WARHAWK DISTRICT
South Dakota

Natural Hazard Mitigation Plan
Expiration:

PREPARED BY:
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I. INTRODUCTION

CHANGES/REVISIONS TO INTRODUCTION:

The content of this section changed minimally since the prior plan update. Information on Community Lifelines was added. The format of the plan changed as maps and tables were added to provide information, rather than narrative.

INTRODUCTION

WarHawk Emergency Management District is comprised of five counties in North Central South Dakota including Walworth and Campbell Counties on the east side of the Missouri River and Corson, Dewey, and Ziebach Counties on the west side of the Missouri River. WarHawk District is a regional entity that meets on a regular basis to discuss all matters related to emergency response and recovery as well as natural hazard mitigation. WarHawk District acknowledges regional vulnerabilities to natural hazards that may threaten health, welfare, and security of our citizens. The cost of response and recovery from potential disasters in terms of potential loss of life, property, or infrastructure can be reduced when planning efforts focus on mitigating the impacts of a natural hazard before an event occurs.

Mitigation planning is a process which identifies the region's vulnerabilities to natural hazards, identifies areas of potential risk, and then creating a plan for mitigating those risks, in effort to reduce the likelihood of loss of life and loss of property caused by natural hazards. With increased attention to mitigating natural hazards, communities can reduce threats to existing developments and prevent creating new risks by limiting and/or regulating future development. Many mitigation actions can be implemented at minimal cost.

This plan 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.

Section headings and subheadings follow the organization of the Local Mitigation Plan Review Tool. Several appendices accompany this plan. They contain technical data, meeting minutes, and other relevant information that compliments the content of this plan.

PURPOSE OF THE 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 mitigation plan in place. The plan must:

1. Identify hazards and their associated risks and vulnerabilities;
2. Develop and prioritize mitigation projects; and

3. Encourages cooperation and communication between all levels of government and the public.

The purpose of this plan is to meet the hazard mitigation planning needs for WarHawk District 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

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 District. 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 WarHawk District jurisdiction.

PLAN USE

First, the plan should be used to help local elected and appointed officials plan, design and implement programs and projects that will help reduce their community's vulnerability to natural hazards. Second, the plan should be used to facilitate inter-jurisdictional coordination and collaboration related to natural hazard mitigation planning and implementation. Third, the plan should be used to develop or provide guidance for local emergency response planning. Finally, when adopted, the plan will bring communities in compliance with the Disaster Mitigation Act of 2000.

SCOPE

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

LOCAL GOALS

These ideas form the basis for the development of the Mitigation Plan and are shown from highest priority, at the top of the list, to those of lesser importance nearer the bottom.

- Protection of life before, during, and after the occurrence of a disaster;

- Protection of emergency response capabilities (critical infrastructure);
- Establish and maintain communication and warning systems;
- Protection of critical facilities;
- Government continuity;
- Protection of developed property, homes and businesses, industry, education opportunities and the cultural fabric of a community, by combining hazard loss reduction with the community's environmental, social, and economic needs; and
- Protection of natural resources and the environment, when considering mitigation measures.

LONG-TERM GOALS

- Eliminate or reduce the long-term risk to human life and property from identified natural and man-made hazards;
- Aid both the private and public sectors in understanding the risks they may be exposed to and finding mitigation strategies to reduce those risks;
- Avoid risk of exposure to identified hazards;
- Minimize the impacts of those risks when they cannot be avoided;
- Mitigate the impacts of damage as a result or identified hazards;
- Accomplish mitigation strategies in such a way that negative environmental impacts are minimized;
- Provide a basis for funding of projects outlined as hazard mitigation strategies; and
- Establish a regional platform to enable the community to take advantage of shared goals, resources, and the availability of outside resources.

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, and 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 city 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 WarHawk District (five-county region). 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. Reducing 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.

COMMUNITY LIFELINES

Mention has been given to Community Lifelines throughout the plan. These community lifelines are the focus of FEMA's response to natural hazards. The creation of Community Lifelines allowed FEMA to prioritize and deliver a concentrated response in mitigating effects in the event of a natural hazard. These community lifelines are:

- Safety and Security: law enforcement/security, fire service, search and rescue, government services, community safety
- Food, Water, and Shelter: food, water, shelter, agriculture
- Health and Medical: medical care, public health, patient movement, medical supply chain, fatality management
- Energy (Power and Fuel): power grid, fuel
- Communications: infrastructures, responder communications, alerts, warnings, and messages, finance, 911 and dispatch
- Transportation: highway/roadway/motor vehicle, mass transit, railway, aviation, maritime
- Hazardous Materials: facilities, HAZMAT, pollutants, contaminants

These are recognized by FEMA as the basic services communities need to enable all other aspects of society to function. This prioritization of resources focuses FEMA's efforts. Each function is further broken into subcategories dedicated to prioritizing resources before and after a natural hazard event. These community lifelines are essential to mitigating and addressing natural hazard events and help focus response. By ensuring stability of community lifelines through mitigation before a disaster, it allows the process of responding to a disaster to become more efficient.

WARHAWK DISTRICT PROFILE

WarHawk District is comprised of five counties in North Central South Dakota. Four of the five counties border the Missouri River which splits the State of South Dakota vertically; three of the

five counties lie on the west side of the Missouri River and two lie on the east. Counties included in the WarHawk District are Campbell, Corson, Dewey, Walworth, and Ziebach. Each of these counties recognizes that they have shared risks or “risks in common” with each other and also unique and varied risks within the boundaries of their counties. WarHawk District as a whole, has approximately 18,246 residents, of which 1,377 reside in Campbell County, 3,902 reside in Corson County, 5,239 reside in Dewey County, 5,315 reside in Walworth County, and 2,413 reside in Ziebach County. The geographic area within WarHawk District totals 8,462 square miles; an average of 2.16 persons per square mile. The counties of Corson, Dewey, and Ziebach have areas that are partially or entirely within the boundaries of the Cheyenne River Sioux Indian Reservation and the Standing Rock Sioux Indian Reservation. The Tribes have completed their own mitigation plans.

Table 1.1 WarHawk District Demographics

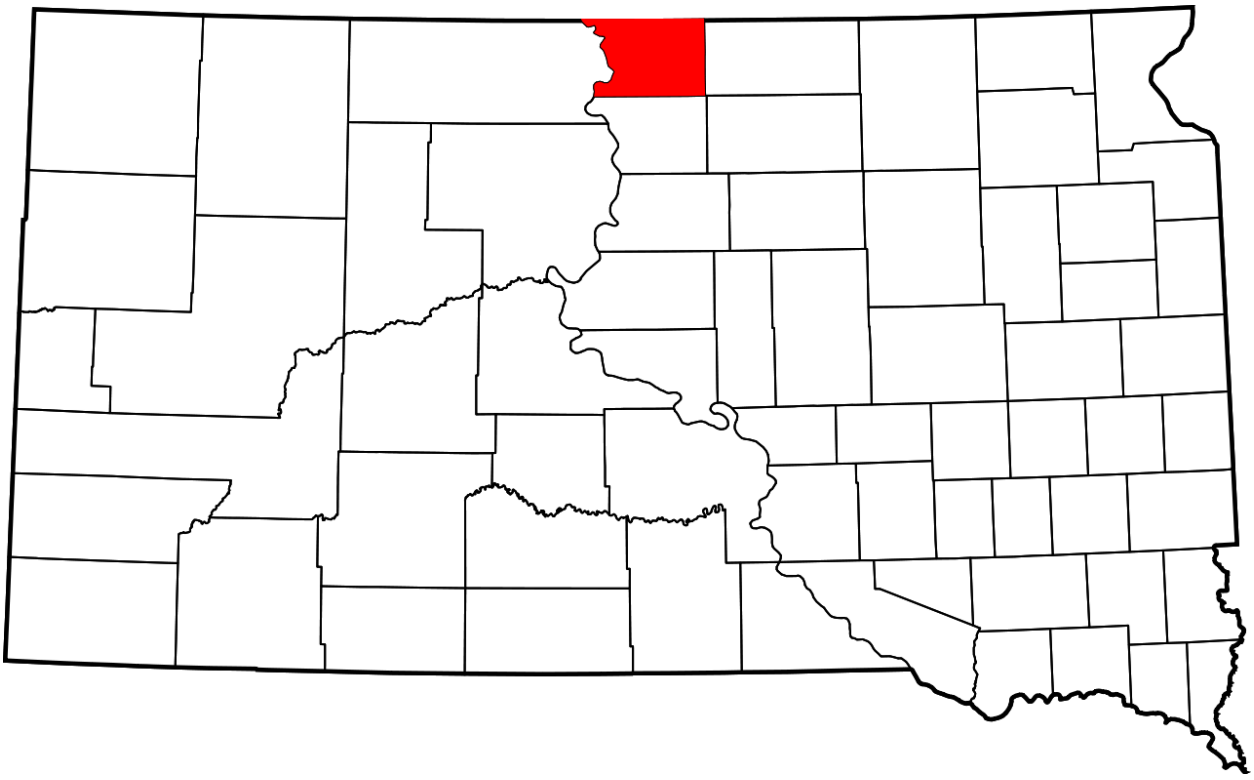
Statistic	Location					Total
	Campbell	Corson	Dewey	Walworth	Ziebach	WarHawk Total
Total area (sq miles)	771	2529	2446	744	1971	8461
2020 Population	1,377	3,902	5,239	5,315	2,413	18246
< 20	25%	40%	40%	25%	31%	--
20 - 29	5%	12%	12%	9%	14%	--
30 - 49	18%	21%	21%	26%	26%	--
50 - 64	24%	16%	17%	19%	19%	--
> 65	27%	11%	10%	23%	10%	--
Population Density	1.79	1.54	2.14	7.1	1.22	2.16
Households	691	1,071	1,720	2,380	683	6,545

Avg Household Size	2.79	4.36	3.11	2.61	3.53	--
Percent with children under 18	23%	36%	47%	25%	46%	--
Race						
White	93%	25%	16%	78%	17%	--
Native American	2%	70%	79%	20%	80%	--
Black	0%	0%	0%	0%	0%	--
Two or More Races	4%	5%	4%	0%	3%	--
Other Races	0%	0%	0%	1%	0%	--
Hispanic or Latino	3%	1%	2%	0%	1%	--
Median Income	$66,932	$48,125	$55,077	$57,697	$46,023	$54,770

WarHawk Population		
Town	**Population**	
Campbell	1377	
Artas	7	
Herreid	416	
Mound City*	69	
Pollock	224	
Corson		
McIntosh*	111	
McLaughlin	569	
Morristown	47	
Dewey		
Eagle Butte	1258	636
Isabel	145	
Timber Lake*	509	
Walworth		
Akaska	77	
Glenham	112	
Java	121	
Lowry	10	
Mobridge	3261	
Selby*	610	
Ziebach		
Dupree*	494	
Eagle Butte		622

*** County Seat**		
from 2020 Decennial Census		

Campbell County:



Map 1.2 Location Campbell County, South Dakota (from Wikipedia)

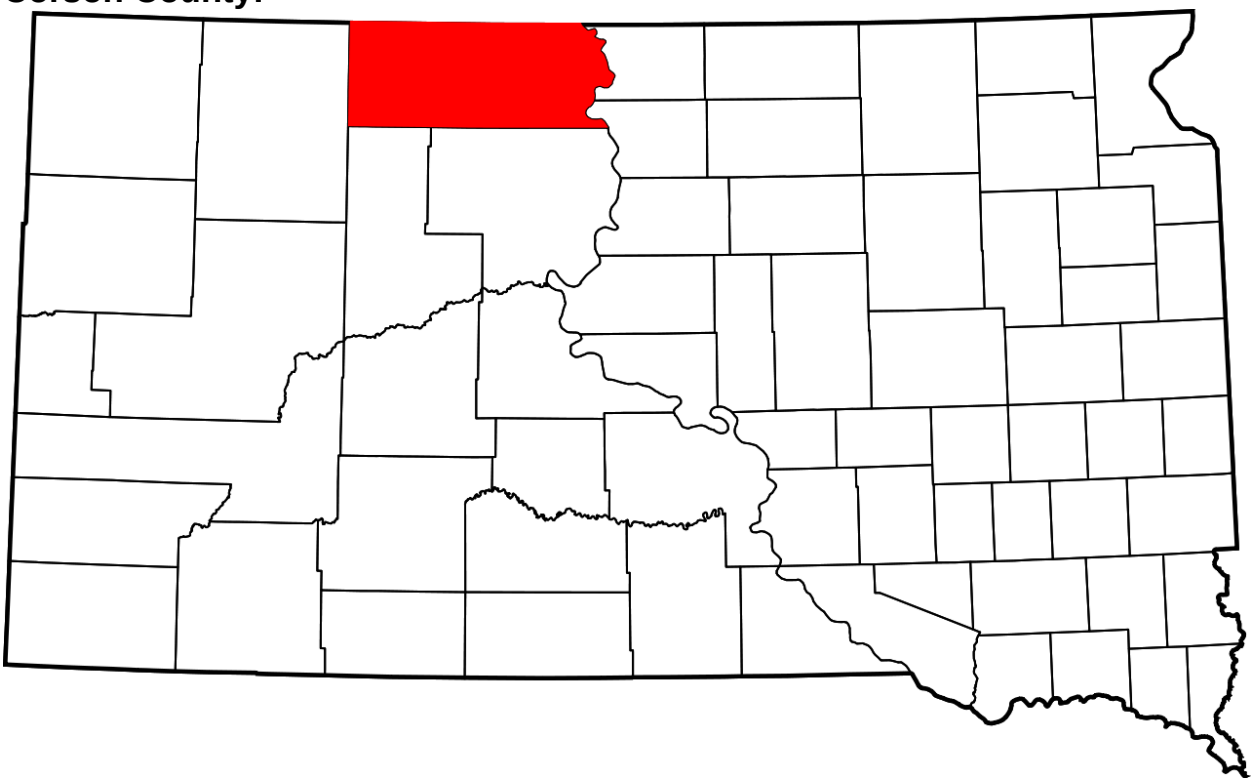
Campbell County Quick Facts

- Bordering Counties: Emmons, ND; McIntosh, ND, Walworth County, SD, McPherson County, SD and Corson, SD.
- Townships or Unorganized Territories: North Campbell and South Campbell
- Transportation Routes: U.S. Highways 83, South Dakota Highways 10, 271, and 1804

Campbell County receives about 17 inches of rain per year. The number of days with any measurable precipitation is 74. On average, there are 200 sunny days per year in Campbell County. Campbell County is usually warm in the summer and very cold in the winter. Arctic air frequently surges through the area. Most precipitation falls during the warm period; heaviest in late spring and early summer. Winter snowfall normally is not too heavy. When there is snow it is typically blown into drifts so that most of the ground is free of snow cover. The greatest snow depth recorded at any one time is 18 inches. Average winter temperature is 14 degrees Fahrenheit. The lowest temperature on record is -40 degrees. Average summer temperature is 70 degrees Fahrenheit and the highest recorded temperature is 109 degrees.

Campbell County is mostly in the Coteau du Missouri division of the Missouri Plateau part of the Great Plains province. The western edge of the county is in the Missouri River Trench, which is partly occupied by Lake Oahe. Most of the county is on a gently undulating to gently rolling glaciated plain. Gently rolling to hilly relief is on the sides of the valley cut by Spring Creek, where the creek flows westerly from the town of Artas to Lake Oahe. Gently rolling to steep glacial moraines cover the east-central part of the county. Land elevations range from 1,620 feet above sea level, which is the maximum flood level of Lake Oahe, to 2,080 in the west-central part of the county.

Corson County:



Map 1.3 Location Corson County, South Dakota (from Wikipedia)

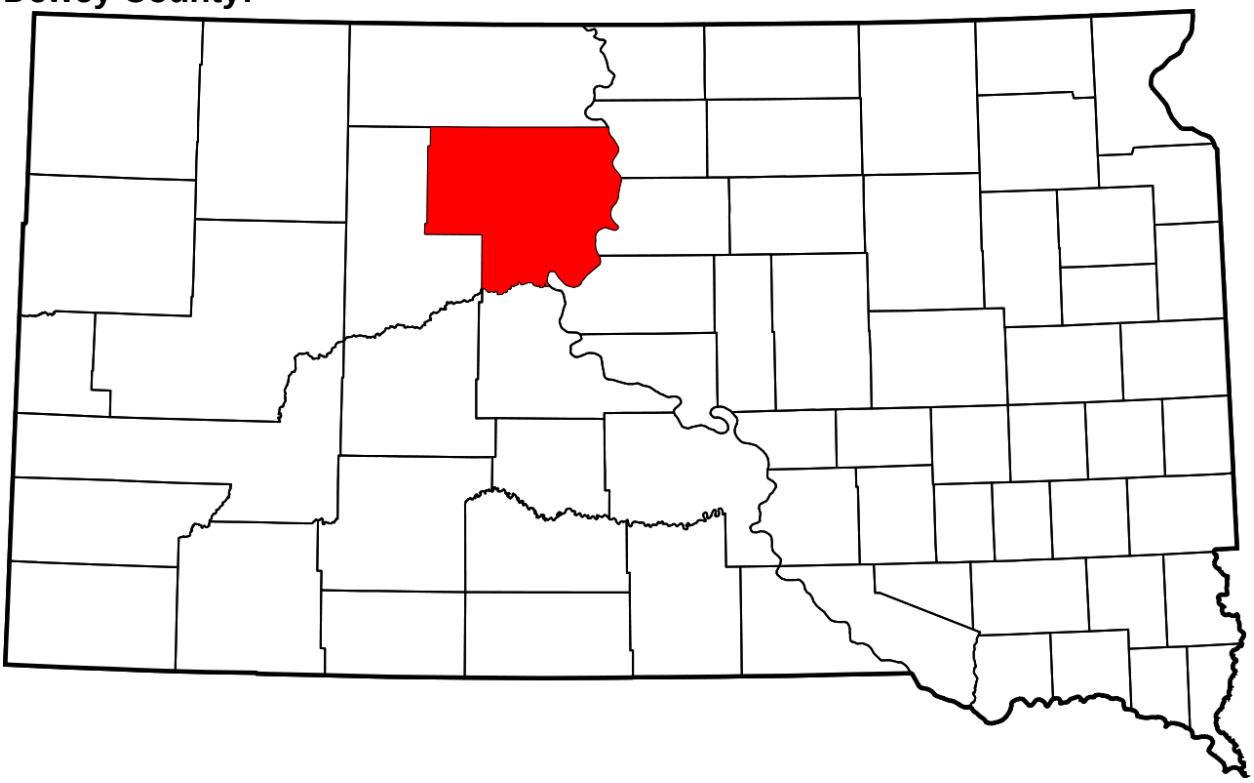
Corson County Quick Facts

- Entire County lies within the Standing Rock Indian Reservation
- Bordering Counties: Sioux, ND; Campbell, SD, Walworth County, SD, Dewey County, SD, Ziebach County, SD, Perkins, SD
- Census Designated Areas: Bullhead and Little Eagle
- Unincorporated Communities: Keldron, Trail City, Wakpala, Walker, Watauga
- Townships: Custer, Delaney, Lake, Mission, Pleasant Ridge, Prairie View, Ridgeland, Rolling Green, Sherman, Wakpala, and Watauga
- Unorganized Territories: Central Corson, Lemmon No. 2, Northeast Corson, and West Corson
- Transportation Routes: U.S. Highways 12, South Dakota Highways 20, 63, 65 and 1806

Corson County, SD, gets 16 inches of rain per year. The number of days with any measurable precipitation is 73. On average, there are 200 sunny days per year in Corson County. Corson County is warm in the summer, with frequent hot days and occasional number of cool days. Winters are typically very cold. Arctic air moves into the county from the north. Winter snowfalls are intermittent and snow is usually blown into drifts leaving the ground free from Snow. Average winter temperature is 16 degrees Fahrenheit. Lowest temperature recorded is -37 degrees. Each winter several storms with snow and high winds cause blizzard conditions in the county. Average summer temperature is 70 degrees. Highest recorded temperature is 109 degrees. Thunderstorms causing hail are common in Corson County.

Corson County is part of the Missouri Plateau of the Great Plains. Areas along the eastern edge of the county consist of undulating rolling smooth hills and ridges that are underlain by Pierre Shale. Areas in the rest of the county consist of nearly level plateaus and very steep, isolated buttes that are underlain by sandstone, siltstone, and shale. The Grand River is the major drainage way in the county. It flows east through the center of the county and drains into Lake Oahe. Numerous other drainage ways are intermittent and carry water in spring and after heavy rainfall. They drain into the Grand River and Lake Oahe. Elevations range from about 1,620 feet above sea level along Lake Oahe to about 2,710 feet on Thunder Butte Hawk in the northwestern part of the county.

Dewey County:



Map 1.4. Location Dewey County, South Dakota (from Wikipedia)

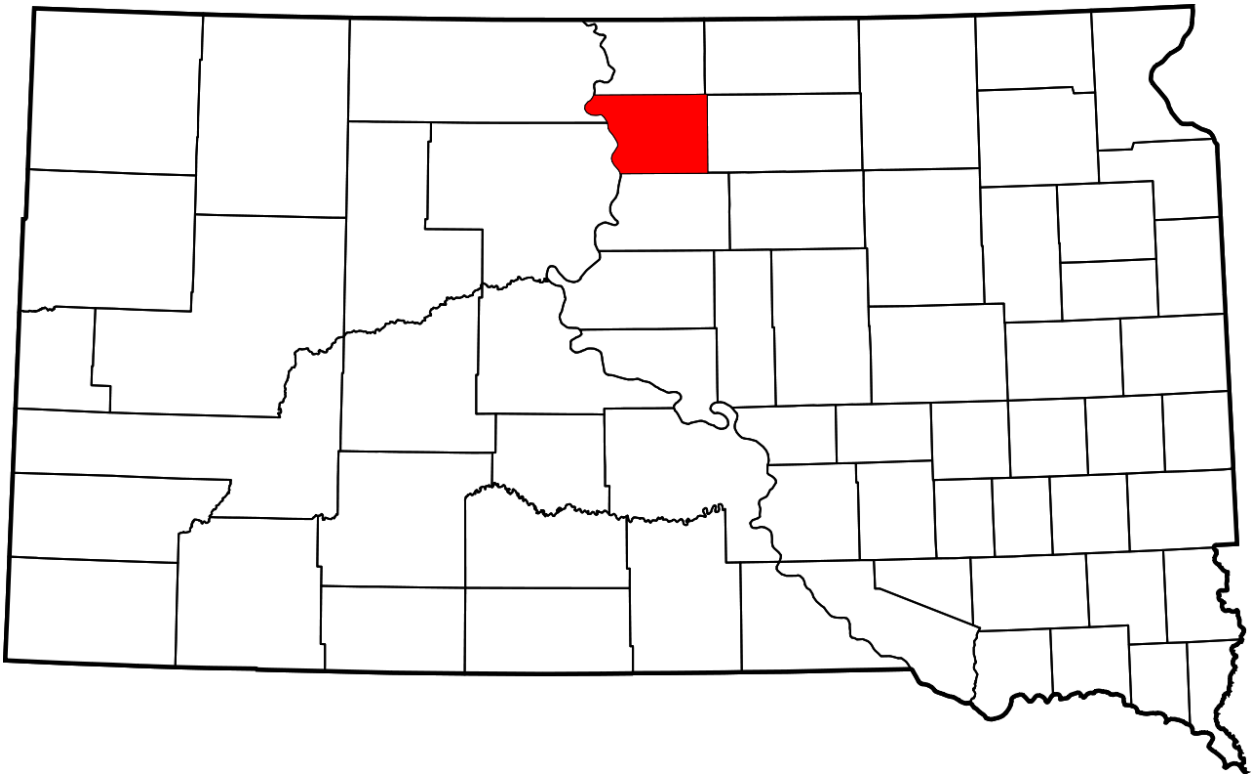
Dewey County Quick Facts

- Majority of County lies within the Cheynne River Indian Reservation
- Extreme Northern portion of the county lies within the Standing Rock Indian Reservation
- Bordering Counties: Corson, Walworth, Potter, Sully, Stanley, Ziebach
- Census Designated Areas: Green Grass, La Plant, North Eagle Butte, and Whitehorse
- Unincorporated Communities: Firesteel, Glencross, Lantry, and Ridgeview.
- Transportation Routes: U.S. Highways 212, South Dakota Highways 20, 63, and 65

US average is 37 inches. Snowfall is 32.8 inches. The average U.S. city gets 25 inches of snow per year. The number of days with any measurable precipitation is 69. On average, there are 201 sunny days per year in Dewey County. Dewey County is warm in the summer, with frequent hot days and occasional number of cool days. Winters are typically very cold. Arctic air moves into the county from the north. Winter snowfalls are intermittent and snow is usually blown into drifts leaving the ground free from Snow. Average winter temperature is 16 degrees Fahrenheit. Each winter several storms with snow and high winds cause blizzard conditions in the county. Average summer temperature is 70 degrees. Thunderstorms causing hail are common in Corson County.

The landscape of Dewey County is broad plain interrupted by deeply entrenched streams and drainage ways and by buttes that rise 100 feet or more above the plain. The relief is nearly level to sloping in the northwestern and southwestern parts of the county and is sloping and/or steep in much of the rest of the county. Elevation ranges between 2,640 feet above sea level at the northwest corner to about 1,610 feet along the Lake Oahe border. All of the northern part of the county, with the exception of the extreme northwest corner, is drained by the Moreau River, which flows from west to east in Lake Oahe. The eastern and southern parts of the county are drained by tributaries that flow into Lake Oahe, which covers the Cheyenne River and Missouri River Valleys.

Walworth County:



Map 1.5 Location Walworth County, South Dakota (from Wikipedia)

Walworth County Quick Facts

- Bordering Counties: Campbell, Edmunds, Potter, Dewey, Corson
- Unorganized Territories: West Walworth, East Walworth
- Transportation Routes: U.S. Highways 12 and 83, South Dakota Highways 47, 271 and 1804

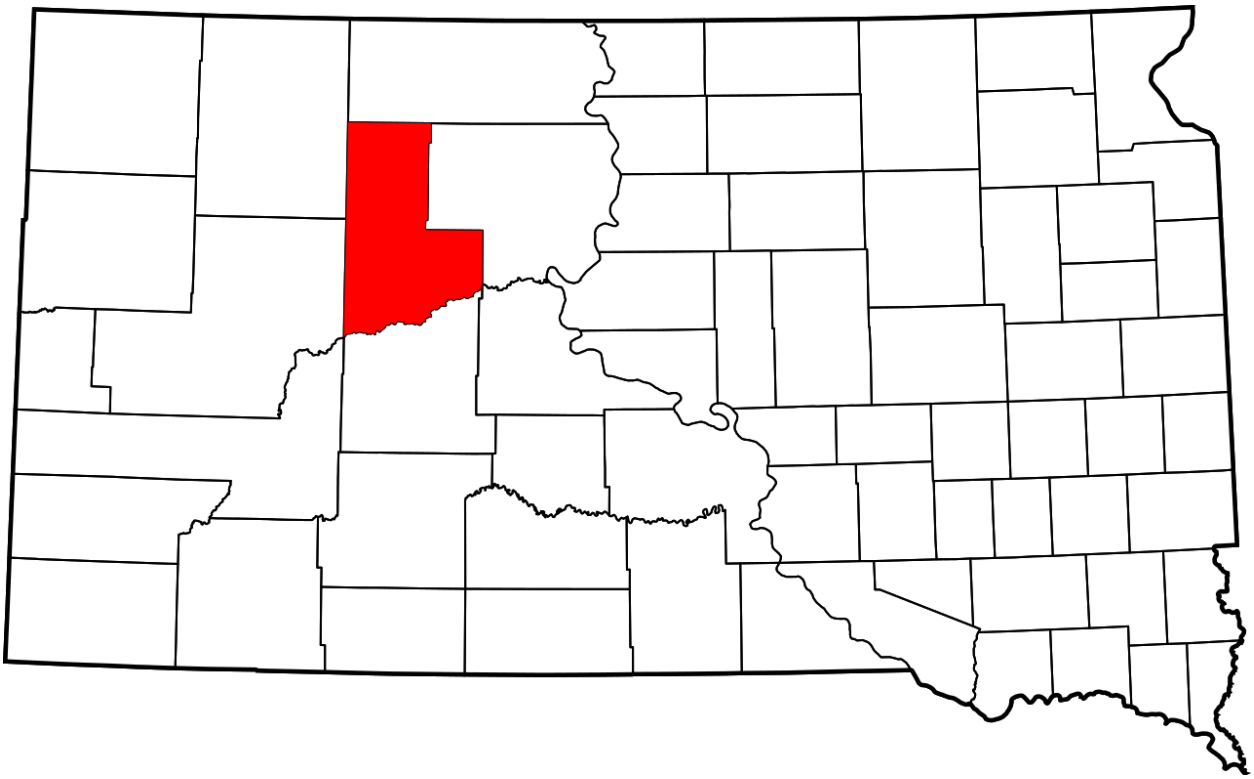
Walworth County lies east of the Missouri River and is in the Central Time Zone. Mobridge is the largest municipality in the County and maintains a municipal water and sewer system. A Mayor and 6 council members govern the city. The Mobridge City Administrator coordinates city activities with department heads that includes financing and planning. Mobridge has a hospital. Walworth County has eight parks located in the county ranging from small to large scale camping and public shooting areas. There is one recreational lake in Walworth County, Molstead Lake is located east and north of Mobridge. Prior to 2018, there was also Lake Hiddenwood, created by Hiddenwood dam, northeast of Selby. However, the dam failed after a heavy rainstorm in 2018 that dropped 13 inches of rain and has not been rebuilt. The remaining lakes are not used for recreational purposes due to size and access. Spring Lake is located southeast of Java, Horseshoe Lake is located northeast of Java, and Swan Lake is located east of the unincorporated town of Lowry.

Average temperatures and weather patterns vary widely in Walworth County. Summer highs average between 79 and 85.3 F° and winter low temperatures average between 1.7 and 19.2 F°. Average annual precipitation is 17.08 inches. Precipitation in the summer months is limited to isolated showers and thunderstorms that produce scattered precipitation. Annually, there are a total of about 88 frost-free days in Mobridge as compared with 85 at Selby. Most precipitation

falls during the warm months, with heaviest precipitation in late spring and early summer. Winter snowfall is normally not heavy. It is blown into drifts leaving much of the ground free of snow. Highest recorded temperature is 110 degrees Fahrenheit and lowest temperature on record is -36 degrees. Extreme cold events occur when arctic air surges from the north.

Walworth County is mostly in the Coteau du Missouri division of the Missouri Plateau part of the Great Plains Province. The western edge of the county is in the Missouri River Trench, which is partly occupied by Lake Oahe, an impoundment on the Missouri River. Most of the county is an undulating to gently rolling glaciated plain. Relief is hilly to steep on the breaks adjacent to Lake Oahe. It is rolling to hilly on the sides of the valley cut by Swan Creek where the creek flows westerly from Swan Creek to Lake Oahe. Some hilly to steep glacial moraines are in the eastern part of the county. Elevation ranges from about 1,700 feet above sea level at the mouth of Swan Creek in the southwestern park of the county to 2,000 feet in the northeastern part.

Ziebach County:



Map 1.6 Location Ziebach County, South Dakota (from Wikipedia)

Ziebach County Quick Facts
• Majority of County lies within the Cheynne River Indian Reservation • Extreme Northern portion of the county lies within the Standing Rock Indian Reservation • Bordering Counties: Corson, Dewey, Sully, Haakon, Meade, Perkins • Unorganized Territories: Dupree, North Ziebach and South Ziebach • Transportation Routes: U.S. Highways 212, South Dakota Highways 20, 34, 63, and 65

Ziebach County, SD, gets 17.5 inches of rain per year. Snowfall is 42.6 inches. The number of days with any measurable precipitation is 72. In winter, the average temperature in Ziebach County is 19 degrees Fahrenheit. The lowest temperature on record is -39 degrees. The highest recorded temperature is 109 degrees.

Ziebach County is on the Cretaceous Table Lands and Pierre Hills division of the Great Plains. Slopes generally are nearly level to strongly sloping. Near drainage ways, however, they are generally moderately steep or very steep. On the Cretaceous Table Lands, a few prominent buttes rise above the surrounding landscape. The northern half of the county is drained by the Moreau River and its tributaries. The southern half is drained by the Cheyenne River and its tributaries. The Moreau and Cheyenne Rivers are both perennial and flow easterly into Lake Oahe. Elevation ranges from about 1,620 feet above sea level in the area along Lake Oahe in the southeastern part of the county to 2,738 feet on Thunder Butte, in the northwestern part.

II. PREREQUISITES

CHANGES/REVISIONS TO PREREQUISITES:

Additional municipalities have expressed interest in adopting the plan for the 2024 update.

ADOPTION BY LOCAL GOVERNING BODY

The local governing body that oversees the update of the WarHawk District Natural Hazard Mitigation Plan (NHMP) is the WarHawk District. The County Commissioners representing counties within the WarHawk District boundaries have tasked their respective emergency managers and the WarHawk District Director with the responsibility of ensuring that the Mitigation Plan meets the needs of their local jurisdictions and is compliant with Federal Emergency Management Agency (FEMA) guidelines and corresponding regulations.

MULTI-JURISDICTIONAL PLAN PARTICIPATION

Requirement 201.6(c)(5) *For multi-jurisdictional plans, has the governing body of each jurisdiction officially adopted the plan to be eligible for certain FEMA assistance?*

> ***Element F1-a.*** *Does the plan include documentation of adoption?*
> ***Element F2-a****. Did each participant adopt the plan and provide documentation of that adoption?*

This plan is a multi-jurisdictional plan which serves the entire geographical area located within the boundaries of the five counties that make up WarHawk District. WarHawk District is comprised of: Campbell, Corson, Dewey, Walworth, and Ziebach counties located in North Central South Dakota. The WarHawk District Natural Hazard Mitigation Plan will cover all five counties located within the district as well as seventeen incorporated municipalities. While some of the municipalities participated in the planning efforts located within WarHawk District, each municipality decided independently if they will be adopting the plan on an individual basis. Each County within the WarHawk District will adopt then plan with the understanding that any municipalities that didn't adopt the plan are covered by their County's adoption of the plan for any mitigation needs. The participating local jurisdictions include the following counties and municipalities:

Table 2.1 Plan Participants		
New Participants	**Continuing Participants**	**Do Not Participate**
	Cambell County	Lowry, Town of
	Corson County	Artas, Town of
	Dewey County	Morristown, Town of
	Walworth County	
	Ziebach County	
	Herried, Town of	
	Pollock, Town of	
	Mound City, Town of	
	Akaska, Town of	
	Mobridge, City of	
	Selby, City of	
	Glenham, Town of	
	Java, Town of	
	McIntosh, Town of	See additional narrative below
	McLaughlin, Town of	*Census designated places
	Eagle Butte, City of	**Unincorporated Municipalities
	Timber Lake, Town of	***Townships
	Isabel, Town of	****Rural Electric Cooperatives
	Dupree, Town of	

*Census-Designated Places (CDPs) are a concentration of population defined by the United States Census Bureau for statistical purposes only. CDPs are populated areas that generally include one officially designated but currently unincorporated small community, for which the CDP is named, plus surrounding inhabited countryside of varying dimensions and, occasionally, other, smaller unincorporated communities as well. The boundaries of a CDP have no legal status. Thus, they may not always correspond with the local understanding of the area or community with the same name. There are numerous CDPs located within WarHawk District including: Green Grass, La Plant, North Eagle Butte, Whitehorse, Bullhead, and Little Eagle. Most of these areas have determined that the requirements for participation are difficult or impossible to complete due to lack of formal organization and full time staff.

**Unincorporated municipalities are covered by the District but did not participate in the planning process on an individual basis. Unincorporated municipalities within the WarHawk District include: Firesteel, Glencross, Lantry, Ridgeview, Keldron, Trail City, Wakpala, Walker, Watauga, Cherry Creek, Glad Valley, and Stika. Most of these areas have determined that the requirements for participation are difficult or impossible to complete due to lack of formal organization and full time staff.

*** Townships are covered by the District but did not participate on an individual basis. Only Corson County has organized townships, all other counties have unorganized territories. The townships are not direct participating entities in the plan because they are too small, both in population and in resources, to be capable of handling disaster needs on their own. The townships are served by the County whenever necessary.

**** Rural electric cooperatives participated in the planning process but will not formally adopt the plan due to the State allowing rural electrics to adopt the State Plan to cover all areas within their jurisdiction rather than participating in and adopting several county plans.

The WarHawk District and each of the counties along with some municipalities will pass resolutions to adopt the updated Plan. Other municipalities understand that they will be covered by their county's adoption of the plan and any future mitigation projects could be applied for by their County. The Resolutions of Adoption are included as supporting documentation for the Plan in Attachment E. The dates of adoption by resolution for each of the jurisdictions are summarized below.

Table 2.2 Dates of Plan Adoption by Jurisdiction

Jurisdiction	Date of Adoption
WarHawk District	
Campbell County	
Corson County	
Dewey County	
Walworth County	
Ziebach County	
City of Mobridge	
City of McLaughlin	
City of Eagle Butte	
City of Isabel	
City of Timber Lake	

All of the jurisdictions were involved in the plan update to the extent they wanted to participate. Representatives from each County and from some municipalities attended the planning meetings and provided valuable perspective on the changes required for the plan. All representatives took part in the risk assessment by reviewing the risk assessment worksheets, which are included in Appendix C and by profiling the risks.

III. PLANNING PROCESS

CHANGES/REVISIONS TO PLANNING PROCESS:

The planning process was strengthened in this plan update by holding planning meetings in each county for this plan update, making the meetings more accessible to the residents in those counties. This section of the plan also includes additional info about public meetings held to inform the public about the plan. The planning team incorporated a public survey to receive feedback on hazards affecting residents. The technical document section was strengthened to include municipalities.

DOCUMENTATION OF THE PLANNING PROCESS

Requirement 201.6(b) *An open and public involvement process is essential to the development of an effective plan.*
Requirement 201.6(b)(1) *An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.*
Requirement 201.6(c)(1) *The plan shall document the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

> ***A1-a.*** *Does the plan document how the plan was prepared, including the schedule or time frame and activities that made up the plan's development, as well as who was involved?*
> ***A2-a.*** *Does the plan identify stakeholders involved or given an opportunity to be involved in the planning process and how each stakeholder was presented with this opportunity?*
> ***A3-a.*** *Does the plan document how the public was given the opportunity to be involved in the planning process?*

The WarHawk District Director and each County's Emergency Manager worked with Northeast Council of Governments (NECOG) staff to organize resources and notify all the stakeholders, community organizations, municipalities, townships, hospital, economic development agencies, and tribal entities about planning meeting opportunities held in each County.

Efforts were made to reach a wide variety of stakeholders and individuals in the area, including vulnerable populations and underserved communities. Information about planning meetings was published in the local newspapers; included in public agendas, which are required to be posted 24 hours before a meeting; posted on social media; and sent out via email. Other methods used to inform and invite the public to meetings included posting fliers at various locations in the area and direct outreach.

Specific entities that received notice of the meetings include: municipal, county, and tribal entities, all fire and law enforcement departments within the geographic boundaries of the WarHawk District, the Mobridge Hospital, Indian Health Services, rural water providers, rural electric cooperatives, school administrators, business leaders and others.

At each planning meeting, attendees completed the risk assessment worksheets; discussed technical documents each jurisdiction had available; submitted information on crucial facilities/infrastructure; and developed mitigation actions among other information. Public

representatives at the meetings then brought the information back to their respective councils/commissions and presented the progress of the plan, at which the public also had an opportunity to participate and comment on the plan.

The emergency managers also participated in quarterly meetings held in conjunction with the regular WarHawk District meetings. The Local Emergency Planning Committees were also included during their regular full scale exercises. Since most of the emergency managers and city and county officials are new to mitigation planning, the plan author used these opportunities to explain the purpose of mitigation and to go through different types of mitigation actions that could be used in their mitigation strategy section of the plan. The sign-in from each of the planning meetings are included as Appendix A.

Table 3.1 WarHawk Meeting Dates				
Date	**Location**	**Meeting Type**	**Advertisement**	**Stakeholders Represented**
11/9/2023	Mobridge Fire Hall	WarHawk District Meeting	Email	WarHawk District, Campbell County, Corson County, Dewey County, Walworth County, SD OEM
1/4/2024	Walworth County Courthouse	Walworth County Commission Meeting	Agenda	Walworth County
1/4/2024	Campbell County Courthouse	Campbell County Commission Meeting	Agenda	Campbell County, *Prairie Pioneer Newspaper, Selby Record Newspaper*
1/17/2024	Mobridge Fire Hall	WarHawk District Meeting	Email	WarHawk District, Campbell County, Corson County, Dewey County, Walworth County, SD OEM
2/5/2024	Timber Lake City Hall	Timber Lake City Board Meeting	Agenda	Timber Lake, Dewey County, Members from the Public and Private Business
2/6/2024	Corson County Courthouse	Corson County Commission Meeting	Agenda	Corson County
2/7/2024	Campbell County Courthouse	Campbell County Planning Meeting	Email Newspaper	Campbell County, Pollock, Mound City, Herreid, Herreid VFD, Private Business
2/7/2024	Mobridge City Hall	Mobridge City Council Meeting	Agenda	City of Mobridge, Private Business, Members from the Public
3/4/20204	Mobridge City Hall	Walworth County Planning Meeting	Newspaper, Email	Mobridge, Mobridge Hospital, Walworth County, Mobridge VFD, Member from the Public
3/4/20204	Walworth County Courthouse	Walworth County Planning Meeting	Newspaper, Email	Walworth County, Akaska
3/7/2024	Dewey County Courthouse	Dewey County Commission Meeting	Agenda	Dewey County, CSDED

4/3/2024	Ziebach County Courthouse	Ziebach County Commission Meeting	Agenda	Ziebach County
4/11/2024	Dewey County Courthouse	Dewey County Commission Meeting	Agenda	Dewey County, CSDED
4/17/2024	Mobridge Fire Hall	WarHawk District Meeting	Email	WarHawk, Campbell County, Corson County, Dewey County, Walworth County, Ziebach County
5/6/2024	Isabel City Hall	Isabel Town Board Meeting	Agenda	Isabel, Dewey County
5/7/2024	Walworth County Courthouse	Walworth County Commission Meeting	Agenda	Walworth County, Members from the Public
5/8/2024	Timber Lake City Hall	Timber Lake City Board Meeting	Agenda	Timber Lake, Timber Lake and Area Development Corporation, Dewey County, Members from the Public
5/20/2024	Ziebach County Courthouse	Ziebach County Planning Meeting	Newspaper, Email	Ziebach County, Dupree, Cheyenne River Health (IHS), Dupree VFD,
5/20/2024	Dewey County Courthouse	Dewey County Planning Meeting	Newspaper, Email	Dewey County, Timber Lake, Moreau-Grand Electric, Eagle Butte, Cheyenne River Health (IHS)
6/3/2024	Dupree City Hall	Dupree City Council Meeting	Agenda	Dupree
7/2/2024	Corson County Sheriff's Office	Corson County Planning Meeting	Newspaper, Email	Corson County, McLaughlin
7/9/2024	McLaughlin City Hall	McLaughlin City Council Meeting	Agenda	McLaughlin, McLaughlin School District, Tribe, Bear Soldier District Animal Control, Rock Energy
Agendas are required to be posted 24 hours before the meeting at the principal office of the jurisdiction and on the jurisdiction's website. The agenda must be visible, readable and accessible.				

Representatives also took information from the mitigation planning meetings back to their respective city councils and county commissions and presented a status update and summary of the progress of the plan update.

> ***A1-b.*** *Does the plan list the jurisdiction(s) participating in the plan that seek approval and describe how they participated in the planning process?*

Table 2.3 was derived to help define "participation" for the local jurisdictions who intend on adopting the plan. Out of nine categories, each jurisdiction must have at least six of the participation requirements fulfilled.

Table 3.2 Local Jurisdiction Participation						
Nature of Participation	**Campbell County**	**Corson County**	**Dewey County**	**Walworth County**	**Ziebach County**	**City of Mobridge**
Attended Meetings or work sessions (a minimum of 1 meeting will be considered satisfactory).	X	X	X	X	X	X
Submitted inventory and summary of reports and plans relevant to hazard mitigation.	X	X	X	X	X	X
Submitted Risk Assessment Worksheet.	X	X	X	X	X	X
Submitted description of what is at risk (including local critical facilities and infrastructure at risk from specific hazards)	X	X	X	X	X	X
Submitted a description or map of local land-use patterns (current and proposed/expected).	X	X	X	X		X
Developed mitigation actions with an analysis/explanation of why those actions were selected.	X	X	X	X	X	X
Prioritized actions emphasizing relative cost-effectiveness.	X	X	X	X	X	X
Reviewed and commented on draft Plan.	X	X	X	X	X	X

Hosted opportunities for public involvement (allowed time for public comment at a city council/county commission meetings after giving a status report on the progress of the Plan update)	X	X	X	X	X	X

The WarHawk District Emergency Manager and staff from the Northeast Council of Governments led the development of the plan update. The core planning team were members of the WarHawk District LEPC, which consists of emergency managers from each county along with a commission representative from each county.

Table 3.3 PDM Plan Representatives for Local Jurisdictions	
Campbell	Layne Perman, Emergency Manager
	Brent Odde, Commissioner
Corson	Mike Varilek, Emergency Manager
	Jake Nehl, Commissioner
Dewey	Della Dearborn, Emergency Manager
	Rod Enright, Commissioner
Walworth	Jeff Jensen, Emergency Manager
	Justin Jungwirth, Commissioner
Ziebach	Gary Cudmore, Emergency Manager
	Shane Farlee, Commissioner

At stakeholder planning meetings/work sessions, the local jurisdictions were represented by city council members, finance officers and/or public works employees. The city councils and county commissions discussed the progress of the plan at their council meetings.

The representatives from the municipalities were asked to share the progress of the plan at their council meetings and to ensure that those attending the 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 county commission meetings were collected and incorporated into the plan. NECOG also offered individual assistance and attendance at the county commission and city council meetings to explain the updates if desired by the local jurisdictions. NECOG attended commission meetings in Campbell, Corson, Dewey, Walworth, Ziebach counties.

**Note: commissioners and council members as well as other elected and non-elected officials of the cities and counties change often. The names listed below were current when the plan was drafted.

Table 3.4 Campbell County Commissioners and Public Officials Involved in the Plan	
Lynn Deibert	Commissioner
Brent Odde	Commissioner
Robert Shadwell	Commissioner
Bryan Fjeldheim	Commissioner
Scott Rau	Commissioner
Layne Perman	Emergency Manager
Lisa Perman	Auditor
Terry Madden	Highway Superintendent
Jill Hoogeveen	Director of Equalization

Table 3.5 Corson County Commissioners and

Public Officials Involved in the Plan	
Steve Keller	Commissioner
Darren Bauer	Commissioner
Lucas Sutherland	Commissioner
Shawn Hinsz	Commissioner
Jacob Nehl	Commissioner
Tammy Bertolotto	Auditor
Benny Joe Schell	Highway Superintendent
Shane Penfield	State's Attorney
Marcia Schell	Register of Deeds
Heather Gall	Treasurer
Amy Schriock	Director of Equalization
Alan Dale	Sheriff

Table 3.6 Dewey County Commissioners and Public Officials Involved in the Plan	
Robert Berndt	Commissioner
Robert Keckler	Commissioner
John Meginness	Commissioner
Rod Enright	Commissioner
Dee Ann Lawrence	Commissioner
Kyrie Lemburg	Auditor
Lyle Richter	Highway Superintendent
Steve Aberle	State's Attorney
Deborah Goldade	Register of Deeds
Mikki Veit	Treasurer
Brandy Meier	Director of Equalization
Les Mayer	Sheriff

Table 3.7 Walworth County Commissioners and Public Officials Involved in the Plan	
Jim Houck	Commissioner
Duane Mohr	Commissioner
Scott Schilling	Commissioner
Kevin Holgard	Commissioner
Justin Jungwirth	Commissioner
Jeff Jensen	Emergency Manager
Kim Dills	Auditor
Tom Hannan	Highway Superintendent
Greg Pudwill	Director of Equalization
Debbie Kahl	Deputy Auditor

Table 3.8 Ziebach County Commissioners and Public Officials Involved in the Plan	
Clinton Farlee	Commissioner
Bill Henderson	Commissioner
David Pesicka	Commissioner
Rick Farlee	Commissioner

Phil Knife	Commissioner
Cindy Longbrake	Auditor
Jeff Jensen	Highway Superintendent
Cheryl Laurenz-Bogue	State's Attorney
Nannette Farlee	Register of Deeds
Virginia Hertel	Treasurer
Clint Holmes	Director of Equalization
Gary Cudmore	Sheriff

Element A3-a. *Does the plan document how the public was given the opportunity to be involved in the planning process and how their feedback was included in the plan?*

PUBLIC INVOLVEMENT

Public meetings were held at several different locations throughout the planning process to inform the public about the required Mitigation Plan update. The Planning Meetings were open to the public and were advertised in newspapers, email and by direct outreach. County Commission Meetings and City Council meetings were another location where members of the public could participate in the planning process. State law requires Cities and Counties to publish meeting agendas at least 24 hours in advance of the meeting. Natural Hazard Mitigation Plan was included on the agendas so the public would be notified.

See Table 3.1 WarHawk Meeting Dates p. 21-22 for a list of all meetings open for public involvement.

After the plan was drafted it was posted on the Walworth County Website and emailed to all of the participants and to the emergency managers in the neighboring counties of: McPherson, Edmunds, Potter, Sully, Stanley, Haakon, Meade, and Perkins counties in South Dakota and Emmons, McIntosh, Sioux Counties in North Dakota as well as the Emergency Managers from the Cheyenne River Sioux Tribe and Standing Rock Sioux Tribe. It was also emailed to everyone who participated in the planning process. Everyone who received an email copy of the plan draft was allowed 30 days to comment on the draft. In addition, the emergency managers placed a notice on their local Emergency Management Facebook pages to notify the public that the plan draft is available for review and public comment. The administrators for the Facebook page reported the post reached XXX people, XX were engaged (opened the link to the Plan), X commented on the post and X liked the post. Any comments received have been addressed.

SURVEY

In addition to the planning meetings, county commission and council meetings, the planning team decided to conduct a survey requesting feedback. The surveys asked about people's experiences with natural hazards, how they have been impacted, ideas for projects/actions that could reduce impacts from hazards. It also asked about storm shelters, surviving without power during a winter storm and who they trust to provide information on hazards.

Emergency Managers posted the survey link to their Facebook pages, sent links via email, created QR codes that were put on posters and hung around town at public bulletin boards and included the survey link in their email signature. To make the survey process equitable, paper copies of the survey were also made available for those who don't have access to the internet or preferred a paper copy. Paper copies were made available at planning meetings, etc. There were 79 surveys completed via Alchemer, which is almost 1% of the population in the WarHawk District. Results of the survey are included as Appendix D.

NEIGHBORING JURISDICTION PARTICIPATION

Requirement 201.6(b)(2) Element A2. *An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities and agencies that have the authority to regulate development as well as businesses, academia and other private and non-profit interests to be involved in the planning process.*

A2-a. *Does the plan identify stakeholders involved or given an opportunity to be involved in the planning process and how each stakeholder was presented with this opportunity?*

At the beginning of the planning process, an email was sent to all neighboring emergency managers in the counties of: McPherson, Edmunds, Potter, Sully, Stanley, Haakon, Meade, Perkins Counties, South Dakota and Emmons, McIntosh and Sioux Counties in North Dakota giving them opportunity to participate in the WarHawk District's planning process and provide input on the plan's content. After the plan was drafted, it was emailed to all of the participants and to the emergency managers in the neighboring counties. Everyone who received an email copy of the plan draft was allowed 30 days to comment on the draft.

TECHNICAL REVIEW OF EXISTING DOCUMENTS

201.6(b)(3)*Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

Element A4-a. *Does the plan document what existing plans, studies, reports and technical information were reviewed for the development of the plan, as well as how they were incorporated into the document?*

201.6(c)(3) *The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools.*

Element C1-a. *Does the plan describe how the existing capabilities of each participant are available to support the mitigation strategy? Does this include a discussion of the existing building codes and land use development ordinances or regulations?*

The review and incorporation of existing plans, studies, reports and technical information was completed by the local jurisdictions with assistance from NECOG. Each of the communities were asked to provide a list of existing documents that they have available. Many of the smaller communities do not have measures in place for planning activities, nor do they have staff employed to handle planning measures.

The 2019 Mitigation Plan was used as a resource for the new plan because most of the natural hazard risk assessment had already been completed when it was drafted. In addition to the 2019 Mitigation Plan, the plan author reviewed several other existing documents including but not limited to the South Dakota State Hazard Mitigation Plan (2024), South Dakota Hazard Identification and Risk Assessment (2022) South Dakota Drought Mitigation Plan (2015), WarHawk District Hazmat Plan, City and County Zoning Ordinances (when available) and Comprehensive Plans, Flood Insurance Rate Maps for the local jurisdictions, Cheyenne River Sioux Tribe and Standing Rock Sioux Tribe Mitigation Plans,. A summary of the technical review and incorporation of existing plans is included below.

The use of existing policies and technical documents tends to be less involved than what might be seen in larger cities or communities. For instance, while State Law requires that a

comprehensive plan be adopted prior to incorporating zoning ordinances, it is common for communities to have outdated comprehensive plans, some dating back to the late 1970's.

Table 3.9 :Campbell County Record of Review (Summary)					
Existing Technical Documents	**Local Jurisdiction**				**Plan Incorporation**
	Campbell Co	**Pollock**	**Herreid**	**Mound City**	
Plans					
Comprehensive Plan	X	No	X	No	Development Trends; Intro-Profile
Community Wildfire Protection Plan	No	No	No	No	NA
Capital Improvements Plan	No	No	No	No	NA
Local Emergency Operations Plan	X	C	C	C	Note: Through WarHawk; Assessing Vulnerability
Land Use Plan	Addressed in Comp Plan	No	No	No	NA
Stormwater Management Plan	No	No	No	No	NA
Bridge Plan	O	No	No	No	NA
Community Operation Plan	No	No	No	No	NA
Land Use Planning and Ordinances					
Zoning Ordinance	X	No	X	No	Development Trends
Flood Damage Prevention Ordinance	No	No	No	No	NA
Floodplain Management Plan	NA	NA	NA	NA	NA
Building Code	State	State	State	State	Development Trends
Drainage Ordinance	NA	NA	NA	NA	NA
Subdivision Ordinance	No	No	No	No	NA
Elevation Certificates	No	No	No	No	NA
Mitigation Capabilities - Administrative					
Building Official, Civil Engineer, Community Planner, Floodplain Administrator, GIS Coordinator	No	No	No	No	
Emergency Manager	X	C	C	C	
Planning Commission	X	No	No	No	
Membership with NECOG	X	C	X	C	

Mitigation Capabilities – Technical					
Grant Writing	No	No	No	No	
Hazard Vulnerability Analysis	No	No	No	No	
GIS Analysis	No	No	No	No	
Mutual Aid Agreements	X	X	X	X	
Some services such as Planning, GIS Coordination/Analysis, Grant Writing can be provided through the County's membership with the NECOG. The County's membership also provides similar services to the towns.					
Other Studies/Reports/Maps					
Flood Insurance Studies or Engineering studies for streams	X	No	No	No	Spring Creek H & H Study; Overall Summary of Vulnerability; Development Trends; Mitigation Strategy
State Hazard Mitigation Plan	X	X	X	X	Risk Assessment Hazard Identification
Critical Facilities Map	No	No	No	No	
Existing Land Use maps	X	No	?	No	Incorporated in Zoning Ordinance
Dam Inspection Report	?				
No: the jurisdiction does not have this program/policy/technical document					
O: the jurisdiction has the program/policy/technical document, but did not review/incorporate it in the mitigation plan					
C: the jurisdiction is regulated under the County's policy/program/technical document					

Table 3.10 :Corson County Record of Review (Summary)

Existing Technical Documents	**Local Jurisdiction**				**Plan Incorporation**
	Corson Co	**McIntosh**	**McLaughlin**	**Morristown**	
Plans					
Comprehensive Plan	No	No	No	No	
Community Wildfire Protection Plan	No	No	No	No	
Capital Improvements Plan	No	No	?	No	
Local Emergency Operations Plan	X	C	C	C	Note: Through WarHawk; Assessing Vulnerability
Land Use Plan	No	No	No	No	

Stormwater Management Plan	No	No	No	No	
Bridge Plan	O	No	No	No	
Community Operation Plan	No	No	No	No	
Land Use Planning and Ordinances					
Zoning Ordinance	No	No	No	No	
Flood Damage Prevention Ordinance	No	No	No	No	
Floodplain Management Plan	No	No	No	No	
Building Code	State	State	State	State	
Drainage Ordinance	No	No	No	No	
Subdivision Ordinance	No	No	No	No	
Elevation Certificates	No	No	No	No	
Mitigation Capabilities - Administrative					
Building Official, Civil Engineer, Community Planner, Floodplain Administrator, GIS Coordinator	No	No	No	No	
Emergency Manager	X	C	C	C	
Planning Commission	No	No	No	No	
Membership with CSDED	X	X	X	X	
Mitigation Capabilities – Technical					
Grant Writing	No	No	No	No	
Hazard Vulnerability Analysis	No	No	No	No	
GIS Analysis	No	No	No	No	
Mutual Aid Agreements	X	X	X	X	
Some services such as Planning, GIS Coordination/Analysis, Grant Writing can be provided through the County's membership with the CSDED. The County's membership also provides similar services to the towns.					
Other Studies/Reports/Maps					
Flood Insurance Studies or Engineering studies for streams	Yes	Yes	Yes	Yes	FIS – Standing Rock Sioux Tribe; Risk Assessment – Unique or Varied Risk

State Hazard Mitigation Plan	X	X	X	X	Risk Assessment Hazard Identification
Critical Facilities Map	No	No	No	No	
Existing Land Use maps	No	No	?	No	
Dam Inspection Report	No	No	No	No	
No: the jurisdiction does not have this program/policy/technical document					
O: the jurisdiction has the program/policy/technical document, but did not review/incorporate it in the mitigation plan					
C: the jurisdiction is regulated under the County's policy/program/technical document					

Table 3.11 :Dewey County Record of Review (Summary)

Existing Technical Documents	**Local Jurisdiction**				**Plan Incorporation**
	Dewey Co	**Eagle Butte**	**Isabel**	**Timber Lake**	
Plans					
Comprehensive Plan	No	No	No	No	NA
Community Wildfire Protection Plan	No	No	No	No	NA
Capital Improvements Plan	No	No	No	No	NA
Local Emergency Operations Plan	X	X	X	X	Note: Through WarHawk; Assessing Vulnerability
Land Use Plan	No	No	No	No	NA
Stormwater Management Plan	No	No	No	No	NA
Bridge Plan	O	No	No	No	NA
Community Operation Plan	No	No	No	No	NA
Land Use Planning and Ordinances					
Zoning Ordinance	No	No	No	No	NA
Flood Damage Prevention Ordinance	No	No	No	No	NA
Floodplain Management Plan	No	No	No	No	NA
Building Code	State	State	State	State	NA
Drainage Ordinance	NA	NA	NA	NA	NA
Subdivision Ordinance	No	No	No	No	NA

Elevation Certificates	No	No	No	No	NA
Mitigation Capabilities - Administrative					
Building Official, Civil Engineer, Community Planner, Floodplain Administrator, GIS Coordinator	No	No	No	No	
Emergency Manager	X	X	X	X	
Planning Commission	No	No	No	No	
Membership with CSDED	X	X	X	X	
Mitigation Capabilities – Technical					
Grant Writing	No	No	No	No	
Hazard Vulnerability Analysis	No	No	No	No	
GIS Analysis	No	No	No	No	
Mutual Aid Agreements	X	X	X	X	
Some services such as Planning, GIS Coordination/Analysis, Grant Writing can be provided through the County's membership with the CSDED. The County's membership also provides similar services to the towns.					
Other Studies/Reports/Maps					
Flood Insurance Studies or Engineering studies for streams	Yes	Yes	Yes	Yes	FIS – Cheyenne River Sioux Tribe; Risk Assessment – Unique or Varied Risk
State Hazard Mitigation Plan	X	X	X	X	Risk Assessment Hazard Identification
Critical Facilities Map	No	No	No	No	
Existing Land Use maps	No	No	No	No	
Dam Inspection Report	No				
No: the jurisdiction does not have this program/policy/technical document					
O: the jurisdiction has the program/policy/technical document, but did not review/incorporate it in the mitigation plan					
C: the jurisdiction is regulated under the County's policy/program/technical document					

Table 3.12 :Walworth County Record of Review (Summary)					
Existing Technical Documents	**Local Jurisdiction**				**Plan Incorporation**
	Walworth Co	**Mobridge**	**Akaska**		
Plans					
Comprehensive Plan	X	X	No		Development Trends; Intro-Profile
Community Wildfire Protection Plan	No	No	No		NA
Capital Improvements Plan	No	X	No		NA
Local Emergency Operations Plan	X	C	C		Note: Through WarHawk; Assessing Vulnerability
Land Use Plan	Included in Comp Plan	Included in Zoning	No		NA
Stormwater Management Plan	No	No	No		NA
Bridge Plan	X	No	No		NA
Community Operation Plan	No	No	No		NA
Land Use Planning and Ordinances					
Zoning Ordinance	X	X	No		Development Trends; Risk Assessment – Unique or Varied Risk
Flood Damage Prevention Ordinance	No	No	No		NA
Floodplain Management Plan	No	No	No		NA
Building Code	State	State	No		Development Trends
Drainage Ordinance	No	No	No		NA
Subdivision Ordinance	X*	X	No		NA
Elevation Certificates	No	No	No		NA
Mitigation Capabilities - Administrative					
Building Official	X	X	No		
GIS Coordinator	X	No	No		
Civil Engineer, Community Planner, Floodplain Administrator	No	No	No		
Emergency Manager	X	C	C		

Planning Commission	X	X	No		
Membership with NECOG	X	X	C		
Mitigation Capabilities – Technical					
Grant Writing	NECOG	NECOG	NECOG		
Hazard Vulnerability Analysis	No	No	No		
GIS Analysis	X	NECOG	No		
Mutual Aid Agreements	X	X	X		
Some services such as Planning, GIS Coordination/Analysis, Grant Writing can be provided through the County's membership with the NECOG. The County's membership also provides similar services to the towns.					
Other Studies/Reports/Maps					
Flood Insurance Studies or Engineering studies for streams	X	No	No		Hiddenwood Creek H & H Study; Overall Summary of Vulnerability; Development Trends; Mitigation Strategy
State Hazard Mitigation Plan	X	X	X		Risk Assessment Hazard Identification
Critical Facilities Map	No	No	No		
Existing Land Use maps	X	X	No		Incorporated in Zoning Ordinance
Dam Inspection Report	No	No	No		
No: the jurisdiction does not have this program/policy/technical document					
O: the jurisdiction has the program/policy/technical document, but did not review/incorporate it in the mitigation plan					
C: the jurisdiction is regulated under the County's policy/program/technical document					
* Planned Residential District					

Table 3.13 :Ziebach County Record of Review (Summary)					
Existing Technical Documents	**Local Jurisdiction**				**Plan Incorporation**
	Ziebach Co	**Dupree**			
Plans					
Comprehensive Plan	No	No			
Community Wildfire Protection Plan	No	No			NA

Capital Improvements Plan	No	No			NA
Local Emergency Operations Plan	X	C			Note: Through WarHawk; Assessing Vulnerability
Land Use Plan	No	No			NA
Stormwater Management Plan	No	No			NA
Bridge Plan	X	No			NA
Community Operation Plan	No	No			NA
Land Use Planning and Ordinances					
Zoning Ordinance	No	No			NA
Flood Damage Prevention Ordinance	No	No			NA
Floodplain Management Plan	No	No			NA
Building Code	State	State			NA
Drainage Ordinance	No	No			NA
Subdivision Ordinance	No	No			NA
Elevation Certificates	No	No			NA
Mitigation Capabilities - Administrative					
Building Official	No	No			
GIS Coordinator	No	No			
Civil Engineer, Community Planner, Floodplain Administrator	No	No			
Emergency Manager	X	C			
Planning Commission	No	No			
Membership with CSDED	No	No			
Mitigation Capabilities – Technical					
Grant Writing	CSDED	CSDED			
Hazard Vulnerability Analysis	No	No			
GIS Analysis	No	No			

Mutual Aid Agreements	X	X			
Some services such as Planning, GIS Coordination/Analysis, Grant Writing can be provided through the CSDED.					
Other Studies/Reports/Maps					
Flood Insurance Studies or Engineering studies for streams	X	X			FIS – Cheyenne River Sioux Tribe; Risk Assessment – Unique or Varied Risk
State Hazard Mitigation Plan	X	X			Risk Assessment Hazard Identification
Critical Facilities Map	No	No			
Existing Land Use maps	No	No			
Dam Inspection Report	No	No			
No: the jurisdiction does not have this program/policy/technical document					
O: the jurisdiction has the program/policy/technical document, but did not review/incorporate it in the mitigation plan					
C: the jurisdiction is regulated under the County's policy/program/technical document					

Per South Dakota Codified Law, when any local unit of government in South Dakota has not adopted a building code ordinance, the design standard shall be based on the 2021 edition of the International Building Code as published by the International Code Council, Incorporated.

REVIEW OF THE 2019 MITIGATION PLAN

Plan participants reviewed and analyzed the risk assessment and mitigation strategy sections of the plan and new information was included wherever necessary. Much of the information from the 2019 plan was still relevant. The plan author also used the 2022 Local Mitigation Planning Policy Guide, the 2023 Local Mitigation Planning Handbook as well as the 2019 Gap Reports provided by FEMA.

Each of the jurisdictions and all stakeholders at the planning meetings/work sessions were provided information on previous risks, critical infrastructure, mitigation strategies and were asked to review the information and provide any updated information available.

IV. RISK ASSESSMENT

CHANGES/REVISIONS TO RISK ASSESSMENT:
The section was streamlined to list each hazard and the following sub-sections were included under each hazard – hazard description, hazard history and a vulnerability assessment for each hazard. An additional sub-section with information on future probability amidst a changing climate was added for each hazard.

Presidential disaster declarations were added.

Information on Vulnerable Populations, including social vulnerability was added.

Tables with tax assessed values of structures were added to estimate the value of potential losses.

IDENTIFYING HAZARDS

Requirement 201.6(c)(2)(i)*. The risk assessment shall include a description of the type, location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.*

> ***Element B1-a.*** *Does the plan describe all natural hazards that can affect the jurisdiction(s) in the planning area, and does it provide the rationale if omitting any natural hazards that are commonly recognized to affect the jurisdiction(s) in the planning area?*
> ***Element B1-b.*** *Does the plan include information on the location of each identified hazard?*
> ***Element B1-c.*** *Does the plan describe the extent for each identified hazard?*
> ***Element B1-d.*** *Does the plan include the history of previous hazard events for each identified hazard?*
> ***Element B1-e.*** *Does the plan include the probability of future events for each identified hazard? Does the plan describe the effects of future conditions, including climate change on the type, location and range of anticipated intensities of identified hazards?*

IDENTIFYING HAZARDS

A comprehensive list of hazards was evaluated and placed into three separate categories depending on the likelihood of the disaster occurring in the WarHawk District. 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 WarHawk jurisdiction any time in the future were placed in the Unlikely to Occur column.

Due to the topographical features of the area and the nature of the natural hazards that affect the geographical area covered by this plan, most areas of the WarHawk District boundaries have similar likelihood of being affected by the natural hazards identified, unless otherwise noted. Only the natural hazards from the High Probability and Low Probability Columns will be further evaluated throughout this plan. Manmade hazards and hazards in the Unlikely to Occur column will not be further evaluated in the plan. Hazards were identified for this plan in several

ways, including: observing development patterns, receiving input from jurisdictions, holding public meetings, public survey, historical occurrences, evaluating previous disaster declarations and consulting the *2024 State Hazard Mitigation Plan* and *South Dakota Hazard Identification and Risk Assessment 2022, NOAA Storm Events Database,* direct outreach to the State Fire Marshal's Office.

Plan participants considered the following hazards but decided not to include them in this analysis because they are unlikely to occur in the area and if they do occur, they rarely cause damage: Earthquakes, Landslides, Subsidence. They did note that a 3.7 earthquake was reported in May 2024 just south of the WarHawk District. On the rare occasion that earthquakes do occur in South Dakota, they rarely cause damage. Landslides have occurred in rare, isolated instances in Walworth County. Plan participants noted that they haven't caused major damage and due to the rare occurrence determined that they are not a hazard to the area. Other hazards that have never occurred in South Dakota and were not part of this analysis are: avalanches, coastal erosion, coastal storms, hurricanes, tsunamis and volcanoes.

According to the public survey conducted, 90% of the people responding to the survey said they have been affected by a natural disaster in the last 5 years. Of those impacted, nearly 80% said they had been impacted by Severe Winter Weather, followed by Strong Winds (63%); Severe Summer Storms (60%); Drought (38%); Extreme Temperatures (27%) and Flooding (22%). Over 90% said that the natural hazard caused damage to personal property. Thirty four percent (34%) had to take an alternate route to work, school, etc.

When asked which natural hazards were mostly likely to occur in their area, 100% of respondents said Severe Winter Weather, followed by Severe Summer Weather (92%), Strong Winds (92%), Drought (80%), Wildfire (63%), Extreme Temperatures (56%), Tornados (54%), and Flooding (41%).

When asked about mitigation strategies that could reduce impacts from natural hazards, many respondents talked about the need to keep the public informed and educated; storm shelters; notification and alert systems immediately before a weather event occurs, and backup generators.

Thirty seven percent (37%) of respondents did not know where a storm shelter was located in their area. Forty eight percent (48%) of respondents learned about the WarHawk District's Natural Hazard Mitigation Plan for the first time after taking this survey, indicating that the survey was an effective tool for informing the public about the plan.

Table 4.2 is a comprehensive list of natural hazards completed by plan participants located within WarHawk District.

Table 4.1: Natural Hazards Categorized by Likelihood of Occurrence Campbell County

High Probability	Low Probability	Unlikely to Occur
Blizzard	Dam Failure	Avalanche
Extreme Cold	Drought	Coastal Erosion
Extreme Heat	Tornado	Coastal Storm
Flash Flood		Earthquake
Flood		Hurricane
Freezing Rain/Sleet/Ice		Landslides

Hail		Subsidence
Heavy Rain		Tsunami
Heavy Snow		Volcanoes
Ice Jam		
Lightning	** Utility interruptions are not a natural hazard but often occur as a result of natural hazards such as ice storms and strong winds.	
Rapid Snow Melt		
Strong Winds		
Thunderstorm		
Utility Interruption**		
Wildfire		

Table 4.2: Natural Hazards Categorized by Likelihood of Occurrence Corson County		
High Probability	**Low Probability**	**Unlikely to Occur**
Blizzard	Dam Failure	Avalanche
Drought	Flash Flood	Coastal Erosion
Extreme Cold	Flood	Coastal Storm
Extreme Heat	Ice Jam	Earthquake
Freezing Rain/Sleet/Ice	Rapid Snow Melt	Hurricane
Hail	Tornado	Landslides
Heavy Rain		Subsidence
Heavy Snow		Tsunami
Lightning		Volcanoes
Strong Winds		
Thunderstorm	** Utility interruptions are not a natural hazard but often occur as a result of natural hazards such as ice storms and strong winds.	
Utility Interruption**		
Wildfire		

Table 4.3: Natural Hazards Categorized by Likelihood of Occurrence Dewey County		
High Probability	**Low Probability**	**Unlikely to Occur**
Blizzard	Flash Flood	Avalanche
Drought	Flood	Coastal Erosion
Extreme Cold	Ice Jam	Coastal Storm
Extreme Heat	Tornado	Dam Failure
Freezing Rain/Sleet/Ice		Earthquake
Hail		Hurricane
Heavy Rain		Landslides
Heavy Snow		Subsidence
Lightning		Tsunami
Rapid Snow Melt		Volcanoes
Strong Winds	** Utility interruptions are not a natural hazard but often occur as a result of natural hazards such as ice storms and strong winds.	
Thunderstorm		
Utility Interruption**		
Wildfire		

Table 4.4: Natural Hazards Categorized by Likelihood of Occurrence Walworth County

High Probability	Low Probability	Unlikely to Occur
Blizzard	Dam Failure	Avalanche
Drought	Flash Flood	Coastal Erosion
Extreme Cold	Flood	Coastal Storm
Extreme Heat	Ice Jam	Earthquake
Freezing Rain/Sleet/Ice		Hurricane
Hail		Landslides
Heavy Rain		Subsidence
Heavy Snow		Tsunami
Lightning		Volcanoes
Rapid Snow Melt	** Utility interruptions are not a natural hazard but often occur as a result of natural hazards such as ice storms and strong winds.	
Strong Winds		
Thunderstorm		
Tornado		
Utility Interruption**		
Wildfire		

Table 4.5: Natural Hazards Categorized by Likelihood of Occurrence Ziebach County

High Probability	Low Probability	Unlikely to Occur
Blizzard	Dam Failure	Avalanche
Extreme Cold	Drought	Coastal Erosion
Extreme Heat	Flood	Coastal Storm
Flash Flood	Tornado	Earthquake
Freezing Rain/Sleet/Ice		Hurricane
Hail		Ice Jam
Heavy Rain		Landslides
Heavy Snow		Rapid Snow Melt
Lightning		Subsidence
Strong Winds		Tsunami
Thunderstorm		Volcanoes
Utility Interruption**	** Utility interruptions are not a natural hazard but often occur as a result of natural hazards such as ice storms and strong winds.	
Wildfire		

Table 4.6: Significant Hazard Occurrences 2014-2023

Type of Hazard	# of Days with Event Since 2014	# of Years	Probability of Future Events, as a %	Source
Blizzards/Winter Storms	64	10	100%	NOAA
Dam Failure	3	10	30%	NIV and ADSO
Drought	37	10	100%	NOAA
Extreme Cold	29	10	100%	NOAA

Extreme Heat	4	10	40%	NOAA
Flash Flood	14	10	100%	NOAA
Flood	33	10	100%	NOAA
Freezing Rain/Sleet/Ice	2	10	20%	NOAA
Hail	87	10	100%	NOAA
Heavy Rain	1	10	1%	NOAA
Heavy Snow	25	10	100%	NOAA
Ice Jam		10		
Landslides		10		
Lightning		10		
Rapid Snow Melt		10		
Strong/High Winds	85	10	100%	NOAA
Thunderstorm	110	10	100%	NOAA (Thunderstorm Wind)
Tornado	6	10	60%	
Urban Fire		10		
Utility Interruption		10		
Wildfire	1,171	10		

NATURAL HAZARDS IN THE PLAN JURISDICTION

Descriptions of the natural hazards likely to occur in the Plan Jurisdiction have not been changed from the 2019 version of the WarHawk District Natural Hazard Mitigation Plan. For the purpose of consistency throughout the plan, additional definitions were included to reflect all of the hazards that have a chance of occurring in the area and all of the hazards are alphabetized.

HAZARD PROFILE [§201.6(c)(2)(ii)]

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the type of the… location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

Most of the hazards identified, such as tornados, severe wind, thunderstorms, hail, winter storms, blizzards, wildfires, etc. have the potential of occurring anywhere in the District. However, certain hazards, such as flooding and dam failure are site specific. Previous occurrences are listed individually by location in Appendix B.

There have been 5 presidential disaster declarations related to natural hazards in the last 10 years. They were all either related to flooding, sever summer storms, severe winter weather. There were also 3 presidential disaster declarations related to the COVID-19 pandemic. Table 4.7 has more detailed information on the disaster declarations.

Table 4.7 Presidential Disaster Declarations in South Dakota Including the WarHawk District

Declaration Date	Incident Period	Disaster Dec #	Type	Areas Affected	Public Assistance Cost	Individual Assistance Cost
2/1/2017	12/24/2016 - 12/26/2016	4298	Severe Winter Storm	Dewey, Ziebach, Cheynne River	$9,834,694	
6/7/2019	3/13/2019 - 4/24/2019	4440	Severe Winter Storm, Snowstorm and Flooding	Campbell, Dewey, Walworth, Ziebach, Cheynne River	$60,762,752	$2,154,577
9/23/2019	5/23/2019 - 6/7/2019	4463	Severe Storms and Flooding	Campbell, Walworth, Ziebach, Cheyenne River	$6,639,795	
10/7/2019	6/30/2019 - 7/21/2019	4467	Severe Storms, Tornadoes and Flooding	Dewey, Ziebach, Cheyenne River	$2,693,880	
3/13/2020	1/20/2020 - 5/11/2023	3536	Covid-19 Pandemic	Cheyenne River		
3/13/2020	1/20/2020 - 5/11/2023	3475	Covid-19 Pandemic	All		
4/5/2020	1/20/2020 - 5/11/2023	4527	Covid-19 Pandemic	All	$39,679,727	$9,818,687

2/27/2023	12/12/2022 - 12/25/2022	4689	Severe Winter Storms and Snowstorm	Ziebach	$2,221,241	

Additionally, the extent (i.e., magnitude or severity) of each hazard, information on previous occurrences of each hazard and the probability of future events (i.e., chance or occurrence) for each hazard are addressed in the following tables. The information provided in the tables is not a complete history, but rather an overview of the hazard events which have occurred over the last ten years. The complete 10-year history can be found in Appendix B.

Future Probability was created using historical data when applicable and consideration for future climate change considerations.

Weather patterns can increase in magnitude and frequency due to climate change and its effects on weather patterns. According to Laura Edwards, State of South Dakota Climatologist, weather extremes will become more common as climate change shifts average temperatures upwards. The swings from high to low precipitation will not be as gradual. Winters will become warmer on average as the climate continues to shift.

DAM FAILURE

Hazard Description

Dams function to serve the needs of flood control, recreation, and water management. During a flood, a dam's ability to serve as a control agent may be challenged. An excessive amount of water may result in a dam breach, simply an overflowing. Dams that are old or unstable, dams that receive extreme amounts of water, or dams that get debris pile-up behind their face may result in dam failure, a cracking and/or breaking.

Dams in the WarHawk District					
	Campbell	**Corson**	**Dewey**	**Walworth**	**Ziebach**
Number of Dams	24	74	105	26	108
Number of High Hazard Dams	0	1	2	0	3
Number of Significant Hazard Dams	0	13	0	0	2
High Hazard dams are those where failure or mis-operation will probably cause loss of human life.					
Significant Hazard dams are those where failure or mis-operation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities or other impacts.					

National Inventory of Dams and Association of State Dam Safety Officials

High Hazard Dams in the WarHawk District							
	County	**Condition Assessment**	**Date of**	**Date Completed**	**Max Storage**	**Owner**	**Notes**

			Inspection				
Standing Rock No. 1	Corson	Not Available	2012	1991	315 acre ft	BIA	1 mile from Bullhead (pop. 308)
Brueschke Dam	Dewey	Fair	2018	1933	1,149 acre ft	City of Eagle Butte	
Isabel Dam	Dewey	Fair	2018	1935	2,432 acre ft	SD GF&P	
Clarence Smith Dam	Ziebach	Poor	2018	1958	81 acre ft	Private	
Bud Young Section 3	Ziebach	Poor	2018	1957	66 acre ft	Private	
Bednar Dam	Ziebach	Poor	2021	1933	1,439 acre ft	SD School & Public Lands	2 miles from Dupree (pop. 494)

National Inventory of Dams	
Classification Definitions	
Satisfactory	No existing or potential deficiencies are recognized
Fair	No existing dam safety deficiencies are recognized for normal loading conditions. Rare or extreme hydraulic and/or seismic events may result in a dam safety deficiency.
Poor	A dam safety deficiency is recognized for loading conditions which may realistically occur. Remedial action is necessary.
Unsatisfactory	A dam safety deficiency is recognized that requires immediate or emergency remedial action.
Not Rated	This dam has not been inspected or has been inspected but not rated.

According to the National Inventory of Dams, the WarHawk District has 337 dams, fifteen are noted as having a Significant hazard risk rating, and six are noted as having a High downstream hazard potential.[1]

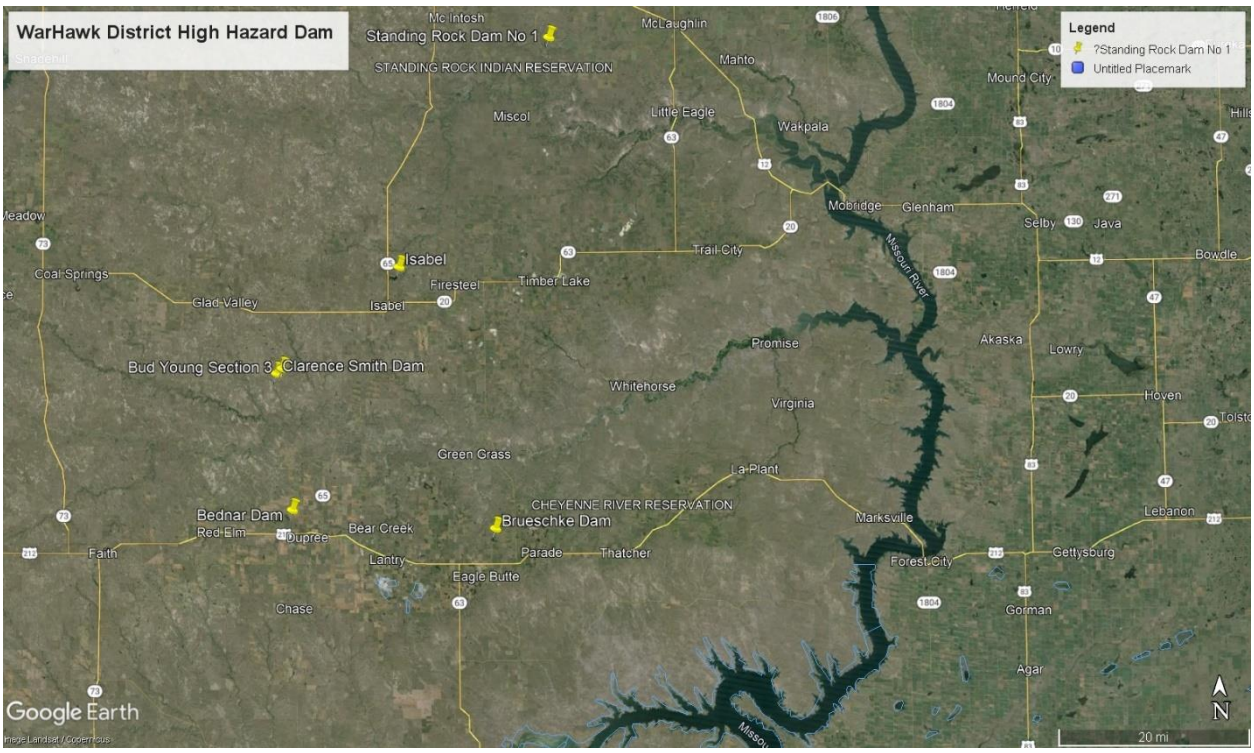
Hazard History

There have been three dam incidents in the district according to the Association of Dam Safety Officials. In 2014, Buffalo Lake Road Dam 1 and 2 in Ziebach County failed.[2] Based on news reports and SD Dam Safety info it appears that CMP spillways deteriorated and failed causing internal erosion and sink holes. High water in the lake exacerbated the erosion. Both dams are owned by the SD Department of Transportation.

In 2018, the Lake Hiddenwood Dam in Walworth County failed after the area received 13 inches of rain in a single storm. There were no habitable structures in the downstream floodplain. The bridge across the dam's spillway and gravel road across the crest were washed out. The

[1] National Inventory of Dams. 2024.
[2] Association of Dam Safety Officials. Dam Failures and Incidents. 2024.

downstream cropland areas experienced some flash flooding. Access to the state park was cutoff when the road washed out. In the summer of 2022, the park entrance road was redone. The 1927 dam has not been rebuilt. Local residents have encouraged the South Dakota Game Fish & Parks (owner of the dam) to rebuild but are uncertain if that will happen.



Map 4.8 Information taken from National Inventory of Dams

Future Probability Amidst A Changing Climate

Heavy rainfall is increasing in intensity and frequency across the United States and globally and is expected to continue to increase.[3] These heavy rainfall events increase the risk of dam failure, such as that with the Hiddenwood Dam. Flooding caused by heavy rains could create situations such as overtopping. Future climate variations could have a greater impact on older dams, whose construction wasn't designed for more intense wet and dry weather patterns.

Vulnerability Assessment

Most of these dams are in areas where if failure occurred, there would be little damage to property. High-risk dams have the risk of not only property damage, but more importantly loss of life. The classification is based on the potential of downstream consequences of the dam failing, not the condition of the dam. It is due to this reason that these dams are required to have an emergency action plan in the event of a failure. In addition, there is a requirement by the state of South Dakota that all high-risk dams are inspected every five years.

Vulnerable populations would be those with potential to be impacted by the downstream hazard, such as homeowners or travelers on roadways. Crops and/or pastureland are also vulnerable to a dam failure.

[3] Wuebbles, D.J., et. Al. 2017: Executive summary. In: Climate Science Special Report: Fourth National Climate Assessment, Volume I U.S. Global Change Research Program, Washington, DC.

During the risk assessment activity at the planning meetings, participants in all counties identified that they have a low vulnerability to dam failure, except for the City of Herreid because there is a manmade earthen berm that is regulated by the Corps of Engineers which detains water from Spring Creek. If the dike failed or was breached, it could take out a majority of houses and businesses in Herreid. However, they have recognized that the probability of a failure of this dike is low.

DROUGHT

Hazard Description

According to the 2015 South Dakota Drought Mitigation Plan, drought is a complex and a gradual phenomenon in South Dakota. Although droughts can be characterized as emergencies, they differ from other emergency events in that most natural disasters, such as floods or forest fires, occur relatively rapidly and afford little time for preparing for disaster response. Droughts typically occur slowly, over a multi-year period, and it is often not obvious or easy to quantify when a drought begins and ends.[4]

Drought is an extended period of months or years when a region notes a deficiency in its water supply. Generally, this occurs when a region receives consistently below average precipitation. It can have a substantial impact on the ecosystem and agriculture of the affected region. Although droughts can persist for several years, even a short, intense drought can cause significant damage and harm the local economy. Drought can have a widespread impact on agriculture.

The fact that 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. Table 4.9 identifies drought occurrences from the past 23 years.

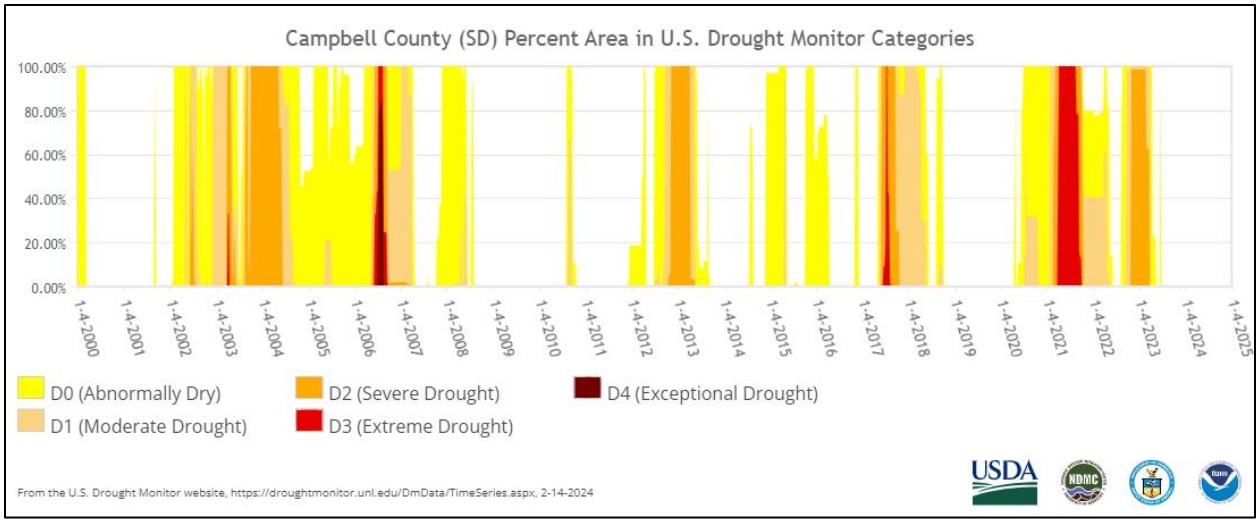
Hazard History

Table 4.9 23 Year Drought History

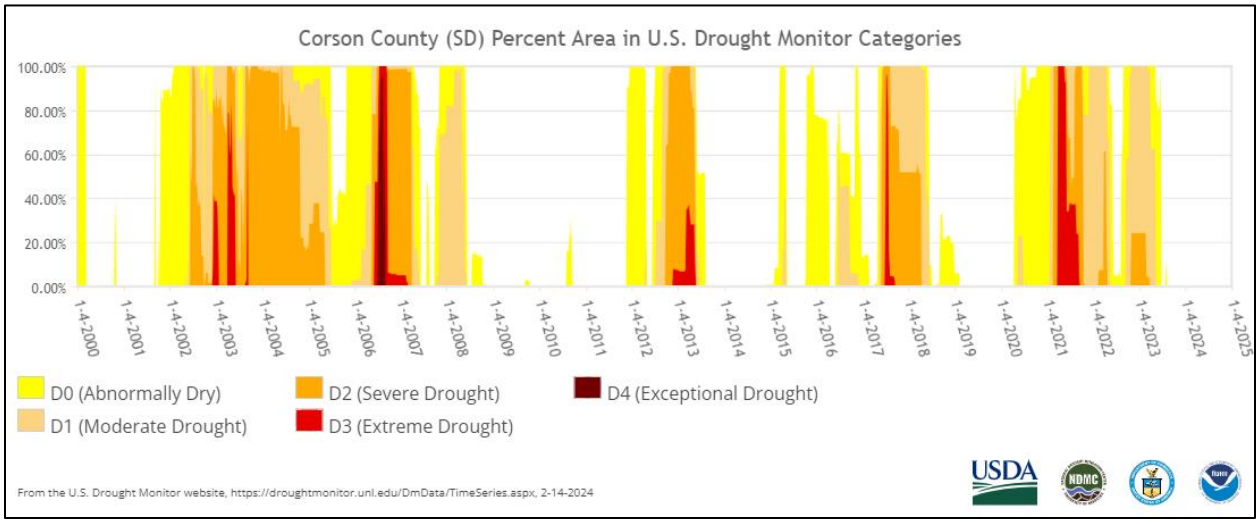
Location	D0	D1	D2	D3	D4
Campbell	14	12	8	3	1
Corson	18	15	9	5	1
Dewey	16	13	9	6	1
Walworth	18	16	10	4	1
Ziebach	17	15	11	10	4

US Drought Monitor. Time Series. 2024

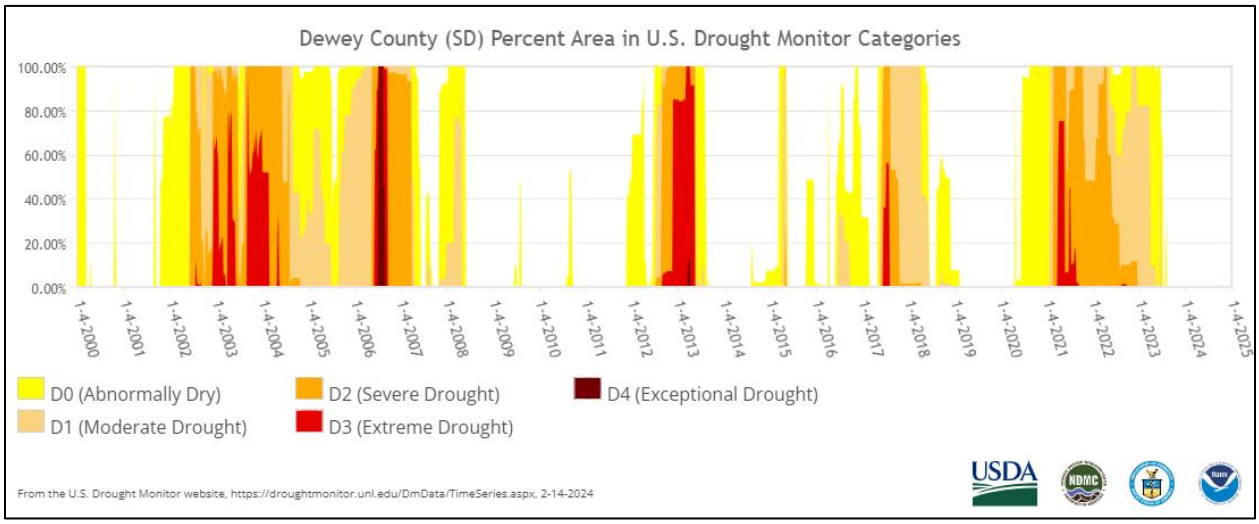
[4] South Dakota Drought Mitigation Plan. 2015.



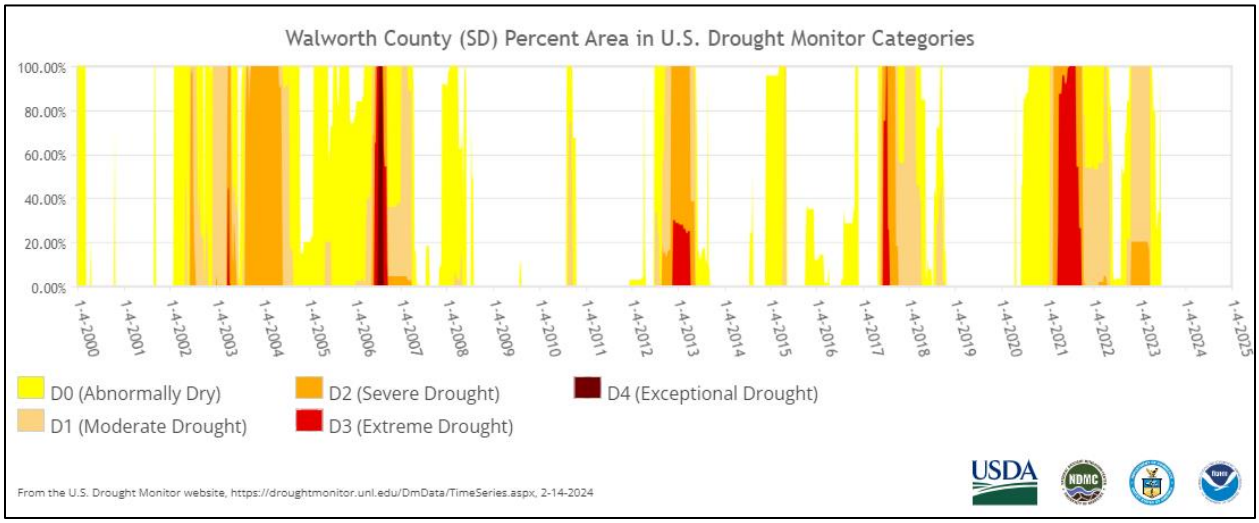
Campbell County Drought Conditions 2000 – 2023



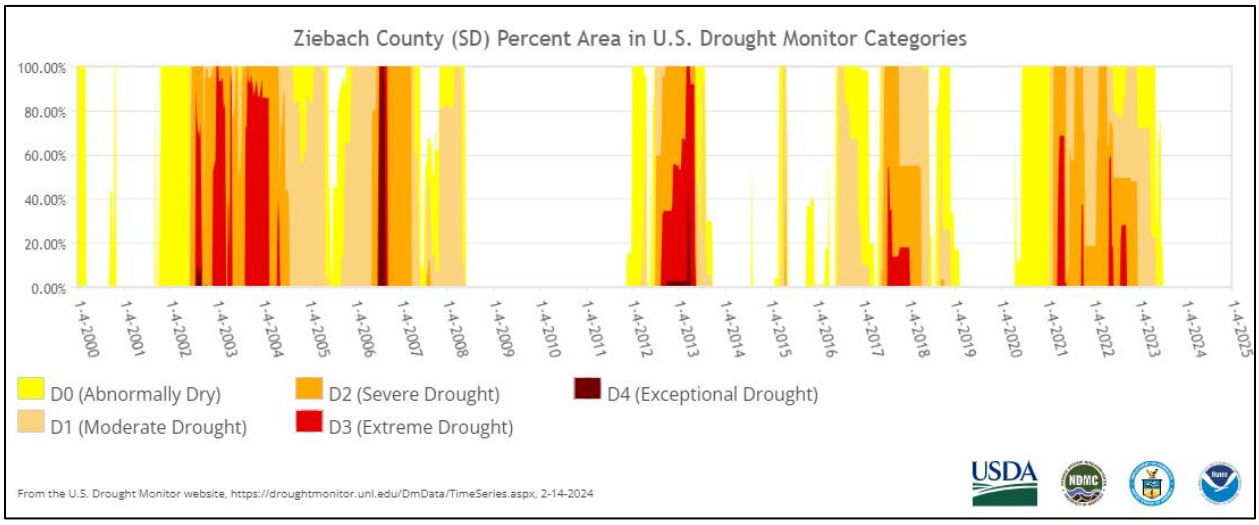
Corson County Drought Conditions 2000 – 2023



Dewey County Drought Conditions 2000-2023



Walworth County Drought Conditions 2000-2023



Ziebach County Drought Conditions 2000-2023

Drought Category System
D0 – Abnormally Dry
D1 – Moderate Drought
D2 – Severe Drought
D3 – Extreme Drought
D4 – Exceptional Drought

Hazard History and Future Probability					
Event Type	**Abnormally Dry**	**Moderate Drought**	**Severe Drought**	**Extreme Drought**	**Exceptional Drought**
Number of Years with Event (avg of 5 counties)	16	14	9	5	1

Years of Data	24 (2000 – 2023)	24 (2000 – 2023)	24 (2000 – 2023)	24 (2000 – 2023)	24 (2000 – 2023)
Probability of Future Event in Any Given Year	67%	58%	38%	21%	4%
Probability Calculation	16/24 = 67%	14/24 = 58%	9/24 = 38%	5/24 = 21%	1/24 = 4%

In the public survey, 80% of respondents said that drought is likely to occur in their county and 38% had been negatively affected by drought in the past five years.

A strong possibility exists for simultaneous emergencies during droughts. Wildfires are the most common. The accuracy of the fire history is questionable, because the State Fire Marshal's Office collects information from the County, thus the accuracy of the information reported relies on the local fire departments, some of which are volunteer fire departments, which are responsible for filing the reports.

Future Probability Amidst A Changing Climate

The intensity of droughts is projected to increase. Droughts are a natural part of the climate system, and because the projected precipitation increases are expected to occur during the cooler months, South Dakota will remain vulnerable to periodic drought. Increases in evaporation rates due to rising temperatures may increase the rate of soil moisture loss and the intensity of naturally occurring droughts.[5]

Vulnerability Assessment

South Dakota's economy is closely tied to agriculture which magnifies the potential loss which could be suffered by the state's economy during drought conditions. The agriculture sector is severely affected by the lack of vegetation and water for livestock. Crop and pasture yields can be greatly diminished during periods of drought. The counties within the WarHawk District are very dependent on agriculture – mainly livestock production.

South Dakota's Drought Mitigation Plan states that a decrease in the amount of precipitation can adversely affect stream flows and reservoirs, lakes, and groundwater levels. With the lower levels of moisture caused by drought, the chance of wildfire increases. Drought can also impact many factors, both directly and indirectly. These factors include higher water and food prices, water restrictions, air and water quality, and restricted access to recreational areas.

During the risk assessment activity at the planning meetings, participants in all counties identified that they are highly vulnerable to drought. While it may not occur every year, drought can be devastating to the agricultural economy, damaging crops and grass available for livestock, as well as the local economies that depend on agriculture and farmers/ranchers to keep the economy growing. Small businesses in rural areas can be greatly impacted by drought if farmers/ranchers aren't spending money at these small businesses.

EXTREME TEMPERATURES

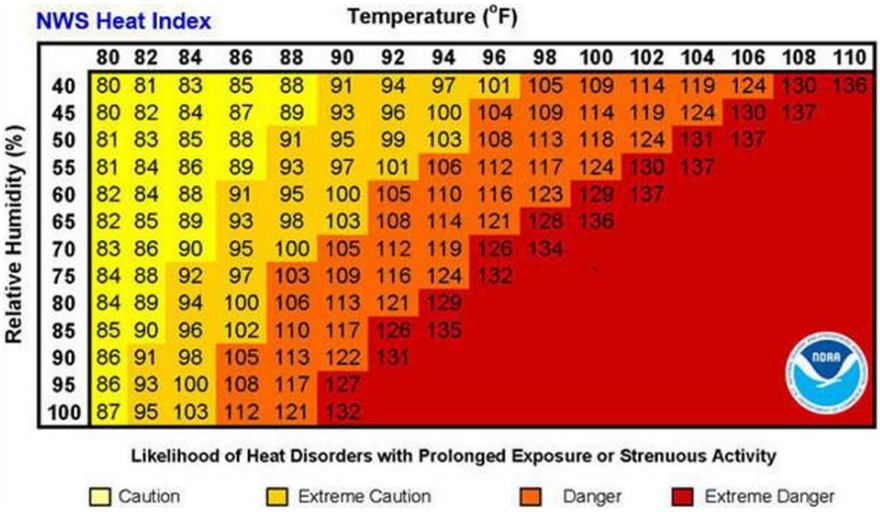
Hazard Description

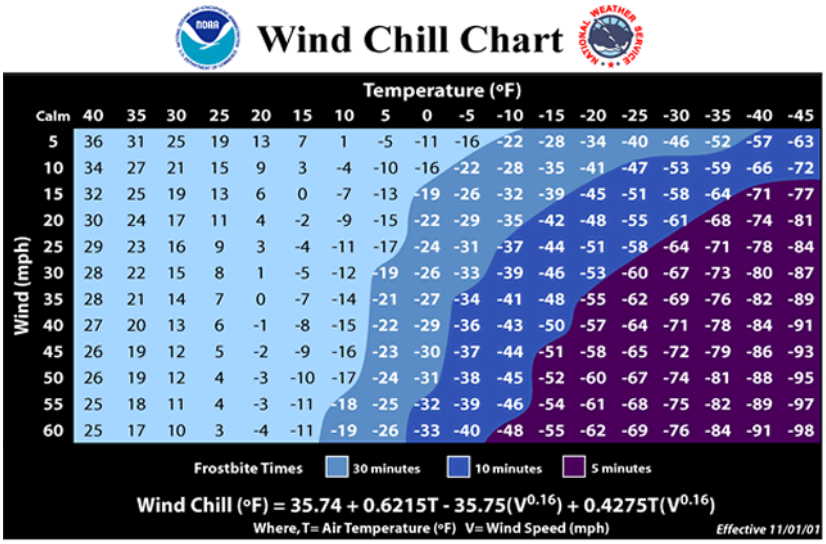
[5] State Climate Summaries. 2022. NOAA National Centers for Environmental Information. HTTPS://STATESUMMARIES.NCICS.ORG/CHAPTER/SD/

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, Central 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 WarHawk District Mitigation jurisdiction area as temperatures below zero. The coldest temperature ever recorded in South Dakota was at McIntosh, -58F on February 17, 1936

Extreme Cold temperatures often accompany a winter storm, so power failures and icy roads are common occurrences. Whenever temperatures drop decidedly below normal and as wind speed increases, heat can leave the body more rapidly. These weather-related conditions may lead to serious health problems.

Extreme Heat, also known as a Heat Wave, is a prolonged period of excessively hot weather, which may be accompanied by high humidity. According to information provided by FEMA, extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks. Temperatures in WarHawk District have a very wide range typically between 0-100 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 temperatures in WarHawk District are common occurrences. It is expected that at least two times each year there will be extreme heat and extreme cold in the area. The information was found on the NOAA website and can be found in Appendix B. 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. It is also possible that the information has only in recent years been tracked or reported.

Hazard History and Future Probability				
Event Type	**Cold/Wind Chill**	**Extreme Cols/Wind Chill**	**Heat**	**Excessive Heat**
Number of Days with Event	4	29	0	4
Number of Years with Event	3	9	0	3
Years of Data	10 (2014-2023)	10 (2014-2023)	10 (2014-2023)	10 (2014-2023)
Possible Number of Days with Event per Year	.4	2.9	0.0	.4
Occurrence Calculation	4/10 = .4	29/10 = 2.9	0/10 = 0	4/10 = .4
Probability of Future Event in Any Given Year	30%	90%	0%	30%
Probability Calculation	3/10 = 30%	9/10 = 90%	0/10 = 0%	3/10 = 30%

The National Risk Index shows all counties in the WarHawk District have a relatively moderate to relatively high risk for a cold wave and a relatively low risk for a heat wave.

In the public survey, 56% of respondents said that extreme temperatures are likely to occur in their county and 27% had been negatively affected by drought in the past five years.

Future Probability Amidst A Changing Climate

Extreme temperatures in the contiguous United States are projected to increase even more than average temperatures (very high confidence). Both extremely cold days and extremely warm days are expected to become warmer. Cold waves are predicted to become less intense while heat waves will become more intense.[6]

Vulnerability Assessment

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.

[6] Wuebbles, D.J., et. Al. 2017: Executive summary. In: Climate Science Special Report: Fourth National Climate Assessment, Volume I U.S. Global Change Research Program, Washington, DC.

Severe heat waves have caused catastrophic crop damage, thousands of deaths from hyperthermia, and widespread power failures due to increased use of air conditioning. Loss of power and crop damage are the largest vulnerability 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 WarHawk District.

During the risk assessment activity at the planning meetings, participants in all counties identified that extreme temperatures are highly likely to occur and that they have a high to medium vulnerability to extreme temperatures.

The elderly and those without central air conditioning or adequate furnaces can be the most vulnerable to extreme temperatures. Many places within the WarHawk District offer heating or cooling centers (particularly when power is out). However, they aren't always available.

The agricultural sector, especially livestock, can be particularly vulnerable to extreme temperatures. Cattle do have the ability to acclimate to changing environmental conditions. During periods of extreme cold, livestock can be particularly impacted during heavy snow or freezing rain conditions where their hides get and remain wet. Heat stress in livestock is dependent on nigh time temperatures. Animals that don't cool sufficiently at night are candidates for increased heat loads the following day. *(SDSU Extension: Cold Stress Impacts on Cattle and Heath Stress Impact on Cattle)*

FEMA's National Risk Index shows that there is a Relatively Moderate – Relatively High Risk Index for Cold Waves and a Relatively Low Risk Index for Heat Waves.

FLOOD (including Rapid Snow Melt and Heavy Rain)

Hazard Description

Flooding is a temporary overflow of water onto lands not normally covered by water. Flooding submerges land, produces measurable property damage or forces evacuation of people and vital 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. Disruption of communication, transportation, electric service, and community services, along with contamination of water supplies and transportation accidents are very possible. Floods can develop slowly as rivers swell during an extended period of rain, or during a warming trend following a heavy snow. Even a very small stream or dry creek bed can overflow and create flooding. Two different types of flooding hazards are present.

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. Flooding is a longer event than flash flooding. Flooding can last for days to weeks.

2. Flash flooding is typical during the summer months. This flooding is primarily localized, though enough rain can be produced to cause inundation flooding in areas along rivers and streams. Heavy, slow moving thunderstorms often produce large amounts of rain. The threat of flooding would be increased during times of high soil moisture. Debris carried by floodwaters can significantly compromise the effectiveness of otherwise adequately designed bridges, dams, culverts and other structures. Flash flooding is typically a shorter event than inundation flooding. Flash flooding is generally inundation

flooding lasting less than 6 hours. Flash flooding often occurs after heavy or excessive rains.

Heavy rains, which often precede flash flooding is defined as precipitation falling with intensity in excess of 0.30 inches (0.762 cm) per hour. Short periods of intense rainfall can cause flash flooding while longer periods of widespread heavy rain can cause rivers to overflow.

Hazard History and Future Probability			
Event Type	**Flash Flood**	**Flood**	**Heavy Rain**
Number of Days with Event	14	33	1
Number of Years with Event	9	8	10
Years of Data	10 (2014-2023)	10 (2014-2023)	10 (2014-2023)
Possible Number of Days with Event per Year	1.4	3.3	0.1
Occurrence Calculation	14/10 = 1.4	33/10 = 3.3	1/10 = 0.1
Probability of Future Event in Any Given Year	90%	80%	10%
Probability Calculation	9/10 = 90%	8/10 = 80%	1/10 = 10%

In the public survey, 41% of respondents said that flooding is likely to occur in their county and 22% had been negatively affected by flooding in the past five years.

While many of the stakeholders said that flooding is not a major concern in the WarHawk District, The *South Dakota State Hazard Mitigation Plan 2019* points out that the special flood hazard areas are expected to increase nationwide by as much as 40%-50% over the next 100 years. This is attributed not only to the increase in precipitation but also to the increased urbanization of areas.

Hazard History

There are areas of Corson County that occasionally experience flash flooding – after a heavy rain or a rapid snowmelt but it doesn't usually cause significant damage.

During the Dewey County planning meeting, participants noted that the areas of Promise, Blackfoot and White Horse have experienced flooding. Most of the impact is to culverts and roads. Ice Jams on the Little Moreau River can damp up and cause flooding to roads – particularly in the White Horse area. Dewey County and portions of Timber Lake have scattered county roads that are susceptible to flooding during heavy rain or rapid snowmelt events.

Some areas in Mobridge can experience flash flooding during heavy rain events until the storm sewer system can take in the excess water. Walworth County will occasionally need to close a road due to flash flooding.

During the Ziebach County planning meeting, participants noted that the areas along Cherry Creek, Bridger and along the Cheyenne river can be impacted by flooding. Dupree can also experience some flash flooding during heavy rain events but it doesn't usually cause significant damage. Ice jams can also occur on the Cheyenne River and cause flooding.

Future Probability Amidst A Changing Climate

With several large rivers running through the state, including the Missouri River, flooding is a great hazard. The frequency of extreme precipitation events has increased. Since 1990, South Dakota has averaged 22% more 2-inch rain events compared to the long-term average.[7]

The Northern Great Plains region is expected to see an increase in less frequent but more extreme precipitation events accompanied by longer periods without precipitation. Flooding is more likely to occur when drier soils are inundated with heavy amounts of water. As the region sees drier conditions with periods of extreme precipitation, it is more likely the amount of flash flooding events will also increase. Precipitation amounts vary from season to season. Over the past decades, general precipitation has increased throughout the United States. The season with the greatest increase was fall, which has had an increase of 15% since the twentieth century. The winter months and summer months have shown a negative percent change over time, in some areas as much as -5% to -10%.[8]

Vulnerability Assessment

During the risk assessment activity at the planning meetings, there were varying results about vulnerability to flooding among the five counties and even within a county.

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

Heavy Rain causes damage to property such as homes and roads. Often when heavy rains occur in WarHawk District it causes 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 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 5-10 miles out of the way. All areas of the County are vulnerable when heavy rains occur. Storm sewers are built for the typical storm and therefore do not accommodate for excessive or heavy rains.

NFIP: [§201.6(c)(2)(ii)] *All plans approved after October 1, 2008 must also address NFIP insured structures that have been repetitively damaged by floods.*

Within the WarHawk District, all of the Counties and some of the Cities participate in the National Flood Insurance Program. Many of the jurisdictions are identified as having No Special Flood Hazard Area (NSFHA). Some have an identified Flood Hazard Boundary Map (FHBM) and some have a Flood Insurance Rate Map (FIRM). A couple have both but many have neither. Both tribes participate in NFIP and both have a FIRM map.

[7] State Climate Summaries. 2022. NOAA National Centers for Environmental Information. HTTPS://STATESUMMARIES.NCICS.ORG/CHAPTER/SD/

[8] Wuebbles, D.J., et. Al. 2017: Executive summary. In: Climate Science Special Report: Fourth National Climate Assessment, Volume I U.S. Global Change Research Program, Washington, DC.

There are four policies in force in the five county District County with a total of $950,000 in coverage. There have been four claims that have been paid in the past totaling $169,369. There have been 0 repetitive losses and 1 substantial damage claim.

Table 4.10 NFIP Participation						
CID #	Community Name	County	Initial FHBM Identified	Initial FIRM Date	Curr Eff Map Date	Reg-Emer Date
Communities Participating in the National Flood Program						
460256	Campbell County	Campbell			NSFHA	6/8/98
461207	Artas, City of	Campbell			NSFHA	6/8/98
460181	Herreid, City of	Campbell	7/11/75	7/1/98	7/1/98(L)	7/1/98
460132	Pollock, City of	Campbell	6/27/75		NSFHA	6/8/98
460237#	Corson County	Corson		5/17/04	5/17/04	6/8/98
460195#	McIntosh, City of	Corson	9/19/75	5/17/04	NSFHA	6/8/98
460023	Dewey County	Dewey			NSFHA	6/8/98
460170	Eagle Butte, City of	Dewey	11/12/76	7/1/98	7/1/98(L)	7/1/98
460122	Isabel, City of	Dewey			NSFHA	6/8/98
460291	Walworth County	Walworth			NSFHA	6/8/68
460292	Ziebach County	Ziebach			NSFHA	6/8/98
460169	Dupree, City of	Ziebach	4/25/75	7/1/98	7/1/98(L)	7/1/98
461219	Standing Rock Indian Reservation	Corson		5/17/04	5/17/04	5/4/98
461203#	Cheynne River Indian Reservation	Dewey/ Ziebach		5/3/04	5/3/04	6/8/98
Communities Not in the National Flood Program						
460214	Selby, City of	Walworth	7/25/75		11/7/78	7/25/76
Communities not identified as Participating or Non-Participating						
	Mound City	Campbell				
	McLaughlin	Corson				
	Morristown	Corson				
	Timber Lake	Dewey				
	Akaska	Walworth				
	Glenham	Walworth				
	Java	Walworth				
	Lowry	Walworth				
	Mobridge	Walworth				
(L) Original FIRM by Letter – All Zone A, C and X NSFHA – No Special Flood Hazard Area						

Specific areas that are or could be prone to flooding are designated in the FIRMS which are included as Appendix E.

Community Rating System Program

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities

that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS:

1. Reduce flood damage to insurable property;
2. Strengthen and support the insurance aspects of the NFIP, and
3. Encourage a comprehensive approach to floodplain management.

CRS is voluntary and up to each community. None of the jurisdictions within WarHawk District participate.

ICE JAMS

Hazard Description

Ice Jams occur when warm temperatures and heavy rain cause snow to melt rapidly. Snow melt 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 other obstructions, such as bridges and dams. Ice jams can damage bridges, roads, and culverts.

Hazard History and Future Probability

Ice Jams on the Little Moreau River in Dewey County can dam up and cause flooding to roads – particularly in the White Horse area. Ice jams can also occur on the Cheyenne River in Ziebach County and cause flooding. There was no reported damage from these events.

Historical ice jam data is limited so it can be difficult to predict future occurrences.

Vulnerability Assessment

Overall, ice jams aren't a major concern in the WarHawk District. Ice Jams cause damage to bridges, roads, and culverts due to water currents pushing large chunks of ice under or through small openings.

There were some concerns about ice jams in Campbell County and Herreid. In the risk assessment activity at the planning meetings, participants in Campbell County, Herried, Ziebach County, Dupree and Eagle Butte identified that they have a medium vulnerability to ice jams.

LANDSLIDE

Hazard Description

Landslides are 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 *2024 South Dakota Hazard Mitigation Plan* shows that the WarHawk District is susceptible to landslides but also shows a low annualized frequency. The expected annualized loss in the WarHawk District is low to moderate. Landslides are most likely to occur along the riverbanks.[9]

Past Events

Landslides have a rare chance of occurring in WarHawk District. There was previously one area that was a concern but has already been mitigated. The location is a rural area east of the City of Mobridge. Lakeside Church is located in the area, near a river draw. They have removed part of the church building that was nearest the draw and over the area of concern. There is no longer a hazard to the building due to the mitigation efforts they've completed.

Over the years, the State of South Dakota and in particular the SDDOT have stabilized one potential landslide area in Walworth County. It was at the U.S. 12 Missouri River Crossing at Mobridge. Stone columns were used for the first time in the United States to stabilize a clay-shale landslide. [10]

Future Probability Amidst A Changing Climate

Historical landslide data is limited so it can be difficult to predict future occurrences.

Climate variations have the potential to increase the likelihood of landslides. With heavy rain events being one of the causes for landslides, the projected increase of heavy rainfall can cause a higher likelihood of landslides, especially in areas with past occurrences. [11]

Vulnerability Assessment

During the risk assessment activity at the planning meetings, participants in Campbell County said this is not a hazard in their area. Dewey, Walworth and Ziebach County participants identified a low probability of occurrence and a low vulnerability to landslides. Corson County participants said that landslides were unlikely to occur.

Due to a lack of data on historical landslide occurrences, it is difficult to assess vulnerability. FEMA's National Risk Index indicates a low to moderate risk for landslides in the WarHawk District.

SUMMER STORMS (including Hail, Lightning, Thunderstorm Winds)

Hazard Description

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. Summer storms are considered a weather event rather than a natural hazard; therefore, summer storms are not evaluated as a natural hazard throughout this plan.

Hail is formed through rising currents of air in a storm. Currents carry water droplets to a height at which they freeze and fall to Earth as round ice particles. Can measure from 5 mm – 150 mm in diameter.

[9] State of South Dakota Hazard Mitigation Plan. 2024.
[10] State of South Dakota Hazard Mitigation Plan. 2024.
[11] Wuebbles, D.J., et. Al. 2017: Executive summary. In: Climate Science Special Report: Fourth National Climate Assessment, Volume I U.S. Global Change Research Program, Washington, DC.

Lightning results from a buildup of electrical charges formed during 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.

Thunderstorms are formed when moisture, rapidly rising warm air, and a lifting mechanism such as clashing warm and cold air masses combine. The three most dangerous items associated with thunderstorms are hail, lightning, and strong winds. Thunderstorms and high wind occurrences in the County are also very common. Appendix B denotes the extent and severity of such hazards. The County continues to educate residents of the dangers of such storms through public service announcements and other printed media.

Past Events

Lightning is common in this region; it is evident that the information reported on the NOAA Storm Event Database is inaccurate and incomplete. The complete history can be found in Appendix B.

Obviously, with such a high number of occurrences it is reasonable to expect that at least some property or crop damage was sustained in the communities during some of the occurrences, 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.

Hazard History and Future Probability			
Event Type	**Hail**	**Lightning***	**Thunderstorm Wind**
Number of Days with Event	87	0	110
Number of Years with Event	10	0	10
Years of Data	10 (2014-2023)		10 (2014-2023)
Possible Number of Days with Event per Year	8.7		11
Occurrence Calculation	87/10 = 8.7		110/10 = 11
Probability of Future Event in Any Given Year	100%	100%*	100%
Probability Calculation	10/10 = 100%		10/10 = 100%

In the public survey, 92% of respondents said that summer storms are likely to occur in their county and 60% had been negatively affected by summer storms in the past five years.

Future Probability Amidst A Changing Climate

As the atmosphere warms further due to climate change, the increased heat in the atmosphere provides more energy for severe storms. The frequency of severe weather events has increased steadily over the last century. The number of weather- related disasters during the 1990s was four times that of the 1950s, and cost 14 times as much in economic losses.

Historical data shows that the probability for severe weather events increases in a warmer climate.[12]

Vulnerability Assessment

During the risk assessment activity at the planning meetings, participants in all counties identified that they have a medium to high vulnerability to summer storms and corresponding hazards such as hail, heavy rain, lightning and thunderstorms.

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.

Hail causes damage to property such as crops, vehicles, windows, roofs, and structures. WarHawk District and its local jurisdictions are vulnerable to hail, like most other areas in the State due to the nature of the hazard. Mitigating for hail is difficult and is usually found in the form of insurance policies for structures, vehicles, and crops.

Water towers, cell phone towers, power lines, trees, and common buildings and structures all have the possibility of being struck by lightning. Lightning strikes are known to cause wildfires.

Often associated with summer storms are utility problems. Electrical transmission lines are susceptible to breaking during high winds and hail. Tall trees located near electrical lines can be broken in wind or by lightning strikes and land on electrical lines, severing connections. Any electrical complications bring associated risk of food spoilage, appliance burnout, loss of water, and potential harm to in-house life support dependents. Limited loss of power is common on an annual basis. Typical power interruptions last around 1 to 3 hours. Most residents are prepared to deal with this.

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.

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 plan.

Thunderstorms cause lightning a sometimes large amounts of rain in a small timeframe. The entire county experiences thunderstorms on a regular basis and is only vulnerable when weather events outside the norm occur.

TORNADO

Hazard Description

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 touchdown can occur. The Fujita Tornado Damage Scale categorizes tornadoes based on their wind speed:

F0=winds less than 73 m/h

[12] State of South Dakota Hazard Mitigation Plan. 2024.

F1=winds 73-112 m/h
F2=winds 113-157 m/h
F3=winds 158-206 m/h
F4=winds 207-260 m/h
F5=winds 261-318 m/h
F6=winds greater than 318 m/h

Hazard History and Future Probability		
Event Type	**Tornados**	**Magnitude**
Number of Days with Event	6	All EF0
Number of Years with Event	5	
Years of Data	10 (2014-2023)	
Possible Number of Days with Event per Year	8.7	
Occurrence Calculation	6/10 = .60	
Probability of Future Event in Any Given Year	50%	
Probability Calculation	5/10 = 50%	

Table 4.11 Fujita Tornado Damage Scale			
F-Scale	**Winds**	**Type of Damage**	**Frequency**
F0	40-72 mph	Minimal – damage to windows, roofs, trees	29%
F1	73-112 mph	Moderate – overturned cars, trees uprooted	40%
F2	113-157 mph	Major – roofs blown off homes, mobile homes overturned	24%
F3	158-206 mph	Severe – exterior walls and roofs blown off homes	6%
F4	207-260 mph	Devastating = few walls, if any, standing in well built homes	2%
F5	261-318 mph	Incredible – homes leveled; larger structures considerable damage; top stories demolished	<1%

National Weather Service

In the public survey, 54% of respondents said that tornados are likely to occur in their county and 3% had been negatively affected by tornados in the past five years.

Past Events

According to NOAA, tornadoes most often occur in the WarHawk District in June and July, but they can occur from April through September. Within this time frame, most tornadoes occur between 4 pm and 9 pm.

The annual risk for intense summer storms is high. All of WarHawk District is susceptible to tornados. 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. Gathering historical data on tornadoes and thunderstorms can be difficult due to the number of occurrences and unconfirmed reports. Each year, many storms and a few tornadoes affect the area. Summer storms in WarHawk District usually produce a wide range of damage making damage estimates very difficult. Tornado history can be found in Appendix B.

Future Probability Amidst A Changing Climate

There presently is not enough data or research to quantify the magnitude of change that climate change may have related to tornado frequency and intensity. NASA's Earth Observatory has conducted studies which aim to understand the interaction between climate change and tornadoes. Based on these studies meteorologists are unsure why some thunderstorms generate tornadoes and others do not, beyond knowing that they require a certain type of wind shear. Tornadoes come from about 1 percent of thunderstorms, usually supercell thunderstorms that are in a wind shear environment that promotes rotation.[13]

Vulnerability Assessment

During the risk assessment activity during the planning meetings, jurisdictions had different views on how likely a tornado was to occur in their area. However, most everyone agreed that if a tornado does occur, their area is highly vulnerable to damage.

Often associated with summer storms are utility problems. Electric services have historically buried powerlines in the county. When evaluating new methods of warning systems, the county and towns should evaluate that warning systems consider different vulnerable populations, such as those without access to technology, language barriers, and cognitive disabilities.

According to Headwaters Economics' *Populations at Risk* report, in Dewey County, 20% of all occupied housing units are mobile homes, which are highly vulnerable to tornados and other extreme weather events. In Ziebach County, 30% of all occupied housing units are mobile homes. The other counties in the district have a lower percentage of mobile homes: Corson (9%), Campbell (11%) and Walworth (8%).[14] During planning meetings, it was identified that there are several areas of the WarHawk District where mobile homes are common. There are also many homes in the area that don't have basements to seek shelter.

WILDLAND FIRES

Hazard Description

Wildland Fires 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 wildland fire 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.

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

[13] State of South Dakota Hazard Mitigation Plan. 2024.
[14] Headwaters Economics. Populations at Risk. 2024.

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.

A large part of the district is comprised of prairie lands. Wildfires that occur on this land type can spread quickly, especially during periods of high winds. Most fires occur in the summer months, but wildfires can occur any time of the year. Major fire events are more likely to occur during or after conditions of prolonged drought, high winds, widespread tree damage often caused by severe storms, and insect infestations. The magnitude of wildfires depends upon several different factors such as base fuel, terrain, and weather conditions.

Compared to the rest of the country, FEMA's National Risk Index scores the counties within the WarHawk District with a relatively low risk. The occurrence of major fire events is heightened when there is prolonged drought or severe storms affiliated with widespread tree damage. With a predicted decrease in precipitation and an expected higher frequency of drought conditions, the intensity and frequency of wildfire events are expected to increase.

Past Events

Information on past events was taken from two primary sources – the State Fire Marshal's Office and the National Interagency Fire Council.

The State Fire Marshal's information is derived from the reports submitted by the local fire departments who respond to the fires. For the purpose of this plan, we have used the numbers provided by the State Fire Marshal's Office as a point of reference in determining the likelihood of fire hazard occurrence within the jurisdictions. The cause of the other fires is not listed, so it is not known for certain whether all or some of these fires are result of a natural occurrence or as a result of human behavior. Additionally, information was provided about the number of injuries and fatalities reported as a result of these fires and total dollars lost. A summary of the fire incident reports is provided by county in Table 4.12.

Table 4.12 Summary of Fire Incident Reports for WarHawk District between 2012-2022

	Campbell	Corson	Dewey	Walworth	Ziebach	Total
Structure Fire	10	11	178	75	26	300
Vehicle Fire	4	23	110	60	39	236
Other Fire	48	258	537	170	232	1,245
Total Fires	62	292	825	305	297	1,781
Civilian Injuries	0	0	2	1	0	3
Civilian Fatalities	0	0	0	1	2	3
Fire Service Injuries	0	1	4	0	0	5
Fire Service Fatalities	0	0	0	0	0	0
Total Fire Losses	$94,942	$986,864	$3,160,638	$2,689,525	$1,500,485	$8,432,454

State Fire Marshal's Office

Information was also derived from the National Interagency Fire Council. This data is derived from information reported through the Integrated Reporting of Wildfire Information (IRWIN) system. The fires are all considered wildland fires and the causes of the fire are sometimes noted as: human caused, natural, undetermined. A large number of causes are not noted at all. All natural causes are further denoted as being caused by lightning.

Table 4.13 Summary of Fire Incident Reports for WarHawk District between 2014-2023

	Campbell	Corson	Dewey	Walworth	Ziebach	Total
Human Caused	0	114	107	0	91	312
Lightning	0	10	22	0	19	51
Undetermined	4	248	310	1	245	808
Total Fires Reported	4	372	439	1	355	1,171

National Interagency Fire Council

Hazard History Future Hazard Probability					
County	**Campbell**	**Corson**	**Dewey**	**Walworth**	**Ziebach**
Number of Days with Event	4	316	370	1	315
Number of Years with Event	3	10	10	1	8
Years of Data	10 (2014-2023)	10 (2014-2023)	10 (2014-2023)	10 (2014-2023)	10 (2014-2023)
Possible Number of Days with Event per Year	.4	31.6	37	.1	31.5
Occurrence Calculation	4/10 = .4	316/10 = 31.6	370/10 = 37	1/10 = .10	315/10 = 31.5
Probability of Future Event in Any Given Year	30%	100%	100%	10%	100%
Probability Calculation	3/10 = 80%	10/10 = 100%	10/10 = 100%	1/10 = 70%	10/10 = 100%

In the public survey, 63% of respondents said that wildfires are likely to occur in their county and 7% had been negatively affected by wildfires in the past five years.

Future Probability Amidst A Changing Climate

Wildfire conditions across South Dakota and the western United States in general are likely to worsen in the future due to climate change. This is due to increasing temperatures, an increase in annual precipitation, and drought as a regular occurrence. The increase in temperatures can dry out fuels more rapidly. The increase in moisture can provide favorable conditions for fuel (vegetation) growth.[15]

Vulnerability Assessment

During the risk assessment activity at the planning meetings, there were varying results about vulnerability to wildland fires among the five counties and even within a county.

Since there are no remote forested regions in WarHawk District wildfires can be easily spotted and are capable of being maintained. WarHawk District does not have any areas that are considered Wildland-urban interface because property outside city limits is primarily agricultural land, thus, there are no urban interface areas of risk in the district. In addition, fire interference with traffic on highways is not a major concern. The most important factor in mitigating against wildfires continues to be common sense and adherence to burning regulations and suggestions disseminated by the District.

[15] State of South Dakota Hazard Mitigation Plan. 2024.

Moisture amounts have the biggest impact on fire situations. During wet years, fire danger is low. More controlled burns are conducted and less mishaps occur. During dry years, severe restrictions are placed on any types of burns.

Hunting season brings thousands of hunters to the area. Shots have the potential to ignite dry grassland, hay bales, or storage areas. This is a risk that is addressed in hunting education and safety.

Walworth County has developed permanent standards for regulations on fire hazards (more commonly known as a burn ban). The open burning ban will also be in place anytime a portion of Walworth County has been declared to be in a D2 (Severe Drought) category or above on the United States Drought Monitor. And also: The South Dakota Grassland Fire Danger Index website indicates that the index that is set for any particular day, begins at noon. For the purposes of this Ordinance, if the Grassland Fire Index has been set as High or above ,that index will be in place for that entire day.

WIND – HIGH/STRONG

Hazard Description

Strong winds are usually defined as winds over 40 m/h, are not uncommon in the area. Winds over 50 m/h 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.

It is universally agreed that high winds are highly probable in the WarHawk District and NOAA data confirms that agreement. Several times a year, residents can expect windy conditions of at least 40 mph with gusts up to 96 mph.

Hazard History Future Hazard Probability		
Event Type	High Wind	Magnitude
Number of Days with Event	86	40-96 mph
Number of Years with Event	10	
Years of Data	10 (2014-2023)	
Possible Number of Days with Event per Year	8.7	
Occurrence Calculation	86/10 = 8.6	
Probability of Future Event in Any Given Year	100%	
Probability Calculation	10/10 = 100%	

In the public survey, 92% of respondents said that strong winds are likely to occur in their county and 63% had been negatively affected by strong winds in the past five years.

Future Probability Amidst A Changing Climate

According to the Fourth National Climate Assessment, there presently is not enough data or research to quantify the magnitude of potential change that climate change may have on windstorms. Future updates to the mitigation plan should include the latest research on how the windstorm hazard frequency and severity could change.[16]

Vulnerability Assessment

During the risk assessment activity at the planning meetings, participants agreed that high or strong winds are highly likely to occur in the area. Participants viewed their area as having a medium to high vulnerability to high or strong winds.

Strong Winds can be detrimental to the area. 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 WarHawk District. 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.

According to Headwaters Economics' *Populations at Risk* report, in Dewey County, 20% of all occupied housing units are mobile homes, which are highly vulnerable to high or strong winds and other extreme weather events. In Ziebach County, 30% of all occupied housing units are mobile homes. The other counties in the district have a lower percentage of mobile homes: Corson (9%), Campbell (11%) and Walworth (8%).[17] During planning meetings, it was identified that there are several areas of the WarHawk District where mobile homes are common. There are also many homes in the area that don't have basements to seek shelter.

SEVERE WINTER WEATHER (including Blizzards, Freezing Rain/Ice, Heavy Snow, Sleet, Snow, Winter Storms and Winter Weather)

Hazard Description

Generally winter weather can range from freezing rain to blizzard conditions and can occur between October and April. Due to the multiple categories NOAA has for winter weather, the probability of winter storms combines several hazards including blizzards, heavy snow, ice storms, winter storms and winter weather.

Snow and ice storms are common in the plan jurisdiction. While such storms would be considered extreme in many parts of the United States, the consistent nature of such weather hazards are expected in this area. All types of winter weather are not unusual in the planning district. Thus, planning and response mechanisms for snow and ice storms are vital to the Counties in Warhawk District and are routine procedures in Warhawk District due to the common nature of such storms.

FEMA's National Risk Index scores winter weather risk in the five counties as Relatively Moderate or Relatively High.

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

[16] State of South Dakota Hazard Mitigation Plan. 2024.
[17] Headwaters Economics. Populations at Risk. 2024.

Appendix B were considered to have occurred countywide. Due to the multiple occurrences of winter storms each year, an exhaustive compilation is not possible.

Complete Winter Storm History taken from the NOAA website can be found in Appendix B

Snow is a common occurrence throughout the County during the months from October to April. Accumulations in dry years can be as little as 5-10 inches, while wet years can see yearly totals between 110-120 inches. Snow is a major contributing factor to flooding, primarily during the spring months of melting.

Blizzards are a snowstorm that lasts at least 3 hours with sustained wind speeds of 35 m/h or greater, visibility of less than ¼ 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 45 mph plus a great density of falling or blowing snow and a temperature of 10°F or lower.

Freezing Rain/Ice occurs when temperatures drop below 30 degrees Fahrenheit and rain starts to fall. Freezing rain coats objects with ice, creating dangerous conditions due to slippery surfaces, platforms, 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.

Heavy Snow is snowfall accumulating to 4 inches or more in 12 hours or less. Or snowfall accumulating to 6 inches or more in 24 hours or less.

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.

Snow is a common occurrence throughout the County during the months from October to April. Accumulations in dry years can be as little as 5-10 inches, while wet years can see yearly totals between 110-120 inches. Snow is a major contributing factor to flooding, primarily during the spring months of melting. Snow drifts are caused by wind blowing snow and cold temperatures. These drifts can be small finger drifts on roadways causing cautionary driving, or 20-40 foot high drifts that block entire highways, roads, and farmyards for several days.

Severe Winter Storms deposit four or more inches of snow in a 12-hour period or six inches of snow during a 24-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.

Hazard History and Future Hazard Probability					
Event Type	**Blizzard**	**Heavy Snow**	**Ice Storm**	**Winter Storm**	**Winter Weather**

Number of Days with Event	23	25	2	20	24
Number of Years with Event	8	8	2	7	8
Years of Data	10 (2014-2023)	10 (2014-2023)	10 (2014-2023)	10 (2014-2023)	10 (2014-2023)
Possible Number of Days with Event per Year	2.3	2.5	.2	2.0	2.4
Occurrence Calculation	23/10 = 2.3	25/10 = 2.5	2/10 = .2	20/10 = 2.0	24/10 = 2.4
Probability of Future Event in Any Given Year	80%	80%	20%	70%	80%
Probability Calculation	8/10 = 80%	8/10 = 80%	2/10 = 20%	7/10 = 70%	8/10 = 80%

Table Probability of future winter storm occurrence. Calculations based on NOAA weather data (NOAA: Storm Events Database. 2024)

In the public survey, 100% of respondents said that severe winter weather is likely to occur in their county and 80% had been negatively affected by severe winter weather in the past five years.

Future Probability Amidst A Changing Climate

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. 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. A warmer winter climate could reduce energy consumption for heating in the long run, but there will still be some periods of exceptional cold temperatures. The northern U.S. has experienced an increase in the frequency of large snowfall events, where other places in the country have been decreasing. Some analyses have shown an increase in winter storm frequency and intensity, with storm tracks moving northward since 1950. 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. According to the Fourth National Climate Assessment, rising temperatures in the Northern Great Plains have resulted in shorter snow seasons and rapid melting of winter snowpack.[18]

Vulnerability Assessment

During the risk assessment activity at the planning meetings, participants mostly agreed that severe winter weather is highly likely to occur in the area. Participants viewed their area as having a medium to high vulnerability to severe winter weather.

While virtually all aspects of the population are vulnerable to severe winter weather, there are segments of the population that are more vulnerable to the potential indirect impacts of a severe winter storm than others, particularly the loss of electrical power. As a group, the elderly or disabled, especially those with home health care services that rely heavily on an uninterrupted

[18] State of South Dakota Hazard Mitigation Plan. 2024.

source of electricity. Resident populations in nursing homes or other special needs housing and those with inadequate housing or inadequate heating. may also be vulnerable if electrical outages are prolonged. [11]

People that live within the WarHawk District are especially vulnerable to these conditions because people tend to leave their homes to get places such as work, school, and stores rather than staying inside. The greatest danger during winter weather is traveling 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 conditions to rescue them. Many individuals venture out in inclement weather because they need to get to work or school; want to observe the weather, or to rescue stranded family or friends. While it is difficult to quantify or find historical data on those that have accidents or get stranded during severe weather events, severe winter driving conditions raise the vulnerability of the commuting population.

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. WarHawk District and the local jurisdictions within are susceptible to these conditions due to the types of structures and surfaces that exist in the county that cannot be protected from freezing rain. Traffic on the roads and highways tends to be the biggest hazard during freezing rain conditions because vehicles often slide off the road which prompts emergency responders and others to have to go out on rescue missions in adverse conditions.

Heavy snow can immobilize transportation, down power lines and trees and cause the collapsing of weaker structures. Livestock and wildlife are also very vulnerable during periods of heavy snow. Most storms can be considered to have occurred countywide.

Additionally, winter storms often result in some forms of utility mishaps. High voltage electric transmission/distribution lines are prominent in the area. These lines are susceptible to breaking under freezing rain and icy conditions and severing during high blizzard winds. Within the district there are fiber optics associated with phone transmissions that are the lifeline to communications. Any electrical complications bring associated risk of food spoilage, appliance burnout, loss of water, and potential harm for in-house life support users. Limited loss of power is not uncommon on an annual basis. A typical power interruption lasts from 1 to 3 hours. Most residents are prepared to deal with this type of inconvenience.

As with any weather event, those dependent upon healthcare supplies and other essentials will also bear the brunt of highway closures and slowed transportation due to snow and ice. Emergency services will also be delayed during winter storms. Some of the critical facilities that could be utilized in disaster situations do not have backup generators. Also, some facilities have generators that only power a portion of operations.

Severe Winter Storms have a high risk of occurrence. Heavy snow can immobilize transportation, down power lines and trees and cause the collapsing of weaker structures. Livestock and wildlife are also very vulnerable during periods of heavy snow.

Populations at highest vulnerability for this type of hazard are rural homeowners, which account for approximately 40% of the county, and the elderly. As with any weather event, those dependent upon healthcare supplies and other essentials will also bear the brunt of highway closures and slowed transportation due to snow and ice. Emergency services will also be delayed during winter storms.

Snow removal policies and emergency response are at excellent performance and no projects will be considered in this area. Generators provide back-up power to many critical facilities within municipalities and in rural areas. However, some of the critical facilities that could be utilized in disaster situations do not have backup generators. Also, some facilities have generators that only power a portion of operations.

ASSESSING VULNERABILITY: OVERVIEW

Requirement 201.6(c)(2)(ii): *[The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.*

VULNERABLE POPULATIONS

Natural hazards can take a hard toll on vulnerable populations such as the elderly, young children, individuals with low incomes and individuals with disabilities.

The National Risk Index is a dataset and online tool to help illustrate the United States communities most at risk for 18 natural hazards. It was designed and built by FEMA in close collaboration with various stakeholders and partners in academia; local, state and federal government; and private industry.

Social Vulnerability

Social Vulnerability refers to a community's capacity to prepare for and respond to the stress of hazardous events ranging from natural disasters, such as tornadoes or disease outbreaks to human cause threats such as toxic chemical spills. The CDC's Social Vulnerability Index (CDC/ATSDR SVI 2020) groups sixteen factors into four themes that summarize the extent to which the area is socially vulnerable to a disaster. The factors include economic data as well as date regarding education, family characteristics, housing, language ability, ethnicity and vehicle access. Overall Social Vulnerability combines all of the variables to provide a comprehensive assessment.

Table 4.14 CDC/ATSDR Social Vulnerability Index 2020

County	Overall Social Vulnerability	Socioeconomic Status	Household Characteristics	Racial and Ethnic Minority Status	Housing Type/ Transportation
Campbell	Low	Low	Low	Low	Low to Medium
Corson	High	High	Low	High	Medium to High
Dewey	High	High	Low	High	Medium to High
Walworth	High	Medium to High	High	High	Medium to High
Ziebach	High	High	Low	High	High

Socioeconomic Status includes those below 150% poverty, unemployed, housing costs burden, no high school diploma and no health insurance. Headwaters Economics' *Populations at Risk* report explains that natural disasters disproportionally impact the poor because of factors such as inadequate housing, social exclusion, a diminished ability to evacuate, lack of property insurance, and more acute emotional stress. Low-income people also are more likely to be overlooked during emergency response following disasters.

Household Characteristics includes those aged 65 and older, aged 17 and younger, civilians with disabilities, single parent household, and English language proficiency. Headwaters Economics' *Populations at Risk* report explains that children can be more as risk for respiratory problems related to wildfire smoke and are more sensitive to infectious diseases that could occur after natural disasters that compromise water supplies or sanitation. Older adults are more at risk to extreme heat and are more likely to have compromised mobility which reduces their ability to respond to natural disasters.

Headwaters Economics' *Populations at Risk* report explains that race and ethnicity are strongly correlated with vulnerability to natural hazards. Native American households that are also female-headed households are more likely to be living in poverty, which makes it more difficult to respond to natural hazards.

Housing Type/Transportation includes multi-unit structures, mobile homes, crowding, no vehicle, group quarters. Headwaters Economics' *Populations at Risk* report explains that Mobile homes are more likely to be damaged in extreme weather, which poses a risk for both the structure and the occupants. During emergencies, natural disasters, and extreme weather events, people who do not have a car are less likely to evacuate or have access to emergency response centers. During heat waves, people without a car are less able to go to community cooling centers or cooler areas.

***Requirement B2-a**. Does the plan provide an overall summary of each jurisdiction's vulnerability to the identified hazards?*

The following paragraphs summarize the description of the jurisdiction's vulnerability to each hazard and the impact of each hazard on the jurisdiction**.**

Campbell County Overall Summary of Vulnerability

Campbell County has identified that they are particularly vulnerable to blizzards, drought, extreme cold, extreme heat, flash flood, flood, freezing rain/sleet, hail, heavy rain, heavy snow, ice jams, lightning, rapid snow melt, strong winds, thunderstorm, tornado, urban fire, utility interruption and wildfire. These hazards were given a rating of "H" for high vulnerability or "M" for moderate vulnerability in Table 4.3.

Along the Missouri River, there are a few areas that have a cluster of mobile homes. There are no known storm shelters in those areas, making them particularly vulnerable to storms, strong winds and tornados. In the municipalities in Campbell County, the towns use existing buildings as storm shelters during times of need (i.e., community center, church basements, etc.) In the winter of 2016, Mound City was without power for 4 days and they used the Courthouse as a warming shelter/storm shelter for residents.

There are backup generators in Herreid and Pollock for the wastewater lift stations. There is no backup generator at the only school in the county, located in Herreid. Pollock and Herreid also have secondary sources of water if the water tower is out. The healthcare center has also been used as a winter storm shelter at times, when needed. There are no designated tornado/summer storm shelters in town. Most people take shelter in their basements if there is a tornado warning or severe summer storm.

Corson County Overall Summary of Vulnerability

Corson County has identified that they are particularly vulnerable to blizzards, drought, extreme cold, extreme heat, freezing rain/sleet, flash flooding, flood, hail, lightning, rapid snow melt, tornados, wildland fires, high/strong winds, utility interruptions and wildfire. These hazards were given a rating of "H" for high vulnerability or "M" for moderate vulnerability in Table 4.3.

Mobile homes are common in McLaughlin, which are particularly vulnerable to storms, strong winds and tornados. Each community in the County has what is referred to locally as a 'blue gym.' These gyms are used as storm shelters but it is unknown if they meet the criteria for a storm shelter under the International Code Council's *Standard for Design and Construction of*

Storm Shelters. Most of these gyms do have backup generators. In addition to the blue gyms, the Courthouse and School in McLaughlin are also used as storm shelters.

McLaughlin has no backup generators at their lift stations but there is one at the school. There are backup generators in McIntosh at City Hall, Fire Hall, Courthouse and the County Emergency Operations Center.

The Standing Rock Sioux Rural Water system provides water for the county and the City of McLaughlin.

Dewey County Overall Summary of Vulnerability

Dewey County has identified that they are particularly vulnerable to blizzards, drought, extreme cold, extreme heat, flash flood, flood, freezing rain/sleet/ice, hail, heavy rain, heavy snow, strong winds, thunderstorms, tornados, and wildfires. These hazards were given a rating of “H” for high vulnerability or “M” for moderate vulnerability in Table 4.3.

There are areas of Timber Lake (the northwest and southwest parts of the town) that are more susceptible to flooding than other areas of town. People who live in Isabel often have basements that flood. During the planning meetings, participants also noted that rural roads scattered around the County are susceptible to flooding during heavy rains or rapid snow melt.

There are not many backup generators at critical facilities in the County. The County does have one at their highway shop and there is a portable generator available that can be used for critical facilities.

There are no storm shelters in the County that meet the criteria for a storm shelter under the International Code Council’s *Standard for Design and Construction of Storm Shelters*; however, there are a handful of buildings that have been used as storm shelters in the event of severe weather.

During the planning meetings, it was also noted that some people in Eagle Butte don’t own vehicles, making them more vulnerable to many hazards. According to EPA’s EnviroAtlas, approximately 16% of households in Eagle Butte have zero vehicles.[19]

Walworth County Overall Summary of Vulnerability

Walworth County has identified that they are particularly vulnerable to blizzards/winter weather, drought, extreme cold, extreme heat, freezing rain/sleet/ice, hail, heavy rain, heavy snow, strong winds, tornados and wildfires. These hazards were given a rating of “H” for high vulnerability or “M” for moderate vulnerability in Table 4.3.

The City of Mobridge has portable generators available to run their lift stations, if necessary. There is a backup generator for the water tower, dispatch center, City Hall, hospital, Mobridge City Shop, County Courthouse and Akaska community center.

Along the Missouri River, there are a few areas that have a cluster of mobile homes. There are no known storm shelters in those areas, making them particularly vulnerable to storms, strong winds and tornados. There are a few buildings throughout the county that can and have been used as a storm shelter but there are no storm shelters in the County that meet the criteria for a

[19] Environmental Protection Agency. EnviroAtlas. 2024.

storm shelter under the International Code Council's *Standard for Design and Construction of Storm Shelters.*

Ziebach County Overall Summary of Vulnerability

Ziebach County has identified that they are particularly vulnerable to blizzards/winter weather, drought, extreme cold, extreme heat, freezing rain/sleet/ice, hail, heavy rain, heavy snow, lightning, strong winds, thunderstorms, tornados and wildfires. These hazards were given a rating of "H" for high vulnerability or "M" for moderate vulnerability in Table 4.3.

During the planning meeting in Ziebach County, participants noted that flooding and erosion of creek/riverbeds can occur at times. Areas mentioned included along Cherry Creek and the Cheyenne River. Ice jams do occasionally occur on the Cheyenne River as well. Bridger can also be impacted by flooding.

Dupree does have a backup generator at their lift stations. Ziebach County has a backup generator at the Courthouse. IHS owns the water tower in Dupree and also has backup generators. There is enough capacity in the water tower to last for 4 ½ days.

The Courthouse and hospital can be used as storm shelters, if needed. Pioneer Hall in Dupree has also been opened as a winter storm shelter in the past. There are limited storm shelters in rural areas.

Planning participants also felt that many households in Ziebach County are inadequately prepared for natural hazards such as flooding, strong winds, tornados or extreme temperatures.

ADDRESSING VULNERABILTY: REPETITIVE LOSS PROPERTIES

> ***Requirement B2-c.*** *Does the plan address NFIP-insured structures within each jurisdiction that have been repetitively damaged by floods?*

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 10-year period since 1978. There are no repetitive loss properties within the WarHawk District.

ASSESSING VULNERABILITY: IDENTIFYING STRUCTURES

Requirement 201.6(c)(2)(ii)(A). *The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area.*

> ***Element B2-b.*** *For each participating jurisdiction, does the plan describe the potential impacts of each of the identified hazards on each participating jurisdiction?*

One of the primary purposes of this plan is to identify people, structures, systems, natural, historic & cultural resources, critical facilities and community events and determining which are particularly at risk of damage or from natural hazards or exposure to natural hazards. Plan participants were asked what community facilities and assets are important or critical to their communities. The following tables identify critical structures and if they serve vulnerable populations. It is also noted if those assets are Economic or Historical assets. Areas of overlap between vulnerable structures/people and potential natural hazards are then identified as "vulnerable" areas that should be mitigated whenever possible.

The planning group advised that in the event of a disaster caused by severe summer or winter storms, WarHawk District and participating entities have the ability to prevent further loss of life by generator-powered critical facility shelters.

Table 4.15: Critical Structures							
Campbell County							
FEMA Lifeline	**Asset/Critical Facility**	**Owner**	**Count**	**Vulnerable Population**	**Economic**	**Historic**	**Notes**
Transportation	County Maintenance/Highway Shops	County	4				
Safety and Security	County Courthouse	County	1	X			Has been used as a storm shelter
N/A	County Storage Shed	County	2				
City of Herreid							
Safety and Security	City Hall	City					
Safety and Security	Fire Hall/ Ambulance	City		X			
N/A	Community Center	City		X			
Transportation	City Shop	City	2				
Safety and Security	City Warehouse	City					
Water Systems	Water Tower	City					
Water Systems	City Well	City					
Water Systems	Lift Station	City					
N/A	Fitness Center/Library	City					
Transportation	Airport	City					
N/A	Herreid School	School District		X			
N/A	Senior Citizens	Non-Profit		X			

N/A	American Legion	City		X			
Health and Medical	Clinic	City		X			
Health and Medical	Good Samaritan Center	Private		X			
Town of Mound City							
N/A	Museum	City					
Safety and Security	Fire Hall	City		X			
Water Systems	Water Tower/ Well/Pump House	City	2 wells	X			
N/A	City Storage Shed	City					
N/A	Community Center	City		X			
Water Systems	Lagoon	City		X			
Town of Pollock							
Safety and Security	City/Fire Hall	City					
Transportation	Maintenance Shop	City					
N/A	Community Center	City		X			
Water Systems	Water Tower	City					
Water Systems	Ground Water Storage Tank	City					
Water Systems	Lift Station	City					
N/A	Lewis & Clark Information Center	City			X		
Water Systems	Wastewater Treatment Facility	City					

Water Systems	City Well	City	2				
N/A	Campgrounds	City	2		X		
N/A	Pollock Storage Facility	City					
N/A	Senior Center			X			
City of Artas							
Water Systems	City Lagoon	City		X			

Table 4.16: Assets/Critical Structures							
Corson County							
FEMA Lifeline	**Asset/Critical Facility**	**Owner**	**Count**	**Vulnerable Population**	**Economic**	**Historic**	**Notes**
Safety and Security	Courthouse	County		X			
Transportation	County Highway Shop	County	3				McIntosh, McLaughlin, Trail City
N/A	4-H Building	County					
Safety and Security	Sheriff's Office/EM/EOC	County					
McIntosh							
Safety and Security	City Hall/ Library	City		X	X		
Safety and Security	Fire Hall/ Ambulance	City		X			
	City Shop	City		X			
Water Systems	Water Tower	City	1	X	X		
Water Systems	City Wells	City	4				
Transportation	Airport	City	NA				SE end of McIntosh
N/A	McIntosh School	School District		X	X		

Health and Medical	Clinic	Private		X	X		
Transportation	Dept of Transportation	State		X	X		
N/A	Rubble Site	City					SE side of McIntosh
Water Systems	Wastewater Treatment Facility	City		X	X		SE side of McIntosh
McLaughlin							
Safety and Security	City Hall/ Police/ Fire/ Maintenance	City					
N/A	Auditorium	City					
Water Systems	Water Tower	City					60,000 gallons
Water Systems	City Wells	City	5				Not used; city water source is from Standing Rock
Water Systems	Lift Station	City	2				
Transportation	Airport	City					
N/A	Liquor Store	City					City Owned; Revenue source for City
N/A	Storage Building	City					
N/A	Landfill Building	City					
N/A	School	School District					
Health and Medical	Clinic	Private					
Health and Medical	IHS Clinic	Tribal					
Morristown							
Safety and Security	City Hall	City					
Water Systems	City Well	City	2				
Water Systems	Wastewater Treatment Facility	City					
N/A	Little Eagle Grant School	Tribal/BIE	X	X			Tribal/BIE School in Little Eagle
N/A	Rock Creek Grant School	Tribal/BIE	X	X			Tribal/BIE School in Bullhead

Table 4.17: Assets/Critical Structures							
Dewey County							
FEMA Lifeline	**Asset/Critical Facility**	**Owner**	**Count**	**Vulnerable Population**	**Economic**	**Historic**	**Notes**
Safety and Security	Sheriff's Office/ Jail	County		X			
Transportation	Highway Shop	County	2				
Health and Medical	Community Health	County		X			
N/A	Dewey County Library	County		X			
Safety and Security	Courthouse	County					
Energy	Moreau Grand Electric	Co-op		X	X		Rural Electric Cooperative
Water Systems	Tri County/Mni Waste Water Company	Private		X	X		Rural Water Provider
Health and Medical	Horizon Healthcare	Private		X			Medical/Behavior Healthcare Clinic – location in LaPlant
Health and Medical	IHS Clinic	Federal (IHS)		X			IHS – satellite locations in Cherry Creek (Z), Red Scaffold (Z), Swiftbird (D), Whitehorse (D)
Eagle Butte							
Safety and Security	Police Dept	City		X			
Safety and Security	Fire Department	City		X			
Health and Medical	IHS Clinic	Federal (IHS)		X			IHS
Health and Medical	Horizon Healthcare	Private		X			Medical/Behavior Healthcare Clinic

Health and Medical	Black Hills Dialysis	Private		X			
Transportation	Airport	City					
N/A	Storage Shed	City					
Water Systems	Water and Sewer Facilities	City		X			4 water towers in service
N/A	Schools	School District		X			Lower Elementary and HS in Dewey County (Upper Elementary and Middle School in Ziebach)
N/A	Auditorium	City					
N/A	Post Office	Federal					
N/A	Cultural Center	City				X	
N/A	Pow Wow Grounds					X	
N/A	Women's Shelter			X			
Isabel							
N/A	Auditorium	City					
N/A	Pavilion	City					
Safety and Security	Ambulance	City		X			
Safety and Security	Fire Department			X			
Communications	Communications Systems	City		X			
Health and Medical	Horizon Healthcare	Private		X			Medical/Behavior Healthcare Clinic
Transportation	Airport	City					
Water Systems	Wastewater Treatment Facility	City		X			
Water Systems	Water Storage Facility	Private		X			Owned by Mni Wašté Water Company
Haz Mat?	Elevator	Private			X		CHS River Plains
N/A	Post Office	Federal					

Timber Lake							
Safety and Security	Ambulance/EMS	City		X			
Safety and Security	Fire Department	City		X			
Health and Medical	Health Clinic	Private		X			
Transportation	Municipal Airport	City					
Water Systems	Water Tower	City		X			New water tower
Water Systems	Well	City	4	X			
Water Systems	Lift Station	City	2	X			
Safety and Security	City Hall	City		X			
N/A	TL Area Museum	City					
N/A	Timber Lake School	School District		X			
N/A	Auditorium/ Community Center	City					
N/A	Post Office	Federal					
	Elevator	Private			X		Central Dakota Grain

Table 4.18: Assets/Critical Structures							
Walworth County							
FEMA Lifeline	**Asset/Facility**	**Owner**	**Count**	**Vulnerable Population**	**Economic**	**Historic**	**Notes**
Safety and Security	County Courthouse	County					
Safety and Security	County Law Enforcement Center	County					

Transportation	County Highway Shop		4				Located in Selby, Mobridge, Hoven, Java
Town of Akaska							
Safety and Security	City Building	City		X			Finance Office and Equipment
Safety and Security	Community Center	City		X			Includes Fire Dept. Has backup generator
Water Systems	Lift Station	City	2	X			
Water Systems	Lagoon	City		X			
Food, Hydration, Shelter	Zion Lutheran Church	Private		X			Basement is used as a storm shelter
Town of Glenham							
Safety and Security	City Hall/Fire Hall	City		X			
Water Systems	Town Well	City		X			
Water Systems	Sewer Lagoons	City		X			
Town of Java							
Safety and Security	Fire Hall	City		X			
Safety and Security	City Hall/Shop	City		X			
Water Systems	City Well	City		X			
Water Systems	Main Well	City		X			
Water Systems	WWTF	City		X			
Water Systems	Lift Station	City		X			
N/A	Community Center	City		X			
City of Mobridge							
Safety and Security	City Hall	City		X			
Health and Medical	Ambulance	Private		X			At Hospital
Transportation	City Shop	City	2				
Water Systems	Water Tower	City	2	X			1 - Behind City Hall; 1 – will be demolished
Water Systems	Water Pump Station	City		X			

Water Systems	Sewer Lift Station	City	3	X			
Transportation	Airport	City			X		
N/A	Library	City		X			
Health and Medical	Hospital/Clinic	Private		X			Shed N of hospital has cache of medical supplies
Water Systems	Water Plant	City		X			
Water Systems	Sewer Plant	City		X			
N/A	Schools	School District/	4	X			2 locations for public school, Sitting Bull College, Zion Lutheran school
Safety and Security	National Guard Armory						
Food, Hydration, Shelter	Scherr-Howe Event Center	City		X	X		Includes cache of medical supplies
N/A	SDGFP	State					
Safety and Security	Police Dept	City		X			
Communications	Dispatch Center	City		X			Serves a 10 county area
Transportation	SD DOT Shop	State					
N/A	Senior Center			X			
Food, Hydration, Shelter	Mobridge Ministerial Association Thrift Store/Food Bank	Private		X			
Transportation	Missouri River Bridge	State		X	X		
Energy	MDU Shop	Private		X			
Food, Hydration, Shelter	Brown Palace	Private		X			Low income housing
City of Selby							
Safety and Security	City Hall	City		X			
Safety and Security	Fire Hall/ Ambulance	City		X			
Water Systems	Water Tower	City		X			

N/A	Selby School	School District		X			
N/A	Senior Citizens Building	Private		X			
Health and Medical	Clinic	Private		X			
Health and Medical	Walworth County Care Center	Private		X	X		Nursing home
Transportation	Airport	City					
Water Systems	City Well	City		X			Outside City Limits
Transportation	SD DOT Shop						
Energy	CamWal Electric	Private		X			Rural Electric Cooperative
Other							
Energy	Electric Substations	Private		X			CamWal and MDU
Water Systems	WEB Water Plant	Private		X			
Water Systems	Water Storage Tanks			X			Secondary water source in New Evarts area

Table 4.19: Assets/Critical Structures							
Ziebach County							
FEMA Lifeline	**Asset/Critical Facilities**	**Owner**	**Count**	**Vulnerable Population**	**Economic**	**Historic**	**Notes**
Safety and Security	Courthouse	County		X			
Safety and Security	Jail	County		X			
Transportation	Highway Shop	County					
Town of Dupree							
Safety and Security	City Hall	City					

Safety and Security	Fire Hall and Ambulance	City		X			
Transportation	City Maintenance Shop	City					
Water Systems	Water Tower	City	1	X			170,000 gallons
N/A	Dupree Public School	School District		X			
N/A	Dupree Multi-Purpose Bldg	Tribe		X			
Water Systems	Lagoon	City					
Water Systems	Lift Station	City					
City of Eagle Butte							
Health and Medical	IHS Hospital	Federal (IHS)	X	X			
N/A	Cheyenne Eagle Butte Middle School	BIE	X	X			
Health and Medical	Nursing Home	State	X	X			
Water Systems	Water Tower		X	X			
Transportation	Airport		X				
Food, Hydration, Shelter	Public Housing		X	X			133 units
Rural Ziebach County							
N/A	Takini School – Cherry Creek	BIE	X	X			BIE School In Cherry Creek
N/A	Tiospaye Topa School - LaPlant	BIE	X	X			BIE School In LaPlant

The City of Mobridge uses the Missouri River/Lake Oahe as their drinking water source. City staff have noted that Oahe Dam (located 100 miles south of Mobridge) is critically important to the City's water infrastructure. Rural Water Systems are also crucial throughout the district. There are several rural water systems that serve the area include WEB Water, Standing Rock Sioux Water, Tri-County/Mni Wasté and TC&G (Trail City and Glencross) Water System. Stakeholders at the planning meetings also identified cell phone towers and communication towers located throughout the district as critically important to residents in the area.

The information provided in Table 4.8 was taken from the 2019 Mitigation Plan and all jurisdictions were asked to update the list as needed. The participants were instructed to think of structures that would cause the most devastation to their communities if the structures were to be lost in a natural hazard event, "In other words, list those structures that you cannot live/operate without The plan author acknowledges that determining what is "critical" can mean something different to every community and that the information provided in the table is not comprehensive. However, the information provided by the plan participants in their worksheets was used as a baseline and can be supplemented in future years during the annual plan review and/or during the 5-year update. By using information provided by the representatives from each community it also helps establish a sense of ownership in the mitigation plan. Finally, the plan participants were asked to identify which of the critical structures or facilities are particularly at risk of natural hazards.

Harding County's bridges and culverts were mentioned as critical infrastructure but are not listed in their entirety. These records are kept with the South Dakota Department of Transportation. Additionally, bridge inspections take place once a year and are reported to the South Dakota Department of Transportation.

While the information may not be comprehensive it does give FEMA, SDOEM, and any other readers of the Plan an idea of how communities in rural South Dakota feel about certain structures. For example, FEMA may not view a City Park as a "critical" structure, however, in many small communities the City Park or baseball field is the hub of where activities take place and may also be the only thing that attracts tourists and people from outside the community. So, it may be the case that without these "landmarks" the communities' existence would be at stake.

ASSESSING VULNERABILITY: ESTIMATING POTENTIAL LOSSES

Requirement 210.6(c)(2)(ii)(B). *[The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in…this section and a description of the methodology used to prepare the estimate.*

The information provided in the following tables was collected from each county's Director of Equalization. Inconsistencies and missing information are a result of lack of existing mechanisms, plans, and technical documents available to the communities and also a result of people who are serving their communities on a volunteer basis as opposed to many other areas in the nation which have larger communities who pay salaried professionals to represent them during the mitigation plan drafting process. Each of the communities provided the best available data considering the lack of resources in which to access the information.

The assessor's office provided the assessed valuation of properties within the municipalities. All properties with structures, whether owner occupied or not were included in the valuations provided in Table 4.20 through 4.24. The reports provided by the assessor's office did not include the type of structure (for example, a residential structure may be a house or an unattached garage); thus, many of the tables are missing this information. Values are based on tax assessed value and since churches, schools, utilities, and government buildings do not pay taxes on land or buildings, they were not assigned a value like other structures in the hazard area because the value was not listed.

It is important to note that the values in Corson, Dewey and Ziebach Counties don't include anything on tribal land or tribal members that own mobile homes on deeded land, as those are exempt.

Values for the Counties are based on values of structures throughout the county and townships, outside of any incorporated municipality.

Table 4.21: Campbell County Estimated Potential Dollar Losses to Vulnerable Structures						
	Campbell (unincorporated areas)	**Artas**	**Herreid**	**Mound City**	**Pollock**	**Total in County**
Type of Structure	Tax Assessed Value	Tax Assessed Value	Tax Assessed Value	Tax Assessed Value	Tax Assessed Value	Tax Assessed Value
Residential	$1,233,323	$172,087	$14,485,532	$1,482,386	$8,482,008	**$25,855,336**
Commercial	$16,107,996	$11,525	$5,560,173	$272,404	$3,420,541	**$25,372,639**
Agricultural		$0				
Mobile Homes	$4,344,153	$0	$1,434,345	$392,006	$291,351	**$6,461,855**
Other		N/A		N/A	N/A	**$0**
Total	**$21,685,472**	**$183,612**	**$21,480,050**	**$2,146,796**	**$12,193,900**	**$57,689,830**
	4,138 parcels	95 parcels	423 parcels	118 parcels	271 parcels	5,045

Detailed information on number of structures was unavailable for Campbell County. Information was provided for the number of parcels – but many of those parcels don't have structures built on them – they may be crop land, pasture land or bare lots.

Table 4.21: Corson County Estimated Potential Dollar Losses to Vulnerable Structures										
	Corson (unincorporated areas)		**McIntosh**		**McLaughlin**		**Morristown**		**Total in County**	
Type of Structure	#	Tax Assessed Value	#	Tax Assessed Value	#	Tax Assessed Value	#	Tax Assessed Value	Number	Tax Assessed Value
Residential	298	$14,064,903	106	$1,486,730	205	$5,189,144	48	$630,711	657	$21,371,488
Commercial	42	$7,721,077	22	$728,912	51	$7,327,936	11	$74,495	126	$15,852,420
Agricultural	27	$208,194	17	$146,602	1	$35,115	6	$5,159	51	$395,070
Mobile Homes	108	$4,763,713	1	$102,351	21	$284,182	3	$210,199	133	$5,360,445
Other	167	$3,677,932	0	$0	0	$0	0	$0	167	$3,677,932
Total	**642**	**$30,435,819**	**146**	**$2,464,595**	**278**	**$12,836,377**	**68**	**$920,564**	**1,134**	**$46,657,355**

It is important to note that these values only include structures. These values do not include lots in town or cropland/pastureland. This information does not include any structures/properties on tribal land or for tribal members that own mobile homes on deeded land, as those properties are exempt from property taxes (and therefore, assessments). Nor does it include other tax exempt properties such as Forest Reserve, Other Government property or Exempt Religious Property. Local officials calculated in 2021 that 39% of the total acres in Corson County were tax exempt. However, there is no accurate way to count and place a value on those structures.

Table 4.22: Dewey County
Estimated Potential Dollar Losses to Vulnerable Structures

	Dewey (unincorporated areas)		Eagle Butte		Isabel		Timber Lake		Total in County	
Type of Structure	#	Tax Assessed Value	#	Tax Assessed Value	#	Tax Assessed Value	#	Tax Assessed Value	Number	Tax Assessed Value
Residential	354	$21,425,877	93	$4,410,626	91	$2,960,616	133	$6,909,189	671	$35,706,308
Commercial	31	$3,020,353	63	$18,820,531	34	$1,904,435	38	$4,551,875	166	$28,297,194
Agricultural	357	$11,599,141	2	$3,634	4	$374,339	0	$0	363	$11,977,114
Mobile Homes	88	$4,317,750	19	$379,143	18	$1,078,513	25	$1,437,712	150	$7,213,118
Other										
Total	**830**	**$40,363,121**	**177**	**$23,613,934**	**147**	**$6,317,903**	**196**	**$12,898,776**	**1,350**	**$83,193,734**

It is important to note that these values only include structures. These values do not include lots in town or cropland/pastureland. This information does not include any structures/properties on tribal land or for tribal members that own mobile homes on deeded land, as the majority of those properties are exempt from property taxes (and therefore, assessments). Only a small percentage of the structures in Dewey County are located on deeded land and accounted for in the county records. However, there is no accurate way to count and place a value on the structures located on tribal land.

Table 4.24: Walworth County
Estimated Potential Dollar Losses to Vulnerable Structures

	Walworth (unincorporated areas)	Akaska	Glenham	Java	Mobridge	Selby	Total in County
Type of Structure	Tax Assessed Value	Tax Assessed Value	Tax Assessed Value	Tax Assessed Value	Tax Assessed Value	Tax Assessed Value	Tax Assessed Value

Residential	$42,884,658	$8,763,736	$4,161,737	$1,822,531	$128,006,681	$20,839,028	**$206,478,371**
Commercial		$899,724	$1,091,236	$1,263,154	$36,945,928	$16,555,371	**$56,755,413**
Agricultural	$579,330,741						**$579,330,741**
Mobile Homes	$8,128,458	$3,382,396	$1,060,992	$111,426	$2,875,852	$1,493,806	**$17,052,930**
Other							
Total	**$630,343,854**	**$13,045,856**	**$6,313,965**	**$3,197,111**	**$167,828,461**	**$38,888,205**	**$859,617,455**
		287 parcels	142 parcels	228 parcels	1,996 parcels	478 parcels	

Detailed information on number of structures was unavailable for Walworth County. Information was provided for the number of parcels – but many of those parcels don't have structures built on them – they may be crop land, pasture land or bare lots.

Table 4.24: Ziebach County
Estimated Potential Dollar Losses to Vulnerable Structures

	Corson (unincorporated areas)		Dupree		Eagle Butte		Total in County	
Type of Structure	#	Tax Assessed Value	#	Tax Assessed Value	#	Tax Assessed Value	Number	Tax Assessed Value
Residential	127	$6,069,616	109	$3,793,166			236	$9,862,782
Commercial	3	$610,892	26	$3,479,563	8	$5,031,084	37	$9,121,539
Agricultural	332	$7,014,731	2	$239,321			334	$7,254,052
Mobile Homes	77	$2,986,656	42	$1,200,124			119	$4,186,780
Other	75	$2,307,896	0	$0			75	$2,307,896
Total	**614**	**$18,989,791**	**179**	**$8,712,174**	**8**	**$5,031,084**	**801**	**$32,733,049**

It is important to note that these values only include structures. These values do not include lots in town or cropland/pastureland. This information does not include any structures/properties on tribal land or for tribal members that own mobile homes on deeded land, as the majority of those properties are exempt from property taxes (and therefore, assessments). Only a small percentage of the structures in Ziebach County are located on deeded land and accounted for in the county records. However, there is no accurate way to count and place a value on the structures located on tribal land.

ASSESSING VULNERABILITY: ANALYZING DEVELOPMENT TRENDS

Requirement 201.6(c)(2)(ii)(C). *{The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.*

Requirement 201.6(c)(3) *The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools.*

> ***Element C1-a.*** *Does the plan describe how the existing capabilities of each participant are available to support the mitigation strategy? Does this include a discussion of the existing building codes and land use development ordinances or regulations?*
>
> ***Element C1-b.*** *Does the plan describe each participant's ability to expand and improve the identified capabilities to achieve mitigation?*

Requirement 201.6(d)(3). *A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within five years in order to continue to be eligible for mitigation project grant funding.*

> ***Element E1-a.*** *Does the plan describe the changes in development that have occurred in hazard-prone areas that have increased or decreased each community's vulnerability since the previous plan was approved?*

The land use and development trends for each jurisdiction were identified by the representatives from each of the jurisdictions. The only communities in WarHawk District that are experiencing any growth and/or development at this time are Mobridge and some areas of Walworth and Campbell Counties along the Missouri River. The rest of the jurisdictions have experienced declining populations over the past ten years and at this time are just trying to maintain the population they have. Due to the declining populations the smaller jurisdictions do not maintain plans for growth and development.

All of the counties have areas of planning and development that could be improved such as zoning ordinance, comprehensive planning, municipal ordinances, improving their knowledge of the NFIP program and floodplain ordinance, as well as floodplain management. Corson, Dewey and Ziebach Counties have no zoning ordinances in place. The general notion from many residents is that they prefer not to have zoning and don't particularly want to have a zoning ordinance in place. There is also room for improvement on relationships and communication with Tribal entities in the area.

CURRENT DEVELOPMENT TRENDS

Campbell County

According to the County's Comprehensive Plan, between 2010 and 2019, there were 52 residences constructed or moved into the county. Sixty percent were on-site stick-built construction and the remaining were manufactured homes, mobile homes or others.

The county's population has decreased by over 50% in the last 50 years. The decline is directly related to the number of farms and the increase in average farm size in the county. Between 1992 and 2012 the number of farms in the County decreased by 25% from 323 to 242. During the same time the average size of a farm increased by 14% percent from 1,293 to 1,489 acres.

Campbell County adopted a Zoning Ordinance in 2021. Prior to this, there was no Zoning in place in the County. From a mitigation perspective this is a positive advancement in the county's overall ability and willingness to regulate development. Campbell County's Zoning Ordinance does allow for Lake Park Districts, which are residential and recreational areas along the lake shores (Lake Oahe). According to the County Assessor, many of the homes in these districts are mobile homes.

All new building construction requires a building permit from the County Zoning Officer (currently the County Assessor). The Zoning officer can issue a building permit if the application conforms with the zoning ordinances. If the application requires a variance or a conditional use permit then the Board of Adjustment will make the decision.

The Campbell County Wind Farm has approximately forty wind towers.

Corson County

As mentioned above, Corson County does not have a Zoning Ordinance and there is not a desire to implement a Zoning Ordinance. The County also does not require building permits. Because of the rural nature of the County (3,902 residents), this process operates satisfactorily. McLaughlin does have a building permit process in place. Mobile homes are common in McLaughlin and the City does require movers of mobile homes to be licensed and insured.

In the last several years, there has been some development in the County–mainly improvements to the schools in both McLaughlin and McIntosh. The City of McLaughlin has also just completed a water meter project. The City of McIntosh also recently completed upgrades to their water system. The City of McLaughlin has several planned infrastructure projects coming up including new sewer lining and new electric meters.

Dewey County

The county's population has declined at a slower pace than other surrounding counties. The population during the 2020 Census was down 14% as compared to the 2000 Census.

As mentioned above, Dewey County does not have a Zoning Ordinance and there is not a desire to implement a Zoning Ordinance. The County also does not require building permits. Because of the rural nature of the County (5,239 residents) this process operates satisfactorily. All towns in the County do have building permit processes in place and the Tribe also requires a tribal business license.

In the last several years, there has been some development in the County–additions to the local schools, new water towers in Eagle Butte, a new office for Moreau Grand Electric in Timber Lake and a new County Highway Shop. Timber Lake has an upcoming water and sewer project. Isabel also has a Phase 2 planned for their sanitary sewer project. Eagle Butte is also updating infrastructure, including the fire department and a new shop for the Street Department.

Walworth County

According to the County's Comprehensive Plan, between 2010 and 2015 there were 25 residences either constructed or moved-in into the rural area of the county. The rural housing

stock is comprised almost entirely of single-family residences. Approximately 66% of the new residential construction within the county during that timeframe was on site stick-built construction. Twenty-eight percent (7 residences) of the residential building permits between 2010 and 2015 were located at New Evarts. New Evarts is a resort area/housing community along the Missouri River. The remaining building permits were located throughout the rest of the County.

Walworth County has decreased in population by nearly 33% from 1960 to 2010. The decline is directly related to the number of farms and the increase in average farm size in the county. Between 1992 and 2012 the number of farms in the County decreased by 32% from 378 to 256. During the same time the average size of a farm increased by forty six percent from 1,187 to 1,737 acres.

All new building construction outside of City Limits requires a building permit from the County Zoning Administrator. The Zoning Administrator can issue a building permit if the application conforms with the zoning ordinances, meets setback requirements, etc. If the application doesn't meet the requirements or requires a variance or a conditional use permit then the Planning Commission will make the decision.

Within the City of Mobridge, building permits are issued by the Zoning Officer as long as the permit meets all requirements. Applicants can appeal decisions to the Planning Commission.

Much of the residential development in the County is happening around the New Evarts resort area. The City of Mobridge has recently undergone some large projects including renovating their wastewater plant, building a new airport runway and building a new community pool. In the next few years, the City has plans for a $20 million water/wastewater project. The Mobridge Regional Hospital and Clinic is also undergoing a large renovation project, increasing their footprint by 30% while also renovating another 30% of their footprint.

Walworth County has adopted an ordinance to regulate the development of wind energy in the county. The County currently has a two mile setback from existing structures for wind towers. They are also in the process of drafting an ordinance to regulate solar development in the county.

There are several private economic development projects planned within Walworth County. This includes a solar energy project, new Concentrated Animal Feeding Operations (CAFO) and an expansion project by WEB Water, the rural water system.

Ziebach County

The county's population has remained fairly steady over the last two decades. The population during the 2020 Census was down only 4% as compared to the 2000 Census.

As mentioned above, Ziebach County does not have a Zoning Ordinance and there is not a desire to implement a Zoning Ordinance. The County also does not require building permits. Because of the rural nature of the County (2,413 residents) this works adequately. In the Town of Dupree, building permits are required only if the project involves digging underground. Any projects that are strictly above ground do not require a building permit. The Tribe also requires a tribal business license.

In the last several years, there has been some development in the County – including a new airport in Eagle Butte, additions to the local schools and a new IHS water tower in Dupree. There

is a plan to remodel a public housing development. The Town of Dupree has also made improvements to public infrastructure including water lines and they are in the process of updating their sewer lines at the time this plan was written.

UNIQUE OR VARIED RISK ASSESSMENT

Requirement 201.6(c)(2)(iii): For multi-jurisdictional plans, the risk assessment must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

> ***Element B1-f.*** *For participating jurisdictions in a multi-jurisdictional plan, does the plan describe any hazards that are unique to and/or varying from those affecting the overall planning area?*

Campbell County

Within the county, there are varying degrees of risk among the municipalities. Severe weather such as strong winds, summer and winter storms, tornados and blizzards have a similar effect on each of the communities. The County identified two specific areas that they felt posed additional vulnerability due to the lack of shelter available to people frequenting the areas; specifically, the West Pollock Campground which often has as many as 125 campers at a given time does not have adequate shelter. Additionally, the Herreid Football Field does not have a place to seek shelter or a safe room. Heavy rain and rapid snow melt affect each community differently. The Town of Pollock does not have any low spots and the town sits above all natural drainage areas so it does not suffer from excess water caused by heavy rains or rapid snow melt. Mound City is impacted by rapid snow melt due to a few areas that fill with water.

Herreid has a manmade earthen berm that is regulated by the Corps of Engineers which detains water from Spring Creek. The emergency manager and local residents have concerns that if the dike were breached or over topped, it would cause major damage to the houses and businesses in Herreid. The City does regular maintenance on the gates but the Corps is ultimately in charge of it.

The loss of the Hiddenwood Dam due to dam failure in 2018 has since changed the watershed and what happens with water during heavy rain and rapid snow melt events. Spring Creek flows north. There are four county roads that almost went under water during/immediately after the dam break. The County has not seen any impacts to roads since the 2018 dam failure. However, they have not had any heavy rain events or wet years since then. There is still a concern about the impacts to the County in wet years or after a heavy rain event.

Corson County

Corson County's jurisdiction is entirely within the boundaries of the Standing Rock Sioux Tribal Reservation, which also covers Sioux County, North Dakota. Standing Rock does not reach or branch into any of the other counties served by this Plan and Sioux County and Standing Rock Sioux Reservation have their own separate mitigation plan.

Corson County is identified as having no Special Flood Hazard Areas with an effective FIRM date of May 17, 2004. According to the National Inventory of Dams, there are thirteen significant hazard and one high hazard dams in Corson County. [20]

[20] National Inventory of Dams. 2024.

There are numerous structures, mostly mobile homes, which are not properly anchored down or built to sustain the types of wind events that are common to the area. These homes are at an elevated risk of being impacted by natural hazard than other homes. These dwellings are often several miles from the nearest location that could provide adequate safety for severe weather. There are also abandoned homes in the County that can and have caught on fire.

Each community in the County has what is referred to locally as a 'blue gym.' These gyms are used as storm shelters but it is unknown if they meet the criteria for a storm shelter under the International Code Council's *Standard for Design and Construction of Storm Shelters.* Most of these gyms do have backup generators. In addition to the blue gyms, the Courthouse and School in McLaughlin are also used as storm shelters.

A Flood Insurance Study completed for Corson County in 2004 describes the cities of McIntosh and McLaughlin as "non-floodprone communities." The Town of Wakpala (unincorporated) has a history of flooding, some severe, however the 1993 study completed by the USACE concluded that Lake Oahe, which is controlled by USACE had no impact on the flood problems experienced by the community. The Town of Bullhead (census-designated place) is subject to flooding from both the Grand River and Rock Creek. The Grand River is a large prairie river that flows along the south side of the town. Rock Creek is an ungauged left bank tributary to the Grand River that flows directly through the center of the town. The Town of Little Eagle (Census-designated place, not incorporated) is subject to flooding from the Grand River which flows on the south side of the town. There are no significant flood-protection measures located within Bullhead. The Grand River is somewhat controlled by Shadehill Dam which is a large dam controlled by the US Bureau of Reclamation located seventy miles upstream of Bullhead and eighty-five miles upstream of Little Eagle. Shadehill Dam was completed in 1950 and designed for 100-year flood storage for approximately the upstream half of the river basin. A small conservation dam is located on a tributary of Rock Creek approximately one mile upstream of Bullhead. The dam offers very little flood storage and controls only a small tributary of Rock Creek. The dam does not have any impact on the flooding of Rock Creek and does provide protection from floods evaluated in the Flood Insurance Study. The Oak Creek floodplain's east overbank in Wakpala is bisected by County Highway 277. The road has a significant embankment that affects flooding in the community. The road confines flow upstream causing floodwaters to rise 1.5 feet higher than the natural floodplain. The Bureau of Indian Affairs constructed a small berm on the north side of the Town of Wakpala in 1990 to prevent Oak Creek flood waters from entering a drainage ditch on the east side of County Hwy 277. This drainage ditch had a history of conveying Oak Creek flood waters from the north to the central part of Wakpala. The berm is insignificant; no more than one to two feet high and does not provide protection from floods evaluated by the Flood Insurance Study. No other structures such as dams, levees, dikes, canals, or other flood-control measures provide protection from the 100-year flood event in the Town of Wakpala.

Dewey County

Dewey County is separated into two unorganized territories and includes within its borders three municipalities including Eagle Butte, Timber Lake, and Isabel; four census designated places including Green Grass, La Plant, North Eagle Butte, and Whitehorse; and four unincorporated communities including Firesteel, Glencross, Lantry, and Ridgeview. Dewey County also shares the land within its borders in its entirety with the Cheyenne River Sioux Tribe Reservation.

The county is characterized by numerous clusters of mobile homes scattered throughout the countryside. These clusters along with the census designated places and unincorporated communities are largely dependent on tribal protection and funding in the event of adverse

weather and more often than not do not have adequate shelter for tornado and high wind events. These homes are at an elevated risk of being impacted by natural hazard than other homes.

Dewey County does not have land use ordinances, zoning, or a comprehensive plan; they also do not actively manage their floodplain. Dewey County experiences drought and wildfires (prairie fires) on a regular basis. Similar to most rural counties in South Dakota, Dewey County relies heavily on volunteer firefighters and the generosity of local ranchers to provide additional equipment when needed.

A flood insurance study completed in 2004 shows that the principal flood problems are caused by snow melt and heavy rain in early control devices in the County which provide protection from the 100-year flood event in Dewey County.

Walworth County

Walworth County updated their 1983 zoning ordinance and comprehensive plan which was adopted in May of 2017 and amended in 2018. The 2018 amendment changed the Planning and Zoning Board and the Board of Adjustments from being separate boards to being the same as the County Commission; so, the County Commission handles all of those responsibilities at this time. The City of Mobridge has a three mile jurisdiction that they manage within their zoning board. Walworth County also manages their own landfill which is used by the surrounding counties.

Mobridge

Mobridge is the largest City in WarHawk District, making population the biggest characteristic that differs from the surrounding communities in Walworth County and WarHawk District as a whole. The City is a regional hub for a 100 mile radius. It is also home to the Mobridge Regional Hospital and Clinics. There are also outreach clinics in Selby, Timber Lake and McLaughlin. The Mobridge Ambulance (operated by the hospital) and the Mobridge Fire Department are both all volunteer services. Both the ambulance service and fire departments serve the rural areas outside of Mobridge.

In addition to population, the City of Mobridge is unique in that it is located on the Missouri River. The City's has a storm sewer system that covers parts of the town but is not comprehensive. The City has identified a need for improvements and/or additions to their storm sewer system but lacks the funds and capacity to make improvements at this time. Mobridge has an emergency shelter with a backup generator for power but has concerns about being able to feed people if an event lasts longer than a few hours.

Ziebach County

The entire land area located within Ziebach County is located within the Cheyenne River Indian Reservation. There are only two organized municipalities, Dupree and Eagle Butte. Eagle Butte is only partially located in Ziebach County and partly located in Dewey County. Ziebach County sits among three watersheds, the Missouri River, the Moreau River, and the Cheyenne River.

At certain times of the year, areas become susceptible to river flooding due to heavy rains and spring thaw. The Missouri River is the major source of drinking water supply for Ziebach County. Tri County Water obtains and distributes the water to area residents. Severe winter storms and summer storms can have severe impacts in the area due to poorly constructed living structures

in rural parts of the county and lack of safe places to take shelter during severe wind/weather events.

The county participates in NFIP, however participation among residents is low, and the overall understanding of the NFIP program among county officials is limited.

V. MITIGATION STRATEGY

CHANGES/REVISIONS TO MITIGATION STRATEGY:
Mitigation Strategies were added for each hazard identified. The format of this section was changed to group projects by hazard (not necessarily by jurisdiction). Separate sections were added to identify projects that have been completed as well as projects that are no longer a priority for the various jurisdictions.

Additional information was added on the NFIP participation and status for each jurisdiction.

MITIGATION REQUIREMENTS

Requirement 201.6(c)(3). *The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources and its ability to expand on and improve these existing tools.*

MITIGATION OVERVIEW

The State of South Dakota Hazard Mitigation Plan addresses several mitigation categories including warning and forecasting, community planning, and infrastructure reinforcement. WarHawk District and participating entity's greatest needs are backup generators for critical infrastructure and storm shelters, and public awareness.

After meetings with the local jurisdictions, stakeholders and opportunities for public input, a series of mitigation goals were devised to best aid the WarHawk District and participating jurisdictions in reducing impact of natural hazards. Projects previously identified in the plan were discussed to determine which of the projects had been completed and which of the projects had enough merit to remain in the updated plan and to determine if the projects met the hazard mitigation needs of all jurisdictions. These projects were evaluated based on a preliminary evaluation of cost/benefit and priority based on either historical damages or anticipated damage. Consideration of prioritization also included possible future impacts due to climate variations and vulnerable and underserved populations.

A high priority classification means the project should be implemented as soon as possible and would minimize losses at a very efficient rate. A *moderate* classification means the project should be carefully considered and completed after the high priority projects have been completed. A *low* priority means the project should not be considered in the near future. However, it is a potential solution and should not be eliminated until further evaluation can be completed.

Requirement 201.6(c)(3)(i): The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

> ***Element C3-a.*** *Does the plan include goals to reduce the risk from the hazards identified in the plan?*

Requirement 201.6(c)(3)(ii). The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to

reduce the effects of each hazard with particular emphasis on new and existing buildings and infrastructure.

Element C4-a. *Does the plan include an analysis of a comprehensive range of actions/projects that each jurisdiction considered to reduce the impacts of hazards identified in the risk assessment?*

Element C4-b. *Does the plan include one or more actions(s) per jurisdiction for each of the hazards as identified within the plan's risk assessment?*

Requirement 201.6(c)(3)(iii). *The hazard mitigation strategy shall include an action plan, describing how the action identified in…this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.*

Requirement 2016.6(c)(3)(iv). *For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.*

Element C5-b. *Does the plan provide the position, office, department or agency responsible for implementing/administrating the identified mitigation actions, as well as potential funding sources and expected time frame?*

Dam Failure

Goal 1: Reduce the impact of dam failure in the WarHawk District

Project 1	Continue to review inspection reports for High Hazard Dams
Jurisdictions	Campbell, Corson, Walworth and Ziebach Counties (not a hazard in Dewey County)
Responsible Entity	County Emergency Managers
Priority	Low
Funding Source	NA - No cost aside from staff time
Timeframe	Ongoing – Inspections occur every five years
Notes	The County Emergency Manager is provided a copy of the High-Risk Dam reports for all dams that aren't federally owned.

Drought

Goal 1: Reduce the impact of drought in the WarHawk District

Project 1	Review and enforce water restrictions when applicable. Or provide information on water conservation in areas where ordinances aren't available.
Jurisdictions	All Jurisdictions
Responsible Entity	County Commissions/City Councils/Town Boards
Priority	Low
Funding Source	NA - No cost aside from staff time
Timeframe	Ongoing – Inspections occur every five years
Notes	Enforcing water restrictions has not been done in the past in Corson or Ziebach Counties as excess water use isn't a problem. Many

	residents in Dewey County are self-policing and reduce their water use voluntarily during times of drought.

Project 2	Add water storage tanks as a secondary water source in the event of a fire
Jurisdictions	Akaska, Java, Glenham
Responsible Entity	Town Board
Priority	Moderate
Funding Source	SD DANR
Timeframe	3-5 years

Extreme Temperatures

Goal 1: Reduce the impact of extreme temperatures in the WarHawk District

Project 1	Provide information and educational materials to the public on personal safety during extreme temperatures. Provide information to livestock producers on livestock welfare during extreme temperatures.
Jurisdictions	All Jurisdictions
Responsible Entity	County Emergency Manager/City Staff
Priority	High
Funding Source	NA – No cost aside from staff time
Timeframe	Ongoing
Notes	Special considerations should be given to vulnerable populations.

Flooding

Goal 1: Reduce the impact of flooding in the WarHawk District

Project 1	Identify roads that need to be elevated to prevent from becoming inundated with water. Identify culverts that need to be upsized.
Jurisdictions	All Jurisdictions
Responsible Entity	Highway Superintendent
Priority	Moderate
Funding Source	HMGP, BRIC
Timeframe	Ongoing

Project 2	Continue education and awareness on the dangers of flooding, how to deal with flooding, including transportation safety, home protection strategies and personal safety.
Jurisdictions	All Jurisdictions
Responsible Entity	County Emergency Manager/City Staff
Priority	High
Funding Source	NA – No cost aside from staff time
Timeframe	Ongoing
Notes	Special considerations should be given to vulnerable populations.

Project 3	Curb, gutter, storm drainage construction to provide better drainage during high water and/or periods of rapid snow melt.
Jurisdictions	Mound City, Herreid, Pollock
Responsible Entity	Town Board/City Council
Priority	Moderate
Funding Source	HMGP, BRIC, USDA RD and SD DANR
Timeframe	Unknown

Project 4	Continue to monitor dike on the east side of Herreid which holds back the waters of Spring Creek. The dike is a manmade earthen berm. The City conducts regular maintenance checks. The dike may need to be expanded or improved.
Jurisdictions	Herreid
Responsible Entity	Herreid Utility Manager
Priority	Ongoing
Funding Source	NA – No cost aside from staff time
Timeframe	Unknown

Project 5	Add additional storm water capacity within the City of Mobridge
Jurisdictions	Mobridge
Responsible Entity	City Administrator
Priority	Moderate
Funding Source	HMGP, BRIC, USDA RD and SD DANR
Timeframe	3-5 years

Project 6	Identify a solution to prevent the west side of Glenham from flooding.
Jurisdictions	Glenham
Responsible Entity	Glenham Town Board
Priority	High
Funding Source	HMGP, BRIC, USDA RD and SD DANR
Timeframe	1-3 years
Notes	Each time there is heavy rain or snowmelt the city has to hire a company from Mobridge to come in and trench the ditch at the culvert to the railroad bed and use a backhoe to clear snow away to give water a path to prevent the lagoon from flooding.

Project 7	Identify a solution to prevent flooding in Selby by the care center entrance during high water, heavy rain and snow melt events
Jurisdictions	Selby
Responsible Entity	Selby Town Board
Priority	Medium
Funding Source	HMGP, BRIC, USDA RD and SD DANR
Timeframe	1-3 years

Ice Jams

Goal 1: Reduce the impact of ice jams in the WarHawk District

Project 1	Identify areas that may be prone to ice jams and determine if alterations are needed for existing infrastructure/bridges
Jurisdictions	All Jurisdictions (not a hazard in Ziebach County)
Responsible Entity	County Emergency Manager
Priority	Low
Funding Source	NA – No cost aside from staff time
Timeframe	Ongoing

Summer Storms

Goal 1: Reduce the impact of summer storms in the WarHawk District

Project 1	Promote the use of weather apps, mobile phone alerts and the Integrated Public Alert and Warning System (IPAWS) for all hazard events
Jurisdictions	All Jurisdictions
Responsible Entity	County Emergency Managers
Priority	High
Funding Source	NA – No cost other than staff time
Timeframe	Ongoing

Project 2	Increase public awareness and education on severe weather issues.
Jurisdictions	All Jurisdictions
Responsible Entity	County Emergency Managers
Priority	High
Funding Source	NA – No cost other than staff time
Timeframe	Ongoing
Notes	Information on severe storms is often provided via cell phone alerts, radio station, TV stations and weather related apps.

Project 3	Install a backup generator at the County Highway Shop
Jurisdictions	Walworth County
Responsible Entity	Highway Superintendent
Priority	Moderate
Funding Source	HMGP, BRIC
Timeframe	3-5 years

Project 4	Install a permanent backup generator at lift stations
Jurisdictions	City of Mobridge
Responsible Entity	Water/Wastewater Superintendent
Priority	Moderate
Funding Source	HMGP, BRIC
Timeframe	3-5 years

Project 5	Construct a storm shelter at vulnerable locations in County, including Akaska and New Everts Resort
Jurisdictions	Town of Akaska and Walworth County
Responsible Entity	Akaska Town President, Walworth County Emergency Manager

Priority	Moderate
Funding Source	HMGP, BRIC
Timeframe	1-5 years

Project 6	Provide training for EMS and others for severe weather spotter training, tornado spotting and other emergency planning.
Jurisdictions	All Jurisdictions
Responsible Entity	County Emergency Manager
Priority	Moderate
Funding Source	Local funding, NWS (technical assistance and education)
Timeframe	Ongoing

Tornados

Goal 1: Reduce the impact of tornados in the WarHawk District

Project 1	Evaluate the need for additional storm shelters or awareness about existing storm shelters. Construct additional shelters, if necessary.
Jurisdictions	All Jurisdictions
Responsible Entity	County Emergency Manager
Priority	Moderate
Funding Source	BRIC, HMGP
Timeframe	1-5 years
Notes	Depending on the area and local resources, a mix of storm boxes and/or storm shelters may be appropriate to better meet the benefit cost ratio requirements of the mitigation programs.

Project 2	Construct a storm shelter at vulnerable locations in County, including Akaska and New Everts Resort
Jurisdictions	Town of Akaska and Walworth County
Responsible Entity	County Emergency Manager
Priority	Moderate
Funding Source	BRIC, HMGP
Timeframe	1-5 years

Project 3	Promote the use of cell phone alerts and the Integrated Public Alert and Warning System (IPAWS)
Jurisdictions	All Jurisdictions
Responsible Entity	County Emergency Managers
Priority	High
Funding Source	NA – No cost other than staff time
Timeframe	Ongoing

Wildland Fires

Goal 1: Reduce the impact of wildland fires in the WarHawk District

Project 1	Review and use burn bans, as necessary. Where burn bans aren't implemented; provide education and awareness around the use of controlled burns.
Jurisdictions	All Jurisdictions
Responsible Entity	County Commissions
Priority	Moderate
Funding Source	NA – No cost other than staff time
Timeframe	Ongoing
Notes	Campbell County Commission enacts burn bans as needed. Corson County doesn't currently enact a burn ban. Residents need to call dispatch or their volunteer fire department to get permission for controlled burns. Dewey County doesn't currently enact a burn ban. Residents are required to call for permission to enact a controlled burn. In Walworth County municipalities, the fire chief approves any planned burns. Walworth County has regulations on open burning as part of their Ordinances. Ziebach County doesn't currently enact a burn ban. Residents need to call the Sheriff's office to get permission for controlled burns. Dupree allows supervised burning depending on wind and weather conditions.

Project 2	Add water storage tanks as a secondary water source in the event of a fire
Jurisdictions	Akaska, Java, Glenham
Responsible Entity	Town Presidents
Priority	Moderate
Funding Source	SD DANR
Timeframe	3-5 years

High/Strong Winds

Goal 1: Reduce the impact of high/strong winds in the WarHawk District

Project 1	Provide more public education on mobile home safety during high wind events.
Jurisdictions	All Jurisdictions
Responsible Entity	County Emergency Managers
Priority	High
Funding Source	NA – No cost other than staff time
Timeframe	Ongoing
Notes	This could address orientation of mobile homes in regard to prevailing winds along with the use of tie downs.

Winter Storms

Goal 1: Reduce the impact of winter storms in the WarHawk District

Project 1	Increase public awareness and education about severe winter weather
Jurisdictions	All Jurisdictions
Responsible Entity	County Emergency Managers
Priority	High
Funding Source	NA – No cost other than staff time
Timeframe	Ongoing
Notes	Information on severe storms is often provided via cell phone alerts, radio station, TV stations and weather related apps.

Project 2	Reduce the extent of utility outages during sever weather situations
Jurisdictions	Campbell, Corson, Dewey, Ziebach County
Responsible Entity	Rural Electric Cooperatives (Moreau Grand and Cam Wal)
Priority	High
Funding Source	BRIC, HMGP
Timeframe	Ongoing
Notes	Powerline burials remain a high priority for residents in the WarHawk District; however, rural electric providers participate in the statewide mitigation planning efforts and therefore specific projects were not included in this plan.

Project 3	Survey areas in need of snow shelterbelts and living snow fences and plant trees accordingly
Jurisdictions	All Jurisdictions
Responsible Entity	County Emergency Manager
Priority	Moderate
Funding Source	SD DOT, SD DANR (technical assistance)
Timeframe	Ongoing
Notes	Could potentially partner with Conservation Districts

Project 4	Reconstruct roads to alleviate snow blockage and flooding in the spring
Jurisdictions	Dewey County
Responsible Entity	Highway Superintendent
Priority	Moderate
Funding Source	BRIC, HMGP
Timeframe	5 years +

Project 5	Install a backup generator at the County Highway Shop
Jurisdictions	Walworth County
Responsible Entity	Highway Superintendent
Priority	Moderate
Funding Source	HMGP, BRIC
Timeframe	3-5 years

Project 6	Install a permanent backup generator at lift stations

Jurisdictions	City of Mobridge
Responsible Entity	Water/Wastewater Superintendent
Priority	Moderate
Funding Source	HMGP, BRIC
Timeframe	3-5 years

Project 4	Promote the use of cell phone alerts and the Integrated Public Alert and Warning System (IPAWS)
Jurisdictions	All Jurisdictions
Responsible Entity	County Emergency Managers
Priority	High
Funding Source	NA – No cost other than staff time
Timeframe	Ongoing

Changes since the last plan update

Requirement 201.6(d)(3). *A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within five years in order to continue to be eligible for mitigation project grant funding.*

> ***Element E2-b.*** *Does the plan include a status update for all mitigation actions identified in the previous mitigation plan?*

Several changes to mitigation projects have been made since the last plan update in 2019. In some cases, projects have been streamlined and/or several projects in the previous plan have been combined into one overall project in this plan update. There were several projects related to storm shelters, raising roads and fire/burn bans that have been simplified and/or consolidated since the last plan update.

Projects from the 2019 plan that have been completed.

All Jurisdictions
Section II: Mitigation Activities for Severe Weather Hazards
Goal 1 – Increase public awareness and education on severe weather issues.
Project #2 – Improve communication with broadband service in areas that currently do not have.
Project #5 – Develop a comprehensive mass shelter plan for each county and identify at risk population in each county.

Campbell County
Section I: Mitigation Activities for Flooding Hazards
Goal #1, Reduce flood risk in WarHawk District
Project #1 – Replace or install new rip rap and fabric lining on all sides of the sewer lagoon in Mound City to enhance erosion control during high water or flood events to alleviate lagoon failure.
Project #3 – Relining project at the sewer lift station in the Town of Pollock to ensure proper operation of the system during high water events.

Corson County
Section I: Mitigation Activities for Flooding Hazards
Goal #1, Reduce flood risk in WarHawk District
Project #1, Replace failing cast iron sewer and water lines with PVC in the City of McIntosh

Project #2: Storm drainage improvements to tie in with Main Street reconstruction project in the City of McLaughlin
Project #4: Rip rap lagoon in Morristown

Projects from the 2019 plan that have been removed due to no longer being a priority.

All Jurisdictions
Section II: Mitigation Activities for Severe Weather Hazards
Goal 4 – Reduce crippling effects of winter storms, especially regarding smaller communities.
Project #3 – Promote the use of NOAA weather radios for all hazard events.
Discussion: Most people use phone alerts/weather apps to get alerts.
Section I: Mitigation Activities for Flooding Hazards
Goal #3: Become more informed on the NFIP, flood maps, flood plain ordinances to better serve the residents of the district.
Project #1: Inquire to FEMA about getting mapped.
Discussion: Much of the county is in a NSFHA or Zone C and X, flooding isn't common and the jurisdictions realize they don't have much control over when the area is mapped or not.
Project #2: Inquire to State Office of Emergency Management about providing training to the WarHawk District emergency managers, city finance offices, county planning and zoning officials, and city and county employees and governing board members to ensure there are numerous knowledgeable people in the area to implement and follow NFIP policies and procedures to better benefit the entire population of WarHawk District.
Discussion: Much of the county is in a NSFHA or Zone C and X, flooding isn't common in the county.
Project #3: Maintain NFIP program and familiarize floodplain administrators with floodplain ordinance and appropriate tasks of the position.
Discussion: Much of the county is in a NSFHA or Zone C and X, flooding isn't common in the county.

Campbell, Corson, Dewey and Ziebach Counties
Section II: Mitigation Activities for Severe Weather Hazards
Goal 1 – Increase public awareness and education on severe weather issues.
Project #3: Review and update building codes for tornado shelters throughout the County
Discussion: Corson, Dewey and Ziebach Counties have not adopted their own building code ordinance. Campbell County follows the International Building Code

Corson County
Section II: Mitigation Activities for Severe Weather Hazards
Goal 1 – Increase public awareness and education on severe weather issues.
Project #4 – Provide more education on tie downs for mobile homes.

Dewey County
Section I: Mitigation Activities for Flooding Hazards
Goal 1: Reduce flood risk in WarHawk District
Project 1: Waterline rerouting to avoid damage and exposure during flash flood event.
Discussion: During the planning meeting, participants said this has not been an issue in the past.

Ziebach
Goal 4: Protect infrastructure from flood hazard

Project 2: Identify areas that may be prone to ice jams (if any) and determine if alterations are needed for existing infrastructure/bridges
Discussion: Ice jams are not a hazard in Ziebach County

Projects from the 2019 plan that have been removed due to not being mitigation.

All Jurisdictions
Section II: Mitigation Activities for Severe Weather Hazards
Goal 4 – Reduce crippling effects of winter storms, especially regarding smaller communities.
Project 4: Continue training for EMS for severe weather, tornado spotting, hazardous materials, vehicle safety, school and assisted living incidents, emergency planning
Section III: Mitigation Activities for Fire and Drought Hazards
Goal 1 – Increase firefighting capabilities
Project 1 – Find funding sources to pay for persons to fill positions while individuals are at training courses. Training courses often last several days and replacements for those days are hard to find and pay for.

IMPLEMENTATION OF MITIGATION ACTIONS

Element C5-a. *Does the plan describe criteria used for prioritizing actions?*

Prioritization Strategy for Mitigation Actions

The strategy for prioritization has always been to work with the projects that will have the greater impact and benefit for the public. These projects are currently prioritized based on a number of factors, including: 1) Feasibility, 2) Impact to the public, 3) Improvements to the systems that will provide the greatest operational flexibility, 4) Perceived Benefit to Cost ratio. As with any strategy, the possibility of change exists due to the fact that some of these factors may change as new and better information becomes available. Final cost estimates and further analysis of total benefits would need to be completed in order to do a true benefit cost analysis. After that information is completed, some of the priorities may change. Many of the projects are identified as “ongoing” and have little to no cost. These are mitigation measures that are part of typical, day to day, activities of the counties or emergency management departments and due to their ongoing nature are obviously not prioritized in the same manner as projects that will require actual construction and cash in order to be realized.

Upon adoption of the updated WarHawk District PDM plan, each jurisdiction will become responsible for implementing its own mitigation actions. Those who do not participate or adopt the plan will be required to coordinate all mitigation actions with the County. The planning required for implementation is the sole responsibility of the local jurisdictions that have participated in the plan update. Jurisdictions that participated and adopted the plan can implement mitigation actions as they deem appropriate. Mobridge 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. Other municipalities indicated that they do not have the financial capability to move forward with projects identified in the Plan at this time, however, they 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.

NATIONAL FLOOD INSURANCE PROGRAM PARTICIPATION

Requirement: 201.6(c)(3)(ii): *[The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.*

> ***Element C2-a.*** *Does the plan contain a narrative description or a table/list of their participation activities?*

WarHawk District counties and some of the communities within participate in the National Flood Insurance Program. Many of the communities participating in these counties have no special flood hazard areas (NSFHA). Those who participate include Artas, Campbell County, Cheyenne Indian Reservation, Corson County, Dewey County, Dupree, Eagle Butte, Herreid, Isabel, McIntosh, Pollock, Standing Rock Indian Reservation, Walworth County, Ziebach County. The counties will continue to participate and ensure compliance of the participating local jurisdictions located within the flood plain.

Overall, the status of NFIP in WarHawk District is confusing, and mostly not understood by the governing bodies tasked with compliance; mostly due to the fact that the counties have not been mapped (though the reservations have) and because they do not have any special flood hazard areas.

Table 5.1 WarHawk NFIP Participation and Status

Jurisdiction	Participate in NFIP	Mapped	FIRM Status
Campbell	Yes	No	NSFHA - All Zone C and X
Artas	Yes	No	NSFHA - All Zone C and X
Herreid	Yes	Yes	All Zone A, C and X
Mound City	No	No	NSFHA
Pollock	Yes	No	All Zone C and X
Corson	Yes	No	Original
McIntosh	Yes	Yes	All Zone C and X
McLaughlin	No	Yes	Zone X
Morristown	No	Yes	Zone X
Dewey	Yes	No	NSFHA - All Zone C and X
Eagle Butte	Yes	Yes	All Zone A, C and X
Isabel	Yes	No	All Zone C and X
Timber Lake	No	No	
Walworth	Yes	No	All Zone C and X
Akaska	No	No	NSFHA
Glenham	No	No	NSFHA
Java	No	No	NSFHA
Lowry	No	No	NSFHA
Mobridge	No	No	NSFHA
Selby	No	Yes	Zone A
Ziebach	Yes	No	All Zone C and X
Dupree	Yes	Yes	All Zone A, C and X

Cheyenne River Sioux Tribe	Yes	Yes	
Standing Rock Sioux Tribe	Yes	Yes	Original
TOTALS			
Zone C	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. May have ponding and local drainage problems that don't warrant a detailed study or designation as base floodplain		
Zone X	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level and protected by levee from 100-year flood.		
Zone A	Areas with a 1% annual chance of flooding		

VI. PLAN MAINTENANCE

CHANGES/REVISIONS TO PLAN MAINTENANCE:

Only minor changes were made to the plan maintenance section of the plan.

MONITORING, EVALUATING, AND UPDATING THE PLAN

Requirement 201.6(c)(4)(i). *The plan maintenance process shall include a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.*

> ***Element D2-a.*** *Does the plan describe the process that will be followed to track the progress/status of the mitigation actions identified within the Mitigation Strategy, along with when this process will occur and who will be responsible for the process?*
>
> ***Element D2-b.*** *Does the plan describe the process that will be followed to evaluate the plan for effectiveness? This process much identify the criteria that will be used to evaluate the information in the plan, along with when this process will occur and who will be responsible.*
>
> ***Element D2-c.*** *Does the plan describe the process that will be followed to update the plan, along with when this process will occur and who will be responsible for the process?*

WarHawk District 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 plan is required to ensure that the goals and objectives for the WarHawk District Natural Hazard Mitigation Plan are kept current and that local mitigation efforts are being carried out.

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 to implement projects. These scenarios are not in themselves a reason to discontinue or fail to update the Natural Hazard Mitigation Plan. A good plan needs to provide for periodic monitoring and evaluation of its successes and failures and allow for appropriate changes to be made.

ANNUAL REPORTING PROCEDURES

The plan shall be reviewed annually, as required by the County Emergency Managers, or as the situation dictates, such as following a disaster declaration. The WarHawk District Emergency Manager will review the plan annually in October and ensure the following:

1. The County Elected bodies will receive an annual report and/or presentation on the implementation status of the plan;
2. The report will include an evaluation of the effectiveness and appropriateness of the mitigation actions proposed in the plan; and

3. The report will recommend, as appropriate, any required changes or amendments to the plan.
4. The report will include budget needs for any upcoming projects that require local match.

FIVE YEAR PLAN REVIEW

Requirement 201.6(d)(3). *A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within five years in order to continue to be eligible for mitigation project grant funding.*

> ***Element E2-a.*** *Does the plan describe how it was revised due to changes in community priorities?*

The planning process for this update was strengthened by having additional planning meetings throughout the entire district. Planning meetings were held in each county to make it more convenient for county and city staff, stakeholders and the public to attend the meetings. A public survey was also implemented to gain additional public input. There are also additional municipalities that have decided to adopt this plan update as compared to the 2019 plan update.

Participants evaluated their priorities regarding hazard mitigation planning and determined that their priorities and goals – to reduce the impacts of natural hazards in their areas remains the same as it did in the 2019 update.

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

In future years, if the District relies on grant dollars to hire a contractor to write Natural Hazard Mitigation Plan update, the WarHawk District Director will initiate the process of applying for and securing such funding in the third year of the plan to ensure the funding is in place by the fourth year of the plan. The fifth year will then be used to write the plan update, which in turn will help prevent any lapse in time where the county does not have a current approved plan 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 plan. The approach to this plan update effort will be essentially the same as the one used for the original plan development.

The WarHawk District Director will meet with the county emergency managers for review and approval prior to final submission of the updated plan.

PLAN AMENDMENTS

Plan amendments will be considered by the WarHawk District Director and county emergency managers, during the plan's annual review to take place in October each 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 consideration by the emergency manager.

INCORPORATION INTO EXISTING PLANNING MECHANISMS

Requirement: §201.6(c)(4)(ii). *The plan shall include a process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.*

> ***Element D3-a.*** *Does the plan describe the process the community will follow to integrate the ideas, information and strategy of the mitigation plan into other planning mechanisms?*
>
> ***Element D3-b.*** *Does the plan identify the planning mechanisms for each plan participant into which the ideas, information and strategy from the mitigation plan may be integrated?*
>
> ***Element D3-c.*** *For multi-jurisdictional plans, does the plan describe each participant's individual process for integrating information from the mitigation strategy into their identified planning mechanisms?*

Requirement 201.6(d)(3). *A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within five years in order to continue to be eligible for mitigation project grant funding.*

> ***Element E2-c.*** *Does the plan describe how jurisdictions integrated the mitigation plan, when appropriate, into other planning mechanisms?*

Mobridge is the only jurisdiction located in WarHawk District that has a capital improvements plan. Walworth and Campbell Counties have Comprehensive plans and zoning and ordinances. All of the other jurisdictions do not have the resources, staff, funding, or need for such planning mechanisms. Campbell and Walworth Counties will consider the mitigation requirements, goals, actions, and projects when it considers and reviews the other existing planning documents such as the comprehensive plans. The other jurisdictions will consider mitigation projects in conjunction with non-mitigation projects, such as water and wastewater infrastructure improvements, new construction of schools, libraries, parks, roads, etc.

The risk assessment which was conducted for the purpose of this plan is specific to mitigation actions and projects included in the Plan and thus is not tied into any other mechanisms that would initiate conversations or actions by the city councils to move forward with actions or projects outlined in the Plan. Absence of such mechanisms creates a problem for the local jurisdictions because ideas, projects, and actions identified as a result of the mitigation plan update process often never move forward because they are forgotten about and no mechanism exists to initiate the process of completing such projects. Thus, the local jurisdictions identified one unrelated mechanism, which could be used to remedy the problem of mitigation projects getting lost in a bookshelf. Municipalities and Counties are required by State law to prepare budgets for the upcoming year and typically consider any expenditure for the upcoming year at that time. South Dakota Codified Law 9-21-2 and 7-21-1 provide that:

> 9-21-2 The governing body of each municipality shall, no later than its first regular meeting in September of each year or within ten days thereafter, introduce the annual appropriation ordinance for the ensuing fiscal year, in which it shall appropriate the sums of money necessary to meet all lawful expenses and liabilities of the municipality….an annual budget for these funds shall be developed and published no later than December thirty-first of each year.
>
> 7-21-2 Commissioners to adopt annual budget. It shall be the duty of the board of county commissioners of each and every county to prepare and adopt an annual budget of all of the contemplated expenditures and revenues of the county and all of its institutions and agencies for each fiscal year, save and except so much of such contemplated expenditures as are for the making or maintenance of special improvements.

Since many of the local jurisdictions lack planning mechanisms in which to incorporate the mitigation actions identified in this plan, it was determined that each year when the budget is prepared the municipalities will also consider the mitigation actions 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 City and County officials that they have identified mitigation projects in the mitigation plan that should be considered if the budget allows for it.

CONTINUED PUBLIC PARTICIPATION/INVOLVEMENT

Requirement: 201.6(c)(4)(iii). *The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.*

> ***Element D1-a.*** *Does the plan describe how communities will continue to seek future public participation after the plan has been approved?*

During interim periods between the five year update, efforts will be continued to encourage and facilitate public involvement and input. The plan will be available for public view and comment at the respective counties' Emergency Management Offices and the NECOG office. Comments will be received at any time.

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 such as social media.

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 WarHawk District 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: Building Resilient Infrastructure and Communities (BRIC) Grant Program
Agency: Federal Emergency Management Agency

The BRIC program supports states, local communities, tribes and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. BRIC supports the undertaking of new and innovative projects that reduce the risks faced from disasters and natural hazards. The BRIC program guiding principles are supporting communities through capability- and capacity-building; encouraging and enabling innovation; promoting partnerships; enabling large projects; maintaining flexibility; and providing consistency.

The funding is based upon a 75% Federal share and 25% non-Federal share. The non-Federal match can be fully in-kind or cash, or a combination thereof. Special accommodations will be made for "small and impoverished communities," who will be eligible for 90% Federal share/10% non-Federal.

FEMA provides BRIC grants to states that, in turn, can provide sub-grants to local governments for accomplishing the following eligible mitigation activities: State and local hazard mitigation planning, technical assistance (e.g. risk assessments, project development), mitigation projects, acquisition or relocation of vulnerable properties, Hazard retrofits, Minor structural hazard control or protection projects, and community outreach and education (up to 10% of State allocation).

Title: Hazard Mitigation Grant Program (HMGP)
Agency: Federal Emergency Management Agency

The Hazard Mitigation Grant Program (HMGP) was created in November 1988 through Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistant Act. The HMGP assists states and local communities in implementing long-term mitigation measures following a Presidential disaster declaration.

To meet these objectives, FEMA can fund up to 75% of the eligible costs of each project. 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 that may be funded include the acquisition or relocation of structures from hazard-prone areas, the retrofitting of existing structures to protect them from future damages; and the development of state or local standards designed to protect buildings from future damages.

Eligibility for funding under the HMGP is limited to state and local governments, certain private nonprofit organizations or institutions that serve a public function, Indian tribes and authorized tribal organizations. These organizations must apply for HMPG project funding on behalf of their citizens. In turn, applicants must work through their state, since the state is responsible for setting priorities for funding and administering the program.

Title: Pre-Disaster Mitigation Program (PDM)

Agency: Federal Emergency Management Agency

Through the Disaster Mitigation Act of 2000, Congress approved the creation of a national program to provide a funding mechanism that is not dependent on a Presidential Disaster Declaration. The Pre-Disaster Mitigation (PDM) program provides funding to states and communities for cost-effective hazard mitigation activities that complement a comprehensive mitigation program and reduce injuries, loss of life, and damage and destruction of property.

The funding is based upon a 75% Federal share and 25% non-Federal share. The non-Federal match can be fully in-kind or cash, or a combination. Special accommodations will be made for "small and impoverished communities," who will be eligible for 90% Federal share/10% non-Federal.

FEMA provides PDM grants to states that, in turn, can provide sub-grants to local governments for accomplishing the following eligible mitigation activities: State and local hazard mitigation planning, Technical assistance (e.g. risk assessments, project development), Mitigation Projects, Acquisition or relocation of vulnerable properties, Hazard retrofits, Minor structural hazard control or protection projects Community outreach and education (up to 10% of State allocation)

Title: Flood Mitigation Assistance Program

Agency: Federal Emergency Management Agency

FEMA's Flood Mitigation Assistance program (FMA) 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 a pre-disaster grant program and is available to states on an annual basis. This funding is available for mitigation planning and implementation of mitigation measures only and is based upon a 75% Federal share/25% non-Federal share. States administer the FMA program and are responsible for selecting projects for funding from the applications submitted by all communities within the state. 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: Public Assistance (Infrastructure) Program, Section 406

Agency: Federal Emergency Management Agency

FEMA's Public Assistance Program, through Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, provides 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 and local governments, Indian tribes or authorized tribal organizations and include:

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

Private nonprofit 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	Power cooperatives & other utilities
Hospitals & clinics	Custodial care & retirement facilities
Volunteer fire & ambulance	Museums & community centers

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.

Title: Community Development Block Grants
Agency: US 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 people. The CDBG program also provides grants for post-disaster hazard mitigation and recovery following a Presidential disaster declaration. Funds can be used for activities such as acquisition, rehabilitation or reconstruction of damaged properties and facilities and for the redevelopment of disaster areas.

Title: Water and Environmental Programs
Agency: USDA Rural Development

Through Rural Utilities Service Water and Environmental Programs (WEP), rural communities obtain the technical assistance and financing necessary to develop drinking water and waste disposal systems. Safe drinking water and sanitary waste disposal systems are vital not only to public health, but also to the economic vitality of rural America. WEP provides funding for the construction of water and waste facilities in rural communities and is proud to be the only Federal program exclusively focused on rural water and waste infrastructure needs of rural communities with populations of 10,000 or less.

State

Title: Sanitary and Storm Sewer Project Funding
Agency: South Dakota Department of Agriculture and Natural Resources

The Consolidated Water Facilities Construction Program was established to provide grants and loans for water related projects. The amount of funds available is dependent upon the amount appropriated by the Legislature and the amount of funds previously awarded.

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

and regular 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.