection, purchase equipment, and train volunteer firefighters. Service fire staff also assist directly with community projects.

These efforts reduce the risk to human life and better permit FWS firefighters to interact and work with community fire organizations when fighting wildfires. The Department of the Interior (DOI) receives an appropriated budget each year for the RFA grant program. The maximum award per grant is $20,000. The DOI assistance program targets rural and volunteer fire departments that routinely help fight fire on or near DOI lands.

Title: Fire Management Assistance Grant Program
Agency: Federal Emergency Management Agency

The Fire Management Assistance Grant (FMAG) program provides grants to states, tribal governments, and local governments for the mitigation, management, and control of any fire burning on publicly (non-federal) or privately owned forest or grassland that threatens such destruction as would constitute a major disaster.

The Fire Management Assistance declaration process is initiated when a state submits a request for assistance to the FEMA Regional Director at the time a “threat of major disaster” exists. The entire process is accomplished on an expedited basis and decisions are rendered within a matter of hours.

However, before a grant can be awarded, a state must demonstrate that total eligible costs for the declared fire meet or exceed the individual fire cost threshold. This applies to single fires or cumulative fire cost threshold. The grants are made in the form of cost sharing with the federal share being 75% of total eligible costs. Eligible firefighting costs may include expenses for: field camps, repair and replacement tools, mobilization and demobilization activities, equipment use, and materials/supplies.

Title: Fire Prevention and Safety (FP&S) Grants
Agency: Federal Emergency Management Agency

The Fire Prevention and Safety grants support projects that enhance the safety of the public and firefighters from fire and other related hazards. The primary goal is to target high-risk populations and reduce injury and prevent death. Eligibility includes fire departments, national, regional, state, and local organizations, tribal organizations, and/or community organizations recognized for their experience and expertise in fire prevention and safety programs and activities. Private non-profit and public organizations are also eligible.

Title: Wildland Urban Interface Community & Rural Fire Assistance
Agency: Bureau of Land Management (DOI)

This program is designed to implement the National Fire Plan and assist communities at risk from catastrophic wildland fires by providing grants, technical assistance, and training for community programs that develop local capability, such as:

Assessment and planning, mitigation activities, and community and homeowner education and action; hazardous fuels reduction activities, including the training, monitoring or maintenance associated with such hazardous fuels reduction activities, on federal land, or on adjacent nonfederal land for activities that mitigate the threat of catastrophic fire to communities and natural resources in high risk areas; and, enhancement of knowledge and fire protection capability of rural fire districts through assistance in education and training, protective clothing and equipment purchase, and mitigation methods on a cost-share basis.

The Rural Fire Assistance (RFA) program funds are appropriated by Congress annually. The maximum award is $20,000. This funding focuses specifically on enhancing fire protection capabilities of rural and volunteer fire departments through training, equipment purchases, and fire prevention work on a cost-shared basis.

Title: Community Planning Assistance for Wildfire
Private Agency-Community Wildfire Planning Center

Established in 2015 by Headwaters Economics and Wildfire Planning International, Community Planning Assistance for Wildfire (CPAW) works with communities to reduce wildfire risks through improved land use planning. CPAW is a grant-funded program providing communities with professional assistance from foresters, planners, economists, and wildfire risk modelers to integrate wildfire mitigation into the development planning process. All services and recommendations are site-specific and come at no cost to the community.

Title: Hazard Mitigation Grant Program Post Fire Grant Program
Agency: Federal Emergency Management Agency

The Hazard Mitigation Grant Program (HMGP) has Post Fire assistance available to help communities implement hazard mitigation measures after wildfire disasters. States, federally recognized tribes and territories affected by fires resulting in a Fire Management Assistance Grant (FMAG) declaration on or after October 5, 2018, are eligible to apply.

The application period for this grant is only open for six months after the state or territory's first FMAG declaration of the fiscal year is made. Prioritized HMGP Post Fire activities include wildfire mitigation, infrastructure retrofit, soil and slope stabilization, and flood prevention.

Title: Western Wildland Urban Interface Grants
Agency: USDA Forest Service

The National Fire Plan (NFP) is a long-term strategy for reducing the effects of catastrophic wildfires throughout the nation. The Division of Forestry's NFP Program is implemented within the Division's Fire and Aviation Program through the existing USDA Forest Service, State & Private Forestry, and State Fire Assistance Program.

Congress has provided increased funding assistance to states through the U.S. Forest Service State and Private Forestry programs since 2001. The focus of much of this additional funding was mitigating risk in WUI areas. In the West, the State Fire Assistance funding is available and awarded through a competitive process with emphasis on hazard fuel reduction, information and education, and community and homeowner action. This portion of the National Fire Plan was developed to assist interface communities manage the unique hazards they find around them. Long-term solutions to interface challenges require informing and educating people who live in these areas about what they and their local organizations can do to mitigate these hazards.

The 10-Year Comprehensive Strategy focuses on assisting people and communities in the WUI to moderate the threat of catastrophic fire through the four broad goals of improving prevention and suppression, reducing hazardous fuels, restoring fire-adapted ecosystems, and promoting community assistance. The Western States Wildland Urban Interface Grant may be used to apply for financial assistance towards hazardous fuels and educational projects within the four goals of: improved prevention, reduction of hazardous fuels, restoration of fire- adapted ecosystems and promotion of community assistance.

Title: U.S. Bureau of Land Management, Community Assistance Program
Agency- Bureau of Land Management

BLM provides funds to communities through assistance agreements to complete mitigation projects, education and planning within the WUI.

Title: Urban and Community Forestry (UCF) Program
Agency: USDA Forest Service

A cooperative program of the U.S. Forest Service that focuses on the stewardship of urban natural resources. With 80 percent of the nation's population in urban areas, there are strong environmental, social, and economic cases to be made for the conservation of green spaces to guide growth and revitalize city centers and older suburbs. UCF responds to the needs of urban areas by maintaining, restoring, and improving urban forest ecosystems on more than 70 million acres. Through these efforts the program encourages and promotes the creation of healthier, more livable urban environments across the nation. These grant programs are focused on issues and landscapes of national importance and prioritized through state and regional assessments.

Title: Flood Mitigation Assistance Grant Program
Agency: Federal Emergency Management Agency

The Flood Mitigation Assistance (FMA) program provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). FMA was created as part of the National Flood Insurance Reform Act of 1994 (42 USC 4101) with the goal of reducing or eliminating claims under the NFIP.

FMA is available to states, local communities, and federally recognized tribes and territories on an annual basis.. This funding is available for mitigation planning and implementation of mitigation measures that reduce or eliminate risk of repetitive flood damage to NFIP insured buildings only. The federal cost share for an FMA project is 75%. At least 25% of the total eligible costs must be provided by a non-federal source. Of this, no more than half can be provided as in-kind contributions from third parties.

States administer the FMA program and are responsible for selecting projects for funding from the applications submitted by all communities within the state. FMA funds are very limited, which makes the application selection quite competitive. The state then forwards selected applications to FEMA for an eligibility determination. Although individuals cannot apply directly for FMA funds, their local government may submit an application on their behalf.

Title: Hazard Mitigation Grant Program
Agency: Federal Emergency Management Agency

The Hazard Mitigation Grant Program (HMGP) was created in November 1988 through Section 404 of the Stafford Act. The HMGP is a post-disaster mitigation program that offers assistance to states and local communities in implementing long-term mitigation measures following a Presidential disaster declaration.

HMGP may fund up to 75% of the eligible costs for hazard mitigation projects that will protect property in an area covered by a federal disaster declaration or that will reduce likely damage from future disasters. The state or local cost-share match does not need to be cash; in-kind services or materials may also be used. With the passage of the Hazard Mitigation and Relocation Assistance Act of 1993, federal funding under the HMGP is now based on 15% of the federal funds spent on the Public and Individual Assistance programs (minus administrative expenses) for each disaster.

The HMGP can be used to fund projects to protect either public or private property, so long as the projects in question fit within the state and local governments overall mitigation strategy for the disaster area and comply with program guidelines. Examples of projects include the acquisition, demolition, or relocation of structures from hazard-prone areas, the retrofitting or elevation of existing structures to reduce future damage; and the development of state or local standards to protect the jurisdiction from future damages.

Eligibility for funding under the HMGP is limited to state and local governments, certain private nonprofit organizations or institutions that perform essential public services, Indian tribes, and authorized tribal organizations. Individuals or homeowners cannot apply directly for funding through HMGP, so these organizations must apply on their behalf. In turn, applicants must work through their state because the state is responsible for setting priorities for funding and administering the program.

Title: Community Development Block Grants
Agency: U.S. Department of Housing and Urban Development

The Community Development Block Grant (CDBG) program provides grants to local governments for community and economic development projects that primarily benefit low and moderate-income households with decent housing, suitable living environments, and expanded economic opportunities. Eligible activities include community facilities and improvements, roads and infrastructure, housing rehabilitation and preservation, development activities, public services, economic development, planning, and administration.

Public improvements may include flood and drainage improvements. In limited instances and during times of "urgent need" (e.g., post disaster), CDBG funding may be used to acquire a property located in a floodplain that was severely damaged by a recent flood, demolish a structure severely damaged by an earthquake, or repair a public facility severely damaged by a hazard event. CDBG funds can be used to match FEMA grants.

Title: Public Assistance (Infrastructure) Program, Section 406
Agency: Federal Emergency Management Agency

FEMA's Public Assistance Program, through Section 406 of the Stafford Act, provides supplemental funding to local governments following a Presidential Disaster Declaration for mitigation measures in conjunction with the repair of damaged public facilities and infrastructure. The mitigation measures must be related to eligible disaster-related damages and must directly reduce the potential for future, similar disaster damages to the eligible facility. These opportunities usually present themselves during the repair/replacement efforts.

Proposed projects must be approved by FEMA prior to funding. They will be evaluated for cost effectiveness, technical feasibility, and compliance with statutory, regulatory, and executive order requirements. In addition, the evaluation must ensure that the mitigation measures do not negatively impact a facility's operation or risk from another hazard.

Public facilities are operated by state, local, and tribal governments and include infrastructure such as:

* Roads, bridges & culverts
* Draining & irrigation channels
* Schools, city halls & other buildings
* Water, power & sanitary systems
* Airports & parks

Private non-profit organizations are groups that own or operate facilities that provide services otherwise performed by a government agency and include, but are not limited to the following:

* Universities and other schools
* Hospitals & clinics
* Volunteer fire & ambulance
* Power cooperatives & other utilities
* Custodial care & retirement facilities
* Museums & community centers

Title: Building Resilient Infrastructure and Communities Grant Program
Agency: Federal Emergency Management Agency

The Building Resilient Infrastructure and Communities (BRIC) grant program supports states, local communities, tribes, and territories as they undertake hazard mitigation projects to reduce risks from disasters and natural hazards. BRIC replaced the Pre-Disaster Mitigation (PDM) program. The new program is authorized by Section 203 of the Stafford Act.

The BRIC program aims to categorically shift the federal focus away from reactive disaster spending and toward proactive investment in community resilience. Focus is placed on mitigation activities that emphasize infrastructure projects benefiting disadvantaged communities, nature-based solutions, climate resilience and adaptation, and adopting hazard resistant building codes.

As a competitive annual grant program, applicants can apply on a yearly basis. Individuals, businesses, and non-profit organizations are not eligible to apply for BRIC funds; however local governments can apply on their behalf.

HMGP can fund up to 75% of the eligible costs for hazard mitigation activities. The local cost-share match does not need to be cash; in-kind services or materials may also be used. FEMA will provide 100% federal funding for management costs. FEMA may fund up to 90% of eligible mitigation activity costs for small, impoverished communities or disadvantaged rural communities.

Title: Rural Development Loan and Grant Assistance
Agency: U.S. Department of Agriculture

The USDA provides grants (and loans) to cities, counties, states, tribes, and other public entities to improve community facilities for essential services to rural residents. Projects can include housing, businesses, utilities, and fire and rescue services (funds have been provided to purchase fire-fighting equipment for rural areas). No match is required.

Title: EPA: Hazard Mitigation for Natural Disasters: A Starter Guide for Water and Wastewater Utilities
Agency: US Environmental Protection Agency

The EPA released guidance on how to mitigate natural disasters specifically for water and wastewater utilities.

Title: Various Homeland Security Grants
Agency: U.S. Department of Homeland Security

The DHS enhances the ability of states, local, and tribal jurisdictions, as well as other regional authorities, in the preparation, prevention, and response to terrorist attacks and other disasters, by distributing grant funds. Localities can use grants for planning, equipment, training, and exercise needs. The grants include but are not limited to areas of Critical Infrastructure Protection Equipment and Training for First Responders.

Title: Environmental Quality Incentives Program
Agency: National Resources Conservation Service

The Environmental Quality Incentives Program (EQIP), administered through the NRCS, is a cost-share program that provides financial and technical assistance to agricultural producers to plan and implement conservation practices that improve soil, water, plant, animal, air, and other related natural resources on agricultural land and non-industrial private forestland.

Owners of land in agricultural or forest production or persons who are engaged in livestock, agricultural, or forest production on eligible land and that have a natural resource concern on that land may apply to participate in EQIP. Eligible land includes cropland, rangeland, pastureland, non-industrial private forestland, and other farm or ranch lands.

Title: NOAA Office of Education Grants
Agency: National Oceanic and Atmospheric Administration

The Office of Education supports formal, informal, and non-formal education projects and programs through competitively awarded grants and cooperative agreements to a variety of educational institutions and organizations in the United States.

Title: EPA: Smart Growth in Small Towns and Rural Communities
Agency: US Environmental Protection Agency

EPA has consolidated resources just for small towns and rural communities to help them achieve their goals for growth and development while maintaining their distinctive rural character.

Title: EPA: Hazard Mitigation for Natural Disasters: A Starter Guide for Water and Wastewater Utilities
Agency: US Environmental Protection Agency

The EPA released guidance on how to mitigate natural disasters specifically for water and wastewater utilities.

Title: STAR Community Rating System
Agency: Urban Sustainability Directors Network

Consider measuring your mitigation success by participating in the STAR Community Rating System. Local leaders can use the STAR Community Rating System to assess how sustainable they are, set goals for moving ahead and measure progress along the way.

Title: SBA Disaster Assistance Program Agency: US Small Business Administration
The SBA Disaster Assistance Program provides low-interest loans to businesses following a Presidential disaster declaration. The loans target businesses to repair or replace uninsured disaster damages to property owned by the business, including real estate, machinery and equipment, inventory, and supplies. Businesses of any size are eligible; along with non-profit organizations. SBA loans can be utilized by their recipients to incorporate mitigation techniques into the repair and restoration of their business.

Local

Local governments depend upon local property taxes as their primary source of revenue. These taxes are typically used to finance services that must be available and delivered on a routine basis to the general public. If local budgets allow, these funds are used to match Federal or State grant programs when required for large-scale projects.

Non-Governmental

Another potential source of revenue for implementing local mitigation projects are monetary contributions from non-governmental organizations, such as private sector companies, churches, charities, community relief funds, the Red Cross, hospitals, Land Trusts, and other non-profit organizations.

APPENDIX

Appendix A
Resolution of Adoption by Jurisdiction

Miner County

Town of Canova

City of Carthage

Appendix B
PDM Planning Team Meeting Materials

AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA, County of Miner: ss.

Carla Poulson of said County and State, being duly sworn, on her oath says: That the Miner County Pioneer is a legal newspaper of general circulation, printed and published in Howard, said County and State, by Carla Poulson, and has been such newspaper during the time hereinafter mentioned: and that I, Carla Poulson the undersigned, am publisher of said newspaper, in charge of the advertising department thereof, and have personal knowledge of all the facts stated in this affidavit, and that the advertisement or notice headed

Miner Canty Pre-disaster

Mitigation Plan Meeting

A printed copy of which is hereunto attached, was printed and published in the regular and entire issue of said newspaper and not in a supplement, once each week for ....2... successive weeks, the first publication being made on the .....9... day of ..Feb.. 2023.

And the last publication on the ....16... day of ..Feb... 2023.

The first publication being made on the ..... day of ..... 20.....

The second publication being made on the ..... day of ..... 20.....

The third publication being made on the ..... day of ..... 20.....

The fourth publication being made on the ..... day of ..... 20.....

The fifth publication being made on the ..... day of ..... 20.....

That said newspaper is a legal newspaper, and has a bona fide circulation of more than two hundred copies weekly, and has been published within the County of Miner, for more than fifty-two successive weeks next prior to the first publication of said notice, and is printed in on office maintained in Howard, South Dakota, the place of publication of said newspaper. That the full amount of fees for publication of the annexed notice is $ ..120.00 and insures solely to the benefit of said publisher; that no agreement or understanding for a division thereof has been made with any person and that no part thereof has been agreed to be paid to any person whomever.

Subscribed and sworn to me this ....8.... day of ..May 20..24

C R

My commission expires the ....10.... day of...oct.... 20..25

HEATHER M. POULSON
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

Youth Boys' Basketball Compete in Parkston

The fourth, fifth and sixth grade boys teams travelled to Parkston on Saturday, February 4th to participate in their third tournament of the season. The fourth grade team went 1-2 and the fifth grade team went 0-3 on the day. Due to sickness and injuries, the boys played with 8 players for 6 combined games. Although we were exhausted and down most of the games we never gave up and continued to battle every game.

The sixth grade team went 1-2 and played hard against some good competition. We look forward to having a couple of weeks off, which allows for some much needed practice time as well as time to recover from injuries. Our next game action is in Salem on February 25th.

Howard Tigers Wrestling

Results for Howard at Big East/LCC Conference Tourney (02/04/2023)

120: Conner Giedd - 1st Champ.

Round 1 - Conner Giedd received a bye Quarterfinals - Conner Giedd over Jaden Buchmann (Hamlin/Castlewood) (TF 20-3 3:33) Semifinals - Conner Giedd over Luke Swatek (Elk Point-Jefferson) (TF 17-2 3:33) 1st Place Match - Conner Giedd over Tate Steffensen (Sioux Valley) (Fall 5:43)

132: Tate Miller - 1st Champ.

Round 1 - Tate Miller received a bye Quarterfinals - Tate Miller over Hayden Lounsbery (Beresford/Alcester-Hudson) (Fall 1:01) Semifinals - Tate Miller over Kaleb Johnson (Kingsbury County) (MD 11-1) 1st Place Match - Tate Miller over Jaxon Quail (Deuel/Deubrook Area) (Dec 3-0)

152: Karsten Hamilton

Champ. Round 1 - Karsten Hamilton over Marcus Johnson (Chester Area) (Fall 0:24) Quarterfinals - Jackson Remmers (McCook Central/Montrose) over Karsten Hamilton (TF 19-3 2:29) Cons. Round 2 - Karsten Hamilton over Sheldon Balderston (Kingsbury County) (For.) Cons. Round 3 - Skylar Trygstad (Sioux Valley) over Karsten Hamilton (Fall 2:35)

182: Gabriel Martian

Champ. Round 1 - Gabriel Martian received a bye Quarterfinals - Dominic Constant (Deuel/Deubrook Area) over Gabriel Martian (Fall 0:24) Cons. Round 2 - Gabriel Martian received a bye Cons. Round 3 - Deion Harris (Kingsbury County) over Gabriel Martian (Dec 8-4)

195: Thomas Halverson

Champ. Round 1 - Thomas Halverson received a bye Quarterfinals - Landon Schurch (Beresford/Alcester-Hudson) over Thomas Halverson (Fall 0:31) Cons. Round 2 - Thomas Halverson received a bye Cons. Round 3 - Justin Granum (Deuel/Deubrook Area) over Thomas Halverson (Fall 0:52)

220: Griffin Clubb - 2nd

Champ. Round 1 - Griffin Clubb received a bye Quarterfinals - Griffin Clubb received a bye Semifinals - Griffin Clubb over Aaron Larson (Beresford/Alcester-Hudson) (MD 13-1) 1st Place Match - Levi Wieman (Parker) over Griffin Clubb (Dec 7-2)

160: Nolan Mentele

Champ. Round 1 - Nolan Mentele received a bye Quarterfinals - Carter Randall (McCook Central/Montrose) over Nolan Mentele (Fall 0:33) Cons. Round 2 - Nolan Mentele received a bye Cons. Round 3 - Nolan Mentele over Braeden Johnson (Clark/Willow Lake) (Fall 2:10) Cons. Semis - Korbin Whiteley (Deuel/Deubrook Area) over Nolan Mentele (Dec 7-5)

170: Calvin Halverson - 3rd

Champ. Round 1 - Calvin Halverson received a bye Quarterfinals - Calvin Halverson over Breyten Johnson (Kingsbury County) (Fall 0:51) Semifinals - Gavin Jacobs (Elk Point-Jefferson) over Calvin Halverson (Fall 1:50) Cons. Semis - Calvin Halverson over Caleb Westerbur (Garretson) (Fall 3:49) 3rd Place Match - Calvin Halverson over Breyten Johnson (Kingsbury County) (Fall 1:38)

LEGAL NOTICES • LEGAL NOTICES

SCHOOL BOARD PROCEEDINGS HOWARD SCHOOL DISTRICT 48-3
February 5, 2023

The Howard School Board held a special meeting on Sunday, February 5, 2023, at 3:45 p.m. in the high school conference room. President Julie Schwader called the meeting to order with the Pledge of Allegiance. Members Jillian Calmus, Danny Connor, Randy Hofer, Sara Miller, and Wyatt Walter were present. Stacy Kampshoff, Superintendent/ Elementary Principal Dennis Peters, JH/HS Principal Travis Aslesen, and Business Manager Kimberly Cleveland arrived at the meeting at 4:45 p.m.

Motion by Connor and seconded by Walter to approve the meeting's agenda. Motion passed with all voting in favor.

Motion by Hofer, seconded by Calmus and carried, to enter executive session at 3:47 p.m. for personnel matters in accordance with SDCL 1-25-2 (1).

The board came out of executive session at 8:36 p.m.

Motion to adjourn at 8:37 p.m. was made by Connor, seconded by Walter, and carried with all voting in favor.

ATTEST:
Kimberly Cleveland,
Business Manager

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(Feb. 9, 2023)

Miner County Pre-disaster Mitigation Plan Meeting

Miner County will begin the process of updating the Miner County Pre-disaster Mitigation Plan.

This plan identifies potential natural disasters, their impact, and possible projects to mitigate the impact of said disasters. The County is required by the Federal Emergency Management Agency to update this plan every five years.

The Pre-disaster Mitigation Planning Team will meet at 5:30 p.m. on February 23, 2023 at the Miner County 4-H Building located at 203 W Wilson St., Howard, SD.

The public is welcome to attend.
Questions or comments may be directed to Miner County Emergency Manager Kent Terwilliger. 605-579-0218.
Lunch will be served

AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA, County of Miner: ss.

Carla Poulson of said County and State, being duly sworn, on her oath says: That the Miner County Pioneer is a legal newspaper of general circulation, printed and published in Howard, said County and State, by Carla Poulson, and has been such newspaper during the time hereinafter mentioned: and that I, Carla Poulson the undersigned, am publisher of said newspaper, in charge of the advertising department thereof, and have personal knowledge of all the facts stated in this affidavit, and that the advertisement or notice headed

Rescheduled

Mitigation Plan Meeting

A printed copy of which is hereunto attached, was printed and published in the regular and entire issue of said newspaper and not in a supplement, once each week for ....2.... successive weeks, the first publication being made on the .....2.... day of .Mar. 20.23.

And the last publication on the .....9..... day of .Mar. 20..23

The first publication being made on the ..... day of ..... 20.....

The second publication being made on the ..... day of ..... 20.....

The third publication being made on the ..... day of ..... 20.....

The fourth publication being made on the ..... day of ..... 20.....

The fifth publication being made on the ..... day of ..... 20.....

That said newspaper is a legal newspaper, and has a bona fide circulation of more than two hundred copies weekly, and has been published within the County of Miner, for more than fifty-two successive weeks next prior to the first publication of said notice, and is printed in on office maintained in Howard, South Dakota, the place of publication of said newspaper. That the full amount of fees for publication of the annexed notice is $ .120.00. and insures solely to the benefit of said publisher; that no agreement or understanding for a division thereof has been made with any person and that no part thereof has been agreed to be paid to any person whomever.

Subscribed and sworn to me this .....8..... day of .May. 20..24.

C.R

My commission expires the .....10..... day of..Oct..... 20..25.

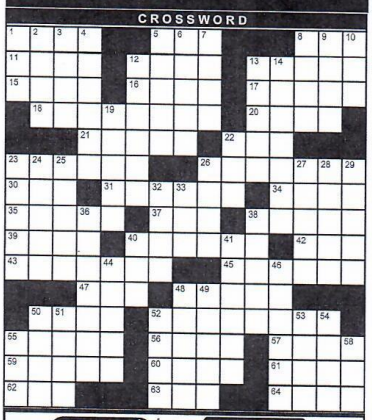
HEATHER M. POULSON
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

Statepoint Crossword

"The Oscars"

SOLUTION ON PAGE 14

CROSSWORD



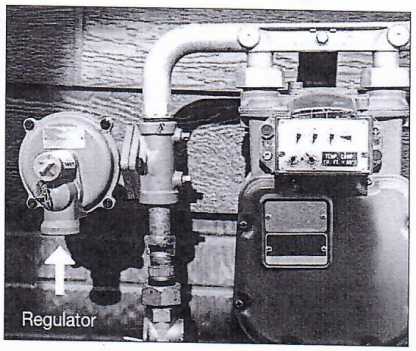
ACROSS

1. Adam and Eve's son
5. Blink of an eye, for short
8. Tricep location
11. Laughing on the inside, in text
12. ____ bowl, frozen dish
13. Bid on a house, e.g.
15. Show off
16. Actor's role
17. Nostrils
18. *"Everything Everywhere All At Once" or "The Fablemans" nominee
20. Trampled
21. Humpty without t
22. *Cate Blanchett's 6-time nominated movie
23. Store in a silo
26. Tiny crustacean
30. Chop off
31. Not digital
34. Cut with a beam
35. Empty spaces
37. Not good
38. Relating to pond scum
39. Capri or Catalina
40. Lament
42. ____ Khan
43. Full event
45. *He's won the most academy awards
47. Jump key
48. Not yes, nor no
50. Male sibs
52. *"The Fablemans" composer John ____, 53-time nominee
55. Resin-producing tree
56. Call to Mary
57. Get-out-of-jail money
59. Bye, in Castile
60. Ages and ages
61. Competitive advantage
62. Appetite
63. Farm female
64. Fender-bender damage

DOWN

1. Key often used with ctrl
2. Gold rush, e.g.
3. Purse with notions
4. Leechee, alt. sp.
5. Dandruff locale
6. This bird gets the worm?
7. Give a traffic ticket
8. Big do
9. Cattail, e.g.
10. *"____ Harris Goes to Paris," Best Costume Design nominee
12. Tarzan and such
13. Like beer at a kegger (2 words)
14. *"The Banshees of Inisherin" nominee
19. Polynesian dance, pl.
22. Dress like Ancient Greeks
23. *Austin Butler's gyrating character
24. Gallows loop
25. Oil crisis
26. *Last year's Best Picture winner
27. Like a Druid, e.g.
28. Missouri River tributary
29. Flying nuisance
32. Lend a hand in crime
33. Order's partner
36. *"Guillermo ____ ____'s Pinocchio"
38. "My wife can vouch for me," e.g.
40. Address to a boy, slangily
41. Bucolics
44. Desert traveler's hope
46. Bikini Bottom locale
48. Variation of meow
49. Skirt shape
50. Past tense of bid
51. Roman remain, e.g.
52. Cry of glee
53. Like a full-fledged Mafia man
54. Leo or Libra
55. Jared's competitor
58. Allow

Check your gas meters



Make sure to keep your gas meter clear of snow and ice. Gas meters have a vent that regulates pressure. If snow piles up and covers the vent, it won't work properly. This could lead to a service interruption or even a gas leak, which could cause a fire or explosion.

After every snow, be sure to clear off your gas meter gently using your hands or a broom. Never use a shovel.

Also be sure all appliance exhaust vents are clear from blowing and drifting snow. Blocked appliance vents could result in a buildup of deadly carbon monoxide.

RESCHEDULED - Miner County Pre-disaster Mitigation Plan Meeting

Miner County will begin the process of updating the Miner County Pre-disaster Mitigation Plan.

This plan identifies potential natural disasters, their impact, and possible projects to mitigate the impact of said disasters. The County is required by the Federal Emergency Management Agency to update this plan every five years.

The Pre-disaster Mitigation Planning Team will meet at 5:30 p.m. on March 9, 2023 at the Miner County 4-H Building located at 203 W Wilson St., Howard, SD.

The public is welcome to attend.
Questions or comments may be directed to Miner County Emergency Manager Kent Terwilliger. 605-579-0218.
Lunch will be served

Miner County
Pre-disaster Mitigation Plan Kickoff Meeting
5:30 p.m. March 9, 2023
Rescheduled from February 23, 2023
Miner County 4-H Building
203 W Wilson St, Howard, SD 57349, South Dakota

Agenda

- Introduction of PDM Team Members
- What is Mitigation Planning?
- Why is Miner County updating the Pre-Disaster Mitigation Plan?
- Review plan components
- Review timeline/scope

MINER COUNTY PRE-DISASTER MITIGATION PLANNING TEAM MEETING

KICKOFF MEETING

March 9th, 2023

Name	Organization	Email*
Ted Austerman	Alliance Communications	teda@alliance.coop
Payton Carda	First District	payton@1stdistrict.org
Kent Terwilliger	Miner Co. EM	
Isaiah Glanzer	Canova Fire Dept	
Andrew Fridley	Federa Fire Dept	
Richard Hanh	Carthage Fire Dept.	
Phil Hudson	Howard Fire Dept	
Henry Rantschler	" "	
Michael Schert	" "	
Josh Tobin	Canova Fire Dept	

participated virtually

Miner County
Pre-disaster Mitigation Plan Kickoff Meeting
5:30 p.m. March 9, 2023
Miner County 4-H Building
203 W Wilson St, Howard, SD 57349, South Dakota

Minutes

10 individuals were in attendance:

Last	First	Organization
Austerman	Ted	Alliance Communications
Carda	Payton	First District
Terwilliger	Kent	Miner Co. Emergency Management
Glanzer	Isaiah	Canova Fire Dept
Fridley	Andrew	Fedora Fire Dept
Henn	Richard	Carthage Fire Dept
Hudson	Phil	Howard Fire Dept
Rentschler	Henry	Howard Fire Dept
Sebert	Michael	Howard Fire Dept
Tobin	Josh	Canova Fire Dept

Miner County Emergency Manager, Kent Terwilliger, welcomed those in attendance and had the Team Members introduce themselves and what entity they represent. Terwilliger then introduced Payton Carda of First District Association of Local Governments.

Carda provided an overview of what is mitigation planning and why the county is required to update their Pre-Disaster Mitigation (PDM) Plan. Carda also provided a review of the components to be included within the plan (risk assessment, vulnerability, proposed mitigation actions).

A general review of the existing Pre-Disaster Mitigation Plan started by defining work responsibilities, having the First District doing background and research, and the PDM Team providing oversight and guidance throughout the process. The timeline and scope of project were reviewed.

Meeting adjourned at 6 p.m. Date and time for the next meeting to be scheduled later.

Minutes recorded by Payton Carda

Miner County
Pre-disaster Mitigation Planning Team Second Meeting
Date Time Location

This page will include public notice

Agenda

- Introduction
- Review of Previous Meetings and Plan Development History
- Review of PDM Preliminary Draft
  - Plan Authority and Purpose
  - Community Profile
  - Plan Process
  - Risk Assessment/Critical Infrastructure
  - Review of Goals and Objectives
  - Project Identification (county-wide and entity-specific)
  - Plan Maintenance
- Questions
- Next Steps in PDM Draft Process

Miner County
Pre-disaster Mitigation Planning Team Meeting 2
Date Time Location

This Page will contain minutes

This Page will contain Sign-in Sheet

Miner County
Pre-disaster Mitigation Planning Team Meeting 3
Date Time Location

Agenda

- Final Review of PDM Plan
- Last Call for Questions/Comments/Revisions
- Recommendation of Approval and Submission to FEMA

Miner County
Pre-disaster Mitigation Planning Team Meeting 3
Date Time Location

This Page will contain minutes

This Page will contain Sign-in Sheet

Appendix C
Community Meeting Materials

Appendix C includes Agendas, Sign-in Sheets, and Minutes from the meetings held at the community level for the Miner County Pre-Disaster Mitigation Plan. Meetings were held at the regular monthly meetings for the following cities/towns:

Entity	Date
Canova	April 8, 2024
Carthage	June 12, 2023
Howard	June 12, 2023
Miner County	April 9, 2024

At all of the previously described meetings, each group in attendance was asked to identify the probability of each specific hazard's occurrence. Following discussion on each individual hazard, Board members categorized these hazards as high probability to occur, low probability to occur, or unlikely to occur. The result was recorded on a master sheet for each town. Next, each group in attendance was asked to identify the town's vulnerability to each specific hazard. Following discussion on each individual hazard, Board members classified the town's vulnerability to each hazard as high vulnerability, low vulnerability, or noted that the hazard was not a hazard in the jurisdiction. The result was recorded on a master sheet for each town. Following the hazard identification and vulnerability exercises the governing body was asked to rate the level to which they agree with the goals of the Pre-Disaster Mitigation Plan. Finally, the Town Board was asked to identify critical infrastructure within the community. All master worksheets compiled at those meetings can be found in Appendix D. A master infrastructure list was compiled for each town in Table 4.18.

At the previously described meetings Board members were first asked to identify potential hazard mitigation projects for their towns. Members then discussed among themselves and staff before determining a timeframe for these projects to be completed (short-term, medium-term, long-term). Short-term indicates a time frame of two years or less. Medium-term indicates a time frame of two to five years. Long-term indicates a time frame of more than five years.

Finally, members assigned a priority level (high, medium, low) to each project. High priority projects have greater importance, unanimous Board agreement, more cost effective, provide more benefits for the entire community as a whole, shorter implementation time and funding availability. These projects should take precedence over similarly costing projects. Medium priority projects are important projects with less urgency, limited benefits, maintenance activities or projects by virtue of their cost and/or necessity is not considered a high priority. The community should begin planning for completion of these projects. Low priority projects are projects that due to their cost and/or potential minimal benefits to the community are considered a lesser priority, maybe a longer term project that lacks funding availability.

The Board members and Finance Officers were asked to work with First District Staff to identify who would oversee the potential projects and what a projected cost would be. All projects identified at those meetings are included in Table 5.13.

Township maps are included in Appendix E.

Town of Canova Agenda

Canova Town Board Agenda
April 8, 2024 7:30 PM

Call to order

Minutes of last meeting

Old Business

Water Bills

New Business
Pre Disaster Mitigation Review - First District
Water Report
Town Clean-up – date early June
Town Election – June
Finance Officer position
Review Bills
Other

Next meeting – May 13th

Adjourn

Canova Attendance

TOWN OF CANOVA

TOWN BOARD MEETING

MINER COUNTY PRE-DISASTER MITIGATION PLAN

DATE

Name	Organization	Email*
Vance North	Canova Fire	
Ted Gosmire	Canova Fire Department	
Waylon Esser	Canova Fire Dept	
Justin Bransby	Canova Fire Dept	
Jesus Arroyo	CANOVA FIRE DEPT	
[illegible]	Canova Fire Dept	
Brooke Bransby	Canova Fire Dept	
Troy Vandenburg	CFD	
Dillon Willer	CFD	
Kari Gosmire	Town Board	
Ronda Gassman	Town Board	
Megan Gassman	Town Board	
Tim Gassman	Town Board	

** It is intended to send "draft" documents via email if possible.*

Canova Minutes

Canova Outline

Outline
Pre-Disaster Mitigation Plan
Community Meetings

Introduction

Personal introduction:

Introduce the plan:

Why update the PDM?

Why is your community doing it individually/Why not just county?

What is a PDM?

Hazard review

Hazard Identification

Summer/Thunderstorm

- Hail, Heavy Rain, Lightning, Tornado, Strong Winds

Winter Storm and Extreme Cold

- Freezing Rain, Sleet, Ice, Heavy Snow,

Drought and Extreme Heat

Flood

- Rapid Snow Melt, Ice jam, (heavy rain can go here too)

Fire

- Urban fire, wildfire (grass fire)

NOTES:

- No hazards determined to need changing in probability
- Primary topics of discussion were the strong winds of Derecho and later that summer; along with the flood that occurred between plans.

Hazard Vulnerability

Summer/Thunderstorm

- Hail, Heavy Rain, Lightning, Tornado, Strong Winds

Winter Storm and Extreme Cold

- Freezing Rain, Sleet, Ice, Heavy Snow,

Drought and Extreme Heat

Flood

- Rapid Snow Melt, Ice jam, (heavy rain can go here too)

Fire

- Urban fire, wildfire (grass fire)

NOTES:

- Primary notes from vulnerability discussion involved loss of power following Derecho, flooding of basements during the flood, isolation as

all collectors (streets) leading into town were under water for several days following the flood resulting in the need for back-roads being used to get to Howard or Salem… or anywhere else. Also discussed lack of tornado safe room for town, especially at the baseball complex/campground/park. Up to 300 people use the park depending on the day. 5-15 users daily, not counting games. Though a small town, this is one of the best baseball programs in the state. Larger crowds attend these adult games than in most towns in the state.

- Entire fire department attended the meeting. No changes to vulnerability nor projects recommended by members of the fire department.

Community Capabilities and Plans review

Community facilities

Identify/review critical facilities

Are there new facilities/facilities to be removed

NEW CELL TOWER ADDED EAST OF TOWN
REPLACEMENT OF RISER IN WATER TOWER
WIND TOWER IS NO LONGER OPERATIONAL AND WAS REMOVED FROM LIST

Have addresses changed/are they correct NO

Where are the populations to protect

Transient/campgrounds

Poor Populations/economically disadvantaged areas

Schools/children

Elderly

Protected classes (mentally handicapped)

NO POPULATIONS ARE MORE OR LESS ECONOMICALLY DISADVANTAGED THAN OTHERS: THERE ARE NO SCHOOLS, NO DAY CARES AND NO ASSISTED LIVING CENTERS IN CANOVA

Project review

Review past projects

- *IT WAS DETERMINED THAT THERE IS NO NEED FOR A NEW/REPLACEMENT WATER TOWER*
- *PURCHASE OF BACK-UP GENERATOR FOR EMERGENCY SHELTER WAS MOVED TO A "MEDIUM" PRIORITY.*
- *TORNADO SHELTER REMAINED AT "MEDIUM" PRIORITY, BUT SOLELY DUE TO COST WHICH WAS UPDATED TO ASSUME $400,000*
- *AN ENGINEERING STUDY WAS CONDUCTED IN 2021 TO REFINE THE ACTION OF REPLACING UNDERSIZED OR DETERIORATING CULVERTS – CLEANOUT OF DITCHES ALONG CERTAIN ROADWAYS WAS ADDED BASED ON THE STUDY THIS "ACTION" IS UPDATED TO REFERENCE, "IMPLEMENT RECOMMENDATIONS OF DRAINAGE STUDY" $140K*

Ask about other projects (not all require FEMA funding)

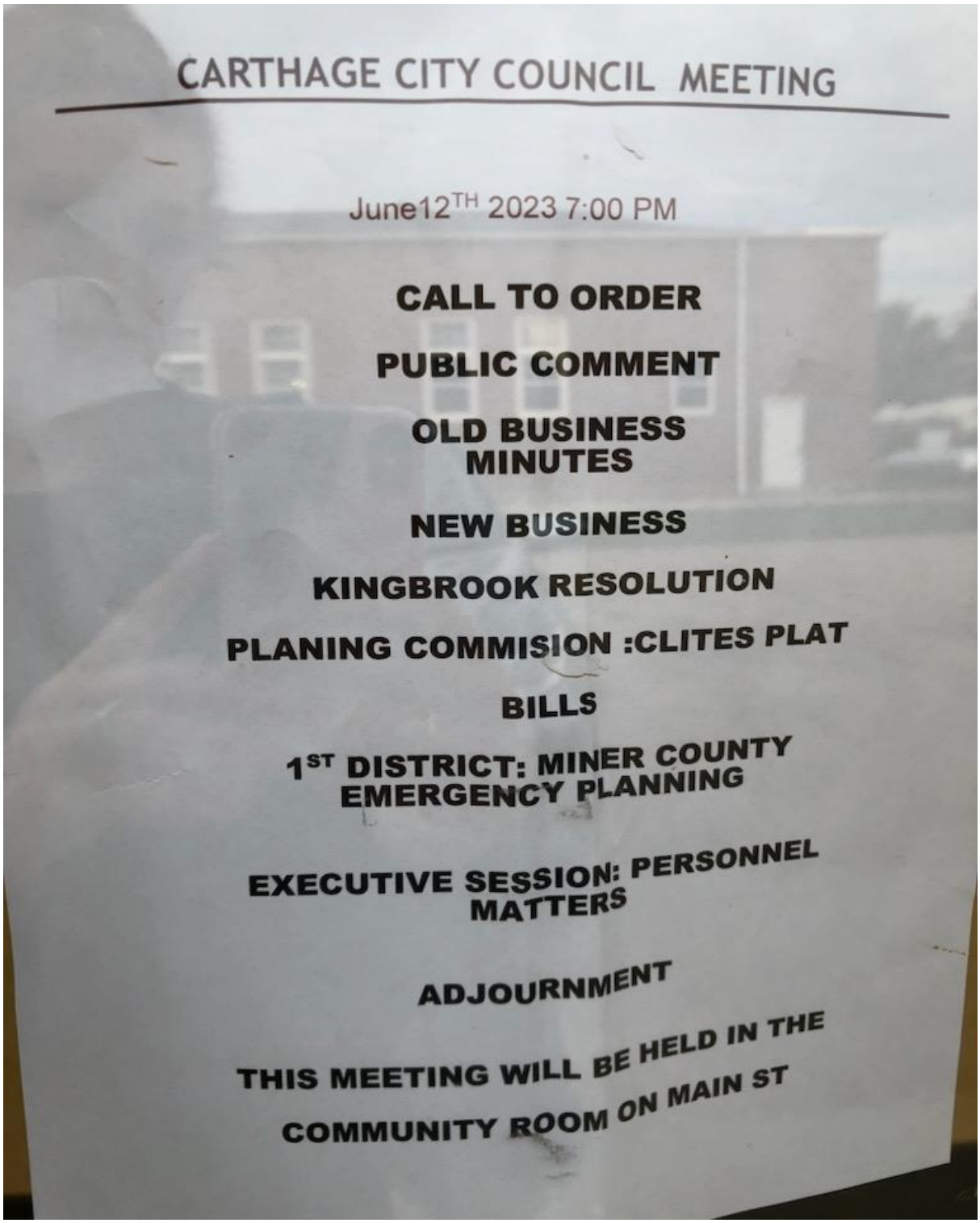
Ask about Policies/activities that already help mitigate Disaster

- *EXCEL ENERGY INSPECTS TREES TO DETERMINE WHETHER THEY ARE A SIGNIFICANT RISK TO EXISTING POWER LINES ON AN ANNUAL BASIS. THE TOWN DOES NOT ALWAYS RECEIVE THE REPORT.*
- *Fire department reiterated that water facilities, lines, hydrants are adequate for fire suppression within the Town of Canova. No projects were necessary for the Fire Department.*

Conclusion

Meeting attended by 13 voting age individuals – Canova has a total of 74 individuals over the age of 17. This meeting was attended by 23% of the voting age residents of Canova.

City of Carthage Agenda



Carthage Attendance

MINER COUNTY PRE-DISASTER MITIGATION COMMUNITY MEETING

CITY OF CARTHAGE

June 12th, 2023

Name	Organization	Email*
Payton Carda	First District	payton@1stdistricborg
Frances Rusk	City of Carthage	
Tim Nelson	" " "	
Kathy Faber	City of Carthage	
David Hatteris	City of Carthage	
Kris Magerko	city of carthage	
Melanie Hamilton	city of Carthage	
Darla Rowcliffe	City of Carthage	
Norbert Moldan	City of Carthage.	

Carthage Minutes
CARTHAGE CITY COUNCIL MEETING
JUNE 12, 2023

Carthage city council met in regular session on June 12, 2023 at 7:00 pm. Present were: Mayor Dave Hattervig, Kris Magerko, Melanie Hamilton, Darla Rowcliffe, Norbert Moldan, Fritz Rusher, and Tim Nelson. Also present were: Carl Elvik, Calvin Elliott, Heath Thompson from Kingbrook, Dave and Kim Vanasperen, Tim Eklund and Payton Carda from 1st District in Watertown.

Meeting was called to order and the Pledge of Allegiance was recited. Carl Elvik delivered appraisals on the street signs that were done by 3 property owners. Calvin Elliott resigned his position. Dave VanAsperen reported that they had some theft of property and suggested everyone lock their premises. Heath Thompson explained the Water Tower Rehabilitation Project.
Motion by Hamilton, second by Nelson to approve Resolution # 2301, a resolution approving the Carthage Water Tower Rehabilitation Project. All voting yes, Carried. Rowcliffe moved, Rusher seconded to enter Executive Session to discuss personnel matters at 7:15 pm. Carried. Regular session resumed at 7:31 pm. Motion by Rowcliffe, second by Magerko to contract with Tim Eklund for City Maintenance for the amount of $2600.00 per month. Roll call: all yeas, Carried.
Corrections to May's minutes were to include Ivan Elvik as present and dean Sandven was contacted about his properties. Motion by Magerko, seconded by Hamilton to approve the minutes with corrections. Carried.
Payton Carda was given the floor. The Miner County's Pre-Disaster Mitigation Plan was discussed. The council completed Carthage's mitigation reports and vulnerability assessment.
The Firetruck that the City purchased is in western NE and needs to be picked up. The council approved expenses for the trip to get it. Insurance on it will be actual cash value at $478.91 yearly for comp and collision. Letters for non-working vehicles have been sent.
Appraisals on the 34 old street signs were reviewed, the three appraisals averaged out to $25.00 each sign set. Disposal was tabled to next meeting.
New Business: The following bills were presented: Kathy Faber $ 612.23 (salary & supplies), Edith Elvik $32.32 (library), Scot Supply $ 846.43 (repairs), Waste Management $ 638.99 (residential), IRS $386.92 (941 taxes), Kingbrook $181.20 (water), Waste Management $986.32 (commercial), Central Electric $278.42 (electric), Alliance $ 133.12 (phone), Xcel $1994.17 (electric), Dawson Cons't $100.00 (clean up day) SD Retirement $96.00 (Finance Officer), Calvin Elliott $ 2800.00 (may contract), Two way Solutions $299.00 (FCC license), VanDiest $1310.75 (spray chemicals) Hattervig Electric $ 690.76 (repairs), Miner Co. Pioneer $503.54 (publishing), Diane Larson $71.25 (cleaning supplies), Fritz Rusher $110.82 (cleaning), Runnings $27.76 (supplies), Mumford Protsch $125.00 (legal fees), Calvin Elliott $1400.00 (June contract). Motion by Rowcliffe to approve the bills, second by Rusher. Roll call: all yeas. Carried.
Motion by Hamilton, second by Moldan to approve the financial reports. Carried.
Magerko reported the ambulance has new tele-medicine capabilities that require a decent cell phone signal. He suggested getting a cell phone booster for the community room and ambulance bay. One that would do the job would be about

$570.00. Motion by Rowcliffe, second by Hamilton to purchase said booster. Roll call all yeas. Nelson reported the Fire Dept annual fund raiser will be Sat July 1st with fireworks at lake at dusk.
Motion by Magerko, second by Hamilton to convene as the Carthage City Planning Commission. Carried. Clites plat was discussed. Resolution # 2302 concerning said plat was reviewed.
Motion by Rowcliffe, second by Magerko to approve Resolution #2302 concerning the Clites plat.
All voted yea.
Motion by Rowcliffe, second by Moldan to reconvene as City Council.
Un-mowed lots we discussed. Certified letters will. be sent. No other new business.
Motion by Rowcliffe , second by Hamilton to adjourn the meeting. Meeting adjourned.

Next Meeting will be July 10th.

Attest:
Kathy Faber
Finance Officer

Carthage Outline

Outline
Pre-Disaster Mitigation Plan
Community Meetings
City of Carthage
June 12, 2023

Introduction

Personal introduction:

All individuals in attendance introduced themselves

Introduce the plan: Payton Carda FDALG introduced the group to the PDM planning process and the community's role in the process, discussing the following:

Why update the PDM?
Why is your community doing it individually/Why not just county?
What is a PDM?

Hazard review

Hazard Identification

Summer/Thunderstorm
- Hail, Heavy Rain, Lightning, Tornado, Strong Winds

Winter Storm and Extreme Cold
- Freezing Rain, Sleet, Ice, Heavy Snow,

Drought and Extreme Heat

Flood
- Rapid Snow Melt, Ice jam, (heavy rain can go here too)

Fire
- Urban fire, wildfire (grass fire)

The Council reviewed the previous PDM's Risk Assessment worksheet (Hazard Identification – Probability) and made no changes.

Hazard Vulnerability

Summer/Thunderstorm
- Hail, Heavy Rain, Lightning, Tornado, Strong Winds

Winter Storm and Extreme Cold
- Freezing Rain, Sleet, Ice, Heavy Snow,

Drought and Extreme Heat

Flood
- Rapid Snow Melt, Ice jam, (heavy rain can go here too)

Fire
- Urban fire, wildfire (grass fire)

The Council reviewed the previous PDM's Risk Assessment worksheet (Hazard Identification – Vulnerability) and made no changes.

Community Capabilities and Plans review

No Changes.

Community facilities

Identify/review critical facilities

Are there new facilities/facilities to be removed
Have addresses changed/are they correct
Where are the populations to protect

Transient/campgrounds
Poor Populations/economically disadvantaged areas
Schools/children
Elderly
Protected classes (mentally handicapped)

Carda reviewed the previous plan's critical facilities/populations to protect. The City added the City Office Building and the Shower/Shelter Building. The City recommended the State Campground be included on the list.

Project review

Review past projects

- *Are they completed/still necessary/ongoing*

Ask about other projects (not all require FEMA funding)
Ask about Policies/activities that already help mitigate Disaster

The County reviewed listed projects from the previous plan and proposed new projects.

Previous Plan projects completed included:

- Additional equipment purchased for the fire department.
- Drake Street sanitary sewer relining project completed.

Previous Plan Projects to be retained:

- Install riprap on the wastewater lagoon berms.
- Purchase new equipment/supplies for fire department as needed.
- Conduct training/education for firefighters/EMTs as needed.

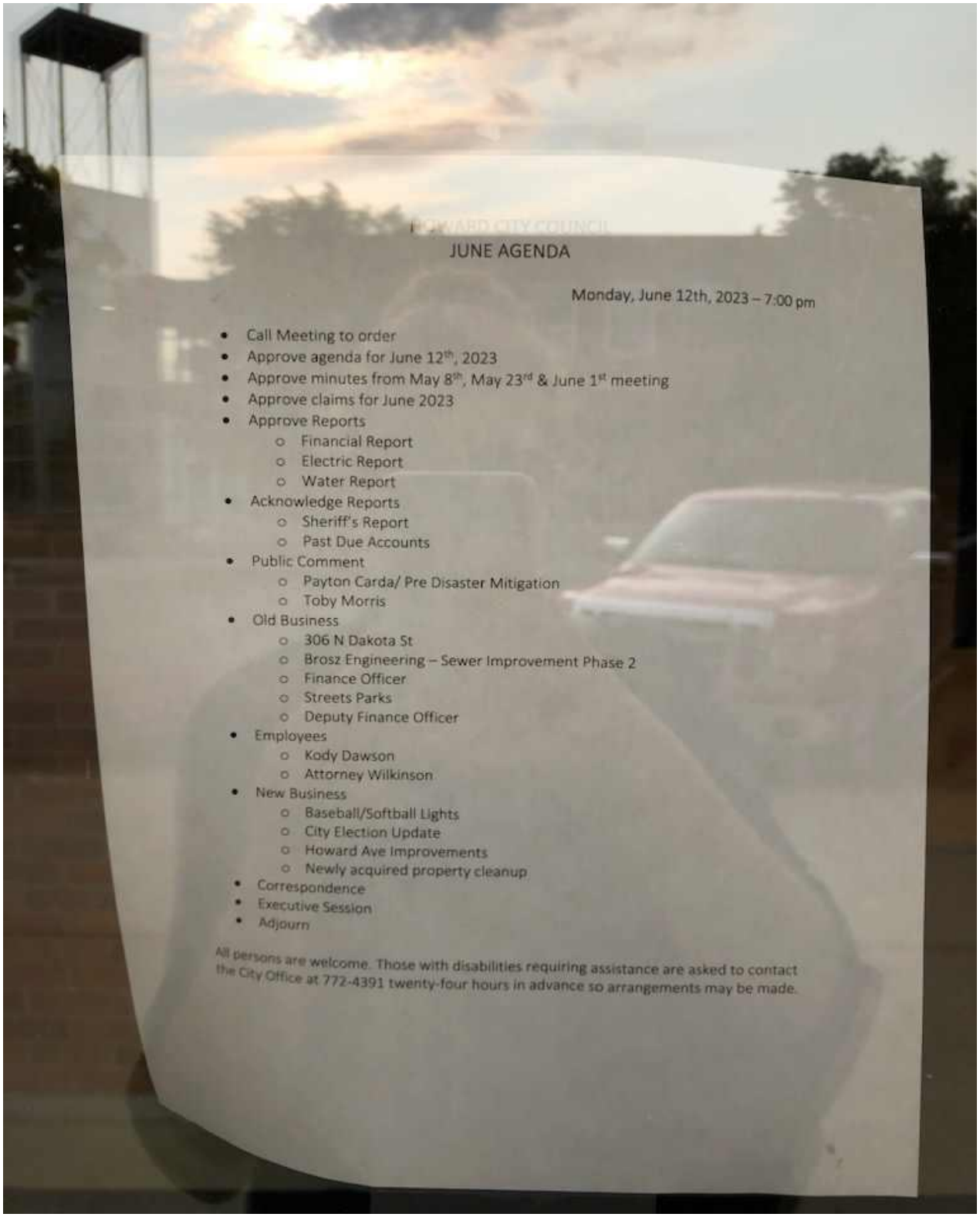
New Projects include:

- Storm warning siren needs to be upgraded.
- Reline/replace sanitary sewer mains in the rest of the community.

Conclusion

Carda informed the County of upcoming Survey site, Pre-disaster Mitigation Team Meetings and the Plan Adoption process.

City of Howard Agenda



HOWARD CITY COUNCIL

JUNE AGENDA

Monday, June 12th, 2023 – 7:00 pm

- Call Meeting to order
- Approve agenda for June 12th, 2023
- Approve minutes from May 8th, May 23rd & June 1st meeting
- Approve claims for June 2023
- Approve Reports
  - Financial Report
  - Electric Report
  - Water Report
- Acknowledge Reports
  - Sheriff's Report
  - Past Due Accounts
- Public Comment
  - Payton Carda/ Pre Disaster Mitigation
  - Toby Morris
- Old Business
  - 306 N Dakota St
  - Brosz Engineering – Sewer Improvement Phase 2
  - Finance Officer
  - Streets Parks
  - Deputy Finance Officer
- Employees
  - Kody Dawson
  - Attorney Wilkinson
- New Business
  - Baseball/Softball Lights
  - City Election Update
  - Howard Ave Improvements
  - Newly acquired property cleanup
- Correspondence
- Executive Session
- Adjourn

All persons are welcome. Those with disabilities requiring assistance are asked to contact the City Office at 772-4391 twenty-four hours in advance so arrangements may be made.

Howard Attendance

MINER COUNTY PRE-DISASTER MITIGATION COMMUNITY MEETING

CITY OF HOWARD

June 12th, 2023

Name	Organization	Email*
Payton Carda	First District	payton@1stdistrict.org
Andrew Yanish	City of Howard	
Nathan Dawson	City of Howard	
Jean Thompson	City of Howard	
Lynn Borges	City of Howard	
Eric Rentschler	City of Howard	mayorhowardsd@alliancecom.net
Rick Kofford	City of Howard	
Jackie Stahr	City of Howard	
Todd Wilkinson	City Attorney	toddewslawfirm.net
Kody Dawson	City of Howard	

June 12th, 2023 Minutes

The Howard City Council met in regular session on Monday, June 12, 2023 at 7:00 pm in the Council Chambers. Mayor Eric Rentschler, Council Members Jackie Stuhr, Rick Kofford, Jean Thompson, Drew Yanish, Nathan Dawson and Lynn Borgers were present. Finance Officer Tyler Genzlinger and Attorney Todd Wilkinson were present.

Borgers moved, Kofford seconded and carried to approve the agenda.

Dawson moved, Yanish seconded and carried to approve the minutes from May 8th, May 23rd and June 1st 2023. Sheriff's Report was acknowledged. Borgers moved, Thompson seconded and carried to approve the following claims:

Aflac, ins, 88.68; Alliance, utilities, 479.00; A-OX, rental, 19.90; Avera Health, ins, 1968.42; Avera Occupational, prof fee, 134.00; Ellie Becker, training, 200.00; Bender Sewer, repairs, 1223.00; Buttler Machinery, repairs, 348.73; Capital One, supplies & books, 482.01; Center Point, books, 140.82; Central Elec, utilities, 66.00; Colonial Life, sup ins, 291.33; Core & Main, prof fee, 21675.06; County of Miner, lieu of taxes, 804.23; Creative Product source, supplies, 414.12; Dawson Const, sanitation & demo, 18955.37; Kody Dawson, utilities, 125.00; Delta Dental, ins, 190.00; DMI, repairs, 92.33; Dold Imp, repairs, 618.71; Dollar General, supplies, 17.95; East River Elec, energy, 10860.08; Ecolab, prof fee, 97.20; Hawkins, supplies, 2692.70; Heartland Power, energy, 72186.57; Home Water, supplies, 33.75; Homestead, repairs, 139.57; Horizon Health, prof fee, 80.00; Howard Auto Clinic, repairs, 88.70; Howard Band, publishing, 55.00; Howard Farmers COOP, supplies, 10888.89; Howard School, lieu of taxes, 1787.19; Infotech, prof fee & equipment, 1744.99; Karls, equipment, 708.74; Kingbrook water, 12632.60; Klinkhammer Plumbing, repairs 681.73; Kramer Bros, repairs, 204.08; Troy Loudenburg, utilities & clothing, 157.86; Madison Daily leader, publishing, 481.70; MARC, repairs, 281.67; MC&R pools, supplies, 64.52; Meierhenry, prof fee, 24720.00; Miner Conservation, supplies, 1737.00; Miner County Dispatch, 20400.00; Miner County Pioneer, publishing, 1818.37; Miner County Sheriff, contract law, 7750.00; Office Peeps, supplies, 411.69; OMNI Pro, prof fee, 3449.60; One Call System, prof fee, 16.80; Pitney Bowes, rent, 180.57; Rylee Rudebusch, training, 125.00; Rusty, supplies, 1025.32; SD Dept of Revenue, sales tax, 10119.01; Sd Dept of Health, prof fee, 45.00; SDSRP, sup retirement, 800.00; Shanes Hardware, repairs, 1192.13; Sic Cs, other, 39.25; Stan Houston, repairs, 252.85; Sturdevents, repairs, 634.28; Sun Life, sup ins, 105.70; WAPA, energy, 19148.21; WESCO, supplies & equipment, 5127.00.

Wages: F/O, 6124.19; Streets, 6109.93; Water, 3404.33; Elec, 6250.56; Sewer, 1192.53, Pool, 953.18; Parks, 2591.08; Cemetery, 1174.85; Rubble, 666.28; Council, 1743.15; Library, 1681.92; Airport, 486.01; Custodian, 411.42; West Nile, 157.23.

Public Comment:
Payton Carda with 1st District met with the council to update the Pre-Disaster Mitigation Plan.

Toby Morris met with the council via zoom, to provide information and discussion regarding the South Dakota Housing Infrastructure funding.

Old Business:
The city property at 306 N Dakota St was discussed.

Brosz Engineering would like to schedule a meeting to discuss and provide information on phase two of the sewer improvement project.

The full time Finance Officer position was discussed.

The Streets/Parks foreman position was discussed.

The Deputy Finance Officer position was discussed.

Employees:
Kody Dawson gave an update on the baseball/softball field and the condition of the current lighting at the park. He has reached out to a supplier to get an idea on the price of making improvements or updating the lights at the ballfield. Kody updated the council on summer projects and progress the crew has made.

Attorney Wilkinson gave an update on a several properties that are non-compliant with our code enforcement. He also gave an update on two quit claim deeds that the city has received.

New Business:
Baseball/Softball field lighting was discussed. The council will wait for the recommendation of our supplier to see how much improvements will cost.

Genzlinger gave an update on the City Election. There will not be one this year as there was only one petition filed for each ward. Those filing petitions were Lynne Borgers Ward I, Nathan Dawson Ward II, Shane Rowley ward III.

Howard Ave Improvements were discussed.

Plans for newly acquired property were discussed.

Motion by Dawson, seconded by Stuhr and carried to enter into Executive Session per SDCL 1-25-2 for personnel matters. Motion by Stuhr, seconded by Thompson to come out of Executive Session.

Kofford moved, Yanish seconded and carried to hire Cayden Eliason for summer help at $17/hr.

There being no further business, Stuhr moved, Thompson second and carried to adjourn.

The next regular meeting will be on July 10th 2023.

Eric Rentschler

Eric Rentschler, Mayor

ATTEST:

Tyler Genzlinger
Finance Officer

Howard Outline

Outline
Pre-Disaster Mitigation Plan
Community Meetings
City of Howard
June 12, 2023

Introduction

Personal introduction:

All individuals in attendance introduced themselves

Introduce the plan: Payton Carda FDALG introduced the group to the PDM planning process and the community's role in the process, discussing the following:

Why update the PDM?
Why is your community doing it individually/Why not just county?
What is a PDM?

Hazard review

Hazard Identification

Summer/Thunderstorm
- Hail, Heavy Rain, Lightning, Tornado, Strong Winds

Winter Storm and Extreme Cold
- Freezing Rain, Sleet, Ice, Heavy Snow,

Drought and Extreme Heat

Flood
- Rapid Snow Melt, Ice jam, (heavy rain can go here too)

Fire
- Urban fire, wildfire (grass fire)

The Council reviewed the previous PDM's Risk Assessment worksheet (Hazard Identification – Probability) and made changed drought from low to high and ice jam from unlikely to low.

Hazard Vulnerability

Summer/Thunderstorm
- Hail, Heavy Rain, Lightning, Tornado, Strong Winds

Winter Storm and Extreme Cold
- Freezing Rain, Sleet, Ice, Heavy Snow,

Drought and Extreme Heat

Flood
- Rapid Snow Melt, Ice jam, (heavy rain can go here too)

Fire
- Urban fire, wildfire (grass fire)

The Council reviewed the previous PDM's Risk Assessment worksheet (Hazard Identification – Vulnerability) and changed ice jam from NA to low.

Community Capabilities and Plans review

No Changes.

Community facilities

Identify/review critical facilities

Are there new facilities/facilities to be removed
Have addresses changed/are they correct
Where are the populations to protect

Transient/campgrounds
Poor Populations/economically disadvantaged areas
Schools/children
Elderly
Protected classes (mentally handicapped)

Carda reviewed the previous plan's critical facilities/populations to protect. The City removed the three apartment buildings entries.

Project review

Review past projects

- *Are they completed/still necessary/ongoing*

Ask about other projects (not all require FEMA funding)
Ask about Policies/activities that already help mitigate Disaster

The County reviewed listed projects from the previous plan and proposed new projects.

Previous Plan projects completed included:

- None.

Previous Plan Projects to be retained:

- Upgrade storm warning siren.
- Purchase and integrate GIS services into city offices.
- Upgrade city water tower.

New Projects include:

- Purchase turn out gear and SCBAs for fire department..
- Construct improvements to city water mains.
- Construct improvements to city sanitary sewer mains.
- Bury overhead power lines.
- Install/upgrade storm sewer mains in flood prone portions of the city.
- Create and implement a cleaning/maintenance schedule for creek and purchase equipment..

Conclusion

Carda informed the City of upcoming Pre-disaster Mitigation Team Meetings and the Plan Adoption process.

Miner County Commission Agenda

MINER COUNTY
Board of Commissioners
Board of Equalization
PROPOSED AGENDA

Amended 8:00am 4/8/24

Tuesday, April 9, 2024
COMMISSION ROOM-BASEMENT OF COURTHOUSE
401 N Main Street – Howard, SD

AGENDA TOPICS

9:00	Call Meeting to Order, Flag Pledge, Approve Agenda, Pay Bills,
9:15	PUBLIC COMMENT
9:30	PDM Plan – First District Association of Local Governments
9:45	Equalization Oaths
	Elderly Assessment Freeze Values
	Disabled Veterans Exemption Values
	Applications for Continuing Tax-Exempt Status of Private Organizations
	Clerical Corrections
	End Equalization

SPECIAL ITEMS

Executive Session-SDCL 1-25-2 (1)

Correspondence/Reports

Miner County Moisture Report
Veteran Service Officer Report-March
Sheriff Report - March

Legal Issues

Unfinished Business

Burn Ban
Executive Session – SDCL 1-25-2 (4)

New Business

Request from Miner County Recreation Assn
Electrical Issue - Light in Entryway
Operating Transfer(s)

Upcoming Events:

April 14 – Miner County 4-H Open House – 3:00-5:00pm - Howard Armory
April 16th – Commissioner Meeting
April 22nd – 2024 Severe Weather Awareness Training-DeSmet Event & Wellness Center
May 7th – Commissioner Meeting

April 9, 2024

April 9, 2024

The Miner County Board of Commissioners met for equalization on April 9, 2024, in the Miner County Courthouse Commission room. Members present: Alex Protsch, Tom Reisch, Joe Bechen, Kathy Faber and Mike Clary. Members absent: none. Director of Equalization Tami Severson was also present.

Chairman Protsch called the meeting to order. The Pledge of Allegiance was recited. It was moved by Faber, seconded by Bechen, and carried to approve the agenda.

It was moved by Clary, seconded by Reisch and carried to authorize the auditor to pay the following claims: Alliance $150.00, Santel $30.00 **911 CHARGES**; ICAP $796.09 **COMMUNITY ACTION PAYMENT**; Elan Financial $125.00 **DUES**; TwoTrees $705.00 **EQUIPMENT**; SD SOS $30.00 **FILING FEE**; Elan Financial $91.23, HFCA $1,657.41 **FUEL**; Dean Schaefer Court Reporting $36.00, Lincoln County $994.09, Minnehaha County $110.00 **MENTAL ILLNESS HEARING EXPENSE**; Microfilm Imaging $385.00 **RENT**; Dakota Data Shred $19.20, HFCA $526.67, Office Peeps $246.77, TwoTrees $2,878.25, Two Way $239.99, Vanguard $2,250.00 **REPAIRS**; Lexis Nexis $149.00 **SUBSCRIPTION**; Elan Financial $42.54, Gall's Inc. $33.28, Home Service Water $29.40, Becki Mommaerts $26.54, Office Peeps $582.70, Rusty's $161.80, TwoTrees $379.70 **SUPPLIES**; Alliance $66.92, AT&T $327.06, Jessica Charles $30.00 **TELEPHONE**; SD DOL $836.00 **UNEMPLOYMENT.**
Commissioners received the following correspondence: Miner County Moisture Report, Veterans Service Officer March Report, and Sheriff's March Report.

No new action regarding a burn ban.

A request was received from Jon Mentele on behalf of the Miner County Recreation Association for a monetary donation. Bechen made a motion to disperse $3500 to the Miner County Recreation Association, seconded by Clary and carried, with the request to get a report of where money is dispersed for 2024.

Tami Severson appeared during public comment to inform the Commissioners that Darcy Laible has put in her resignation, effective the end of May. Severson will begin advertising for her replacement. Commissioners expressed their appreciation for the ten years of service Laible has provided the county.

There is a possible electrical issue with a light fixture in the front entryway that custodian Lori Kiehl discussed with Auditor Mommaerts. Mommaerts relayed the issue to the Commissioners, and the Commissioners instructed Kiehl to contact an electrician to evaluate the problem.

It was moved by Reisch, seconded by Faber, and carried to make an operating transfer, as provided for in the 2024 budget, of $20,836.00, from the General Fund to Dispatch in the amount of $20,000 and to Unemployment in the amount of $836.00.

Luke Muller and Greg Maag, through First District Association of Local Governments, appeared via Zoom to review and update the county's pre-disaster mitigation (PDM) Plan. Those also in attendance were Auditor Mommaerts, Director of Equalization Severson, Treasurer Charles, and Emergency Manager Terwilliger. Suggested revisions will be incorporated into the new PDM plan.

The board members took their oaths of office serving as the Board of Equalization.

Treasurer Jessica Charles informed the board she has received applications for the freeze on assessments of disabled and senior citizens and requested the board instruct the Director of Equalization to make those changes to the assessment roll. Motion by Faber, seconded by Bechen and carried to authorize the director to make the changes for the applications submitted to and approved by the treasurer.

Director of Equalization presented information on applications for disabled veteran exemption. Motion by Bechen, seconded by Clary and carried to authorize the Director of Equalization to make changes on the assessment rolls to reflect the qualifying applications for the Disabled Veterans Exemption.

It was moved by Faber, seconded by Reisch and carried to approve annual applications for continued tax-exempt status (SDCL 10-4-19) for Miner County Historical Society, Fedora Fire Department, Evangelical Good Samaritan Society, Horizon Health Care, Carthage Museum & Historical Society, Orville Redding American Legion Post #61, Nels Pederson American Legion Post #145, townships, churches, and cemeteries throughout Miner County.

Motion by Faber, seconded by Clary and carried to authorize the Director of Equalization to make the changes on the assessment rolls to correct the following clerical errors:

#3735 Lot 4 Block 12 Howard City-Farmer's

- Change to Owner Occupied Classification

#3627 W 65' of Lots 9 & 10 in Blk 15 Exc N. 12' of W 65' of Lot 10 Howard City – OP

- Change to Owner Occupied Classification

#3351 Lots 11 & 12 Block 27 Carthage City-OP

- Change to Owner Occupied Classification

#1638 SW4 13-107-55

- Change to Owner Occupied Classification

#3974 Lt 2 of Lts 2-3 Exc S. 35' of Lts 2-3 of Lt 27 2-106-56 Howard City-Acre Prop SW4

- Ø Change to Owner Occupied Classification

Severson reported that there were no changes approved at local boards, and no county appeals were filed.

Motion by Faber, seconded by Reisch and carried to end Equalization.

Motion by Faber, seconded by Bechen and carried to go into executive session related to SDCL 1-25-2 (4) at 10:30am. Board returned to regular session at 10:49am.

Motion by Faber, seconded by Clary, to grant Gibi Page an additional 40 hours of personal leave for use in 2024 after her vacation leave balance is at or under 40 hours.

Motion by Bechen, seconded by Faber and carried to adjourn.

The meeting adjourned to April 16th. Dated this 9th day of April, 2024.

Alex Protsch, Chairman

Miner County Board of Commissioners

Attest: Rebecca Mommaerts, Miner County Auditor

Miner County Meeting Notes

Miner PDM Commissioners Meeting 04/09/2024 Meeting Notes

- Prerequisite for federal funding/grants you have to have in order to qualify
- Hazard mitigation project examples: Storm shelter, sirens, power line burials, tree branch trimming, drainage channels, etc. Projects that help to stave off probably emergency issues
- FEMA requires some sort of plan in place in order to qualify for the 80/20
    - FEMA says we need to prepare this plan to help minimize the chaos during emergency recovery efforts
    - Some events happen on an annual basis, some happen but not every year, and some happen once every hundred years
- How likely are events to occur?
- ALWAYS GET COPY OF AGENDA
- When county updates pre-mitigation plan so does the city
    - Updated every 5 years
    - Last done in 2019
- Worksheet #1
    - Urban fire move from low probability to high probability
    - Wild fire move from low probability to high probability
        - Grass or brush fire that needs a coordinated response effort or mutual aid
    - Everything else leave as is, commissioners ok with where current categories are
- Worksheet #2
    - There are 4 categories, not just High, Medium, and low
    - Everything looks good except move the following:
        - Move Dam failure from L to N
        - Move Earthquake from L to N
        - Move Lightning from H to M
        - Move Subsidence from L to N
            - Moving from L to N to match previous worksheets categories
    - FEMA may not approve everything right away until all categories match/coordinate with other worksheets
        - Then once all changes are made and agreed upon FEMA may accept plan application
- Miner County Critical Infrastructure
    - Ambulance address is 200 ½ East Market
    - Canova- has a cell tower east of town. Luke got information about it at town meeting
    - Don’t worry about individual communities as their stuff was taken note of at individual community meetings, only need to worry about items located in County
    - Satellite county shops? Yes Carthage has 1 located on 222nd St (highway dept shop where they store their equipment)

- Assisted Living centers in the county? None
- Other ambulance services other than the county services? Carthage has a ambulance service
- Do any other adjoining counties have ambulance services that may serve Miner County? Yes, Madison, Salem, and De Smet do upon request
- Reference emergency shelters, operations, etc. with towns individually so county won't need to worry about those

- Principle Goals Sheet
  - Communities implementing things on list. Now trying to increase firefighting education & capabilities
    - Example: Information pamphlets in utility bills, fliers in apartment buildings or community owned buildings, etc.
  - Mitigation goals
    - Droughts and wildfires go hand in hand, so goal is kind of combined
      - Higher drought risk=higher wildfire risk
- Miner County Actions Table
  - High Storm water drainage along county highway periodically
    - Replace undersized or deteriorating culverts throughout the county
      - Maintenace issue, might not fund but if they are undersized they might pay for a larger culvert to be installed
      - Have you completed this activity? Yes in 1-2 spots have been completed in last 5 years
  - High storm water drainage along county highway periodically
    - Repair or improve roads that receive damage from flood events
      - On going maintenance roads so not to just make it ok to survive until next storm but do a permanent fix on them
      - Have you completed this activity? Yes in 1-2 spots have been completed in last 5 years
  - County will continue to work on these issues in the future
  - Being preventative to prevent future washouts and issues on own dime to make a point they are trying
    - Example: Road raising in Canova due to engineering study done a few years ago
  - Wildfire pose a potential problem in Miner County
    - Purchase and disseminate fire prevention educational materials
      - Have available at courthouse, Fire departments or halls, pancake feeds, etc. somewhere the public can get access to in order to get the information spread threw out the community and county
  - County will contact Luke, Greg, or Kelli if they think of anything else for projects

        - Locations where we know there are always issues: Hwy superintendent will be asked and should be able to answer this question
    - Other Information/Comments
        - Any other projects out in the county that may have helped with disaster mitigation efforts?
            - Materials, equipment, etc. bought for fire dept or halls?
                - Radios, SCBA (individual breathing apparatus)
                    - Howard 12 SCBAs and masks
                    - 50 radios purchased county wide/dispersed to emergency agencies
                    - Used federal money to purchase masks
                    - Homeland Security money bought majority of them, various communities bought threw fire departments/local money paid for them
                - Storm sirens gone up or replaced in the last 5 years?
                    - Trying to replace but can't get funding for them anymore
                    - Carthage wanted to but state took funding away for it
            - County level not a lot of new projects listed but any other projects done for the county for disaster mitigation?
                - Utility companies apart of state plans (burying lines, reinforcing lines, etc.) important but not able to put on our list
        - FEMA wants ideas for managing some of these hazards
            - How to you mitigate a drought?
                - Dome over entire community
                - Cloud seeding
                - We are at God's mercy which can affect water availability, relies on lake for tourism, etc.
                - Can't really do much other than try diverse Ag products/practices to ride out the drought
                - Crop insurance

Appendix D
Hazard Identification/Vulnerability Worksheets

Appendix D includes master worksheets for Hazard Identification and Vulnerability for jurisdictions. Lists were gathered at meetings as described below:

Entity	Date
Canova	April 8, 2024
Carthage	June 12th, 2023
Howard	June 12th, 2023
Miner County Commission	April 9, 2024

Town of Canova

Miner County PDM
Worksheet #1 (Town of Canova)
Risk Assessment Worksheet – Hazard Identification

What is the probability of occurrence of the following hazards?

Hazard	**High Probability to Occur** (At least once in a year)	**Low Probability to Occur** (Hazards that may have occurred in the past or could occur in the future but do not occur on a yearly basis)	**Unlikely to Occur** (Hazards or disasters that have never occurred in the area before and are unlikely to occur)
Dam Failure			X
Drought		X	
Earthquake			X
Extreme Cold	X		
Extreme Heat	X		
Flood		X	
Freezing Rain/Sleet/Ice	X		
Hail	X		
Heavy Rain	X		
Heavy Snow	X		
Ice Jam			X
Landslide			X
Lightning	X		
Rapid Snow Melt		X	
Strong Winds	X		
Subsidence			X
Thunderstorm	X		
Tornado		X	
Urban Fire		X	
Wildfire			X

Miner County PDM
Worksheet #2 (Town of Canova)
Risk Assessment Worksheet – Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential to impact the community? If so, what would be impacted?

Hazard	**High Vulnerability** Significant risk/major damage potential (for example, destructive, damage to more than 10% of the jurisdiction and/or regular occurrence)	**Medium Vulnerability** Moderate damage potential (causing partial damage to 5-10% of the jurisdiction, and irregular occurrence)	**Low Vulnerability** Little damage potential (minor damage to less than 5% of the jurisdiction)	**NA** Not a hazard to the jurisdiction
Dam Failure				**X**
Drought			**X**	
Earthquake				**X**
Extreme Cold			**X**	
Extreme Heat			**X**	
Flood			**X**	
Freezing Rain/Sleet/Ice		**X**		
Hail		**X**		
Heavy Rain			**X**	
Heavy Snow		**X**		
Ice Jam				**X**
Landslide				**X**
Lightning			**X**	
Rapid Snow Melt			**X**	
Strong Winds		**X**		
Subsidence				**X**
Thunderstorm			**X**	
Tornado	**X**			
Urban Fire		**X**		
Wildfire				**X**

City of Carthage

Miner County PDM
Worksheet #1 (City of Carthage)
Risk Assessment Worksheet – Hazard Identification

What is the probability of occurrence of the following hazards?

Hazard	**High Probability to Occur** (At least once in a year)	**Low Probability to Occur** (May have occurred in the past or could occur in the future but does not occur on a yearly basis)	**Unlikely to Occur** (Never occurred in the area before and are unlikely to occur)
Dam Failure		**X**	
Drought		**X**	
Earthquake			**X**
Extreme Cold	**X**		
Extreme Heat	**X**		
Flood	**X**		
Freezing Rain/Sleet/Ice	**X**		
Hail	**X**		
Heavy Rain	**X**		
Heavy Snow	**X**		
Ice Jam	**X**		
Landslide			**X**
Lightning	**X**		
Rapid Snow Melt		**X**	
Strong Winds	**X**		
Subsidence			**X**
Thunderstorm	**X**		
Tornado		**X**	
Urban Fire		**X**	
Wildfire		**X**	

Miner County PDM
Worksheet #2 (City of Carthage)
Risk Assessment Worksheet – Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential to impact the community? If so, what would be impacted?

Hazard	**High Vulnerability** Significant risk/major damage potential (more than 10% of the jurisdiction and/or regular occurrence)	**Medium Vulnerability** Moderate damage potential (5-10% of the jurisdiction and irregular occurrence)	**Low Vulnerability** Little damage potential (less than 5% of the jurisdiction)	**NA** Not a hazard to the jurisdiction
Dam Failure		**X**		
Drought			**X**	
Earthquake				**X**
Extreme Cold			**X**	
Extreme Heat			**X**	
Flood		**X**		
Freezing Rain/Sleet/Ice	**X**			
Hail	**X**			
Heavy Rain	**X**			
Heavy Snow	**X**			
Ice Jam			**X**	
Landslide				**X**
Lightning		**X**		
Rapid Snow Melt		**X**		
Strong Winds		**X**		
Subsidence				**X**
Thunderstorm		**X**		
Tornado	**X**			
Urban Fire			**X**	
Wildfire	**X**			

City of Howard

Miner County PDM
Worksheet #1 (City of Howard)
Risk Assessment Worksheet – Hazard Identification

What is the probability of occurrence of the following hazards?

Hazard	**High Probability to Occur** (At least once in a year)	**Low Probability to Occur** (Hazards that may have occurred in the past or could occur in the future but do not occur on a yearly basis)	**Unlikely to Occur** (Hazards or disasters that have never occurred in the area before and are unlikely to occur)
Dam Failure			**X**
Drought		**X**	
Earthquake			**X**
Extreme Cold	**X**		
Extreme Heat	**X**		
Flood		**X**	
Freezing Rain/Sleet/Ice	**X**		
Hail	**X**		
Heavy Rain	**X**		
Heavy Snow	**X**		
Ice Jam			**X**
Landslide			**X**
Lightning	**X**		
Rapid Snow Melt	**X**		
Strong Winds	**X**		
Subsidence			**X**
Thunderstorm	**X**		
Tornado		**X**	
Urban Fire		**X**	
Wildfire			**X**

Miner County PDM
Worksheet #2 (City of Howard)
Risk Assessment Worksheet – Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential to impact the community? If so, what would be impacted?

Hazard	**High Vulnerability** Significant risk/major damage potential (for example, destructive, damage to more than 10% of the jurisdiction and/or regular occurrence)	**Medium Vulnerability** Moderate damage potential (causing partial damage to 5-10% of the jurisdiction, and irregular occurrence)	**Low Vulnerability** Little damage potential (minor damage to less than 5% of the jurisdiction)	**NA** Not a hazard to the jurisdiction
Dam Failure				**X**
Drought	**X**			
Earthquake				**X**
Extreme Cold	**X**			
Extreme Heat	**X**			
Flood		**X**		
Freezing Rain/Sleet/Ice	**X**			
Hail	**X**			
Heavy Rain	**X**			
Heavy Snow	**X**			
Ice Jam				**X**
Landslide				**X**
Lightning	**X**			
Rapid Snow Melt	**X**			
Strong Winds	**X**			
Subsidence				**X**
Thunderstorm	**X**			
Tornado	**X**			
Urban Fire	**X**			
Wildfire				**X**

Miner County Commission

Miner County PDM
Worksheet #1 (County Commissioners)
Risk Assessment Worksheet – Hazard Identification

What is the probability of occurrence of the following hazards?

Hazard	**High Probability to Occur** (At least once in a year)	**Low Probability to Occur** (Hazards that may have occurred in the past or could occur in the future but do not occur on a yearly basis)	**Unlikely to Occur** (Hazards or disasters that have never occurred in the area before and are unlikely to occur)
Dam Failure			**X**
Drought		**X**	
Earthquake			**X**
Extreme Cold	**X**		
Extreme Heat	**X**		
Flood	**X**		
Freezing Rain/Sleet/Ice	**X**		
Hail	**X**		
Heavy Rain	**X**		
Heavy Snow	**X**		
Ice Jam		**X**	
Landslide			**X**
Lightning	**X**		
Rapid Snow Melt	**X**		
Strong Winds	**X**		
Subsidence			**X**
Thunderstorm	**X**		
Tornado		**X**	
Urban Fire		**X**	
Wildfire		**X**	

Miner County PDM
Worksheet #2 (County Commissioners)
Risk Assessment Worksheet – Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential to impact the community? If so, what would be impacted?

Hazard	**High Vulnerability** Significant risk/major damage potential (for example, destructive, damage to more than 10% of the jurisdiction and/or regular occurrence)	**Medium Vulnerability** Moderate damage potential (causing partial damage to 5-10% of the jurisdiction, and irregular occurrence)	**Low Vulnerability** Little damage potential (minor damage to less than 5% of the jurisdiction)	**NA** Not a hazard to the jurisdiction
Dam Failure				**X**
Drought		**X**		
Earthquake				**X**
Extreme Cold	**X**			
Extreme Heat	**X**			
Flood		**X**		
Freezing Rain/Sleet/Ice	**X**			
Hail		**X**		
Heavy Rain	**X**			
Heavy Snow	**X**			
Ice Jam			**X**	
Landslide				**X**
Lightning		**X**		
Rapid Snow Melt	**X**			
Strong Winds		**X**		
Subsidence				**X**
Thunderstorm		**X**		
Tornado		**X**		
Urban Fire		**X**		
Wildfire		**X**		

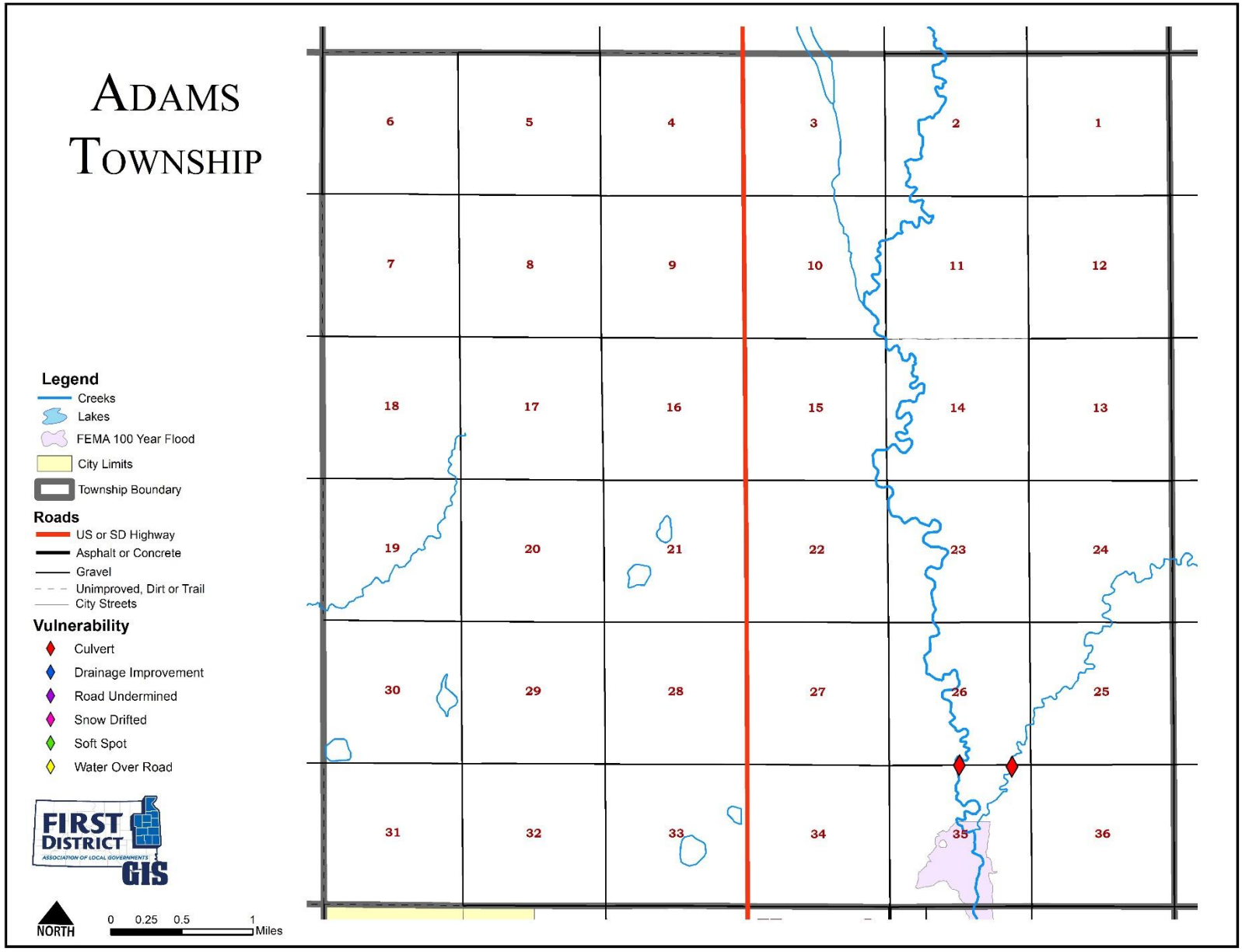
Appendix E
Township Vulnerable and Potential Mitigation Project Site Maps

In July of 2023, First District mailed a request to the Township Clerk or Road Supervisor of every township in Miner County. They were requested to list any critical infrastructure and identify (on a map) any areas which are most vulnerable to natural hazards, specifically flooding. Of the sixteen requests sent, twelve were returned with vulnerable areas identified (see table below).

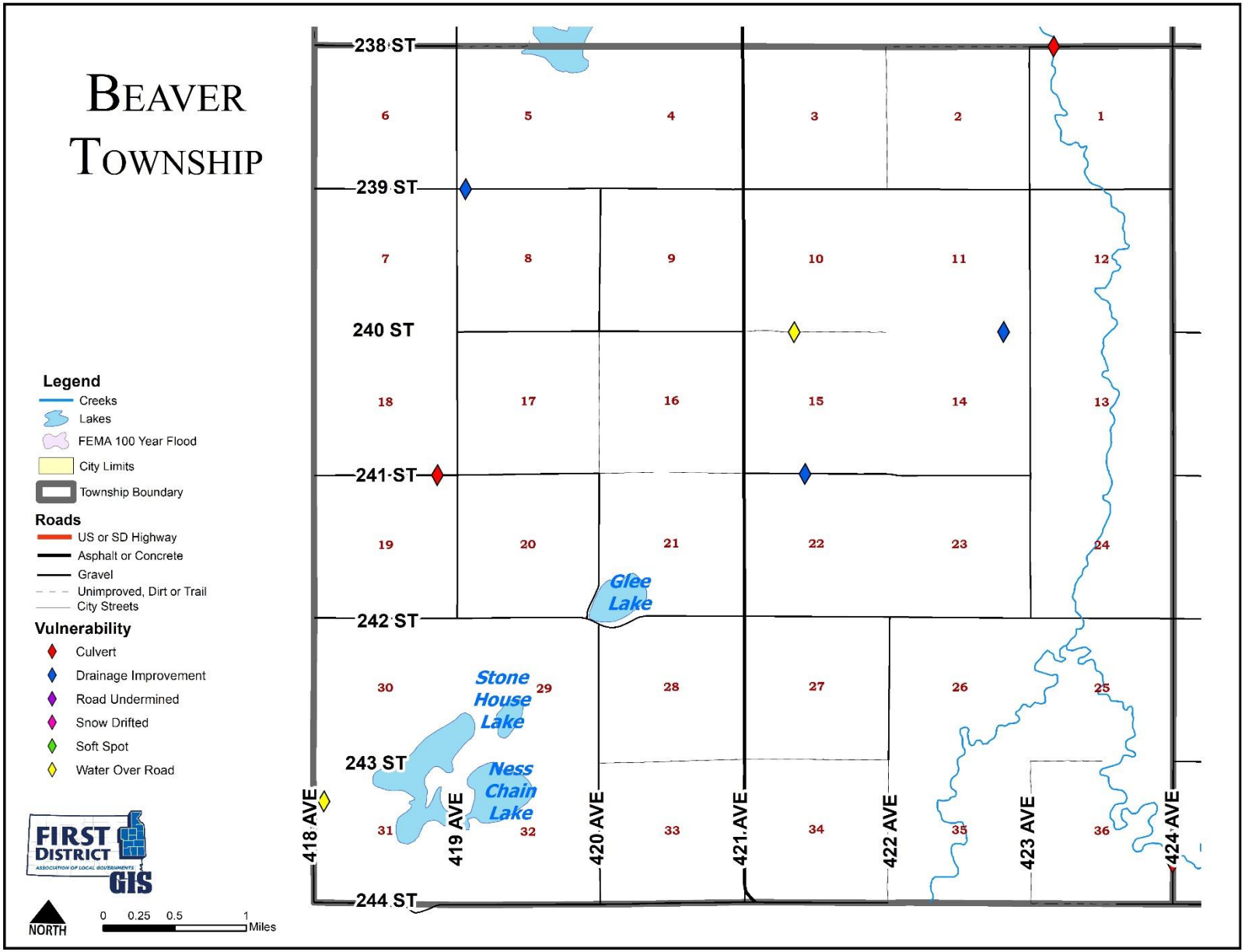
Township Name	Response
Adams Township	Identified vulnerabilities
Beaver Township	Identified vulnerabilities
Belleview Township	Identified vulnerabilities
Canova Township	Identified vulnerabilities
Carthage Township	Identified vulnerabilities
Clearwater Township	Not returned/ No vulnerabilities
Clinton Township	Identified vulnerabilities
Grafton Township	Not returned/ No vulnerabilities
Green Valley Township	Identified vulnerabilities
Henden Township	Identified vulnerabilities
Howard Township	Identified vulnerabilities
Miner Township	Identified vulnerabilities
Redstone Township	Not returned/ No vulnerabilities
Rock Creek Township	Not returned/ No vulnerabilities
Roswell Township	Identified vulnerabilities
Vermillion Township	Identified vulnerabilities

Maps identifying vulnerable areas for those townships which identified such areas are shown in the following pages.

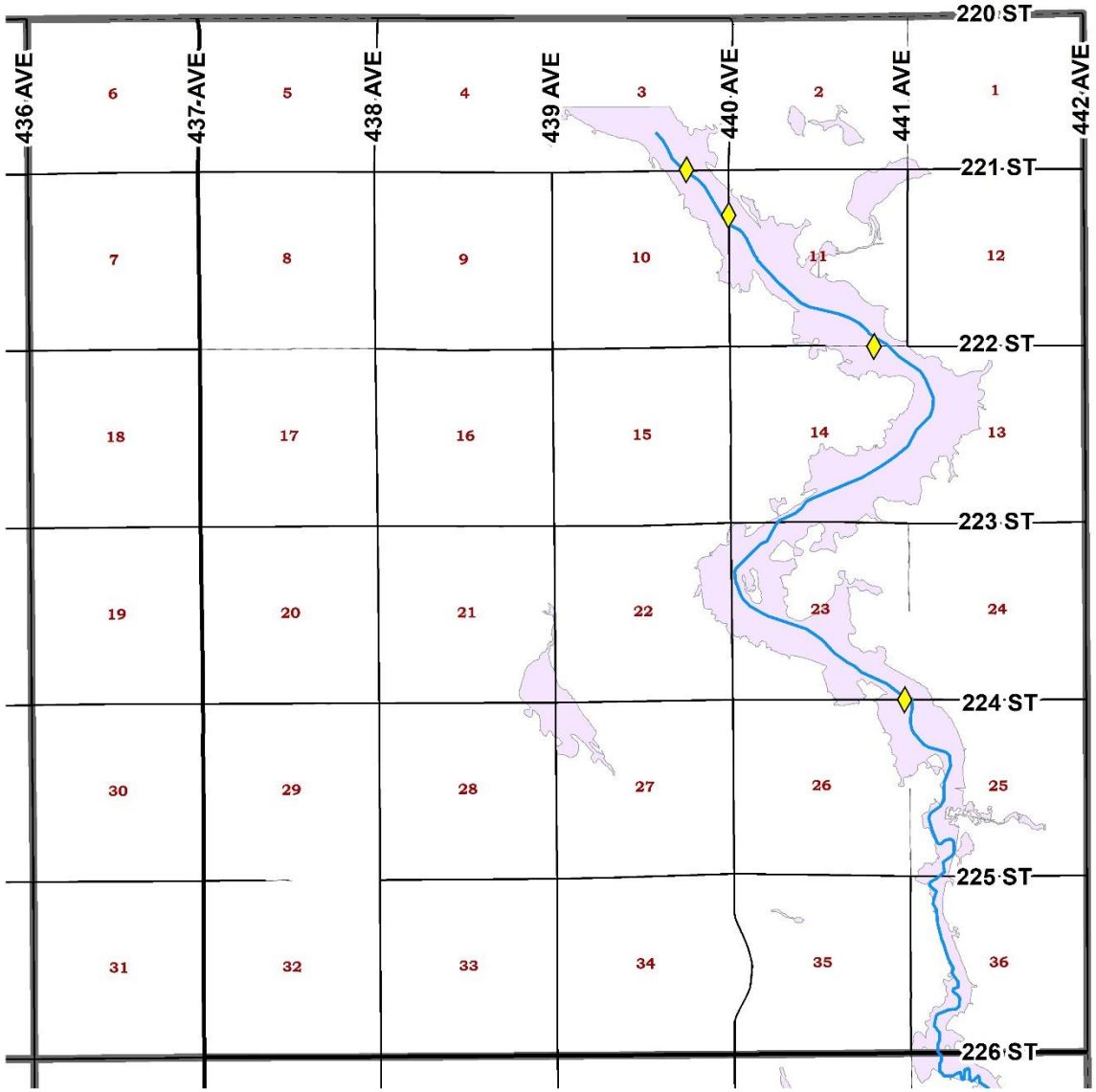
Adams Township



Beaver Township



Belleview Township



Legend

- Creeks
- Lakes
- FEMA 100 Year Flood
- City Limits
- Township Boundary

Roads

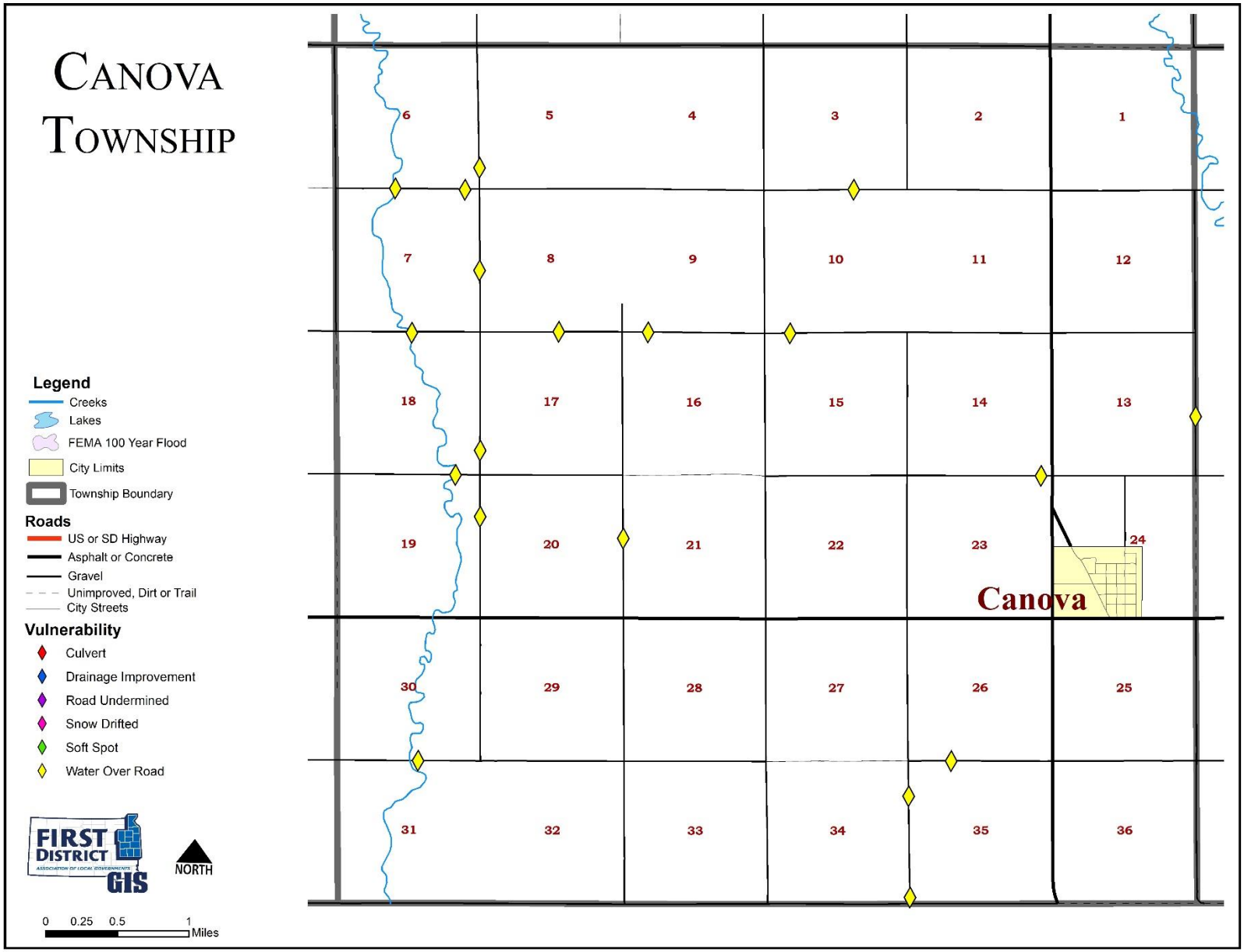
- US or SD Highway
- Asphalt or Concrete
- Gravel
- Unimproved, Dirt or Trail
- City Streets

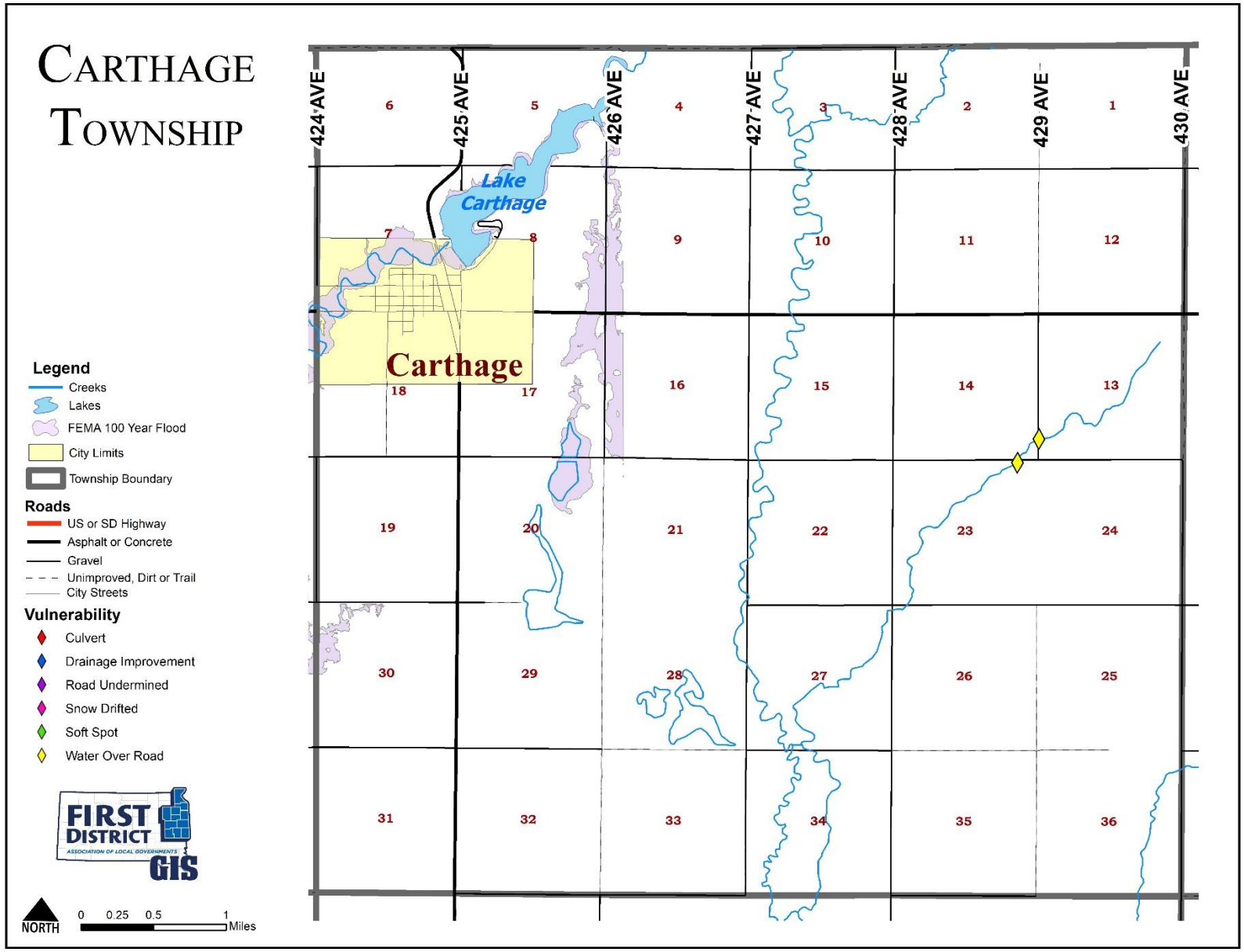
Vulnerability

- Culvert
- Drainage Improvement
- Road Undermined
- Snow Drifted
- Soft Spot
- Water Over Road

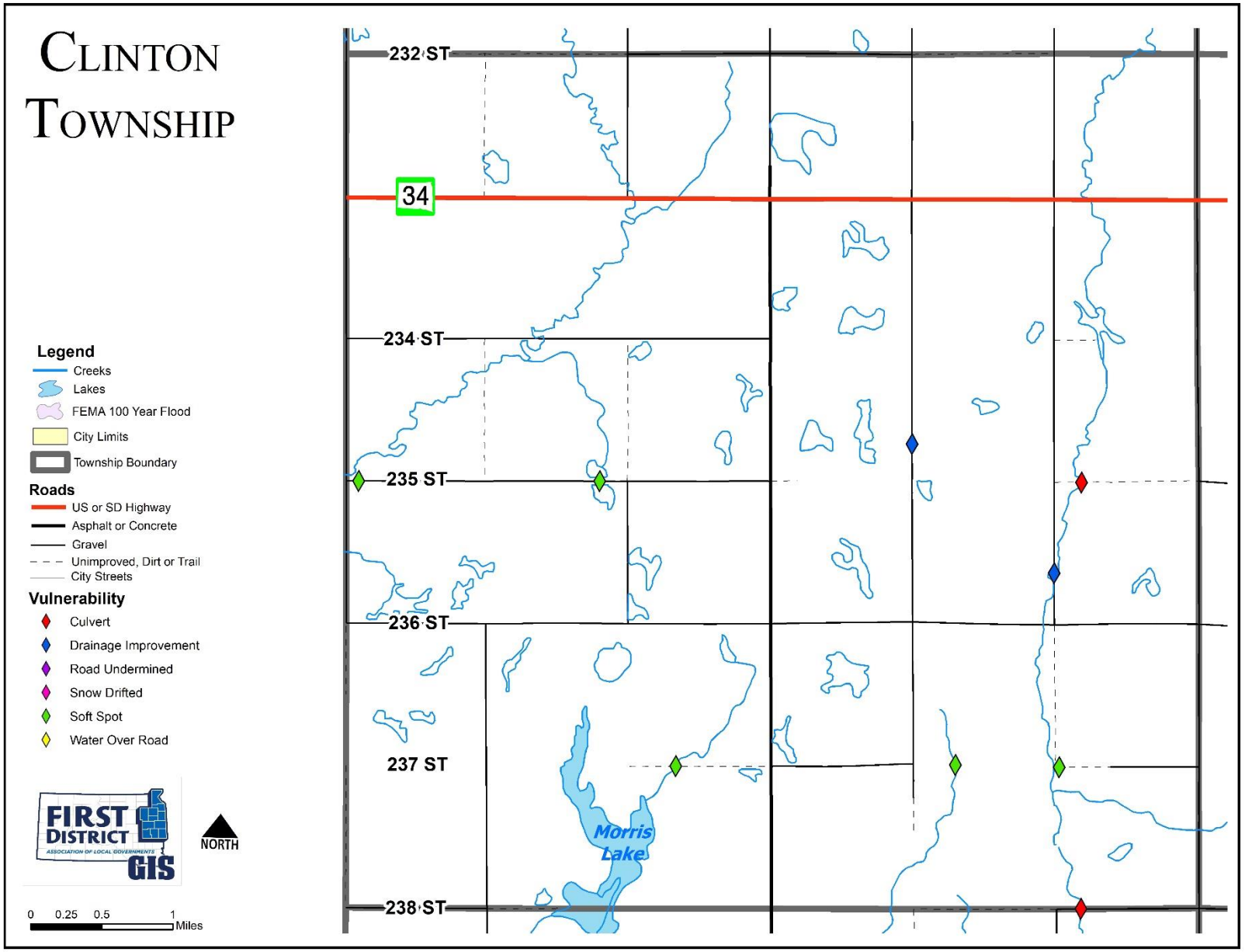
FIRST DISTRICT ASSOCIATION OF LOCAL GOVERNMENTS GIS

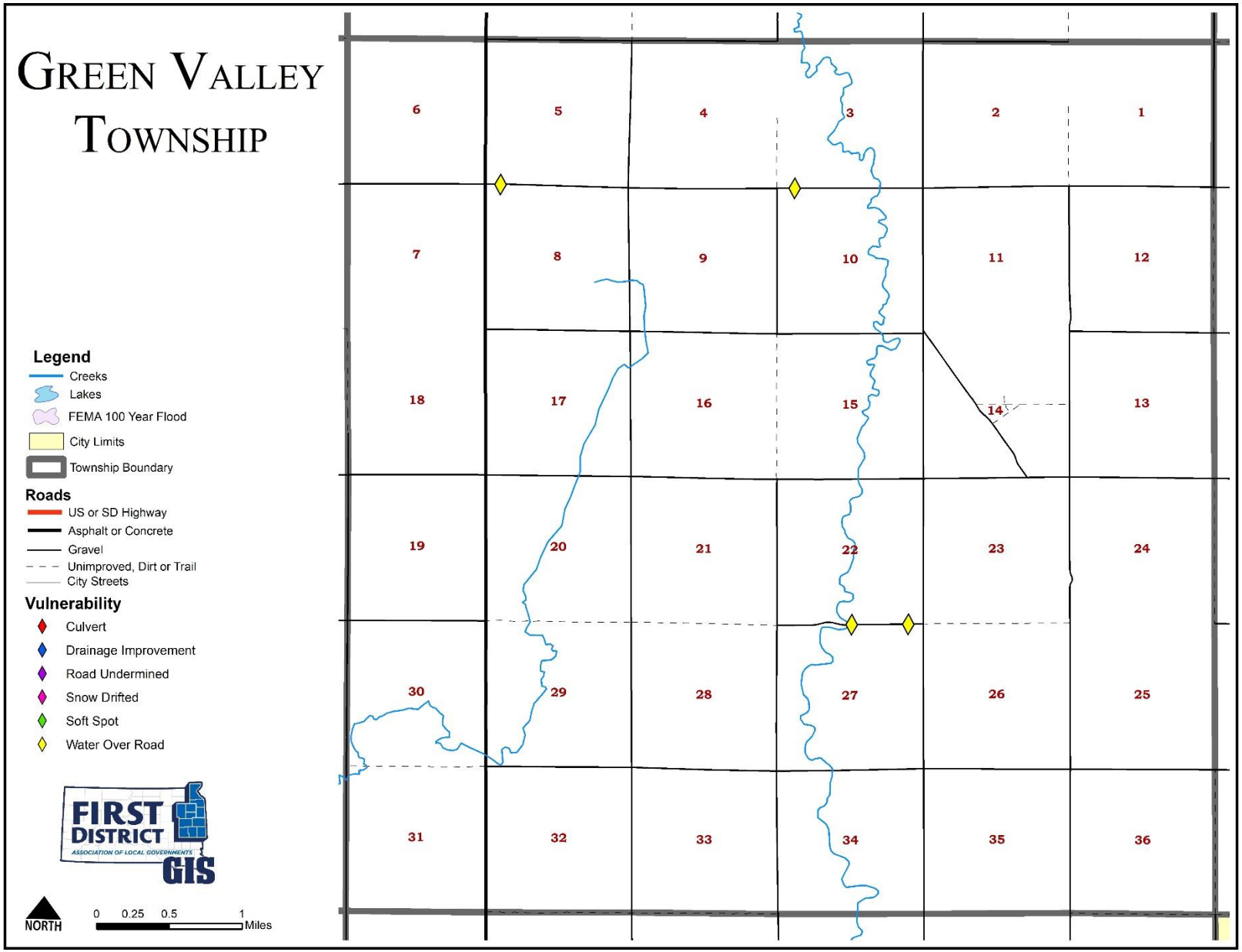
NORTH 0 0.25 0.5 1 Miles


CANOVA
TOWNSHIP
Legend
Creeks
Lakes
FEMA 100 Year Flood
City Limits
Township Boundary
Roads
US or SD Highway
Asphalt or Concrete
Gravel
Unimproved, Dirt or Trail
City Streets
Vulnerability
Culvert
Drainage Improvement
Road Undermined
Snow Drifted
Soft Spot
Water Over Road
FIRST DISTRICT GIS
NORTH
0 0.25 0.5 1
Miles
6 5 4 3 2 1
7 8 9 10 11 12
18 17 16 15 14 13
19 20 21 22 23 24
30 29 28 27 26 25
31 32 33 34 35 36
Canova

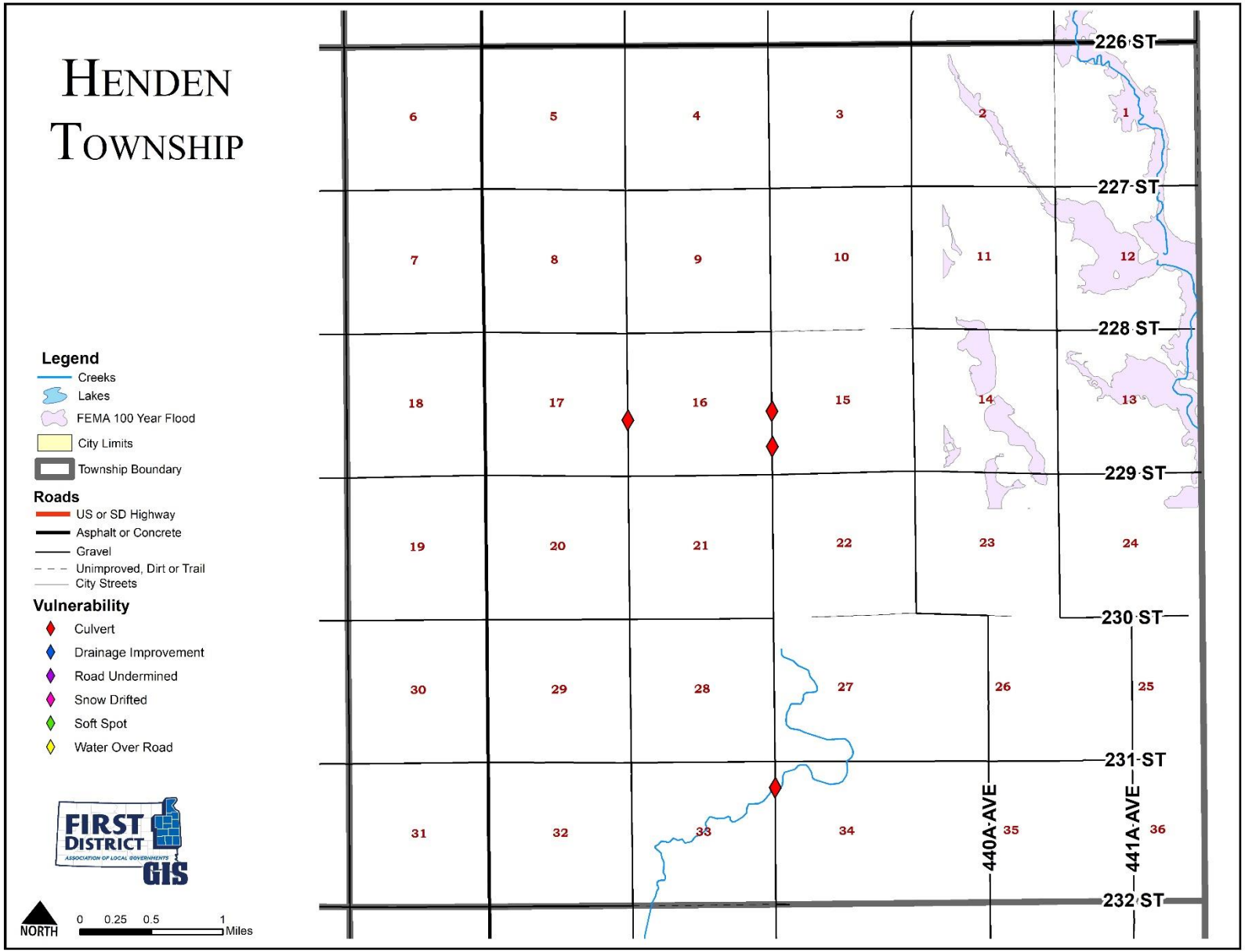

CARTHAGE TOWNSHIP
Legend
Creeks
Lakes
FEMA 100 Year Flood
City Limits
Township Boundary
Roads
US or SD Highway
Asphalt or Concrete
Gravel
Unimproved, Dirt or Trail
City Streets
Vulnerability
Culvert
Drainage Improvement
Road Undermined
Snow Drifted
Soft Spot
Water Over Road
FIRST DISTRICT ASSOCIATION OF LOCAL GOVERNMENTS GIS
NORTH
0 0.25 0.5 1 Miles
424 AVE
425 AVE
426 AVE
427 AVE
428 AVE
429 AVE
430 AVE
Lake Carthage
Carthage
1 2 3 4 5 6
7 8 9 10 11 12
13 14 15 16 17 18
19 20 21 22 23 24
25 26 27 28 29 30
31 32 33 34 35 36

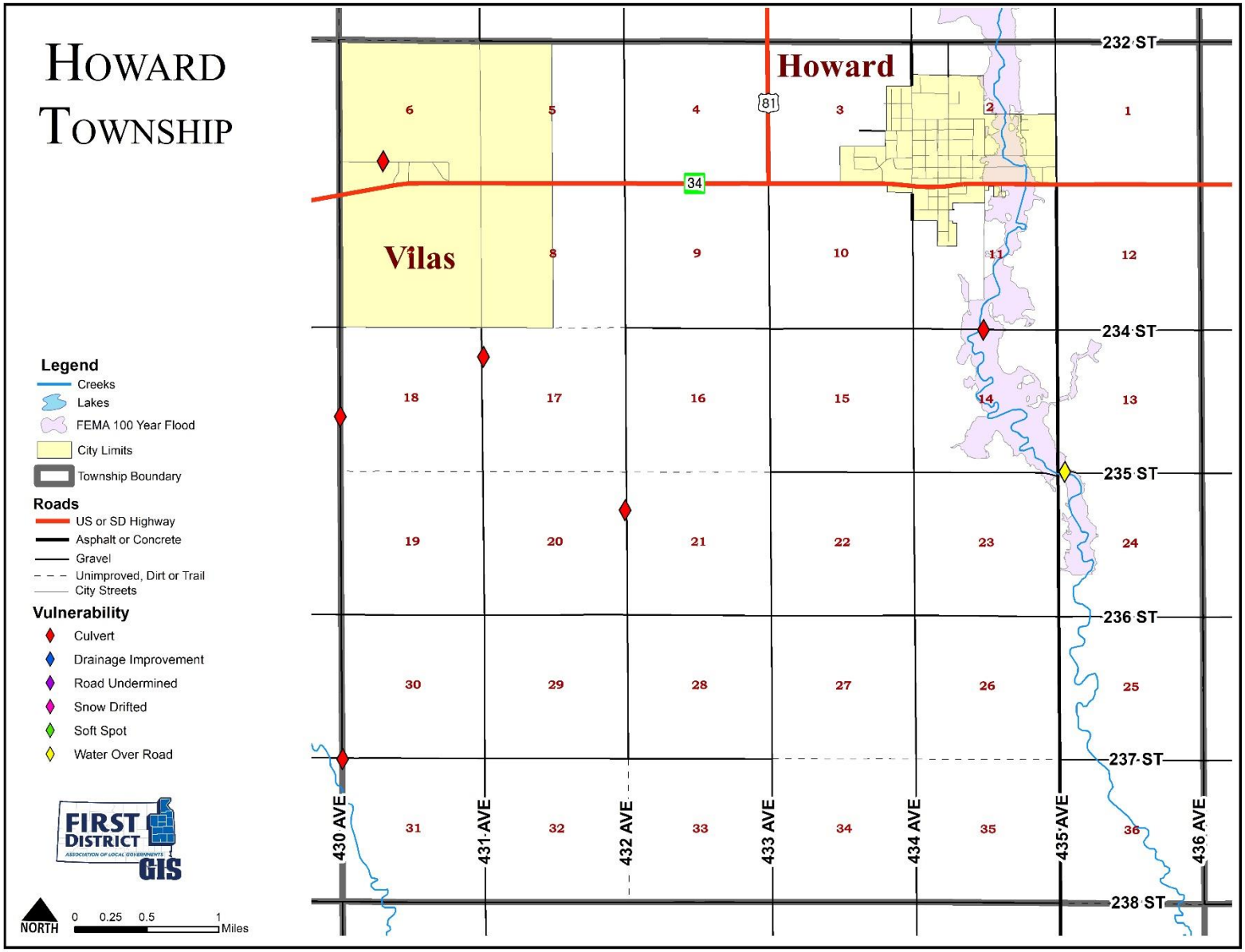
Clinton Township

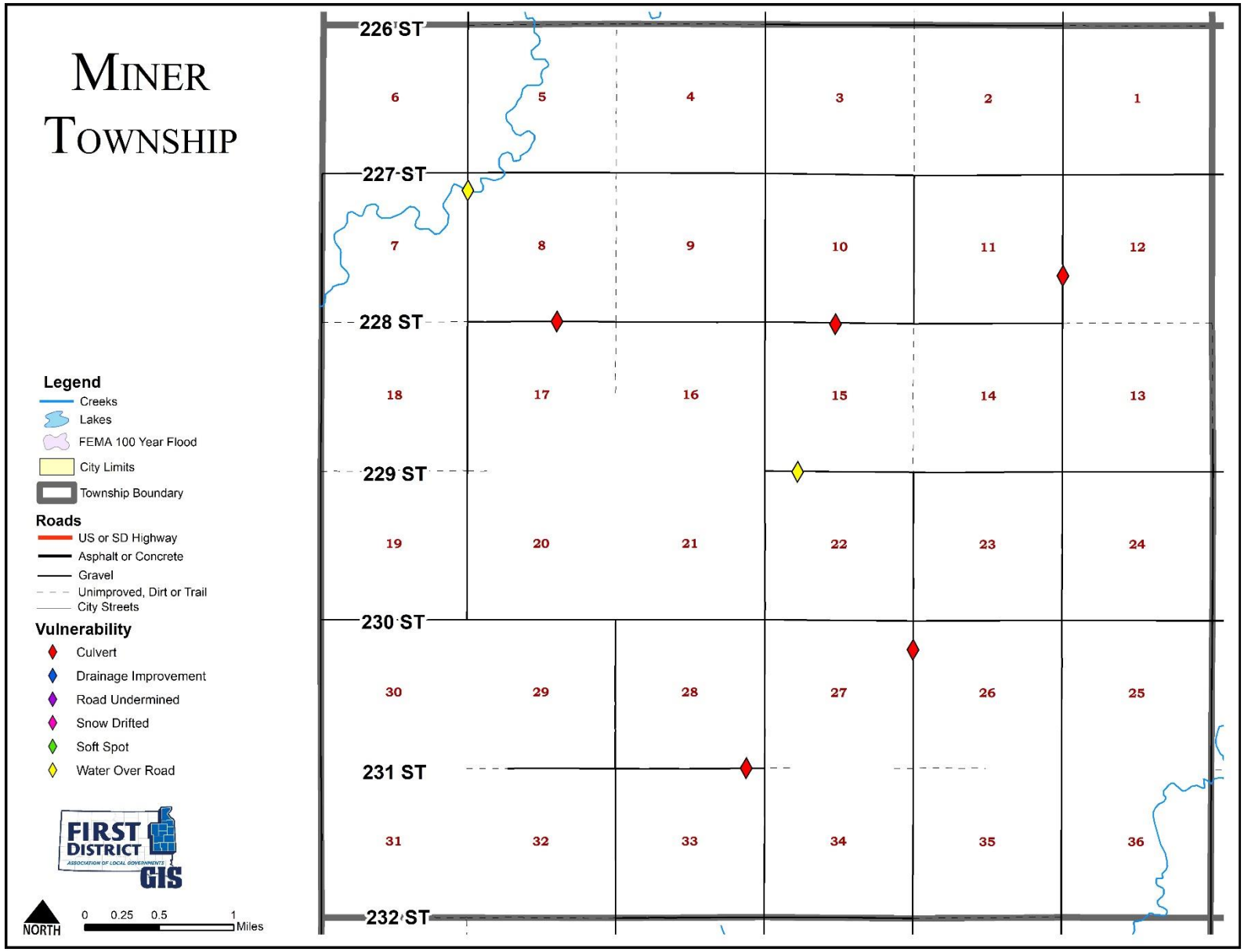



GREEN VALLEY TOWNSHIP
Legend
Creeks
Lakes
FEMA 100 Year Flood
City Limits
Township Boundary
Roads
US or SD Highway
Asphalt or Concrete
Gravel
Unimproved, Dirt or Trail
City Streets
Vulnerability
Culvert
Drainage Improvement
Road Undermined
Snow Drifted
Soft Spot
Water Over Road
FIRST DISTRICT
ASSOCIATION OF LOCAL GOVERNMENTS
GIS
NORTH
0 0.25 0.5 1
Miles
6 5 4 3 2 1
7 8 9 10 11 12
18 17 16 15 14 13
19 20 21 22 23 24
30 29 28 27 26 25
31 32 33 34 35 36

Henden Township




HOWARD TOWNSHIP
Howard
Vilas
232 ST
234 ST
235 ST
236 ST
237 ST
238 ST
430 AVE
431 AVE
432 AVE
433 AVE
434 AVE
435 AVE
436 AVE
34
81
Legend
Creeks
Lakes
FEMA 100 Year Flood
City Limits
Township Boundary
Roads
US or SD Highway
Asphalt or Concrete
Gravel
Unimproved, Dirt or Trail
City Streets
Vulnerability
Culvert
Drainage Improvement
Road Undermined
Snow Drifted
Soft Spot
Water Over Road
FIRST DISTRICT ASSOCIATION OF LOCAL GOVERNMENTS GIS
NORTH
0 0.25 0.5 1 Miles


MINER
TOWNSHIP
226 ST
227 ST
228 ST
229 ST
230 ST
231 ST
232 ST
6
5
4
3
2
1
7
8
9
10
11
12
18
17
16
15
14
13
19
20
21
22
23
24
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29
28
27
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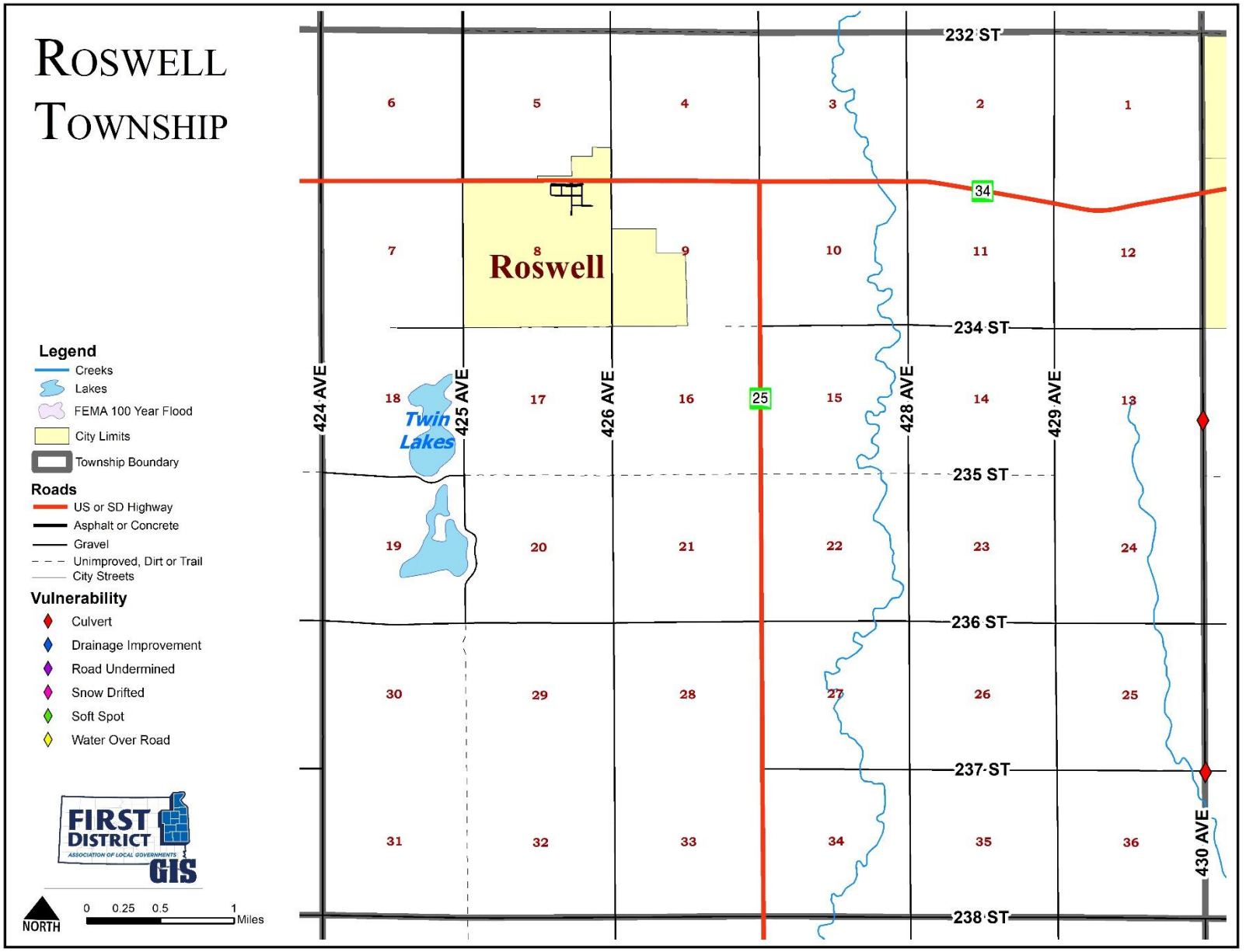
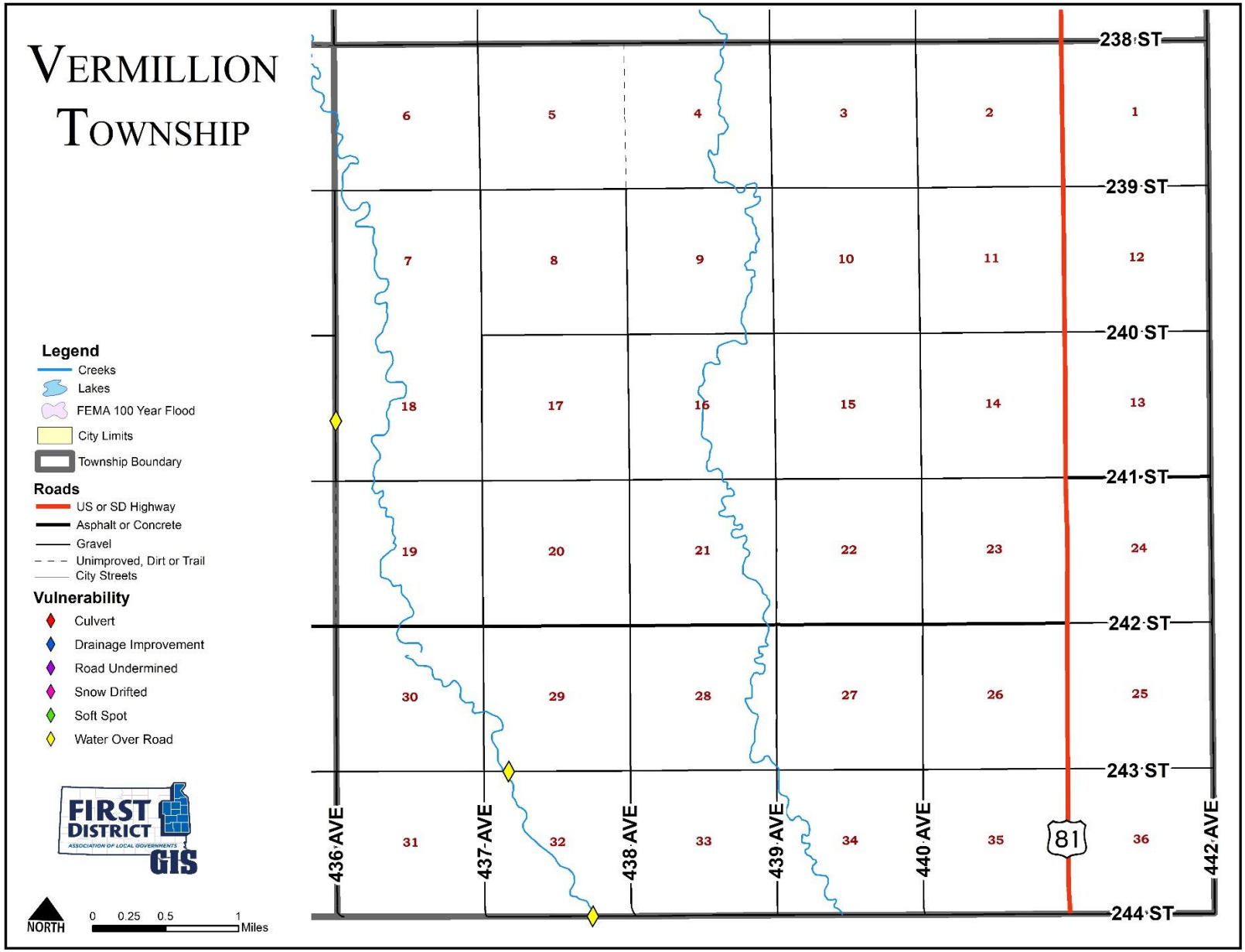
25
31
32
33
34
35
36
Legend
Creeks
Lakes
FEMA 100 Year Flood
City Limits
Township Boundary
Roads
US or SD Highway
Asphalt or Concrete
Gravel
Unimproved, Dirt or Trail
City Streets
Vulnerability
Culvert
Drainage Improvement
Road Undermined
Snow Drifted
Soft Spot
Water Over Road
FIRST DISTRICT
ASSOCIATION OF LOCAL GOVERNMENTS
GIS
NORTH
0 0.25 0.5 1
Miles

Roswell Township




VERMILLION TOWNSHIP
Legend
Creeks
Lakes
FEMA 100 Year Flood
City Limits
Township Boundary
Roads
US or SD Highway
Asphalt or Concrete
Gravel
Unimproved, Dirt or Trail
City Streets
Vulnerability
Culvert
Drainage Improvement
Road Undermined
Snow Drifted
Soft Spot
Water Over Road
FIRST DISTRICT ASSOCIATION OF LOCAL GOVERNMENTS GIS
NORTH
0 0.25 0.5 1 Miles
238 ST
239 ST
240 ST
241 ST
242 ST
243 ST
244 ST
436 AVE
437 AVE
438 AVE
439 AVE
440 AVE
442 AVE
81
6 5 4 3 2 1
7 8 9 10 11 12
18 17 16 15 14 13
19 20 21 22 23 24
30 29 28 27 26 25
31 32 33 34 35 36

Appendix F
Online Survey Information

Affidavit of Publication for Online Survey Notice

INVITATION TO PARTICIPATE IN MINER COUNTY PDM PLANNING PROCESS

Miner County, including its communities, is updating its Pre-Disaster Mitigation Plan to meet Federal Emergency Management Agency regulations. The purpose of the Plan is to better understand the natural hazards that pose a threat to the area and develop actions that reduce the risk associated with these hazards. You are invited to participate in this survey to help gauge local household and business preparedness for disasters and to identify actions that would reduce risk and loss from natural hazards.

The information you provide will help prioritize local risk reduction activities. To participate, use the following link to access the survey https://survey.alchemer.com/s3/7675653/MinerPDM. The deadline for completing this survey is March 15, 2024. Your participation will be greatly appreciated.

Kent Terwilliger
Miner County Emergency Manager

Published one time at the approximate total cost of $12.25 and can be viewed free of charge at www.sdpublicnotices.com.
(January 18, 2024)

AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA, County of Miner: ss.

Carla Poulson of said County and State, being duly sworn, on her oath says: That the Miner County Pioneer is a legal newspaper of general circulation, printed and published in Howard, said County and State, by Carla Poulson, and has been such newspaper during the time hereinafter mentioned: and that I, Carla Poulson the undersigned, am publisher of said newspaper, in charge of the advertising department thereof, and have personal knowledge of all the facts stated in this affidavit, and that the advertisement or notice headed

Invitation to Participate

A printed copy of which is hereunto attached, was printed and published in the regular and entire issue of said newspaper and not in a supplement, once each week for ....1..... successive weeks, the first publication being made on the ....18.... day of ....Jan 20.24.....

And the last publication on the ..... day of ..... 20.....

The first publication being made on the ..... day of ..... 20.....

The second publication being made on the ..... day of ..... 20.....

The third publication being made on the ..... day of ..... 20.....

The fourth publication being made on the ..... day of ..... 20.....

The fifth publication being made on the ..... day of ..... 20.....

That said newspaper is a legal newspaper, and has a bona fide circulation of more than two hundred copies weekly, and has been published within the County of Miner, for more than fifty-two successive weeks next prior to the first publication of said notice, and is printed in on office maintained in Howard, South Dakota, the place of publication of said newspaper. That the full amount of fees for publication of the annexed notice is $ ...12.25. and insures solely to the benefit of said publisher; that no agreement or understanding for a division thereof has been made with any person and that no part thereof has been agreed to be paid to any person whomever.

Subscribed and sworn to me this ...31.... day of ....Jan. 20.24.

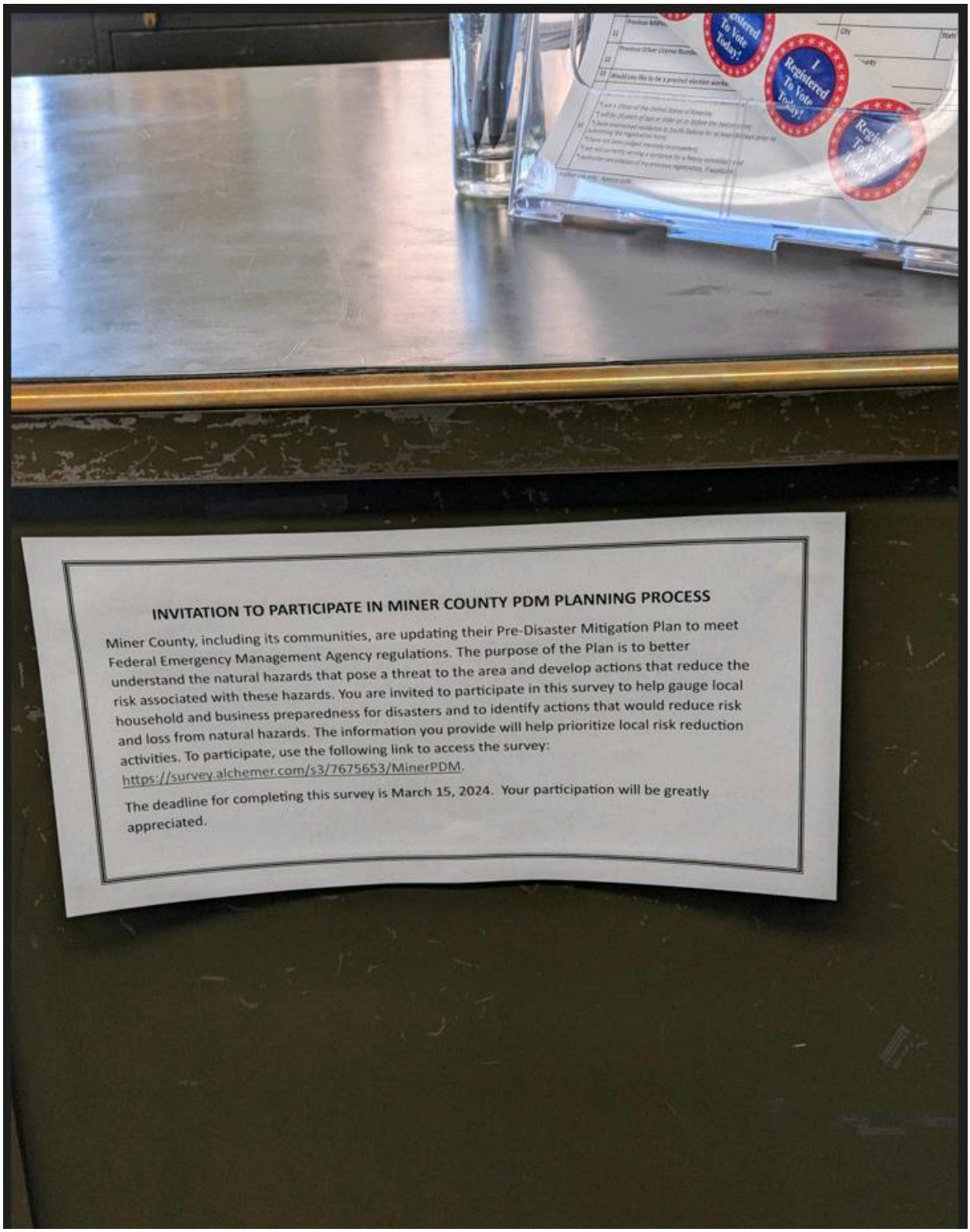
CR

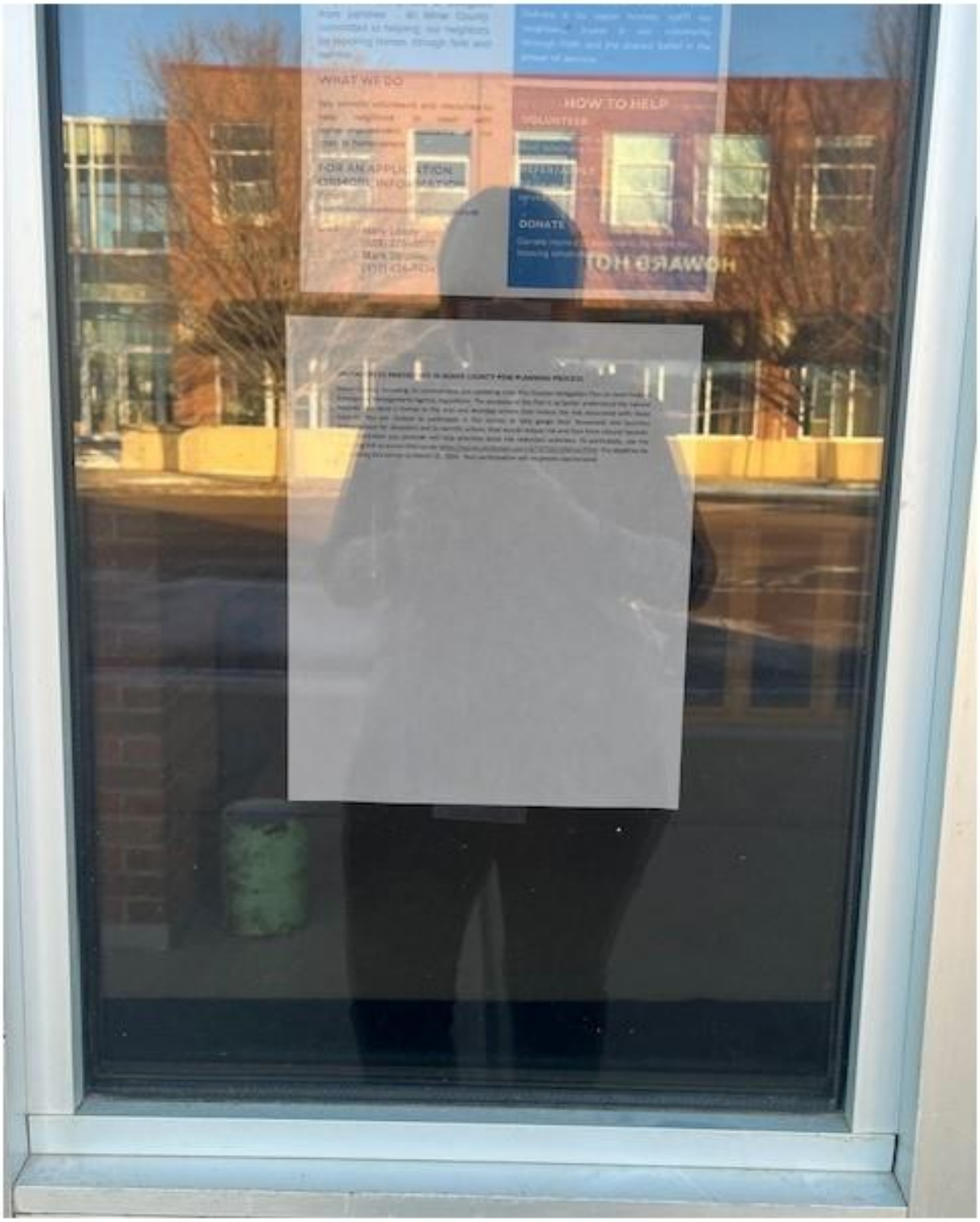
My commission expires the ...10.... day of...Oct.....2025.

Heather M Poulson

HEATHER M. POULSON
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

Sample Posted Online Survey Notices



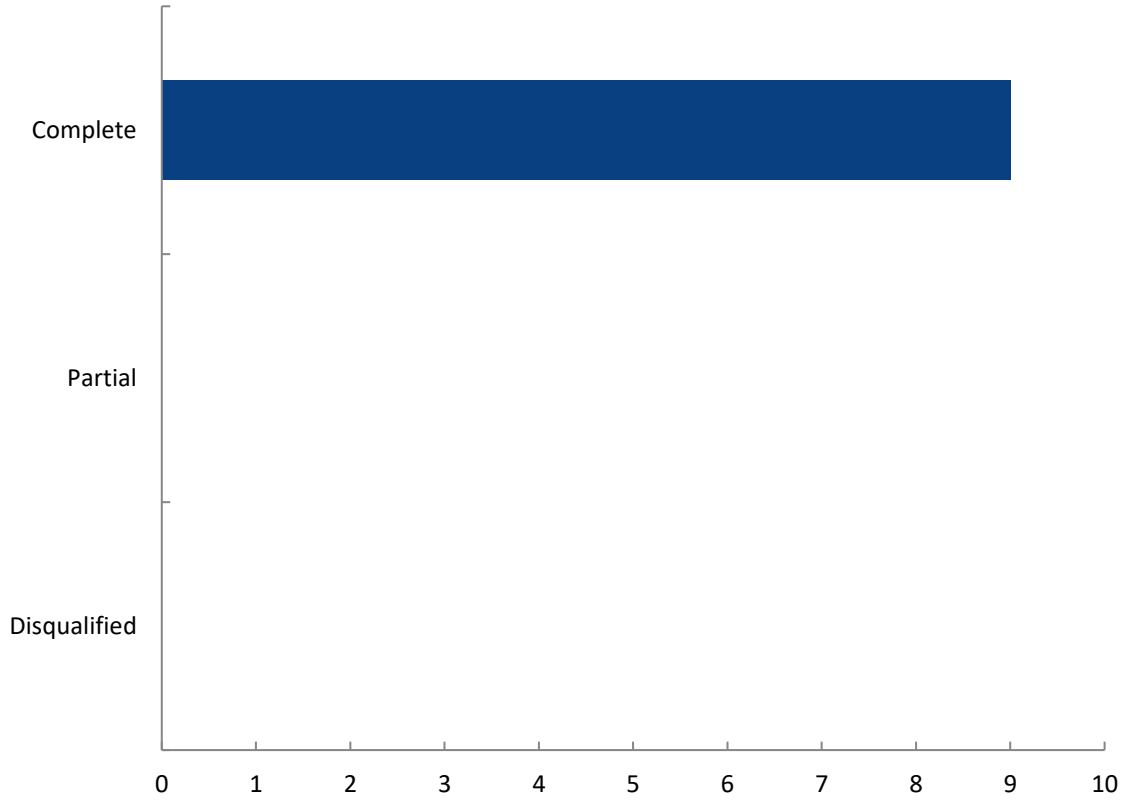

WHAT WE DO
HOW TO HELP
DONATE

Miner County Website

Report for Miner County PDM

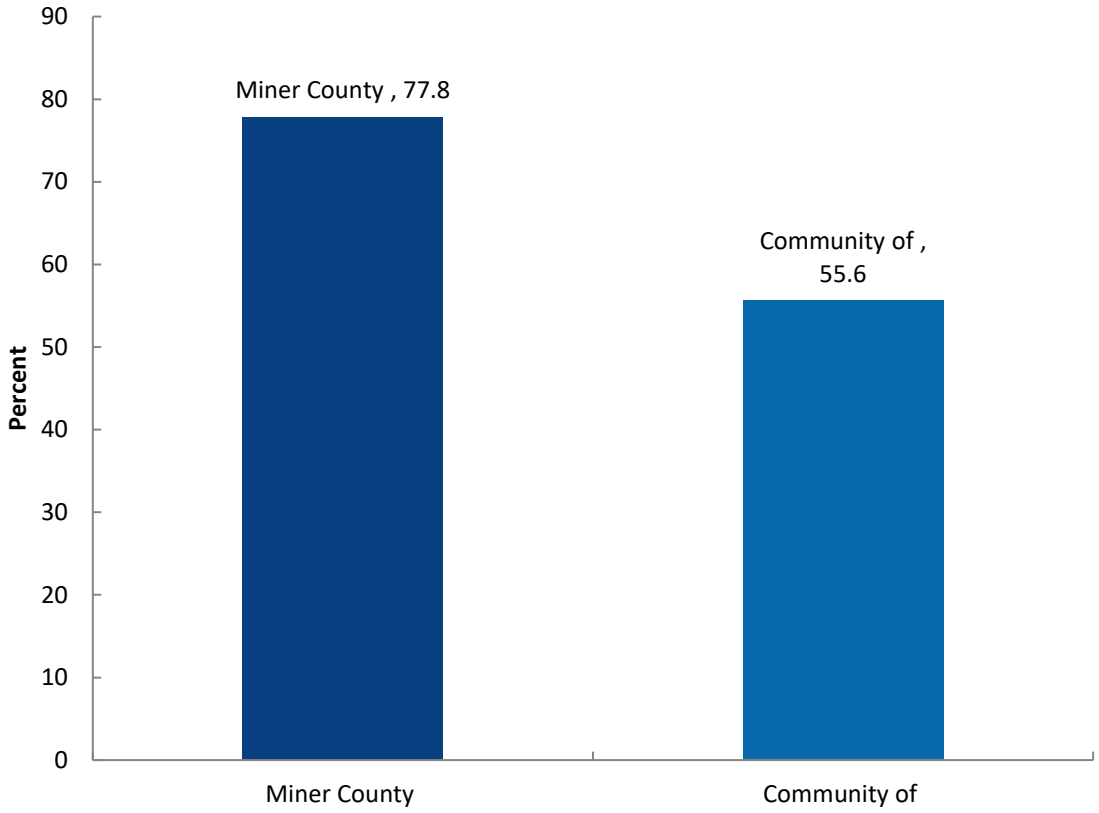
Miner County PDM

Response Statistics



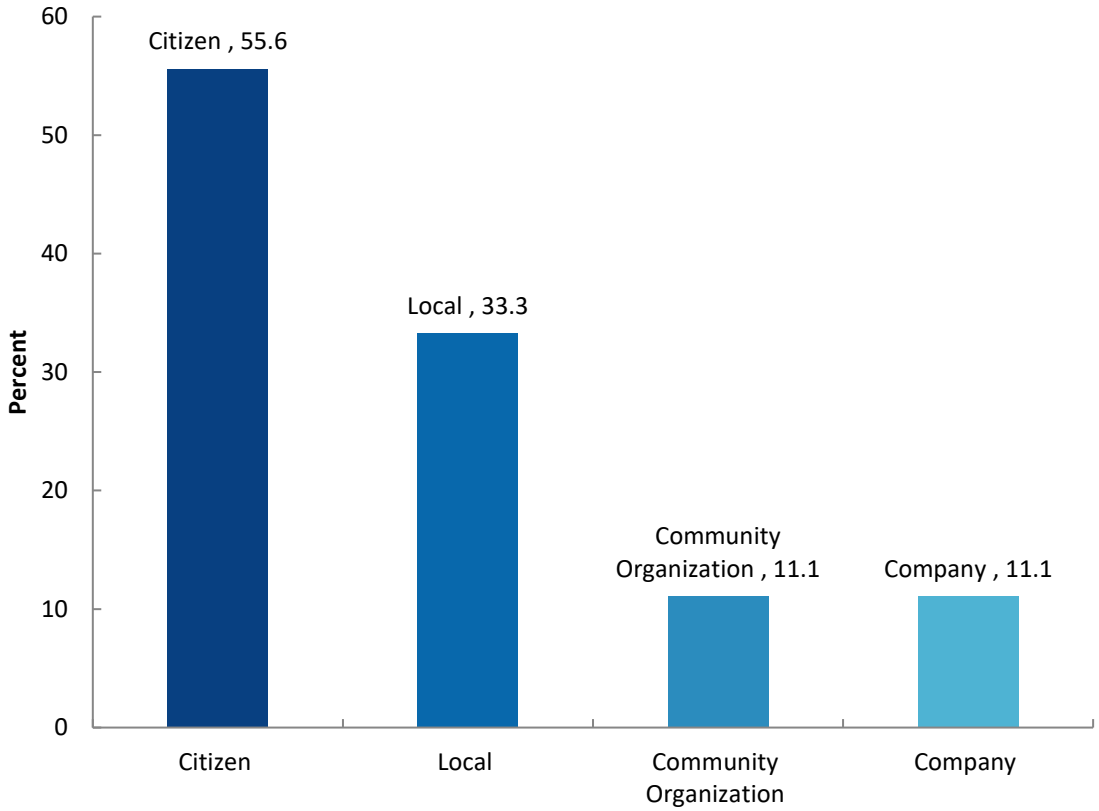
	Count	Percent
Complete	9	100
Partial	0	0
Disqualified	0	0
Totals	9	

1.Please indicate the municipality you reside in:



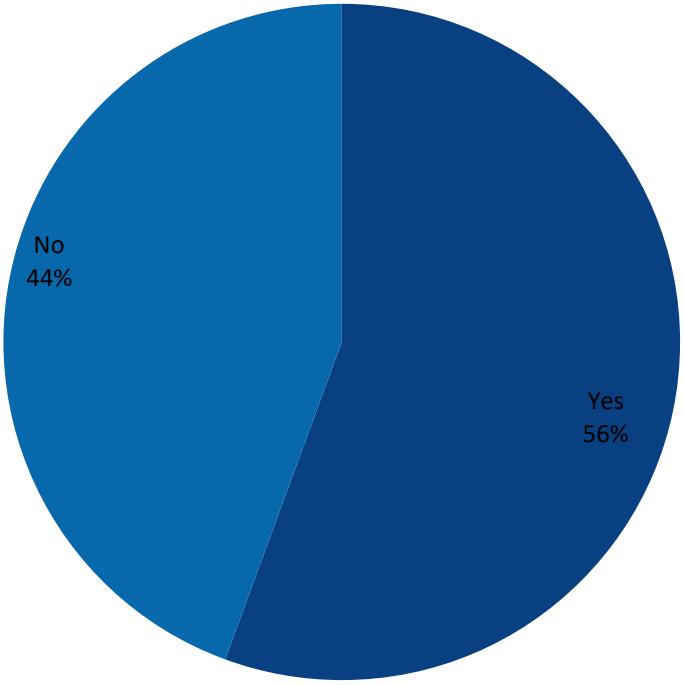
Value	Percent	Count
Miner County	77.8%	7
Community of	55.6%	5

2.Are you responding as:



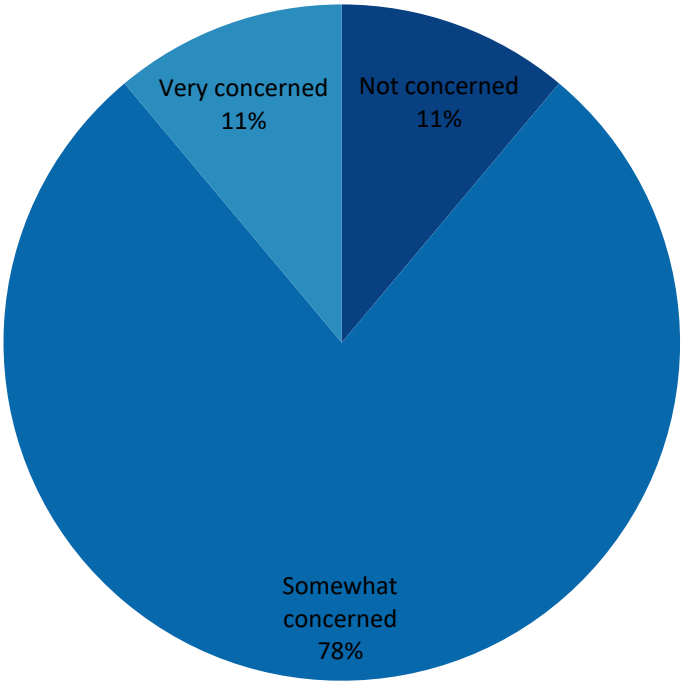
Value	Percent	Count
Citizen	55.6%	5
Local	33.3%	3
Community Organization	11.1%	1
Company	11.1%	1

3.Have you ever experienced or been impacted by a natural disaster?



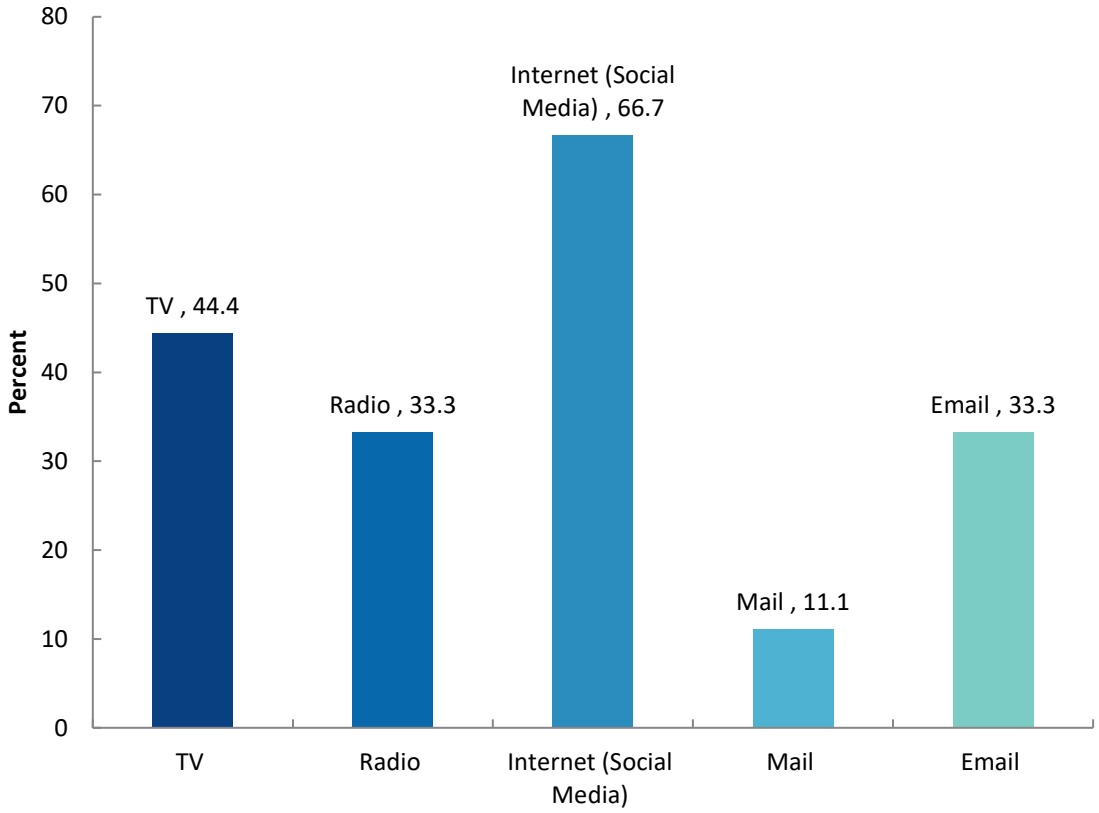
Value	Percent	Count
Yes	55.6%	5
No	44.4%	4
	Totals	9

4.How concerned are you about the possibility of your community being impacted by a natural disaster?



Value	Percent	Count
Not concerned	11.1%	1
Somewhat concerned	77.8%	7
Very concerned	11.1%	1
	Totals	9

5.What is the most effective way for you to receive information about how to protect your family and prepare your home from hazard events? Select all that apply.

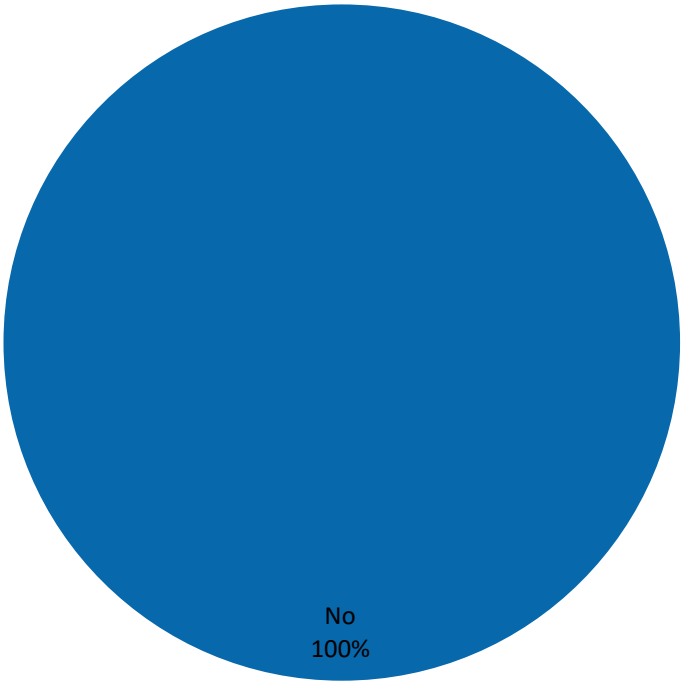


Value	Percent	Count
TV	44.4%	4
Radio	33.3%	3
Internet (Social Media)	66.7%	6
Mail	11.1%	1
Email	33.3%	3

6.Please rank the following hazards according to the degree of threat faced by your community. One (1) represents the highest/greatest threat and twelve(12) represents the lowest/least threat. Use each number once.

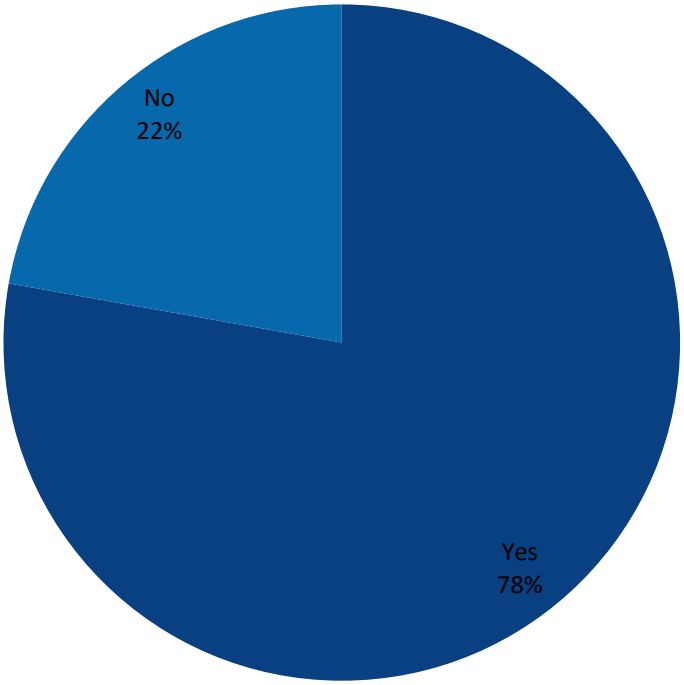
Item	Overall Rank	Score	Total Respondents
Severe Winter Warning	1	76	8
High Wind	2	70	8
Thunderstorm (Including Lightning/Hail)	3	68	8
Drought	4	61	7
Flood	5	59	7
Tornado	6	48	8
Wildfire	7	43	6
Urban Fire	8	40	7
Dam Failure	9	30	6
Extreme Temperatures	10	29	5
Ice Jam	11	27	6
Earthquake	12	20	6

7.Is there another significant natural hazard that is a threat to your community that is not listed above?



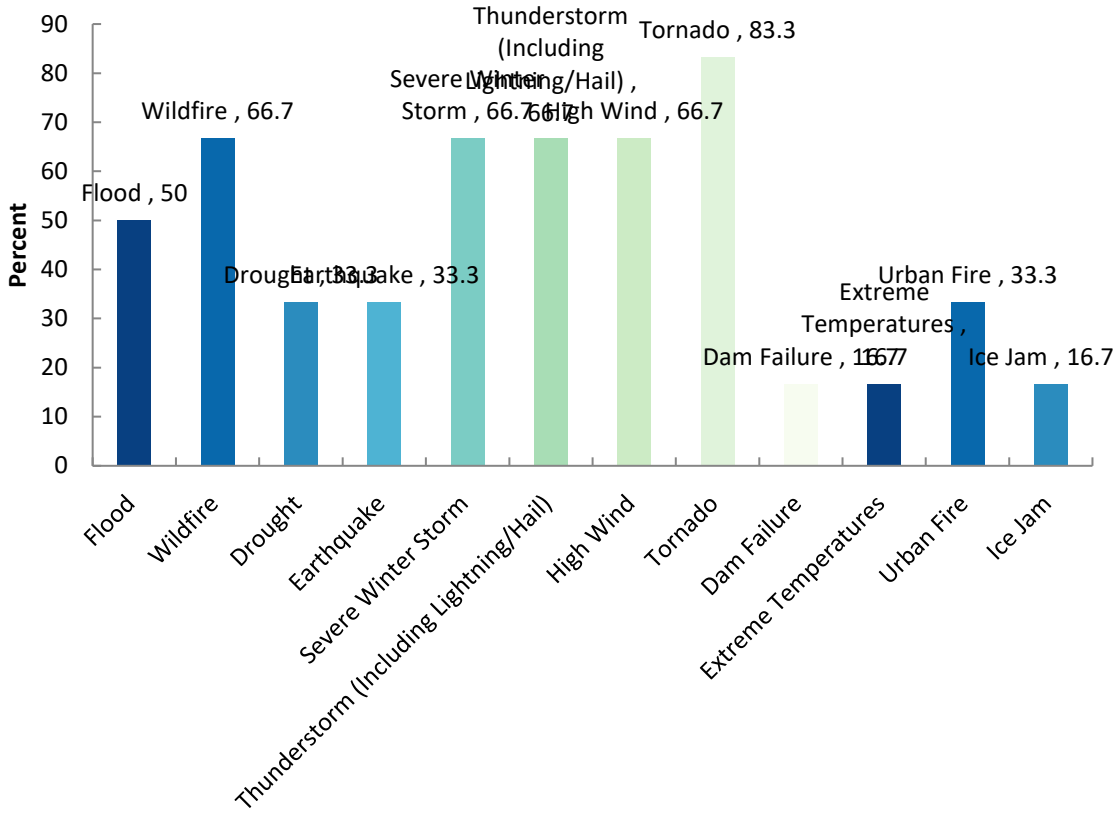
Value	Percent	Count
No	100.0%	9
	Totals	9

8.Have you or your community taken any actions to make your home or community more resistant to hazards?



Value	Percent	Count
Yes	77.8%	7
No	22.2%	2
	Totals	9

9.We would like your opinion on how to best reduce risk from the natural hazards in your community. Please briefly describe at least one project to mitigate each of the following hazards. Examples of projects are creating green spaces, floodproofing structures, designating emergency shelters, construction of tornado safe rooms etc.

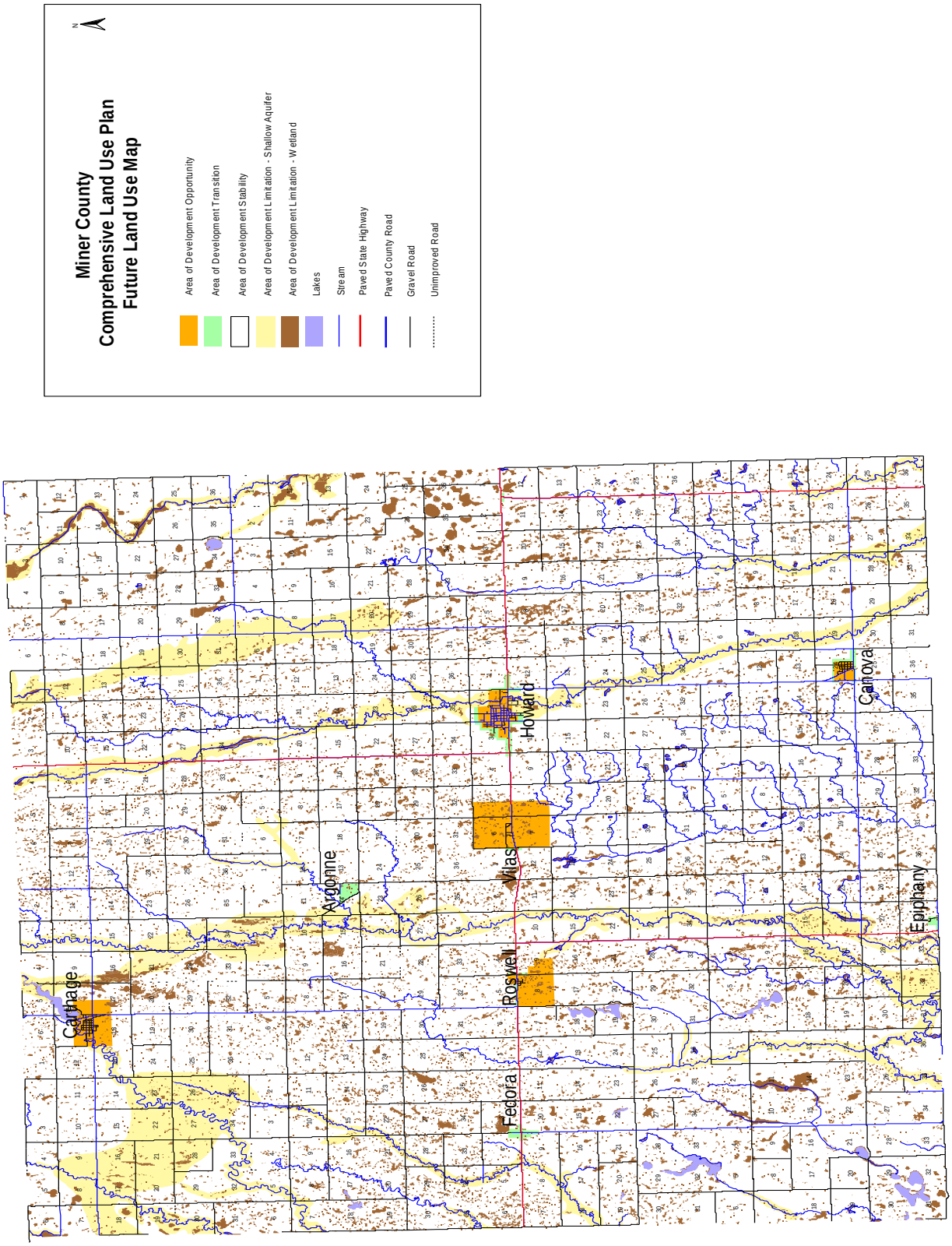


Value	Percent	Count
Flood	50.0%	3
Wildfire	66.7%	4
Drought	33.3%	2
Earthquake	33.3%	2
Severe Winter Storm	66.7%	4
Thunderstorm (Including	66.7%	4

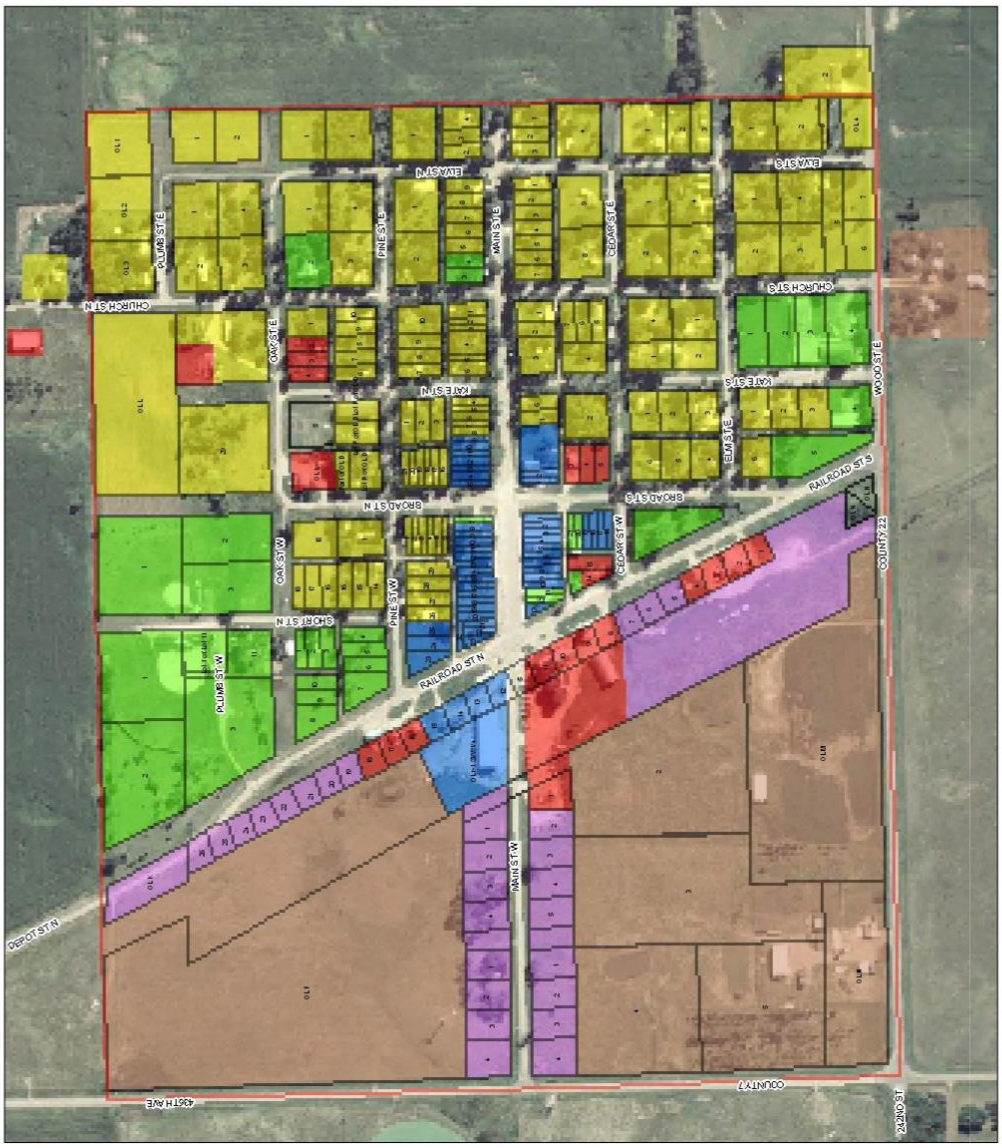
Lightning/Hail)		
High Wind	66.7%	4
Tornado	83.3%	5
Dam Failure	16.7%	1
Extreme Temperatures	16.7%	1
Urban Fire	33.3%	2
Ice Jam	16.7%	1

Appendix G
Comprehensive Land Use Maps

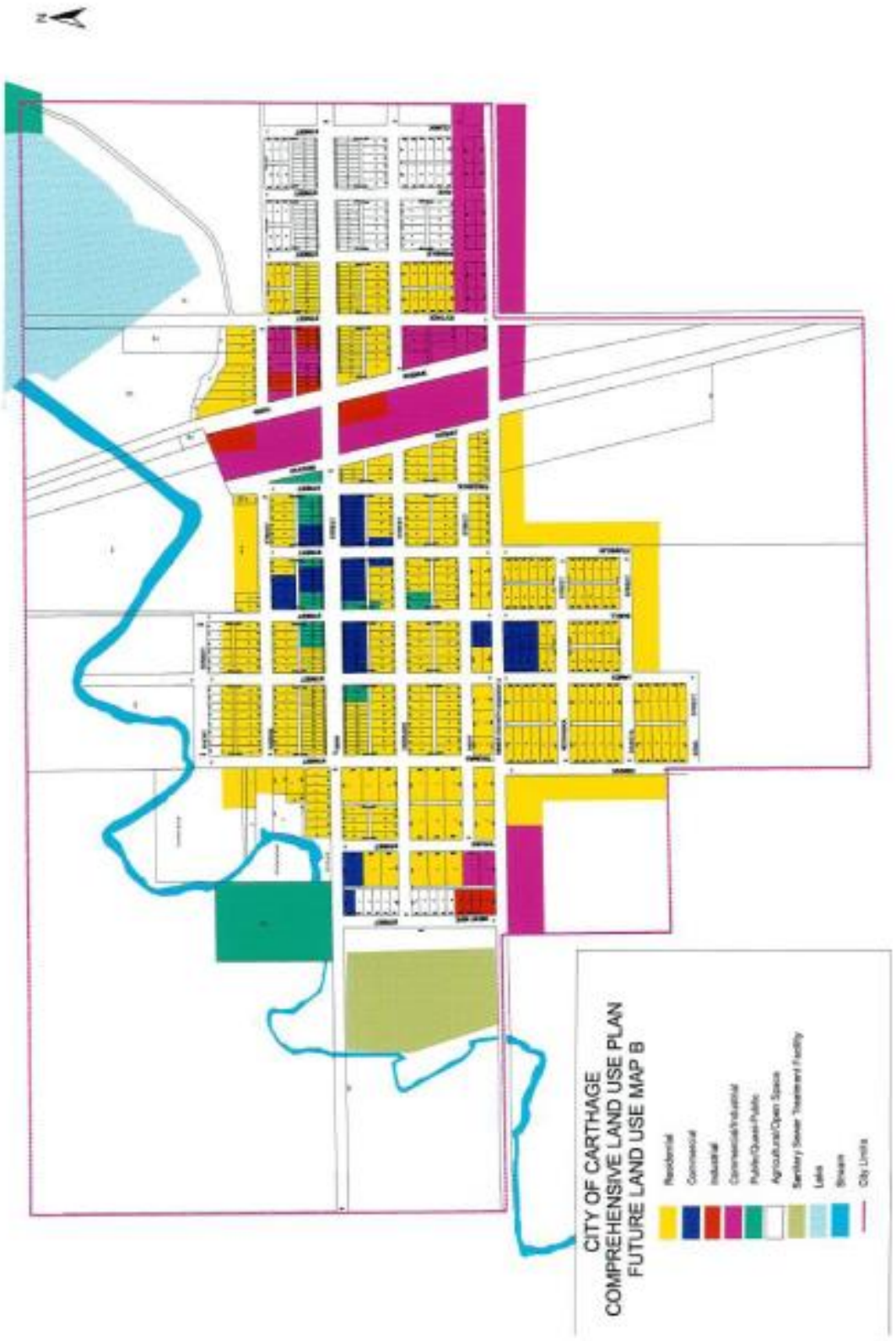
Miner County
Future Land Use Map



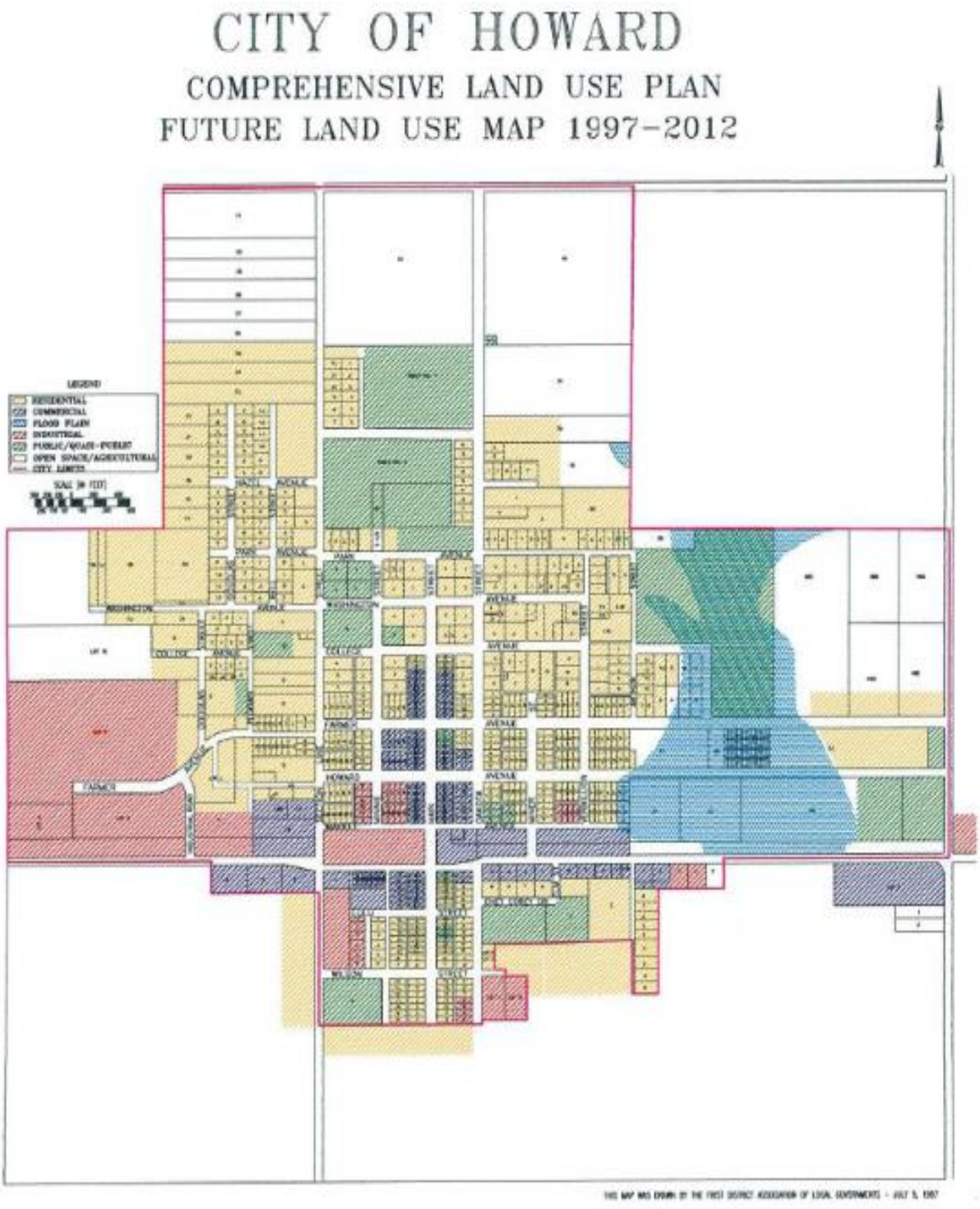
Town of Canova
Future Land Use Map



City of Carthage
Future Land Use Map



City of Howard
Future Land Use Map



Appendix H

Review of 2019 PDM Mitigation Project Implementation

COMMUNITY	POTENTIAL MITIGATION PROJECTS	HAZARD	INCLUDED IN 2024 PLAN?	STATUS
Town of Canova	Construction of water tower improvements	Fire	No	Completed
Town of Canova	Replaced one damaged culvert	Flooding	Yes	Ongoing
Town of Carthage	Relined sanitary sewer line along Drake Street	Flooding	No	Completed
Town of Carthage	Purchased equipment for fire department	Fire	Yes	Ongoing
City of Howard	Constructing a portion of the wastewater system improvements	Flooding	Yes	Ongoing
Miner County	Constructed road grade raise projects on two sections of county roads	Flooding	Yes	Ongoing
Miner County	Replaced at least two undersized/deteriorated culverts in the county	Flooding	Yes	Ongoing
Miner County	Raised county road through Canova based on completed engineering study	Flooding	No	Completed

Appendix I - References

Miner County Comprehensive Land Use Plan and Zoning Ordinance – First District Association of Local Governments, 2004

Miner County Mitigation Plan, 2013 & 2019

Miner County Hazardous Materials Plan – First District Association of Local Governments, 2021

Local Mitigation Planning Handbook – Federal Emergency Management Agency, 2013

NFIP Flood Insurance Rate Maps and Community Status Book Report

State of South Dakota Hazard Mitigation Plan. South Dakota Office of Emergency Management, 2019

Town of Canova Comprehensive Land Use Plan, Zoning and Subdivision Ordinances – First District Association of Local Governments, 2006

City of Carthage Comprehensive Land Use Plan and Zoning Ordinance – First District Association of Local Governments, 2002

City of Howard Comprehensive Land Use Plan and Zoning Ordinance – First District Association of Local Governments, 1997