2026

HAZARD MITIGATION PLAN

Davison County, South Dakota



PREPARED BY:

Davison County Hazard Mitigation Planning Team

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2026 Davison County (SD)
Hazard Mitigation Plan



CHAPTER I

Planning Process

PLANNING & DEVELOPMENT DISTRICT III

CHAPTER I
PLANNING PROCESS

Background

This plan is an update of the Davison County Hazard Mitigation Plan, which was approved by FEMA in August 2021. The purpose of the plan is to prevent or reduce losses to people and property that may result from future hazard events in Davison County. The plan identifies and analyzes the hazards that the county is susceptible to and proposes a mitigation strategy to minimize future damage that may be caused by those hazards. The document will serve as a strategic planning tool for use by Davison County in its efforts to mitigate future disaster events.

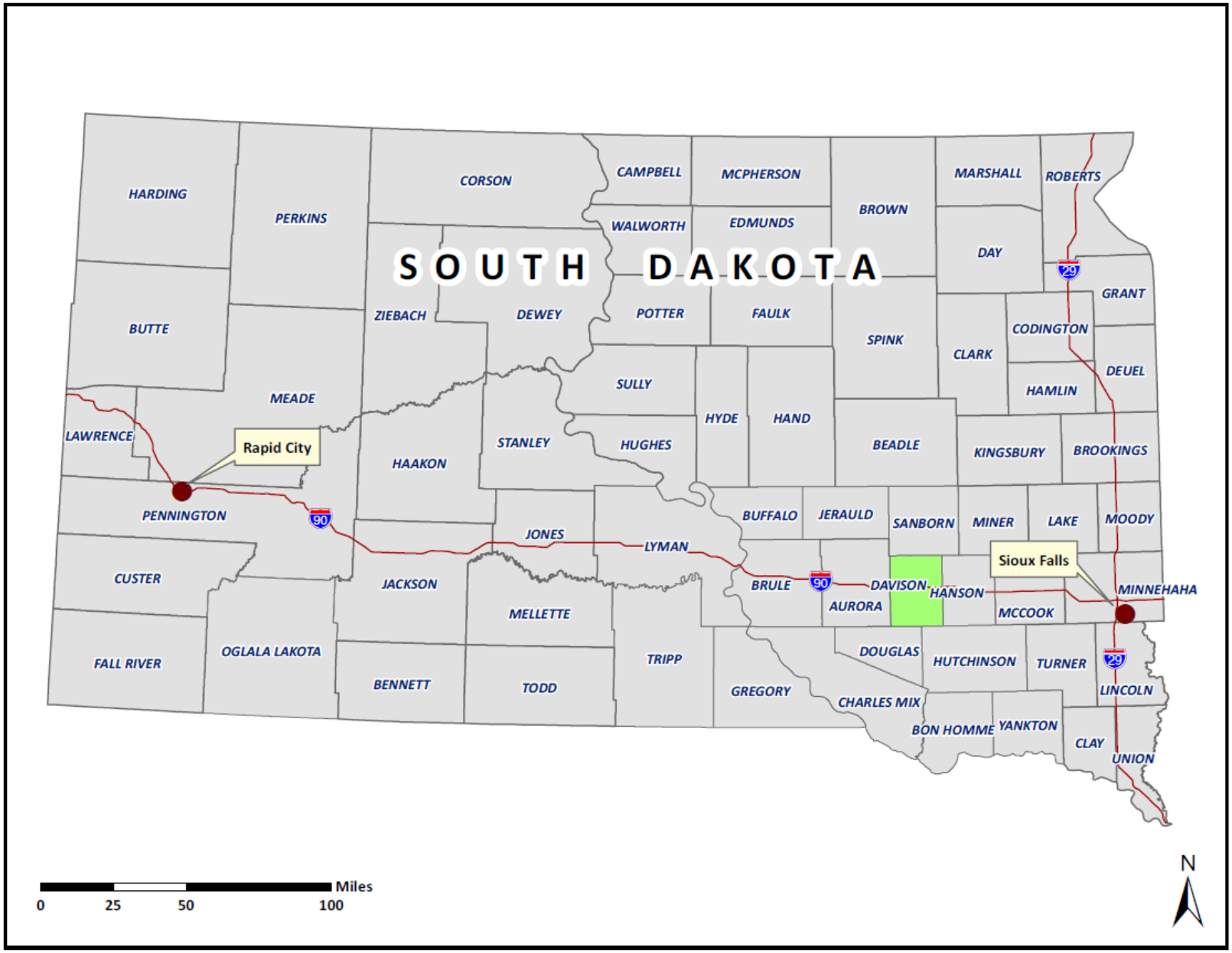
This is a multi-jurisdictional plan. All the municipalities located within Davison County were invited to participate in the plan's development. Following is the list of jurisdictions that chose to participate by sending representatives to attend the planning meetings and by providing input into the plan:

- Davison County
- Town of Ethan
- City of Mitchell
- City of Mount Vernon

Production of the plan was the ultimate responsibility of the Davison County Office of Emergency Management, which served as the county's point of contact for all activities associated with this plan. Input was received from a hazard mitigation planning team whose members are listed in **Table 1.1**, as well as the public and other stakeholders.

The plan itself was written by an outside contractor, Planning & Development District III of Yankton, South Dakota, one of the state's six regional planning entities. The office has an extensive amount of experience in producing various kinds of planning documents, including municipal ordinances, land use plans, and zoning ordinances, and it is an acknowledged leader in geographic information systems (GIS) technology in South Dakota. Furthermore, its staff has written hazard mitigation plans for all fifteen of the counties in the District's planning area, including Davison County's current plan.

Figure 1.1 – County Location



The following staff members of Planning & Development District III were involved in producing the plan. John Clem, a Community Development Specialist, was the project manager and author of the plan. Shannon Viereck assisted in the public outreach and risk assessment efforts, provided additional research assistance, and edited the final copy of the plan. Harry Redman, a Geographic Information Systems Professional, produced maps for the plan, directed the floodplain risk analysis, and completed the county land cover analysis. Jen Moser assisted with the public outreach and survey effort.

Development of Planning Team

The initial planning stages for this plan update began in November 2025 when FEMA funds were awarded to the County. Following this, Mr. Clem and the Davison County Acting Emergency Management Director began to develop the methodology and strategy that was used to update the plan.

The first step was to organize the hazard mitigation planning team, the group of individuals representing the participating jurisdictions at the planning team meetings. People invited to participate from each jurisdiction included elected officials, finance personnel, public works staff, planning and zoning staff, code enforcement staff, floodplain management staff, and emergency response personnel. These individuals provided information that was used to develop the plan, reviewed drafts of the plan as it was being assembled and approved the final version of the plan.

Other organizations were also contacted by email and/or telephone to participate in the plan's development. These stakeholders included:

- Central Electric Cooperative
- Bon Homme-Yankton Rural Water System
- Davison Rural Water System
- James River Water Development District
- Avera Queen of Peace Hospital, Mitchell
- Mitchell School District
- Mitchell *Republic* newspaper
- Neighboring counties (Aurora, Douglas, Hanson, Hutchinson, Jerauld, Sanborn)

Each individual invited to participate had knowledge in various subject areas pertinent to the plan's development. These subject areas included the following:

- Infrastructure within the county
- Economic development activities within the county
- Floodplain management
- Building codes and other development regulations
- Mapping and GIS
- Natural and cultural resources

- Social services

Table 1.1 lists the individuals who participated in the plan's development, including their contribution to the process. The columns on the right show their attendance at the planning meetings that were held. Additional meetings took place in the participating jurisdictions; those meetings are not reflected in the table, but documentation is provided in **Appendix B**.

Table 1.1 – Participation in Plan Development

Name	Representing	Position	Role	Mtg 1 03/24/26	Mtg 2 04/28/26	Mtg 3 06/23/26
John Clem	Planning District III	Planner	Plan author	X	X	X
Shannon Viereck	Planning District III	Planner	Research, Support		X	X
Karen Wegleitner	Davison County	Acting EM Director	Guidance, Input	X	X	X
Randy Reider	Davison County	Commissioner	Input, Review	X	X	X
Mike Blaalid	Davison County	Commissioner	Input, Review	X	X	X
Chris Nebelsick	Davison County	Commissioner	Input, Review	X	X	X
John Claggett	Davison County	Commissioner	Input, Review	X	X	X
Denny Kiner	Davison County	Commissioner	Input, Review	X	X	X
Kathy Wingert	Davison County	Auditor	Input, Review	X	X	X
Leah Vissia	Davison County	Dir of Equalization	Input, Review		X	
Steve Harr	Davison County	Sheriff	Input, Review		X	
Stephanie Ellwein	City of Mitchell	City Administrator	Input, Review		X	
Joe Schroeder	City of Mitchell	Public Works Director	Input, Review	X	X	X
Mark Jenniges	City of Mitchell	Planning Director	Input, Review	X	X	X
Tiffany Bochner	City of Mitchell	Police department	Input, Review	X		
Dean Knippling	City of Mitchell	Police department	Input, Review	X	X	
Casey Tegethoff	City of Mitchell	Police department	Input, Review	X		
Josh Harvey	City of Mitchell	*(Public citizen)*	Input, Review	X		
Robert Riggs	Town of Ethan	Public Works	Input, Review	X	X	X
Roger DeKok	City of Mt Vernon	City council	Input, Review		X	
Dave Renken	City of Mt Vernon	City council	Input, Review		X	
Laura Mayclin	City of Mt Vernon	Finance officer	Input, Review			X
Chris DeBoer	City of Mt Vernon	Public Works	Input, Review		X	X
Jessica Goldammer	*(Self)*	*(Public citizen)*			X	
Shane Fahey	*(Self)*	*(Public citizen)*			X	
Steve Gibson	*(Self)*	*(Public citizen)*				X

Public Outreach

Throughout the plan's development, efforts were made to obtain broader involvement in the plan beyond the core planning team and stakeholders. This outreach effort included press releases that were printed in the Mitchell *Republic*, information posted online, and social media.

Surveys were also made available to provide another way for people to contribute their thoughts and opinions on hazard mitigation. Survey forms were distributed to all planning team members and to other city and county staff who did not participate in the planning meetings. To generate broader public input, the surveys were also made available online and

a press release at the start of the planning process included a QR code so the public could participate in the survey. Respondents were able to provide their opinion of which hazards have the biggest impact on the county, how those hazards have personally impacted them, and what actions could be taken to mitigate the hazards. See **Appendix A** for documentation of the public outreach effort.

Incorporation of Other Plans

Information from various local plans, studies, and reports was incorporated into this plan. Each of the items listed in the table below was reviewed as this plan was developed, and a brief description is given of how relevant information was incorporated into this plan. In addition to these local resources, a considerable amount of information and data was incorporated into this plan from the South Dakota Hazard Mitigation Plan (both the 2019 version and the current enhanced version).

Table 1.2 – Plans, Studies, and Reports Incorporated Into Plan

Item	Notes
Planning & Development District III Comprehensive Economic Development Strategy (CEDS)	The CEDS analyzes development issues within the District III service area, which includes Davison County. Economic resiliency, including the role that hazard mitigation can play in helping communities maintain economic strength, is discussed at some length. Regional development priorities and demographic data from the CEDS was incorporated into this plan.
Davison County Comprehensive Plan	This plan analyzes general development conditions and trends for the Davison County Planning Partnership, which consists of Davison County, the City of Mitchell, the Town of Ethan, and the City of Mount Vernon. Issues of primary importance in the plan include the need for more orderly development, preserving current agricultural practices, and environmental protection. The land use chapter was reviewed to identify areas suitable for development.
Davison County Highway Plan	The plan includes a list of county roads scheduled for improvements within the next five years, which was useful for development of the mitigation strategy.
Davison County Master Transportation Plan	The plan examines transportation facility issues and needs within Davison County and provides a framework for guiding the county's transportation network for the next 20 years. It is used as a "road map" to accommodate the interests of landowners, local officials, and the traveling public
Mitchell Capital Improvements Plan	The plan, which is reviewed annually, identifies major capital projects over the next five years, including their estimated cost.
Central Electric Cooperative Construction Work Plan 2023-2026	The plan includes a map showing the status of projects listed in the work plan.
Lake Mitchell Dam Emergency Preparedness Plan	The plan identifies guidelines necessary to cope with a dam failure, including duties of emergency response personnel, establishing warning guidelines, defining evacuation routes, identifying facilities for temporary care, and identifying actions for traffic control and perimeter control.

Planning Meetings

Several meetings were held to develop the plan, all of which took place at the Davison County North Offices as described below. The planning process associated with the plan's development was relaxed and informal, and free-flowing discussion was always encouraged. No subcommittees were formed, no votes were taken or motions made, and decisions were made by mutual consensus of the planning team members. Everyone's opinion was respected, and nobody was discouraged from voicing his/her opinion. Leadership and guidance at the meetings were provided by Planning & Development District III staff and the Davison County Acting Emergency Management Director.

Prior to the first planning team meeting, the stakeholders identified earlier in this chapter were contacted and invited to participate in the planning process. A survey instrument was also developed, which was distributed to the planning team members and stakeholders, and which was also made available to the public as described earlier in the Public Outreach section.

First Planning Team Meeting

The first meeting began with a reintroduction to the concept of hazard mitigation for the team members, many of whom had participated in the development of the current plan, followed by a discussion about the process by which the plan would be developed over the coming months [1]. The team then reviewed the initial results of the survey and additional hard copies of the survey were distributed. The rest of the meeting was spent reviewing the County's current mitigation plan, focusing on the hazards identified in the plan and the progress being made to implement the mitigation actions listed in the plan.

The planning team also reviewed the initial results of the survey, which helped determine which hazards to address in the plan, and additional hard copies of the survey were distributed. The meeting ended with a discussion about the process by which the plan would be developed over the coming months.

Activity between meetings

After the meeting, the Planning & Development District III office did a considerable amount of work on the risk assessment using various methods as described in **Chapter III**. The results of this work were shared with the planning team, including a summary of the textual information presented in **Chapter III**, maps showing hazard-prone areas in relation to important assets in each jurisdiction, and information about the value of property at risk to the various hazards impacting the county. Since the next meeting would focus on development of the mitigation strategy, the District III office also distributed a list of potential mitigation actions to the team, which was based on FEMA's guidance document *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards*.

[1] The City of Mount Vernon was not represented at the meeting, but they were later briefed on the meeting discussion.

Second Planning Team Meeting

Although the second meeting focused on development of the mitigation strategy, the meeting began with a discussion about local mitigation capabilities. Key items reviewed were each of the jurisdiction's activities relating to land use regulations, enforcement of building codes, and the National Flood Insurance Program.

Discussion then turned to identification of the mitigation goals and objectives to be achieved, followed by the specific mitigation actions to include in the plan. The participants were reminded to focus on hazard mitigation, as opposed to preparedness, and they were encouraged to consider a comprehensive range of actions, regardless of whether they seemed likely to be achievable in the foreseeable future. A preliminary list of actions for each jurisdiction was developed, including such details as estimated cost, timeframe for implementation, and the party responsible for implementation.

Activity between meetings

After the second meeting, each jurisdiction discussed the mitigation actions they wanted to include in the plan. This discussion took place at an official meeting of each jurisdiction's governing body, which ensured that the public could participate in the selection process, since hazard mitigation was an agenda item. The list of mitigation actions selected by the communities is presented in **Chapter IV** (see **Table 4.5**).

Final Planning Team Meeting

Following the jurisdictional meetings, the Planning & Development District III office completed the first draft of the plan. After this, the planning team was brought together again for a final meeting to review the draft and discuss how the plan will be maintained going forward. The importance of integrating the plan into the existing planning mechanisms within the county was emphasized. Prior to the meeting, a press release was run in the Mitchell *Republic* and posted online and on social media which gave the public a final opportunity to provide input into the plan.

Post-meeting activity

After the final planning team meeting, some additional information was added to the plan based on discussion at the meeting, primarily involving clarification of some of the details of the proposed mitigation actions. The plan was then submitted to the South Dakota Office of Emergency Management.

Acknowledgements

The Planning & Development District III office would like to thank the members of the Davison County Hazard Mitigation Planning team for participating in the planning meetings that were held, and for supplying information that was used to develop the plan. We would particularly like to thank Acting Emergency Management Director Karen Wegleitner for arranging the planning team meetings and for coordinating with the participating jurisdictions while

Director Jeff Bathke was absent during his deployment with the Army's 650th Regional Support Group. Thanks also are extended to Jim Poppen, Kyle Kafka, Blaire Jonas, and Marc Macy at the South Dakota Office of Emergency Management for information and guidance that was helpful in developing the plan.

2026 Davison County (SD)
Hazard Mitigation Plan



CHAPTER II

Community Profile

CHAPTER II
COMMUNITY PROFILE

Background

This chapter serves as a basic introduction of Davison County. Topics addressed in this chapter include a general description of the county, its physical characteristics, socio-economic characteristics, infrastructure and utilities, and services. Following chapters are devoted to assessing risks in the county, presenting the county's mitigation strategy, and discussing how the plan will be implemented.

General Description

Davison County is located in southeast South Dakota (see **Figure 1.1**). The county covers approximately 436 square miles of area, and its Census 2020 population was 19,956. Its population density is about 45.8 people per square mile compared to 11.7 people per square mile in South Dakota and 93.8 people per square miles in the United States. Three incorporated municipalities are located within the county – Ethan (pop 365), Mitchell (pop 15,660), and Mount Vernon (pop 461). The county seat is located in Mitchell. Unincorporated communities within the county include Loomis. **Figure 2.1** shows the county's communities and highway network.

Physical Characteristics

Outside of Mitchell, Davison County is lightly settled, with most of the land devoted to agricultural production. The landscape is mostly open, and the terrain is generally fairly level, except for undulating areas along the James River and some of the larger streams in the county, including Firesteel Creek. Prominent bodies of water include James River and Firesteel Creek, which is impounded just north of Mitchell to form Lake Mitchell.

Much of the land in the county is devoted to agricultural production, primarily row crops such as corn, soybeans, and wheat, and there is also a considerable amount of pastureland. Several feeding and farrowing hog confinement barns are located in the county.

Figure 2.1 – Davison County

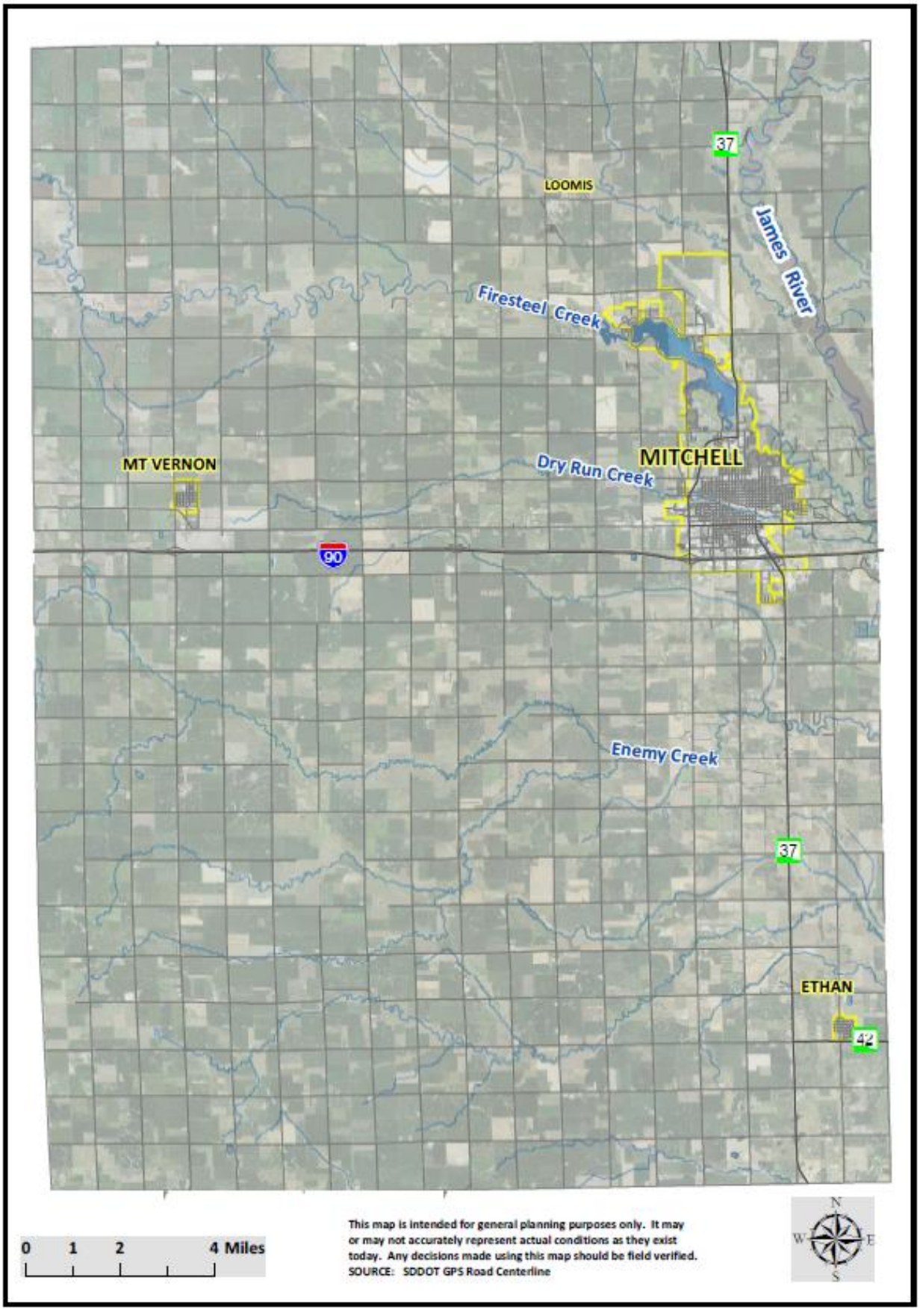


Table 2.1 provides a breakdown of the land cover in Davison County, which is shown graphically in **Figure 2.2**. The table is based off satellite imagery from the United States Geological Service's National Land Cover Database. As the table shows, the predominant types of land cover in the county are cultivated crops and pastureland, which together comprise approximately 83 percent of the county's total land base. Developed land makes up a small fraction of the land area.

Table 2.1 - Vegetative Land Cover

Cover Type	Square Miles	Percent of Total Area
Cultivated crops	221.6	50.8%
Pastureland	140.0	32.1%
Grassland and Shrub/Scrub	28.7	6.6%
Developed land (open space)	19.1	4.4%
Wetlands	11.8	2.7%
Developed land (low to high intensity)	6.5	1.5%
Forested land	6.3	1.4%
Open water	2.4	0.5%
Barren land	0.2	0.0%

Source: www.mrlc.gov/index.php

As in most of South Dakota, the climate of Davison County is characterized as sub-humid and continental, which means that summers are often hot and winters can be very cold. There are no large bodies of water or mountain ranges to mitigate against these extremes. High temperatures in the summer can exceed 100 degrees Fahrenheit [2], while winter lows can drop below -20 degrees. Precipitation averages about 23 inches per year, much of which occurs during the spring and early summer. Following is climate data reported from the Mitchell weather station.

Table 2.2 - Monthly Climate Conditions in Davison County (1893 - 2003)

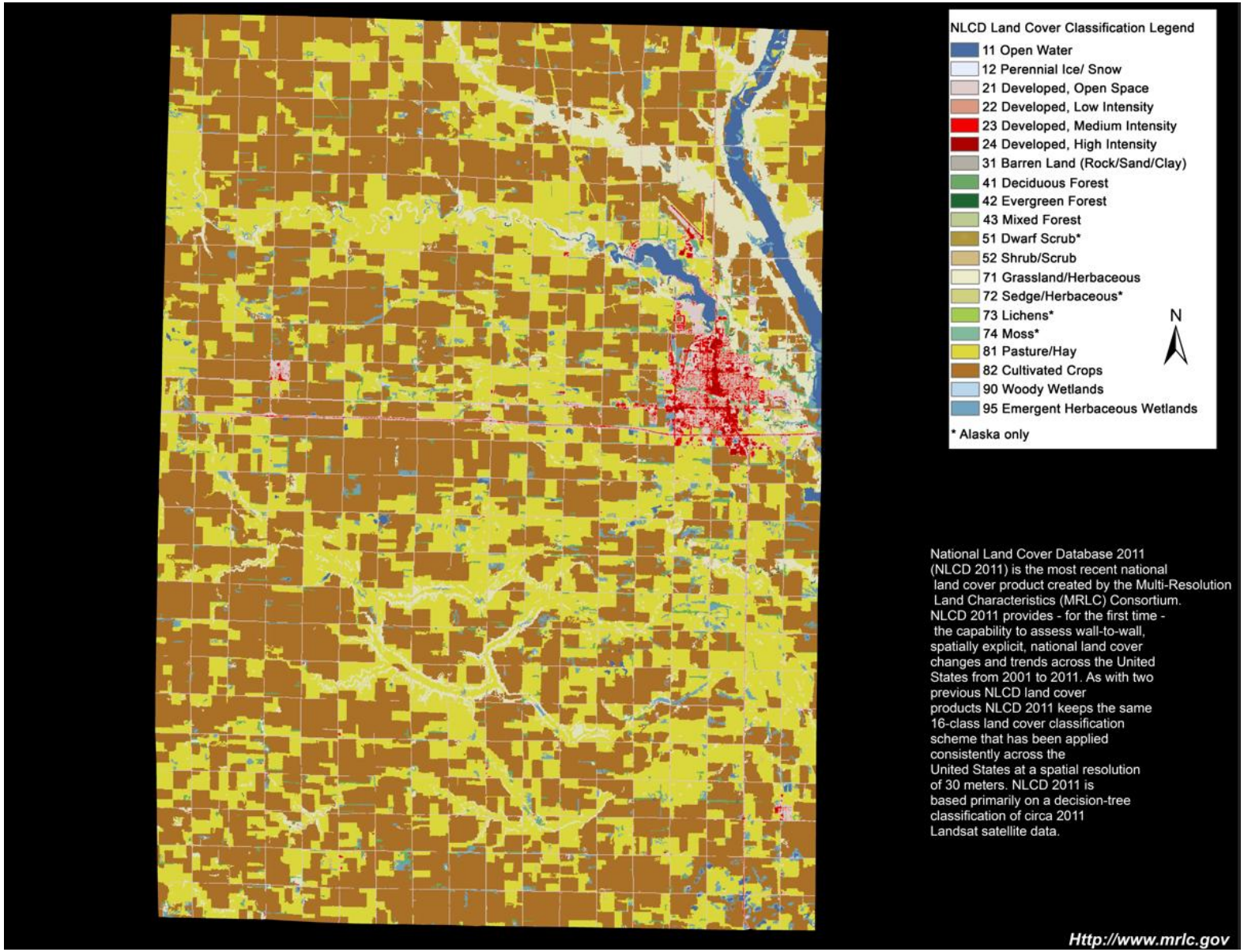
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ave High	27.0	31.6	43.8	60.2	72.0	81.2	87.8	85.9	76.6	63.8	45.3	31.7
Ave Low	5.9	10.1	21.7	35.1	46.6	56.6	61.7	59.3	49.4	37.3	23.5	11.6
Ave Precipitation	0.5	0.7	1.3	2.5	3.1	3.8	2.8	2.6	2.2	1.5	0.8	0.5

Source: www.weather.gov/wrh/climate

The average high and low are in degrees Fahrenheit; the precipitation figures are in inches.

[2] According to the National Weather Service, Sioux Falls, South Dakota has averaged about two days per year of 100-degree temperatures since records began to be kept in 1893.

Figure 2.2 - County Land Cover



The impact that climate change may have on the county is difficult to predict with any degree of certainty. The South Dakota Hazard Mitigation Plan discusses climate change in some depth, analyzing its possible impacts for each of the hazards affecting the state. According to the plan, mean temperatures have been increasing in the northern Great Plains region in which South Dakota is located, especially in the winter. The plan also notes a long-term trend of increasing annual precipitation across South Dakota, among the highest in the country, much of it occurring in the spring and fall seasons.

By 2050, according to research from Headwaters Economics, Davison County is expected to experience 15 more days per year that reach above 95 degrees Fahrenheit (from 22 days to 37 days per year) and the average annual temperature is expected to increase from 50°F to 52°F. No significant change in average annual precipitation is expected.

There is no consensus yet on climate change science and it is difficult to make any definitive plans for climate change, but it appears likely that communities that are already vulnerable to weather and climate extremes will be stressed even further by more frequent extreme events occurring within an already highly variable climate system. Increased demand for water and energy may constrain development, stress natural resources, and increase competition for water, and new agricultural practices may be needed to cope with changing conditions.

Socioeconomic Description

Population Trends

Davison County has been experiencing steady population growth for the last several decades and the population is expected to continue increasing as the table below shows. Most of the growth is expected to occur in and around Mitchell.

Table 2.3 - Davison County Population

Pop 1950	Pop 1960	Pop 1970	Pop 1980	Pop 1990	Pop 2000	Pop 2010	Pop 2020	Pop 2030 Projected	Pop 2040 Projected	Pop 2050 Projected
16,522	16,681	17,319	17,820	17,503	18,741	19,504	19,956	20,480	21,101	21,742

Source: U.S. Census; Projections based on analysis of past population records and current age and sex cohorts

Race and Age

The following table shows that a high percentage of Davison County's population is composed of whites compared to South Dakota and the rest of the nation. The table also shows that the age breakdown of the county's population is comparable to state and national figures, which is an indication that many of the young people are able to stay in the county for jobs, rather than going elsewhere to find opportunities.

Table 2.4 - Racial and Age Characteristics

	White Pop	Black Pop	American Indian Pop	Asian Pop	Other Race	Two or More Races	Hispanic Pop	Pop Under 18	Pop 65 and Over	Median Age
Davison Co.	89.1%	0.8%	3.3%	0.6%	2.2%	4.0%	4.6%	23.4%	20.0%	39.7
South Dakota	80.7%	2.0%	8.8%	1.5%	1.8%	5.3%	4.4%	24.1%	18.2%	38.5
United States	61.6%	12.4%	1.1%	6.0%	8.6%	10.2%	18.7%	21.7%	17.3%	39.0

Source: American Community Survey 2022 1-Year Estimates

Income and Education

Income levels in Davison County are below state and national figures. Educational attainment also lags behind state and national averages.

Table 2.5 – Income and Education

	Median Household Income	Poverty Rate – All People	Poverty Rate – Under 18	Poverty Rate – Over 65	High School Grad or Higher	Bachelor's Degree or Higher	Graduate Degree
Davison Co.	$55,606	15.2%	17.0%	8.6%	90.3%	23.3%	4.8%
South Dakota	$69,728	12.5%	15.2%	10.9%	93.1%	31.6%	9.9%
United States	$74,755	12.6%	16.3%	10.9%	89.6%	35.7%	14.0%

Source: American Community Survey 2022 1-Year Estimates

Employment

The primary economic base of Davison County is manufacturing, retail, healthcare, and agriculture. Large retailers such as Cabela's attract consumers from far outside the county. Tourism also is important to the local economy, especially during the summer as people travel through Davison County on Interstate Highway 90 to visit the Black Hills and other western destinations. Many of these people stop in Mitchell to visit the Corn Palace. Davison County also is a popular destination for hunters during the fall hunting season.

Table 2.6 – Employment Sectors

	Davison County	South Dakota	United States
Agriculture, Forestry, Fishing, Mining	5.1%	6.4%	1.6%
Construction	5.7%	7.4%	6.9%
Manufacturing	11.5%	9.9%	9.9%
Wholesale Trade	2.7%	2.1%	2.2%
Retail Trade	13.2%	11.4%	11.1%
Transportation, Warehousing, Utilities	2.4%	4.4%	6.0%
Information	3.5%	1.5%	1.9%
Finance, Insurance, Real Estate	5.0%	6.0%	6.7%
Professional, Scientific, Management	6.7%	6.7%	12.6%
Education, Health Care, Social Assistance	24.5%	26.3%	23.1%
Arts, Entertainment, Recreation, Accommodation, Food Service	8.7%	8.8%	8.7%
Other Services	5.6%	4.3%	4.7%
Public Administration	5.3%	4.8%	4.6%

Source: American Community Survey 2022 1-Year Estimates

Vulnerable Populations

There are certain populations and social groups within Davison County that may be particularly susceptible to the adverse impacts of hazards, suffering disproportionate rates of death, injury, loss, or disruption of livelihood when hazard events occur. Various social, economic, demographic, and housing characteristics are considered here that may influence the community's ability to prepare for, respond to, cope with, recover from, and adapt to environmental hazards.

Available data indicates that Davison County has a low to moderate proportion of vulnerable people. The Centers for Disease Control Social Vulnerability Index shows Davison County with a rating of .3742 (0 being least vulnerable and 1 being most vulnerable), which indicates a low to medium level of vulnerability. FEMA's Resilience and Planning Tool shows that the county's Income Inequality Index is .45, which is close to the state and national figures. The Community Resilience Challenges Index (CRCI) percentile is 30 on a scale of 1 (lowest vulnerability relative to the rest of the United States) to 100 (highest); the county's top three drivers of CCRI value are a low percentage of owner-occupied housing, high percentage of inactive voters, and low median income.

Infrastructure and Utilities

Transportation

The primary transportation routes in Davison County are Interstate Highway 90 and SD Highway 37. Rail freight service is provided by the Burlington Northern Railroad, which operates on the state rail line. The Dakota Southern Railroad operates on a line owned by the MRC Regional Rail Authority. Grain loading facilities are located in Mitchell, Ethan, and Mount Vernon.

The City of Mitchell owns an airport located just north of the city. It has two runways and averages about 40 flights per day; it is busiest during the fall when hunters fly in from out of state. For more information about the airport, see http://www.airnav.com/airport/KMHE.

Utilities

The Davison Rural Water System serves most rural residents of Davison County and provides bulk water to Mount Vernon. The Hanson Rural Water System serves the eastern fringe of the county, including Ethan. The Bon Homme-Yankton Rural Water System provides water to Mitchell.

Each municipality has a wastewater collection system that stores effluent in stabilization ponds, where it is allowed to evaporate over time. Rural households must rely on individual septic tanks and drainfields. New development on the outskirts of Mitchell will require additional sewer lines extending into formerly rural areas, which will require advanced planning regarding the city's sewage treatment system to verify system capacity.

Each municipality has a designated rubble site. Household waste generated within the county is sent to the Mitchell Regional Landfill, located approximately two miles southeast of Mitchell.

Electric power is provided to rural county residents by the Central Electric Cooperative. Northwestern Public Service provides power to customers in Mitchell, Ethan, and Mount Vernon, as well as the residential areas around Lake Mitchell. Northwestern Energy provides natural gas service to Ethan, Mitchell, and Mount Vernon.

Services

Medical Services

The major medical facility in Davison County is the Avera Queen of Peace Hospital in Mitchell, which consists of several medical facilities serving a nineteen-county area. The hospital is equipped with the region's most advanced medical technology, and it is the largest employer in Davison County, with over 700 employees.

Fire and Emergency Response

Davison County is served by six different fire departments. Ethan and Mount Vernon have volunteer fire departments. The City of Mitchell has both full-time and volunteer firemen. Ambulance services are dispatched from Mitchell. Each of the departments has basic firefighting and rescue equipment, and they all respond to structural fires, wildland fires, and to accident situations.

Education

High schools are located in Ethan, Mount Vernon, and Mitchell. Post-secondary education is available in Mitchell at Dakota Wesleyan University and Mitchell Technical College.

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CHAPTER III

Risk Assessment

PLANNING & DEVELOPMENT DISTRICT III

CHAPTER III
RISK ASSESSMENT

Background

The risk assessment provides the foundation for the rest of the mitigation planning process. It sets the stage for identifying mitigation goals and actions to help Davison County become disaster resilient and keep county residents safe, and it answers the following questions: What are the hazards that could affect Davison County? What could happen as a result of those hazards? How likely are the possible outcomes? When the outcomes occur, what are the likely consequences and losses?

Risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from hazards. FEMA defines risk assessment terminology as follows:

- **Natural Hazard**—A source of harm created by a meteorological, environmental, or geologic event.
- **Assets** – This includes people, structures (e.g. homes, critical facilities, and infrastructure), systems and networks, other resources important to the community, and activities important to the community.
- **Risk**—The potential for damage or loss created by the interaction of natural hazards with assets.

According to FEMA's mitigation planning guidance, the basic components of the risk assessment are: 1) identifying hazards that affect the community, 2) profiling the hazards, 3) conducting an inventory of community assets, and 4) analyzing impacts. This process measures the potential loss of life, personal injury, economic injury, and property damage resulting from natural hazards by assessing the vulnerability of people, buildings and other property, and infrastructure to natural hazards.

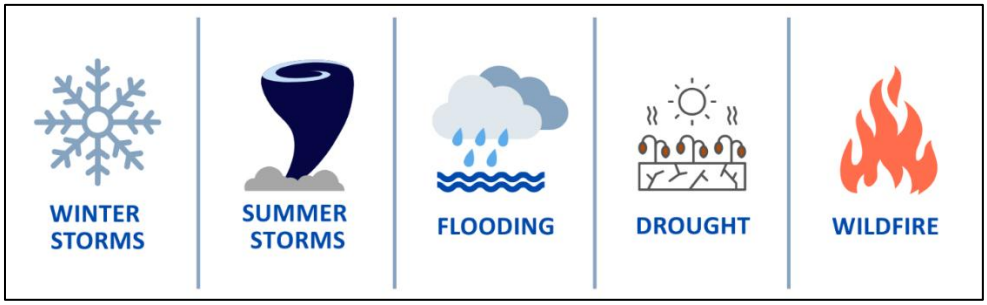
After reviewing the risk assessment section of the current plan, the planning team decided that no major changes were needed to the risk assessment. This determination was made because there have been no significant changes in growth and development in the county and because no natural disasters have had a major impact on the county since the current plan was completed. However, many of the tables have been updated with more current information, including **Table C.2** in **Appendix C**, which lists significant hazard events that have occurred in the county through 2024.

Identifying Hazards

To determine which hazards to address in this plan, the planning team first reviewed the county's current mitigation plan. The team also considered the results of the survey that was

conducted at the start of the planning process, especially the question about the hazards that most impact the county. Following this, the planning participants reviewed historical records of hazard events that have occurred in the county, relying on the National Climatic Data Center's Storm Events Database (see **Table C.2** in **Appendix C**). At the end of this process, the planning team decided to focus on the following hazards:

- **Winter storms**
- **Summer storms**
- **Flooding**
- **Drought**
- **Wildfire**



The planning team acknowledges that additional hazards could have been addressed in this plan. High wind events, for instance, are not considered separate from winter storms and summer storms. Following is a list of other hazards the team considered but chose not to include in this plan, with a justification for their omission:

- Geologic Hazards – earthquakes and landslides are profiled in the South Dakota Hazard Mitigation Plan, but the overall significance of such hazards is rated as low. A map generated through the U.S. Geological Service Earthquake Hazards Program website indicates that there is only about a one to two percent chance that a quake of at least magnitude 5 will occur in Davison County in any 100-year period, and virtually no chance of a magnitude 6 or greater earthquake [3]. Furthermore, no significant earthquake has ever been recorded in the county; the largest earthquake was a magnitude 3.2 recorded in 1957. Regarding landslides, a review of the United States Geological Survey's Landslide Incidence and Susceptibility Map shows virtually no chance of a significant landslide occurring in Davison County.
- Agricultural pests and diseases - this hazard is profiled in the South Dakota Hazard Mitigation Plan. However, despite the obvious importance of agriculture to the local economy, the planning team considered the subject matter to be outside the intended focus of this plan.

[3] A magnitude 5 earthquake is considered moderate, potentially causing varying amounts of damage to poorly constructed buildings, but significant damage would be unlikely to occur. A magnitude 6 quake is strong, with the potential to cause damage to well-built structures.

- Technological and human-caused hazards – some of these hazards, including hazardous materials releases, are analyzed in the South Dakota Hazard Mitigation Plan. Again, the planning team considered the subject matter to be outside the scope of this plan.

Hazard Profiles

In this section, each of the hazards the planning team chose to focus on is described in terms of the hazard's ***location*** within Davison County, its ***extent***, the ***history*** of the hazard's occurrence in the county, and the ***probability*** of future events occurring. In addition, a background description of each hazard is presented at the beginning of each hazard's profile.

- ***Location*** is the geographic areas within the county that are affected by each of the hazards. Some of the hazards - winter storms, summer storms, and drought - do not have a geographic definition at this level of analysis, since they occur in all areas of the county with equal frequency. Flooding and wildfires, however, do pose a greater risk in specific areas of the county than in other locations.
- ***Extent*** is the strength or magnitude of the hazard, which is described in a variety of ways depending on the type of hazard. For example, tornado strength is measured on the Fujita Scale, high wind events are measured by speed, fire is measured in terms of acres affected, and winter storms can be measured by snowfall accumulation or the duration of the event.
- A brief section on the ***history*** of each hazard's occurrence in the county is presented, with a description of some of the most significant events. More information about the hazard events that have impacted the county is presented in **Appendix C**, which includes a table of the major disaster declarations in Davison County, a table showing a comprehensive list of weather-related hazard events recorded in the county from the National Climatic Data Center's Storm Events Database, and tables showing crop loss to Davison County farmers.
- ***Probability*** of occurrence of a hazard impacting an area is the likelihood that such an event will occur. In this plan, a hazard with a "high" probability is one that is expected to occur at least five times over a ten-year period, a "moderate" probability hazard is expected to occur from two to five times in any given ten-year period, and a "low" probability hazard would be expected to occur fewer than twice per ten years. Probability for some of the hazards was determined by reviewing the frequency of past hazard events in the Storm Events Database.

Winter Storm

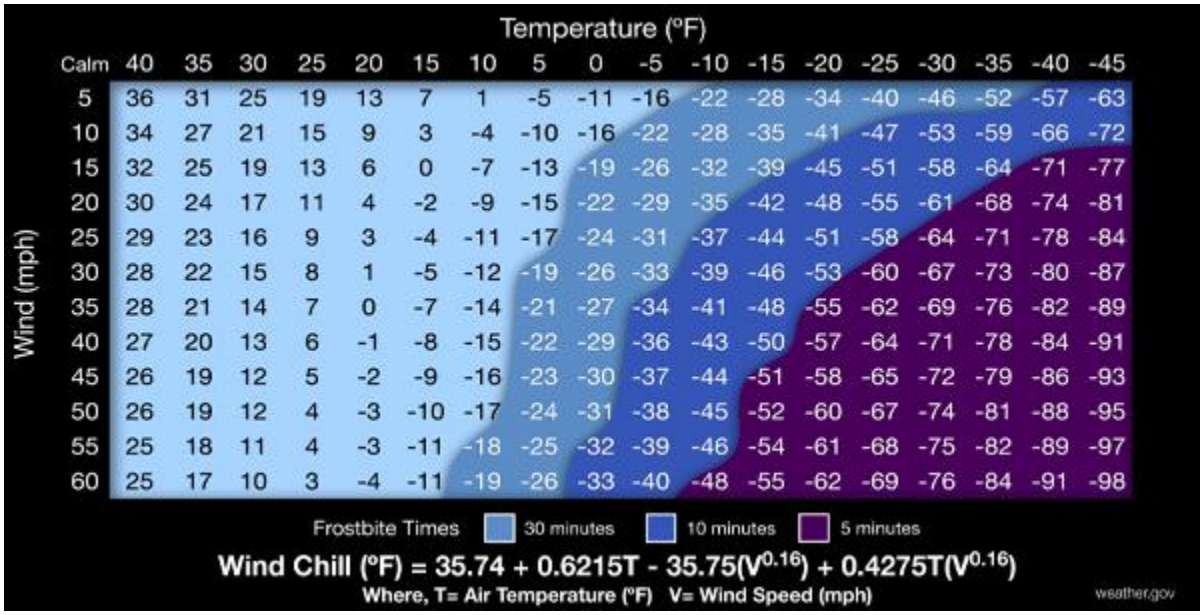
Description

Winter storms include snow events, freezing rain, and sleet, with some storms taking on the characteristics of these categories during distinct phases of the storm. They typically occur from late fall to the middle of spring, varying in intensity from mild to severe. A long warning time is associated with most winter storms, giving people time to prepare, but they still have a major impact in South Dakota. They can immobilize a region by blocking transportation

routes, thus disrupting emergency and medical services, hampering the flow of supplies, and isolating homes and farms. Heavy snow can collapse roofs and knock down trees and power lines. Unprotected livestock may be lost. Economic impacts of winter storms include the cost of snow removal, damage repair, and business losses. Respondents to the survey conducted for this plan considered winter storms to be the sixth most serious hazard facing the county.

The most dangerous of all winter storms are blizzards, which occur when snow is combined with winds of at least 35 mph reducing visibility to less than ¼ mile for at least three hours. Severe blizzard conditions exist when heavy snow is accompanied by winds of at least 45 mph and temperatures of 10 degrees Fahrenheit or lower. Early blizzards in South Dakota were so devastating that the state once had the dubious distinction of being called the Blizzard State. Freezing rain is also dangerous because it coats objects with ice and can make travel especially hazardous. Sleet does not generally cling to objects like freezing rain, but it makes the ground slippery, increasing the number of traffic accidents and injuries due to falls.

Extreme cold often accompanies winter storms or is left in their wake. Prolonged exposure to the cold can cause frostbite or hypothermia and can become life threatening. Infants and the elderly are most susceptible. Property damage is also possible when pipes freeze and burst in homes or buildings that are poorly insulated or without heat. The following chart shows how quickly frostbite can occur at a given combination of temperature and windspeed.



Winter storms can have a major impact on the power lines operated by rural electric providers, especially when they are accompanied by high winds or freezing rain. They can knock down power lines, which tend to be the most vulnerable elements of the electrical grid, and they can even snap the poles. As of January 2024, 197 miles of the Central Electric Cooperative's 497 miles of power lines within the county (approximately 40 percent) are underground.

Location

The topography of South Dakota is such that no part of the state is immune from the effects of winter storms. Farmland and pastureland, which covers Davison County and most of the state, offers little resistance to high winds and drifting snow, and there are no large bodies of water or mountain ranges to mitigate against temperature extremes. All areas of the county are equally likely to be impacted.

Extent

The extent of winter storms in Davison County can be quite substantial. In terms of snowfall, many winter storms in the county have dropped more than 10 inches of snow. In terms of duration, some winter storms in the county have resulted in power outages of over a week in some locations, although typical outages last for no more than a few hours. Regarding wind speed, blizzards and high wind events during the winter can be accompanied by winds over 50 knots (about 58 miles per hour).

History

Table C.2 in **Appendix C** lists many significant winter storms that have impacted the county. Following are details about the winter storms that resulted in a major disaster declaration (see also **Table C.1** in **Appendix C**).

One of the most serious winter storms occurred in the state between October 22 and 24, 1995, resulting in FEMA Disaster Declaration 1075, which was declared in January 1996. As the storm moved eastward across South Dakota, ice and five to 15 inches of wet snow formed on electric lines, poles, and trees. Winds associated with the storm caused lines to slap together and poles to snap, producing widespread power outages to large portions of rural South Dakota, including Davison County. The damage included broken poles, broken wires, and substation failures due to transmission line damage. The storm also forced major transportation delays because of snow accumulation on roadways and poor visibility. The combination of power outages and travel difficulty resulted in numerous cancellations and delays in school openings. Total statewide damage was estimated at over $13 million, and approximately 30,290 households were affected by power outages.

Another very serious winter storm to impact Davison County occurred in late November 2005 when heavy freezing rain coated roads and power lines with ice up to three inches thick throughout much of southeast South Dakota. The storm resulted in FEMA Disaster Declaration 1620. In the affected area, a total of 9,400 power poles were damaged, leaving approximately 56,000 people without electricity for varying amounts of time. The Central Electric Cooperative received FEMA public assistance funds of well over $3 million for its infrastructure in Davison County. Some households were without power for up to a week as power lines were being repaired.

Probability

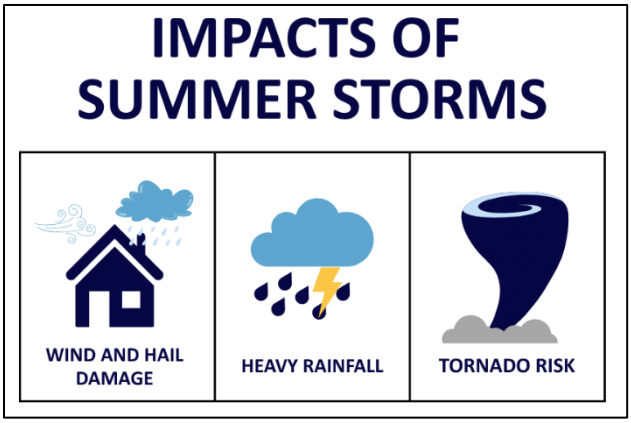
A total of 70 winter storm events, including blizzards, ice storms, heavy snow, and extreme cold events, have been recorded in Davison County since the mid-1990s, an average of about 2.3 per year (see **Table C.2 in Appendix C**). Therefore, based on the historic evidence, the

probability of a significant winter storm affecting Davison County in a given year is high. The probability of a winter storm causing substantial damage (e.g. power lines blown down) in any given year is at least moderate.

Summer storm

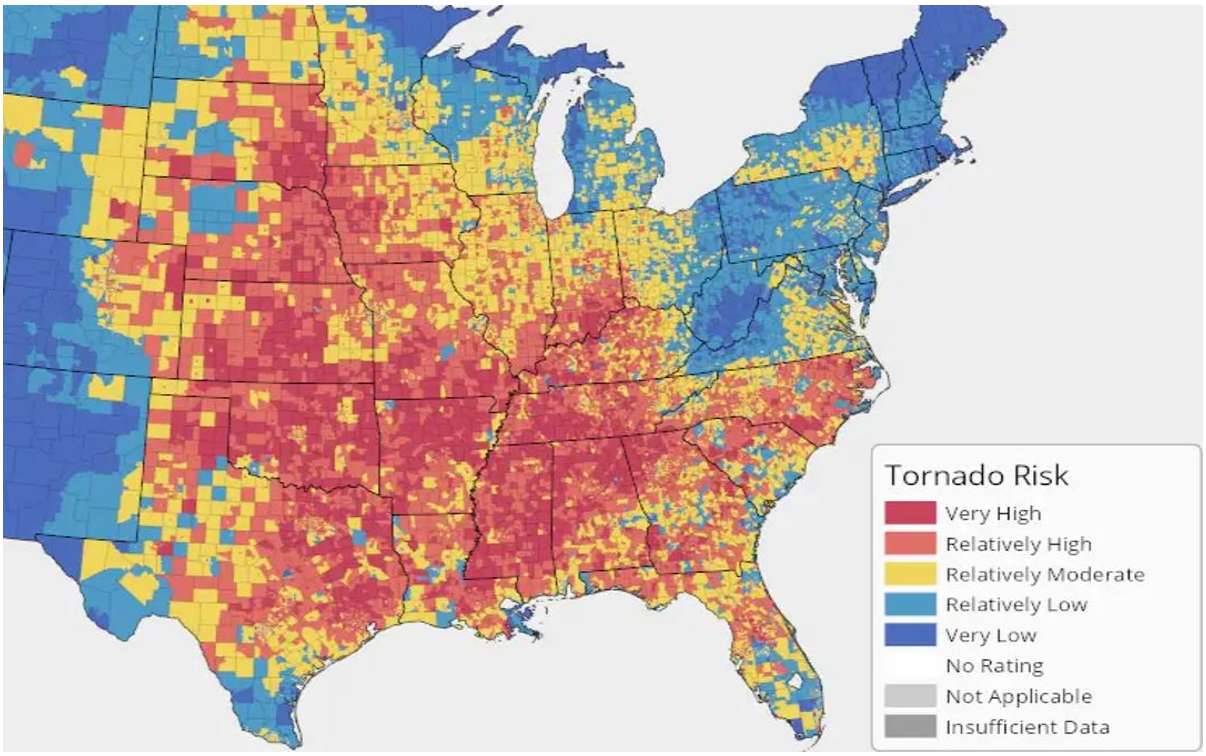
Description

Summer storms can include heavy rainfall, hail, tornadoes, and thunderstorm activity. These events usually are associated with unstable weather conditions. In Davison County, most damage from summer storms occurs because of high wind events and/or hail. Hail is always closely connected with thunderstorms. Hailstones can be pea-sized, up to the size of baseballs. Large hailstones are dangerous to people and animals, but most hail damage is typically suffered by crops or structures. Almost every year someone in Davison County reports some kind of hail damage to crops or property. Survey respondents ranked hail as the fourth greatest hazard facing the county.



Tornadoes are the most dramatic type of summer storm experienced in Davison County and are a special source of concern. They are one of nature's most violent storms, capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can be a mile wide and can extend for more than 50 miles. Tornadoes mostly occur in South Dakota during the months of May, June, and July. The greatest period of tornado activity is between 4 PM and 6 PM. Tornadoes present a difficult mitigation challenge, since few structures can withstand the violent winds of a twister. Survey respondents considered tornadoes to be the third most serious hazard facing the county.

South Dakota is located near the northern edge of the core area of tornado activity in the United States, as shown in the image on the following page (it is difficult to tell at this scale, but Davison County is in the 'Relatively High' risk category). Often referred to as "tornado alley", this part of the country is susceptible to the conditions that favor the formation of tornadoes: warm air from the Gulf of Mexico coming in contact with cool Canadian air fronts and dry air systems from the Rocky Mountains. According to the National Oceanic and Atmospheric Administration's Storm Prediction Center, South Dakota ranked eighth in the nation in the frequency of tornadoes from 1950 to 1994, with a total of 1,139 tornadoes reported in the state (an average of 25.3 per year). During this period, there were 11 deaths in the state attributed to tornadoes, and 243 injuries. South Dakota ranked 27th in the nation in tornado damage, with average annual losses of $3.8 million.



Source: hazards.fema.gov/nri/tornado

Location

Summer storms are equally likely to occur in all parts of Davison County.

Extent

The extent of summer storms can be measured in many ways. In terms of wind speed, **Table C.2** in **Appendix C** shows 43 thunderstorms that produced wind speeds of at least 60 knots, four of which were over 70 knots. **Table C.2** also shows 39 events with hail at least one inch in diameter, including eight events with hail at least two inches in diameter, and eight records of a tornado with a magnitude greater than F1. In terms of onset, summer storms typically develop with a long warning time, although certain hazards associated with such storms, such as hail or tornadoes, can develop more suddenly. The following tables show classifications of hail size, wind speeds, lightning activity, and tornado strength.

Table 3.1 - Hail Size Comparison

Size (Inches)	Object Comparison
0.5 “	Marble or moth ball
1.0”	Quarter
1.5”	Walnut or ping pong ball
2.0”	Hen’s egg
2.5”	Tennis ball
3.0”	Tea cup
4.0”	Softball
4.5”	Grapefruit

Table 3.2 - Beaufort Wind Scale

Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects On Land
0	Under 1	Calm	Calm, smoke rises vertically
1	1 to 3	Light Air	Smoke drift indicates wind direction, still wind vanes
2	4 to 6	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	7 to 10	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	11 to 16	Moderate Breeze	Dust, leaves, and loose paper lifted, small tree branches move
5	17 to 21	Fresh Breeze	Small trees in leaf begin to sway
6	22 to 27	Strong Breeze	Larger tree branches moving, whistling in wires
7	28 to 33	Near Gale	Whole trees moving, resistance felt walking against wind
8	34 to 40	Gale	Twigs breaking off trees, generally impedes progress
9	41 to 47	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	48 to 55	Storm	Trees broken or uprooted, much structural damage (seldom experienced)
11	56 to 63	Violent Storm	
12	64 +	Hurricane	

Table 3.3 - Lightning Activity Levels

Level	Description
LAL 1	No thunderstorms.
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a 5 minute period.
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a 5 minute period.
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud to ground strinkes in a 5 minute period.
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a 5 minute period.
LAL 6	Dry lightning. This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with Red Flag Warning.

Table 3.4 – Enhanced Fujita Scale

Scale	Wind Speed (MPH)	Potential Damage
EFO	65 to 85	Minor damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF1	86 to 110	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111 to 135	Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	136 to 165	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings; trains may be overturned; heavy cars lifted off ground and thrown; structures with weak foundations badly damaged.
EF4	166 to 200	Devasting damage. Frame homes are completely destroyed and some may be swept away; cars and other large objects are thrown in the air.
EF5	Over 200	Incredible damage. Nearly all buildings aside from heavily built structures are destroyed; frame houses and brick homes are swept away; cars are thrown hundreds of yards.

Source: en.wikipedia.org/wiki/Enhanced_Fujita_scale

History

As **Table C.1** in **Appendix C** shows, several major disaster declarations involving a summer storm have affected Davison County. **Table C.2** in **Appendix C** lists many other significant summer storms that have impacted the county. A notable summer storm occurred on August 5, 2000, when a wet microburst with winds estimated at 120 mph caused heavy damage in and around Mitchell. Apartments and several mobile homes were destroyed, vehicles were overturned, and other damage occurred to buildings and vehicles. The damage path was approximately a mile and a half long and a mile wide, extending over the southwest part of Mitchell.

Probability

A total of 111 summer storm events, including hailstorms, thunderstorms, lightning, and tornadoes, have been recorded in Davison County since 1960, an average of about 1.7 per year (see **Table C.2 in Appendix C**). Twenty two of these storms involved a tornado. From this information, the probability of a summer storm affecting Davison County each year should be considered high, although the probability of a storm causing significant damage (e.g., damaging hail or a tornado) can be considered low to moderate.

Flooding

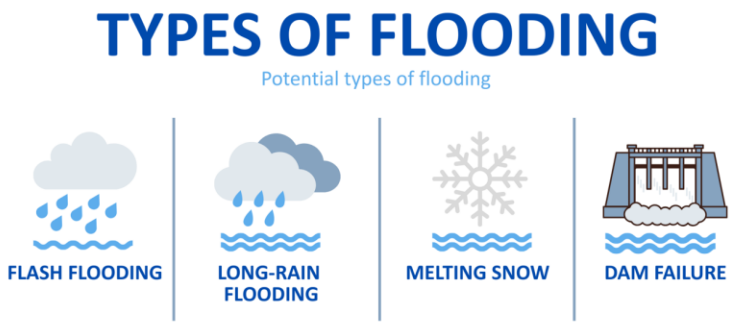
Description

Floods are among the most serious and costly disaster events. In South Dakota, there are two main climatologic causes of flooding: runoff from rainfall and runoff from melting snow. The water from rainfall or melting snow flows overland until it reaches a nearby river or lake. If the river or lake cannot hold all of the water that is entering it, some of the water will begin to overflow, causing flooding. The size of the flood is influenced by such factors as the intensity or length of the rainfall, melting rate of the snow, and the infiltration of the water into the ground. Survey respondents considered flooding to be the second most serious hazard facing the county.

Following is a description of the four types of flooding that have the potential of impacting South Dakota, based on information in the South Dakota Hazard Mitigation Plan:

- **Flash flooding**, which results from several inches or more of rain falling in a very short period. This high intensity rainfall is commonly caused by powerful thunderstorms that cover a small geographic area. The flood that occurs because of this runoff happens very rapidly, and is generally very destructive, although usually only a small area is affected.
- **Long-rain flooding**, which results after several days or even weeks of fairly low-intensity rainfall over a widespread area. This is the most common cause of major flooding. The ground becomes "waterlogged," and the water can no longer infiltrate into the ground. The flooding that results is often widespread, covering hundreds of square miles, and can last for several days or many weeks.

- Flooding resulting from **melting snow** in the spring. This type has characteristics of both flash floods and long-rain floods. The area covered is generally not as large as that covered by the long-rain flood but is typically larger than that covered by the flash flood. Generally, the flood lasts for several days, occurring when large amounts of snow melt rapidly due to warm temperatures. The flooding can be made worse if the ground remains frozen while the snow is melting, causing the melt water to run off to nearby rivers and lakes rather than infiltrating into the ground. Some of the largest floods in South Dakota have been the result of melting snow and ice.
- **Dam failure**, resulting from natural or man-made causes. Davison County is vulnerable to this type of flood primarily because of the Lake Mitchell Dam, which is classified as a high hazard dam [4].



Location

Any flood profile for Davison County must start with the James River, which, according to the South Dakota Multi-Hazard Mitigation Plan, is one of the most flood prone rivers in South Dakota. Draining 12,609 square miles of land in South Dakota, representing 16.3 percent of the state's land area, the James flows in a southeasterly direction through the northeast portion of Davison County. The river lacks good drainage features (the slope of the river is only .28 feet per mile), and the river's valley varies in width from a few hundred feet to three miles. Consequently, the James overruns its banks frequently during the spring snow melt, much of the drainage remaining in small swales and basins.

In addition to land adjacent to the James River, other areas of the county are also vulnerable to flooding. Flood hazard zones are located along many of the James River's tributary streams and in Mitchell and Mount Vernon, and certain other low-lying areas of the county are also vulnerable to flooding, regardless of whether they are in a designated flood zone.

Extent

The extent of flooding in Davison County is usually not significant. Minor, localized flooding typically occurs in the county after very heavy rain events, especially in the spring following snowy winters. Floodwater depth is usually not significant. In terms of duration, flooding can cause road closures lasting from less than a day to several weeks or longer.

[4] A high hazard dam is one whose loss would cause major economic loss, and in which there are anywhere from a few to hundreds of inhabited structures located in the predicted area of inundation.

However, major flooding can occur when the James River overflows its banks. Given the river's large drainage basin and the fact that it moves so slowly, excess water from snowmelt and spring rains simply has nowhere to go. During these major flood events, considerable damage occurs to farmland along the river, ruining crops that have already been planted or making planting impossible. James River flooding can also impact county roads, which often remain closed for long periods of time. During the worst years of flooding along the river, the river rises so high that some bridges over the river have to be closed. The following table shows a description of the various stages of flooding.

Table 3.5 – Flood Stages and Associated Impacts

Flood Stage	Impact
Minor Flood	Minimal or no property damage, but possibly some public threat (e.g. road inundation).
Moderate Flood	Some inundation of structures and roads near stream, evacuations of people and/or transfer of property to higher elevations.
Major Flood	Extensive inundation of structures and roads, significant evacuations of people and/or transfer of property to higher elevation.

The images on the following page show the current river gauge charts for the James River near Mitchell and Firesteel Creek near Mount Vernon, both of which are in comparison with the minor, moderate, and major flood categories.

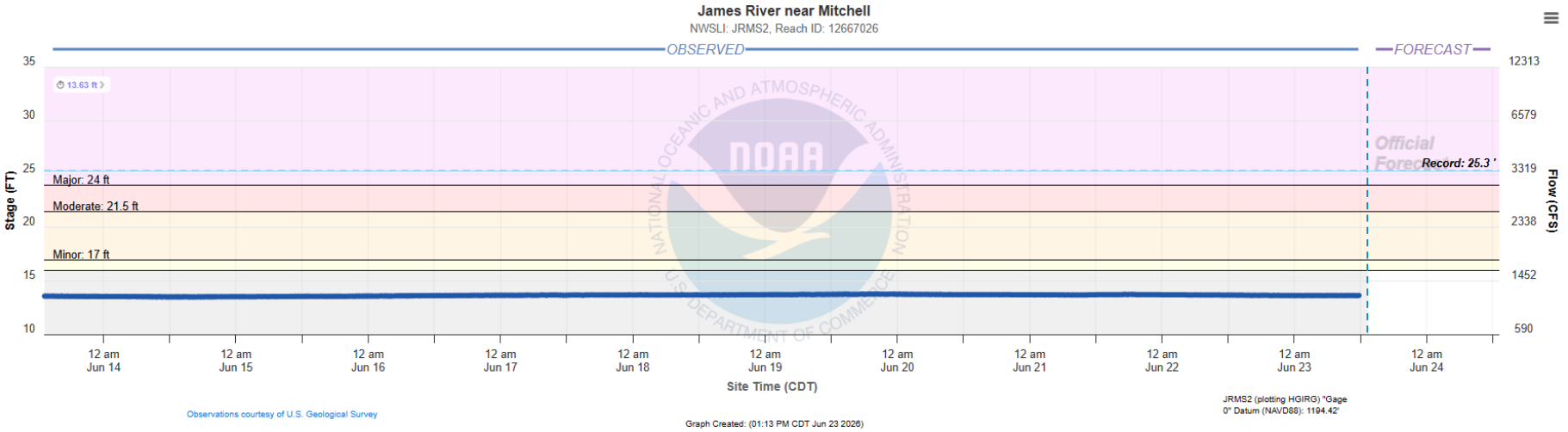
History

Table C.2 in **Appendix C** lists many significant flooding events that have impacted the county. Following are details about some of the most notable events that resulted in a major disaster declaration (see also **Table C.1** in **Appendix C**).

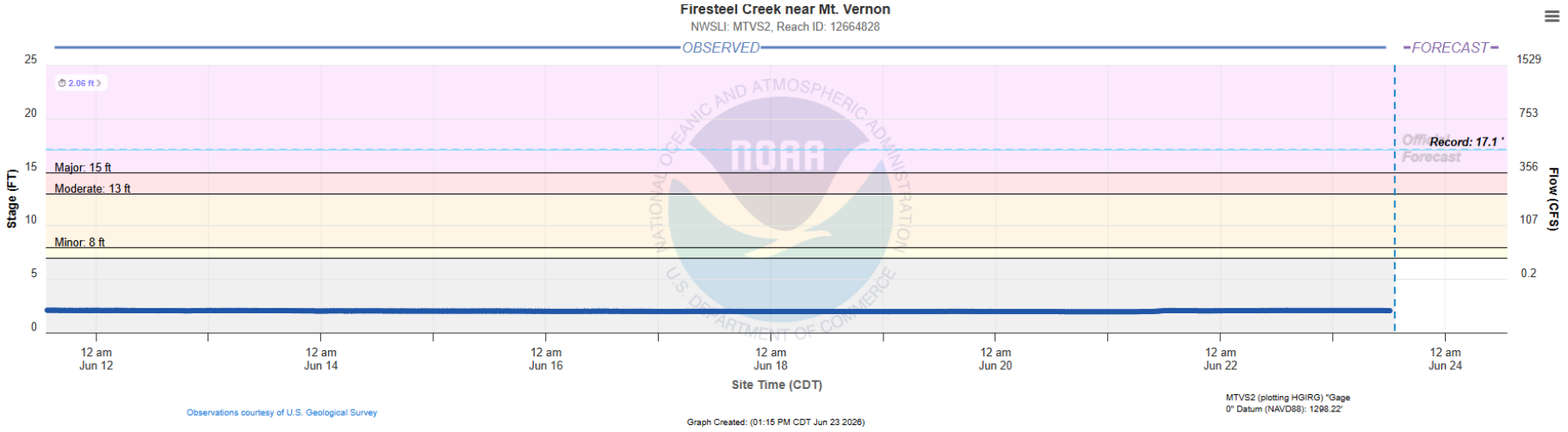
Serious flooding in 1984 resulted in FEMA Disaster Declaration 717, which caused almost $4.5 million of damage in the affected counties. Significant water damage occurred in Mount Vernon, with up to four feet of water in homes. Twenty homes were evacuated along Dry Run Creek in Mitchell, and sewage was five feet deep in parts of Mitchell.

Flooding in 1993 resulted in FEMA Disaster Declaration 999, which impacted 39 counties in South Dakota. The flood caused $53,427,320 in damage throughout the state, and $11,024,621 of damage to public infrastructure. At the time, the disaster was considered one of the top ten natural disasters ranked by FEMA relief costs. In Davison County, the James River inundated thousands of acres of farmland.

River Gauge Charts



Graphic from: water.noaa.gov/gauges/JRMS2



Graphic from: water.noaa.gov/gauges/MTVS2

Flooding in 1995 resulted in FEMA Disaster Declaration 1052. All of South Dakota had above normal precipitation from January through May, with many weather stations in the central and eastern portions of the state experiencing their all-time wettest Spring. Damage was caused by ground saturation and flooding due to very high residual groundwater tables from 1994, heavy winter snow and spring rain, and rapid snowmelt. Flooding occurred along the James River from the end of March through April, and all-time record stages were reached near Mitchell on April 22. Many roads were under water due to high groundwater saturation, causing interruption of emergency services. Damage also included power transmission and distribution facilities owned by rural electric cooperatives. In the area impacted by the flood, surveys identified over 3,000 homes with some type of damage, the majority caused by groundwater seepage of one to three inches into basements. In many areas the water table rose almost to the surface, saturating septic drain fields and preventing proper treatment of wastewater. The total damage estimate in the affected counties was over $35 million, which included $9.3 million in damage to public infrastructure.

Flooding in 1997 resulted in FEMA Disaster Declaration 1173, which was declared for all counties in South Dakota. At the time, the event was considered one of the top ten natural disasters ranked by FEMA relief costs. From November 1996 through February 1997, the weather across the eastern part of the state was cold and very wet, with record setting snowfall in many places. The persistent cold greatly limited snowmelt between storms, which caused snow to pile up from 10 to 24 inches deep. An early April blizzard added to the snow pack, and heavy rain later in the month combined to further saturate the ground. Prairie potholes turned into lakes, causing many people to be evacuated from their homes and farms, and preventing farmers from planting thousands of acres of land. The flood caused over $87 million in damage statewide, and took the lives of two people. The James River Water Development District estimated that five years of flooding had destroyed or severely damaged approximately 75 percent of the forested areas in the James River valley.

Flooding in 2010 in eastern South Dakota was the worst in a decade, resulting in FEMA Disaster Declaration 1915. The James River met or set records for highest ever flood stage at several locations along the river, including Mitchell. Farmland and low-lying areas along the river basin were inundated, and some of the bridges over the river had to be closed until floodwaters subsided, including the SD Highway 38 bridge east of Mitchell. Several other locations along the James River and Enemy and Twelvemile Creek were under water. Three houses located east of Mitchell were in jeopardy of flooding, but escaped major damage.

Flooding in 2019 had a major impact throughout the year in Davison County, starting in March when heavy rainfall fell on frozen ground, which led to considerable overland flooding of agricultural lands and inundation of numerous roads. This event resulted in FEMA Disaster Declaration 4440. The James River at Mitchell crested at 6.30 feet above flood stage in April. Flooding continued during the summer, and became even more severe when 7 to 8 inches of rainfall in the area between September 10 - 12 led to widespread flooding. Travel was significantly hampered in the county, as most county and township roads were closed, including Interstate 90 from Mitchell west to the Aurora County line. Significant street flooding occurred in Mitchell for three days. The event resulted in FEMA Disaster Declaration

4469. The total public assistance cost in Davison County due to both flooding events in 2019 was just under $2.3 million.

In June 2024, significant overland flooding occurred due to heavy rainfall, which resulted in FEMA Disaster Declaration 4807. County-wide, over 4 million dollars of damage to public infrastructure was reported. Flood water also damaged around 149 homes and 9 businesses, resulting in an estimated loss of 5.4 million. In Mitchell, flood waters required the evacuation of 44 trailers at two trailer courts and the city's wastewater treatment facility sustained damage.

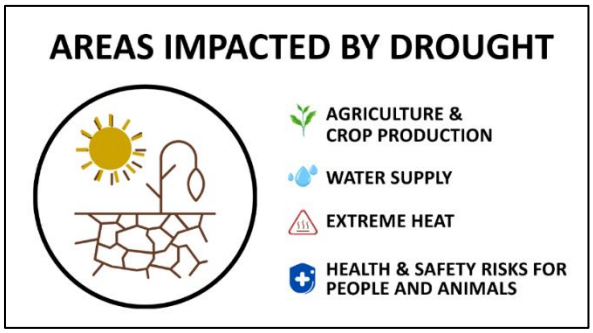
Probability

Table C.2 shows that 87 flooding events have been recorded in Davison County since the mid-1990s. Excluding the events that were a recording of ongoing flood conditions, it appears there have been approximately 30 separate flood events in Davison County since the mid-1990s, an average of about one per year. Based on this analysis, the probability of flooding occurring somewhere in the county in a given year can be considered high. **Table C.1** shows that several floods were significant enough to result in a disaster declaration. It is certain that flooding will continue to impact the area to some degree, no matter what mitigation actions are pursued.

Drought

Description

Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people. It is a normal, recurrent feature of climate that occurs in virtually all climate zones. Human factors, such as water demand and water management, can exacerbate drought. Survey respondents ranked drought as the greatest hazard facing the county[5].

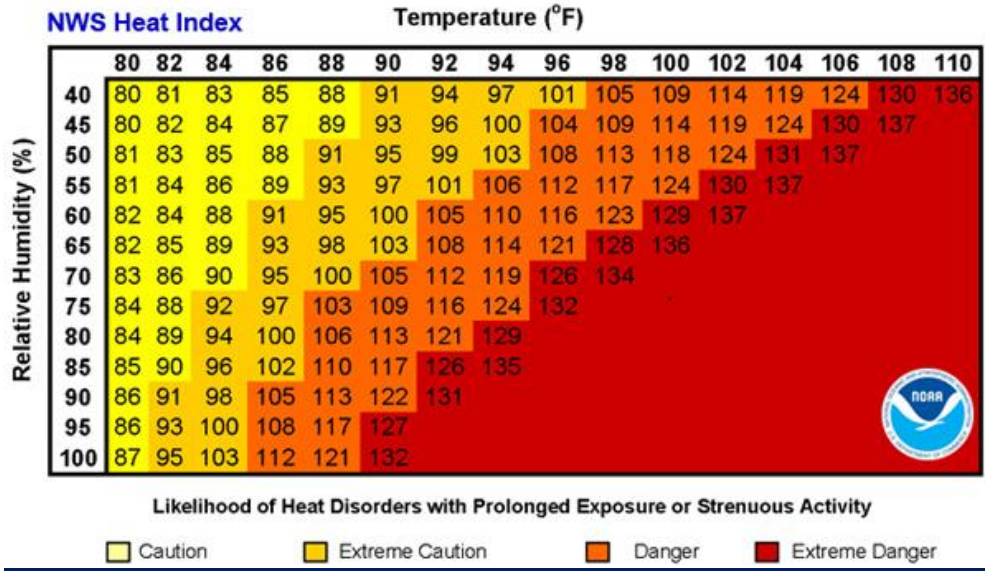


Droughts can occur at any time of the year, but the consequences are worse during the summer growing season, especially after dry winters. A small departure in normal precipitation during the months of June through August can have a significantly negative impact on crop production. The demand for water for multiple uses also impacts water availability. Rural water systems that were originally designed to supply water for people are now also being used for cattle and to fight wildfires, taxing the limits of the systems.

Drought in South Dakota is often accompanied by periods of extreme heat, which is defined by FEMA as a condition in which the air temperature hovers at least 10° Fahrenheit above

[5] It should be noted that the survey was taken during an extended regional drought, which may have influenced the results. Still, there is no doubt that drought is a serious hazard facing the county.

the average high temperature for the region and lasts for several weeks. Drought and extreme heat often exist together and compound negative effects. According to the National Weather Service, among natural hazards, only the cold of winter takes a greater toll on human life. Between 1936 and 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. Elderly people, small children, people with certain medical conditions, and those on certain medications are particularly susceptible to heat stress. The following table shows the likelihood of heat disorder given the combination of air temperature and relative humidity.



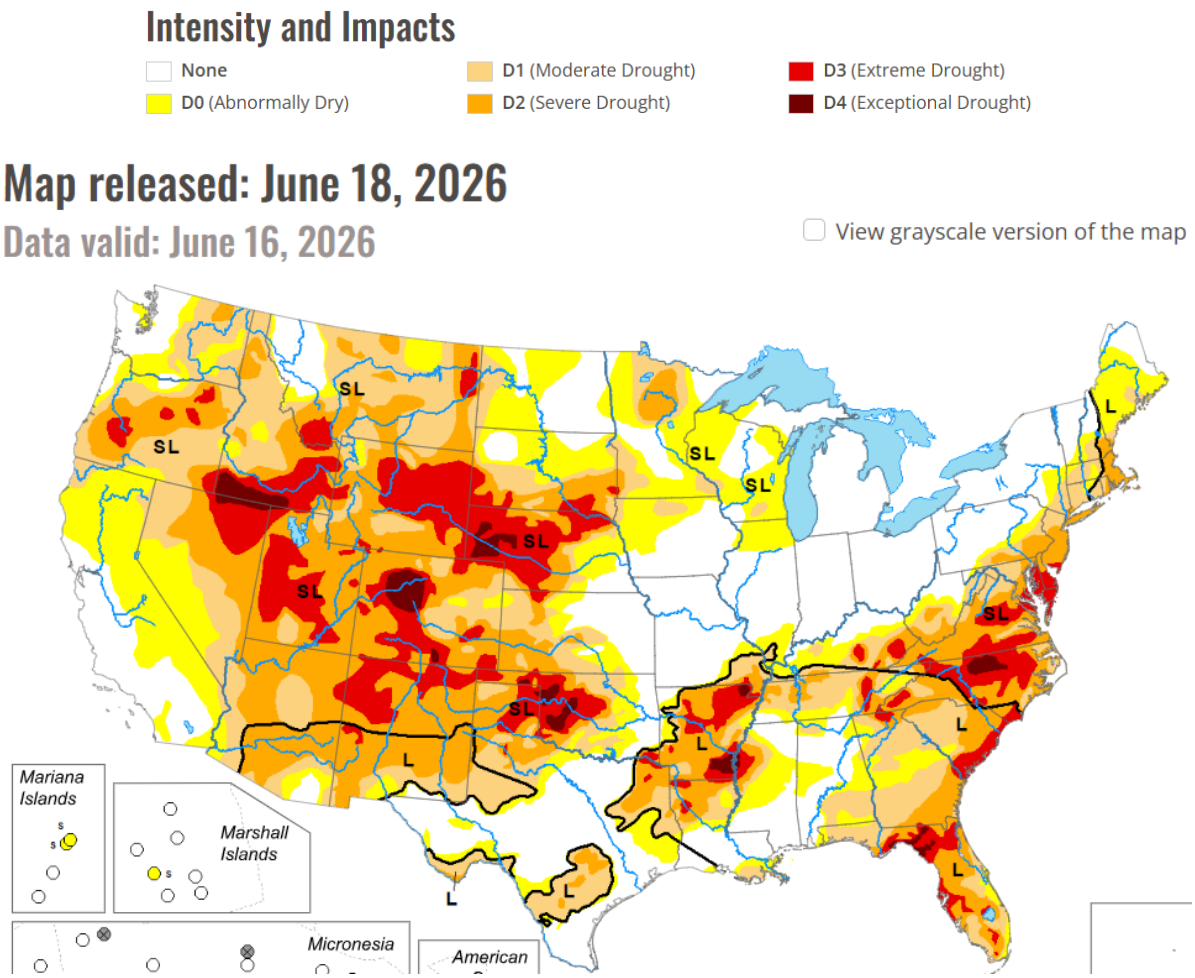
Location

All areas of the county are equally likely to be impacted by drought.

Extent

Drought severity, the most commonly used term for measuring drought, is a combination of the magnitude and duration of the drought. In terms of magnitude, Davison County has experienced many years of below average annual precipitation, including four years between 1930 and 2023 in which precipitation was less than two thirds of normal. In terms of duration, it is not unusual for Davison County to experience periods of below normal precipitation that last for several months. During the 1930s, drought conditions persisted for multiple years. In an area that is so highly dependent on agriculture, the impact of a major drought can be significant. Although most agricultural producers now have crop insurance and agricultural practices today are more advanced, the impacts of drought can still be serious.

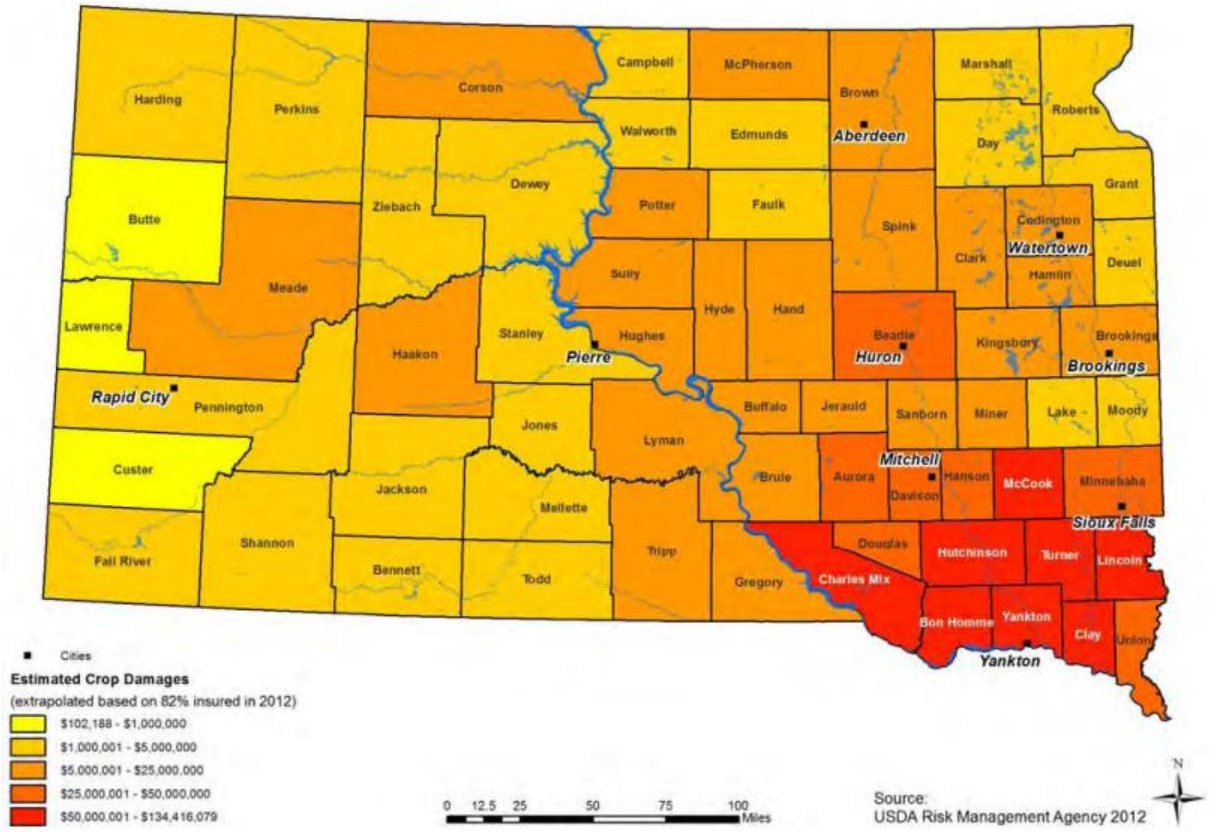
The U.S. Drought Monitor (USDM) has established the drought scale shown on the following page, which is much like those that rate hurricanes and tornadoes. The "D-scale" speaks to the "unusualness" of a drought episode, with D1 conditions expected to occur about 10 to 20 percent of the time and D4 being much rarer, expected less than 2 percent of the time. Following the scale is the current drought severity index map of the United States.



History

Davison County has experienced many severe droughts, the most significant of which occurred in the 1930s, the so-called dust bowl years. Some parts of the Great Plains experienced drought conditions for as many as eight consecutive years. The soil, depleted of moisture, was lifted by the wind into great clouds of dust so thick they concealed the sun for several days at a time. The severity of the drought was compounded by years of land management practices that left topsoil susceptible to the forces of the wind.

The drought of 1976 was one of the most severe in recent years, resulting in South Dakota's only drought emergency declaration to date. Drought in 1980 and 1981 affected the entire state of South Dakota and was rated as a 10-to-25-year event. The Drought in 2012 was so devastating that the State of South Dakota activated a Drought Task Force. The statewide impact on agricultural producers was tremendous. The figure on the following page, as reproduced from the South Dakota Drought Mitigation Plan, shows the 2012 drought's impact statewide.



Probability

Table C.2 in **Appendix C** shows at least one drought record in Davison County in nine of the years since 1999. Based on this, the probability of a significant drought occurring in the county in any given year is moderate. The probability of a truly severe drought impacting the county, such as occurred in 2012, is low, expected to occur no more than twice per ten years.

At the statewide level, the developers of the South Dakota Hazard Mitigation Plan cite tree ring research spanning a period of about 400 years indicating that multi-year droughts as significant as the 1930s drought occur on average every 57 years in South Dakota. Based on historical records, notable droughts have occurred somewhere in the state on average about every 12 years.

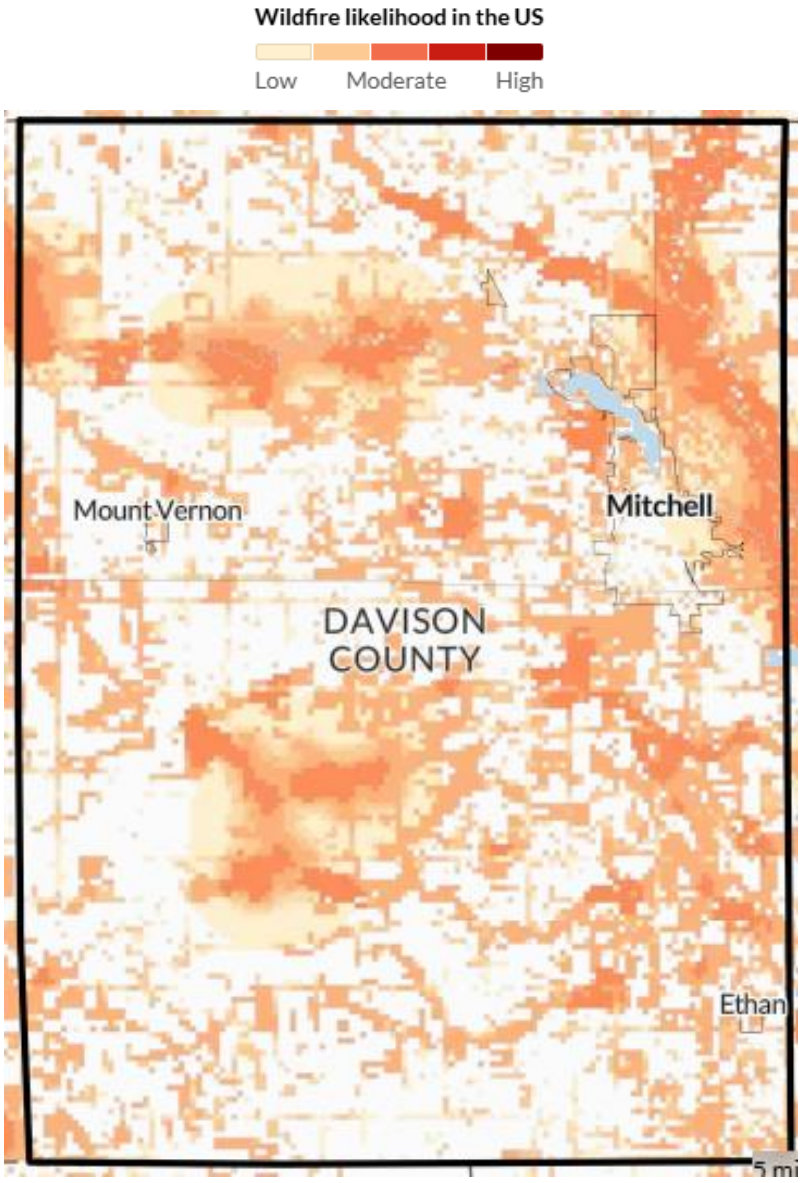
Wildfire

Description

Wildfires are uncontrolled conflagrations that spread freely through the environment. Such fires that occur near populated areas pose threats not only to natural resources, but also to human life and personal property. Wildfire is not as serious a concern in Davison County as it is in other more forested parts of the country, but the opinion of the planning team is that the hazard does warrant some attention in this plan. Survey respondents considered wildfire to be the least serious of the eight disaster types they could choose from.

Location

Wildfires in Davison County are most likely to occur in large areas of extensive brush or unmanaged vegetation, including pastureland and grassland, which together make up approximately 39 percent of the county's land base. Other areas of concern are the hills and draws along the James River, which contain a significant amount of trees and thick brush, and controlled burns that get out of control, which can occur almost anywhere in the county. This map, from the U.S. Forest Service's Wildfire Risk to Communities website, shows where wildfires are most likely to occur in the county (it does not reflect the intensity of fire).



Extent

The following table shows the number of wildfires according to various size classes that have occurred in Davison County from 2000 through 2024 as reported to the South Dakota

Department of Public Safety [6]. It shows that most of the fires have been fairly small, most impacting fewer than ten acres.

Table 3.6 – Wildfires in Davison County (2000 - 2024)

1 to 9 Acres	10 to 49 Acres	50 to 99 Acres	100 to 249 Acres	250 to 499 Acres	500 Acres or More	Average Annual Acres Burned
116	39	4	6	1	1	112.9

Source: South Dakota Department of Public Safety

History

Some notable wildfires have occurred in Davison County, but nothing on a truly destructive scale. Since 2000, the largest fire burned 640 acres in 2023.

Probability

Wildfires affecting fewer than ten acres are likely to occur somewhere in Davison County most years, but large-scale wildfires are much less common. **Table 3.6** shows only one wildfire at least 500 acres in size occurred between 2000 and 2024. Based on this period of analysis, the probability of a significant wildfire occurring each year within Davison County can be considered low.

Community Assets

Hazards can affect all parts of the community, but their impact on certain community assets is particularly important to consider. In this section, the most important community assets and facilities in Davison County are identified, including those that would play an important role in helping the communities prepare for and respond to a hazard event.

Government Offices

- Davison County Courthouse, Mitchell
- Davison County North Offices, Mitchell
- City offices in Ethan, Mitchell, and Mount Vernon
- South Dakota National Guard, Mitchell

Emergency preparedness and response

- Davison County Emergency Management Office, Mitchell
- Davison County Sheriff's Office, Mitchell
- Mitchell Police Department
- Mitchell Fire Department
- Davison County Highway Department, Mitchell
- Davison County Search and Rescue, Mitchell

[6] Since the data is reported by volunteer fire departments, and not all wildfire incidents are reported to the Department, the table may not reflect all wildfires that have occurred in the county.

- Salvation Army
- Disaster relief shelters (*see p.59)*
- Emergency storm shelters (*see p.59*)

Medical facilities

- Avera Queen of Peace Hospital
- Avera Grassland Health Center

Educational Facilities

- Ethan Public School (K-12)
- Mount Vernon Public School (K-12)
- Mitchell Christian School (K-12)
- Mitchell High School (9-12)
- Elementary schools in Mitchell (four total)
- Dakota Wesleyan University
- Mitchell Technical College

Other important assets and businesses

- Davison County 4-H Center
- Corn Palace, Mitchell
- Central Electric Cooperative
- POET Biorefining Ethanol Plant, Loomis
- Trail King
- AKG
- Graphic Packaging
- Twin City Fan
- Toshiba
- Hendrickson
- Trail-Eze, Inc.
- Puetz Corporation
- Coca Cola Bottling
- Pepsi Cola Bottling

Hazard Impact Analysis

This section assesses the vulnerability of Davison County and the participating jurisdictions to each of the hazards that have been profiled. Vulnerability is defined as the extent to which people and property are exposed to harm or damage created by a hazard. The method of determining vulnerability varies by the type of hazard and the availability of data, but each methodology is based on either potential for loss or actual losses. Following is a description of each specific methodology used.

Potential Loss Methodologies

- FEMA's HAZUS loss estimation software was used to estimate potential losses from flooding in each community. HAZUS produces a flood polygon and flood-depth grid that represents the 100-year floodplain, with losses calculated using national baseline inventories (buildings and population) at the census block level. It is an especially helpful planning tool for communities that have not been mapped by the National Flood Insurance Program [7].
- The value of buildings within the county was used to estimate potential losses due to winter storms and summer storms (building exposure).
- Population density within the county was used to estimate potential losses due to winter storms and summer storms.
- Data on the population living in wildfire risk zones was used to estimate potential wildfire losses.

Actual Loss Methodologies

- The National Climatic Data Center's Storm Events Database was consulted for historical information regarding weather-related events (see **Table C.2** in **Appendix C**).
- Records from FEMA were consulted for federal assistance provided to Davison County following major disaster declarations through FEMA's Public Assistance program.
- Data from the U.S. Dept of Agriculture Risk Management Agency was used to assess crop loss from natural hazards (see **Tables C.3 through C.6** in **Appendix C**).
- Information from the National Drought Mitigation Center's Drought Impact Reporter was used to assess the local impact of droughts.

At the conclusion of the vulnerability assessment for each hazard, an attempt is made to determine how vulnerability might change in the future. Census data and population projections were used in this analysis, as well as data on the volume of building permits that have been issued in the county in recent years and discussion with local officials about general development trends within the county. Other factors, including the possible impact of climate change, were also considered.

At the end of the chapter, the county's vulnerability to each hazard is summarized. Vulnerability is characterized as either "Low", "Moderate", or "High", based on the results of the risk analysis.

[7] A limitation of HAZUS is the inadequacies associated with its hydrologic and hydraulic modeling, especially in sparsely populated areas. Also, HAZUS uses default national databases that may not be applicable at the local level.

Winter Storms

All areas of South Dakota are vulnerable to winter storms, and the consequences of such storms can be great. They can disrupt the power supply when electrical lines are brought down by high winds, trees falling, or extreme ice buildup. Everyday activities can be significantly disrupted when road conditions deteriorate because of snow cover or precipitation that freezes on road pavement. In extreme situations, roads can be closed because of accumulated snow for days or even weeks. Winter storms also can kill or injure livestock and can cause significant crop losses when they occur early in the growing season.

The rural areas of the county may be somewhat more vulnerable to winter storms than the towns. For example, transmission of electricity in rural areas is dependent on many miles of power lines located in open country that is highly susceptible to high wind events, especially when combined with freezing rain (high winds can snap power poles, and freezing rain and sleet forms ice on the lines, making them heavy and more susceptible to being blown down). Rural residents also are vulnerable if roads are blocked by snow for an extended period and they cannot travel into town for groceries, medical supplies, or other important items.

To assess the county's vulnerability to winter storms, the methodology that was used in the South Dakota Hazard Mitigation Plan was essentially followed for this plan. The following factors were considered:

- The number of prior winter storm events in the county
- Past damage amounts
- The county's building exposure
- Population density

Prior Events:

A total of 70 winter weather events, including blizzards, heavy snow, ice storms, and winter storms, are shown in the National Climatic Data Center's Storm Events Database for Davison County (see **Table C.2 in Appendix C**). In comparison, the average for South Dakota counties is 104 winter weather events, indicating that Davison County may be somewhat less prone to adverse winter weather than other counties in the state.

Past Damage Amounts:

It is not easy to determine how much damage winter storms have caused in the county. The National Climatic Data Center's Storm Events Database records winter storm damage by forecast zones, not by county, so the data does not lend itself to analysis at the county level. Nevertheless, **Table C.2** indicates that many winter storms have caused significant damage in Davison County.

Winter storms can have a major impact on agricultural production. Farmers typically protect themselves from the impacts of adverse weather by insuring their crops against losses through multi-peril crop insurance, which is underwritten by the Risk Management Agency, a part of the U.S. Dept of Agriculture. **Table C.3** in **Appendix C** provides information on

indemnity payouts for crop loss to Davison County farmers due to various types of winter weather events between 2000 and 2023. During this period of analysis, winter weather-related payouts averaged approximately $129,360 per year in Davison County compared to the state average of $322,350 per year.

Building Exposure:

The total value of buildings in Davison County is approximately $2.1 billion, according to the South Dakota Hazard Mitigation Plan, which ranks 10th among the state's 66 counties. The median figure for South Dakota counties is approximately $620 million. From this information, the county's building exposure can be considered high relative to other South Dakota counties.

Population Density:

With a population density of 45.8 people per square mile, Davison County is one of the more densely populated counties in South Dakota, where the population density is 11.7 people per square mile. Although Davison County is still well below the national figure of 93.8 people per square mile, Davison can be rated high in terms of population density compared to other counties in South Dakota.

Future Vulnerability

No development has occurred anywhere in Davison County since the previous plan was approved to affect any of the jurisdictions' vulnerability to winter storms. Looking ahead, vulnerability to winter storms is not expected to increase to any significant degree given the modest population increase expected in the coming decades.

One factor that could impact vulnerability is climate change. According to the South Dakota Hazard Mitigation Plan, the winter season is warming at a faster rate than any other season in South Dakota, but winter storms and blizzards will continue to be a severe weather hazard in the state. Warmer winter temperatures could mean more ice and freezing rain events, which would impact electrical utilities and communication systems, the transportation system, and livestock. An increase in the frequency of large snowfall events also is being experienced in the northern U.S. There remains some uncertainty in projections for the coming decades, but the rising trend of extreme precipitation events is something that needs to be considered.

Summer Storms

All areas of Davison County are vulnerable to summer storms, especially those that are accompanied by tornadoes, lightning, or large hail. Typical damage from summer storms includes blown down power lines, crop damage from hail and high wind, property damage if a populated area is struck, and flooding as the result of heavy rain. Like the rest of the Great Plains, Davison County is especially vulnerable to summer storms accompanied by high wind because the landscape is open and there is very little topographic relief to block the wind.

As with winter storms, the methodology that was used in the South Dakota Hazard Mitigation Plan to assess vulnerability to summer storms was followed for this plan. The following factors were considered:

- The number of prior summer storm events in the county
- Past damage amounts
- The county's building exposure
- Population density
- Housing stock characteristics in each community

Prior Events:

A total of 111 summer storm events (tornadoes, lightning, thunderstorms with wind gusts of at least 60 knots, and hail at least one inch in diameter) are shown in the National Climatic Data Center's Storm Events Database for Davison County from 1960 through 2024 (see **Table C.2 in Appendix C**). In comparison, the average for South Dakota counties is 257 summer storm events, which indicates that Davison County may be less prone to summer storms than other counties in the state.

Past Damage Amounts:

Many summer storm events have caused significant damage in Davison County, as shown in **Table C.2**. According to the South Dakota Hazard Mitigation Plan, whose authors researched property damage from tornadoes in the state as reported in the National Climatic Data Center's Storm Events Database, the average annual loss from tornadoes in Davison County between 1950 and 2016 was approximately $316,690. The average annual loss during this period for South Dakota counties was $163,730, indicating that Davison County may be more vulnerable to suffering tornado damage than other counties in the state.

Davison County farmers are quite vulnerable to the impact of summer storms. **Table C.4** in **Appendix C** provides information on indemnity payouts for crop loss in Davison County due to severe summer weather between 2000 and 2023. During this period of analysis, summer storm-related payouts averaged approximately $196,825 per year in Davison County compared to the state average of $461,120 per year.

Building Exposure:

The total value of buildings in Davison County is approximately $2.1 billion, according to the South Dakota Hazard Mitigation Plan, which ranks 10th among the state's 66 counties. The median figure for South Dakota counties is approximately $620 million. From this information, the county's building exposure can be considered high relative to other South Dakota counties.

Population Density:

With a population density of 45.8 people per square mile, Davison County is one of the more densely populated counties in South Dakota, where the population density is 11.7 people per square mile. Although Davison County is still well below the national figure of 93.8 people

per square mile, Davison can be rated high in terms of population density compared to other counties in South Dakota.

Housing Stock Characteristics

Differences in the local housing stock were analyzed to help determine vulnerability at the local level. The table below shows that the housing stock in each of the communities is older than the typical house in South Dakota, and an assumption can be made that some of the older houses may not be as structurally sound as a newer home, putting the occupants at higher risk to a powerful summer storm, such as a tornado or other high wind event. The impact on human life might be especially bad in Ethan given its relatively high percentage of mobile homes, which are vulnerable to being overturned by tornadoes and other high wind events if not anchored properly.

Table 3.7 – Housing Stock Characteristics

Community	Houses Built Before 1940	Houses Built Since 2000	Mobile Homes
Ethan	28.6%	6.3%	9.8%
Mitchell	22.7%	17.4%	7.2%
Mount Vernon	50.0%	14.5%	5.0%
South Dakota	*14.6%*	*31.5%*	*6.4%*

Source: 2020 US Census (DP04 Selected Housing Characteristics)

Future Vulnerability

No development has occurred anywhere in Davison County since the previous plan was approved to affect any of the jurisdictions' vulnerability to summer storms. Looking ahead, vulnerability to summer storms is not expected to increase to any significant degree given the modest population increase expected in the coming decades.

Regarding the impact of climate change, the South Dakota Hazard Mitigation Plan cites the Climate Science Special Report from 2017, which states that damage from convective weather hazards, such as severe thunderstorms and tornadoes, have undergone the greatest increase relative to other extreme weather since 1980. The plan states that the tornado season is getting longer, and that an increase in potential days for severe thunderstorms is projected for the mid to late 21st century. The expected increase in the number of days above 95 degrees by midcentury could create conditions favorable to the formation of severe thunderstorms. There is some uncertainty in these projections, but severe thunderstorms and tornadoes will remain a hazard in the state.

Flooding

Like all counties in South Dakota, Davison County is vulnerable to flooding. Because of the specific nature of flooding, vulnerability will be analyzed first on a general county-level basis, and then specifically for each community. Given the degree to which flooding is geographically based, this approach made the most sense to the planning team.

General Flood Vulnerability

According to the HAZUS analysis that was run for the South Dakota Hazard Mitigation Plan, Davison County's potential building damage loss ratio from flooding (the percent of the total building inventory value that could be damaged by flooding in any given year) of 0.6 percent is below the median statewide figure of 0.75 percent. Likewise, the 2.7 percent of the county's population potentially displaced by flooding is below the state figure of 4.6 percent.

In addition to impacting buildings and other structures, a good deal of public infrastructure throughout the county is vulnerable to flooding. Flood damage frequently involves washed out or damaged roads and drainage culverts, often occurring in the spring, especially following winters with heavy snow.

Flooding also has a major impact on agriculture. Spring flooding can delay farmers getting into their fields to plant, and later in the growing season it can damage crops. **Table C.5** in **Appendix C** provides information on indemnity payouts for crop loss in Davison County due to flooding and excess moisture between 2000 and 2023. During this period of analysis, flood-related payouts averaged approximately $1,946,385 per year in Davison County compared to the state average of $2,204,140 per year.

Approximately 45% of the flood-related indemnity payouts to Davison County farmers were due to the severe flooding that occurred in 2019, which may have been the worst year ever in terms of flooding's impact on South Dakota's agricultural producers. The state ranked first in the nation with almost 4 million acres of farmland prevented from being planted due to flooding, more than double the next nearest state. In Davison County, approximately 91,725 acres of land were not planted, which was about 53% of land that would have otherwise been planted, ranking the county 7th in South Dakota.

Local Flood Vulnerability

At the community level, vulnerability was determined by using FEMA's HAZUS loss estimation software to estimate potential losses during a 100-year flood event. Vulnerability was also assessed by using GIS software to overlay areas of flood risk on parcel data to determine the assessed value of property at risk. The following table summarizes the results of the analysis (note that both analyses included some land outside the municipal boundaries).

Table 3.8 – Community Flood Loss Estimation

Community	Building Structural Damage	Debris Generated (Tons)	Displaced Households	People Needing Shelter	Assessed Value of Property at Risk
Ethan	$0	1	4	0	$0
Mitchell	$8,030,000	4,683	589	239	$4,140,106
Mount Vernon	$87,000	428	14	1	$2,284,596

Sources: FEMA HAZUS loss estimation software; Davison County Director of Equalization

Flood risk was also analyzed using the RiskFactor website, which uses a probabilistic flood model that shows any location's risk of flooding from rain, rivers, tides, and storm surges. According to the RiskFactor analysis, there is only minor flood risk in each of the communities.

Future Vulnerability

No development has occurred in flood prone locations or anywhere else within Davison County since the previous plan was approved to affect any of the jurisdictions' vulnerability to flooding. Looking ahead, vulnerability to flooding is not expected to increase to any significant degree given the modest population increase expected in the coming decades.

One factor that may increase vulnerability is the continuing conversion of wetlands and other marginal land to agricultural production. Farming these marginal lands can increase the probability and severity of flooding in certain areas as the land's natural capacity to absorb excess surface water is decreased. The primary impact is on rural roads and infrastructure. Precise statistics on the amount of road damage that flooding has caused over the years in Davison County are not available, but future updates to this plan could explore this trend in more depth.

The nature and frequency of flooding also could be altered by climate change. The South Dakota Hazard Mitigation Plan notes a long-term trend of increasing annual precipitation across South Dakota, among the highest in the country, much of it occurring in the spring and fall seasons, and there is high confidence that precipitation extremes will increase in frequency and intensity that could exacerbate flooding.

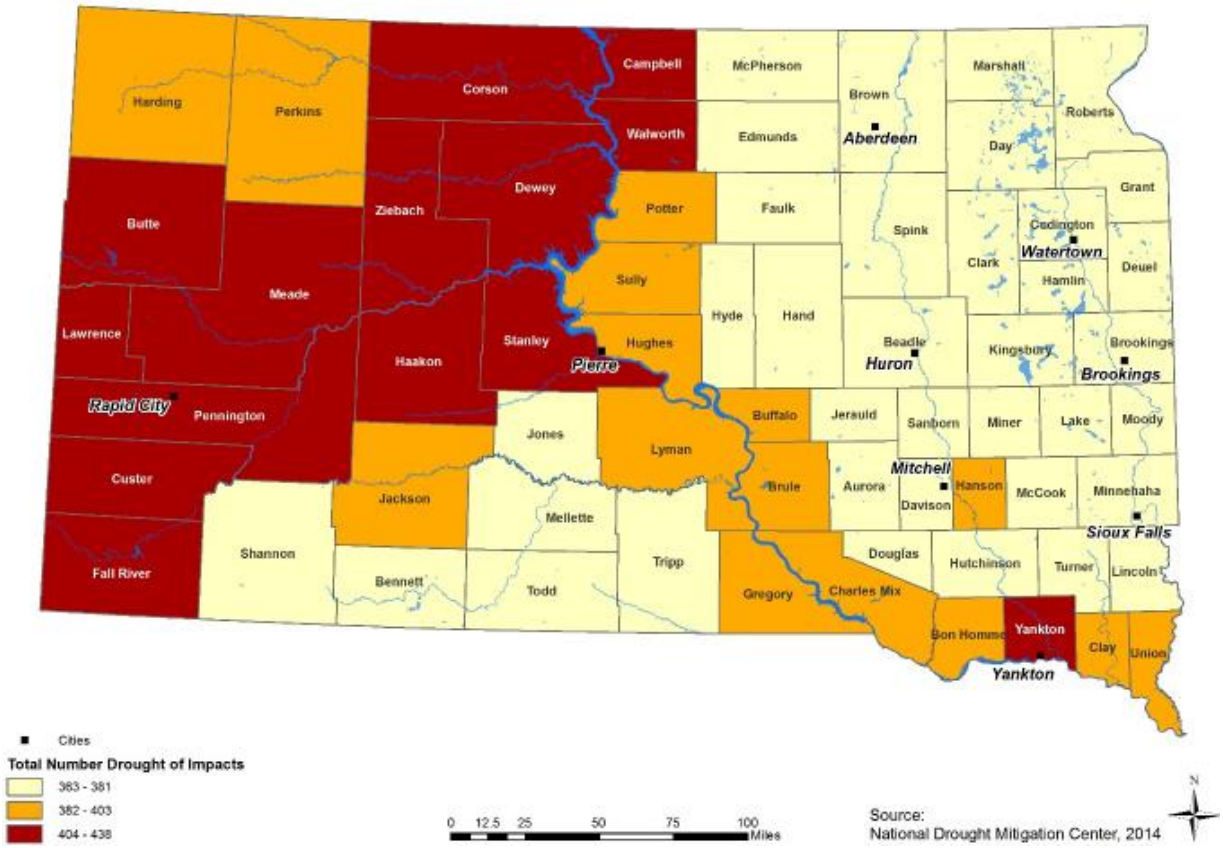
Drought

Without question, Davison County is vulnerable to drought, with the biggest impact being in the agricultural sector. Non-irrigated cropland is most susceptible to drought, and yield reductions due to moisture shortages can be aggravated by wind-induced soil erosion. Fortunately, most farmers in Davison County have crop insurance, which lessens the financial impact of droughts. Modern agricultural practices, such as no-till farming and the development of drought-tolerant crops, also help farmers withstand years of low rainfall. **Table C.6** in **Appendix C** provides information on indemnity payouts for crop loss in Davison County due to drought and heat between 2000 and 2023. During this period of analysis, drought-related payouts averaged approximately $3,551,600 per year in Davison County compared to the state average of $2,942,115 per year. Over 53% of the payouts were due to the 2012 and 2022 droughts.

To determine which areas of the state are most vulnerable to the agricultural impacts of drought, the authors of the South Dakota Drought Mitigation Plan conducted an analysis comparing crop losses in each county to the total value of the county's crops. Crop value was taken from the 2012 Census of Agriculture, while crop loss was based on the Risk Management Agency's crop indemnity data for the period 2000 to 2014. The resulting loss ratio is the average annual loss divided by total crop value; the higher the ratio the higher the vulnerability. Davison County's loss ratio of 8.4% was above the 3.1% average for South

Dakota counties. The authors of the South Dakota Drought Mitigation Plan assigned Davison County a rating of "High" for this measure of drought vulnerability.

Vulnerability also was assessed by reviewing the South Dakota Drought Mitigation Plan's section on the National Drought Mitigation Center's Drought Impact Reporter. The Drought Impact Reporter analyzes drought impact information from a broad range of areas, including the social, economic, and environmental realms. As shown in the figure below from the South Dakota Drought Mitigation Plan, Davison County is in the lower range of counties in terms of the number of drought impacts.



Future Vulnerability

No development has occurred anywhere within Davison County since the previous plan was approved to affect any of the jurisdictions' vulnerability to drought. Looking ahead, vulnerability to drought may increase if current land use trends continue and more marginal land in the county is brought into agricultural production. Climate change also may increase the frequency and severity of droughts. The expected increase in Davison County's average annual temperature and the number of days over 95 degrees may lead to increased evaporation and drought frequency, which would compound water scarcity problems.

Wildfire

Wildfire risk in Davison County was analyzed using two different sources. According to the U.S. Forest Service's Wildfire Risk to Communities website, Davison County's overall risk is considered medium, with homes in the county having a greater wildfire risk than 25% of

South Dakota counties and 41% of counties nationwide. Information from the SILVIS Lab at the University of Wisconsin shows that 168 housing units in the county are located in the Wildland-Urban Interface, which are locations vulnerable to wildfire because of a combination of dense housing and vegetation. The housing units at risk represent less than 2% of the total housing stock in Davison County, whereas the statewide figure is about 26%.

Future Vulnerability

No development has occurred in areas prone to wildfire or anywhere else within Davison County since the previous plan was approved to affect any of the jurisdictions' vulnerability to wildfire. Looking ahead, vulnerability to wildfire is not expected to increase to any significant degree given the modest population increase expected in the coming decades.

One factor that could increase wildfire vulnerability is the continued spread of cedar trees. These trees are spreading quickly in the county and efforts to control their spread have met with only limited success. The fuel load they represent could turn an otherwise routine brushfire into a very serious situation.

The possible impact of climate change also needs to be considered. The South Dakota Hazard Mitigation Plan cites a U.S. Forest Service study that indicates a likely increase in the annual window of high fire risk by 10 to 30%. The plan states that predictions past 2040 are largely speculative, but there will be an increase in the potential for drought and the number of days in any given year with flammable fuels, which may extend the fire season.

Risk Assessment Summary

In this section, the vulnerability of Davison County and the participating jurisdictions to each of the hazards profiled is summarized. Maps are presented at the end of the section to augment the analysis, showing areas vulnerable to flooding; the graphic on page 37 showed areas where wildfire is most likely to occur. Vulnerability to winter storms, summer storms, and drought is not mapped, as those hazards are likely to impact all areas of the county equally.

- **Winter Storms**

Davison County's vulnerability to winter storms can be considered high. The authors of the South Dakota Hazard Mitigation Plan assigned Davison a rating of High when considering prior winter storm events in the county, building exposure, and population density. All areas of the county are vulnerable to winter storms. Major winter storms accompanied by heavy snow or freezing rain contribute to the vulnerability of county residents by making roads dangerous for travel. The isolation of residents living outside the county's major communities, some of whom are more than 10 miles from the nearest place with groceries, medical service and supplies, and other important items, puts them at increased risk. Winter storms accompanied by high winds have the potential to damage residential and commercial property in the county, as well as infrastructure. A major concern is the vulnerability of rural electric power infrastructure, especially when winter storms are accompanied by high winds

and freezing precipitation that can cause ice to build up on powerlines, which can then cause the lines and poles to come down. Elderly residents who rely on home medical apparatus dependent on a constant supply of power are particularly vulnerable during these times and they are often less able to withstand extreme cold events.

- **Summer Storms**

Davison County's vulnerability to summer storms can be considered high. The authors of the South Dakota Hazard Mitigation Plan assigned Davison a rating of High when considering prior tornado events in the county, building exposure, and population density. All areas of the county are vulnerable to summer storms. Compared to most counties in South Dakota, Davison is densely populated and infrastructure development, especially in Mitchell, is extensive. In addition, a large amount of cropland in the county is vulnerable to the effects of hail and other violent summer weather. Vulnerability may be somewhat higher in Ethan, which has a relatively high percentage of mobile homes.

- **Flooding**

The overall vulnerability of Davison County to flooding can be described as moderate to high. According to the vulnerability analysis conducted for the South Dakota Hazard Mitigation Plan, the county's estimated flood loss in terms of building damage and displaced people is below the state average. Much of the vulnerability is to cropland and to rural county roads, especially along the James River valley. Flooding impacts in 2019 were especially significant, with numerous county and township road closures. Following is a summary of vulnerability to flooding in each of the communities:

Ethan: There is minor vulnerability here, as shown in **Table 3.8**. The HAZUS software identified a small area prone to flooding on the northwest edge of town. Flooding in 2019 had a minor impact on the community, with the main problem being a sewer system that was overwhelmed with floodwater, resulting in sewage backing up into several homes. One and a half blocks of Sixth Street had to be replaced because of floodwater damage.

Mitchell: The city is quite vulnerable to flooding, as shown in **Table 3.8** and according to the historical evidence. Dry Run Creek runs through the heart of the community and Firesteel Creek flows along the northern edge of the city, putting a substantial amount of property at risk. Flooding in 2019 had a major impact here, with hundreds of properties suffering varying degrees of damage. Significant street flooding also occurred.

Mount Vernon: The city is quite vulnerable to flooding, as **Table 3.8** shows. In addition to the many residential properties located in the flood hazard zone, several commercial properties and two public properties - the fire hall and the Mount Vernon Public School - are affected. Flooding in 2019 had a fairly significant impact on the community, with the main problem being a sewer system that was overwhelmed with floodwater, resulting in sewage backing up into 15 to 20 homes. Street damage also was significant, especially along Haines Street and the eastern section of Railroad Street.

- **Drought**

Davison County's vulnerability to drought can be considered high and is certain to continue for the foreseeable future. The impact is primarily on the agricultural sector, where serious losses have occurred. The South Dakota Hazard Mitigation Plan assigned a vulnerability rating of High for Davison County in terms of drought's impact to crops between 2000 and 2014. Residential and commercial impacts of drought have been minor.

- **Wildfire**

The overall vulnerability to wildfire in Davison County can be considered low. No truly destructive wildfire has ever occurred in the county, and less than 2% of the county's population lives in a location considered to be vulnerable to wildfire, well below the statewide figure of 26%.

Figure 3.1 – Davison County

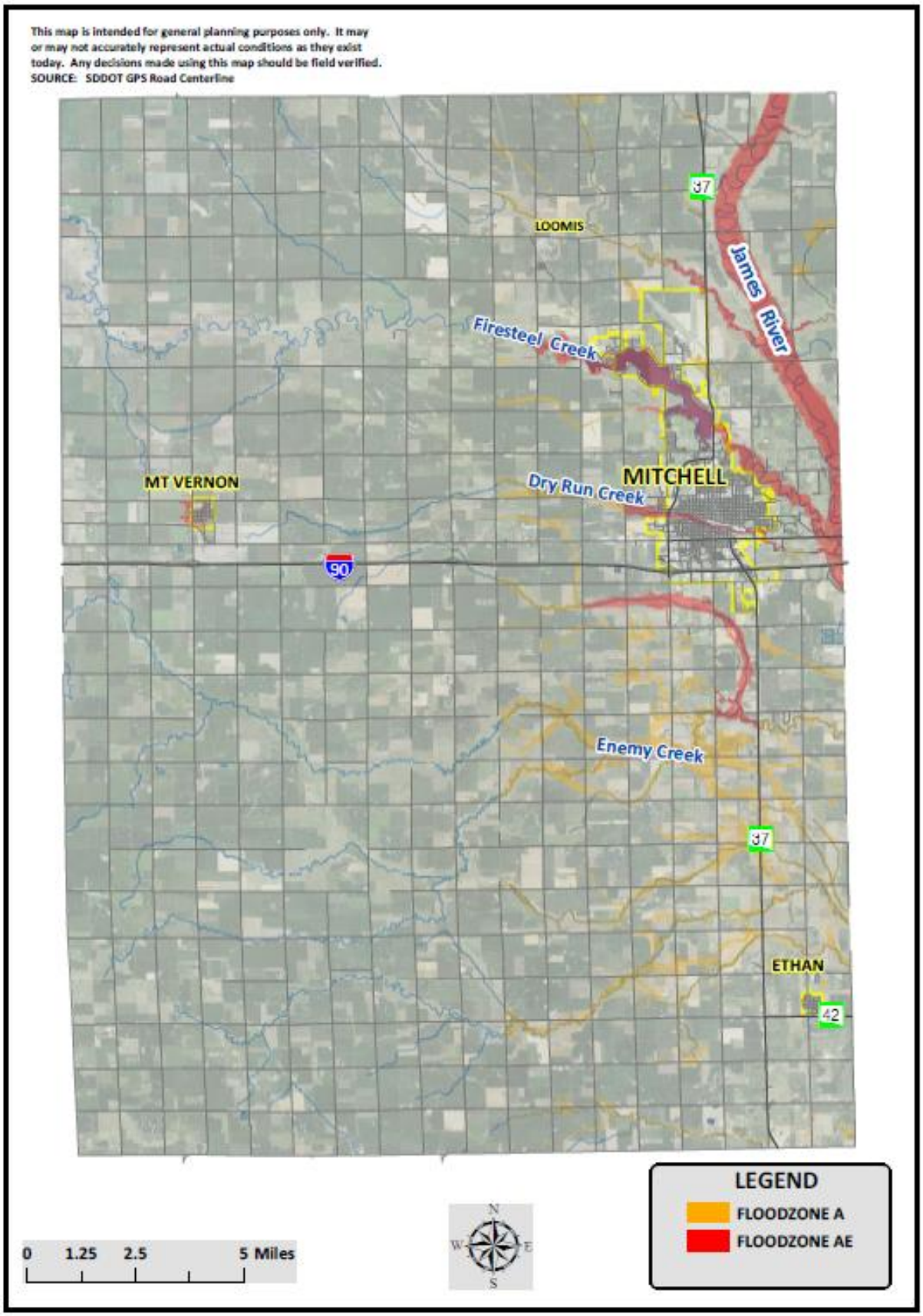


Figure 3.2 – Ethan

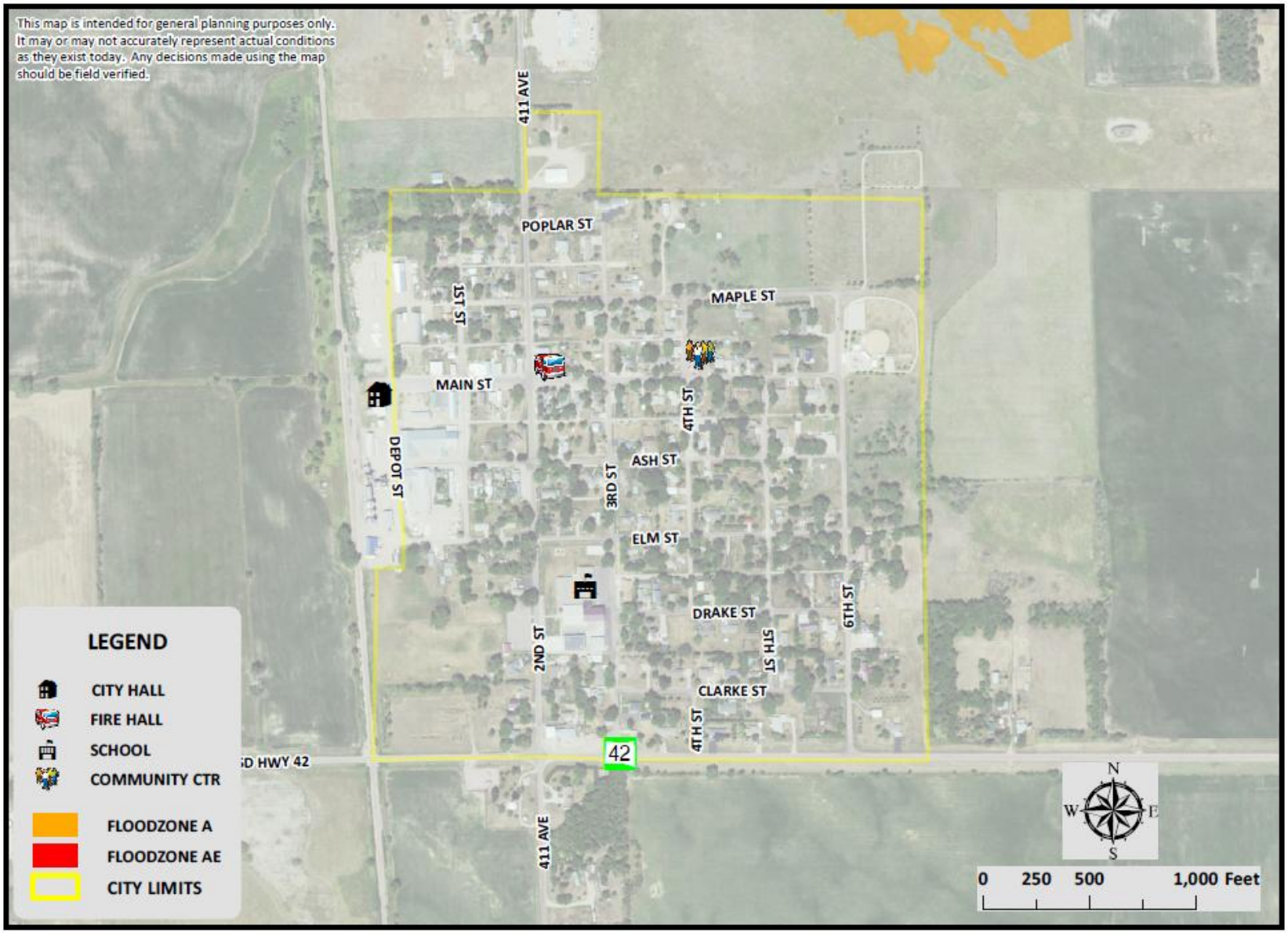


Figure 3.3 - Mitchell

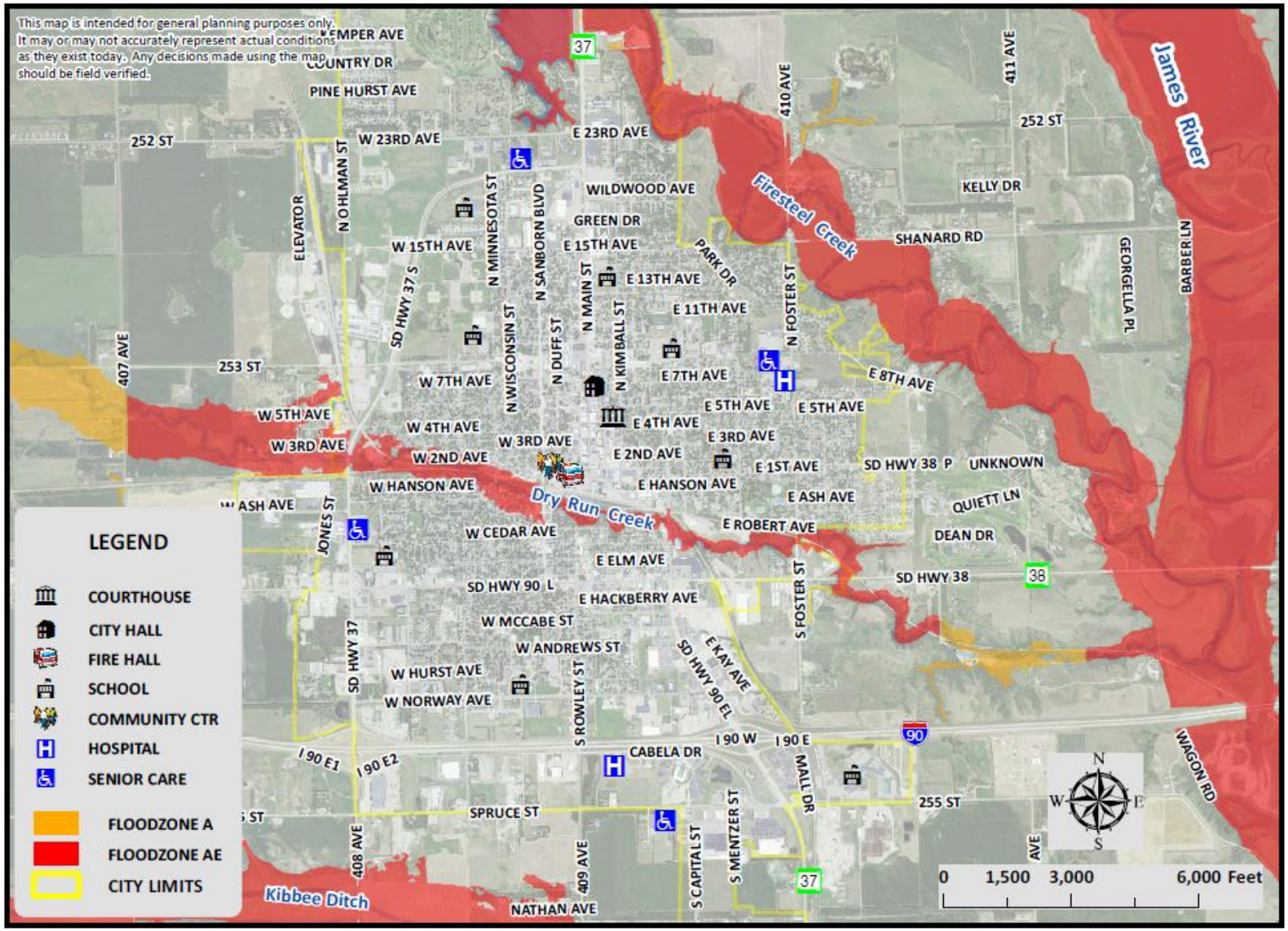
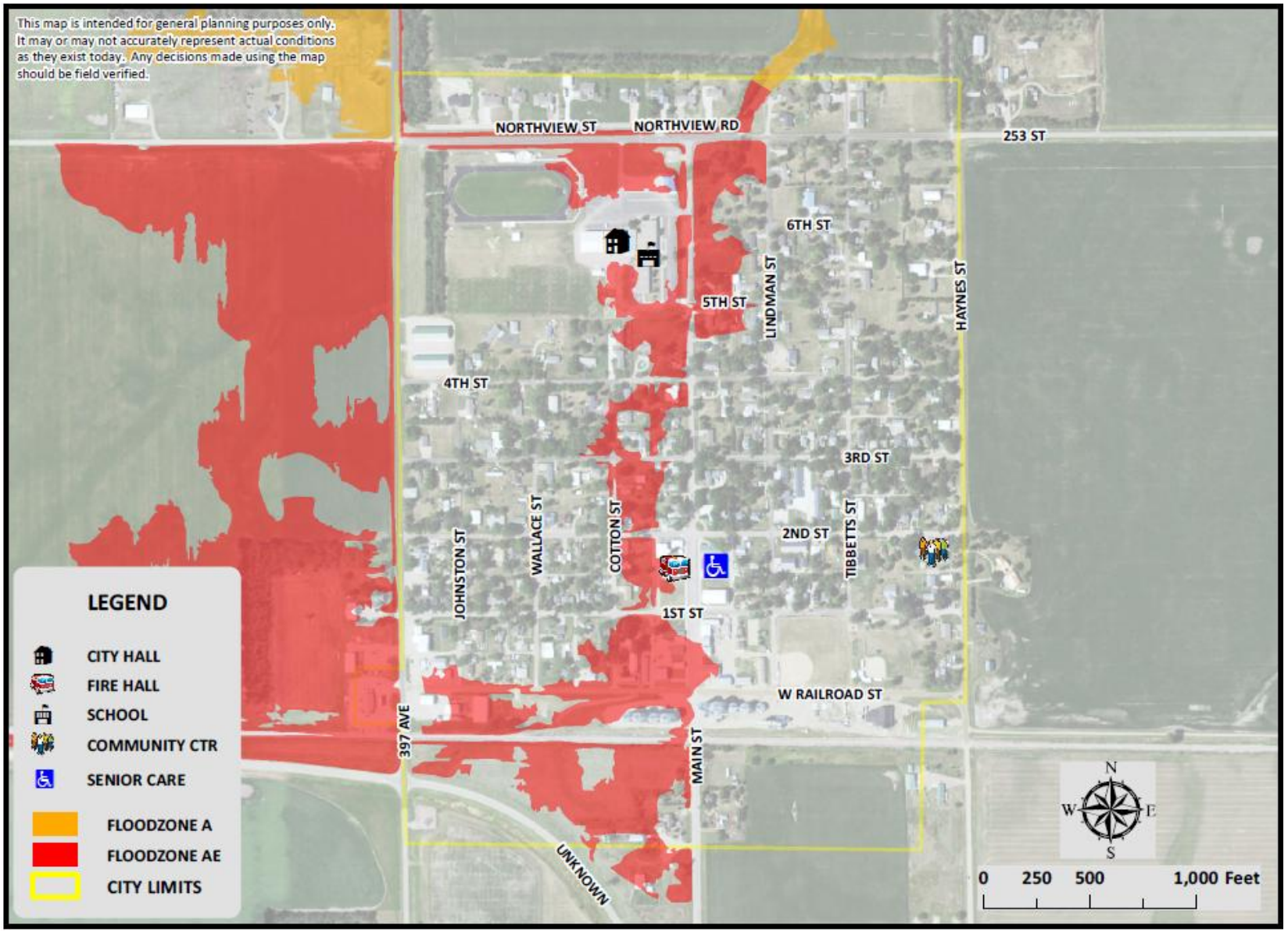


Figure 3.4 – Mount Vernon



2026 Davison County (SD)
Hazard Mitigation Plan



CHAPTER IV

Risk Mitigation Strategy

PLANNING & DEVELOPMENT DISTRICT III

CHAPTER IV
RISK MITIGATION STRATEGY

Background

The previous chapter described the types of hazards most likely to impact Davison County and discussed the county's vulnerability to each of the hazards. This chapter describes the local resources and capabilities available to support hazard mitigation, identifies the hazard mitigation goals and objectives that the planning team decided upon, and then focuses on a presentation of the mitigation actions proposed to achieve the goals and objectives. **Table 4.5** at the end of the chapter provides information about each of the proposed actions.

Community Capabilities

Resources are available at the local level to support mitigation activities and efforts in Davison County. For the purposes of this plan, these resources are divided into regulatory mechanisms and other capabilities.

Regulatory Mechanisms

Regulatory mechanisms and authorities to mitigate the various hazards that impact Davison County are limited. For instance, none of the jurisdictions except Mitchell have adopted a building code ordinance. By South Dakota state law, any local unit of government that has not adopted building codes is required to follow the most recent edition of the International Building Code, but there is no local enforcement mechanism in any of the jurisdictions except Mitchell. The following table summarizes the formal regulatory policies within Davison County that can support the local mitigation strategy.

Table 4.1 – Regulatory Mechanisms

Item	Notes
Davison County Zoning Ordinance	The ordinance, which is based on the Davison County Comprehensive Plan, controls where growth and development can occur within the county.
Davison County Floodplain Ordinance	Regulates development within flood hazard areas (see **Table 4.2**).
Davison County Drainage Ordinance	Any property owner in Davison County requesting to complete any type of drainage work must complete an application for a drainage permit before starting the work.
Davison County Burn Bans	The county commission, after consultation with local fire officials and law enforcement, can adopt a resolution prohibiting open burning during fire danger emergencies.
Ethan Zoning Ordinance	The ordinance, which is based on the Town's comprehensive plan, controls where growth and development can occur in the community.

Ethan Floodplain Ordinance	Regulates development within flood hazard areas (see **Table 4.2**).
Mitchell Zoning Ordinance	The ordinance, which is based on the City's comprehensive plan, controls where growth and development can occur in the community.
Mitchell Floodplain Ordinance	Regulates development within flood hazard areas (see **Table 4.2**).
Mitchell Building Code	The City enforces the 2021 edition of the International Building Code, which regulates how new residential and commercial buildings are built.
Mount Vernon Zoning Ordinance	The ordinance, which is based on the City's comprehensive plan, controls where growth and development can occur in the community.
Mount Vernon Floodplain Ordinance	Regulates development within flood hazard areas (see **Table 4.2**).

Regulatory authorities also exist within Davison County to mitigate the impact of other hazards. For example, during times of severe drought, each community can enact regulations limiting residential and commercial water usage. In Mitchell, it is a Class 2 misdemeanor to violate water use restrictions when they are issued by the Mitchell city council. Neither Ethan nor Mount Vernon has enacted such restrictions in recent years.

As shown in the following table, all the jurisdictions participate in the National Flood Insurance Program (NFIP) and all but Ethan have been mapped. Since there is no Special Flood Hazard Area in Ethan, they have no areas to regulate for substantial damage and improvement provisions.

Table 4.2 – National Flood Insurance Program Participation

Jurisdiction	Current Effective Map Date	Reg-Emer Date	Appointed Designee	Floodplain Regulation Enforcement	Substantial Improvements Provisions
Davison Co	05/06/2025	04/01/1987	Emergency Mgmt Office	Requires floodplain development permit and floodproofing certificate.	Residential construction and substantial improvements in areas of special flood hazard must have lowest floor elevated to one foot above base flood elevation. Non-residential buildings have the option of being built so that below BFE the structure is watertight.
Ethan	(NSFHA)	03/08/1989	Finance Officer	There are no floodplain regulations to administer.	Not applicable
Mitchell	05/06/2025	02/01/1979	City Planner	Requires floodplain development permit and floodproofing certificate.	Residential and non-residential construction and substantial improvements in areas of special flood hazard must have lowest floor elevated to the base flood elevation.
Mt Vernon	05/06/2025	06/11/1976	Mayor	Requires floodplain development permit and floodproofing certificate.	Residential and non-residential construction and substantial improvements in areas of special flood hazard must have lowest floor elevated to the base flood elevation unless a freeboard option is chosen, in which case the lowest floor must be elevated to at least one foot above BFE.

There are 23 active National Flood Insurance Program policies in Davison County, 19 of which are in Mitchell, which provide a total of $5,247,000 of coverage. Claims paid to date throughout the county have totaled $2,005,798. Four repetitive losses, including one severe repetitive loss, have been recorded in the county. All four are single family residences.

Other Capabilities

Other resources and capabilities exist within Davison County to support the mitigation strategy. This includes administrative and technical resources, financial resources, and education and outreach efforts, as well as physical assets, which are summarized in the following table and discussed in further detail below.

Table 4.3 – Other Local Capabilities to Support Hazard Mitigation

	Davison Co.	Ethan	Mitchell	Mount Vernon
ADMINISTRATIVE & TECHNICAL				
Emergency management	X			
Land use planning			X	
Public works		X	X	X
Municipal electric system				
Floodplain management		X	X	X
Wildfire management				
Building code enforcement			X	
FINANCIAL				
Budgeting process	X	X	X	X
Levy/Project surcharge for specific purposes		X	X	X
EDUCATION AND OUTREACH				
Severe Weather Awareness Week	X	X	X	X
Emergency alerts/notification to cellphones	X	X	X	X
Social media	X		X	
PHYSICAL ASSETS				
Relief shelter		X	X	X
Storm shelter		X	X	X
Warning siren(s)		X	X	X

Administrative and technical expertise to support hazard mitigation efforts in Davison County is available to a greater extent than in many other counties in South Dakota. Not only does the County have a full-time emergency management director (many South Dakota counties do not), but the county also has a deputy director as well as dedicated planning and zoning staff. The City of Mitchell also has a full complement of staff available to support hazard mitigation efforts.

The availability of financial resources is critical to the success of this plan. Since there are no specific local funding sources available to support hazard mitigation in Davison County, the

budgeting process is where the "rubber meets the road" if hazard mitigation is to be achieved. Therefore, the mitigation actions listed in **Table 4.5** should be considered when the jurisdictions begin developing their annual budgets. In this way, the plan will not become a mere wish list of ideas for which there is no practical funding mechanism. To help ensure this happens, the Davison County Emergency Management Office will continue reaching out to each community at least annually to discuss hazard mitigation, including the possibility of obtaining funds through FEMA or other sources for the projects they have identified.

Education and outreach to support hazard mitigation in Davison County is a point of emphasis. The Davison County Emergency Management Office participates in severe weather public awareness campaigns in conjunction with the State Office of Emergency Management and the National Weather Service and communicates regularly with local officials regarding severe weather awareness and training opportunities. Hazard mitigation information is also available on the Davison County and Mitchell websites and Facebook pages. Alerts for adverse weather and other emergencies are texted to residents of each community.

There are many physical assets in Davison County that can help protect people prior to, during, or after a disaster event or other emergency situation. Outdoor sirens to warn people of impending severe weather are located in each community. Public facilities that can serve as emergency shelter from a tornado or other severe weather include the following:

- Davison County Courthouse basement, Mitchell
- Lake Mitchell Campground bathhouse/tornado safe room [8]
- Ethan Public School
- Downtown Gymnasium, Mount Vernon

Facilities that can provide short-term relief following a disaster include:

- Corn Palace, Mitchell
- James Valley Community Center, Mitchell
- Mitchell Recreation Center
- Davison County Fairgrounds
- First United Methodist Church
- Ethan public school
- Mount Vernon public school

While Davison County and the City of Mitchell have robust hazard mitigation capabilities, the Town of Ethan and City of Mount Vernon are more limited in this regard. Neither jurisdiction has the financial resources to hire specialized staff such as engineers to develop hydrology studies or do precise elevation measurements, professionals to enforce building codes, or grant writers to develop applications for hazard mitigation funds. However, these two communities, as well as Davison County and the City of Mitchell, have taken advantage of their membership in Planning & Development District III to become more familiar with hazard mitigation concepts. The continued participation of all these jurisdictions as this plan is

[8] The structure, scheduled to begin construction later in 2026, is being funded through a FEMA hazard mitigation grant.

updated in future years will allow them to further develop their knowledge and capabilities. District III staff, which have decades of experience working on various planning and community development activities within Davison County, wrote the county's current hazard mitigation plan and helped develop applications to fund several hazard mitigation projects within the county.

Mitigation Goals and Objectives

For this plan update, there are no significant changes in Davison County's hazard mitigation strategy. The community priorities have not changed, and the planning team decided to keep all the goals and objectives from the current mitigation plan. This decision was based in part on the results of the survey, but even more so on the fact that there have been no major developments in the county since the current plan was adopted that have had a significant impact on community vulnerability. The following goals were identified:

- Minimize loss of life and injuries from hazards.
- Minimize damage to existing and future structures within hazard prone areas.
- Reduce losses to critical facilities, utilities, and infrastructure from hazards.
- Reduce impacts to the economy and the environment from hazards.

After the team had settled on the goals, they turned their focus to each of the hazards facing the County. Following are the specific mitigation objectives identified for each of the hazards:

Winter storm

- Reduce property and infrastructure losses due to winter storms.
- Ensure that people are adequately protected from the effects of winter storms.
- Minimize disruptions to the power distribution system.

Summer storm

- Reduce property and infrastructure losses due to summer storms.
- Ensure that people are adequately protected from the effects of summer storms.
- Ensure that people have adequate warning when violent weather threatens.

Flooding

- Reduce property and infrastructure losses due to flooding.
- Minimize development in areas that are prone to flooding.
- Maintain the natural and man-made systems that protect people and property from floods.

Drought

- Reduce economic and environmental impacts due to drought.

Wildfire

- Reduce property, crop, and infrastructure losses due to wildfires.

Mitigation Action Plan

With the mitigation capabilities, goals, and objectives identified, the planning team began the process of selecting mitigation actions to accomplish the mitigation strategy. This followed up and built upon the earlier review of the progress being made to implement the actions listed in the county's current hazard mitigation plan. A list of the actions and a summary of the implementation status of each action is shown in the following table.

Table 4.4 – Progress on Implementing Previously Proposed Actions

Mitigation Action	Hazard	Current Status
DAVISON COUNTY		
Ensure continued NFIP compliance. A new flood hazard map is being prepared for the county at this time, and the county will encourage property owners to buy flood insurance before rates rise.	Flooding	The Davison County emergency management office works with the communities within the county to ensure the goals of the NFIP program are being implemented.
Make drainage improvements to county roads.	Flooding	Some progress has been made, but additional work remains.
Warning siren acquisitions.	Summer storm	Sirens were identified as a need for the Loomis and Enemy Creek communities. No progress has been made.
Make improvements to Kibbee Ditch.	Flooding	Work is underway along the first mile of the proposed Improvements.
Make improvements to Firesteel Creek.	Flooding	A 37-acre wetland has been created where Firesteel Creek empties into Lake Mitchell.
Powerline burial.	Winter storm	Progress continues to be made by the Central Electric Cooperative to relocate overhead powerlines. The cooperative averages about 50 miles per year of overhead to underground conversion within its eight-county service area.
Update county burning ordinance.	Wildfire	The ordinance is currently being updated.
CITY OF ETHAN		
Ensure continued NFIP compliance. More training and program information will be requested from state NFIP coordinator.	Flooding	The local floodplain administrator works with the Davison County emergency management office to implement the floodplain ordinance.
Storm drainage improvements in the 1st Street/ Elm Street area, including construction of a detention pond.	Flooding	No progress has been made.
Storm shelter construction at city park	Summer storm	No progress has been made.
Generator acquisition for Ethan public school.	Winter storm	Project has been completed.

Mitigation Action	Hazard	Current Status
CITY OF MITCHELL		
Ensure continued NFIP compliance. A new flood hazard map is being prepared for the city at this time, and city staff will encourage property owners to buy flood insurance before rates rise.	Flooding	The local floodplain administrator has been in contact with FEMA and the state floodplain coordinator to implement the floodplain ordinance.
Property acquisition in flood hazard areas.	Flooding	The City has acquired flood prone properties along Dry Run Creek with the assistance of FEMA hazard mitigation funds.
Dry Run Creek flood control project(s).	Flooding	The City continues to clean out the creek and make other improvements as funding allows.
Sunnyside and University Additions flood control project(s).	Flooding	Project is in progress.
Northwest Drainage flood control project(s).	Flooding	A drainage control project centered along 13th Avenue will be completed in the fall of 2026.
Install emergency storm shelters at soccer complex and at Lake Mitchell campground.	Summer storm	A storm shelter at the Lake Mitchell campground is currently under construction with funding assistance from FEMA. A storm shelter for the soccer complex is no longer a priority.
Warning siren acquisitions.	Summer storm	No progress has been made.
Detention pond south of Main St and Norway Ave.	Flooding	Project is in progress.
Require that large groups coming to city have an emergency response plan when shelter is needed.	Summer storm	The City has worked with various groups, including rodeo clubs and the local soccer association, to develop response plans. It is hoped that plans for other groups can be developed.
CITY OF MOUNT VERNON		
Ensure continued NFIP compliance. A new flood hazard map is being prepared for the city at this time, and the city will encourage property owners to buy flood insurance before rates rise.	Flooding	The local floodplain administrator has been in contact with FEMA and the state floodplain coordinator to implement the floodplain ordinance.
Implement drainage improvements in the city.	Flooding	No progress has been made, but an application to fund a hydrology study is in progress.
Generator acquisition for Mount Vernon public school.	Winter storm	No progress has been made.

The participants were encouraged to consider a broad range of mitigation actions, including measures designed to avoid, avert, or adapt to the hazards they face. To guide the jurisdictions in this process, a list of potential mitigation actions based on FEMA guidance was distributed to the team and they were reminded that they should focus on hazard mitigation as opposed to preparedness. The actions discussed and considered can be grouped into the following general categories:

- Plans and regulations: Government authorities, policies, or codes that influence building and development. Examples include:
  - Adopting zoning regulations.
  - Preserving open space.
  - Reviewing and strengthening local flood ordinances.

- Adopting stormwater management regulations.
- Adopting National Building Code standards.
- Enacting measures to restrict non-essential water usage.

- Structure and Infrastructure Projects: Modifying existing infrastructure to remove it from a hazard area or construction of new structures to reduce impacts of hazards. Examples include:
  - Upgrading stormwater infrastructure, such as culverts and storm sewer piping.
  - Replacing overhead utility lines with underground lines.
  - Building tornado safe rooms.

- Natural Systems Protection: Actions that minimize damage and losses and also preserve or restore the functions of natural systems. Examples include:
  - Using low-lying areas as natural water retention ponds.
  - Restoring and preserving wetlands and stream corridors.
  - Forest and vegetation management.
  - Providing incentives for xeriscaping.

- Education and Awareness Programs: Programs to educate the public and decision makers about hazard risks and community mitigation programs. Examples include:
  - Developing a hazard mitigation public awareness program.
  - Participating in the StormReady program.
  - Participating in the Firewise Communities program.
  - Making presentations to school groups or neighborhood organizations.
  - Mailings to residents in hazard-prone areas.
  - Encouraging people to conserve water during droughts.

The final list of mitigation actions identified by the jurisdictions is shown in **Table 4.5**. The table contains the following information for each action:

- The local priority rating.
- The project lead primarily responsible for implementing the action.
- The estimated time frame needed to accomplish the action. Short-term actions can be completed within two years, Mid-term actions from two to five years, and Long-term actions will take more than five years to implement.
- The estimated cost to implement the action.
- Resources that may be available to help fund the action.
- Notes and details about the proposed action.

Prioritizing the actions is important because not all of them can be pursued simultaneously, especially when costly projects are considered. Actions providing the most benefit in terms of cost are likely to be pursued first, while some lower priority actions may never be

implemented. The prioritization process was informal and somewhat subjective, but a methodology based on the following criteria helped guide the process:

- Overall benefit - how many lives or how much property will be protected, and how much disruption will be prevented? Are there any critical facilities or important public infrastructure that will be protected?
- Financial feasibility - how expensive will the action be? Could the action qualify for grant or loan funding?
- Political feasibility – will the public support the action? Are there any groups or interests that may be opposed to the action and thus prevent it from being implemented?
- Technical feasibility – does the technology exist for the action to be implemented? Is the action likely to function as intended?
- Environmental feasibility - does the action have the potential to have an adverse impact on the environment?
- Legal feasibility – are there any legal issues that might prevent the action from being implemented?

Of these criteria, financial considerations are especially important, because neither Davison County nor any of the other participating jurisdictions have much discretionary money available to fund mitigation activities. Given this reality, it is unlikely that any mitigation action requiring substantial financial resources could be implemented locally without grant assistance. Following are potential sources of outside funding to help the jurisdictions accomplish mitigation projects:

FEMA grant programs

- Hazard Mitigation Grant Program (HMGP)
- Flood Mitigation Assistance (FMA)
- Public Assistance Section 406 funds

Other grant and loan programs/sources

- US Economic Development Administration
- US Department of Agriculture Rural Development grant/loan program
- US Bureau of Reclamation WaterSMART program
- South Dakota Community Development Block Grant program
- South Dakota State Homeland Security Program
- South Dakota Dept. of Agriculture and Natural Resources
- South Dakota Dept. of Transportation
- Natural Resource Conservation Service

Table 4.5 - Proposed Mitigation Actions

DAVISON COUNTY ACTIONS	HAZARD	PRIORITY	PROJECT LEAD	TIME	COST	FUNDING	NOTES
Continue participation in the National Flood Insurance Program.	Flooding	High	Emergency Mgmt Office	Ongoing	Minimal	Staff time	The Davison County Emergency Management Office will continue working with each community within the county to ensure the goals of the NFIP program are implemented. The office will encourage each community to reach out to the state floodplain coordinator to learn more about the NFIP program and participate in future training sessions.
Make drainage improvements to county roads.	Flooding	High	Hwy superintendent	Long	≈ $2,000,000	FEMA; SDDOT; Highway fund	The County may apply for funding for projects that pass a benefit-cost analysis.
Make improvements to Kibbee Ditch.	Flooding	High	County commission	Ongoing	≈ $5,000,000	FEMA; JRWDD	The County may apply for funding to make additional improvements.
Bury powerlines.	Winter storm	High	Central Electric Coop; Emergency Mgmt Office	Ongoing	≈ $8,000,000	FEMA	The Coop plans to continue burying lines in the county and may work with Davison County to apply for mitigation funds as they are available. The Coop would be the lead in the development of any application for mitigation funds.
Continue participation in the StormReady Program.	Summer storm	High	Emer Mgmt Office	Ongoing	Minimal	Staff time	The Emergency Management Office will continue working with each community within the county to implement the program.
Develop a prescribed burning plan with landowners.	Wildfire	High	County commission	Mid	≈$25,000	WUIGP; General fund	The County is looking into forming a prescribed burn association that would work with landowners to reduce the spread of cedar trees, which are spreading rapidly and increasing wildfire risk.
Acquire warning sirens.	Summer storm	Medium	Emer Mgmt Office	Short	$45,000 (each)	FEMA; General fund	The County may apply for funding to install sirens at Loomis and Enemy Creek.
Conduct outreach to educate people about water conservation.	Drought	Medium	Emergency Mgmt Office	Short	Minimal	Staff time	The Emergency Management Office will work with the towns on public outreach, including school groups.
Participate in the Firewise Program.	Wildfire	Medium	Emergency Mgmt Office	Short	Minimal	Staff time	The Emergency Management Office will look into the program and would work with the towns to implement it.
ETHAN ACTIONS	**HAZARD**	**PRIORITY**	**PROJECT LEAD**	**TIME**	**COST**	**FUNDING**	**NOTES**
Continue participation in the National Flood Insurance Program	Flooding	High	Finance officer	Ongoing	Minimal	Staff time	The finance officer will work with the Davison County Emergency Management Office to ensure the goals of the NFIP program are implemented and will contact the state floodplain coordinator to learn more about the NFIP program and participate in training sessions.

Storm drainage improvements in the 1st Street/Elm Street area.	Flooding	High	Public Works Director	Long	≈ $1,500,000	FEMA; DANR; General fund	The Town may apply for funding to address stormwater issues in this area, including the possible construction of a detention pond to store excess water.
Continue participation in the StormReady Program.	Summer storm	High	Finance officer	Ongoing	Minimal	Staff time	The Town will continue working with the County to implement the program.
Storm shelter construction at city park.	Summer storm	Medium	Town board	Mid	≈ $1,000,000	FEMA; General fund	The Town may apply for funding.
Acquire generator for the Ethan community center.	Winter storm	Medium	Town board	Mid	$50,000	FEMA; General fund	The community center has a basement that could be used as an emergency storm shelter. The Town may apply for funding.
Conduct outreach to educate people about water conservation.	Drought	Medium	Town board	Short	Minimal	Staff time	The Town will work with the County Emergency Management Office on outreach to the public, including school groups.
Participate in the Firewise Program.	Wildfire	Medium	Fire chief	Short	Minimal	Staff time	The Town would work with the County Emergency Management Office to implement the program.
MITCHELL ACTIONS	**HAZARD**	**PRIORITY**	**PROJECT LEAD**	**TIME**	**COST**	**FUNDING**	**NOTES**
Continue participation in the National Flood Insurance Program.	Flooding	High	City planner	Ongoing	Minimal	Staff time	The city planner will contact the South Dakota floodplain coordinator to learn more about the NFIP program and participate in training sessions.
Acquire property in flood hazard areas.	Flooding	High	City engineer	Mid	Will vary by property	FEMA; General fund	The City has been awarded FEMA mitigation funds for previous projects and will pursue more buyouts as opportunities develop.
Implement Dry Run Creek flood control project(s).	Flooding	High	City engineer	Ongoing	≈ $5,000,000	FEMA; JRWDD; General fund	The City continues to make improvements to the creek and may apply for funding for future work.
Implement Firesteel Creek flood control project(s)	Flooding	High	City engineer	Ongoing	≈ $5,000,000	FEMA; JRWDD; General fund	The City has been acquiring land along the creek to help mitigate against flooding and may apply for funding for future work.
Implement Northwest Drainage flood control project(s).	Flooding	High	City engineer	Mid	$2,100,000	DANR	Funding has been received to implement a project along 13th Avenue, but the City may apply for funding to construct additional projects.
Work with large groups coming to Mitchell to develop an emergency response plan.	Summer storm	High	City council	Short	Minimal	Staff time	The City will continue working with various groups to develop response plans.
Continue participation in the StormReady Program.	Summer storm	High	Finance officer	Ongoing	Minimal	Staff time	The City will continue working with the County to implement the program.

Acquire generator for sewage lift stations.	Winter storm	High	City engineer	Short	≈$500,000	FEMA; Sewer fund	The City is applying for funds to develop a study to investigate how to reduce risk in the city's wastewater system. Ensuring that the sewage lift stations have power at all times is one of the high priorities.
Acquire warning sirens.	Summer storm	Medium	City council	Short	$40,000 (each)	FEMA; General fund	The City may apply for funding to install sirens at up to three sites.
Conduct outreach to educate people about water conservation.	Drought	Medium	City council	Short	Minimal	Staff time	The City will work with the Davison County Emergency Management Office on outreach to the public, including school groups.
Participate in the Firewise Program.	Wildfire	Medium	Fire chief	Short	Minimal	Staff time	The City would work with the Davison County Emergency Management Office to implement the program.
MOUNT VERNON ACTIONS	**HAZARD**	**PRIORITY**	**PROJECT LEAD**	**TIME**	**COST**	**FUNDING**	**NOTES**
Continue participation in the National Flood Insurance Program.	Flooding	High	Finance officer, Mayor	Ongoing	Minimal	Staff time	The finance officer will work with the Davison County Emergency Management Office to ensure the goals of the NFIP program are implemented and will contact the state floodplain coordinator to learn more about the NFIP program and participate in training sessions.
Implement drainage improvements in the city.	Flooding	High	Public Works Director	Long	≈$2,000,000	FEMA; DANR; General fund	The City is applying for funding to develop a hydrology study to identify a project(s) that could pass a benefit-cost analysis.
Continue participation in the StormReady Program.	Summer storm	High	Finance officer	Ongoing	Minimal	Staff time	The City will continue working with the County to implement the program.
Acquire generator for the Mount Vernon public school.	Winter storm	Medium	City council	Mid	$100,000	FEMA; General fund	The City may apply for funding.
Conduct outreach to educate people about water conservation.	Drought	Medium	City council	Short	Minimal	Staff time	The City will work with the County Emergency Management Office on outreach to the public, including school groups.
Participate in the Firewise Program.	Wildfire	Medium	Fire chief	Short	Minimal	Staff time	The City would work with the Davison County Emergency Management Office to implement the program.

Potential Resources for Funding Assistance:

DANR South Dakota Dept of Agriculture and Natural Resources
FEMA FEMA Hazard Mitigation Assistance (BRIC or HMGP)
JRWDD James River Water Development District
SDDOT South Dakota Dept of Transportation
WUIGP Wildland Urban Interface Grant Program

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CHAPTER V

Plan Maintenance

PLANNING & DEVELOPMENT DISTRICT III

CHAPTER V
PLAN MAINTENANCE

Background

Plan maintenance is a continuous process that requires long-term commitment and focused effort. The process involves evaluating the plan's effectiveness at achieving its goals, updating the plan as needed to keep it current, and making sure it is integrated into other local planning mechanisms. These activities provide the foundation for an ongoing mitigation program and will ensure that the plan remains relevant and effective. This chapter addresses how Davison County officials intend to implement the plan so that it remains a dynamic, useful tool for mitigating against the impacts of future hazard events.

Public Participation

The plan can be accessed on the Davison County and Mitchell websites, and a copy is also available for review at the Davison County Courthouse and in the finance office of each participating jurisdiction. Going forward, Davison County and each of the jurisdictions will continue their efforts to make the public more informed about the plan. Outreach efforts will likely evolve over time as different methods are used to get greater public participation in the mitigation planning process. Activities may include any of the following:

- Meetings of the Davison County Local Emergency Planning Committee.
- Press releases and social media posts.
- Surveys to get feedback from the public about mitigation priorities.
- Community visits by the Davison County Emergency Management Office to discuss mitigation planning (local schools, civic meetings, etc.).

Any comments and suggestions received from the public through any of the forums described above will be included in the public outreach section of the plan.

Monitoring, Evaluating, and Updating the Plan

The Davison County Emergency Management Office is ultimately responsible for implementing this plan. The director will work under the direction of the Davison County Commission and with the support of the Davison County Local Emergency Planning Committee (LEPC) to ensure that the plan's mitigation strategy is carried out, coordinating his/her activities with other county departments or the other participating jurisdictions as needed. The jurisdictions will also play a critical role in carrying out the action plan by

identifying and prioritizing the actions they want to pursue, allocating resources for their implementation, and applying for funding assistance as needed.

An important part of implementing the plan is plan monitoring and evaluation, which will be performed by the Davison County Emergency Management Office with the support of the LEPC. The plan will be evaluated at least annually by the LEPC, and it may also be reviewed at other times as the need arises, such as following a significant hazard event or as federal funding for hazard mitigation becomes available.

All major elements of the plan – the planning process, the risk assessment, and the mitigation strategy - will be evaluated. Following are the specific criteria that will be used to measure whether the plan is achieving its goals:

Planning Process

- Could anything from the initial planning process be done more efficiently?
- Has the public become more aware of the plan? How can public participation improve?
- Have there been any public outreach activities to promote awareness of the plan?

Risk Assessment

- Have any recent disaster events impacted any of the jurisdictions?
- Should any hazards be added or removed from the plan?
- Have there been any changes in the nature or magnitude of risks?
- Has any new development occurred that might impact risk?
- Are new data sources for any of the hazards available?
- Do any new critical facilities or infrastructure need to be added to the community asset list?

Mitigation Strategy

- Is the mitigation strategy being carried out as expected? How many of the proposed mitigation actions have been completed or are in progress?
- Have there been any changes in mitigation priorities in any of the jurisdictions?
- Are there any new mitigation actions to consider? Should existing actions be revised or removed from the plan?
- Have parts of the plan been integrated into other planning mechanisms?
- Have any jurisdictions adopted new policies, plans, or regulations that could support the plan?
- Has NFIP participation changed in the participating jurisdictions?
- Is progress being made in education and outreach? How many outreach events have taken place?

Future updates to this plan may occur at any time in response to a change in any of the criteria identified above. However, barring a significant change in any of these factors, Davison

County will begin the process of updating this plan approximately two years prior to the plan's expiration date. Led by the Emergency Management Office, the process will consist of the following general steps:

- Apply for funding assistance to update the plan
- Funding assistance obtained
- Hire contractor to write the plan
- Organize planning team
- Begin soliciting public participation and input
- Hold meetings of planning team to develop the plan
- Make draft of the plan available for public review and comment
- Submit plan for State review
- Revise plan as needed based on reviewer comments
- Plan submitted by State to FEMA
- Revise plan as needed based on reviewer comments
- Jurisdictional adoption of approved plan

Plan Integration

The Davison County Hazard Mitigation Plan is the backbone for hazard mitigation planning within the county, but to remain useful the plan cannot exist in a vacuum. It is designed to work with the planning mechanisms and development regulations that exist within the county, and local officials and policy makers should therefore be familiar with this plan. Neither this plan nor any of the others will work effectively if they contain contrary goals or policy recommendations. Following is a description of the process by which integration will occur into the local planning mechanisms.

- Davison County Comprehensive Plan – the Planning & Development District III office developed the comprehensive plan for the Davison County Planning Partnership, which consists of Davison County, the City of Mitchell, the Town of Ethan, and the City of Mount Vernon. Working with District III, the Planning Partnership will integrate relevant information acquired through the development of this plan into the environmental constraints section of the comprehensive plan when it is next updated. The zoning ordinance for each member of the partnership will also be modified if needed. For example, if this plan identifies certain areas as unsuitable for development due to environmental hazards, this should be reflected in the relevant zoning ordinance.
- Davison County Highway Plan – the highway plan is developed by the Davison County Highway Superintendent. It includes a table of significant county road projects scheduled to occur for the next five years. The South Dakota Dept of Transportation requires that the highway plan be updated annually and approved by the county commission. The highway superintendent will be able to utilize information learned during the development of this plan to identify and plan for road projects that may be

eligible for FEMA funding, such as those that involve drainage improvements to mitigate flooding.

- Davison County Master Transportation Plan – the plan examines transportation facility issues and needs within Davison County and provides a framework for guiding the county's transportation network for the next 20 years. County staff responsible for the plan will be able to utilize the knowledge gained during the development of this plan to identify projects that may be eligible for FEMA funding.
- Mitchell Capital Improvements Plan – the plan outlines a schedule for the implementation of major capital needs projects for the next five years. It is reviewed annually. City staff responsible for the CIP will be able to utilize the knowledge gained during the development of this plan to identify capital projects that may be eligible for FEMA funding.

Perhaps the best example to date of the county's current mitigation plan being incorporated into other planning mechanisms occurred during the 2024 update of the Comprehensive Economic Development Strategy (CEDS) for the Planning & Development District III region, which includes Davison County. In particular, the risk analysis and mitigation strategy of the plan were reviewed as the CEDS was being updated.

Each jurisdiction will use this plan to help them as they prepare their annual budget each year. The process will be essentially the same in each jurisdiction, beginning with a review of the plan at the outset of the budgeting process, which typically begins in the summer. Each jurisdiction will especially note their list of proposed mitigation actions in **Table 4.5**. Those that are interested in seeking funds for a specific project listed in the table will be able to utilize knowledge gained during the development of this plan, including FEMA grant deadlines and the grant eligibility of specific types of mitigation projects, as they develop their budgets.

To expand on these efforts, each community should continue to participate in future updates to this plan. This will continue to expose them to the basic concepts of hazard mitigation, which may be the only practical way for some of the jurisdictions to expand their capabilities. An important part in this process will be played by the Davison County Emergency Management Office, which will continue to reach out to each community at least annually to review their hazard mitigation needs and priorities.

2026 Davison County (SD)
Hazard Mitigation Plan



APPENDICES

- Appendix A: Outreach Effort
- Appendix B: Documentation of Meetings
- Appendix C: History of Previous Hazard Occurrences
- Appendix D: References

PLANNING & DEVELOPMENT DISTRICT III

APPENDIX A: Outreach Effort

A major effort was made to solicit input into this plan. Outreach included press releases that were printed in the local newspapers, information posted on community websites and social media, and surveys that were made available to the public. This section documents the outreach effort.

Notice in Mitchell Republic Prior to First Meeting:

Forum Communications Company

SD Affidavit No. MeyY4qyRDjMyBaBOrOzJ

AFFIDAVIT OF PUBLICATION

State of Florida, County of Orange, ss:

Anjana Bhadoriya, being first duly sworn, deposes and says: That (s)he is a duly authorized signatory of Column Software, PBC and duly authorized agent of the Mitchell Republic, a newspaper printed and published in the City of Mitchell, County of Davison, State of South Dakota.

1. I am the designated agent of The *Mitchell Republic*, a Daily newspaper published in the city of Mitchell, in said County Davison, and State of South Dakota; I have full and personal knowledge of the facts herein stated; that said newspaper is a legal newspaper as defined SDCL 17-2-2.1 through 17-2-2.4 inclusive; that said newspaper has been published within the said County of Davison and State of South Dakota, for at least one year next prior to the first publication of the attached public notice.

2. The newspaper listed on the exhibit published the advertisement of: ***General Public Notice Notice; (1) time: Thursday, March 12, 2026***, as required by law or ordinance.

3. That the full amount of the fee charged for the publication of the attached public notice insures to the sole benefit of the publisher of publishers; that no agreement or understanding for the division thereof has been made with any other person, and that no part thereof has been agreed to be paid to any other person whomsoever, that the fees charged for the publication are: $20.47

Anjana Bhadoriya

(signed)_____

JESSICA GORDON-THOMPSON
Notary Public - State of Florida
Commission # HH301656
Expires on August 17, 2026

VERIFICATION

State of Florida
County of Orange

Subscribed in my presence and sworn to before me on this: 03/13/2026

_____
Notary Public

Notarized remotely online using communication technology via Proof.

HAZARD MITIGATION MEETING

Blizzards, tornadoes, and floods are a few of the natural hazards that strike this part of the country. Events like this have the potential of causing thousands of dollars annually in damage to property. To lessen the impact of these disasters in the future, Davison County is beginning the process of updating its current Hazard Mitigation Plan.

A series of meetings, which are open for the public to attend, will occur this year to obtain input as the plan is developed. The first meeting will be held at the Davison County Courthouse on March 24, 2026 at 10:30 AM. Agenda items for this kickoff meeting will include a discussion of hazard mitigation concepts, a review of the County's current hazard mitigation plan, and a discussion about the planning process going forward.

Another way to contribute to the planning process is to fill out a survey. A copy of the survey can be obtained at the Davison County Emergency Management Office, by going to www.districtiii.org , or by scanning this QR code:

For more information, please contact the Davison County Emergency Management Office at karenw@davisoncounty.org or by calling 605 996-8640. You can also contact John Clem at 800 952-3562 or by email at: John.Clem@districtiii.org .
Published times at the total approximate cost of $20.47 and may be viewed for free of charge at www.adpublicnotices.com.
(Mar. 12, 2026)

Notice in Mitchell Republic Prior to Second Meeting:

Forum Communications Company

SD Affidavit No. NyBmeck5xvSZ4HxnssAH

AFFIDAVIT OF PUBLICATION

State of Florida, County of Orange, ss:

Edmar Corachia, being first duly sworn, deposes and says: That (s)he is a duly authorized signatory of Column Software, PBC and duly authorized agent of the Mitchell Republic, a newspaper printed and published in the City of Mitchell, County of Davison, State of South Dakota.

1. I am the designated agent of The *Mitchell Republic*, a Daily newspaper published in the city of Mitchell, in said County Davison, and State of South Dakota; I have full and personal knowledge of the facts herein stated; that said newspaper is a legal newspaper as defined SDCL 17-2-2.1 through 17-2-2.4 inclusive; that said newspaper has been published within the said County of Davison and State of South Dakota, for at least one year next prior to the first publication of the attached public notice.

2. The newspaper listed on the exhibit published the advertisement of: ***Meetings/Minutes Notice;*** *(1) time: Saturday, April 11, 2026*, as required by law or ordinance.

3. That the full amount of the fee charged for the publication of the attached public notice insures to the sole benefit of the publisher of publishers; that no agreement or understanding for the division thereof has been made with any other person, and that no part thereof has been agreed to be paid to any other person whomsoever, that the fees charged for the publication are: $18.70

Edmar Corachia

(signed)_____

VERIFICATION

State of Florida
County of Orange

Subscribed in my presence and sworn to before me on this: **04/15/2026**

_____
Notary Public
Notarized remotely online using communication technology via Proof.

PAMELA BAEZ
Notary Public - State of Florida
Commission # HH 732409
Expires on October 19, 2029

HAZARD MITIGATION MEETING

Blizzards, tornadoes, and floods are a few of the natural hazards that strike this part of the country. Events like this have the potential of causing thousands of dollars annually in damage to property. To lessen the impact of these disasters in the future, Davison County is in the process of updating its current Hazard Mitigation Plan.

A series of meetings, which are open for the public to attend, will occur this year to obtain input as the plan is developed. The next meeting will be held at the Davison County North Offices located at 1420 North Main Street in Mitchell on Tuesday April 28 at 10:00 AM. Agenda items for the meeting will include a discussion of mitigation capabilities within the county, as well as the introduction of potential mitigation actions for the updated plan.

Another way to contribute to the planning process is to fill out a survey. A copy of the survey can be obtained at the Davison County Emergency Management Office, by going to www.districtiii.org , or by scanning this QR code:

For more information, please contact the Davison County Emergency Management Office at karenw@davisoncounty.org or by calling 605 996-8640. You can also contact John Clem at 800 952-3562 or by email at: John.Clem@districtiii.org .
Published times at the total approximate cost of $18.70 and may be viewed for free of charge at www.sdpublicnotices.com.
(Apr. 11, 2026)

DC Hazard Mitigation Plan Update 2nd Meeting - Page 1 of 1

Notice in Mitchell Republic Prior to Final Meeting:

Forum Communications Company

SD Affidavit No. aQsk89GBbWUqZvDwg9p7

AFFIDAVIT OF PUBLICATION

State of New Jersey, County of Camden, ss:

Anjana Bhadoriya, being first duly sworn, deposes and says: That (s)he is a duly authorized signatory of Column Software, PBC and duly authorized agent of the Mitchell Republic, a newspaper printed and published in the City of Mitchell, County of Davison, State of South Dakota.

1. I am the designated agent of The *Mitchell Republic*, a Daily newspaper published in the city of Mitchell, in said County Davison, and State of South Dakota; I have full and personal knowledge of the facts herein stated; that said newspaper is a legal newspaper as defined SDCL 17-2-2.1 through 17-2-2.4 inclusive; that said newspaper has been published within the said County of Davison and State of South Dakota, for at least one year next prior to the first publication of the attached public notice.

2. The newspaper listed on the exhibit published the advertisement of: ***Meetings/Minutes Notice***; *(1) time: Wednesday, June 3, 2026*, as required by law or ordinance.

3. That the full amount of the fee charged for the publication of the attached public notice insures to the sole benefit of the publisher of publishers; that no agreement or understanding for the division thereof has been made with any other person, and that no part thereof has been agreed to be paid to any other person whomsoever, that the fees charged for the publication are: $9.77

Anjana Bhadoriya

(signed)_____

VERIFICATION

State of New Jersey
County of Camden

SHARONN E THOMAS-POPE
NOTARY PUBLIC
STATE OF NEW JERSEY
My Commission Expires January 23, 2027

Subscribed in my presence and sworn to before me on this: 06/05/2026

Notary Public
Notarized remotely online using communication technology via Proof.

Davison County Hazard Mitigation Plan

The final meeting to update the Davison County Hazard Mitigation Plan will take place on Tuesday June 23rd at 9:30 AM at the Davison County North Offices located at 1420 North Main Street in Mitchell . The focus of the meeting will be to review the first draft of the hazard mitigation plan, which is available for public review at the Davison County Emergency Management Office. The plan can also be accessed at www.districtiii.org .

The public is invited to attend the meeting or to provide comments and suggestions regarding the plan, which can be sent to the Davison County Emergency Management Office at jeffb@davisoncounty.org or by calling 605 995-8640. All comments received will be included in the final copy of the plan that will be submitted for approval to the State and FEMA.
Published 1 times at the total approximate cost of $9.77 and may be viewed for free of charge at www.sdpublicnotices.com.
(Jun. 3, 2026)

DC Hazard Mitigation Plan Meeting - Page 1 of 1

Survey Poster

PUBLIC PARTICIPATION NEEDED!

DAVISON COUNTY



HAZARD MITIGATION PLAN PUBLIC SURVEY

The Davison County Office of Emergency Management is in the process of updating the County's Hazard Mitigation Plan. Hazard mitigation planning helps local leaders better understand risks from natural hazards, promoting the development of long-term strategies to reduce the effects of disaster-related events and their negative impact on people, property, and environment. Davison County is seeking feedback from stakeholders and the public to incorporate into the plan.

WHAT IS A HAZARD MITIGATION PLAN & WHY IS IT IMPORTANT?

The hazard mitigation plan represents Davison County's commitment to reduce risks from natural hazards, such as flooding, severe summer and winter weather, drought, and wildfires. The plan serves as a guide for local decision makers as they commit resources to reducing the effects of natural hazards, and it creates a framework for Davison County to reduce negative impacts from future disasters on lives, property, and the local economy.

TAKE THE SURVEY

www.districtiii.org

PUBLIC PARTICIPATION IN HAZARD MITIGATION PLANNING

Public participation in the Davison County Hazard Mitigation Plan is an opportunity for county residents to evaluate a variety of potential hazards affecting the county and it is important to the overall success of the plan. Once approved, the plan will make Davison County and the participating municipalities eligible to apply for FEMA hazard mitigation funding.

PHONE: (605) 995-8640
EMAIL: KARENW@DAVISONCOUNTY.ORG

Survey Form with Responses

DAVISON COUNTY HAZARD MITIGATION SURVEY (*RESPONSES IN RED TYPE*)

The Davison County Office of Emergency Management is in the process of updating the County's Hazard Mitigation Plan. Hazard mitigation planning helps local leaders better understand risks from natural hazards and promotes the development of long-term strategies to reduce the effects of disaster-related events. Davison County is seeking feedback from stakeholders and the public to incorporate into the plan. We would greatly appreciate it if you would complete the survey. Participation is voluntary and anonymous.

GENERAL HOUSEHOLD INFORMATION

First, we would appreciate any information you are willing to share with us about your household. This information will remain confidential and is for survey use only.

1. What county do you live in? **DAVISON COUNTY (ALL)**

2. What town do you live in? **MITCHELL: 37; MT VERNON: 6; OTHER/NO ANSWER: 3**

3. How long have you lived in South Dakota?

   Less than 1 year: **0**
   1-5 years: **3**
   6-10 years: **0**
   More than 10 years: **53**

4. Before receiving this survey, were you aware of the county's hazard mitigation plan?

Yes: 28 **No: 28**

5. During the past 5 years, in the county you currently reside in, have you or someone in your household directly experienced a natural disaster? This could be a flood, severe windstorm, wildfire, or other type of natural disaster. **Yes: 28** **No: 27** **No Answer: 1**

6. How concerned are you about the following natural disasters affecting your county? (Check the corresponding box for each hazard)

Natural Disaster	Very Concerned	Somewhat Concerned	Neutral	Not Very Concerned	Not Concerned	Weighted Results
Drought	29	17	5	3	2	68
Extreme Heat	16	15	18	6	1	39
Flood	20	24	9	2	1	60
Hail	21	20	13	0	2	58
Tornado	20	24	9	1	2	59
Wildfire	9	11	19	12	5	7
Winsdstorm	19	21	11	3	2	52
Winter storm/Blizzard	19	21	11	2	3	51

7. Which of the following community assets do you see as being vulnerable in your community? (*You may check more than one*)

Human (Loss of life and/or injuries) **32**
Economic (Business closures and/or job losses) **39**
Infrastructure (Damage or loss of bridges, utilities, schools, etc.) **33**
Environmental (Damage or loss of forests, rangeland, waterways, etc.) **21**
Government (Ability to maintain order and/or provide public amenities and services) **23**

8. Please check the box that best matches your opinion of the following strategies to reduce risk and loss associated with natural disasters.

Community- wide Strategies	Strongly Agree	Agree	Neutral/ Not Sure	Disagree	Strongly Disagree	Weighted Results
I support implementing government rules and regulations to reduce risk	14	17	16	5	4	32
I support policies to prohibit development in areas subject to natural hazards	20	18	15	1	2	53
I support enhancing the function of natural systems (e.g., streams, wetlands)	21	23	10	2	0	63
I support the use of tax dollars to compensate landowners for not developing in areas subject to natural hazards	7	13	19	11	6	4
I support the use of tax dollars to reduce risks and losses from natural disasters	10	28	13	5	0	43
I support the disclosure of natural hazard risks during real estate transactions	30	17	9	0	0	77

9. How important are each of these priorities to you in planning for natural hazards?

Statements	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important	Weighted Results
Protecting private property	37	16	3	0	0	90
Protecting critical facilities (e.g., transportation networks, hospitals, fire stations)	48	7	1	0	0	103
Protecting utilities and infrastructure	41	15	0	0	0	97
Protecting historic and cultural landmarks	17	21	14	3	1	50
Strengthening emergency services (fire, police, etc.)	40	12	3	1	0	91

APPENDIX B: Documentation of Meetings

This appendix includes the following items:

- Signup sheets from the planning team meetings.
- Minutes from each of the participating jurisdictions' meetings as they discussed the mitigation actions they wanted to include in the plan.

SIGNUP SHEET – FIRST PLANNING TEAM MEETING:

Davison County Hazard Mitigation Planning Meeting

March 24, 2026

NAME	REPRESENTING
John Clem	Planning District III
Randy Reiter	DAV COUNTY
Mike Blaelid	Davison County
Chad Nebelsick	Davison County
Dennis Kirsch	Davison County
Chuck Clayton	Davison County Commission
Josh Harcey	City of Mitchell
Mark Jennings	City of Mitchell
Andrew Beier	Central Electric Coop
Joe Schroeder	City of Mitchell
Robert Riggs	City of Ethan
Tiffany Boehmer	City of Mitchell
Dean Knippling	City of Mitchell
Casey Tegethoff	City of Mitchell
Karen Wegleitner	Davison County EM

SIGNUP SHEET – SECOND PLANNING TEAM MEETING:

Davison County Hazard Mitigation Planning Meeting

April 28, 2026

NAME	REPRESENTING
John Clem	Planning District III
Shannon Viereck	Planning District III
Karen Wegleitner	Davison County EM
Kathy Wingert	Auditor - Davison County
Randy REIDER	COMMISSION/ DAVISON county
Michael Blaglid	Commissioner Davison Co.
Chris Mcbeth	Commissioner Davison Co.
Denny Kinzer	commissioner Davison Co.
John Claggett	Commissioner Davison County
Steve Sibson	Resident
Steve Harr	Davison Co Sheriff
Chris DeBoer	City of Mount Vernon
Roger DeKok	mount Vernon
Dave RENKER	City of Mt. Vernon
Stephanie Ellwein	City of Mitchell
Dean Knipling	City of Mitchell
Joe Schroeder	City of Mitchell
Mark Jennings	City of Mitchell
Bob Riggs	Town of Ethan
Jessica Goldammer	Mitchell Twp.
Shane Fahey	Mitchell Twp
Leah Ussatis	Davison County DOE office

SIGNUP SHEET – FINAL PLANNING TEAM MEETING:

Davison County Hazard Mitigation Planning Meeting

June 23, 2026

NAME	REPRESENTING
John Clem	Planning District III
John Claggett	Davison County Commissioners
Denny Kinjer	Davison Co. Commissioner
Chris Nebelsick	" " "
Michael Blaalid	Davison Co Commissioner
RANDY REIDER	DAV CO Commission
Kathy Wingert	Davison Co. Auditor
Karen Wegleitner	Davison County EM
Chris DeBoer	City of Mount Vernon
Laura Mayclin	" " " "
Bob Riggs	Town of Ethan
Joe Schroeder	City of Mitchell
Mark Jennings	City of Mitchell
Steve Sibson	Self - Retired Citizen
Shannon Viereck	P&D DIII

DAVISON COUNTY MINUTES

DAVISON COUNTY BOARD OF COMMISSIONERS
May 12, 2026

CALL TO ORDER
Chairman Reider called the meeting of the Davison County Board of Commissioners to order at 9:00 A.M. Members of the board present were Claggett, Kiner, Nebelsick, Reider, Blaalid. Also present was Auditor Wingert.

PLEDGE
Chairman Reider opened the meeting with the Pledge of Allegiance.

APPROVE AGENDA
Motion by Nebelsick, second by Kiner to approve the agenda. All in favor - aye. Motion carried.

APPROVE MINUTES FOR BOE
Motion by Claggett, second by Nebelsick to approve the minutes of the 4/21/26 Davison County Board of Equalization meeting. All in favor - aye. Motion carried.

APPROVE DAVISON COUNTY COMMISSION MINUTES
Motion by Claggett, second by Blaalid to approve the minutes from the 4/28/26 Davison County Commission meeting. All in favor - aye. Motion carried.

PUBLIC INPUT
There was no public input.

INTO BOARD OF ADJUSTMENT
Motion by Claggett, second by Nebelsick to go into BOA at 9:15 A.M. All in favor - aye. Motion carried.

OUT OF BOARD OF ADJUSTMENT - RECONVENE AS BOARD OF COUNTY COMMISSIONERS
Motion by Blaalid, second by Nebelsick to move out of Board of Adjustment and move back into Davison County Commission at 9:36 A.M. All in favor - aye. Motion carried.

APPROVE PLATS
Motion by Claggett, second by Nebelsick to approve the plat requested by Paul, Barbara, & Teresa Wilson and Joan Jerke of Wilson Tracts 3, 4, & 5 in the E1/2 of Section 25 T 103 N, R 61, West of the 5th P.M., Davison County, South Dakota. All in favor - aye. Motion carried.

Motion by Nebelsick, second by Blaalid to approve the plat requested by Lyle Lowrie of Tract A of Lyle's Addition in the E1/2 of the NE1/2 of Section 9, T 101 N, R 60, West of the 5th P.M., Davison County, South Dakota. All in favor - aye. Motion carried.

Motion by Blaalid, second by Nebelsick to approve the plat requested by Sean Gerstenecker of Lots C-3 and C-4 in Lot C in the SE1/4 of the SE1/4 of Section 3, T 102 N, R 60, West of the 5th P.M., Davison County, South Dakota. All in favor - aye. Motion carried.

Motion by Blaalid second by Kiner to approve the plat requested by Nick Lorang of Lot 1 of Bins Addition, in the NW1/4 of the NW1/4 of Section 26, T 103 N, R 62, West of the 5th P.M., Davison County, South Dakota. All in favor - aye. Motion carried.

Motion by Blaalid, second by Nebelsick to approve the plat requested by Nick Lorang of Tract A and Tract B in Lot 2 of Lorang's Addition, in the SE1/4 of the SE1/4 of Section 22, T 103 N, R 62, West of the 5th P.M., Davison County, South Dakota. All in favor - aye. Motion carried.

Motion by Nebelsick, second by Blaalid to approve the plat requested by Spencer Neugebauer of Tract 1 of Spencer's Addition in Government Lots 3 and 4 of the NW1/4 of Section 4, T 101 N, R 60, West of the 5th P.M., Davison County, South Dakota. All in favor - aye. Motion carried.

of Tilton Tract 3 in the W1/2 of the SW1/4 of Section 33, T 102 N, R 62, West of the 5th P.M., Davison County, South Dakota. All in favor - aye. Motion carried.

HAZARD MITAGATION
Acting P&Z/EM Director Wegleitner talked to the board about the progress of the hazard mitigation plan and reviewed the currently approved projects: continue participation in the National Flood Insurance Program, implement drainage improvements along country roads, make improvements to Kibbee Ditch, warning siren acquisitions, develop a prescribed burning plan with landowners, continue participation in the StormReady program, consider participation in the Firewise program, and conduct outreach to educate people on water conservation. Motion by Claggett, second by Kiner to approve the plan. All in favor - aye. Motion carried.

APPROVE WELFARE DENIALS
Motion by Kiner, second by Nebelsick to approve the welfare denials. All in favor - aye. Motion carried.

EMPLOYEE CHANGES
Motion by Nebelsick, second by Claggett to approve the new hire of Corrections Officer Matthew Tille (PT) effective 5/12/26 starting at $23.79 plus a $.50 raise after successfully completing the introductory period. All in favor - aye. Motion carried.

Due to the return of Planning and Zoning and Emergency Management Director Jeff Bathke, motion by Claggett, second by Nebelsick to move Karen Wegleitner back to Davison County Planning and Zoning and Emergency Management Deputy Director at a rate of $29.02 effective 5/9/26. All in favor - aye. Motion carried.

ACCEPT PRINTER BID
Motion by Nebelsick, second by Claggett to accept the printer award for A&B Business Solutions for Davison County. All in favor - aye. Motion carried. The Davison County Auditor's Office will work with A&B to start implementing changes within different offices.

JEFF STONE
Motion by Claggett, second by Kiner to approve the tax freeze for Jeff Stone. All in favor - aye. Motion carried.

VSO THOMAS
VSO Thomas talked about an upcoming event that will be held in his parking lot. Thomas stated that on 6/9 from 5-7 P.M., there will be the 147th Military Band playing. The parking lot will be closed off, and the grass area will be utilized. If the weather does not cooperate, the event will be moved to the Davison County Fairgrounds. Motion by Nebelsick, second by Kiner to approve the use of Davison County property for the event. All in favor - aye. Motion carried.

Thomas also gave an update on the appreciation supper that his office hosted for the volunteers that assist his office. He said that it was an incredible turnout and voiced appreciation for the volunteers.

INTO EXECUTIVE SESSION
Per the request of VSO Thomas, a motion was made to go into executive session pursuant to SDCL 1-25-2 at 10:09 A.M. All in favor. Motion carried.

OUT OF EXECUTIVE SESSION
Motion by Nebelsick, second by Claggett to move out of executive session at 10:39 A.M. All in favor - aye. Motion carried.

APPROVE RAISES
Motion by Kiner, second by Nebelsick to approve the following wage increases: TJ Thomas $.50 an hour, Tim Storly $.50 an hour, and Emma Christopherson $1.00 an hour effective 5/9/26. All in favor - aye. Motion carried.

APPROVE BILLS
Motion by Nebelsick, second by Claggett to approve the following bills for payment. All members voted aye. Motion carried

TIMESHEETS
Motion by Nebelsick, second by Claggett to approve department head timesheets. All in favor - aye. Motion carried.

ADJOURN
Chairman Reider adjourned the meeting and set the next regular Board of Commissioners meeting for May 19, 2026.

ATTEST:

Kathy Wingert, Auditor

Randy Reider, Chairperson

Publish once
Approximate cost

ETHAN MINUTES

Regular Meeting, Ethan Town Board, 5-12-2026

The Town of Ethan board met on May 12th, 2026, at 6:30 pm in the Ethan City Hall. Trustees present: Courtney Sorenson via phone call, Jaysten Riggs, Michele Pollreisz, and Raquel Nesheim. City personnel present: Bob Riggs. Others present: Mataya James, Doug Bradley, Will Andersen. Not present: Megan Perry

Nesheim called the meeting to order at 6:30 pm and led the Pledge of Allegiance.

All motions were unanimously voted as aye unless stated otherwise.

APPROVAL OF AGENGA: Agenda was approved on motion made by Riggs, 2nd by Pollreisz. Motion made by Pollreisz, 2nd by Riggs to appoint Mataya James as voting member of the town board.

APPROVAL OF BOARD MINUTES: Motion made by James, 2nd by Pollreisz to approve

APPROVAL OF CLAIMS: Motion made by Pollreisz, 2nd by Riggs to approve

General, sewer, water, preservation and community center funds-Board wages $369.40; QuickBooks Payroll $3,406.62; Santel Communications $147.37; SD Dept of Revenue(Ammo Box License) $150.00; John Deere Financial $703.42; USDA Storm Sewer $1,023.00; US Treasury $1,056.38; Badger Meter $88.20; SD Retirement $534.53; Hanson Rural Water $7,998.04; Mike's Corner $270.65; SD Dept of Health $20.00; Weber Sanitation $2,746.00; NW Energy $2,016.15; Intuit $1,220.24; Dakota Pump $362.50; Mitchell Republic $40.00; Davison County Auditor $3,150.00; Davison Rural Water $450.35; Menards $58.42; Metering & Technology $1,741.54; Morgan Theeler $3,255.00; Parkston Advance $28.00

Citizen Input: Discussed credit card payment options for paying water invoices. Discussion was also had regarding civil matters between citizens.

FINANCIAL REPORTS: Discussed monthly financial reports

PUBLIC WORKS REPORT: Discussed water loss, Mitigation Policy, and park bathrooms are open.

OLD BUSINESS: Park Scoreboard: Tabled

Construction Lots-Tabled

Davison County Board of Equalization Meeting-Bob Riggs attended the meeting and presented ideas to the board.

NEW BUSINESS: Motion made by Pollreisz, 2nd by James to approve City Wide Cleanup for May 30th-31st. Dumpsters by City Hall.

Ammo Box Liquor License-Approved on motion by Pollreisz, 2nd by Riggs

Hazard Mitigation Project Selection-Approved list on motion by James, 2nd by Riggs

Small Community Transportation Study Grant-Bob Riggs applied for this grant which was accepted. Surveying company will be doing a study in Ethan for potential upcoming projects.

Building Permits- Motion made by James, 2nd by Pollreisz to approve building permit for Russell Hanson

Annual Report-Motion made by Riggs, 2nd by James to approve our yearly Annual Report. Will be submitted.

Community Grant-Softball Board-Tabled

City Maintenance Position-Discussion was had regarding this position

Executive Session: SDL 1-25-2 (1&4): Motion made by Riggs, 2nd by James to enter session at 7:14pm. Motion made by James, 2nd by Riggs to exit session at 8:39pm

Special Meeting to be held May 18th, 2026. Next regular board meeting is scheduled for June 8thth at 6:30 pm.

Motion to adjourn by James, 2nd by Pollreisz at 8:40 pm

_____ _____

Raquel Nesheim Megan Perry

Vice-President Chairman

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MITCHELL MINUTES

REGULAR MEETING OF THE CITY COUNCIL
COUNCIL CHAMBERS, CITY HALL
MITCHELL, SOUTH DAKOTA

May 18, 2026
6:00 P.M.

PRESENT: Marty Barington, Mike Bathke, John Doescher, Tim Goldammer, Kevin McCardle, Dan Sabers, Jeffrey Smith, Susan Tjarks

ABSENT:

PRESIDING: Mayor Jordan Hanson

AGENDA:

Moved by Goldammer, seconded by Bathke, to approve the following items on the consent agenda:

a. City Council Minutes
   1. City Council May 4, 2026
b. Committee Reports
   1. Planning Commission April 27, 2026 (signed)
   2. Planning Commission May 11, 2026 (unsigned)
c. Department Reports
   1. Sales Tax Collections (April)
   2. Finance (April)
   3. Building Permits (April)
   4. Police (April)
   5. Fire (April)
   6. Code Enforcement (April)
   7. Water (April)
d. Raffle Permits
   1. Dakota Wesleyan University Basketball with the drawing to be held on August 22, 2026
   2. Davison County Democrats with the drawing to be held on October 26, 2026
e. Change Order #1 increasing the contract amount by $64,000.00 for Ohlmans-23rd to Kemper Project #2025-01 to BX Civil Construction, adjust contract amount to $3,396,000.00
f. Approval of Gas and Fuel Quotations

Howes Oil	Requested Gallons	Bid Gallons	Price per Product	Total Bid
On Road Diesel #2	3,100	3,100	$4.517	$14,002.70
Off Road Diesel #2	4,400	4,400	$4.242	$18,664.80

Oriented Business District. The Planning Commission recommended approval of said application. Moved by Goldammer, seconded by Bathke, to approve said application. Goldammer and Bathke withdrew motions. Moved by Goldammer, seconded by Bathke, to postpone application until the next meeting. Motion carried.

It was advised that this is the date and time set for hearing on the application of JTRT Advertising for a variance permit for a 9-4-6-4-C for an off premise digital sign over 300 square feet but under 600 square feet located at 2101 North Main Street, legally described as Outlots 20 and 21 less and except Lot H1 and Lot H2 of Green's Outlots in the NW ¼ of Section 15, T 103 N, R 60 W of the 5th P.M., City of Mitchell, Davison County, South Dakota. The property is zoned HB Highway Oriented Business District. The Planning Commission recommended approval of said application. Moved by Goldammer, seconded by Bathke, to postpone application until the next meeting. Motion carried.

Moved by Goldammer, seconded by Bathke, for the Board of Adjustment to adjourn and the City Council to reconvene in regular session. Motion carried.

HEARING:

It was advised that this is the date and time set for hearing on the application to transfer RL-5763 Retail (on-sale) Liquor License from The Depot Mitchell LLC dba The Depot-Mitchell LLC, 210 South Main Street to The Depot Mitchell LLC dba The Depot-Mitchell LLC, 210 South Main Street due to the configuration of the license (include the front patio). Notice of hearing has been given and affidavit of publication is on file. Moved by Tjarks, seconded by Smith, to approve said application. Motion carried.

CONSIDER APPROVAL:

Moved by McCardle, seconded by Goldammer, to approve the applications for renewal of Malt Beverage Licenses for 2026-2027. Motion carried.

Moved by Tjarks, seconded by McCardle, to approve the hazard mitigation project selections for the Davison County Hazard Mitigation Plan. Motion carried.

Moved by Bathke, seconded by Barington, to approve Agreement #A2026-36, Shoreline Rip Rap Project in the amount of $30,600.00 with VanderPol Dragline-Project #2026-42. Motion carried.

HEARING:

It was advised that this is the date and time set for hearing on the construction of sidewalk on Mitchell Boulevard from South Minnesota street in the north to Kynette Place in the south, South Minnesota Street from Williams Avenue to West Norway Avenue, and the south side of 1129 and 1421 South Miller Avenue. Project Engineer JoElle Dammann reviewed the proposed resolution.

ARTICLE H. LAKERIDGE PLANNED UNIT DEVELOPMENT DISTRICT

Section 2.

That 10-9H-3-F: Maximum Building Height, be amended by deleting "two and one half (2 ½) stories or"; deleting "twenty-two feet (22')"; adding "twenty-five feet (25')": so, to be read as follows:

F. Maximum Building Height: No principal building shall exceed thirty-five feet (35') in height and no detached accessory building shall exceed twenty-five feet (25') in height.

Section 3.

The City Finance Officer shall cause notice of adoption of this ordinance to be published in the official newspaper and twenty (20) days after the completed publication, unless the referendum is invoked, this ordinance shall become effective.

Members present voting aye: Barington, Bathke, Doescher, Goldammer, McCardle, Sabers, Smith, Tjarks. Members present voting nay: none. Motion carried and ordinance declared duly adopted.

ADJOURN:

There being no further business to come before the meeting, Mayor Hanson adjourned the meeting.

Cindy Roth
Deputy Finance Officer

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MOUNT VERNON MINUTES

MOUNT VERNON CITY COUNCIL
Council Minutes
May 11, 2026

The regular meeting of the Mount Vernon City Council was called to order at 7:00 pm by Mayor Weston Frank. The following council members were present: Cameron Deinert, Dave Renken, Roger DeKok, Sherri Kayser, and Chase Jons. Absent from the meeting: councilman Matt Geidel. City employees present: Maintenance Officer Chris DeBoer and Finance Officer Laura Mayclin. Mike Kluth, Teresa Preisner, Sheriff Steve Harr, Dave Anderson and Dan London attended for public participation.
The Pledge of Allegiance was recited. All motions are unanimously approved unless otherwise stated.
Motion by Kayser, seconded by Jons, to approve the agenda.
Mike Kluth attended the meeting to inquire about the readiness of the bathrooms at the ball field. Repairs are being made currently, after the bathrooms became damaged by subzero temperatures over winter.
Teresa Preisner attended the meeting to discuss the possibility of allowing chickens in the city. Frank suggested she take out a petition for the council to consider at another meeting.
Dan London inquired if the city has a ordinance for use of scooters, noting that some individuals are going fast and using the sidewalks to ride on. We do not currently have an ordinance.
Sheriff Steve Harr and council discussed issues with barking dogs. Citizens who have problems with dogs barking should contact the sheriff's office to report the incident. Council will amend the ordinance to allow easier handling of these complaints.
Motion by Renken, seconded by DeKok, to approve the following consent items for April: Financial Statement, Council Minutes, General Fund Balances, Credits Report/Bank Statement, and Payment of Bills.
Bills: (*deleted*)

OLD BUSINESS

1. Frank spoke with Doug Kirkus about the museum taking over The Hall, and they are interested in taking over the day-to-day operations, including utilities, mowing, cleaning, etc. They would also rent out the facility to residents. Motion by Renken, seconded by Kayser for Frank to proceed with having Denning draw up a contract for a 10-year lease.
   Mayclin will go to the Davison County Registrar of Deeds to get information on vacated alleys in town.
   DeBoer will be handling all the mowing of nuisance properties as needed.
   There is tin by the ballpark, which should be moved by citywide cleanup.
   The Park Board is meeting quarterly now. They are not pursuing pickleball grant for now. Frank will be setting up the frisbee golf at the park. Deinert mentioned a sprinkler head that needs repair. Anderson will assist Deinert and DeBoer with the repair.
2. Kayser working on getting precise measurements for work on city sign.
3. Motion by DeKok, seconded by Renken to approve the Notice of Intent for the FMA grant.

NEW BUSINESS

1. DeBoer needs a trailer to be able to transport equipment. We have previously borrowed trailers from citizens, and council agrees it is time to purchase our own. Motion by Renken, seconded by Jons to purchase a trailer, with value up to $12,000. DeBoer requests that he receives advance notification of anything needed to be done at the park, so he can properly schedule it.
2. Mayclin presented the quote for insuring the curb stops in the city, which council agreed to add to the policy.
3. Motion by Jons, seconded by Renken to have a Cortrust credit card added for DeBoer.
4. Motion by Deinert, seconded by Kayser to change the name on the Cortrust account to City of Mount Vernon.
5. Motion by Renken, seconded by DeKok to accept the Annual Report for 2025.
6. Motion by Renken, seconded by Deinert to approve Westy's liquor license.
7. Council looked over and agreed to the Hazard Mitigation Project Selection as presented by District III.
8. Council discussed the Railroad Crossing on Main Street, noting that people should be going very slow there, because there is a stop sign. This should prevent a need for a rough crossing sign.
9. Council determined that the Main Street Sealing should proceed as previously discussed.

10. Motion by Deinert, seconded by Kayser to approve donations for the Baseball Association and Senior Citizens organization. These checks will be presented at the next meeting.
11. Council discussed a funding opportunity for flood mitigation.
12. No executive session for personnel and legal SDCL 1-25-2.1 and 2.3 was necessary.

Motion by Kayser, seconded by DeKok to adjourn at 10:35 pm.

Weston Frank
Mayor

Laura Mayclin
Finance Officer

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APPENDIX C: History of Previous Hazard Occurrences

This section provides details about hazard events that have impacted Davison County in the past, beginning with the following table that shows the major disaster declarations in which Davison County was part of the designated disaster area. The next several pages are a comprehensive list of weather-related hazard events recorded in the county from the National Climatic Data Center's Storm Events Database. The section ends with several tables showing crop loss to Davison County farmers.

Major Disasters

Table C.1 lists all the events since 1970 that resulted in a major disaster declaration in which Davison County was part of the designated area.

Table C.1 – Major Disaster Declarations Affecting Davison County

Dec #	Declaration Date	Type	Primary Damage Impact
3015	Jun 1976	Drought	
717	Jul 1984	Severe storms; Flooding	
999	Jul 1993	Severe storms; Tornado	
1052	May 1995	Severe storms; Flooding	
1075	Jan 1996	Ice storm	
1156	Feb 1997	Severe winter storm; Blizzard	
1173	Apr 1997	Severe storms; Flooding	
1620	Dec 2005	Severe winter storm	
1702	May 2007	Severe storms; Tornado; Flooding	
4440	Jun 2019	Severe winter storm; Flooding	Roads, bridges
4469	Nov 2019	Severe storms; Flooding	Roads, bridges
4807	Aug 2024	Severe storms; Straight-line Winds; Flooding	Roads, bridges

Sources: www.fema.gov/disasters/grid/state-tribal-government/72; www.fema.gov/data-feeds/openfema-dataset-public-assistance-funded-projects-summaries-v1

Significant Hazard Events

Table C.2 is a list of significant hazard events reported for Davison County from 1960 through 2024, as recorded in the National Climatic Data Center's Storm Events Database. The National Climatic Data Center receives storm data from the National Weather Service, which gets information from a variety of sources, including county, state and federal emergency management officials, local law enforcement officials, National Weather Service damage surveys, the insurance industry, and the general public.

The Storm Events Database is useful, but it does have limitations. One problem is that records for certain hazards, including winter weather and drought, only go back to the 1990s. Another issue is that damage amounts in some cases are estimates and for certain types of events, such as winter storms, the data is tracked by forecast zone and thus does not lend itself to analysis at the county level. The database also contains a preponderance of records from the last few decades. This is due to an inconsistency in data reporting over the years and does not indicate an increase in the frequency of events affecting the county.

The table includes the following information about the events:

- Type of event.
- Descriptive information - details are provided for some of the more noteworthy events back to the 1990s.
- Magnitude - the magnitude of tornadoes, hail, thunderstorm winds, and high wind events is given. For thunderstorms and high wind events, only events with wind speeds of at least 60 knots are included in the table and only hail of at least one inch diameter is shown. For events occurring since 2000 the speed is represented by either the highest measured wind gust (M) or the highest estimated wind gust (E). Note that speeds are shown in knots - multiply figure by 1.15 to get approximate speed in miles per hour.
- Property and crop damage - the National Weather Service uses all available data from the sources identified above in compiling the damage amounts, but the figures should be considered as broad estimates. In many cases, damage amounts are unknown.

Table C.2 – History of Significant Hazard Events in Davison County

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
7/14/1961	Thunderstorm Wind		60 kts.		
4/26/1962	Tornado		F2	25	
5/14/1962	Hail		4.00 in.		
5/14/1962	Tornado		F3		
5/21/1962	Tornado		F3	2,500	
6/20/1968	Tornado		F3		
8/8/1969	Tornado		F2	25	

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
7/18/1970	Thunderstorm Wind		85 kts.		
7/9/1971	Thunderstorm Wind		62 kts.		
7/1/1973	Thunderstorm Wind		65 kts.		
6/21/1974	Hail		1.75 in.		
6/21/1974	Thunderstorm Wind		61 kts.		
5/22/1975	Thunderstorm Wind		65 kts.		
6/19/1975	Thunderstorm Wind		69 kts.		
6/21/1975	Tornado		F0		
8/11/1975	Thunderstorm Wind		65 kts.		
8/10/1976	Thunderstorm Wind		61 kts.		
6/10/1977	Thunderstorm Wind		62 kts.		
7/29/1979	Hail		1.50 in.		
8/31/1979	Thunderstorm Wind		61 kts.		
8/18/1980	Thunderstorm Wind		68 kts.		
7/2/1982	Thunderstorm Wind		61 kts.		
7/20/1982	Thunderstorm Wind		61 kts.		
7/21/1982	Thunderstorm Wind		61 kts.		
6/30/1983	Thunderstorm Wind		61 kts.		
7/18/1983	Thunderstorm Wind		69 kts.		
4/19/1985	Thunderstorm Wind		65 kts.		
4/19/1985	Tornado		F1	25	
5/11/1985	Hail		1.50 in.		
5/11/1985	Tornado		F0		
5/11/1985	Tornado		F0		
6/29/1986	Tornado		F0		
5/28/1989	Thunderstorm Wind		0 kts.		
5/12/1991	Tornado		F0		
6/16/1992	Hail		1.75 in.		
6/16/1992	Tornado		F2	2.5	
6/16/1992	Tornado		F2	2.5	
6/7/1995	Thunderstorm Wind		60 kts.	50	30
1/17/1996	Blizzard	A blizzard spread across the area from the west. Snow 3 to 12 inches deep was accompanied by 50 to 60 mph winds and very cold temperatures. The wind chill dropped to around -70. Roads and many businesses and schools were shut down. The total destruction of at least 3 homes by fire was due in part to the inability of firefighters to travel across blocked roads. Several accidents occurred and other vehicles slid into ditches or became stranded.			
1/24/1996	Heavy Snow				

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
1/29/1996	Extreme cold	Wind chill readings as cold as 80 below zero occurred as winds over 30 mph combined with temperatures of 10 below to 30 below zero. Many vehicles failed to start, but the main impact was financial with greatly increased heating energy use, and purchase of supplies and services to ensure furnace operation.			
3/24/1996	Blizzard	Snow accumulating 3 to 8 inches was accompanied by winds over 50 mph at times, producing widespread whiteout conditions. Numerous vehicles slid into ditches and many people were stranded in vehicles. There were some rollovers and other accidents.		20	
4/25/1996	High Wind		62 kts.	10	
6/20/1996	Hail		2.00 in.		
11/14/1996	Ice Storm	Several periods of freezing rain caused widespread damage and paralyzed travel. Widespread damage occurred to electrical poles and lines, leaving thousands without power for up to four days. Numerous accidents occurred. Tree damage was widespread with tree debris blocking several roads and siedwalks. Some farm buildings and other small structures were damaged by the weight of ice and snow on roofs.		100	
12/14/1996	Heavy Snow				
12/16/1996	Blizzard				
1/4/1997	Blizzard				
1/9/1997	Blizzard				
1/15/1997	Extreme cold	Temperatures a few degrees below zero accompanied by wind gusts over 40 mph created wind chills as cold as 70 below zero. Drifting snow and areas of low visibility in blowing snow also occurred in open areas.			
2/3/1997	Heavy Snow				
3/12/1997	Flood	Widespread snowmelt flooding began in March and continued through the end of the month. Record flooding occurred on the James River. Widespread flooding of farmland and other lowlands occurred, both near and away from major river basins. Many roads, farm buildings, and some homes and businesses were flooded. Many basements were flooded just from groundwater seepage. Travel was severely hampered by flooded roads in some areas. Farmland flooding was severe and widespread.			
4/1/1997	Flood				
4/6/1997	High Wind		63 kts.	10	
4/9/1997	Heavy Snow				
5/1/1997	Flood				
6/20/1997	Thunderstorm Wind	Thunderstorm winds caused widespread damage to trees, power lines, farm structures, and homes. Five people were injured at Ethan when a mobile home was destroyed.	78 kts.	500	
7/16/1997	Lightning			1	
7/24/1997	Hail		1.75 in.		
7/24/1997	Lightning			4	
3/31/1998	Heavy Snow	Snowfall of 6 to 16 inches occurred over a large area, causing some damage to power lines resulting in power outages.		100	
5/14/1998	Hail		1.75 in.		
5/23/1998	Flood				

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
7/6/1998	Hail		1.75 in.		
8/24/1998	Hail		1.75 in.		
11/10/1998	Blizzard	Snow accumulating 4 to 14 inches combined with winds gusting as high as 60 mph caused zero visibilities in snow and blowing snow, drifting snow, and damage to trees and power lines with resultant power outages. Some of the power outages lasted over 2 days. Most roads were closed and many people were stranded in vehicles after the sudden onset of the heavy snow.		20	
1/1/1999	Winter Storm				
5/12/1999	Flood				
6/7/1999	Tornado		F0		
11/1/1999	Drought				
12/1/1999	Drought				
2/1/2000	Drought	Dry weather that prevailed during the fall continued in February, Dry surface and soil conditions remained quite pronounced. Water levels continued to fall slowly. especially in wetlands, small streams, and lakes. Above normal temperatures contributed to further drying. Grass fires were again a problem in some areas.			
3/1/2000	Drought				
4/1/2000	Drought				
4/19/2000	Hail		1.75 in.		
6/9/2000	Thunderstorm Wind		61 kts. M	60	
8/5/2000	Thunderstorm Wind	A wet microburst with winds estimated at 120 mph caused heavy damage in and around Mitchell. Apartments and several mobile homes were destroyed, vehicles were overturned, and other damage occurred to buildings and vehicles. Widespread tree and power line damage also occurred. Ten people were injured, although most of the injuries were minor. The damage path was approximately a mile and a half long and a mile wide, extending over the southwest part of Mitchell.	104 kts. E	8,000	
8/5/2000	Tornado	A brief tornado damaged several structures.	F1	100	
8/7/2000	Tornado	An F1 tornado damaged several farm buildings, caused tree damage, and blew down at least one power line.	F1	30	
11/6/2000	Winter Storm				
11/11/2000	Winter Storm				
12/16/2000	Blizzard				
1/29/2001	Blizzard	10 to 20 inches of snowfall combined with winds gusting to around 45 mph to produce widespread blizzard conditions. Visibilities were often near zero, and roads were blocked by the falling and drifting snow. Travel became impossible as many roads were closed to travel, including Interstate 90. Many businesses, government offices, and schools were closed. During the storm, the roof of a dairy barn collapsed north of Mt. Vernon, killing at least 10 cows, injuring several others, and trapping several hundred other cows.		50	
2/7/2001	Winter Storm				
2/24/2001	Winter Storm				
4/1/2001	Flood				
5/1/2001	Flood				

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
6/13/2001	Hail		1.75 in.		
11/26/2001	Heavy Snow	Most areas of southeast South Dakota received at least 8 inches of snow, with Mitchell receiving 16 inches. The snowfall closed many schools and businesses, closed some government offices, and severely hampered transportation. The wet and heavy nature of the snow made it difficult to clear away.			
3/14/2002	Winter Storm				
7/24/2002	Hail	Large hail caused severe damage to numerous vehicles, including many at car dealerships. Damage also occurred to windows, siding, and shingles on buildings. The hail caused damage to greens at a municipal golf course.	2.50 in.	3,000	
8/6/2002	Flash Flood				
8/20/2002	Hail		1.75 in.		
8/20/2002	Flash Flood				
6/24/2003	Hail		1.75 in.		
6/24/2003	Thunderstorm Wind		61 kts. E	10	
6/24/2003	Tornado		F0		
6/24/2003	Tornado	A tornado damaged crops, trees, and numerous buildings on several farms. On one farm the northeast corner of a home was heavily damaged, and several buildings including a barn, a grainery, and a machine shed were destroyed. Large trees were blown down.	F2	500	
7/4/2003	Hail		1.75 in.		
7/4/2003	Thunderstorm Wind		65 kts. E	20	
11/22/2003	Winter Storm				
5/16/2004	Flash Flood				
7/20/2004	Hail		1.75 in.	50	
7/21/2004	Thunderstorm Wind		61 kts. E		
8/31/2004	Lightning	Lightning struck and damaged the brick chimney at the public safety building.		10	
9/4/2004	Lightning			2	
1/4/2005	Heavy Snow				
6/4/2005	Flash Flood	Heavy rainfall of up to four inches caused widespread street flooding, especially on the west side of Mitchell. At least 10 vehicles stalled in high water. At least 12 homes and businesses were flooded, as well as several lower level apartments. The basement of one apartment building was flooded by 10 feet of water, knocking out boilers and a hot water heater.		20	
6/9/2005	Flash Flood				
6/12/2005	Flood				
6/20/2005	Flash Flood	Heavy rain caused flooding of streets.			
6/24/2005	Thunderstorm Wind		63 kts. M		
8/3/2005	Hail		2.50 in.		
11/27/2005	Ice Storm	Heavy freezing rain coated roads, and power lines with ice up to 3 inches thick throughout SE South Dakota. Many roads were shut down for extended periods. Most schools and businesses were forced to close. Many miles of power lines and thousands of poles		1,000	

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
		were brought down, resulting in power outages to thousands of households. In some rural areas, power was out for more than two weeks. Many people took shelter wherever they could. Damage to power poles and lines was so great that repairs required assistance from crews from eight states.			
11/28/2005	Blizzard	Snowfall from 4 to 15 inches combined with winds gusting over 50 mph to produce blizzard conditions. Heaviest snowfall was near and west of the James River, in the area where a severe ice storm immediately preceded the blizzard. Several reports of 6 to 8 foot drifts were received. Travel was made impossible in many areas as roads were closed for extended periods. Most schools and businesses not already closed because of the ice storm were forced to close. The winds during the blizzard continued to bring down power lines and poles, most of which had been coated and weighted down by ice in the area hit by the ice storm.		100	
3/12/2006	Winter Storm				
7/18/2006	Drought				
8/1/2006	Drought				
12/29/2006	Winter Storm	Freezing rain caused heavy icing of roads, trees, and power lines, and was accompanied by 2 to 5 inches of snow, with most of the snow preceding the freezing rain. Travel was brought to a standstill at places. Many vehicles slid off roads, and 13 were injured in 3 accidents. Ice accumulation was a quarter to a half inch over much of the area. The ice brought down tree branches and power lines, causing power outages.		100	
2/24/2007	Winter Storm	Rain changed to freezing rain, causing light icing before the precipitation quickly changed to snow. Snow accumulated 5 to 7 inches. The icing and subsequent snow accumulation made travel very difficult, with several vehicle accidents and numerous vehicles sliding into ditches.			
2/28/2007	Heavy Snow				
3/1/2007	Blizzard				
3/12/2007	Flood				
5/5/2007	Hail		1.75 in.		
5/5/2007	Tornado		EF0		
5/5/2007	Tornado		EF0		
5/5/2007	Flood	Heavy rainfall caused flooding of low areas including fields, homes, businesses, schools, roads, streams, and bridges. The flooding was a longer term event than flash flooding. Long term major flooding of the James River also resulted, with the river peaking at 7.4 feet above flood stage near Mitchell on May 10th. Some parks and other recreation areas were affected, especially in and near Mitchell. A few roads and bridges were washed out by the high water. The flooding delayed planting of crops in some areas.		200	
5/22/2007	Flash Flood				
6/1/2007	Flood				
4/10/2008	Blizzard				
4/25/2008	Heavy Snow				
6/5/2008	Thunderstorm Wind		61 kts. E		
6/5/2008	Flash Flood				
6/6/2008	Flood				

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
7/6/2008	Flash Flood				
7/27/2008	Hail		2.75 in.		
11/6/2008	Blizzard				
12/14/2008	Blizzard				
3/24/2009	Flood				
3/31/2009	Blizzard				
4/1/2009	Flood				
4/4/2009	Blizzard				
5/1/2009	Flood				
6/1/2009	Flood				
6/16/2009	Hail		1.75 in.		
6/16/2009	Tornado		EF0		
7/1/2009	Flood				
7/9/2009	Hail		2.50 in.		
7/9/2009	Thunderstorm Wind		65 kts. M		
7/13/2009	Hail		1.75 in.		
8/1/2009	Flood				
8/2/2009	Thunderstorm Wind		61 kts. E	10	
8/8/2009	Hail		4.00 in.		
12/23/2009	Blizzard	Prolonged snowfall produced heavy accumulations over southeast South Dakota, ranging up to over 20 inches in several areas. The snowfall took place from two days before to the day after Christmas. The snowfall was accompanied by increasing north to northwest winds which caused widespread blizzard conditions on Christmas day and the start of the next day.			
1/6/2010	Blizzard	Snowfall of 3 to 6 inches, previously existing snow cover, and northwest winds gusting to over 40 mph produced widespread blizzard conditions, with visibilities less than a quarter mile. New snowfall included 5 inches at Mitchell. Schools and businesses were closed, and travel became impossible in much of the area. The wind combined with cold temperatures to produce wind chills colder than 35 below zero during the latter part of the storm. This extreme cold continued into the next day, Friday, January 8th.			
1/7/2010	Extreme cold	Persistent north/northwest winds combined with very cold air to produce wind chill values that dropped to 35 below zero.			
3/11/2010	Flood				
3/12/2010	Flood				
4/1/2010	Flood				
5/1/2010	Flood				
6/1/2010	Flood				
6/5/2010	Flood				
6/11/2010	Flash Flood	Heavy rainfall of at least 3 inches caused Enemy Creek to overflow and flood nearby roads. The rainfall also caused flooding of roads and basements in Mitchell. A motorcycle business was flooded,		75	

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
		resulting in damage to merchandise, although little damage to the motorcycles was reported.			
6/12/2010	Flash Flood	Heavy rain caused flash flooding of several roads, including Interstate 90.			
7/1/2010	Flood				
7/10/2010	Hail		1.25 in.		
7/10/2010	Flash Flood				
7/21/2010	Flash Flood	Heavy rainfall of over 4 inches caused widespread flash flooding of streets, yards, basements, and some homes and businesses in and near Mitchell. Water was up to two feet deep in some streets. Flooded businesses included the Queen of Peace Hospital, where flooding was reported in the emergency department and in a corridor.		100	
7/23/2010	Thunderstorm Wind		61 kts. E	25	
7/31/2010	Flood				
8/1/2010	Flood				
8/30/2010	Thunderstorm Wind		61 kts. E		
9/20/2010	Flood				
12/10/2010	Blizzard				
12/31/2010	Blizzard	Snowfall of 6 to 10 inches and winds gusting to over 40 mph produced widespread blizzard conditions. Roads were closed and many businesses were forced to close as travel became difficult to impossible.			
1/1/2011	Blizzard				
2/1/2011	Extreme cold	North/northwest winds averaging 15 to 30 mph combined with temperatures dropping below zero to produce wind chills of 35 to 40 below zero.			
2/20/2011	Heavy Snow				
3/16/2011	Flood				
4/1/2011	Flood	Major flooding of the James River, as well as flooding of small streams and lakes in the county, continued through April. Much farmland remained flooded, both near to and away from the James River. The James River was 6.7 feet above flood stage near Mitchell on April 1st, and fell very slowly during the month. A large area of land and numerous roads were flooded at the start of the month. Water was running over other roads, from flooded streams, creeks, and fields as well as from the James River. Many roads were heavily damaged. Some homes and businesses were also flooded, with the flooding of these places slowly alleviating through the month. High water and groundwater levels from record precipitation in the year 2010, a main reason the flooding onset was so fast in March, was also a main reason that the flooding subsided so slowly during April.		1,000	
5/1/2011	Flood				
6/1/2011	Flood	Moderate to major flooding of the James River, ongoing since the snowmelt season in March, continued through June. Farmland and other lowlands near the river remained flooded, with the water level first falling slowly, then rising due to runoff from heavy rain. The highest stage near Mitchell was 4.9 feet above flood stage at the end of the month, though this was still almost a foot below the peak stage in May.			
6/13/2011	Hail		1.75 in.		

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
6/13/2011	Flash Flood	Heavy rainfall produced flash flooding which flooded fields, a few roads, and washed out a bridge.		30	
6/21/2011	Flood				
7/1/2011	Flood	Moderate to major flooding of the James River, ongoing since the snowmelt season in March, continued through July. Farmland and other lowlands near the river remained flooded, with the water level varying slightly up and down due to sporadic heavy rainfall. The highest stage near Mitchell was 4.9 feet above flood stage on July 3rd, slightly higher than the peak stage of June, but not as high as peak levels earlier in the Spring.			
7/15/2011	Extreme heat				
8/1/2011	Flood	Moderate to major flooding of the James River, ongoing since the snowmelt season in March, continued into early August, with the flooding continuing but very slowly abating through the month. Flooding of farmland and other lowlands near the river very slowly abated. The highest stage near Mitchell was 4.6 feet above flood stage on August 1st.			
8/11/2011	Thunderstorm Wind		61 kts. E	10	
9/1/2011	Flood	Flooding of the James River, ongoing since the snowmelt season in March, abated very slowly through September. Flooding of farmland and other lowlands steadily decreased, and very few roads continued to be affected. The highest stage near Mitchell was 2.3 feet above flood stage on September 2nd.			
5/5/2012	Hail	Large hail caused widespread damage to vehicles, buildings, and structures in and near Mitchell. In addition to dented vehicles and broken windows, the hail damaged the roofs and siding of homes and businesses. Two of the highest individual damage amounts included $175,000 to the Corn Palace, the roof of which needed replacing, and $100,000 damage to the roof of the Central Electric Cooperative Building. The roofs of numerous homes suffered lesser damages, and siding was also damaged. Damaged vehicles included several law enforcement and other city and county government vehicles.	2.50 in.	2,000	
5/5/2012	Thunderstorm Wind		68 kts. M	1	
5/6/2012	Flood				
6/26/2012	Extreme heat				
7/1/2012	Drought	Drought conditions became established over the area. Stress on crops increased with no relief during the month. Hot weather added to the stress. Crop damage became certain. Severe non-ag water supply problems were not observed, but the long term dry conditions raised fears for the future.			
7/2/2012	Extreme heat				
7/15/2012	Extreme heat				
7/18/2012	Extreme heat				
8/1/2012	Drought	Drought was generally listed as severe to extreme for the area, and was being compared to the worst of the dust bowl years, though not yet over as long a time period. Stress on crops continued, even though August was less hot than July. Crop damage was quite evident. Many local governments had water use restrictions in place.			
8/1/2012	Extreme heat				
8/3/2012	Thunderstorm Wind		69 kts. M	15	
9/1/2012	Drought	Drought conditions continued over all of southeast South Dakota. Rainfall for the month varied from around half to less than a			

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
		quarter of normal. Stress on crops that prevailed over the growing season became even more evident with the start of harvest. Local governments continued to use water use restrictions in an effort to prevent serious water supply problems.			
10/1/2012	Drought				
11/1/2012	Drought				
12/1/2012	Drought	Drought conditions continued over all of southeast South Dakota in December. The effects of the drought on farmers and ranchers continued. Hunting was also affected, with low pheasant numbers, and disease in the deer population.			
12/9/2012	Blizzard				
1/1/2013	Drought				
2/1/2013	Drought				
2/10/2013	Blizzard	Variable snowfall of 2 to 8 inches, northwest winds gusting to 45 mph, and snow cover existing before the storm in part of the area, produced blizzard conditions with visibilities below a quarter mile in blowing snow in many areas. The low visibilities and drifting snow forced some businesses to close, and also forced several school closings on Monday February 11th.			
3/1/2013	Drought				
4/1/2013	Drought				
4/9/2013	Winter Storm	An extended period of precipitation began with freezing rain and freezing drizzle producing light to moderate ice accumulations, then changing to sleet and then snow, with sleet and snow accumulations reaching 10 inches near Mitchell. Several branches and power lines were downed by the weight of ice and accompanying wind. The winter precipitation made travel very difficult to impossible, resulting in schools and businesses being forced to close.			
12/3/2013	Winter Storm	Snow, heavy in areas, accumulated up to 8 inches from the evening of December 3rd through the afternoon of December 4th. Difficult travel conditions forced delayed openings or early closings of some schools and businesses on December 4th.			
8/23/2014	Thunderstorm Wind		61 kts. E	20	
12/15/2014	Winter Storm				
4/24/2015	Hail		1.75 in.		
5/10/2015	Tornado		EF0		
6/27/2015	Hail		1.00 in.		
6/27/2015	Thunderstorm Wind	Thunderstorm winds destroyed a small outbuilding, and damaged a house.	61 kts. EG	3	
7/5/2015	Heavy Rain				
7/6/2015	Flash Flood				
11/30/2015	Winter Storm				
12/25/2015	Winter Storm				
1/16/2016	Extreme Cold				
2/19/2016	High Wind	High winds measured up to 76 mph at the Mitchell Airport destroyed a grain dryer, and caused power line and traffic light damage.	66 kts. MG	15	
6/10/2016	Extreme heat				

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
7/19/2016	Extreme heat				
11/17/2016	Winter Storm				
12/16/2016	Winter Storm				
12/17/2016	Extreme cold				
1/24/2017	Winter Storm				
6/13/2017	Hail		1.50 in.		
7/11/2017	Hail		1.00 in.		
9/22/2017	Hail		1.00 in.		
12/25/2017	Extreme cold				
12/31/2017	Extreme Cold	Low temperature at Mitchell was -22.			
1/11/2018	Extreme cold				
1/15/2018	Extreme cold				
2/10/2018	Extreme cold				
3/5/2018	Blizzard				
3/16/2018	Flood				
4/13/2018	Blizzard	Life threatening conditions developed, as a mix of rain, sleet and snow changed to all snow. Brutal winds gusting as high as 60 mph whipped visibility to less than a quarter mile at times. Businesses and schools were closed. Travel was not recommended for a two day period. I-90 was closed from Chamberlain to Sioux Falls for two days. Total snowfall of 16 inches was measured at Mitchell.			
4/23/2018	Flood	Snow melt and runoff from periods of heavy rainfall produced minor flooding which impacted lowland agricultural areas. The James River reached 2.6 ft above flood level at Mitchell.			
7/3/2018	Extreme heat				
7/8/2018	Extreme heat				
7/11/2018	Extreme heat				
1/1/2019	Extreme Cold				
3/3/2019	Extreme Cold				
3/13/2019	Flood	Rainfall of one to three inches on frozen ground and into a snow pack with between 2 and 5 inches of liquid water equivalent resulted in considerable overland flooding. Widespread flooding damage to county and township roads was reported.		600	
3/14/2019	Flood				
3/16/2019	Flood				
4/1/2019	Flood				
4/5/2019	Lightning			50	
4/11/2019	Blizzard				
4/17/2019	Flood				
5/1/2019	Flood				
5/20/2019	Flood				
6/1/2019	Flood				

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
6/27/2019	Hail		1.00 in.		
6/28/2019	Heat				
6/29/2019	Extreme Heat				
6/30/2019	Heat				
7/1/2019	Flood				
7/12/2019	Hail		1.00 in.		
7/20/2019	Thunderstorm Wind		61 kts. MG		
8/1/2019	Flood				
9/1/2019	Flood	A continuation of flooding from August, as the James River near Mitchell responded sharply to 5 to 8 inches of rainfall between September 10-12 to reach the 4th highest crest on record at 8.05 feet above flood stage on September 13. Most county and township roads near the river were inundated, with significant flooding of South Dakota Highway 37 east of Mitchell and 42 east of Ethan. Significant amounts of agricultural land remained flooded.		50	
9/12/2019	Flash Flood	Heavy rainfall from September 10-12 totalling 7 to 8 inches near Mitchell led to widespread flooding. Travel was significantly hampered across most of the county, including the closure of I-90. Smaller creeks and ponding resulted in the closure of most township and county roads. Five miles south of Mitchell, a bridge over Enemy Creek was washed out, requiring a swift water rescue of one person who was overwhelmed by the current. Three residents located one-half mile east of this bridge were also evacuated from waist deep waters. This bridge was one of nine damaged across the county. A no-wake order was placed on Lake Mitchell due to extremely high water. Significant street flooding occurred around Mitchell for three days.		800	
10/1/2019	Flood	A continuation of flooding from September, as the James River near Mitchell spent most of the month at minor flood stage. Significant amounts of agricultural land remained flooded.		5	
11/1/2019	Flood	A continuation of flooding from October, as the James River near Mitchell spent the entire month at minor flood stage, cresting at 2.64 ft above flood stage on November 27. Significant amounts of agricultural land remained flooded.			
12/1/2019	Flood	A continuation of flooding from November, as the James River near Mitchell spent the entire month in minor flood stage, with a brief period in moderate flood state from December 10 to 16. Significant amounts of agricultural land remained flooded.			
12/28/2019	Blizzard	Light mixed precipitation resulted in a minor glaze of ice accumulation, then heavy snowfall (15 inches in Mitchell) and high wind resulted in white out conditions . I-90 was closed in Davison County for almost two days. Snow drifts to several feet were common.			
1/1/2020	Flood				
1/17/2020	Blizzard	Wind and snow reduced visibility. Interstate 90 was closed from 19:00 January 17 through 13:00 January 18, with travel not recommended on other roadways. Sowfall reached 6.8 inches at Mitchell..			
2/1/2020	Flood				
2/12/2020	Blizzard	High wind and snow reduced visibility for several hours.			
2/26/2020	Flood				
3/1/2020	Flood				

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
4/1/2020	Flood				
4/11/2020	Winter Storm				
5/1/2020	Flood				
6/1/2020	Flood				
6/8/2020	Hail		1.75 in.		300
6/9/2020	Thunderstorm Wind		78 kts. EG	80	
6/9/2020	Flood	After heavy rainfall, Firesteel Creek near Mount Vernon crested 2.62 feet above flood stage on June 13. Main impact was to ag land.			
7/1/2020	Flood				
8/8/2020	Thunderstorm Wind		63 kts. MG		
12/23/2020	Blizzard				
2/14/2021	Extreme cold				
3/14/2021	Winter Storm				
6/1/2021	Drought				884
7/1/2021	Drought				1,300
8/1/2021	Drought				767
8/30/2021	Hail		1.00 in.		43
9/1/2021	Drought				100
10/1/2021	Drought				
11/1/2021	Drought				
12/1/2021	Drought				
12/10/2021	Winter Storm				
12/31/2021	Cold/wind Chill				
1/1/2022	Cold/wind Chill				
1/6/2022	Extreme cold				
2/22/2022	Cold/wind Chill				
3/5/2022	Winter Storm				
4/1/2022	Drought				
5/1/2022	Drought				
5/29/2022	Thunderstorm Wind		61 kts. EG		
5/30/2022	Flood				
6/1/2022	Flood				
6/1/2022	Drought				
6/13/2022	Thunderstorm Wind		61 kts. EG		
7/1/2022	Flood				
7/5/2022	Thunderstorm Wind		65 kts. MG		175
8/1/2022	Flood				

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
9/13/2022	Drought				
10/1/2022	Drought				
11/1/2022	Drought				
12/1/2022	Drought				
12/14/2022	Winter Storm				
12/21/2022	Blizzard/Extreme Cold				
1/1/2023	Drought				
1/2/2023	Winter Storm				
2/1/2023	Drought				
2/21/2023	Blizzard				
2/24/2023	Extreme cold				
3/1/2023	Drought				
4/1/2023	Drought				
4/18/2023	Flood				121
5/1/2023	Flood				
6/1/2023	Flood				
6/6/2023	Drought				
7/1/2023	Drought				2,690
7/12/2023	Hail		1.00 in.		
7/25/2023	Thunderstorm Wind		70 kts. EG		
7/26/2023	Excessive Heat				
8/10/2023	Hail		1.00 in.		
8/19/2023	Excessive Heat				
8/21/2023	Excessive Heat				
9/2/2023	Heat				
12/25/2023	Blizzard				
1/7/2024	Winter Storm				
1/12/2024	Extreme cold				
1/20/2024	Cold/wind Chill				
3/24/2024	Winter Storm				
6/20/2024	Flood	Rainfall across Davison County from June 20-22 ranged from 5 to 9 inches. Overland flooding ensued with additional major flooding along Firesteel Creek and the James River. County-wide, flood damages to roads ranged from gravel wash to more significant impacts involving erosion and culvert wash outs. One of the more significant road damages occurred along 255th St when a private dam failed and caused part of the road to give way. An estimated 4.24 million dollars of damage to public infrastructure was reported. Flood water also damaged around 149 homes and 9 businesses, resulting in an estimated loss of 5.42 million. In Mitchell, flood waters required the evacuation of 44 trailers at two		10,250	

Date	Event Type	Event Description	Mag	Prop Damage ($1,000s)	Crop Damage ($1,000s)
		trailer courts and the city's wastewater treatment facility sustained about $250,000 of damage.			
7/1/2024	Flood				
7/13/2024	Excessive Heat				
7/30/2024	Hail		1.25 in.		
7/31/2024	Heat				
8/2/2024	Heat				
8/25/2024	Excessive Heat				
10/29/2024	Drought				
11/1/2024	Drought				

Source: National Climatic Data Center Storm Events Database (www.ncdc.noaa.gov/stormevents)

Crop Loss

As described in **Chapter III**, farmers typically protect themselves from the impacts of adverse weather by insuring their crops against losses through multi-peril crop insurance, which is underwritten by the Risk Management Agency. The tables on the next few pages provide data on indemnity payouts to Davison County farmers for crop loss due to natural hazard events from 2000 through 2023.

Table C.3 shows indemnity payouts due to winter weather events. During the 2000 – 2023 period of analysis, winter weather-related payouts represented approximately 2% of all indemnity payouts in Davison County.

Table C.3 – Crop Loss Due to Winter Weather

Year	Frost	Freeze	Cold Winter	Cold Wet Weather
2000	$15,614		$75,640	
2001	$5,322		$176,637	
2002	$3,817	$2,582	$10,613	$14,543
2003	$340		$2,263	
2004	$6,151	$1,365	$1,008	$25,563
2005	$16,920	$14,899		$3,922
2006			$6,771	
2007	$1,930	$3,718	$19,963	
2008			$50,894	$2,599
2009		$7,199	$441,894	$28,391
2010			$1,781	$59,995
2011		$2,458	$115,179	$110,263
2012				$4,589
2013			$49,729	$165,792
2014		$2,074	$230,056	$102,217
2015			$505,759	$163
2016		$77	$358	$128,143
2017		$645	$41,211	$27,360
2018				$21,078
2019				$473,152
2020				$24,152
2021		$1,060	$15,368	$7,800
2022	$3,038			
2023			$22,507	$48,108
Ave Payout =	**$2,214**	**$1,503**	**$73,651**	**$51,993**

Source: USDA Risk Management Agency (www.rma.usda.gov/data/cause.html)

Table C.4 shows indemnity payouts due to severe summer weather. During the 2000 – 2023 period of analysis, summer storm-related payouts represented approximately 3% of all indemnity payouts in Davison County.

Table C.4 – Crop Loss Due to Severe Summer Weather

Year	Hail	High Wind	Tornado
2000	$43,668	$3,872	$9,768
2001	$4,691	$303	
2002	$25,234		
2003	$125,417	$1,490	
2004	$146,651	$7,092	
2005	$9,595		
2006	$464	$83	
2007		$197	
2008	$91,820	$39,474	
2009	$981,470	$360	
2010		$621	
2011		$94,960	
2012	$40,490		
2013	$3,065		
2014	$10,497	$15,836	
2015	$1,839,156	$9,761	
2016			
2017	$43,889	$1,772	
2018			
2019	$35,549	$242,097	
2020	$393,037	$10,596	
2021	$41,381	$258,224	
2022	$9,316	$181,879	
2023			
Ave Payout =	**$160,225**	**$36,192**	**$407**

Source: USDA Risk Management Agency (www.rma.usda.gov/data/cause.html)

Table C.5 shows indemnity payouts due to flooding and excess moisture. During the 2000 – 2023 period of analysis, flood-related payouts represented approximately 32% of all indemnity payouts in Davison County.

Table C.5 – Crop Loss Due to Flooding and Excess Moisture

Year	Flooding	Excess Moisture
2000		$91,454
2001		$2,997,536
2002		$49,663
2003		$108,791
2004	$11,994	$1,212,270
2005		$292,172
2006		$33,157
2007	$1,073	$1,446,417
2008	$1,202	$1,940,475
2009		$892,510
2010		$2,950,729
2011		$5,974,266
2012		$348,514
2013		$173,660
2014		$52,222
2015	$19,596	$299,494
2016		$2,149,623
2017		$40,741
2018		$620,137
2019	$2,468	$20,832,335
2020		$3,401,372
2021		$6,341
2022	$310,102	$225,117
2023	$121,374	$106,459
Ave Payout =	**$19,492**	**$1,926,894**

Source: USDA Risk Management Agency (www.rma.usda.gov/data/cause.html)

Table C.6 shows indemnity payouts due to drought and heat. During the 2000 – 2023 period of analysis, drought-related payouts accounted for approximately 58% of all indemnity payouts in Davison County, far more than any other type of hazard [9].

Table C.6 – Crop Loss Due to Drought and Heat

Year	Drought	Heat
2000	$626,697	$8,672
2001	$1,365,562	$3,467
2002	$7,885,578	$35,898
2003	$382,096	$28,118
2004	$319,419	
2005	$3,012,178	$275,131
2006	$7,539,421	$398,925
2007	$739,937	$72,042
2008	$1,594,127	$30,629
2009	$2,561	
2010		
2011	$244,581	$119,391
2012	$30,199,836	$845,036
2013	$478,045	$6,849
2014	$470,145	$9,740
2015	$859,366	$11,415
2016	$2,372,524	$40,608
2017	$1,805,063	$29,568
2018	$6,795	$2,930
2019		
2020	$200,257	
2021	$5,123,983	$105,115
2022	$14,386,806	$267,685
2023	$3,123,557	$208,727
Ave Payout =	**$3,447,439**	**$104,164**

Source: USDA Risk Management Agency (www.rma.usda.gov/data/cause.html)

[9] Drought is the costliest natural hazard statewide for South Dakota farmers. From 2000 through 2017, drought payouts accounted for approximately 50% of all indemnity payouts in the state.

APPENDIX D: References

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