DAY COUNTY
SOUTH DAKOTA

NATURAL HAZARD MITIGATION PLAN
(UPDATE)
EXPIRES:
XX/XX/XXX

PREPARED BY:
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I: INTRODUCTION

CHANGES/REVISIONS TO INTRODUCTION:

- Changes were made in the language and the data used in this section and structure of the section. Tables were used to break down data provided about Day County.
- Maps and figures were used to illustrate Day County.
- Additional information was given surrounding BRIC.
- Demographic, economic and climate data was added to give additional details on the population of Day County.
- National Flood Insurance Participation was added to the Day County Municipalities Overview.

INTRODUCTION

Natural hazards can severely impact the health, welfare, and security of Day County residents. Residents are affected by storms, extreme temperatures, drought, flooding, tornados, high winds, and hail. Mitigation reduces the impact and costs of hazards. Day County, working with South Dakota Office for Emergency Management, the Federal Emergency Management Agency (FEMA) and the Northeast Council of Governments (NECOG) prepared this Natural Hazard Mitigation Plan (plan) to guide natural hazard mitigation activities in the county.

This plan details the specific vulnerabilities and limits Day County has to natural hazards. Shifting the focus from reaction to prevention can reduce harm to life and property. This plan identifies solutions to reduce the impact of natural hazards. The ideas are based on the principle that hazard mitigation works. Many mitigation actions can be implemented for minimal cost.

Mitigation planning analyzes and identifies the specific risks and the impact on residents. Addressing hazards before they occur can reduce the impact. It can have minimal cost but can prevent higher costs in the future, even up to the loss of lives. Mitigation is preventative actions based on analyzing historical events and finding solutions to the challenges created, it is not an emergency response or preparedness.

The plan can and should be used with other types of planning processes to identify weaknesses and/or refocus emergency response. However, the focus of the plan is for local leaders to discuss and implement strategies that avoid future risks caused by natural hazards. This is not an emergency response or emergency management plan.

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

AUTHORITY

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

1. Identifies hazards and their associated risks and vulnerabilities.

2. Develops and prioritizes mitigation projects; and
3. Encourages cooperation and communication between all levels of government and the public.

To be eligible for FEMA's Hazard Mitigation Grant Assistance Program, the disaster Mitigation Act of 2000 (DMA 2000) requires that local governments have a FEMA approved mitigation plan in place. Jurisdictions must demonstrate proposed mitigation projects have solid planning process where risks and capabilities of each community are assessed. Mitigation plans must be updated every five years to show progress has been made towards meeting mitigation goals and ensure the plan continues to be an effective mitigation tool to meet the needs of the county and communities.

PURPOSE OF THE PRE-DISASTER MITIGATION PLAN

The purpose of the Natural Hazard Mitigation plan is to fulfill federal, state, and local hazard mitigation measures and meet the planning needs of Day County. Consistent with FEMA guidelines, this plan identifies risks and solutions for pre- and post-disaster mitigation. Implementation of both the short- and long-range projects will reduce losses. The projects listed will reduce hazards' impact on the community. Jurisdiction agencies and officials can create public awareness of the impact of natural hazards. This plan is a guide to help prevent or reduce Day County's vulnerability to natural hazards.

PLAN USE

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

SCOPE

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

LOCAL GOALS

Community commitment begins with local involvement and is the basis for the Mitigation Plan. Priorities to stabilize the community's lifelines are at the top with a reduction in importance toward the bottom of the list.

- Protection of life before, during, and after a natural disaster by establishing safety and security for residents.
- Protection of emergency response capabilities (critical infrastructure) and establishing supplies of food, water, and shelter for affected residents.
- Establish and maintain communication and warning systems, establishing medical care and support processes for residents requiring emergency care.

- Protection of critical facilities and providing reliable energy sources.
- Government continuity by maintaining communications throughout and outside the area.
- Providing transportation in and out of the area.
- Protection of developed property, homes, businesses, industry, education, and culture of the community and by combining hazard loss reduction with the community's environmental, social, and economic needs.
- Protection of the environment and natural resources by mitigation measures.
- Protection against hazardous material exposure due to natural disasters.

GOALS OF MITIGATION PROGRAMS AS ESTABLISHED BY FEMA

- Eliminate or reduce long-term risk to life and property from natural hazards.
- Aid both the private and public sectors in understanding the risks and finding mitigation strategies to reduce those risks.
- Avoid risk of exposure to identified hazards.
- Minimize the impacts of risks when they cannot be avoided.
- Mitigate the impacts of damage due to identified hazards.
- Accomplish mitigation strategies so negative impacts are minimized.
- Provide a basis to fund projects that mitigate hazards; and
- Establish a regional platform to enable the community to take advantage of shared goals, resources, and the availability of outside resources.

WHAT IS HAZARD MITIGATION?

Hazard Mitigation is a plan of cost-effective actions taken to reduce vulnerability of people and property to natural hazards. There are three categories of hazard mitigation. This mitigation plan contains strategies from all three categories.

- Activities that keep the hazard away from people, property, and structures.
- Measures that keep people, property, and structures away from the hazard.
- Reduce the impact of hazards in the plan area.

Mitigation measures must be practical, cost effective, environmentally, and politically acceptable. Limiting the impact of natural hazards should not cost more than the damage. Mitigation measures can be specific or multi-functional. A storm shelter can be used for winter and summer storms as a cost-effective, multi-purpose use to mitigate against two hazards. Generators can be used when the power goes out for multiple reasons from storms to tornadoes to high heat waves. Mitigation can be hazard specific. An ordinance to regulate elevation height of a home is a specific requirement to mitigate against flooding.

The best way to mitigate natural hazards is to protect capital investments before building. Incorporating mitigation into planning requires that planners, developers, residents, and municipal leaders use mitigation to prevent loss. Ordinances, building codes, zoning or other considerations can prevent vulnerabilities. Special consideration and planning should be given to the most susceptible areas. These mitigation measures cost little but have a significant impact on the effect of natural hazards. Once a capital asset is built, it can be too late to mitigate hazards.

Most government programs focus on response and preparedness and neglect mitigation. Implementation and results take time. Incorporation into government

processes allows mitigation to be more integral in plans. Using data and analysis of area hazards, most communities can prepare and reduce the impact. Effective mitigation management is key. This plan is the first step of the mitigation process.

This plan evaluates Day County's risks and vulnerabilities to natural hazards. It identifies projects for the local jurisdictions who participated. The suggested actions and implementation could reduce the impact of hazard events. This will only be achieved through coordination with emergency managers, political entities, public works officials, community planners and other individuals to implement this program.

Community Lifelines are mentioned throughout the plan and are the focus of FEMA's response to natural hazards. They allow FEMA to prioritize and concentrate actions to mitigate effects during a natural hazard. The priorities set by FEMA are a list of the basic services that communities need and how resources are prioritized before and after a natural hazard. The process of response becomes more efficient when stability is established through mitigation before a disaster.

Table 1.1: FEMA Community Lifelines	
Safety and Security	law enforcement/security, fire service, search and rescue, government services, community safety
Food, Water, and Shelter	food, water, shelter, agriculture
Health and Medical	medical care, public health, patient movement, medical supply chain, fatality management
Energy (Power and Fuel)	power grid, fuel
Communications	infrastructures, first responder communications, alerts, warnings, and messages, finance, 911 and dispatch
Transportation	highway/roadway/motor vehicle, mass transit, railway, aviation, maritime
Hazardous Materials	facilities, HAZMAT, pollutants, contaminants

Table 1.1 FEMA Community Lifelines listed on FEMA.gov.

DAY COUNTY PROFILE

GEOGRAPHIC PROFILE

Day County was created by the Dakota Territorial Legislature in 1880. The county was named in honor of Merritt H. Day who was a pioneer and was an 1879 Dakota Territory legislator. Webster was named the county seat in an election in 1886. The Day County courthouse was completed in 1883 and was replaced in 1903. After a fire, in 1962, the current courthouse was constructed to replace the old building.

Table 1.2: Day County Fast Facts	
Geographic Area	• Glacial Lakes Region of northeaster South Dakota • 1,091 square miles • Bordered by counties: Brown, Marshall, Roberts, Grant, Codington, Clark and Spink
Waterways	• Waubay chain lakes (closed basin) • Numerous lakes and sloughs throughout the county
Land Uses	• Tourism, farming, hunting, fishing, waterfowl areas, fish hatcheries
Major Highways	• US Highway 12 (east to west) • SD Highway 27 and SD Highway 25 (north to south)
Cities and Towns	• Webster (county seat), Andover, Bristol, Butler, Grenville, Pierpont, and Roslyn • 28 townships
Water Supplier	• BDM and WEB water
Electric Supplier	• Lake Region Electric • Northwestern Energy • Ottertail Power Company

Table 1.2: Day County Wikipedia, 2020 Natural Hazard Mitigation Plan

US Highway 12 has been expanded to a four-lane to accommodate increased traffic from Interstate 29. Due to flooding in the county, the road has been raised by almost 8 feet due to increasing water levels. Day County maintains 170 miles of paved highway and 364 miles of gravel and 30 bridges throughout the county. Snow removal is provided for 534 miles of county roads. These rural roads are essential to Day County's tourism industry for hunters and fishermen to participate in the sports.

Figure 1.1: Map of South Dakota

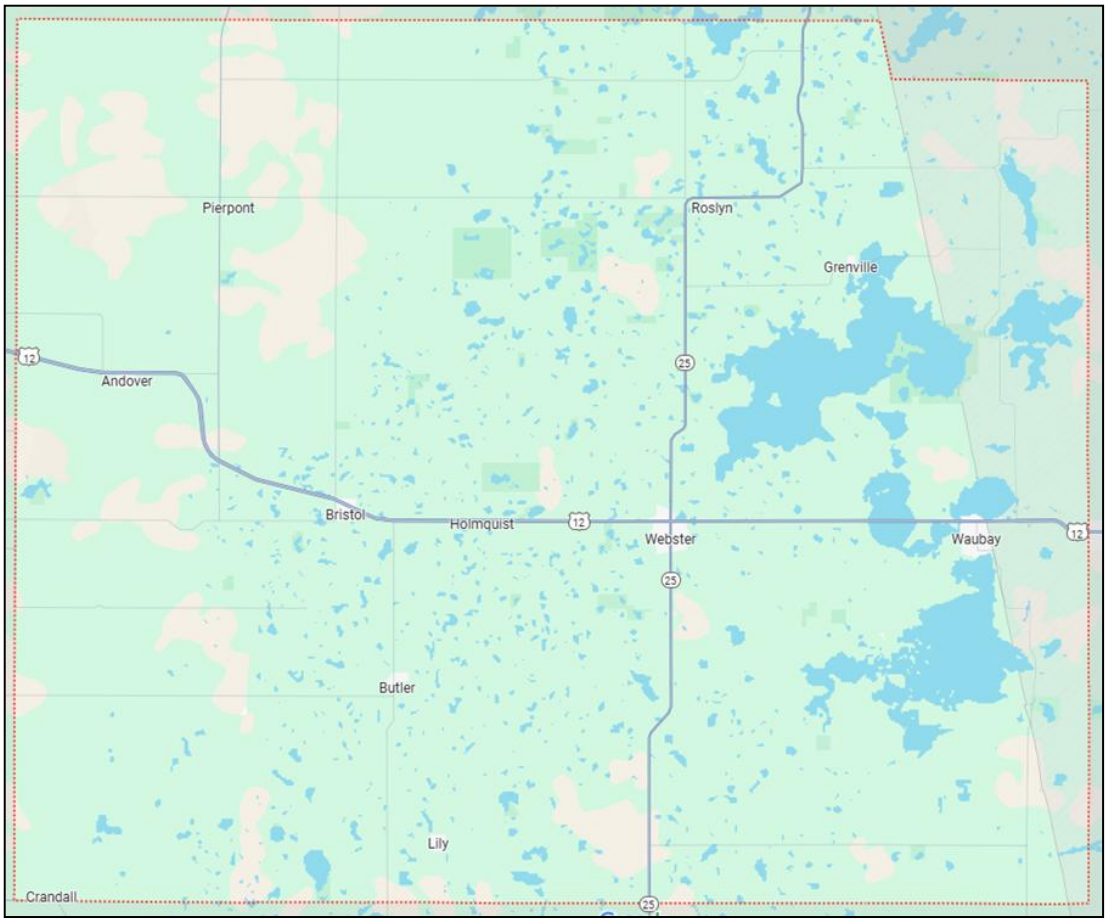


Figure 1.2: Map of Day County

Most of Day County is a “closed basin” for waterways. Under most circumstances, there is no direct drainage out for water that flows into the county. The water collects in sloughs and ponds until it evaporates, or the water level gets high enough that it can drain. The chain of closed basin lakes is primarily located in Day County. During the floods of the 1990’s, the lakes went from minor sloughs and ponds to lakes that are now 20-35 feet deep. As the water level increased in the 90s, it connected the lakes in the county, increasing the water coverage. The water level keeps increasing in years of heavy moisture. As a 409 square mile sub-basin of the Big Sioux River Basin, the water needs to increase three feet and flow over a mile to reach an outlet to flow out of the county. Northeastern South Dakota is atop a high flat area of high ground. The sides are higher than the normal drainage routes (James River, Big Sioux), blocking water in the county.

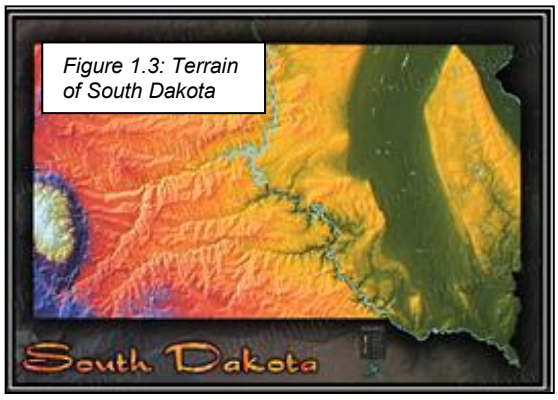


Figure 1.3: Terrain of South Dakota

Day County has had multiple home buyouts by FEMA since the 1990’s floods due to the rising waters of the chain lakes causing flooding of homes in the area. Roads have also been significantly impacted by flooding, causing the county and the state to increase road height.

Highway 12 has been raised eight feet since 1999 due to the rising waters of Bitter and Rush Lakes. Farmland has also been replaced by water, decreasing the ability for farmers to use the land to produce farm products. The water level has increased in elevation from 1790.9 feet to an average of 1,814 feet.

Table 1.3: Waterways of Day County		
Major Lakes	**Lakes**	**Sloughs and Ponds**
Waubay Lake	Hazelden Lake	Dahling Slough
Enemy Swim Lake	Sweetwater Lake	Buchner Slough
Bitter Lake	Antelope Lake	Headman Slough
Hillebrands Lake	Anderson lake	Campbell Slough
Rush Lake	Lynn Lake	Holmquist Slough
Minnewasta Lake	Amsden Lake	Arenson Slough
Pickerel Lake	Sweetwater Lake	Solomon Slough
Blue Dog Lake	Loneson Lake	Stangland Slough
Spring Lake	Opitz Lake	Foldager Slough
South Waubay Lake	Pierpont Lake	**Swan Pond**
Little Rush Lake	Lake Madison	Phragmites Pond

Table 1.3: Waterways of Day County, major waterways are in bold

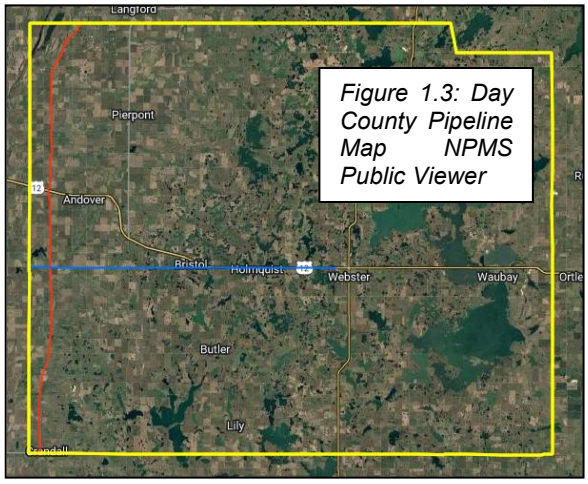


Figure 1.3: Day County Pipeline Map NPMS Public Viewer

Day County has two pipelines. The blue is a natural gas transmission line, and the red is a hazardous liquid pipeline. Day County has a natural gas pipeline that runs from just outside Webster west to the Day County border with Brown County. The hazardous gas line runs along the far west of Day County.

POPULATION DEMOGAPHICS

According to the Census Bureau, in 2020 the County had a population of 5,449, a decline of 4.6 percent from the 2010 census of 5,710. With 5,449 people residing in 1,091 square miles, it translates to around 5 people per square mile, classifying the county as rural. The City of Webster is the county seat and is situated at the intersection of US Highway 12 and South Dakota Highway 25.

Table 1.4: Population in Day County Jurisdictions				
City	2020 US Census Population	2010 Population per American Community Survey	Percent change from 2010 to 2020	Percent of the Day County Population
Webster	1,728	1,886	-8.38%	31.71%
Andover	66	91	-27.47%	1.21%
Bristol	288	341	-15.54%	5.29%
Butler	4	17	-76.47%	0.07%
Grenville	48	54	-11.11%	1.88%
Pierpont	129	135	-4.44%	2.37%
Roslyn	181	183	-1.09%	3.32%
Waubay	473	576	-17.88%	8.68%
Rural Day County	2,532	2,427	4.33%	46.47%
Day County	5,449	5,710	-4.57%	100%

Table 1.4: Population if Day County Jurisdictions from 2020 Decennial Census

Day County has 28 townships besides the communities that are in the county. Listed below are the townships and their populations as of the 2020 census. There has been an increase in population from 2010 to 2020 of 109 people in Day County's townships. Day County has no Hutterite colonies.

Table 1.5: Day County Community Demographics	
Population per 2020 Census	5,449
People per square mile	4.99 people per square mile
Median Age of Residents	47.1 years
65+ Years Old Residents	1,435 (26.3%)
19 Years Old and Younger Residents	1,388 (25.5%)
Veterans	9.7%
Male to Female Ratio	Nearly 1 :1 (M : 50.3% to F : 49.7%)
Average Family Size	2.98

Table 1.5: Day County Population Demographics from 2020 Decennial Census

Table 1.6: Day County Township Population Per 2020 Census			
Township	Population	Township	Population
Andover	111	Morton	84
Bristol	61	Nutley	89
Butler	54	Oak Gulch	23
Central Point	73	Racine	87
Egeland	41	Raritan	69
Farmington	36	Rusk	111
Grenville	65	Scotland	28
Highland	62	Troy	43
Homer	45	Union	80
Independence	36	Valley	47
Kidder	59	Waubay	505
Kosciusko	203	Webster	284
Liberty	83	Wheatland	88
Lynn	31	York	34

Table 1.6: Day County Township Population from 2020 Decennial Census

Figure 1.4: Day County township map

ECONOMIC PROFILE

The Day County economy has historically been very reliant upon agriculture. In recent years, tourism and tourism-related jobs have increased. Day County has many lakes, wetlands, and game production areas which provide an excellent habitat for fish and wildlife and many recreational opportunities. The decline in small family farms and the declining population in most of the Day County communities has forged a significant decline in employment within the farm industry.

Table 1.7: Day County 2020 Economic Profile	
Total Employment Establishments	• 205
Education Attainment	• 21.3% with a bachelor's degree or higher
Employment	• 56.1%
Employment and Labor Force Status	• 56.3%
Top Five Industries	• Education, health care and social assistance • Agriculture, forestry fishing and hunting • Manufacturing • Retail Trade • Finance and insurance, real estate
Workforce	• Management, business, science, and arts • Sales and office occupations • Production, transportation • Services • Natural resources
Homeownership Rate	• 75.8%
Housing Units	• 3,395
Average Rent	• $623
Occupancy Characteristics	• 2,370 units
Median Worked Hours per Week	• Male: 41.7 hours • Female: 35.8 hours

Table 1.7: Day County 2020 Economic Profile from 2020 Decennial Census

Table 1.8 shows income statistics for Webster, Day County, South Dakota, and the United States. Day County and Webster have lower median household income and per capita income than the United States and the rest of South Dakota. Day County and Webster have a higher percentage of residents below poverty. South Dakota and the United States has a higher percentage of unemployed and disabled residents than Day County and Webster.

Table 1.8: Income Statistics					
Area	**Median Household Income**	**Per Capita Income**	**Percentage Below Poverty**	**Unemployment **2020 Census***	**Disabled Populations**
Day County	$62,270	$34,210	13.3%	1.6%	13.1%
Webster	$61,477	$32,367	16.8%	0.4%	3.3%
South Dakota	$71,810	$38,880	11.8%	1.9%	12.1%
United States	$78,538	$68,531	11.1%	4.2%	13.4%

Table 1.8: Income Statistics data from 2020 Decennial Census

GOVERNANCE AND EMERGENCY SERVICES

Day County is governed by a five-member board of commissioners. Each incorporated town is served by a council or board. Ambulance services are provided by the Day County Ambulance Service. Medical care is offered at the Sanford Hospital and Clinic in Webster. Fire service is handled by six volunteer fire departments located throughout the county which participate in a county-wide mutual aid agreement. Fire departments are in Webster, Andover, Bristol, Pierpont, Roslyn, and Waubay.

Law enforcement for the county is handled by Day County Sheriff's Office which is in Webster and has three deputies, an administrative assistant, a jail administrator and six part time jailers. The City of Webster also has a three-man police department. The South Dakota Highway Patrol has two troopers stationed in Webster.

CLIMATE

Day County is almost entirely in the Coteau des Prairies, which is a plateau approximately 200 miles long and 100 miles wide. The county is predominantly rolling hills with some flat areas defined by the ancient Pleistocene lakes. There are numerous basins called prairie potholes in this area which are natural collecting spots for water. Water collects in these basins instead of flowing to streams and rivers to flow out of the county. Drainage in the county is primarily internal. Streams generally connect two or more potholes and flow primarily during spring runoff or after periods of heavy rainfall. On the eastern side of the county, a few streams drain eastward to the headwaters of the Big Sioux River.

Approximately one-sixth of western Day County lies in the James River basin. The western streams flow down the western edge of the Prairie Couteau into the James River. The James River Basin area has land that is gently undulating or nearly level. The extreme northwest corner lies in the Ancient Lake Dakota bed. Land elevations range from 1,300 feet above sea level in the extreme northwestern part of the county to 2,010 feet in the northeastern part.

Table 1.9: Day County Climate	
Winter Temperature Averages	High: 24 degrees Low: 6.6 degrees
Summer Temperature Averages	High: 80 degrees Low: 58.6 degrees
Snowfall	40.4 inches annually
Rainfall	24 inches annually
Sunny days	203 days

Table 1.9: Day County Climate data from USAFacts.org

Like many South Dakota counties, Day County has some of the greatest weather variations in the world. Normally the temperature is moderate between March and June and September and October. The county has spells of extreme heat in July and August and cold November through February. Webster has had a record high of 108 degrees set July 26, 1894. The record low is -43 degrees February 1, 1895.

Precipitation can vary significantly annually by location. The heaviest most intense precipitation often occurs with localized downpours associated with thunderstorms in June through August. The heaviest 1-day rainfall on record is 3.5 inches in Webster on June 29, 1971. January 4, 1997, Day County had its highest snowfall of 20 inches of snow in 24 hours. Thunderstorms occur an average of 36 days each year. The greatest snow depth on record is 35 inches.

TRANSPORTATION

Transportation planning for streets and roads begins with a relationship between land use and road network. Streets and roads function for mobility and land access.

Highways prioritize mobility while local roads prioritize land access to farms and residences.

Functional classification groups streets and roads into classes according to their function. Listed below is Day County's functional classification system. The classification is the same as what is used by the Federal Highway Administration.

1. Principal Arterials – serve longer strips statewide or interstate, carry the highest traffic volumes, connect larger urban areas, provide minimal land access, and include both interstate and non-interstate principal arterial highways.

2. Minor Arterials – interconnect principal arterials, provide less mobility and slightly more land access, and distribute travel to smaller towns.

3. Major Collectors – provide both land access and traffic circulation connecting areas not served by arterials and connect intercounty traffic generators like schools, shipping points, parks, and important mining and agricultural areas.

4. Minor Collectors – collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road.

5. Local Roads – provide direct access to adjacent land and to the highest classified roads and serve short trips.

A Major Street Plan includes a current and future hierarchy of street classifications for use in identifying and prioritizing transportation needs of Day County.

Day County highway 12 – raised eight feet, county roads have also had to be raised. county while there are numerous county-maintained highways that serve the traffic in rural areas. The county roads receive a large volume of tourism-based traffic during the spring, summer, and fall especially in the lake areas of eastern Day County. All of these transportation routes are vitally important to the agricultural industry.

Rural township roads generally show the impacts of high flooding. There are 534 miles of roads, 30 bridges and many box culverts maintained by the Day County Highway Department. Bridge updates and repairs have been a priority due to flooding. Road maintenance and repair are impacted by flooding. Load limits are routinely set by the County to protect roads that are soft from moisture.

NATIONAL FLOOD INSURANCE PROGRAM PARTICIPATION

Five jurisdictions located within Day County participate in the National Flood Insurance Program (NFIP): Day County, Waubay, Webster, Bristol, and Pierpont. The remaining towns currently do not participate in the NFIP: Table 1.4 was taken from the 2006 Plan. It lists population, latitude and longitude, elevation, and NFIP status of communities within the county. Population statistics were taken from Census 2010 and location and elevation were taken from Google Earth. NFIP status was provided by the FEMA Community Status Book Report.

Table 1.10: Day County Municipalities Overview				
Name *(Cities and Towns)*	**Pop. *(2020 American Community Survey)***	**Location**	**Elevation**	**NFIP *(National Flood Insurance Program)***
Webster	1,728	45°20′1″N 97°31′10″W	1857 ft	Yes
Andover	66	45°24′38″N 97°54′13″W	1480 ft	No
Bristol	288	45°20′43″N 97°45′3″W	1791 ft	Yes
Butler	4	45°15′29″N 97°42′49″W	1827ft	No
Grenville	48	45°27′59″N 97°23′24″W	1864 ft	No
Pierpont	129	45°29′41″N 97°49′54″W	1506 ft	No
Roslyn	181	45°29′47″N 97°29′27″W	1864 ft	No
Waubay	473	45°19′59″N 97°18′15″W	1818 ft	Yes
Rural Day County	2532			No
Day County	5449	45°22′N 97°37′W	1,739 ft	Yes

Table 1.10: Day County Municipalities Overview Data from Google Earth and 2020 Decennial Census

II: PREREQUISITES

CHANGES/REVISIONS TO PREREQUISITES:

- The plan participants table was revised to reflect new participants in the Day County Natural Hazard Mitigation Plan for 2022.
- The record of participation was updated.

ADOPTION BY LOCAL GOVERNING BODY

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

> ***F2-a.*** *To receive approval, the participants must adopt the plan and provide documentation that the adoption has occurred.*

The Day County Commission oversees the update of the Day County Natural Hazard Mitigation Plan. The Commission has tasked the Day County Emergency Manager with the responsibility of ensuring that the Plan is compliant with Federal Emergency Management Agency (FEMA) Guidelines and corresponding regulations.

MULTI-JURISDICTIONAL PLAN PARTICIPATION AND ADOPTION

This plan is multi-jurisdictional and serves the entire area located in Day County, South Dakota. There are ten incorporated municipalities. Some municipalities elected not to participate in the planning process and the update of the 2020 Day County Pre-Disaster Mitigation (PDM) Plan to the Day County 2025 Natural Hazard Mitigation Plan. Participating jurisdictions include Day County. Table 2.1 lists each municipality and if they were new, continuing, or non-participants. Municipalities that did not participate are still covered under the plan but will not have a separate mitigation strategy from the County.

Table 2.1: Plan Participants

New Participants	Continuing Participants	Did Not Participate
	Day County	Butler
	Webster	Andover
	Bristol	Pierpont
	Waubay	Roslyn
	Grenville	

The Day County Commission and participating municipalities passed resolutions to adopt the updated Plan. The Resolutions of Adoption are included in Appendix A. The dates of adoption by resolution for the jurisdictions are summarized in Table 2.2. The townships are not directly participating entities because they are too small, in population and resources, to be capable of handling mitigation on their own and are served by the County when necessary.

Table 2.2: Dates of Plan Adoption by Jurisdiction	
Jurisdiction	**Date of Adoption**

All jurisdictions were involved in the plan update to the extent they wanted to participate. Representatives from each municipality and the County attended the planning meetings and provided valuable perspective on the changes required. All representatives took part in group risk assessments and provided comments. Following each meeting representatives informed the respective councils and presented an update. Athol and Mansfield are unincorporated communities with very small populations and no board or council, so they are not listed as jurisdictions to adopt the plan.

Table 2.3 is a Record of Participation and shows the requirements of the planning process for jurisdictions to be considered participants and lists the jurisdictions that met the requirements.

Table 2.3 Record of Participation								
Nature of Participation	**Day County**	**Webster**	**Andover**	**Bristol**	**Grenville**	**Pierpont**	**Roslyn**	**Waubay**
Attended Meetings or work sessions (a minimum of 2 meetings will be considered satisfactory).	☒	☒	☐	☒	☒	☒	☐	☒
Submitted inventory and summary of reports and plans relevant to hazard mitigation.	☒	☒	☐	☒	☒	☒	☐	☒
Submitted Risk Assessment Worksheet.	☒	☒	☒	☒	☒	☒	☒	☒
Submitted description of what is at risk (including local critical facilities and infrastructure at risk from specific Hazards) Worksheet 3A	☒	☒	☒	☒	☒	☒	☒	☒
Submitted a description or map of local land-use patterns (current and proposed/expected)	☒	☒	☐	☒	☐	☒	☐	☒
Developed goals for the community.	☒	☒	☐	☒	☒	☒	☐	☒
Developed mitigation actions with an analysis/explanation of why those actions were selected.	☒	☒	☐	☒	☒	☒	☐	☒
Prioritized actions that emphasize relative cost-effectiveness.	☒	☒	☐	☒	☒	☒	☐	☒
Reviewed and commented on draft Plan.	☒	☒	☐	☒	☒	☒	☐	☒
Hosted opportunities for public involvement (allowed time for public comment at a minimum of 2 city council meetings after giving a status report on the progress of the Plan update)	☒	☒	☐	☒	☒	☒	☐	☒

III. PLANNING PROCESS

CHANGES/REVISIONS TO PLANNING PROCESS:

- The section was updated to reflect the new participants.
- Record of Review documents was updated.
- Table for a List of Representatives Involved in the Plan added to list representatives who were part of the plan for each jurisdiction.
- Plan Resources table added to list resources used in the plan and planning process.
- Day County Mitigation Meetings table added to list meetings where the plan was discussed and open for public review and comment.
- Public Involvement was added to this part of the plan and information about the survey used to elicit public comment is listed here.
- The Record of Participation was added to this section to better illustrate the participants in the planning process.
- Public Involvement was added to this section to illustrate the public's involvement in the planning process.
- Table listing neighboring counties, who were contacted for plan input, added to this section.

DOCUMENTATION OF THE PLANNING PROCESS

Requirement 201.6(c)(1) … *Does the plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction."*

A1-a*. The plan must describe the current planning process.*

A1-b*. The plan must list the representatives from each of the participants in the current plan that will seek approval and how they participated in the planning process.*

Planning for the 2025 Natural Hazard Mitigation Plan Update began at the Day County Commission Meeting at the Day County Courthouse January 18, 2024. At that meeting, discussions were held to approve the grant funding of the Plan and for NECOG to write the Natural Hazard Mitigation Plan. Public planning meetings began February 6, 2025, at the Day County Courthouse. Invitations to attend the planning meetings were sent to neighboring counties' emergency managers for input in the planning process. Public notices were placed on the Emergency Manager's Day County webpage and the *Reporter and Farmer*. A steering committee was formed from those who attended the public meetings. A copy of the minutes and discussions is included in the plan as Appendix B. A list of times and dates of the meetings are below:

February 6, 2025, 10 p.m. at the Day County Courthouse
April 3, 2024, 1 p.m. at the Day County Courthouse
May 6, 2024, 11 a.m. at the Day County Courthouse

Public planning meetings were at the Day County Courthouse. Commission and City Council meetings of participating jurisdictions were used to inform the public about the Natural Hazard Mitigation Plan update. Representatives from participating jurisdictions worked through the 2020 Plan, noting deficiencies, corrections, and updates that needed to be made. Additional information was added to ensure that the requirements were met. Council and commissioner members made up most of the participants. Webster

Chamber of Commerce was represented by Keley Kading, who also represented Day County as the Auditor. County Commissioner Derek Sinner is a Webster Chamber Member, County Commissioner and Webster City Council member. The updates were completed through three work meetings with the planning committee. These meetings were advertised at each jurisdiction's public meetings and in the *Reporter and Farmer*. The date of the next meeting was set at the previous meeting. These methods of notifying the public were determined by the steering committee as the best way to create public awareness and involvement. The Day County Emergency Manager also attended multiple meetings and the participating jurisdictions to ensure input was elicited. Although unable to attend the mitigation meetings, discussions between Webster School Board Representative Nick Fosheim were had regarding the Webster Armory. Also unable to attend the meeting, representatives from Camp Ne-So-Dak were also had. The Sisseton Wahpeton Oyate tribe was included in the review of the plan and was emailed a copy for their comments.

The plan author participated and followed the guidelines set in the FEMA G318 training and the FEMA Multi-Hazard Mitigation Guidance and Planning Tool as a basis for the plan update. This training provided guides for the planning update and meetings. Parts of the 2020 plan that did not meet FEMA's new guidelines were eliminated or adjusted to meet the new requirements. New updated requirements were included in the new plan update. Participating jurisdictions were given a copy of the mitigation strategy and were instructed to review all goals and projects to determine if changes were needed. Plan representatives were asked to discuss the mitigation strategy at council or commission meetings to determine if projects should be left in the plan, removed or were complete. Plan participants were also asked if recent developments created or changed risks. The meeting minutes and agendas for each of the meetings were published in the local newspaper or paper of record.

SELECTION OF THE STEERING COMMITTEE [§201.6(c)(1)]

The Day County Emergency Manager and Northeast Council of Governments led the Natural Hazard Mitigation Plan update. Local jurisdictions were represented by mayors, commissioners, city council members and/or finance officers who attended the meetings. County department heads also participated. The committee members took the information from the work sessions back to their jurisdiction and discussed the progress of the plan at their council meetings. There were no external contributors such as contractors or private businesses.

Representatives from local jurisdictions such as commission and council members and/or finance officers who attended were instrumental in the planning process by providing additional information when needed. Attendees reviewed the drafts and provided comments after the Northeast Council of Governments initiated changes to the 2020 plan. Each participating local jurisdiction had a member of their council represent the municipalities' interest in the plan.

The representatives were asked to share the plan progress at their council meetings. This encouraged participation and input on the plan from each council and allowed comments and participation in the process of updating the plan. The municipalities put the plan update on the agenda. Comments provided by residents at the city council meetings were collected and incorporated into the plan. Table 3.1 lists the representative and the jurisdictions that were involved in the planning process.

Table 3.1 Day County Natural Hazard Mitigation Planning Committee	
Day County	**Bryan Anderson, Emergency Manger Derek Sinner, Day County Commission, Webster City Council Kelsey Kading, Day County Auditor Travis Larson, Day County Highway**
Webster	**Mike Grosek, Mayor Hayley Dale, Finance Officer**
Bristol	**Brandon Bible Daryll Peckham**
Waubay	**Barry Hillestad, Mayor**
Reporter and Farmer	**Amanda Dulitz**
**** Did not participate in the plan**	

Table 3.2 is a list of officials who, as of the writing of this plan, were members on the boards and commissions for the Day County jurisdictions of the plan. They provided input at public meetings for the plan.

Table 3.2: List of Representatives Involved in the Plan	
Day County Commission	
Derek Sinner	Chairman
Daniel Kjos	Vice Chairman
Sara McGregor-Okroi	Commissioner
Blake Torrence	Commissioner
Roy Aldrich	Commissioner
Webster City Council	
Mike Grosek	Mayor
Dale Miller	President
Toni Brown	Council Member
Wayne Klungseth	Council Member
Derek Sinner	Council Member
Stacy Mount	Council Member
Brian Vogl	Council Member
Andover	
Grant Meyer	President
Shayne Schmieg	Trustee
Charlene Voss	Trustee
Bristol	
Chris Farrell	President
Kris Hubsch	Trustee
Lynn Johnson	Trustee
Grenville	
Leon Herrick	President
Kellen Lesnar	Trustee
Michael Gonzales	Trustee
Pierpont	

Deric Ries	President
Audrey Johnson	Trustee
Steve Cameron	Trustee
Roslyn	
Tom Lee	President
Spencer Huggett	Trustee
Paul Schmidt	Trustee
Waubay	
Barry Hillestad	Mayor
Cody Rerick	Council Member
Charlotte Andres	Council Member
Brienne Soldier	Council Member
Mark Birney	Council Member
Doug Herold	Council Member
***Commissioners, council members, and other elected officials and non-elected officials of cities, towns and counties change often. These names are the most recent office/position holders.	

TECHNICAL REVIEW OF EXISTING DOCUMENTS

Requirement 201.6(b)(3)) … *Does the plan describe the review and incorporation of existing plans, studies, reports and technical information?*

> ***A4-a****. The plan must document what existing plans, studies, reports, and technical information were reviewed and how they were incorporated, if appropriate, in the development/update of the plan.*

The review and incorporation of existing plans, studies, reports, and technical information was completed. Each community was asked to provide a list of documents. Many of the smaller communities do not have such documents. The 2020 Mitigation Plan was a resource for the 2025 Mitigation plan. The plan author reviewed several documents which are listed in Table 3.3. Not all resources were used, but all were reviewed. Each community was contacted to determine if changes were needed.

Table 3.3: Record of Review (Summary): Local Jurisdiction										
Program / Policy / Technical Documents	**Day Co.**	**Webster**	**Andover**	**Bristol**	**Butler**	**Grenville**	**Pierpont**	**Roslyn**	**Waubay**	**Notes**
Comprehensive Plan	✓	✓	NP	NP	NP	NP	NP	NP	NP	
Capital Improvements Plan	NP	NP	NP	NP	NP	NP	NP	NP	NP	Day County and Webster have used the mitigation plan for their CIP and to plan for the budget. Other jurisdictions are covered under the County's plan.
Flood Damage Prevention Ordinance	✓	✓	C	C	C	C	C	C	C	Updated as of 3/13/24
Floodplain Management Plan	✓	✓	C	C	C	C	C	C	C	Updated as of 3/13/24
Flood Insurance Studies/Hydrology Studies	✓	✓	C	C	C	C	C	C	C	Currently working with USACE to create a detailed study of the Waubay Chain Lakes.
Transportation Plan	NP	NP	NP	NP	NP	NP	NP	NP	NP	
Emergency Operations Plan	✓	C	C	C	C	C	C	C	C	All jurisdictions are covered under the county.
Zoning Ordinance	✓	✓	✓	C	C	✓	✓	✓	✓	Zoning ordinances are updated to the new FEMA flood map requirements from 2024.
Building Code	✓	✓	C	✓	C	C	✓	✓	✓	
Drainage Ordinance	NP	NP	NP	NP	NP	NP	NP	NP	NP	
Critical Facilities maps	✓	C	C	C	C	C	C	C	C	
Existing Land Use maps	✓	✓	C	C	C	C	C	C	C	
Elevation Certificates	✓	✓	C	C	C	C	C	C	✓	
State Hazard Mitigation Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	All jurisdictions covered under the state plan.
HAZMAT	✓	C	C	C	C	C	C	C	C	All jurisdictions covered under the county plan.
Bridge Plan	✓	C	C	C	C	C	C	C	C	
Community Operations Plan	✓	C	C	C	C	C	C	C	C	
HAZUS	NA	NA	NP	NP	NP	NP	NP	NP	NP	

NA	the plan does not apply to the jurisdiction
NP	the jurisdiction does not have this program/policy/technical document
O	the jurisdiction has the program/policy/technical document, but did not review/incorporate it in the mitigation plan
C	the jurisdiction is regulated under the County's policy/program/technical document
✓	the jurisdiction reviewed the program/policy/technical document

Table 3.4: Additional Plan Resources	
Plan Name	**Location of Use in Plan**
South Dakota Hazard Mitigation Plan	Hazard Profile
***Day County Hazard Mitigation Plan* (2020)**	Used throughout the 2025 Mitigation Plan
***Five-year County Highway & Bridge Improvement Plan* (2018-2022)**	Day County's Profile and Day County Projects
Day County Zoning	Hazard Profile
Day County Ordinances	Hazard Profile
Webster Comprehensive Plan*	
Day County Flood Prevention Ordinance	Hazard Profile
Webster Flood Prevention Ordinance	Hazard Profile
Day County Flood Maps	Hazard Profile
Flood Damage Prevention Ordinance and Management Plan – Day County and Webster	Hazard Profile
Flood Insurance Studies	Hazard Profile
Day County Emergency Operations Plan	Hazard Profile
NOAA Storm Events Database	Hazard Profile
Fifth National Climate Assessment	Hazard Profile
NIDIS (Drought.gov)	Hazard Profile
U.S. Air Quality Index (Airnow.gov)	Hazard Profile
***E.P.A.** (epa.gov/enviroatlas)*	Hazard Profile
***USA Today** (usatoday.com/storytelling/news/investigation/rainfall-lookup/)*	Hazard Profile
CDC (CDC.gov)	Unique and Varied Risk
National Climate Assessment	Hazard Profile
National Risk Index	Unique and Varied Risk
Climate Explorer	Hazard Profile
National Levee Database	Hazard Profile
Risk Factor (riskfactor.com)	Hazard Profile
Census Data (Census.gov)	County Profile, Hazard Profile, Development and Vulnerability
Reporter and Farmer	Day County Profile
ClimRR	Hazard Profile
FEMA.gov	Used throughout the plan as a resource
Resilience Analysis and Planning Tool	Hazard Profile
Google	Used throughout the plan as a resource
Climate Viewer Maps	Hazard Profile
NPMS Public Viewer Day County Pipelines	Used throughout the plan as a resource
SD Lakes	Hazard Profile
State of South Dakota Mitigations Project Map	Hazard Profile
USAFacts.com	Day County Profile
*Plans that were reviewed but not incorporated into the plan are marked with an Asterix.	

The resources listed in Table 3.4 were resources used by the plan author for information in the plan in addition to the technical documents. These resources include plans from other jurisdictions as well as websites with information about the hazards and regulations in Day County.

REVIEW OF THE 2020 PLAN

The planning team reviewed and analyzed each section of the plan, and each section was revised as needed as part of the update process. The plan author also used the

Local Multi-hazard Mitigation Planning Guidance (dated April 2019) and the Local Mitigation Plan Review Tool to update the plan.

While the entire plan was evaluated infomaton was updated. Participants were asked to focus on the mitigation strategy and risk assessment. A review of the plan occurred during three two-hour work sessions and at City Council and Commission meetings held at the several locations and times on the following dates listed in Table 3.5.

Table 3.5: Day County Mitigation Meetings

Date	Location	Meeting Type	Advertisement	Stakeholders Represented
11/9/22	Webster	County Commission	Agenda	County, public
1/18/23	Webster	County Commission	Agenda	County, public
2/6/23	Pierpont	City Council	Agenda	City, public
2/6/23	Andover	City Council	Agenda	City, public
2/6/23	Roslyn	City Council	Agenda	City, public
2/6/23	Waubay	City Council	Agenda	City, public
2/6/23	Webster	City Council	Agenda	City, Public
1/18/24	Webster	County Commission	Agenda	County, public
2/5/24	Webster	City Council	Agenda	City, public
2/5/24	Waubay	City Council	Agenda	City, public
2/4/25	Webster	Planning	Newspaper, Agenda	City, County, Public
3/6/25	Webster	Planning	Newspaper, agenda	City, County, public, non-profit
5/7/25	Webster	Planning	Newspaper, agenda	City, County, public, non-profit
4/7/25	Webster	City Council	Agenda	City, County, public
3/3/25	Webster	City Council	Agenda	City, county, public
4/7/25	Webster	City Council	Agenda	City, public
5/7/25	Webster	Planning	Agenda, Newspaper	City, County, Public, non-profit, news

Agendas are required to be posted 24 hours in advance of a meeting at the principal office of the jurisdiction and on the jurisdiction's website. The agenda must be visible, readable and accessible.

Sign in sheets and meeting notes are attached as Appendix B to the plan for reference.

Communities in Day County have experienced flooding through the close-basin aspect of the area. Water flows gradually into the area and only leaves through evaporation or slowly flowing southward. The accumulation of water has repeatedly required elevation and removal of homes and structures. Floodplains are maintained by each jurisdiction. An elevation certificate from an engineer is required to ensure the structure is built with one foot of freeboard above the Base Flood elevation.

Day County implements substantial improvement/substantial provision damages of their floodplain management provisions through the Emergency Manger. When the County Commission or City Councils state an emergency declaration, the Emergency Manger

works with department and city heads to get an assessment of the damage for public facilities and reaches out to the state to include in a statewide disaster declaration. For example: if the damage is to the roads, he works with the Highway Department to determine the potential costs of the damage. For individuals who live in Day County, he works with their insurance companies to determine an assessment of the damage. The Emergency manger documents the damage through the PDA process and begins sending it to the state if there is an emergency declaration.

Waubay has their own ordinance and is responsible for their determinations, however, like the rest of the communities, they work with the Emergency Manger and the County to assess the damage and determine the next step of the processes. Waubay regulates building in the floodplain by not allowing anything to be built in a SFHA unless it meets the criteria of being 1,810.9 feet above BFE.

Table 3.6: Capability Assessment

	Day County	Webster	Bristol	Grenville	Waubay
Mitigation Capabilities - Administrative					
Building Official	Yes	Yes	Yes	Yes	Yes
Building Codes	Yes – Flood and Building Codes IBC 2024	Yes – Flood and Building Codes ICB 2024	Yes – Flood and Building Codes ICB 2024	Yes – Flood and Building Codes ICB 2024	Yes – Flood and Building Codes ICB 2024
Civil Engineer	Yes	Yes	County	County	County
Community Planner*	No	Yes	County	County	County
Floodplain Administrator	Yes	Yes	County	County	County
GIS Coordinator*	Yes	County	County	County	County
Emergency Manager	Yes	County	County	County	County
Planning Commission	Zoning Board	Yes	County	County	County
Membership with NECOG	Yes	Yes	County	County	County
Mitigation Capabilities – Technical					
Grant Writing*	NECOG	NECOG	NECOG	NECOG	NECOG
Hazard Vulnerability Analysis	No	No	No	No	No
GIS Analysis*	No	No	No	No	No
Mutual Aid Agreements	No	Fire	Fire	Fire	Fire
Other Studies/Reports/Maps					
Flood Insurance Studies/Engineering Studies/H&H Studies	Yes	Yes	Yes	Yes	Yes
Critical Facilities Map	Yes	Yes	County	County	County
Existing Land Use Maps	Yes	Yes	County	County	County
Dam Inspection Report	Yes	No	No	No	No
Funding Resources					
Capital Improvement Project Funding	No	No	No	No	No
Community	Yes	Yes	Yes	Yes	Yes

Development Block Grant					
Water Fees	No	Yes	Yes	Yes	Yes
Sewer Fees	No	Yes	Yes	Yes	Yes
Electricity Fees	No	Yes	Yes	Yes	Yes
Stormwater Utility Fee	No	No	No	No	No
Federal (non-FEMA) Funding	Yes	Yes	Yes	Yes	Yes
State Funding Programs	Yes	Yes	Yes	Yes	Yes
Education and Outreach					
Community Newsletter	No	No	No	No	No
Local Newspaper	Yes	Yes	Yes	Yes	Yes
Website	Yes	Yes	Yes	Yes	Yes
Social media	Yes	Yes	Yes	Yes	Yes
Text Alerts	Yes	Yes	County	County	County
Hazard Awareness Campaigns	Yes	Yes	County	County	County
Org. Rep. to Interact with Vulnerable Pop.	No	Yes	No	No	No

PUBLIC INVOLVEMENT [§201.6(b)(1)]

Requirement 201.6(b)1)) … *Does the plan document how the public was involved in the planning process during the drafting state and prior to plan approval?*

> ***A3-a.*** *The plan must document how the public had an opportunity to be involved in the current planning process, and what that participation entailed, including how underserved communities and vulnerable populations within the planning area were provided an opportunity to be involved.*

The public was provided several opportunities at Commission and Council meetings to comment on the plan during the drafting stage of the plan update. State law requires that public meetings allow for public comment during the meetings as described in SDCL 1-25-1.

> …The public body shall reserve at every regularly scheduled official meeting a period for public comment, limited at the public body's discretion, but not so limited as to provide for no public comment. At a minimum, public comment shall be allowed at regularly scheduled official meetings which are designated as regular meetings by statute, rule, or ordinance.

It was during this legally required comment period that the public could provide comments. Mitigation Planning was listed on the required notices for the City Council and County Commission meetings. Notices for public meetings require a minimum of time, date, and location, and were posted in accordance with SDCL 1-25.1.1:

> 1-25-1.1. …Each political subdivision shall provide public notice, with proposed agenda, which is visible, readable, and accessible for at least an entire, continuous twenty-four hours immediately preceding any official meeting, by posting a copy of the notice, visible to the public, at the principal office of the political subdivision holding the meeting. The proposed agenda shall include the date, time, and location

of the meeting. The notice shall also be posted on the political subdivision's website upon dissemination of the notice if a website exists. For any special or rescheduled meeting, the information in the notice shall be delivered in person, by mail, by email, or by telephone, to members of the local news media who have requested notice. For any special or rescheduled meeting, each political subdivision shall also comply with the public notice provisions of this section for a regular meeting to the extent that circumstances permit.

There were several work sessions and public hearings to involve the public, however, no one from the public commented on the plan or helped with the update. The public was notified through the local newspaper, social media, and the county website that the plan draft was being placed online for review and comment. Even though no one from the public showed up to comment on the plan update, discussion occurred among the council members, engineers, finance officers, city engineers and/or attorneys (when relevant), and staff. This was documented in the meeting minutes and published in the paper or record as required by law. The plan was made available to county and city officials for comments and updates. Comments were also made from the public through the survey conducted by the County. The survey and list of comments is in Appendix E. The Planning Committee approved the use of a survey to elicit public comments. The survey, available online and on paper.

SURVEY

A public survey was conducted during the plan update. Surveys were distributed through the Emergency Management Facebook page and communicated at meetings and to make the survey accessible and equitable, a QR code was provided in the *Reporter and Farmer*. Of the 21 respondents, 10 live in Bristol, 6 in Webster, 5 in rural Day County. Results are listed under each hazard in the Hazard Profile.

NEIGHBORING JURISDICTION PARTICIPATION [201.6(b)(2)]

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

> ***A2-a****. The plan must provide documentation of an opportunity for stakeholders to be involved in the current planning process.*

Before the first planning meeting, an email was sent to neighboring emergency managers in the counties of: Clark, Brown, Marshall, Roberts, Grant, Codington, and Spink. After the plan was drafted it was posted on the Day County Website, City of Webster website, and emailed to all participants and to the emergency managers in the neighboring counties of Clark, Brown, Marshall, Roberts, Grant, Codington, and Spink. All recipients listed in Table 3.6 received a copy of the plan draft and were allowed 32 days to comment on the draft.

Table 3.7: Neighboring Emergency Managers			
Neighboring County	**Emergency Manager**	**Response Received**	**Comments**
Clark	Davis Lewis	No	None
Brown	Scott Meints	No	None
Marshall	Logan Roehr	No	None
Roberts	Zach Serocki	No	None
Grant	Kevin Schuelke	No	None
Codington	Andrew Delgado	No	None
Spink	Andrew Rindelaub	No	None
Sisseton Wahpeton Oyate	Curtis Bissonette	No	None

IV. RISK ASSESSMENT

CHANGES/REVISIONS TO RISK ASSESSMENT:

- All figures in this section were updated, as necessary.
- Removed redundant language in the hazard profile section and removed hazards listed that had no occurrences in the hazard area.
- Added Dense Smoke as a hazard due to increasing smoke advisories in the area.
- Condensed hazard descriptions into each hazard section.
- Added a table of Presidential Disaster Listings.
- Added Overview County Flood and NFIP Repetitive loss properties table under flood.
- Added information on mitigation projects completed in Day County.
- Added subsidence as a risk to the county due to multiple jurisdiction concerns.
- NFIP requirements were added to this section.
- Probability of Future Occurrence discusses the impact of climate change on the county.
- Added Hazard Vulnerability to Critical Structures table.

IDENTIFYING HAZARDS

A summary of natural hazard occurrences in Day County since 2013 is in Appendix D. Although there are many websites for hazard data, the primary sources were: the National Oceanic Atmospheric Administration (NOAA), the National Weather Service in Aberdeen, South Dakota State Fire Marshall's office, National Inventory of Dams, FEMA, and the United States Drought Monitor. Additional resources were provided from the newspapers *The Reporter and Farmer* and *The Aberdeen American News and* are listed in Table 3.4 in the planning process section. These sources accumulate information over time, yet there are instances where the data is incomplete. The plan writer extrapolated based on the reputable available data and planning committee input.

Although the accumulation of occurrences is broad, a complete list does not exist due to the remoteness of the area. For example: one can assume that although there was hail in Day County, there would be damage, even if it was just minor insurance claims. NOAA does not always account for this damage. Also, there are other organizations that are more detailed for certain hazards. The National Drought Monitor gathers facts about drought. This specificity allows more detail with the data.

One example where official information is not complete is fire occurrences. The NOAA website listed zero wildfire occurrences in the last 10 years. The State Fire Marshal, Doug Hinkle, was contacted to verify that information. He explained that the state's information is more accurate and is obtained from reports submitted by the local fire departments who respond to the events. Sometimes, fire departments do not file reports with the state. Although the information provided by the State Fire Marshal's office is not entirely complete either, it is more accurate than NOAA's data and was used in the plan.

Other examples of difficulty obtaining accurate information about Day County hazards through NOAA were drought, lightning, and extreme temperatures. Although these are common in Day County, there was little to no data about these events and damages. One thing to note: in South Dakota, the weather is generally accepted as constantly changing. One statement common to the area is: "if you don't like the weather, wait five minutes." This idea illustrates the resilience of residents and the acceptance of rapidly changing and unpredictable weather conditions.

HAZARD PROFILE – IDENTIFYING HAZARDS

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

> ***B1-a****. The plan must include a description of all natural hazards that can affect the jurisdiction(s) in the planning area and their assets, such as dams, located outside the planning area.*

The geographic location of each natural hazard is addressed in the update. Most hazards are widespread and can occur anywhere in the County. The history of hazard occurrences is in Appendix D. Table 4.1 identifies the Latitude and Longitude of the jurisdictions, population, elevation, and number occupied homes according to the 2019 US Census. To illustrate the growth in Day County and the increased risk, occupied housing units and the difference over the last 10 years are included.

Table 4.1: Day County Municipalities Overview

Name *(Cities and Towns)*	Pop. - *2010 Census*	Pop. - *2020 Census*	Diff. in Pop.	Location	Elev.	Housing Units in Hazard Area (2010)	Housing Units in Hazard Area (2020)	Diff - Housing Units (2010 to 2020)
Webster	1,886	1,728	-8.38%	45°20′1″N 97°31′10″W	1,857 ft.	937	1,057	12.81%
Andover	91	66	-27.47%	45°24′38″N 97°54′13″W	1,480 ft.	55	72	30.91%
Bristol	341	288	-15.54%	45°20′43″N 97°45′3″W	1,791 ft.	164	182	10.98%
Butler	17	4	-76.47%	45°15′29″N 97°42′49″W	1,827 ft.	12	11	-8.33%
Grenville	54	48	-11.11%	45°27′59″N 97°23′24″W	1,864 ft.	44	61	38.64%
Pierpont	135	129	-4.44%	45°29′41″N 97°49′54″W	1,506 ft.	94	98	4.26%
Roslyn	183	181	-1.09%	45°29′47″N 97°29′27″W	1,864 ft.	105	103	0.95%
Waubay	576	473	-17.88%	45°19′59″N 97°18′15″W	1,818 ft.	446	371	-17.37%
Day County	5,710	5,449	-4.57%	45°25'0.29"N 97°42'8.53"W		3,640	3,808	4.62%
Total	8,993	8,366	-6.97%			5,500	5,766	4.84%

Table 4.1: Data from US Census Bureau Decennial Census 2020 and Google Earth

The scope of the hazards, information on previous occurrences, and the probability of future events for each hazard is in Table 4.2 and the data is in Appendix D. While the planning committee reviewed all hazard events from the last 100 years, the list of some hazards was extremely long. The information provided is not a complete list of events but an overview of the last ten years and is summarized here. New occurrences that happened since the previous plan were added. As climate change continues to impact the area with more and increasingly severe trends, recording weather events becomes more important to mitigation. The complete 10-year history can be found in Appendix D.

Hazard probabilities are based on events that occurred in the last 10 years. The hazard rating of dam failure is low meaning there is a low hazard to downstream areas if the dam breaches. All three dams have a hazard rating of low.

Table 4.2: Probability of Events Occurring in Day County				
Event	**Probability**	**# of Events**	**# of Years**	**Source**
Dam Failure as rated by the National Inventory of Dams	Low	None	10 Years	National Inventory of Dams
Wildfire	100%	206 Calls	10 Years	SD State Fire Marshall
Drought	30%	3 Events/7 months	10 Years	NOAA
Flood	20%	2 Events/5 months	10 Years	NOAA
Flash Floods	20%	2 Events	10 Years	NOAA
Total flood events	40%	4 Events/5 months	10 Years	NOAA
Hail	90%	47 Events/28 Days	10 Years	NOAA
High Winds	70%	21 Events	10 Years	NOAA
Thunderstorm Winds	100%	71 Events	10 Years	NOAA
Funnel Cloud/Tornado	80%	12 Events	10 Years	NOAA
Extreme Temperatures – Cold/Heat	100%	29 Events	10 Years	NOAA
Winter Weather/Blizzards/ Ice Storms/Winter Storms	100%	68 Events	10 Years	NOAA

Table 4.2 data from NOAA, SD State Fire Marshall, NID detailed in Appendix D.

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

SUMMARY OF VULNERABILITY

Table 4.3 is a list of natural hazards produced from the FEMA worksheets completed by each local jurisdiction located in Day County. Representatives from each community completed the worksheet for their location. Representatives of Day County completed the worksheet for county-wide risks. The risk assessment worksheets were used to complete the Natural Hazard Mitigation Plan. These worksheets performed the basis for the projects listed in the mitigation portion of the plan and are in Appendix C. Table 4.3 lists the natural hazards of concern in Day County.

Table 4.3: Natural Hazards Categorized by Likelihood of Occurrence		
High Probability	**Low Probability**	**Unlikely to Occur**
Extreme Cold	Drought	Dam Failure
Extreme Heat	Flash Flood	Earthquake
Freezing Rain/Sleet/Ice	Flood	Ice Jam
Hail	Rapid Snow Melt	Landslide
Heavy Rain	Tornado	Subsidence
Heavy Snow	Urban Fire	Wildfire
Lightning		
Strong Winds	*****Earthquakes are marked with an asterisk because they occur but are so small that the effects are minimal. Mitigation measures specifically for earthquakes are not a priority.**	
Thunderstorm		
Utility Disruption		

Every possible hazard was evaluated and identified depending on the likelihood of occurrence in each jurisdiction. Hazards that happen at least once a year were in the High Probability column; hazards that had occurred and could occur in the future but not yearly were placed in the low probability column; and hazards that have never occurred before and are unlikely to happen were placed in the Unlikely to Occur column.

Only the High Probability and Low Probability hazards will be evaluated further in the plan. Hazards were identified in several ways including: observing development patterns, interviews from towns and townships, public meetings, Natural Hazard Mitigation Plan work sessions, previous disaster declarations, consulting the South Dakota State Hazard Mitigation Plan and research of the history of hazard occurrences in Day County. Public input on natural hazards was conducted through a survey. A report on the responses to the survey is included in Appendix E. Vulnerability to hazards were assessed in a similar way and the responses are listed in Table 4.4.

For simplicity of the mitigation plan, hazards were grouped based on their likelihood of occurrence at the same time. Wildfire is combined with urban fire. Freezing Rain is combined with sleet, snow, and heavy snow. Heavy Rain is combined with lightning, funnel clouds, tornadoes and thunderstorms. Flooding is combined with flash floods.

Due to the natural landscape, similarities, and the widespread nature of these hazards most parts of Day County have the same hazard profile and probability of hazard occurrence. Each jurisdiction has their own vulnerabilities to natural hazard occurrences due to their resources and rural nature.

Table 4.4: Hazard Vulnerability Assessment									
Natural Hazards Identified	**Day Co.**	**Webster**	**Andover**	**Bristol**	**Butler**	**Grenville**	**Pierpont**	**Roslyn**	**Waubay**
Dam Failure	L	NA		NA		NA			NA
Drought	H	H		L		L			L
Earthquakes	NA	NA		NA		NA			NA
Extreme Cold	H	L		M		H			H
Extreme Heat	H	L		M		H			M
Flash Flood	M	M		L		NA			NA
Flood	H	M		L		L			H
Freezing Rain/Sleet	H	M		M		H			H
Hail	H	M		M		H			M
Heavy Rain	H	H		L		H			M
Heavy Snow	H	H		L		H			M
Ice Jam	M	NA		NA		NA			NA
Landslides	L	NA		NA		NA			NA
Lightning	H	L		M		H			M
Rapid Snow Melt	H	L		L		L			M
Strong Winds	H	M		M		H			H
Subsidence	NA	L		L		NA			NA
Thunderstorms	H	M		M		H			M
Tornadoes	H	M		L		L			H
Urban Fire	M	M		NA		L			H
Utility Disruption	H	M		L		H			M
Wildfire	H	M		NA		NA			M
NA:	Not applicable; not a hazard to the jurisdiction								
L:	Low risk; little damage potential (minor damage to less than 5% of the jurisdiction)								
M:	Medium risk; moderate damage potential (causing partial damage to 5-10% of the jurisdiction and irregular occurrence)								
H:	High risk; significant risk/major damage potential (for example, destructive, damage to more than 10% of the jurisdiction and regular occurrence)								

DAY COUNTY PRESIDENTIAL DISASTERS

Requirement 201.6(c)(2)(i)) … *Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include infomaton on the previous occurrences of hazard events and on the probably of future hazard events?*

> ***B1-d.*** *The plan must include information on previous hazard events for each hazard that affects the planning area.*

Day County has been included in twenty-three Presidential Disaster Declarations. Twenty included flooding. Ten of the flood disasters were based on summer storms and seven were on winter storms. Only one was due to drought. Most types of weather events such as extreme cold and heat, freezing rain/sleet, hail, heavy rain and snow, lightning, strong winds, and thunderstorms are county-wide and impact large areas of the population.

The widespread nature of the presidential disasters shows the entire county is vulnerable. Flooding impacts residents by flooding homes and roads and covering fields, making it difficult if not impossible to plant or harvest crops and feed livestock. Roads covered in water are a concern due to the inaccessibility of some areas of the county for residents and emergency services. Winter and summer storms can damage homes and crops. Extreme heat or cold can put residents in danger if they do not have ways to cool or heat themselves. It also impacts crops and livestock by freezing or overheating and damaging crops and the feed for livestock. Hail and winds damage buildings and crops along with potentially hurting residents and livestock.

Day County's economy is heavily dependent on agriculture and each of these events has had a severe impact on the residents and economy. Table 4.5 lists the Presidential Disasters that have affected Day County since 1969.

Table 4.5: Day County Presidential Disaster Declarations 1969 - 2020			
Disaster	**Incident Period**	**Declaration Date**	**Reason**
EM-3015-SD	June 17, 1976	June 17, 1976	Drought
DR-764-SD	May 22,1986 to May 10, 1986	May 3, 1986	Severe Storms, Flooding
DR-999-SD	May 6, 1993, to September 10, 1993	July 19, 1993	Flooding, Severe Storms
DR-1031-SD	March 1, 1994, to July 29, 1994	June 21, 1994	Severe Storm, Flooding
DR-1052-SD	March 1, 1995, to June 20, 1995	May 26, 1995	Severe Storms and Flooding
DR-1156-SD	January 3, 1997, to January 31, 1997	January 10, 1997	Severe Winter Storms/Blizzards
DR-1173-SD	February 3, 1997, to May 24, 1997	April 7, 1997	Severe Storms and Flooding
DR-1218-SD	April 25, 1998, to June 22, 1998	June 1, 1998	Flooding, Severe Storms and Tornadoes
DR-1375-SD	March 1, 2001, to April 30, 2001	May 17, 2001	Winter Storms and Flooding
DR-1620-SD	November 27, 2005, to November 29, 2005	December 20, 2005	Severe Winter Storm
DR-1702-SD	May 4, 2007, to June 8, 2007	May 22, 2007	Severe Storms, Tornadoes and Flooding
DR-1844-SD	March 11, 2009, to July 6, 2009	June 16, 2009	Severe Storms and Flooding
DR-1887-SD	January 20, 2010, to January 26, 2010	March 10, 2010	Severe Winter Storm
DR-1915-SD	March 10, 2010, to June 20, 2010	May 13, 2010	Flooding
DR-1984-SD	March 11, 2011, to July 22, 2011	May 13, 2011	Flooding
DR-4298-SD	December 24, 2016, to December 26, 2016	February 1, 2017	Severe Winter Storm
DR-4440-SD	March 13, 2019, to April 26, 2019	June 7, 2019	Severe Winter Storms and Flooding
DR-4469-SD	September 9, 2019 – September 26, 2019	November 18, 2019	Severe Storms, Tornadoes, and Flooding
EM-3475-SD	January 20, 2020, to ongoing	March 13, 2020	Covid 19-Pandemic
DR-4527-SD	January 20, 2020, to ongoing	April 5, 2020	Covid-19 Pandemic
DR-4656-SD	May 12, 2022	June 29, 2022	Severe Storm, Straight-line Winds, Tornadoes, and Flooding
DR-4689-SD	December 12, 2022, to December 25, 2022	February 27, 2023	Severe Winter Storms and Snowstorms
DR-4718-SD	April 9, 2023-May 5, 2023	July 6, 2023	Flooding

Table 4.5: data from FEMA Disaster Declarations Database

In response to these disaster declarations, Day County, and jurisdictions within the county, have implemented mitigation projects. They received funding through FEMA for one backup generator, acquisition of ten homes in flood zones, six relocations of flooding homes in flood zones, twenty-eight powerline burial projects, one stormwater management project, four road raises due to flooding, a saferoom and a hydrology study. Figure 4.1 is a map of Day County and the locations of mitigation projects. Of these projects, forty have been completed and closed, five are approved to move forward, five are pending and five are withdrawn.

Through these mitigation projects, Day County and the participating jurisdictions have reduced their vulnerability to their populations. Additional project work will further decrease the risk and vulnerability to natural hazards.

Table 4.6: Day County Mitigation Projects	
Electric Line Burial	28
Backup Generators	1
Stormwater Improvements	1
Structure Acquisitions	10
Structure Relocations	6
Saferoom	1
Road Raises	4
Hydrology Study	1

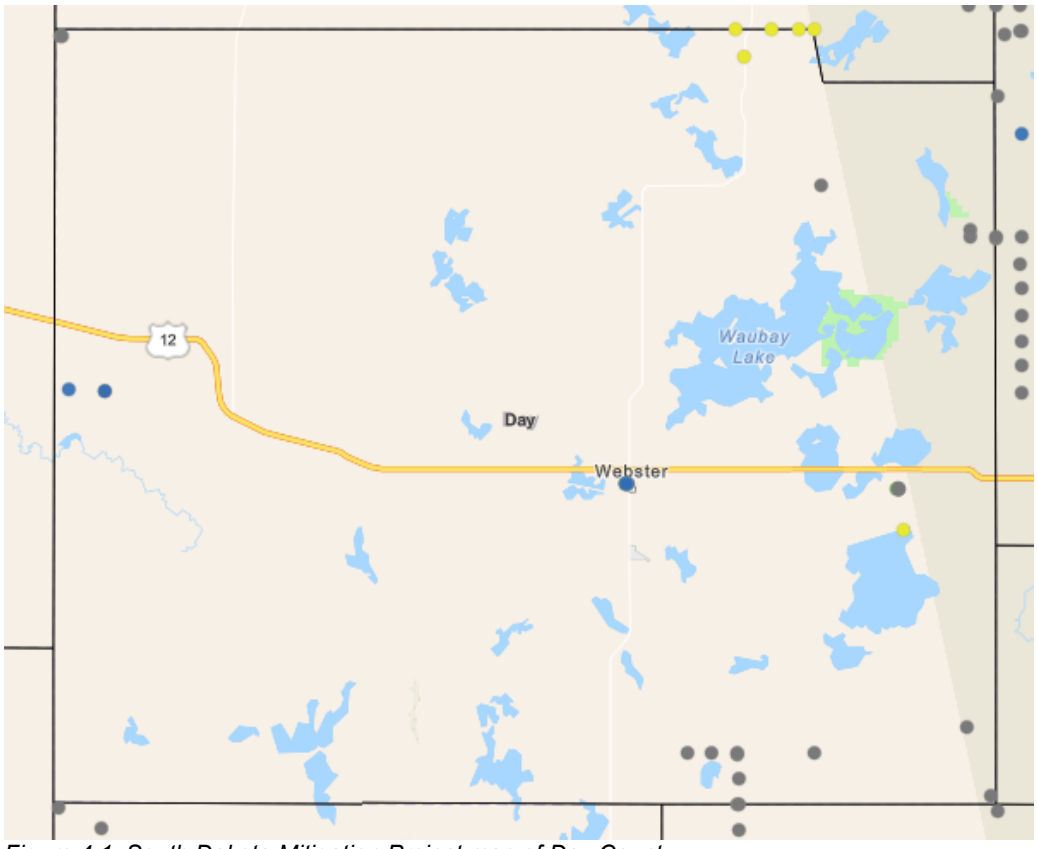


Figure 4.1: South Dakota Mitigation Project map of Day County

ASSESSING VULNERABILITY: OVERVIEW OF HAZARD PROFILE

Requirement 201.6(c)(2)(ii): *Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include infomaton on previous occurrences of hazard events and on the probability of future hazard events?*

- ***B1-b***. *The plan must include information on the location for each identified hazard.*
- ***B1-c***. *The plan must provide the extent of the hazard that can affect the planning area.*
- ***B1-d***. *The plan must include information on previous hazard events for each hazard that affects the planning area.*
- ***B1-e***. *The plan must include the probability of future events for the identified hazards that can affect the planning area.*
- ***B1-f***. *For multi-jurisdictional plans, when hazard risks differ across the planning area and between participating jurisdictions, the plan must specify the unique and varied risk information for each applicable jurisdiction and their assets outside of the planning area.*

HAZARD PROFILE

DAM FAILURE

Table 4.7: Dam Failure	
Dam failure causes a sudden and rapid release of water from the dam. Damage that can occur would depend on the amount of water released and the downstream residents or structures. Dam failures can also cause the loss of water stored for reservoirs and power.	
Dam Failure	• Caused by high water flows or structural failure. • It can cause considerable damage depending on the vulnerable structures and residents downstream from the event.
Dam Breach	• An overflowing of the dam
Condition Assessment Definitions	• Satisfactory: No existing or potential deficiencies are recognized • Fair: No existing dam safety deficiencies are recognized for normal loading conditions. Rare or extreme hydraulic and/or seismic events may result in a dam safety deficiency • Poor: A dam safety deficiency is recognized for loading conditions which may realistically occur. Remedial action is necessary • Unsatisfactory: A dam safety deficiency is recognized that requires immediate or emergency remedial action • Not Rated: This dam has not been inspected or has been inspected but not rated
Hazard Potential Definitions	• High Hazard dams: failure or mis-operation will probably cause loss of human life. • Significant Hazard dams: failure or mis-operation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities or other impacts. • Low Hazard dams: failure will not result in loss of life and minimal damage to property or the economy.
Day County Dams	• Amsden and Pierpont (Public) and Tvinnereim Trust (private)

Table 4.6: Dam Failure Description 2020 Day County Natural Hazard Mitigation Plan

Dam breach or failure is a concern for the citizens of Day County. Dam failure is usually associated with intense rainfall or prolonged flood conditions but can occur anytime. Dam failure can be caused by many types and combinations of conditions. Some reasons may be age, faulty design, construction and operational inadequacies, intentional breaches, or a flood event larger than the design can handle. The greatest threat from dam failure is to people and structures immediately below the dam since flood discharges decrease as the wave moves downstream. This is the dams "down hazard level." Dams with a high hazard level can cause a high level of destruction downstream compared with low hazard dams. Day County has three dams listed in the National Inventory of Dams. All are earth and low hazard dams. Figure 4.2 illustrates the location of dams in Day County. Table 4.7 lists each dam and its location.

Dam failure can be caused by extreme rainfall, rapid snow melting, and dam degradation. The most severe threats are to people and buildings in the path of the waterflow after a breach. Cropland in the path of the water can also be impacted.

Table 4.8: Dam Locations in Day County

ID	Name	Owner	Location - Lat/Long	Year Built	Type/ Hazard	Insp Date:	Height (ft)	Max Storage (acre-feet)
SD00012	Pierpont	S&PL	45.459303 -97.836809	1937	Earth/Low	11/22/22	24 ft	1200
SD00326	Amsden	GF&P	45.353128 -97.976635	1937	Earth/Low	11/05/19	35 ft	4815
SD02654	Tvinnereim Trust	Private	45.434779 -97.577649	2015	Earth/Low	None	8 ft	280

Table 4.7: Dam Locations in Day County data from National Inventory of Dams

Both Pierpont and Amsden dams were part of the WPA structures built in the 1930s. Pierpont is located on Mud Creek which feeds into the James River and is located two miles south of Pierpont. Amsden holds back Pickerel Creek and Mud Creek. Amsden was created out of an old gravel pit and due to a drop off near the edge and during a 4H outing at the dam, five people lost their lives due to drowning. If it were to breach, it would spill onto fields. Pierpont Dam has more significant dam failure impact than Amsden. In the event of a breach, water would flow towards Groton. It would impact fields, crops, and roads. The extent of damage depends on the size of the dam and circumstances of the failure. A large dam failure may cause considerable loss of property, destruction of cropland, roads, utilities and even loss of life. Similar consequences may occur in small dam failure including loss of irrigation water and extreme financial hardship to area farmers. All three dams have a low-down hazard vulnerability rating.

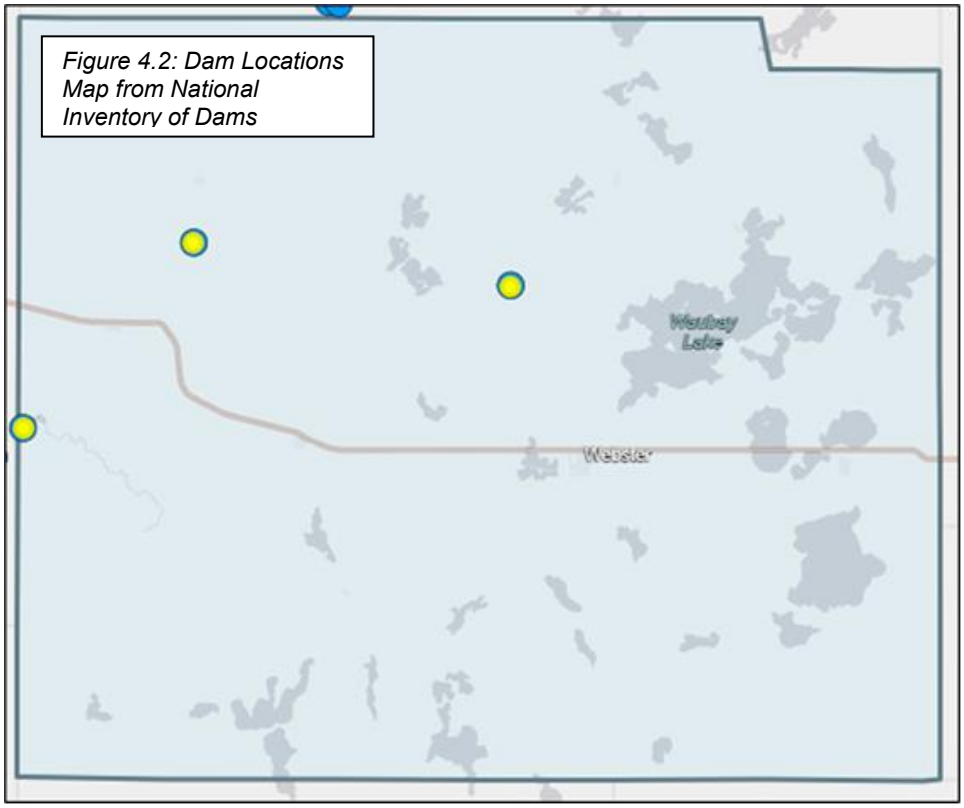


Figure 4.2: Dam Locations Map from National Inventory of Dams

DROUGHT

Table 4.9: Drought	
Decrease in precipitation which impacts streams, reservoir, lakes, and groundwater levels. Crops and vegetation are impacted. Even a small reduction in precipitation can impact crops and livestock. Due to the economic reliance on agriculture in Day County, droughts can have a serious economic impact. Drought generally occurs about every three years while significant drought occurs around every 50 years. Drought can also impact the power grid causing loss of power for residents due to overuse. As climate change increases temperatures drought impacts and severity are expected to increase.	
Drought	• Prolonged lack of moisture • Generally due to high temperatures and low relative humidity in the summer but can occur in the winter due to lack of snow.
Drought Category System: US Drought Monitor Measure of Drought Intensity	**Drought Category System** **D0 – Abnormally Dry** **D1 – Moderate Drought** **D2 – Severe Drought** **D3 – Extreme Drought** **D4 – Exceptional Drought**

Table 4.8: Drought and Wildfire descriptions from National Risk Index

Day County's climate is characterized by cold winters and hot summers. There is usually light moisture in the winter and marginal to adequate moisture for the growing crops in summer. Semi-arid conditions prevail in the western portion. The combination of hot summers and limited precipitation in a semi-arid climatic region places South Dakota in a potential position of a drought in any given year. The climate conditions are so arid that a small departure in the normal precipitation during the hot peak growing period of July

and August could produce a partial or total crop failure. Drought was ranked as four as a likelihood of occurrence in the survey. 26% said that they were negatively affected by drought in the last 10 years.

Table 4.10: NOAA Drought Event Statistics	
Number of Events in last 10 Years: Drought	3
Number of Years with events: Drought	3 Years
Possible number of days with events per year Drought	210 days with an event
Probability of future annual events: Drought	30% (3 annual events over 10 year)

Figure 4.7 illustrates the time periods of drought in Day County since January 4, 2000. A darker red color indicates higher levels of drought. Even moderate drought can magnify economic losses and impact statewide during drought conditions, especially prolonged drought. Roughly every 50 years a significant drought occurs, while less severe drought can happen every three years. The most common time of the year for drought tends to be July through October.

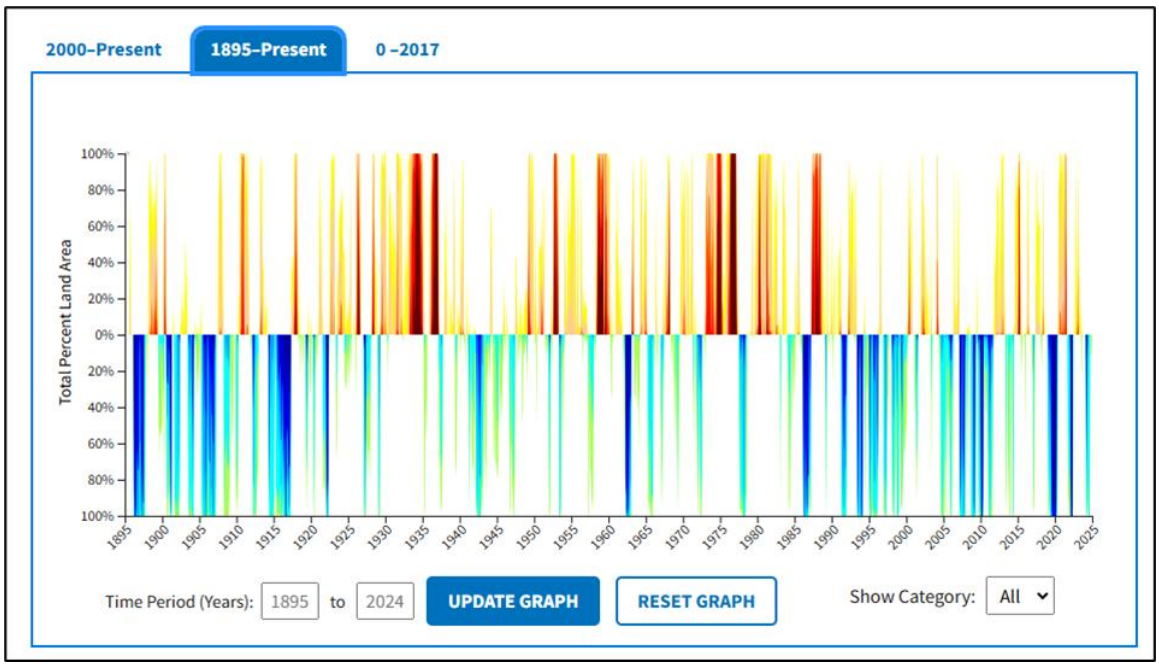


Figure 4.3: National Integrated Drought Information Conditions for Day County from drought.gov

The intensity can vary from Abnormally Dry to Moderate Drought. Table 4.10 shows drought conditions according to the National Drought Monitor from January 1, 2013, to December 26, 2023. High periods of drought can destroy crops and kill livestock increasing the financial impact on Day County.

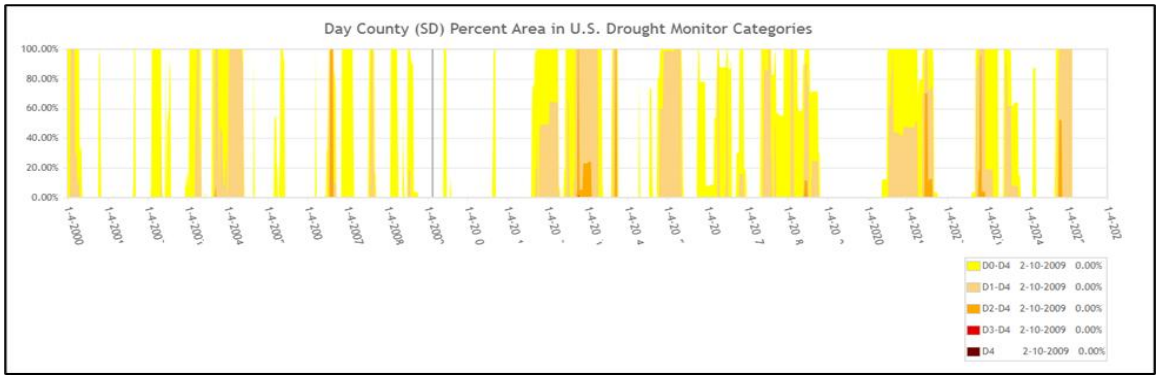


Figure 4.4: Day County Drought

Table 4.11: National Drought Monitor January 1, 2013, to December 26, 2023	
Months	**Condition**
January 1, 2015 – May 5, 2015	Moderate Drought
May 12, 2015 – April 5, 2016	Abnormally Dry
April 12, 2016 – August 16, 2016	Moderate Drought
August 16, 2016 – May 30, 2017	Abnormally Dry
June 6, 2017 – July 17, 2018	Moderate Drought
July 24, 2018 – July 14, 2020	Abnormally Dry
July 21, 2020 – October 25, 2022	Moderate Drought
November 1, 2022 – April 11, 2023	Moderate Drought
April 18, 2023 – October 31, 2023	Moderate Drought
November 7, 2023 – September 10, 2024	None
September 17, 2024 – December 31, 2024	Moderate Drought

Table 4.10: Drought History from January 1, 2013, to December 26, 2023, from National Drought Monitor

Table 4.12: Major historic drought occurrences	
2012-2013 (July 2012-April 2013)	Drought conditions continued over all southeast South Dakota at well below normal rainfall keeping soil and vegetation dry. Harvest of drought affected crops was done in October, but there was no estimate available on reduction of yields. Winter wheat was planted on time, but the lack of moisture slowed germination. Water restrictions were eased, with water use dropping off in the fall. Drought was generally listed as severe to extreme.
1987-1990	An abnormally low amount of precipitation in the summer of 1987 and a hot and dry summer in 1988, negatively impacted South Dakota's economy. Day County received disaster aid during this time. Agricultural income was down .8 percent and wheat price per bushel decreased significantly in 1988.
1930s	During the infamous dust bowl years, Day County was affected. Particularly dry summers were in 1934 and 1936.
1880s-1890s	The years 1887, 1894-1896, 1898-1901 were very dry.

Table 4.11: Major Historic Drought Occurrences 2020 Day County Natural Hazard Mitigation Plan

Drought can intensify and create a fast-moving dust storm when dry fields are combined with South Dakota's high winds. Such a windstorm happened in Day County on June 5, 2018, to June 30, 2018. There was a period of drought and due to the dryness, there were a few dust storms which damaged soybeans crops. Severe drought impacts fire too. Drought makes fires more common due to dry vegetation catching fire.

WILDFIRE

Table 4.13: Wildfire	
Wildfires are more likely to occur when there is drought due to the lack of moisture. They can cause extensive damage throughout the county depending on how fast or far they spread. Counties enact burn bans or controlled burn requirements to prevent human-caused fires, however, they can also be started by natural causes or inadvertently such as a spark from an engine or train. Wildfire can be greatly affected by South Dakota's winds.	
Wildfire	• Uncontrolled blazes that spread quickly • Ignition can be caused by natural or human-caused causes. • More likely to occur when there is drought or hot temperatures causing drier than normal vegetation. • Can change direction or jump barriers, especially under windy conditions.
NWCG Wildfire Size Class	• A: Greater than 0 but less than or equal to .25 acres • B: 0.26 to 9.99 acres • C: 10.0 to 99.9 acres • D: 100 to 299 acres • E: 300 to 999 acres • F: 1000 to 4999 acres • G: 5000 to 9999 acres

Table 4.12: Wildfire description from the 2020 Day County Natural Hazard Mitigation Plan

Something as simple as a tossed cigarette or sparks from a train can cause fires. Due to concerns with situations where there are high winds and relatively dry conditions, Day County's Ordinances empower Day County Commissioners to instate a burn ban. This restricts residents from open burning in the event of drought conditions. Wildfire was ranked as seven as a likelihood of occurrence in the survey.

Table 4.14: South Dakota Fire Marshall Office Wildfire Event Statistics	
Number of Events in the last 10 Years: Wildfire	206 fire calls
Number of Years with events: Wildfire	10 years
Possible number of days with events per year: Wildfire	20.6 days
Probability of future events: Wildfire	100% (10 years of events/10 years)

The commission updated their burn ban to a process that will allow landowners to burn while being conscientious of the season and hazards. The Day County Board of Commissioners makes a resolution to declare a "fire emergency" when conditions indicate a high risk of fire danger. Once the resolution has been declared, a permit is required to burn. Without a permit, open burning is prohibited. If a resident burns without a permit, they will be found guilty of "Unlawful Burning without a permit." There

are criminal and civil penalties for that action including a fine of up to $500.00 or thirty days in jail or both for each offense. Each day the action continues will be a separate offense. Civil action can also be taken because the open burning can be a public nuisance. Once the fire hazard passes, the commission can declare the fire danger emergency over and open burning may be performed without a permit.

The information in Table 4.15 was received from the State Fire Marshall, Doug Hinkle, from 2012 to 2022. There were 206 fires recorded in Day County. Of the fires, 47 were structure fires, 46 were vehicle fires, and 113 were other fires. The "other fires" category includes fires of natural vegetation, outside rubbish, special outside fires, cultivated vegetation and crop fires. There was one civilian injury and two civilian death that were fire related. Of the fire service volunteers, there were no fire-related injuries and no deaths. The total damage from fires was $1,990,208. It is unknown which fires resulted from human activity.

Table 4.15 Extent of Wildfire Classes and Occurrence in Day County between 2014-2023

Wildfire Class	Size	Number of Occurrences
Wildfire Class A	<1 acres	5
Wildfire Class B	1-9.9 acres	1
Wildfire Class C	10-99 acres	1
Wildfire Class D	100-299 acres	0
Wildfire Class E	300-999 acres	0
Wildfire Class F	1,000-4,999 acres	0
Wildfire Class G	5,000-9,999 acres	0
Wildfire Class H	10,000-49,999 acres	0
Wildfire Class I	50,000-99,999 acres	0

Table 4.16: Fire Summary by Incident Type: 2012-2022								
	Freq	% Of Total	No Aid	Aid Given	Aid Received	Other Aid Given	Exp	Total
Fires								
Structure Fires	47	10.61%	35	33	12	0	0	80
Vehicle Fires	46	10.38%	46	1	0	0	0	47
Other	113	25.51%	97	19	14	2	0	132
Total:	206	46.50%	178	53	26	2	0	259
Pressures, Ruptures, Explosion Overheat	0	0.00%	0	0	0	0	0	0
Rescue Calls								
Emerg. Med Treat	68	15.35%	59	3	2	7	0	71
All Other	16	3.61%	14	1	2	0	0	17
Total Calls	84	18.96%	73	4	4	7	0	88
Haz Cond. Calls	55	12.42%	53	3	0	2	0	58
Serv. Calls	10	2.26%	10	3	0	0	0	13
Good Intent Calls	40	9.03%	38	2	1	1	0	42
Severe Weather or National Disaster Calls	2	0.45%	2	0	0	0	0	2
Special Incidents Calls	3	0.68%	3	1	0	0	0	4
Unknown Incident Type	0	0.00%	0	0	0	0	0	0
Total False Calls	43	9.71%	43	0	0	0	0	43
Total Calls	443	100.00%	400	66	31	12	0	509

Casualty Summary	Civilian	Fire Service	
Fire Related Injury	1	0	Total Fire $ Loss
Non-Fire Related Injury	36	0	$1,990,208
Fire Related Deaths	2	0	Total $ Loss
Non-Fire Related Death	5	0	$2,043,208

Table 4.14: Fire Summary by Incident Type 2012 to 2022 Data from SD Fire Marshall's Office

HIGH/SEVERE WIND

Table 4.17: High and Severe Winds	
Winds are a constant part of life in South Dakota. High winds damage roofs, trees and if severe, residents, structures, signs, and automobiles. These winds occur throughout the county and can cause widespread damage and can be unpredictable in the area. Mitigation measures include insurance, warnings and saferooms to prevent injuries or even death of residents. When high winds are combined with cold, there is a wind chill. In South Dakota, because high winds are common, wind chills are common in the winter. Wind chill values can go as low as -50 to -60 degrees.	
Strong Winds	• Considered to be 40 miles per hour or more. • Make other natural hazards even more hazardous and destructive. • Causes snow drifting, extreme cold with wind chill, spreading wildfires faster, increases damage from thunderstorms, causes destruction of property, can injure residents through flying debris or causing structures or trees to fall, and power loss through downed power lines.

Table 4.17: High/Severe Wind description from the 2020 Day County Natural Hazard Mitigation Plan

Severe wind events are common. Several times a year Day County can expect fierce winds greater than 40 mph. Gusts of wind higher than 100 mph have been recorded. Wind can be damaging in multiple ways. It can create even lower cold temperatures and if high enough, can destroy buildings and crops. High winds can cause planes or helicopters to crash and when combined with other hazards such as fire, cold or snow can create even more destruction. High winds have caused deaths. Strong winds were ranked as first as a likelihood of occurrence in the survey. 58% said that they were negatively affected by drought in the last 10 years.

Table 4.18: NOAA High and Severe Wind Events	
Number of Events in the last 10 Years: High Winds	21 Events
Number of Years with events: High Winds	7 years with events
Possible number of days with events per year: High winds	3 days a year
Probability of future events: High Winds	70% probability (7 years with events/10 years)

High winds are hard to mitigate and are frequent in South Dakota. Windspeeds up to 46 miles per hour can break larger branches off trees. Winds between 47 to 45 miles per hour can damage roofs and other structures that are not secured to the ground. Trees can be uprooted with wind speeds from 55 to 63 miles per hour and any wind speed over 64 miles per hour can cause damage to buildings and potentially people. Mobile homes are very susceptible to high winds due to the lack of a foundation. Damaging winds are more prevalent and widespread than tornadoes. High winds tear branches off trees causing additional damage to homes, cars, and crops.

Table 4.19 Beaufort Wind Scale			
Force	**Speed (mph)**	**Description**	**Specifications (for use on land)**
0	0-1	Calm	Calm; smoke rises vertically
1	1-3	Light Air	Direction of wind shown by smoke drift, but not by wind vanes
2	4-7	Light Breeze	Wind felt on face; leaves rustle; ordinary vanes moved by wind
3	8-12	Gentle Breeze	Leaves and small twigs in constant motion; wind extends light flag
4	13-18	Moderate Breeze	Raises dust and loose paper; small branches are moved
5	19-24	Fresh Breeze	Small trees in leaf begin to sway; crested wavelets form on inland waters
6	25-31	Strong Breeze	Large branches in motion; whistling heard in telegraph wires; umbrellas used with difficulty
7	32-38	Near Gale	Whole trees in motion; inconvenience felt when walking against the wind
8	39-46	Gale	Breaks twigs off trees; generally impedes progress
9	47-54	Severe Gale	Slight structural damage occurs (chimneypots and slates removed)
10	55-63	Storm	Seldom experienced inland; trees uprooted; considerable structural damage occurs
11	64-72	Violent Storm	Very rarely experienced; accompanied by widespread damage
12	72-83	Hurricane	

One way that Day County and Webster mitigate wind events is with tie down ordinances for mobile homes to keep them secure. Day County and Webster ordinances state mobile homes are required to have two types of anchors: one anchor over the top of the home and the other anchor attached to the frame to keep the mobile home from being pushed off the piers.

A severe storm occurred April 23, 2022, and produced high winds, severe storms, a brief tornado and freezing rain. This storm produced hail up to two inches in diameter, 60 – 75 miles per hour winds and heavy rainfall. Winds were clocked at 69 miles per hour in Webster. When combined with ice, powerlines went down. Along with damage that occurred from the storm, the late spring storm delayed the planting process.

THUNDERSTORMS, HEAVY RAIN AND LIGHTNING

Table 4.20: Thunderstorms, Heavy Rain, and Lightning	
Thunderstorms can occur county-wide and cause significant damage to residents, structures, crops, and livestock. Thunderstorms generally include other hazards such as high winds, heavy rains, thunder, lightning, and hail. Mitigation includes warning systems, storm shelters, and insurance policies. Heavy rain can be county-wide and cause flooding of structures, roads and slowing emergency services response. Roads and bridges can be washed out making access difficult. Storm sewers may not be able to manage this heavy rain event and cause structures to be flooded, however, mitigation with storm sewers can reduce the flooding impacts. Lightning occurs with thunderstorms, which can be county-wide. Poles, towers, and lines are more vulnerable to being struck by lightning, potentially causing power loss or structure damages. Lightning can cause fires, especially when combined with a drought-affected area. Residents can be injured by being struck when unprotected outside.	
Thunderstorms	• Caused by rapid changes in temperature, air pressure, and air moisture. • Causes hail, lightning, thunder, high winds, and heavy rain. • Storm Prediction Center has a 5-point risk category • Level 1: lowest risk, isolated, short-lived storms and limited intensity • Level 2: has a higher intensity with potential for strong or damaging winds and a few tornadoes • Level 3: storm can be persistent and intense, with some tornadoes and wind damage • Levels 4 and 5 represent widespread and long-lived severe storms.
Heavy Rains	• Occurs when more than 3.30 inches (0.762 sm) per hours falls. • Intensity and duration play a factor. • Light rain: Less than .10 per hour • Moderate Rain: .10-.30 per hour • Heavy Rain: more than .3 inches per hour • Violent Rain: more than 2 inches per hour.
Lightning	• A buildup of electrical charge due to rapidly rising air and precipitation movement in thundercloud. • Can reach temperatures of up to 50,000 F in a split second. • Rapid heating, expansion, and cooling of air near lighting is what causes thunder. • Annualized Frequency can be calculated as the number of historical occurrences of natural hazards withing a certain period. *Annualized Frequency = Number of Recorded Events or Event Days/Period of Record*

Table 4.19: Tornadoes, Thunderstorms and Hail descriptions from the 2020 Day County Natural Hazard Mitigation Plan

The annual risk for intense summer storms is very high. All of Day County is susceptible to summer storms. Warning time is normally several hours, to relocate and evacuate if necessary. Tornadoes occur with little or no warning. Specific areas within the county have a high risk of being impacted if hit by a tornado or severe storms. Day County has

a high seasonal population, especially around lakes during the summer. Thunderstorm, Lightning, and Hail were ranked as third as a likelihood of occurrence in the survey. 47% said that they were negatively affected by thunderstorms in the last 10 years.

Table 4.21: NOAA Thunderstorm, Heavy Rain, and Lightning Events	
Number of Events in the last 10 Years: Thunderstorm Events	71 events
Number of Years with events: Thunderstorm Events	10 years with an event
Possible number of days with events per year: Thunderstorm Events	7 days
Probability of future events: Thunderstorm Events	100% (10 years with an event over 10 years)

Thunderstorms, tornados, and hail in the County are common and widespread. Appendix D shows the extent and severity. The County continues to educate residents about the dangers of such storms through public service announcements and other media along with drills at area schools.

Thunderstorm events have potential to damage crops, power lines, buildings, and personal property. Residents can use insurance to mitigate damage from storms and storm shelters to protect residents. Burying power lines reduced damage to those lines ensuring power for residents. Generators help with reducing the impact of power loss where lines have not been buried, and storm shelters protect residents if the storm becomes severe and produces tornadoes and high winds.

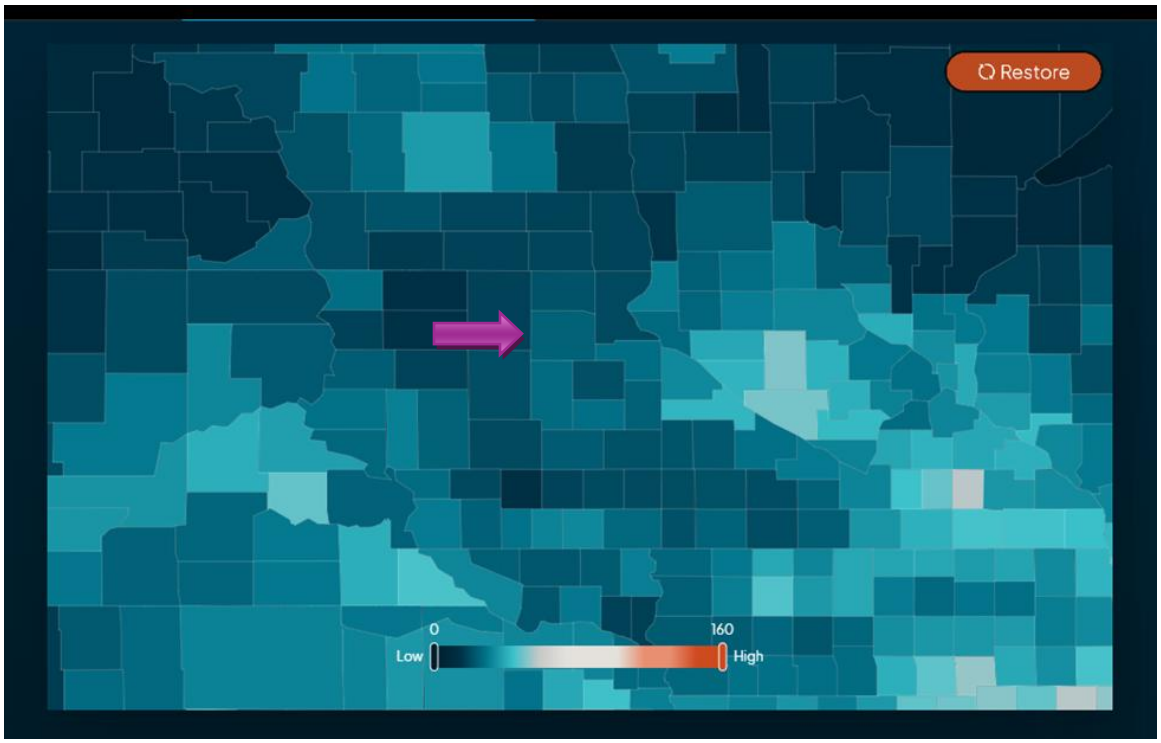


Figure 4.6: Lightning history from aem.eco

The severity of lightning can range from significant to insignificant depending on where it strikes and what is hit. Water towers, cell phone towers, power lines, trees, and

common structures have the possibility of being struck and damaged. People who leave shelter during thunderstorms to watch or follow lightning have the possibility of being struck. Day County has a lightning flash density of 25.02 and a flash count of 27,299.

Heavy rain from storms can lead to flooding. If a city has a storm sewer system, heavy rain can overload it causing flooding. Many cities in Day County do not have storm sewer systems and the heavy rain causes flooding through the towns and surrounding areas. Another factor in Day County is that the county is in a basin where the water from the county is collected in the chain lakes in the region. (Waubay, Blue Dog, Rush and Bitter Lakes.) These lakes do not drain water naturally out of the region. It collects in the county like a bathtub and will only leave through evaporation. There is no natural outlet to Bitter, which is the last of the chain lakes, so the water collects in the lake.

Table 4.22 Lightning Activity Level

Scale	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 five-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 five-minute period
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud to ground strikes in a five-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 five-minute period
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag warning

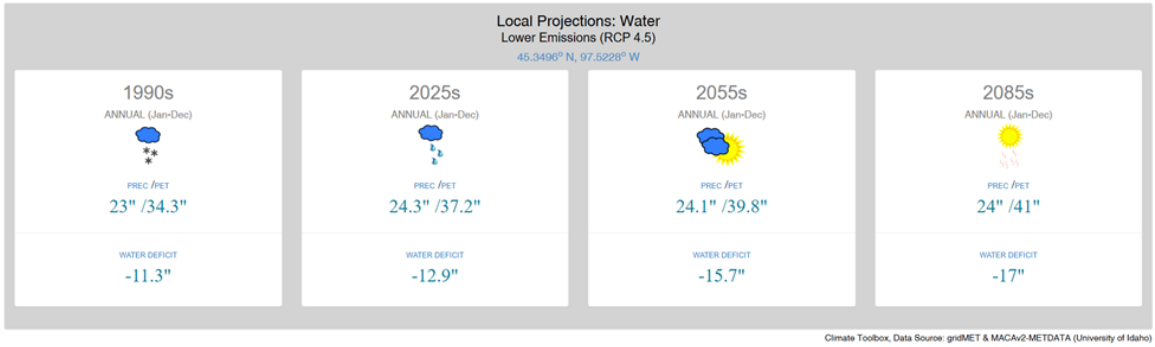


Figure 4.7: Precipitation projections into 2085 based on lower CO2 Emissions.

Figure 4.7 illustrates projected rainfall over the next 50 years. With lower emission projections, there is still a decrease in average annual rainfall in Day County. The increasing deficit will influence agriculture and tourism in Day County.

HAIL

Table 4.23: Hail	
Hail generally occurs when there are thunderstorms. This type of event is common and usually is county-wide. Hail can damage crops, livestock, structures, and cars. Residents are vulnerable to injury when caught outside in a hailstorm. Mitigation is difficult and insurance is usually the process to mitigate hail damages.	
Hail	• Water and ice balls. • Water droplets are pushed upwards by storm winds and fall as ice pellets. • Measure 5 to 150 millimeters in diameter on average. • More severe thunderstorms create larger hailstones.

Table 4.21: Hail Hazard description from the 2020 Day County Natural Hazard Mitigation Plan

Hail events are common in Day County, however, the information provided by NOAA was incomplete due to inconsistent reporting after events. A full list of occurrences reported in NOAA's Storm Events Database can be found in Appendix D. It is reasonable to expect that at least some property or crop damage was sustained though it may not have been reported, because it was believed to be insignificant, or because those responsible did not report it to the proper agencies. Although there were many storms listed in the database, no damage was recorded. Hopefully, collection of this data will advance to make it available for mitigation. Hail is common during spring, summer, and fall and causes widespread damage each year. Thunderstorm, Lightning, and Hail were ranked as third as a likelihood of occurrence in the survey. 47% said that they were negatively affected by thunderstorms in the last 10 years.

Table 4.24: NOAA Hail Events	
Number of Events in last 10 Years: Hail	47 Events
Number of Years with events: Hail	10 Years
Possible number of days with events per year: Hail	4.7 Days
Probability of future events: Hail	100%

The widespread damage hail creates can make it hard to mitigate. Hail as small as mothballs make holes in leaves, affecting crops. The average size in the last 10 years recorded by NOAA in Day County was 1.40 inches. A 1.23-inch hailstorm can punch through shingles on roofs, break window frames, severely damage crops, cars, and structures. The largest hail in the last ten years was two and a half inches and was recorded at Butler and Webster on August 28, 2021, the storm was a long-track super cell that produced severe weather and additional storms. Hail ranged from baseball to tennis-ball sized. The hail was so significant that it produced a hail scar that could be seen by satellite. This "scar" was about 6 miles wide in some areas. The storm caused significant crop damage, destruction of buildings, windows, and vehicles. Wildlife was also impacted because many deer and birds were killed.

The following table illustrates hail severity and the sizes and impacts that they cause. Once hail is around 1" the national weather service issues a severe thunderstorm warning. Large hail indicates strong winds that are a sign that there can be high winds and other elements making the storm more severe.

Table 4.25: Hail Severity		
Hail Diameter (inches)	**Description**	**Severity**
1/4”	Pea	**Not Severe** *limited damage, no severe thunderstorm warning from National Weather Service*
1/2”	Marble/Softball	
3/4”	Penny	
7/8”	Nickel	
1” Severe	Quarter	**Severe Hail** *The damage that occurs when hail is around 1” diameter or larger is more severe. This size of hail will cause the National Weather Service to issue a thunderstorm warning.*
1 1/4”	Half Dollar	
1 1/2”	Walnut/Ping Pong Ball	
1 3/4“	Golf Ball	
2”	Hen Egg/Lime	
2 1/2“	Tennis Ball	
2 3/4”	Baseball	
3”	Teacup/Large Apple	
4”	Softball	
4 1/4”	Grapefruit	

TORNADOES AND FUNNEL CLOUDS

Table 4.26: Tornadoes and Funnel Clouds

Tornadoes are produced by thunderstorms, generally beginning as a funnel cloud. Although a tornado is produced by a funnel cloud, a funnel cloud does not always produce a tornado. These can travel unpredictably throughout the storm area and occur with little to no warning. Mitigation includes warning systems, storm shelters, and insurance policies.

Tornadoes

- Violent windstorms may occur as many as one or multiple at a time.
- Occur most often in May, June, and July between 4 p.m. to 6 p.m.
- Occurs when cool air overrides warm air causing the warm air to rise rapidly.
- May not touch down on the ground.
- Enhanced Fujita Tornado Damage Scale based on windspeed:

EF-scale	Class	Wind speed mph	Wind speed km/h	Description
EF-0	weak	65-85	105-137	Gale
EF-1	weak	86-110	138-177	Moderate
EF-2	strong	111-135	178-217	Significant
EF-3	strong	136-165	218-266	Severe
EF-4	violent	166-200	267-322	Devastating
EF-5	violent	> 200	> 322	Incredible

Funnel Clouds

- May or may not produce a tornado.
- Indicates a high probability of tornadic activity of the storm.

Table 4.24: Tornado and Funnel Cloud Hazard description from the 2020 Day County Natural Hazard Mitigation Plan

The map in Figure 4.12 shows tornado history from 1955 to 2019 for South Dakota from South Dakota’s 2024 Hazard Mitigation Plan. Figure 4.12 shows tornadoes specific to Day County. Gathering historical data on tornadoes is difficult due to occurrences and

unconfirmed reports. Each year at least a few tornadoes affect the county. Tornadoes and funnel clouds were ranked fifth as a likelihood of occurrence in the survey. 5% said that they were negatively affected by tornadoes in the last 10 years.

Figure 4.7: Map of Tornado Paths in Day County from the 2024 South Dakota Hazard Mitigation Plan

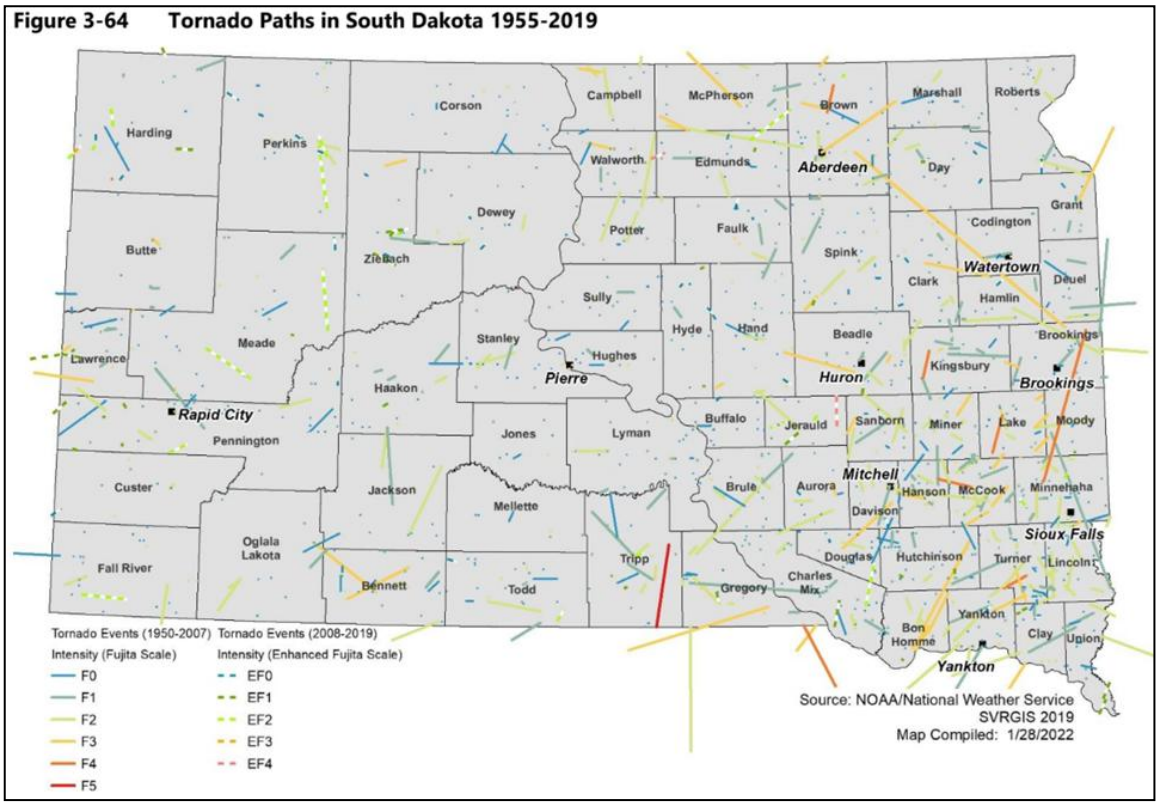


Figure 4.8: Map of Tornado paths in South Dakota from South Dakota's 2024 Hazard Mitigation Plan

Tornadoes may occur with little or no warning, are unpredictable, common, and widespread. The entire county is at risk if hit by a tornado or severe storms. In Day County, there is a high number of fishermen and wildlife enthusiasts who participate in the natural offerings of the county. These populations are at particularly high risk in the event of a severe storm. In remote locations with limited protection, they are more vulnerable. Appendix D shows the extent and severity. The County continues to educate residents about the dangers of such storms through public service announcements and other media along with drills at area schools. Safe rooms that are

easily accessible are options for these people. Waubay completed their saferoom project in 2025 for their residents but also the seasonal population.

Table 4.27: NOAA Tornado and Funnel Clouds Events	
Number of Events in the last 10 Years: Tornadoes and Funnel Clouds	12 Events
Number of Years with events: Tornadoes and Funnel Clouds	6 years
Possible number of days with events per year: Tornadoes and Funnel Clouds	1.2 days
Probability of future events: Tornadoes and Funnel Clouds	60% (6 years with events/10 years)

Table 4.27 shows Day County's statistics for tornadoes. South Dakota has had a tornado event that destroyed an entire town. Manchester, South Dakota was destroyed by an F4 tornado that occurred June 24, 2003. Although no one was killed, the town was never rebuilt. On May 30, 1998, Spencer South Dakota was hit by an F4 tornado. It destroyed 150 of the town's 170 structures and of 320 people, 150 were injured and six were killed. The high number of injuries and deaths was attributed to the lack of warning sirens. Due to a power outage, the sirens did not go off to warn residents of the tornado. This tornado was the second deadliest in South Dakota's history. The town was nearly destroyed by the events of that night. Webster was impacted by a tornado on May 12, 2022, a derecho developed and traveled into eastern and northeastern South Dakota. Winds measured up to 102 miles per hour and several tornadoes were produced, one of which was seven miles outside of Webster. An outbuilding was severely damaged, a calving shed was rolled, an animal trailer was tipped over and a metal windmill was knocked over and twisted.

EXTREME TEMPERATURES

Table 4.28: Extreme Heat and Cold	
Extreme heat and cold can be county-wide. High heat combined with high humidity can increase dangers when combined with other hazards such as drought and wildfires. Extreme cold is also even more dangerous when combined with the hazards of a winter storm. These hazards are difficult to mitigate for. Warnings, upgrades to the power grid, saferooms that provide a place to go power access and travel advisories can be used to mitigate the dangers.	
Extreme Cold	• Below 0 degrees F. • It can accompany winter storms, adding to the danger. • It causes danger to residents outside for too long and exposed to the cold. • It can affect transportation by making it difficult for equipment to start or keep starting and the power grid by over taxing the system.
Extreme Heat	• Heat is greater than 100 F and can be accompanied by high humidity. • It can increase drought, causing crop damage and danger to livestock. • It can cause danger to residents without the ability to cool and the power grid by overtaxing the system.
Wind Chill	• The combination of sub-zero temperatures and winds creates a temperature much colder than the air temperature alone. Wind chills can reach as low as between -50 to -60 degrees.

Table 4.26: Extreme Heat and Cold description from the 2020 Day County Natural Hazard Mitigation Plan

Extreme temperatures are common in Day County. At least once a year there is extreme heat and cold. Information from NOAA's website is in Appendix D. Residents adapted to the extreme temperatures and events are not reported as often as they occur. Arctic air comes from Canada and affects the region with colder than normal temperatures during the winter. Variations in weather patterns can push air from polar regions. The arctic air moves over Day County, causing significant drops in temperatures. Power outages occur by overloading power grids to maintain heat. Pipes and infrastructure can be affected. People who choose to venture out in extreme cold temperatures risk becoming stranded and freezing. Figure 4.15 is a wind chill chart that shows temperatures when wind and cold combine.

January 29, 2019: recorded a wind chill of -31 degrees Fahrenheit after a blizzard event. This cold causes schools and businesses to shut down due to dangers of people going outside. Wind chills in South Dakota make frigid winter temperatures much colder and dangerous. Exposed skin can quickly freeze, causing frostbite. Cars and equipment can be difficult to impossible to start, which leaves motorists stranded in the cold.

Table 4.29: NOAA Extreme Temperature Events	
Number of Events in the last 10 Years: Cold/Wind Chill	25 events
Number of Years with events: Cold	10 years
Possible number of days with events per year: Cold	25 days
Probability of future events: Cold	100% (10 years with an event/10 years)
Number of Events in the last 10 Years: Heat	4 events
Number of Years with events: Heat	3 years
Possible number of days with events per year: Heat	1
Probability of future events: Heat	10% (1 event annually /10 years)

High heat is also dangerous. Summer temperatures have reached 113 degrees Fahrenheit. Summer average temperatures have shifted higher due to climate change causing warmer temperatures. This increases the risk of drought and impacts residents who cannot find places to cool off and affects power by higher-than-normal use of air conditioners. When humidity and heat are both high, the body cannot cool itself. This causes overheating resulting in fatigue, dehydration, cramps, heat exhaustion, heat stroke and even death. Residents are more prepared for extreme temperature events, but livestock is vulnerable to high cold or heat, impacting the economy. Water supplies are vulnerable and rural water systems may not be sufficient to meet higher demands which impact residents. August 22, 2023, a heat dome resulted in temperatures over 100 degrees. Heat indexes were greater than 100 degrees for three days.

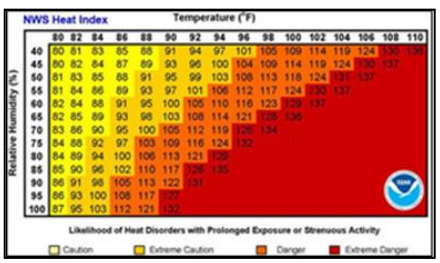


Figure 4.9: Heat Index Chart from NOAA

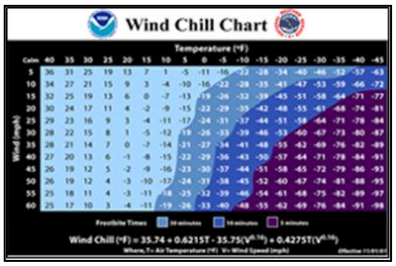


Figure 4.10: Wind Chill Chart from NOAA

WINTER STORMS, BLIZZARDS, SNOWSTORMS, FREEZING RAIN, ICE JAMS

Table 4.30: Winter Hazards	
All winter hazards have serious impacts countywide. Winter storms are common in the area occurring frequently beginning in October and ending as late as April. Hazards are reduction in visibility for transportation, slippery surfaces for traffic and residents, road closures, blowing and drifting snow, dangerously cold temperatures, reduction in response of emergency services, power loss, and livestock loss. Moisture accumulation causes the potential for spring flooding. As climate change occurs and global average temperatures increase, storms are predicted to be more severe.	
Blizzards	• It lasts three hours or more. • Winds greater than 35 miles per hour • Temperatures below 20 degrees F • White out conditions with visibility less than ¼ mile
Freezing Rain	• Temperatures below 30 degrees F combined with rain.
Ice Jams	• Warm temperatures and rain cause rapid snowmelt and rivers swell, breaking ice. Large chunks flow downstream and cause blockages of waterways.
Severe Winter Storms	• Snow accumulation of more than 4 inches during a 12-hour period.
Sleet	• A mix of rain and snow that covers surfaces and makes slippery to traverse.
Snow	• Precipitation that occurs below freezing temperatures. • Accumulates on every surface of the ground.
Snow Drifts	• Wind blows snow into large accumulations. It can be as high as 20-40 feet.

Table 4.30: Winter Hazards description from the 2020 Day County Natural Hazard Mitigation Plan

Winter storms and blizzards are common in Day County and are considered extreme in many parts of the country. Planning and response mechanisms for snow and ice storms are routine procedures. Response to snowstorms is managed through special emergency vehicles and snowmobiles when residents have an emergency, although response time is impacted depending on storm severity. Winter storms often cover large areas, and most occur countywide. Winter storms can leave large accumulations of snow and ice. This snowpack can cause ice jams in rivers and cause significant flooding events when combined with spring rain.

Table 4.31: NOAA Winter Events	
Number of Events in last 10 Years: Winter Hazards	68 Events
Number of Years with events: Winter Hazards	10
Possible number of days with events per year: Winter Hazards	6.8 Days with an Event
Probability of future events: Winter Hazards	100% (10 years of events/10 years)

Beginning in October 2022 and ending in April of 2023, Day County was repeatedly subjected to winter storms, blizzards, high winds, and ice storms. Those storms shut down transportation and impacted on the economy, later accumulating to spring flooding in 2023. A list of recorded winter storm occurrences is included in Appendix D. Severe Winter Weather was ranked third as a likelihood of occurrence in the survey. 42% said that they were negatively affected by tornadoes in the last 10 years.

Table 4.32 Regional Snowfall Index	
Category	**Description**
1	Notable
2	Significant
3	Major
4	Crippling
5	Extreme

Like many rural areas in the nation, Day County does have issues ensuring their emergency services are staffed. They are also having issues getting volunteers for their ambulance services. Currently, Day County works with a grant to cover the cost of the course for interested applicants. This class is two days a week and four hours a day for a semester (16 weeks.) There is a shift to making the class available virtually, except for the practical application classes, for potential EMTs to make it more accessible.

FLOOD

Table 4.33: Flood	
Flooding is an overflow of water that submerges land, causes property damage, and can harm residents caught in the water. Six inches of running water can sweep a vehicle off the road. Flooding disrupts electric services, destroys structures, and affects transportation. Emergency services can have challenges responding to residents needing help. Disruption of communication, transportation, electric service, and community services, along with contamination of water supplies and transportation accidents. Mitigation for flooding includes building codes, enforcing flood map requirements, flood insurance, travel advisories and warnings, sump pumps for homes and sandbagging to prevent water from reaching structures.	
Flooding	• Overflow of water that submerges land. • Residents and structures can be washed away. • It can develop quickly or over a longer time. • Caused by heavy rains, ice jams blocking waterways, and heavy snowmelt. • **Magnitude and Severity**: • *Damage to private property (financial hardship on residents)* • *Damage to public property and infrastructure increasing public expenditures and taxes* • *Loss of personal income in agricultural sectors* • *Businesses' losses on recreational sectors* • *Emotional distress on residents experiencing flooding* • *Injuries and death* • **Two types: inundation and flash**. • *Inundation Flooding: usually in the spring due to rapid snowmelt. The James River is a slow-moving river so when flooded, the water moves slowly out of the area.* • *Flash Flooding: usually in the summer, caused by heavy rainfall and is localized. It can overwhelm stormwater systems, culverts, and other systems to deal with water.*

Table 4.32: Flood Hazard description from the 2020 Day County Natural Hazard Mitigation Plan

Day County is unique regarding flooding. The Waubay Chain Lakes located in Day County is a closed basin lake system that accumulates water but there is no natural way

for it to flow out of the system. Flooding in Day County has been increasing to today's current water levels and has created many flooding events as farms and towns have been flooded. The following information was taken from the 2020 Day County disaster mitigation plan and includes details for major past flooding events dating back to 1986 when water levels began increasing.

- June and July 1995- Severe flooding occurred throughout the county. Roads were being continually raised due to annual flooding. In many cases township and county roads were being closed or abandoned.
- July 1996- Localized rain and runoff caused severe flooding throughout the county of the 4th consecutive year causing serious inundation issues on township and county roads. Township and county officials had to continually determine essential routes and closing non-essential routes.
- April and May 1997 – Due to very heavy snows of nearly 100 inches during the 96-97 winter and a late April storm, heavy flooding once again occurred throughout the county generally affecting most townships, county roads, and city streets. Several homes located in the proximity of Waubay Lake near the town of Grenville were abandoned. Damage to public infrastructure was severe.
- June and July 1998 - Once again heavy rains affected the entire county along with snowmelt caused serious inundation to roads that were repaired from 1993 to 1997. Governor Janklow utilized FEMA Public Infrastructure, Community Development Block Grant, and 404 Mitigation Funding to raise roads to elevations to ensure roads would remain out of water into the future. In 1999, this proved successful since no roads went under water despite spring flooding.
- March and April 2011 – A deep and extensive snowpack started melting across the area began to melt bringing many areas of flooding to Day County. Rising lake levels in northeast South Dakota also threatened and flooded many homes. Many lakes in the Waubay Chain lakes were at or near record levels.
- 2019 – Above average snowfall combined with spring snowstorms brought extensive flooding again to Day County. Roads and culverts were washed out or underwater. Lake levels in the Waubay Chain lakes were at or near record levels again.

Due to flooding during the 1990s, the area was mapped by FEMA for NFIP as an area of special concern and a new base flood elevation (BFE) of 1810 was established for new development. Updated maps from Day County have increased the Base Flood Elevation from the 1810 ft set in the 90s to 1810.7. At the time of the drafting of the 2006 Day County Plan, Bitter Lake had increased in size and was starting to encroach on the land area about one half a mile south of Waubay. At that time homes and infrastructure on the south side of the City of Waubay had not been inundated and some people felt like the 1810 BFE was too high. That was in 2007. Since then, several extremely wet years during 2009, 2010, and the worst in 2011, caused Bitter Lake to grow exponentially, and it was soon encroaching on the city limits of Waubay. Many homes became inundated, causing people to lose access to their homes and making the homes unlivable. Waubay has been part of the FEMA buy out process due to the flooding. The most notable lake shore flooding caused the expansion of Blue Dog, Bitter, Rush and Waubay lakes in 2011. Bitter Lake, for example, expanded an additional 3700

acres from its mid-1990s size. Extensive flooding has continued due to saturated land and continuous snow and rain. People in Day County talk about how they experience flooding by the inch, not the foot. The lake levels tend to rise a few inches at a time but haven't gone down. The closed basin area of Day County does not experience flooding that moves downstream.

Flooding hinders development in Day County. Land that can be built on is limited due to the groundwater levels and the lakes encroaching on land throughout the county. Load limits and reduced speed limits are placed on roads to prevent further degradation. Croplands are lost when there is flooding. Sometimes, flooding delays planting or harvesting, impacting the economy.

Flash flooding, where the water accumulates quickly, has occurred, and is often associated with massive rainfall and rapid snowmelt, but generally flooding in Day County is due to the lack of drainage and water accumulation. Culverts and bridges are used throughout the county to allow water to flow while maintaining roadways. However, in times of severe flooding, the impact is minimal. Levees are an option to control floodwaters but due to the widespread nature of the Waubay Chain Lakes, there are no levees in the county according to the National Levee Database.

High water tables impact Day County by causing residents to continually run sump pumps. If power is lost, many homes would be impacted because they are dependent upon those pumps to keep their home or building dry. Floodplain management is through the County for small jurisdictions. Many residents do not have the resources to administer floodplains on their own and reach out to the County's Planning and Zoning Department for assistance. When a resident requests to build in a floodplain, the Emergency Manger is the floodplain coordinator who requires a certificate to ensure the structure is above the base flood elevation and has the correct amount of freeboard. Although there are only two periods of flooding listed in the NOAA database, water levels for the Waubay Chin Lakes have been rising and falling causing home acquisitions and relocations by FEMA and loss of agricultural lands.

Table 4.34: NOAA Flood and Flash Flood Events	
Number of Events in the last 10 Years: Flood	2 Flood events over 156 days
Number of Years with Events: Flood	2
Possible number of days with events per year Flood	156 days – however, average water levels are higher than the 90s.
Probability of future events: Flood	100% - because the water has not gone back down
Number of Events in the last 10 Years: Flash Flood	0 years with flash flood.
Number of Years with Events: Flash Flood	0 years with Flash Flood
Possible number of days with events per year Flash Flood	0 days with events of flash flood
Probability of future events: Flash Flood	0 flash flood events over 10 years

Flood impacts residents financially, physically, and emotionally. Flooding can cause damage to property, lives, and public assets. Flooding affects the agricultural sector by decreasing access to land for crops, farm animals and for hunting. Floods also make it difficult to traverse the county on roads, creating higher response times for emergency

services. This higher response time puts residents' lives at risk. Flood risk varies throughout the county dependent on waterways, soil content, ground cover, and construction. Flooding and its impacts are dependent on previous rainfall, rate of precipitation accumulation, and the time of year. Flood was ranked sixth as a likelihood of occurrence in the survey. 16% said that they were negatively affected by tornadoes in the last 10 years.

FEMA created new flood maps for Day County. The map's appeal period was from January 11, 2024, to April 10, 2024. The James River Basin has been a focus area of study for FEMA due to the amount of flooding that occurs. The James River recently finished at a record flood stage of 518 days from April 2, 2019, to August 31, 2020. The fact that the James River is a slow-flowing river and spreads out substantially when in flood stage impacts large areas surrounding the river. As the river swells and spreads, it covers farmland, roads, and structures that are in the area. Drivers who chose to drive over these roads have had to request rescues due to losing control and sliding into ditches. The following map is a draft of the flood risk assessment for Day County. Figure 4.18 shows the areas of Day County susceptible to flooding. The areas in red are ones that had increased flood risk to the map while the areas in green had reduced risk when compared to the previous flood maps.

Figure 4.18 is Day County's 2D Enhanced Base Level Elevation mapping. The light blue zones are considered Zone A, and the red is Zone AE. This was taken from the Risk Mapping that FEMA is currently working on for the James River Valley and surrounding counties.

FEMA uses LiDAR (a high-resolution, very detailed topographical map of the earth) to get geographical information of the county. FEMA completed field studies of culverts, bridges, and dams to map how water will flow. They also used HEC-RAS 5.03 from the Hydrologic Engineering Center River Analysis System which allows the study of how water flows in the area. The mapping includes a study of the sediment that will flow with the water and temperature and water quality monitoring.

Following adoption of the newly updated flood maps, Day County will have six months to formally adopt the new rates and inform homeowners of the changes. The new flood maps have orange as a .2% flood hazard, a 1% chance of an average depth of less than one foot or with drainage areas of less than a square mile. Dark blue areas are zones AE with a base flood elevation or depth and light blue areas are special flood hazard areas. These areas have a much higher chance of flooding each year.

Day County's floodplain administrator is the Emergency Manager. All municipalities in Day County are under the County's jurisdiction except Webster and Waubay. Day County requires a survey of homes built in the floodplain to ensure that the home is compliant with the ordinance. Webster and Waubay have their own floodplain ordinances and map and enforces their floodplain ordinances. Their floodplain administrator is the City Finance Officer.

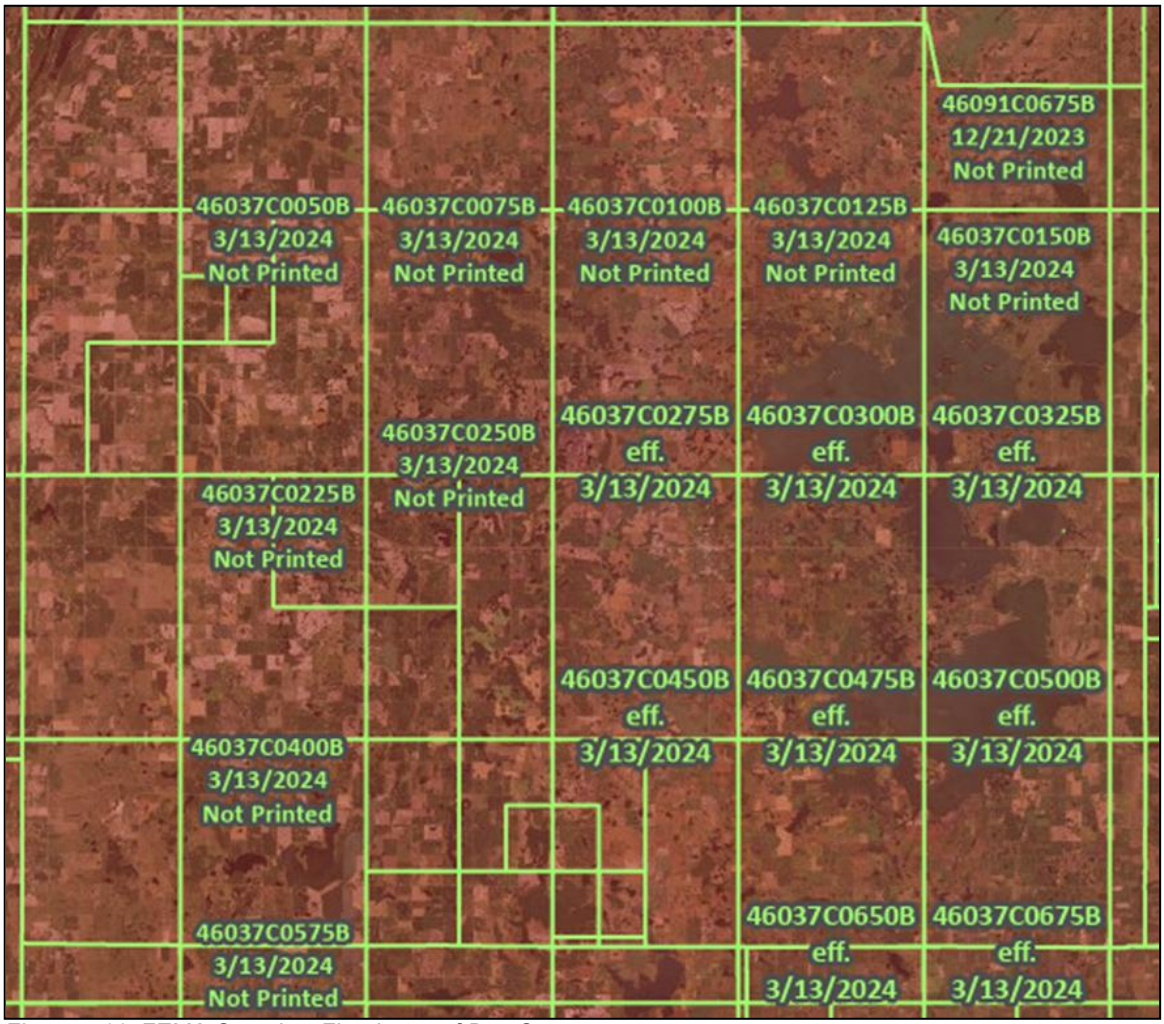


Figure 4.11: FEMA Overview Flood map of Day County

ADDITIONAL HAZARDS

Additional hazards that were in the previous plan: subsidence, earthquakes and landslides were removed due to lack of occurrences in the Day County area.

PROBABILITY OF FUTURE OCCURRANCE

All these hazards have occurred in Day Courtny and will occur in the future and all jurisdictions have the same probability of the hazards affecting each jurisdiction. These hazards significantly impact Day County's agriculture-based economy. According to the Fifth National Climate Assessment, the Northern Great Plans will become warmer, and generally wetter. Wetter winters and summers delay planting and harvest, drought reduces crop yields and affects livestock. Climate change will have a significant impact on Day County, increasing these events. Streamflow would increase, impacting the James River. Dams would be more vulnerable to breach because of the wetter land and higher single event amounts of rain projected. According to Larua Edwards, state of South Dakota Climatologist, rain events will be more significant and due to the longer timeframes of higher temperatures causing drought, the ground is less able to absorb the additional moisture. Weather related events would increase along with severity and duration. The damage from winter and summer storms would increase.

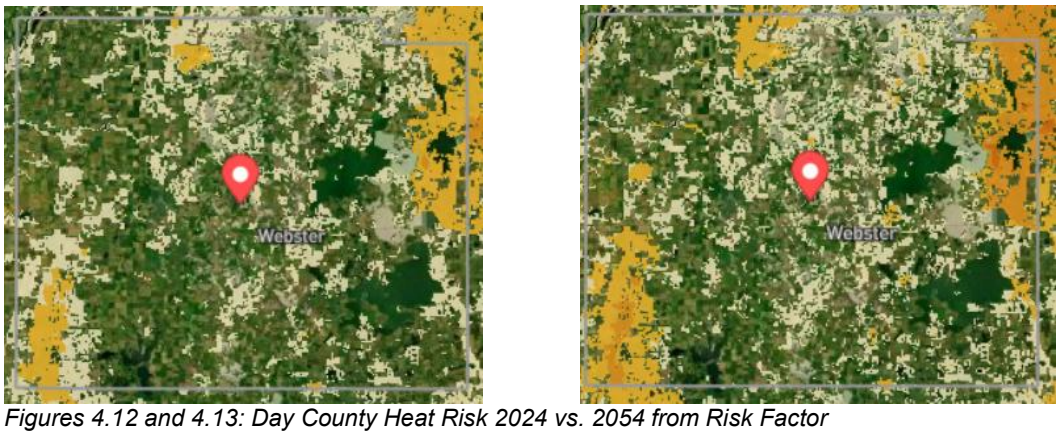
ClimRR is a resource for weather projections and their review of Day County. Mid-century temperatures will increase from 1.5-3 degrees F. By the end of the century, high temperatures are expected to increase 6-8 degrees from the historical average. The average low temperatures will also shift higher. Mid-century projections are that average temperatures will increase by 3-5 degrees and by the end of the century the increase is projected to be 8-12 degrees.

Temperature projections by ClimRR indicate average highs increasing by an average of 10 degrees Fahrenheit by the end of the century. Average lows trend higher also with an average increase of 10 degrees. These hotter temperatures increase the risk of drought, fire and dust storms.

Table 4.35: ClimRR Temperature Projections (Degrees Fahrenheit)

	Historical	Mid-Century (RCP 8.5)	End of Century (RCP 8.5)	Difference
Max Avg. Temp. Overall	53.24	56.07	62.44	9.20
Min Avg. Temp. Overall	35.76	40.08	46.76	11.00
Max Avg. Temp. Autumn	59.8	63.25	69.29	9.49
Min Avg. Temp. Autumn	41.39	46.3	52.02	10.63
Max Avg. Temp. Winter	26.61	31.11	36.91	10.30
Min Avg. Temp. Winter	12.34	19.19	25.87	13.53
Max Avg. Temp. Spring	53.47	57.11	61.29	7.82
Min Avg. Temp. Spring	37.37	41.11	45.71	8.34
Max Avg. Temp. Summer	79.57	84.38	90.4	10.83
Min Avg. Temp. Summer	58.14	63.03	69.33	11.19

The maps from Risk Factor in Figures 4.14 and 4.15 illustrate the number of days over 100 degrees Fahrenheit. According to Risk Factor, a sweltering day that "feels like" being over 100 degrees is expected to occur 7 times in 2024. In 30 years, or 2054, Day County will experience 13 days that fit those criteria, nearly doubling the number of days at that heat index. There have been more emergency calls to the Day County Dispatch office due to health issues caused by high heat on residents.



Figures 4.12 and 4.13: Day County Heat Risk 2024 vs. 2054 from Risk Factor

The figures from Risk Factor in Figures 4.16 and 4.17 illustrate the number of days over 100 degrees Fahrenheit. According to Risk Factor, a day that is over 100 degrees is expected to occur 7 times in 2024. In 30 years, or 2054, Day County will experience 27 days that fit those criteria, doubling the number of days at that heat index. The darker

red shows higher average temperatures. Figures 4.18 and 4.19 are from Risk Factor and are a projection of the illustration of the fire risk in Day County and how it will increase in the next 30 years. Areas that are darker orange show higher projected fire risk as compared with the sections in the green. More areas shift from green to light and darker orange from the year 2024 to 2054.

Dense smoke and dust storms will impact Day County more as more areas will be impacted by wildfire due to drought. Those wildfires will spread smoke throughout the continent. Higher temperatures will increase wind causing smoke to go farther.

According to ClimRR, annual precipitation during the fall, spring and summer will be affected by climate change. During the fall, spring and summer there will be an increase in maximum daily precipitation by the end of century. State climatologist Laura Edwards stated that rain events will be more extreme in amounts of precipitation.

Table 4.36: Average Maximum Daily Precipitation Climate Stats (inches)

Season	Historical average	Mid-Century	End of Century
Annual Total	22.27	26.14	28.73
Autumn	0.87	1.03	0.95
Spring	0.59	0.64	0.59
Summer	1.06	1.37	1.34
Winter	1.10	1.32	1.65

Table 4.36: Climate Stats based on calculations from ClimRR.

These projections show an increase in precipitation for Day County by the end of the century. Projections without measurable precipitation will be 15.94 days. This information indicates rain will be more severe and more precipitation. As climate change shifts weather patterns, the likelihood of more powerful storms and larger size hail also increases. Tornados will be more common due to the higher severity of storms.

ClimRR projections indicate a historical number of days annually without precipitation at 22.37 and a historical amount of precipitation of 21.38 inches annually. By the end of the century, the number of days without precipitation is projected to reduce to 14.92. Annual precipitation projections will go up to 27.38 inches annually. Although that will help to reduce drought, storms are projected to be higher in severity with heavier rains causing higher accumulations to address. Higher temperatures between rain events will make the ground less able to absorb moisture and reduce the chance of flooding.

More precipitation increases flood risk, especially around the James River where floods are prevalent and extensive. Due to the slow movement of the river, floods will be longer in duration. Winter weather will be impacted by the increase in ice storms. These storms will be less predictable and more intense. The warmer air will destabilize the jet stream making cold air from the polar vortex able to impact South Dakota.

Table 4.37: Heat Index Projections (Fahrenheit)			
	Historical	Mid Century	End of Century
Daily Max	79.27	84.61	91.23
Seasonal Max	101.64	119.95	126.44
Days with Max Heat over 95	5.70	13.56	30.26
Days with Max Heat over 105	0.40	3.89	10.05
Days with Max Heat 115	0.04	1.87	2.62
Days with Max Heat over 125	0.00	1.49	1.48

Table 4.37: Climate Stats based on calculations from ClimRR.

Table 4.37 shows heat index projections and the differences between the historical, mid-century and by the end of the century. Heat impacts all hazards, especially drought and severe summer storms.

Shifts in weather patterns due to climate changes are affecting early winter storms. The higher average temperatures are causing more ice storms, which would have been snowstorms. There are also later spring snows. Precipitation increases are projected for Day County through the end of century. As precipitation increases flood events, potential updates to Day County's flood maps should be reassessed due to the flooding situation, especially from the slow-moving James River, to keep developments from potential loss. New developments will be vulnerable to hazards that affect the rest of the county, such as heat, cold, drought, fire, winter and summer storms. Residents who live closer to populated areas will be less vulnerable in hazard situations than residents who live nearer to populated centers.

NATIONAL FLOOD INSURANCE PROGRAM PARTICIPATION

Requirement: 201.6(d)(3)(ii): *Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate?*

> ***C2-a.*** *The plan must describe participation in the NFIP for each participant, as applicable, in accordance with NFIP regulatory requirements.*

NFIP: [§201.6(c)(2)(ii)]

As an NFIP participant, Day County has flood insurance and benefits available in the event of a flood. The following list is of NFIP participating jurisdictions in Day County. Table 4.33 is an excerpt from the NFIP Participation Community Status book.

Community Rating System Program:

Day County is currently not part of the Community Rating System. The Floodplain Administrator is aware of the program but does not plan on participating at this time. This program allows for community mitigation actions to count towards lower flood insurance premiums for residents. The community receives a rating of nine through one which shows the level of premium discount that ranges from 5% to 45%. `Residents throughout the county participate in the NFIP.

Day County has completed many mitigation activities in recent years and is almost complete with relocation of a home. With FEMA funding, there were ten homes in the Waubay area that were acquired or relocated. The final relocation was completed April 2024. Other mitigation activities have included several road raises throughout the county – four road raises alone in the Fall of 2019 and more planned for 2020. Grade raises seem to be an ongoing project due to the high levels of water in the sloughs and

lakes in Day County. Day County has applied for funding for a study to raise County Road 1 near Bitter Lake. The rising waters are taking a toll on the road and a hydrology study is needed to determine how high to raise the road and a bridge on it.

The City of Waubay is building a storm shelter to protect its citizens from tornadoes and other high wind events. Funding for the storm shelter came from HMGP and the City of Waubay. The project was completed 2025

These are just a few examples of how having a qualified Flood Plain Administrator is a mitigation activity. Requiring that new construction meets the flood plain ordinance and having someone to enforce those requirements is essential to mitigation planning and helps reduce the risk of natural weather events becoming natural disasters.

Table 4.38: Federal Emergency Management Agency
Community Status Book Report
SOUTH DAKOTA
Communities Participating in the National Flood Program
Effective 1/9/2025

CID	Community Name	County	Init FHBM Id	Init FIRM Id	Curr Eff Map Date	Reg Emer-Date	Curr Class	% Disc SFHA
460101A	Bristol, City of	Day	06/03/1977	12/06/01	(NSFHA)	04/25/97		
460261A	Day County*	Day		12/06/01	03/13/24	06/08/98		
460226A	Waubay, City of	Day	07/23/79	12/06/01	03/13/24	04/25/97		
460227A	Webster, City of	Day	12/24/79	12/06/01	03/13/24	04/25/97		
Communities Not in the National Flood Program								
CID	**Community Name**	**County**	**Init FHBM Id**	**Init FIRM Id**	**Curr Eff Map Date**	**Sanction Date**	**Curr Class**	**% Disc SFHA**
461214A	Andover, Town of	Day	12/06/01	03/13/24	03/13/24	12/06/02		
461201A	Grenville, Town of	Day		12/06/01	03/13/24	03/13/24(S)		
461216#	Lily, Town of	Day		12/06/01	12/06/01	12/06/02		
460131A	Pierpont, Town of	Day		12/06/01	03/13/24	12/06/02		

Table 4.38: Community Status book from FEMA.gov

Flooding that has resulted in insurance claims has occurred throughout Day County. According to the South Dakota Department of Public Safety rural Day County and participating jurisdictions currently have a total of 48 policies in force for flood insurance. Participants and losses are listed in Table 4.39.

Table 4.39: NFIP Insurance Participants and Losses							
Location - Status	**Initial FIRM**	**Current FIRM**	**Policies in Force**	**Insurance in Force**	**Paid Losses**	**Total Losses Paid**	**Sub. Dam. Claims from 1978**
Webster - Participating	12/06/01	03/13/24	1	$320,000	1	$3,703.79	0
Andover – Not Participating	12/06/01	03/13/24	-	-	-	-	-
Bristol - Participating	12/06/01	03/13/24	-	-	-	-	-
Butler – Not Participating	12/06/01	03/13/24	-	-	-	-	-
Grenville – Suspended	12/06/01	03/13/24	-	-	7	$203,900.80	5
Pierpont – Not Participating	12/06/01	03/13/24	-	-	-	-	-
Roslyn – Not Participating	12/06/01	03/13/24	-	-	-	-	-
Waubay - Participating	12/06/01	03/13/24	1	$201,000	114	$1,067,486.67	29
Day County – Participating	12/06/01	03/13/24	3	$745,000	139	$2,877,787.44	52
Total:			5	$1,266,000	261	$4,152,878.70	86

Table 4.39: NFIP Insurance Participants and Losses from the South Dakota Department of Public Safety

According to community information, Day County was entered into FEMA February 14, 1997, as an emergency entry into the system. Due to significant flooding, Day County was entered into the FEMA system until Day County was officially mapped December 6, 2001. The Initial Flood Hazard Boundary Map was December 24, 1976.

The Day County Planning and Zoning Department maintains Flood Insurance Rate Maps for all planning mechanisms in the county, specifically the development of new homes and businesses. When a business or resident wants to develop they are instructed to hire a surveyor/engineer to document that the structure will be above the floodplain. A flood plain permit from the Emergency Manager is required at part of the approval process. In addition to the Flood Insurance Rate Maps on file at the County Planning and Zoning Department, FEMA requires all NFIP participants to pass the Flood Damage Prevention Ordinance which states that the City/County "elects to comply with the requirements of the National Flood Insurance Act of 1968 (P.L. 90-488, as amended)." This ordinance is included as Appendix F.

CURRENT FLOODING CONDITIONS

Flooding continues to create challenges for the Day County area. Roads need to be consistently repaired due to soft ground and water levels; infrastructure is significantly impacted to communities. Waubay has a lagoon in Bitter Lake that is receiving wave damage from the water against the rip rap.

Table 4.40 Historic Lake Levels in Day County				
Lake levels as recorded by SD DENR and reported on their website – https://apps.sd.gov/NR65LakeInfo/public.aspx. The measurements are in feet.				
Year	**Bitter Lake**	**Waubay Lake**	**Blue Dog Lake**	**Rush Lake**
1984	1770.3	1780.5	1800.2	1797.4
1997	1788.2	1799.8	1800	1799.8
2011	1802.98	1805.36	1805.80	1805.75
2013	1802.10	1802.53	1802.54	1802.68
2019	1803.49	1804.11	1805.20	1805.24
2023	1803.51	1804.20	1804.25	1804.30
Record	1803.49 (10/22/19)	1805.36 (7/18/11)	1805.8 (6/3/11)	1805.75 (6/3/11)
It should be noted that the lake levels from 2019 were taken in the Fall, when lake levels are normally lower than they are in the spring and summer due to rainfall events and snow melt.				

Below are lake water levels for Bitter, Waubay, Blue Dog, and Rush lakes. These lakes have been the ones that have increased significantly over the last few decades. Water levels significantly rose in the nineties and have stayed higher since.

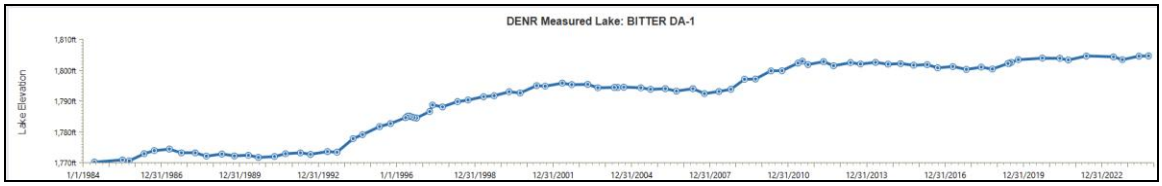


Figure 4.14: Bitter Lake water levels from January 1, 1984

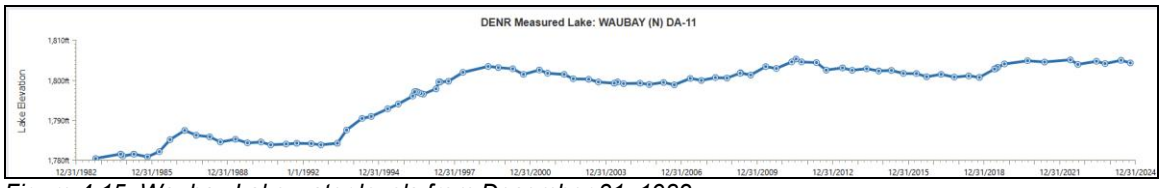


Figure 4.15: Waubay Lake water levels from December 31, 1982

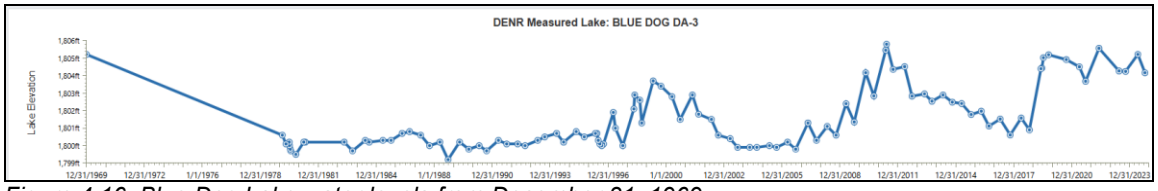


Figure 4.16: Blue Dog Lake water levels from December 31, 1969

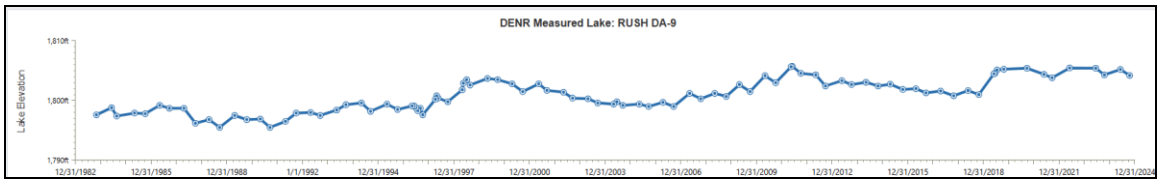


Figure 4.17: Rush Lake water levels from December 31, 1982

ASSESSING VULNERABILTY: ADDRESSING REPETITIVE LOSS PROPERTIES

Requirement 201.6(c)(2)(ii): *Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP insured structures that have been repetitively damaged by floods?*

> ***B2-c****.* *The plan must address repetitively flooded NFIP-insured structures by including the estimated numbers and types (residential, commercial, institutional, etc.) of repetitive/severe repetitive loss properties.*

Repetitive loss properties are those for which two or more losses of at least $1,000 each have been paid under the National Flood Insurance Program (NFIP) within any 10-year period since 1978. Most of the repetitive loss structures are in rural Day County (6 repetitive losses, 2 severe repetitive losses) and Waubay 7 repetitive losses, 1 severe repetitive loss). Total payments in participating jurisdictions are $579,962.26 for contents and structures. This does not include acquisitions throughout the county and Waubay. Information in the following table was provided by Marc Macy from the South Dakota Department of Public Safety, Office of Emergency Management and is current as of June 2024. Table 4.41 is the numbers of repetitive loss properties and the payments that were issued.

Table 4.41: NFIP Repetitive Losses

Location of Repetitive Loss Buildings	RL Building Type	RL Buildings (Number of Losses)	Flood Zone	Building Payments (Total)	Contents Payment (Total)	RL Payments Total
Grenville	(1) Single Family	2	X	$59,994.23	$0.00	$59,994.23
Waubay	(4) Single Family	8	X	$90,939.12	$16,887.81	$107,826.93
Waubay	(1) Non-Residential	2	X	$22,340.00	$0.00	$22,340.00
Waubay	(1) Non-Residential	2	AE	$9,113.91	$0.00	$9,113.91
Rural Day County	(5) Single Family	10	AE	$289,267.93	$1,017.31	$290,285.24
Rural Day County	(1) Single Family	2	X	$47,237.99	$0.00	$47,237.99
Rural Day County	(1) Non-Residential	2	Unknown	$43,163.96	$0.00	$43,163.96
Total County Payment	16 Buildings	28		$562,057.14	$17,905.12	$579,962.26

Table 4.41: NFIP Insurance Participants and Losses from the South Dakota Department of Public Safety

The following table lists Day County Repetitive Loss properties. There were two classified as repetitive loss properties per South Dakota's Office of Emergency Management's records.

Table 4.42: Flood Ordinances					
Community Name	**Current Eff Map Date**	**Entry Date**	**Implementation Designee**	**Adoption of Flood Ord**	**Desc of Comm Assist**
Webster	3/13/2024	12/24/79	Finance Officer	12/31/2023	Flood certificate stating structure one foot above BFE.
Bristol	3/13/2024	06/03/79	Day EM	County	Day County requires a certificate that the building is 1 ft above the BFE in the SFHA.
Grenville	3/13/2024	Not in Program	Day EM		
Waubay	3/13/2024	07/23/79	Finance Officer	02/05/2024	
Day County	3/13/2024		Day EM	10/03/2023	
***Adopted Floodplain Ordinances Located in Appendix F**					
Not Participating: Andover, Roslyn, Pierpont					

Table 4.43: NFIP Severe Repetitive Losses						
Location of Severe Repetitive Loss	**RL Building Type**	**RL Buildings (Number of Losses)**	**Flood Zone**	**Building Payments (Total)**	**Contents Payment (Total)**	**RL Payments Total**
Waubay	Single Family	2	X	$29,488.66	$1,493.00	$30,981.66
Rural Day County	Other – Non-Residential	3	AE	$321,363.97	$0.00	$321,363.97
Total County Payment	2 Buildings	5		$350,852.63	$1,493.00	$352,345.63

Table 4.43: NFIP Insurance Participants and Losses from the South Dakota Department of Public Safety

Table 4.44: Policies in Force					
Location	**Policies in Force**	**Premium + Fed Policy Fee**	**Average Building Coverage**	**Repetitive Loss**	**Severe Repetitive Loss**
Day County	12	$7529	$139083	6 (single fam)	2 (1 non-res, 1 single fam)
Webster	4	$11529	$314250	1 (non-res)	0
Waubay	8	$5917	$152875	7 (2 non-res, 5 single fam)	1 (single fam)
Grenville	0	$0	$0	1 (single fam)	0

Table 4.45: Severe Repetitive Losses by Jurisdiction					
Jurisdiction	**Buildings (Total)**	**Buildings (Insured)**	**Losses (Total)**	**Losses (Insured)**	**Payments (Total)**
Grenville	1	0	2	0	$59,994.23
Waubay	11	0	20	0	$318,420.53
Day County	19	1	31	1	$882,435.63
Total:	31	1	53	1	$1,260,850.39

Table 4.45: NFIP Insurance Participants and Losses from the South Dakota Department of Public Safety

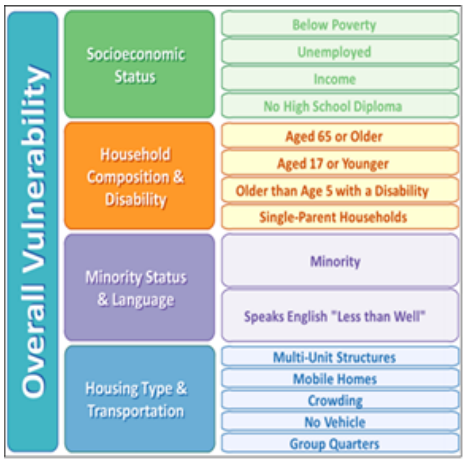
Table 4.46 Insurance Polices			
Jurisdiction	**Policies in Force**	**Premium + Fed Policy Fee**	**Average Building and Contents Coverage**
Webster	4	$11,259	$331,750
Waubay	8	$5,917	$180,125
Day County	12	$7,529	$157,250
Total:	24	$24,705	$669,125

Table 4.46: NFIP Insurance Participants and Losses from the South Dakota Department of Public Safety

ASSESSING VULNERABILITY: VULNERABLE POPULATIONS

Requirement 201.6(c)(2)(ii): *Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP insured structures that have been repetitively damaged by floods?*

B2-a. *The plan must describe the vulnerability of each participant to the identified hazards. The description must include current and future assets and the risk that makes them susceptible to damage from the identified risk hazards.*



Day Courtny's overall vulnerability is low, 0.1282 according to CDC.gov and the National Risk Index. Both reference Day County's vulnerably to cold, hail, ice storms, flooding, winter weather, and wildfires. Overall, however, community resilience is high since steps have been taken to prevent losses and historic losses have been relatively low when compared with the rest of the United States. Day County and its communities have a Relatively High rating for the ability to prepare for, adapt and recover from changing weather hazards.

There are residents that are more vulnerable in Day County. The eastern part of the county has higher vulnerability with socioeconomic status, household characteristics, and racial and ethnic minority status. Housing type and transportation have a low vulnerability throughout the county. The maps of Day County's Social Vulnerability is in Appendix G. Based on the maps, there is a range of vulnerabilities throughout the county.

The National Risk Index illustrates the vulnerability of residents in Day County to hazard events. It is based on the CDC's social vulnerability index and community resilience. Day County has an overall risk rating of very low. Expected Annual Losses are very low, social vulnerability is very low, and community resilience is rated at very high.

Table 4.47: Hazard Type Risk Index		
Risk	**Rating**	**Score**
Cold Wave	Relatively High	94.3
Drought* Crop Risk Only	Very Low	15.1
Earthquake	Very Low	11.4
Hail	Relatively Moderate	82
Heat Wave	Relatively Low	42.9
Ice Storm	Relatively Moderate	67.7
Landslide	Relatively Low	11.9
Lightning	Very Low	13.4
Riverine Flooding	Relatively Low	43.9
Strong Wind	Relatively Moderate	69.7
Tornado	Relatively Low	33.1
Wildfire	Relatively Low	74.6
Winter Weather	Relatively High	93.2

Table 4.47: CDC Social Vulnerability Index

The social vulnerability index through the CDC is based on socioeconomic status (below poverty, unemployed, income, high school graduation), household composition and disability (65 or older, 17 or younger, older than 5 with a disability, single-parent homes) minority status and language (minority, English-speaking), housing type and transportation (mulita-unit structures, mobile homes, crowding, access to vehicles, group quarters.) Data is based on the census data that is collected. It refers to a community's capacity to prepare for and respond to stress of hazardous events in the community ranging from natural disasters to human caused threats. Day County has an overall vulnerability index of 0.1282 on a scale of 0 (lowest) to 1 (highest) vulnerability, which shows a low level of vulnerability to disasters, according to the index.

ASSESSING VULNERABILITY: IDENTIFYING STRUCTURES

Requirement §201.6(c)(2)(ii)): *Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP insured structures that have been repetitively damaged by floods?*

> ***B2-b****. The plan must describe the potential impacts on each participating jurisdiction and its identified assets.*

One of the primary purposes of this plan is identifying critical structures and facilities in Day County. This helps determine what is at risk. In the event of a disaster, Day County and participating entities can prevent further loss of life by generator powered critical facility shelters. Day County's smaller towns have additional risks to citizens if power fails or structures are damaged. Travelling during a severe storm can be hazardous. Residents would leave the safety of their homes to find shelter and power. Local critical structures with power and shelter allow citizens protection in their community and reduce exposure. The City of Webster has the only clinic in Day County. Residents needing medical care in a severe storm would need to travel in the treacherous elements or require emergency responders to travel to them.

In smaller communities, critical structures can be anything from hospitals, schools, and law enforcement buildings to bars and local churches. Each facility contributes to the community through tax revenue and jobs for residents to safety and resources. These structures represent the community's lifelines. A church can provide shelter and a base

of communications in disasters. It can be a place to disperse supplies like food, water, and power. Although some structures in the Day County plan may not be considered essential, these structures are the lifelines of each community. Residents can congregate, communicate and during a natural hazard, mitigate aspects of a disaster.

Places like city pools and parks give residents places to go and attract people from outside the community. These public spaces support the town financially through taxes, permits and participant fees. It may be one of a few sources of revenue. Damage to these structures can show how fragile the balance can be in an area and a natural hazard can impact more than just the building or structure. Loss of critical infrastructure can severely impact the community if destroyed, long past the hazard event.

The plan author acknowledges that determining what is "critical" can mean something different to every community and that the information provided is not comprehensive. However, the information provided by the participants was used as a baseline and can be supplemented in the future during the annual plan review and/or during the 5-year update. Using information provided by the representatives from each community helps establish a sense of ownership.

Many structures and departments vital to emergency operation in Day County are in the City of Webster. Table 4.37 is a list of critical facilities that would cause the greatest disruption in the county if destruction occurred. While these facilities may be vital community assets, they are not necessarily vulnerabilities.

Future development will be coordinated with the County and the jurisdictions' building codes. FEMA's updated flood maps will allow both entities to coordinate development to avoid future flood hazards. However, new developments will be vulnerable to county-wide hazards such as drought, high winds, summer and winter storms, and fire.

The information provided in Table 4.37 was updated from the 2020 Mitigation Plan. Participants were instructed to think of structures that would cause the most devastation to their communities if lost: "Those structures that you cannot live or operate without." While the information may not be comprehensive it gives FEMA, SDOEM, and readers an idea of how communities in rural South Dakota feel about certain structures. Each critical structure was determined to have one main function in the BRIC format, although many of the structures would have multiple uses in an emergency. Hazard vulnerability is listed in the far-right column giving a clearer picture of Day County's vulnerability, especially since most hazards are county-wide.

Table 4.48: Critical Structure in Day County

Day County				
Structure Name	**Address**	**Type**	**Owner**	**Hazard Vulnerability**
Day County Courthouse	711 W 1st St. Webster	Govt	County	All hazards except flood – not in flood zone
Day County Highway Dept.	503 W 1st Ave Webster	Govt	County	All hazards except flood – not in flood zone
Day County Sheriff's Office	710 W 2nd St. Webster	Govt	County	All hazards except flood – not in flood zone
Day County Fairgrounds		Public	County	All hazards except flood – not in flood zone
Museum of Wildlife, Science	760 US Hwy 12	Govt	County	All hazards except flood – not in flood zone

and Industry				
Day County Landfill	14604 435th Ave	Govt	County	All hazards except flood – not in flood zone
Day County Conservation Dist.	43423 143rd St.	Govt	County	All hazards except flood – not in flood zone
SD Dept of DOT	801 US Hwy 12	Govt	State of SD	All hazards except flood – not in flood zone
SD Game Fish and Parks	603 E 8th Ave.	Govt	State of SD	All hazards except flood – not in flood zone
Community Transit – Day County	399 W 5th Ave #301	Public	County	All hazards except flood – not in flood zone
Webster				
Structure Name	**Address**	**Type**	**Owner**	**Hazard Vulnerability**
City Hall Library	800 Main St	Govt	City	All hazards except flood – not in flood zone
Water Tank Tower	Webster	Govt	City	All hazards except flood – not in flood zone
City Equipment Storage	Webster	Govt	City	All hazards except flood – not in flood zone
City Shop	Webster	Govt	City	All hazards except flood – not in flood zone
City Material Storage	Webster	Govt	City	All hazards except flood – not in flood zone
Restrooms and Warming House – Baseball Fields	401 4th St E	Public	City	All hazards except flood – not in flood zone
Pump Station #5 & Well House by Ambulance	Webster	Govt	City	All hazards except flood – not in flood zone
Liquor Store	1457 E 1st St.	Public	City	All hazards including flood – is in flood zone
Water Tank – WEB	Webster	Govt	City	All hazards except flood – not in flood zone
Fire Hall	52 W 6th Ave.	Govt	City	All hazards except flood – not in flood zone
Well House – Baseball Complex	Webster	Govt	City	All hazards except flood – not in flood zone
Cemetery Storage	Webster	Govt	City	All hazards except flood – not in flood zone
Bus Barn – Community Transit	Webster	Govt	City	All hazards except flood – not in flood zone
Rotating Siren (3)	Webster	Govt	City	All hazards except flood – not in flood zone
City Park Restroom	237 13th Ave E.	Govt	City	All hazards except flood – not in flood zone
Soccer Field	Webster	Public	City	All hazards except flood – not in flood zone
Soccer Field Restroom/ Concession	Webster	Public	City	All hazards except flood – not in flood zone
West Field Scoreboard	Webster	Public	City	All hazards except flood – not in flood zone
Field Lighting (All)	Webster	Public	City	All hazards except flood – not in flood zone
Aeration Building – Lagoon	Webster	Govt	City	All hazards except flood – not in flood zone
Super AWOS Weather Unit	Webster	Govt	City	All hazards except flood – not in flood zone

Police Dept.		Govt	City	All hazards except flood – not in flood zone
Hwy 12 light poles	Webster	Govt	City	All hazards including flood – is in flood zone
Hwy 12 Signal lights	Webster	Govt	City	All hazards including flood – is in flood zone
Control Cabinet (Main St & 8th Ave)	Webster	Govt	City	
Signal Poles – Hwy 12	Webster	Govt	City	All hazards including flood – is in flood zone
8 Pedestrian Button Poles	Webster	Govt	City	All hazards including flood – is in flood zone
Main St & 8th Ave Signal Poles	Webster	Govt	City	
Control Cabinet Hwy 12 Mase Arms/Signal Poles	Webster	Govt	City	All hazards including flood – is in flood zone
Post Office	715 Main St.	Govt	City	All hazards except flood – not in flood zone
Webster School	102 E 9th Ave	Govt	City	All hazards except flood – not in flood zone
Webster Theater	704 Main St. #2	Public	Private	
Mike's Food Center	1300 Main St.	Private	Private	All hazards including flood – is in flood zone
Webster Fish Cleaning Station	409 Park Lane	Public	City	All hazards except flood – not in flood zone All hazards except flood – not in flood zone
Bethesda Nursing Home	129 US Hwy 12	Private	Private	All hazards except flood – not in flood zone
Sigurd Anderson Airport	Webster SD	Public	City	All hazards except flood – not in flood zone
Airport Hanger 1-4	Webster	Public	City	All hazards except flood – not in flood zone
Airport Waiting Area	Webster	Public	City	All hazards except flood – not in flood zone
Airport Equipment Storage	Webster	Govt	City	All hazards except flood – not in flood zone
Lightning Vault - Airport	Webster	Govt	City	All hazards except flood – not in flood zone
Sanford Webster Medical Center	7401 W 1st. St	Private	Private	All hazards except flood – not in flood zone
Webster Football Field	Webster	Public	City	All hazards except flood – not in flood zone
Webster Golf Course and Club	1030 W 3rd St.	Public	City	All hazards except flood – not in flood zone
Golf Club House	Webster	Public	City	All hazards except flood – not in flood zone
Golf Cart Stor./Shop	Webster	Public	City	All hazards except flood – not in flood zone
Golf Course Pump House	Webster	Public	City	All hazards except flood – not in flood zone
Webster Aquatic Center	201 12th Ave E.	Public	City	All hazards except flood – not in flood zone
Pool Picnic Shelter	Webster	Public	City	All hazards except flood – not in flood zone
Pump House	Webster	Public	City	All hazards except flood – not in flood zone
Waterslide	Webster	Public	City	All hazards except flood – not in flood zone

Bathhouse/ Concession	Webster	Public	City	All hazards except flood – not in flood zone
Embrace Dentistry	101 Peabody Dr.	Private	Private	All hazards except flood – not in flood zone
Lake Region Electric	1212 Main St.	Private	Private	
Webster Veterinary Clinic	1400 E 7th St.	Private	Private	All hazards including flood – is in flood zone
SD National Guard Maintenance Station	1201 1st St. W.	Govt	Private	All hazards including flood – is in flood zone
Webster Housing Authority	1101 E 7th St.	Govt	Private	All hazards except flood – not in flood zone
Webster Baseball Fields	Webster	Public	City	All hazards except flood – not in flood zone
Baseball Concession Stand	Webster	Public	City	All hazards except flood – not in flood zone
Dugout/ Crow's Nest	Webster	Public	City	All hazards except flood – not in flood zone
Dugout West Diamond	Webster	Public	City	All hazards except flood – not in flood zone
Old Guard Shop - Armory	Webster	Govt	City	All hazards except flood – not in flood zone
Webster Knapp and Play Daycare	Webster	Public	City	All hazards including flood – is in flood zone
Interstate Telecomm.	14 E 7th Ave.	Private	Private	All hazards except flood – not in flood zone
Webster Area School	52 E 9th Ave.	Public	City	All hazards except flood – not in flood zone
Webster Parks and Rec	401 4th St. E	Govt	City	All hazards except flood – not in flood zone
Webster Development Corp.	711 1st St. W #110	Public	Private	All hazards except flood – not in flood zone
Webster Street Dept. Shop	309 W 5th Ave	Govt	City	All hazards except flood – not in flood zone
Webster Water Dept.	311 W 5th Ave	Govt	City	All hazards except flood – not in flood zone
Webster Armory	100 W 11th Ave	Govt	City	All hazards including flood – is in flood zone
Andover				
Structure Name	**Address**	**Type**	**Owner**	**Hazard Vulnerability**
City Hall/Fire Dept	207 Main St.	Govt	City	All hazards except flood – not in flood zone
Sewer Lift Station	Andover	Govt	City	All hazards except flood – not in flood zone
Sewer Lagoons	Andover	Govt	City	All hazards except flood – not in flood zone
The Meathouse	41599 US 12	Private	Private	All hazards including flood – is in flood zone
US Post Office	202 Main St.	Govt	Govt	All hazards except flood – not in flood zone
The Other Place	100 Main St	Private	Private	All hazards except flood – not in flood zone
Zion Lutheran Church	301 Pew St	Religious	Religious	All hazards except flood – not in flood zone
Bristol				
Structure Name	**Address**	**Type**	**Owner**	**Hazard Vulnerability**
City Hall	204 1st Ave W E	Govt	City	All hazards except flood – not in flood zone

Community Center	86 S. Main	Govt	City	All hazards except flood – not in flood zone
City Maintenance Shop	Bristol	Govt	City	All hazards except flood – not in flood zone
Water Tower (75,000 gal)	Bristol	Govt	City	All hazards except flood – not in flood zone
Fire Department	210 1st Ave E	Govt	City	All hazards except flood – not in flood zone
Sundial Manor	410 2nd St S	Private	Private	All hazards except flood – not in flood zone
Bethesda Lutheran Church	314 3rd St S	Religious	Religious	All hazards except flood – not in flood zone
First Savings Bank	118 Main St.	Private	Private	All hazards except flood – not in flood zone
Agtegra Coop	41 Co Rd 33	Private	Private	All hazards except flood – not in flood zone
Handke Jubilee park	415 Main St.	Public	City	All hazards except flood – not in flood zone
City Pool and Bathhouse	5th St S	Public	City	All hazards except flood – not in flood zone
Baseball Fields	4th Ave E	Public	City	All hazards except flood – not in flood zone
Sewer Lift Station		Govt	City	All hazards except flood – not in flood zone
Second Life Antiques	500 3rd St S Suite B	Private	Private	All hazards except flood – not in flood zone
Old High School	400 3rd St. S	Private	Private	All hazards except flood – not in flood zone
Sundial Manor	Bristol	Public	Private	All hazards except flood – not in flood zone
City Park	415 Main St.	Public	Public	All hazards except flood – not in flood zone
Grenville				
Structure Name	**Address**	**Type**	**Owner**	**Hazard Vulnerability**
Longbranch Bar	913 Kosciusko Ave	Private	Private	All hazards except flood – not in flood zone
Grenville Sports Mart	909 Kosciusko Ave	Private	Private	All hazards except flood – not in flood zone
City Wells	Grenville	Govt	City	All hazards except flood – not in flood zone
Fire Hall	Grenville	Govt	City	All hazards except flood – not in flood zone
Grenville Post Office	915 Koschusko Ave	Govt	Govt	All hazards except flood – not in flood zone
Grenville City Hall	911 Kosciusko Ave	Govt	City	All hazards except flood – not in flood zone
Pierpont				
Structure Name	**Address**	**Type**	**Owner**	**Hazard Vulnerability**
City Storage	Pierpont	Govt	City	All hazards except flood – not in flood zone
Fire Hall	201 Main St.	Govt	City	All hazards except flood – not in flood zone
Community Building	Pierpont	Govt	City	All hazards except flood – not in flood zone
City Lagoon	Pierpont	Govt	City	All hazards except flood – not in flood zone
Pierpont Service	210 Main St.	Private	Private	All hazards except flood – not in flood zone
Ponts Pub and Grill	101 W Main St	Private	Private	All hazards except flood – not in flood zone

US Post Office	121 Mian St.	Govt	Govt	All hazards except flood – not in flood zone
CorTrust Bank	123 Main St.	Private	Private	All hazards except flood – not in flood zone
Pierpont City Park	509 Main St.	Public	City	All hazards except flood – not in flood zone
Pierpont Ball Fields	509 Main St.	Public	City	All hazards except flood – not in flood zone
Roslyn				
Structure Name	**Address**	**Type**	**Owner**	**Hazard Vulnerability**
Fire Hall	Roslyn	Govt	City	All hazards except flood – not in flood zone
Strand-Kjorsvig Community Home	801 Main St.	Private	Private	All hazards except flood – not in flood zone
Water Tower	Roslyn	Govt	City	All hazards except flood – not in flood zone
Sewer Lift Station	Roslyn	Govt	City	All hazards except flood – not in flood zone
Sewer Lagoon	Roslyn	Govt	City	All hazards except flood – not in flood zone
City Storage Garage	Roslyn	Govt	City	All hazards except flood – not in flood zone
Bus Shed	Roslyn	Govt	City	All hazards except flood – not in flood zone
Roslyn Elevator	Roslyn	Private	Private	All hazards except flood – not in flood zone
International Vinegar Museum	500 Main St.	Public	City	All hazards except flood – not in flood zone
Jimmy J's	519 Main St.	Private	Private	All hazards except flood – not in flood zone
Sioux Valley Coop	Roslyn	Private	Private	All hazards except flood – not in flood zone
Northside Properties	Roslyn	Private	Private	All hazards except flood – not in flood zone
Strip Mall: Community Oil, Schmidt's Custom Meats, Howe's Salon, Feed Energy Co.	43611 SD-25	Private	Private	All hazards except flood – not in flood zone
Roslyn Event Center: Finance Office, Town Shop, Viking Fitness Cetner	600 Main St.	Private	Private	All hazards except flood – not in flood zone
Roslyn Ball Field	Roslyn	Public	City	All hazards except flood – not in flood zone
US Post Office	509 Main St.	Govt	Govt	All hazards except flood – not in flood zone
Toad Tracks	Roslyn	Private	Private	All hazards except flood – not in flood zone
Waubay				
Structure Name	**Address**	**Type**	**Owner**	**Hazard Vulnerability**
City Hall	45 Main St.	Govt	City	All hazards except flood – not in flood zone
Fire Hall	521 1st Ave	Govt	City	All hazards except flood – not in flood zone
Saferoom	523 1st Ave	Govt	City	All hazards except flood – not in flood zone
Post Office	105 Main St	Govt	Govt	All hazards except flood – not in

				flood zone
Maintenance Shop	10 2nd Ave.	Govt	City	All hazards except flood – not in flood zone
Avera Clinic	80 Main St.	Private	Private	All hazards except flood – not in flood zone
Water Tower/Pump House	Waubay	Govt	City	All hazards except flood – not in flood zone
Wastewater Lagoons	Waubay	Govt	City	All hazards except flood – not in flood zone
Lift Stations (7)	Waubay	Govt	City	All hazards including flood – is in flood zone
Waubay School	202 W School Rd	Public	City	All hazards except flood – not in flood zone
Senior Center	106 Main St.	Public	City	All hazards except flood – not in flood zone
Dollar General	1107 Main St.	Private	Private	All hazards except flood – not in flood zone
Jorgenson Meat Market	30 US Hwy 12	Private	Private	All hazards except flood – not in flood zone
Waubay Library	94 Main St.	Public	City	All hazards except flood – not in flood zone
HR One Stop	815 Main St.	Private	Private	All hazards except flood – not in flood zone
School Bus Shed/Fuel	Waubay	Govt	City	All hazards except flood – not in flood zone
Athletic 3+Fields/Park	School Road	Govt	City	All hazards except flood – not in flood zone
Jorgenson Meat Processing	205 Railway Ave.	Private	Private	All hazards except flood – not in flood zone
LaBolt Farmers Market	Waubay	Private	Private	All hazards except flood – not in flood zone
Elderly Housing 8-Plex	Waubay	Private	Private	All hazards except flood – not in flood zone
Elderly Housing 4-Plex	Waubay	Private	Private	All hazards except flood – not in flood zone

ASSESSING VULNERABILITY: ESTIMATING POTENTIAL LOSSES

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

Housing losses are based on the 2020 census of occupied and unoccupied structures. The value of structures varies as time passes and valuations increase or decrease depending on the economic values. The final table shows the current occupied and unoccupied housing structures as of the census in 2020, which are essential to a safe functional community. Average home prices in Day County are $323,625.

Table 4.49: Day County

People	Structures					
Day County	**2020 Occupied**	**2020 Unoccupied**	**2020 Total**	**2010 Occupied**	**2010 Unoccupied**	**2010 Total**
5449	2370	1025	3395	2504	1126	3630

Table 4.50: Webster						
People	**Structures**					
Webster	**2020 Occupied**	**2020 Unoccupied**	**2020 Total**	**2010 Occupied**	**2010 Unoccupied**	**2010 Total**
1728	814	147	961	878	129	1007

Table 4.51: Andover						
People	**Structures**					
Andover	**2020 Occupied**	**2020 Unoccupied**	**2020 Total**	**2010 Occupied**	**2010 Unoccupied**	**2010 Total**
66	41	2	43	42	18	60

Table 4.52: Bristol						
People	**Structures**					
Bristol	**2020 Occupied**	**2020 Unoccupied**	**2020 Total**	**2010 Occupied**	**2010 Unoccupied**	**2010 Total**
788	129	35	164	150	26	176

Table 4.53: Grenville						
People	**Structures**					
Grenville	**2020 Occupied**	**2020 Unoccupied**	**2020 Total**	**2010 Occupied**	**2010 Unoccupied**	**2010 Total**
48	19	16	35	30	14	44

Table 4.54: Pierpont						
People	**Structures**					
Pierpont	**2020 Occupied**	**2020 Unoccupied**	**2020 Total**	**2010 Occupied**	**2010 Unoccupied**	**2010 Total**
129	56	8	64	67	11	78

Table 4.55: Roslyn						
People	**Structures**					
Roslyn	**2020 Occupied**	**2020 Unoccupied**	**2020 Total**	**2010 Occupied**	**2010 Unoccupied**	**2010 Total**
181	78	16	94	67	11	78

Table 4.56: Waubay						
People	**Structures**					
Waubay	**2020 Occupied**	**2020 Unoccupied**	**2020 Total**	**2010 Occupied**	**2010 Unoccupied**	**2010 Total**
473	205	108	313	242	132	374

Table 4.57: Day County Housing – 2020 Census			
Jurisdiction	**Housing Units Occupied**	**Housing Units Unoccupied**	**Total**
Day County	2370	1025	3395
Webster	814	147	961
Andover	41	2	43
Bristol	129	35	164
Butler	2	2	4
Grenville	19	16	35
Pierpont	56	8	64
Roslyn	78	16	94
Waubay	205	108	313
Total	3,714	1,359	5,073

ASSESSING VULNERABILITY: ANALYZING DEVELOPMENT TRENDS

Requirement 201.6(d)(3): *… Was the plan revised to reflect changes in development?*

E1-a. *The plan must describe changes in development that have occurred in the hazard-prone areas and how they have increased or decreased in vulnerability of each jurisdiction since the previous plan was approved.*

E2-c. *The update plan must explain how the jurisdiction(s) integrated information from the mitigation plan into other planning mechanisms, as a demonstration of progress in local hazard mitigation efforts.*

Land use and development trends for each jurisdiction were identified by the representative on the planning committee. In total, Day County has seen a reduction in population from 2010 to the census in 2020. Rural Day County has seen an increase overall in population and the largest percentage of the population is in the rural area due to the lakes and increase in homes surrounding the lakes in Day County. Housing and business development remain a strong focus for Day County and its jurisdictions.

Day County: Day County has seen a decline in population between the 2010 census and 2020 census. The average decline throughout the country has been -6.97%. Some jurisdictions have lost more than others. Rural Day County has lost -4.57% of their population. Housing has increased throughout the county by 4.84%. This may indicate that Day County has a high seasonal population, especially in the Waubay Chain Lakes areas. These seasonal residents build second homes along the waterways. These seasonal residents also increase the potential for hazards to impact homes and people. Day County has an ordinance that requires seasonal homes to be placed 40 feet back from the water or on a hill overlooking the lake. Seasonal homes are increasing in value, especially since they are larger and more expensive to build.

Day County has focused on continuing to develop even with water being a factor in restriction of development. Being in the “prairie pothole” of the state, water enters or is accumulated by rainfall in the area and stays, having no natural outlet. As of today, the water still has not reached high enough to begin to flow out the chain lakes. Once water reaches 1812.1 based on a USGS study in 1999, it will begin to flow towards Lake Kampeska.

This accumulation of water has reduced the amount of available farmland and land to build structures in the county. One way that the County has offset the loss of land, has been to encourage hunting and fishing in the area to create an economic opportunity.

Day Country has the Blue Dog State Fish Hatchery. Development is limited to the base flood elevation of 1810.7 which was increased from 1810 with the new flood maps from March 13, 2024.

Water has restricted access to land via roads being underwater. Those roads require continual maintenance for Day County to keep above water and accessible. Approximately 10-15% of roads are underwater. The eastern part of the county tends to have higher water than the western part. Certain roads need to have constant attention to rebuild with gravel and rock to keep from going under the water. Highway 30 needs to be rebuilt and must keep adding to the road. Constant battle to keep roads up and it's a significant amount of Day County's budget. One road that is dangerous for drivers is the bridge along County Road Highway 1. When wind adds to the water and wave action, ice covers the bridge and when the water is high, it affects driving conditions. An application was submitted to request a hydrology study of the bridge to find a way to make the bridge safer for motorists.

Day County has the Day County Housing Development which helps with home and lot sales in Day County. This organization focuses on development in Day County. Development in Day County is addressed through the Planning and Zoning Commission, which is the Day County Commissioners. The commission receives and processes building permits and variances. If the building is on a floodplain a permit is required. The floodplain manager is the Emergency Manager. The planning and zoning office is also a resource for residents who are looking to build in South Dakota.

Day County works to reduce the impact of disaster county wide. There were 28 electrical line burials. Day County has installed a backup generator for the county offices. There have been stormwater improvements, road raises, and a hydrology study. Another item that has impacted on the county has been acquisitions and relocations. This has reduced the number of structures in the Waubay area. The costs of these projects impact revenue available for other projects. Continually raising roads and addressing the water reduces the amount available for other development.

Development regarding CAFOS (Concentrated Animal Feeding Operations in Day County. Operating CAFOs supports farmers in the area. New or expanding CAFOs require a permit from the County. They are prohibited in the floodplain with limited exceptions (smaller CAFOPs in areas between limits of the 100-year and 500-year flood or certain areas subjected to the 100-year floodplain with average depths of less than 1 foot or where the contributing drainage area is less than one square mile or area protected by levees from the base flood.

Webster: Webster is the most populated city in Day County and is the county seat. Webster provides goods and services to the area such as medical, retail and financial. Development is coordinated by the City Finance Officer who addresses building permits. Zoning, building codes, setback information and floodplain administration are all through the city office. Webster has a contracted code enforcement officer. Floodplain elevation certificates are required for any development in the floodplain. Base flood elevation was increased for Webster from 1810 to 1810.7. Webster requires an engineer to provide an elevation certificate.

Development in Webster is encouraged by the Webster Development Corporation. The Development Corporation works to create economic growth for the Webster Community.

They work to bring new businesses to the area and work with existing businesses that are looking to expand. One current project is the daycare that they are working on. The building has been established, and they are seeing donations for renovations. Webster also has a clinic, grocery store, armory, park, sporting facilities, dog park, many businesses, a fish cleaning station, and an industrial park.

Webster has been working on their water and wastewater facilities. Their entire system has been replaced, and they are working on getting the roads reestablished. Completion of this project is set to conclude fall of 2025. Webster also has a housing development that they are working to get established. Currently, there are three homes either under construction or completed. Nearly 40 lots have been sold out of 100 lots. Some of the lots are for commercial properties and the rest are for homes. The development has been built above the floodplain in a higher section of Webster. Webster also has a seasonal population. There is a campground and a trailer park. There saferoom is the armory which is near Highway 12. There are areas where water impacts Webster. One area is the northeast corner of town. Water flows in and can collect, crossing the highway.

Grenville: Grenville has had sewer and water improvements in the last ten years. The building permit process is either approved by the Finance Officer or Council depending on the size of the project. If the building meets setback requirements and building codes, it's approved. Grenville defers to the county if the building is in a floodplain. Grenville installed new park equipment at their city park in 2024. Although near Waubay Lake, land near Waubay Lake is regulated by Day County.

Bristol: Bristol had significant improvements to their infrastructure ten years ago. Those improvements included water, wastewater, storm sewers and lagoons. Nuisance properties were cleaned up in 2019 along with sewer draining improvements. One item of concern is access to water in the event of a fire. They are working to increase water capacity and look into a water storage tank. Zoning and flood plain questions are addressed through the finance office. They defer to the county standard of 1810.7 for the floodplain. There is also a nursing home that needs assistance in the event of storms. The previous storm shelter that the city used was the old school. However, the old school was sold to a private resident so not the town needs a storm shelter.

Waubay: Waubay has lost several homes due to flooding over the last twenty years. Approximately 40 in the early 2000s and eight in the last five. This has significantly reduced the property tax revenue of the town. Rush lake, Blue Dog Lake and Bitter Lake surround Waubay and the increase in water reduced the footprint of the town, causing homes to be acquired by FEMA through HMGP or covered in water. Waubay had many infrastructure projects to reduce the impact of flooding on their water and wastewater system. The town built a new lagoon and kept their old one as a backup, however, due to the location of the lagoon to Bitter Lake, the wave action and increasing water has eroded the rip rap on the lagoon. These projects reduce the available taxes for the town. Building new homes is significantly impacted by the floodplain and the lack of available land in Waubay. Commercial development is impacted by the lack of land for building for businesses. Waubay has a dependance on the hunting and fishing industry. After a windstorm, the city built a storm shelter that was attached to their fire station. This shelter can hold up to 400 people and is used for residents and the seasonal population. Waubay's building process is through the finance office and all structures must be located above 1810.7 per their floodplain ordinance.

Waubay has also been impacted by severe weather. They were approved for a storm shelter which completed construction in spring of 2025. This reduced the vulnerability of their seasonal population to severe storms. Waubay has a significant seasonal population and some of the homes in the area are second homes.

UNIQUE OR VARIED RISK ASSESSMENT

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

> ***B1-f****. For the multi-jurisdictional plans, when hazard risks differ across the planning area and between participating jurisdiction, the plan must specify the unique and varied risk information for each applicable jurisdiction and their assets outside the planning area.*

Most of the natural hazards identified in the risk assessment have an equal chance of occurrence in the county and have similar risks county-wide. While the extent to which each jurisdiction is affected by hazards other than flooding varies slightly between the local jurisdictions, the implications are the same. Development trends and land use were assessed by each jurisdiction's representatives to the planning committee.

Day County:
Day County has indicated that they have a high vulnerability to: Drought, Extreme Cold and Heat, Flood, Freezing Rain/Sleet, Hail, Heavy Rain and Snow, Lightning, Rapid Snow Melt, Strong Winds, Thunderstorms, Tornadoes, Utility Disruption, and Wildfire. There is a medium risk of: Flash Flood, Ice Jam, Urban Fire.

The western part of the county does not have the same high-water risk that the eastern part of Day County has. The Waubay Chain Lakes run along the eastern edge of Day County, creating bottlenecks of water in the area. The increasing water in this area has reduced development and increased the costs of road improvements which reduces the tax base due to homes being acquired or relocated due to floodwater. Agriculture in this part has been significantly impacted due to the increased amount of land covered in water that was previously used for farming. Road access for ambulances can be significantly impacted in areas of high water. If a road is not marked as being unavailable, the ambulance can waste valuable time going down a road that winds up being inaccessible.

The flooding in Eastern Day County is unique because there is no natural outflow for the waters. The Waubay chain lakes end at Bitter Lake, which must be at a height of 1812.1, based on a study from USGS in 1999, to have the waters flow naturally out of the area and flow south. High water tables impact access for basements. Many residents can only install a crawlspace. Some residents who have crawlspace must continually keep sump pumps running to keep the water in the crawlspace at a minimum.

Other natural hazards have a similar impact countywide. This is due to the widespread nature of hazards. Extent does vary slightly; most hazards tend to be county wide and cause similar risks to jurisdictions. Day County has a high seasonal population, especially around the Waubay chain of lakes.

Day County owns their ambulance service, which assists residents with access to healthcare. There are fire departments throughout the county. Webster, Andover, Bristol, Pierpont, Roslyn and Waubay are all staffed with a fire department and coordinate when needed. The Day County survey showed that 58% of respondents said they had been negatively affected by a natural hazard in the last ten years. A natural hazard caused damage to personal property for 58% of respondents. 21% had to take an alternate route to work/school/town. 74% have a safe place to go in the event of a storm. Need for a storm shelter was almost split with 47% stating that there was a need and 53% stating there wasn't. As for knowledge of location of storm shelters, 37% started that they knew where one was located while another 37% stated they didn't know. Power loss is a concern. 58% of residents do not have access to power in a storm. Of those that do have access to power 21% said they could last a day without power, another 21% said they could las 2-4 days and another 21 % said they could last 4-10 days. 25% said they could survive more than 10 days without access to power.

When asked what can be done to mitigate natural hazards in Day County, most respondents stated they were not sure. Some mentioned warnings and alerts were needed, which indicated an item the county could teach residents about access to their weather alert app. Another stated that emergency supplies and preparedness along with drainage and power line improvements, improving roads, and backout power.

Table 4.58: Day County Emergency Communication Methods	
Area Newspaper	*Reporter and Farmer*
Social media (Facebook)	Day County Emergency Management, Day County Ambulance, Day County Sheriff's office, Webster Police Department, Webster Area Development Corporation, Waubay SD Community,
Sirens	All communities that are in Day County
Text Alerts AlertSense	County service – alerts sent through the Day County Sheriff's office.

Webster:
Webster has indicated they have a High are vulnerability to: Drought, Heavy Rain and Snow. They have a medium vulnerability to: Flash Flood, Flood, Freezing Rain/Sleet, Hail, Strong Winds, Thunderstorms, Tornadoes, Urban Fire, Utility Disruption, and Wildfire.

Webster has the largest population in the county and several resources and provides aid to surrounding communities when requested. Webster has a clinic, ambulance service, and a fire department. Webster's access to resources and size affects its ability to manage in a disaster. Webster has a seasonal population.

Webster has SD Highway 12 running through it. This allows easy access to the town and increases the traffic through it. Webster is finishing a water and wastewater project and is looking to make improvements to the industrial park wastewater system. They have generators at their lift stations and two sources of water.

Webster has one area of town that can flood. Current development is kept to a minimum due to the tendency to flood. There are businesses nearby that can be affected if water

reaches a significant level. Webster has a campground and trailer park that are more vulnerable in windstorms or tornadoes. Tie-down ordinances assist with the safety of these structures by ensuring that they are not blown off their foundation in high wind events. There is a storm shelter at the armory and the county courthouse. The county courthouse has a generator for access to power.

Webster is upgrading their storm sewer system in certain areas to be able to handle greater water inflows. The areas will get curb and gutter to assist with stormwater handling. Webster also needs to install liner in their wastewater pipes at the Industrial Park. Currently, the gaskets have shrunk, allowing infiltrates into the system, overworking their lift station.

Bristol:
Bristol has no item ranked High Vulnerability. They did indicate that they have a medium vulnerability to: Extreme Cold and Heat, Freezing Rain/Sleet, Hail, Lightning, Strong Winds, Thunderstorms.

Bristol has a nursing home at Sundial Manor. There is nowhere safe to take residents of the Manor. In the event of a fire, Bristol does not have a secondary source of water. They also do not have generators for their lift station. If the power was to fail, there would be nothing to ensure the lift station keeps working. Their lift station would struggle in times of high rainfall.

Grenville: Grenville has indicated that they have a High Vulnerability to: Extreme Cold and Heat, Freezing Rain and Sleet, Hail, Heavy Rain and Snow, Lightning, Strong Winds, Thunderstorms and Utility Disruption.

Grenville has had some development with replacement or the equipment at their city park in the town. There has been a reduction in population and structures. This makes Grenville more vulnerable due to the lack of resources for the community. Grenville is near Waubay Lake and is vulnerable to county-wide storms and events that affect the rest of the county. Although they are close to Waubay Lake, they showed they have a low vulnerability to flooding. The average elevation of Grenville is 1850 feet, well above the base flood elevation of 1810.7. County roads leading to Grenville can be flooded causing alternative routes to be taken.

Waubay:
Waubay has indicated that they have a High vulnerability to: Extreme cold, Flood, Freezing Rian/Sleet, Strong Winds, Tornadoes, and Urban Fire. They have a Medium vulnerability to: Extreme Heat, Hail, Heavy Rain and Snow, Lightning, Rapid Snow Melt, Thunderstorms, Utility Disruption and Wildfire.

Waubay is vulnerable to high wind events and tornadoes due to the high-water table. This prevents residents from building basements and having their own structures to seek safety. Waubay has built a storms shelter attached to their fire departments in response to high wind events in 2008, 2015, and 2022.

Waubay has a large seasonal population. Many of the homes in the area are second homes. There are also camp sites and during the summer, many fishermen taking advantage of the lakes and on the water.

Waubay has a high vulnerability to flooding due to the Waubay Chain Lakes. These lakes do not drain like normal lakes. Bitter is the last of the chain lakes and is where the water flows and collects. The size of Bitter and Blue Dog has increased greatly in the last 30 years. This encroachment on Waubay has caused 40 acquisitions in the early 2000s by FEMA and 8 more in 2021 along with 2 relocations. This reduces the tax base, which decreases Waubay's available funds.

V. MITIGATION STRATEGY

CHANGES/REVISIONS TO THE MITIGATION SECTION:

- Goals were changed to reflect participant communities and changes in some of the priorities and completed projects.
- Goals that were completed were updated. Ongoing mitigation projects are listed.
- Projects were transitioned into a table format and organized by county and jurisdictions. Nonparticipating jurisdictions were listed under the project format. However, due to lack of participation, they will be required to go through the county for projects.

MITIGATION REQUIREMENTS

Requirement 201.6(c)(3): *Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs?*

C1-a*. The plan must describe the existing authorities, policies, programs, funding, and resources of each participant are available to support the mitigation strategy.*

C1-b*. The plan must describe the ability of each participant to expand on and improve the capabilities described in the plan.*

Requirement 201.6(c)(3)(i): *Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards?*

C3-a*. The plan must include goals to reduce the risk of the identified hazards. Goals must be consistent with the hazards identified in the plan.*

Requirement 201.6(c)(3)(iii): *Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure?*

C4-a. *The mitigation strategy must include an analysis of a comprehensive range of actions of projects that the participants considered to specifically address vulnerabilities identified in the risk assessment.*

C4-b*. Each plan participant must identify one or more mitigation actions the participant(s) intends to implement for each hazard addressed in the risk assessment.*

Requirement 201.6(c)(3)(iii): *Does the plan contain an action plan that describes how the actions identified will be prioritized, implemented, and administered by each jurisdiction?*

C5-a. *The plan must identify who is responsible for administering each action, along with the actions' potential funding sources and expected timeframes for completion.*

C5-b*. The action plan must identify who is responsible for administering each action, along with the action's potential funding source and expected time frames for completion.*

MITIGATION OVERVIEW

The State Hazard Mitigation Plan addresses several mitigation categories including warning and forecasting, community planning, and infrastructure reinforcement. Day

County and the participants' greatest needs are flood mitigation, generators, storm shelters and public awareness. There are several aspects tied to the State's plan.

A main concern for Day County is flooding. Due to its history, Eastern Day County is highly susceptible to flooding. Distribution of information on flooding and flood plains and reducing risk should be given to homeowners so they can address potential issues with their homes. High winds are also another concern for residents. Owners (and renters) need to identify safe places within their homes and nearby locations if necessary. Local radio stations and weather advisory systems announce severe weather over the radio or social media. School closings, activity postponements, and travel advisories are communicated by radio, social media, and text. Alerts are sent to area users' phones through AlertSense. Residents can submit their information to the system and sign up.

IDENTIFICATION AND ANALYSIS OF MITIGATION ACTIONS FOR PARTICIPATING JURISDICTIONS

After meetings with the local jurisdictions and opportunities for public input, mitigation goals were devised to best aid the County in reducing and lessening the effects of hazards. Projects previously identified in the 2020 Natural Hazard Mitigation Plan were carefully analyzed and discussed to determine which projects had merit to be in the updated plan and determine if the projects meet the mitigation needs of the county.

Goals and projects were focused on FEMA BRIC community lifelines. Storm shelters contribute to safety, security, and communication. Storm sewers, levees, and holding ponds create ways to store water safely from residents, reducing the impact of the flooding on community and all systems. Generators contribute to energy lifelines but also aid in the medical and health lifelines, allowing residents to continue to receive medical care. Flooded roads impact emergency response and transportation so storm sewer projects that were included keep hazards away from infrastructure and homes. Education, awareness, and ordinances help residents know how to respond to hazards, increasing safety. Removal of threats such as trees that could fall keeps residents safe from the additional dangers that can occur when a natural hazard event happens.

A timeframe for completion, oversight, funding sources, and other relevant issues were addressed. The implementation strategies are designed for the specific goal and area. Often, these projects will not encounter any resistance from environmental agencies, legal authorities, and political entities. When there are concerns, they will be addressed by the jurisdiction.

PRIORITIZATION OF MITIGATION ACTIVITIES

Requirement 201.6(c)(3)(iii) … *Does the plan contain an action plan that describes how the actions identified will be prioritized, implemented, and administered by each jurisdiction?*

> ***C5-a****. The plan must describe the criteria used for prioritizing the implementation of the actions.*

Plan participants were instructed that a Benefit Cost Analysis would be required when applying and the plan author advised that specific details of each project could be analyzed during the application period. Ongoing projects and projects without cost that were listed in the 2020 Plan were reviewed and evaluated based on a cost/benefit ratio and priority from high to low. A *high* priority classification means that the project should

be implemented as soon as possible and would effectively minimize losses. A *moderate* classification means that the project should be considered and completed after the high priority projects have been completed. A *low* priority means that the project should not be considered soon but is a potential solution and should not be eliminated until further evaluation. Such projects may be completed considering closures of all other projects striving toward the same goal.

Funding discussions took place with plan participants who chose the goals and actions for mitigation projects. Many small rural towns and townships have problems accomplishing capital improvements due to more restricted budgets and fewer revenue options. The concern is the required 25% match for mitigation projects with FEMA funding and meeting the required Benefit Cost Analysis due to population. Options for the town's portion such as an in-kind match were discussed to cover the cost. Projects were prioritized by the number of residents to benefit, cost, and the reduction in damage after implementation. Projects are listed from Table 5.1 to Table 5.3. The focus of mitigation will be on the project that the community chose.

Projects that were not needed were removed. Some projects were similar and left in the plan. Those projects were condensed and prioritized. Projects were grouped based on the hazards that each participating jurisdiction indicated were either high or medium risk and those that tend to occur at the same time. Projects with a low or no risk of occurring in the hazard area were not considered. Coordination with other jurisdictions to have a multi-jurisdictional project was also an option that was discussed. The main entity or office responsible for project implantation is bold.

If a mitigation action lists multiple responsible jurisdictions, oversight is assigned to the corresponding jurisdiction unless otherwise specified.

Table 5.1: Mitigation Goals and Actions
Flood Hazard Events
Section 1: Mitigation to reduce the impact of flooding in Day County
Goal #1: Reduce the impact of floods, flash flood, and rapid snow melt.

Project: #1	Continue to manage floodplain by adhering to floodplain ordinance and enforcing regulation of floodplain development (ongoing) and NFIP participation.
Responsible Entity	**Day County Commission Chairman**, SD OEM, FEMA,
Priority	High
Funding Source	Day County general funds, FEMA FMA, FEMA HMA
Timeframe	Ongoing
Cost	$500-$1,000 a year
Notes	Combined actions 1 and 2 into a project from the 2020 plan to reduce redundancy.

Project: #2	Identify and acquire or relocate properties that are compromised by the Waubay Chain lakes and flooding.
Responsible Entity	**Day County Commission Chairman**, SD OEM, FEMA
Priority	High
Funding Source	Day County general funds, FEMA FMA, FEMA HMA
Timeframe	Ongoing
Cost	$100,000 to $600,000 per location
Notes	Combined projects 1 and 2 to reduce redundancy in the plan.

Project: #3	Identify roads that need grade raises and raise roads
Responsible Entity	**Day County Commission Chairman**, SD OEM, FEMA, SD DOT
Priority	High
Funding Source	Day County general funds, FEMA HMA, FEMA FMA, SD DOT
Timeframe	As soon as possible
Cost	$100,000 to $1,000,000 per location
Notes	This is to ensure that roads are passable in the event of high water.

Project: #4	Investigate options for drainage of the Waubay-Bitter basin.
Responsible Entity	**Day County Commission Chairman**, SD OEM, FEMA, USACE
Priority	High
Funding Source	Day County General funds, USACE
Timeframe	Ongoing
Cost	$100,000-$500,000
Notes	There is a study that the USACE is working on for the Waubay Chain lakes and the best way for the county to respond.

These Projects were removed by County	
Project: REMOVED	Use HAZUS software to determine flood risk throughout the county.
Responsible Entity	
Priority	
Funding Source	
Timeframe	
Cost	
Notes	Day County has updated flood maps that were completed by FEMA and approved by the county and finalized 3/13/2024

Project: REMOVED	Add automatic lake level monitoring systems on Pickerel Lake, Enemy Swim, Bule Dog Lake, Bitter Lake, Waubay Lake, and Lynn Lake.
Responsible Entity	
Priority	
Funding Source	
Timeframe	
Cost	
Notes	This was removed because the state has a monitoring system for the lakes.

Section 2: Mitigation to reduce the impact of summer and winter storms.
Goal #1: Reduce the impact of severe summer and winter storms including strong winds, tornadoes, freezing rain/sleet, hail, heavy rain, heavy snow, lightning, and extreme cold and reduce the impact of potential utility disruption to residents.

Project #1	Generators for essential buildings throughout the county.
Responsible Entity	**Day County Commission Chairman**, SD OEM, FEMA,
Priority	High
Funding Source	Day County General funds, FEMA HMA, FEMA FMA
Timeframe	1-5 years
Cost	$100,000-$500,000 per location
Notes	County buildings such as the ambulance building and utility shop are emergency structures that need power in the event of an outage.

Project #2	Education and outreach to residents and visitors
Responsible Entity	**Day County Commission Chairman**, Day County OEM,
Priority	High
Funding Source	Day County general funds
Timeframe	Ongoing
Cost	$100-$1,000 annually
Notes	Ongoing outreach to residents and visitors is essential to communicate storm shelter locations and what to do in the event of a storm. Kits such as weather radios and essential item lists can be given to residents.

Project #3	Prepare vulnerable populations for severe weather, including special needs facilities. Installation of weather radios for use during severe weather to assist planning in hazardous events.
Responsible Entity	**Day County Commission Chairman**, Day County OEM
Priority	High
Funding Source	Day County general funds
Timeframe	Ongoing
Cost	$100-$1,000 annually
Notes	This would ensure that public locations had weather radios to respond during weather events.

The following projects were removed by the county.	
Project COMPLETED	Generator for Day County Courthouse.
Responsible Entity	**Day County Commission Chairman**, FEMA, SD OEM
Priority	
Funding Source	Day County general funds, FEMA HMA
Timeframe	
Cost	$100,000
Notes	This was completed so county offices had power in the event of an outage.

Section 3: Mitigation to reduce the impact of Dam Failure.
Goal #1: Reduce the impact of dam failure.

Project #1	Ensure that the floodplain is regulated and ensure that compliance with existing land use and growth plans to reduce building in the areas downstream of the dams.
Responsible Entity	**Day County Commission Chairman**, SD OEM
Priority	High
Funding Source	Day County Commission
Timeframe	Ongoing
Cost	$500-$1000 annually
Notes	This is a review to see if laws, ordinances, and building codes need to be revised in areas surrounding Pierpont Dam and Amsden Dam.

Project #2	Work with SD School and Public Lands to create a Planning Committee to review and update or rewrite the Pierpont Dam Emergency Preparedness Plan.
Responsible Entity	**Day County Commission**, Day County Emergency Manager, Day County Highway Department, SD OEM, FEMA, Pierpont
Priority	High
Funding Source	**Day County general funds**, School and Public Lands funding, SD GF&P, SD OEM, FEMA HMA, FMA
Timeframe	3 – 5 years.
Cost	**$10000 to 100000**
Notes	The current plan does not include the dam by SDDCR or the Cemetery Dam. Both have had reports that stated concerns about the stability of the dams.

Project REMOVED	Develop policies regarding development in hazard prone areas below the dams.
Responsible Entity	
Priority	
Funding Source	
Timeframe	
Cost	
Notes	Project was removed due to redundancy with project #1.

Project REMOVED	Review existing laws, building codes, and land development ordinances to determine if new legislation or amendments are needed.
Responsible Entity	
Priority	
Funding Source	
Timeframe	
Cost	
Notes	Project removed due to redundancy

Project REMOVED	Review existing laws, building codes, and land development ordinances to determine if new legislation or amendments are needed.
Responsible Entity	
Priority	
Funding Source	
Timeframe	
Cost	
Notes	Project removed due to redundancy

Project REMOVED	Consider repairs on the spillway of Pierpont Dam
Responsible Entity	
Priority	
Funding Source	
Timeframe	
Cost	
Notes	Project #4 removed because it is owned by the SD School and Public Lands who, when reached out to, were not going to repair the dam. The estimated cost in 2008 was $419,000 information about Pierpont Dam is in the appendix.

Section 3: Mitigation to reduce the impact of Wildfire/Drought.
Goal #1: Reduce the impact of wildfires, extreme heat and drought.

Project #1	Increase landowner participation in taking proactive measures to reduce the risk of wildfire.
Responsible Entity	**Day County Commission Chairman**, Day County OEM
Priority	High
Funding Source	Day County general funds
Timeframe	Ongoing
Cost	$100-$1000 annually
Notes	This includes ongoing campaigns to educate residents and landowners of the dangers of open burning and keeping the current burn ban process of having residents call to request permission to burn and be granted based on current weather conditions.

Project #2	Promote education programs for fire protection and water usage
Responsible Entity	**Day County Commission Chairman**, Day County OEM
Priority	High
Funding Source	Day County general funds
Timeframe	Ongoing
Cost	$100-1000 annually
Notes	This creates public awareness around water conservation and ways to protect structures from fires.

Project #3	Promote efforts to educate the public about smoke alarms in residences, businesses, and facility.
Responsible Entity	**Day County Commission Chairman**, Day County OEM
Priority	High
Funding Source	Day County General funds
Timeframe	Ongoing
Cost	$100-1000 annually
Notes	This would ensure an educational campaign around fire awareness and fire alarms for residents.

Project #4	Educate the public and assist in developing defensible space around homes and farm structures to prevent fires from affecting structures.
Responsible Entity	**Day County Commission Chairman**, Day County OEM
Priority	High
Funding Source	Day County General funds
Timeframe	Ongoing
Cost	$100-1000 annually
Notes	This would ensure an educational campaign around fire awareness and fire alarms for residents.

Project #5	Continue the burn ban process of the county and review as necessary.
Responsible Entity	**Day County Commission Chairman**,
Priority	Low
Funding Source	Day County general funds
Timeframe	Ongoing – next 1-5 years
Cost	$1000 – annually administration costs
Notes	This is low priority because the burn ban process is already in place and reviewed consistently by the commission. The burn ban is in place and a constant process. The landowner must inform the 911 dispatch of a burn, even if the county is not in drought.

Project #6	Share information about locations in the community that can be used for heat shelters if they do not have air conditioning.
Responsible Entity	**Day County Commission**, Day County Emergency Manager, Day County Highway Department, SD OEM, FEMA
Priority	Low
Funding Source	**Day County**, FEMA BRIC, FEMA FMA, SD DOT, SD GF&P
Timeframe	Ongoing – annual outreach through social medica
Cost	$1000
Notes	This would inform the public to safe areas to locate during a high heat event.

Project #7	Inform landowners about fuel management including clearing brush, cutting high grass, planting fire-resistant plants, and creating fuel/fire breaks.
Responsible Entity	**Day County Commission**, Day County Emergency Manager, Day County Highway Department, SD OEM, FEMA
Priority	Low
Funding Source	**Day County**, FEMA BRIC, FEMA FMA, SD DOT, SD GF&P
Timeframe	Ongoing – annual outreach through social medica
Cost	$1000
Notes	This would illustrate the impact natural hazards have on wildlife. Hunting and fishing are an important part of the Day County economy and knowing the risk is the first step in mitigating the risks.

Project #8	Educate farmers and landowners on soil and water conservation, i.e. collect rainwater, construct windbreaks, and rotating crops.
Responsible Entity	**Day County Commission**, Day County Emergency Manager, Day County Highway Department, SD OEM, FEMA
Priority	Low
Funding Source	**Day County**, FEMA BRIC, FEMA FMA, SD DOT, SD GF&P
Timeframe	Ongoing – annual outreach through social medica
Cost	$1000
Notes	This would illustrate the impact natural hazards have on wildlife. Hunting and fishing are an important part of the Day County economy and knowing the risk is the first step in mitigating the risks.

MULTI-JURISDICTIONAL PLAN REQUIREMENTS

Requirement §201.6(c)(3)(iv): *For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval of credit of the plan.*

The participating jurisdictions prioritized projects by the ones that would have a great impact and benefit public needs. Current prioritization methods were feasibility, impact to the public, improvements that offer greatest operational flexibility, and benefits to cost ratio. Some of these items may shift in the future depending on circumstances that shift the analysis and priorities. Final costs will be based on bid costs and will be updated as the process moves forward. Each project must meet FEMA's Benefit Cost Analysis as a pre-requisite for funding through FEMA programs.

Previous plans had included the townships. Due to budget constraints and lack of participation in the 2016 and 2020 plan, the township projects were included as part of the county's project list. The county has the capacity to address the projects that were previously listed as part of the township plan. Participants in the plan included Webster, Bristol and Waubay. Andover, Grenville, Pierpont, and Roslyn.

Table 5.2: Mitigation Goals and Actions
Section 3: Mitigation to reduce the impact of flooding.
Goal #1: Reduce the impact of floods, flash flood, and rapid snow melt.

Project #1	Continue to manage the floodplains and work with FEMA on the new flood maps to ensure compliance and participate with all regulations of NFIP.
Responsible Entity	**Bristol, Grenville, Waubay, Webster Mayor, Day County Emergency Manager, SD OEM, FEMA**
Priority	High
Funding Source	Participating Jurisdictions, general funds, FEMA, SD OEM
Timeframe	1-3 years
Cost	$1000 to $5000 annually
Notes	This project was combined with other similar sounding projects listed in all participating jurisdictions.

Project #2	Address flooding and drainage issues with a hydrology study to determine the parts of town that need culvert resizing and/or grade raises.
Responsible Entity	**Webster, Pierpont Mayors, FEMA, SD OEM, SD DOT**
Priority	High
Funding Source	Participating jurisdictions general funds, FEMA HMA, FEMA FMA, SD DOT general funds
Timeframe	1-5 years
Cost	$100,000-2 million depending on location and work needed
Notes	

Project #3	Evaluate storms sewers and determine if repairs or replacement are needed and repair and replace if it is.
Responsible Entity	**Webster City Mayor**, SD OEM, FEMA, SD DANR, USDA RD
Priority	High
Funding Source	Webster City Council, FEMA FMA, FEMA HMA, SD DANR SRF loan funds, USDA RD loan funds, USDA RD CF
Timeframe	3-6 years
Cost	$50000 to $5 million
Notes	May need a larger size pipe to ensure the ability to drain water efficiently and will need to reevaluate current storm sewer conditions.

Project #4	Installation of a culvert on the north side of highway 12 near Webster to ensure sufficient flow of water of Waubay Lake.
Responsible Entity	**Webster City Mayor**, SD OEM, FEMA, SD DOT
Priority	High
Funding Source	Webster General funds, FEMA FMA, FEMA HMA, SD DANR SRF loan funds, USDA RD loan funds, USDA RD CF
Timeframe	3-5 years
Cost	$100000-$500000
Notes	The culvert would be able to be open and closed depending on the flow of water from Waubay Lake to prevent possible flooding of Highway 12 and Webster Main St.

Project #5	Identify flood prone properties and possible participants for HMGP acquisition and relocation.
Responsible Entity	**Waubay Mayor**, SD OEM, FEMA
Priority	Medium
Funding Source	Waubay city council, SD FEMA HMA, FEMA FMA,
Timeframe	3-5 years
Cost	$1000-$10000
Notes	

Project #6	Continue enforcement of the sump pump ordinance.
Responsible Entity	**Waubay Mayor**
Priority	Medium
Funding Source	Waubay general funds
Timeframe	1-5 years
Cost	$1000-$5000 a year
Notes	

Project #7	Continue participation in the mitigation planning process to ensure all practical measures of mitigation are implemented and continue to gain knowledge of future mitigation actions that can be implemented.
Responsible Entity	**Waubay city Mayor**, SD OEM, FEMA
Priority	Medium
Funding Source	Waubay general funds, FEMA HMA, FEMA FMA
Timeframe	1-5 years
Cost	$500-$1000
Notes	

Section 2: Mitigation to reduce the impact of summer and winter storms.
Goal #1: Reduce the impact of severe summer and winter storms including strong winds, tornadoes, freezing rain/sleet, hail, heavy rain, heavy snow, lightning, and extreme cold. and reduce the impact of potential utility disruption to residents.

Project #1	Install generators to ensure access to electricity in the event of power loss.
Responsible Entity	**Andover, Bristol, Grenville, Waubay, Webster city mayors**, SD OEM, FEMA
Priority	High
Funding Source	Participating jurisdictions general funds, FEMA HMA, FEMA FMA,
Timeframe	3-5 years
Cost	$25000-$500,000 per generator
Notes	Generators can be installed at water towers, fire stations, lift stations, city halls, and saferooms. Generators will decrease vulnerability by allowing access to power especially for vulnerable populations with powered medical devices and will ensure communications with electronic services.

Project #2	Construct storm shelters for summer and winter storms and high wind events
Responsible Entity	**Bristol city mayor**, FEMA, SD OEM
Priority	High
Funding Source	Bristol City council, FEMA HMA, FEMA FMA
Timeframe	3-5 years
Cost	$1,000,000 to $5,000,000 per saferoom
Notes	

Project #3	Obtain NOAA weather radios for the nursing homes to ensure practical measures of mitigation are implemented and continue to receive input on future mitigation measures.
Responsible Entity	**Roslyn City mayor**
Priority	Low
Funding Source	Roslyn City council,
Timeframe	5 years
Cost	$1000 – 5000
Notes	

Section 3: Mitigation to reduce the impact of Dam Failure.
Goal #1: Reduce the impact of dam failure.

Project #1	Implement a feasibility study for dam repairs at the Pierpont Dam and make needed repairs.
Responsible Entity	**Pierpont city mayor**, FEMA FMA, FEMA HMA, SD School & Public Lands,
Priority	Medium
Funding Source	Pierpont city council general funds, SD School & public lands general funds, FEMA FMA, HMA
Timeframe	5 or more years
Cost	$50000 to $100000
Notes	

Project #2	Enforce inspection schedules and maintain the action plan in the event of damage or degradation to Day County Dams.
Responsible Entity	**City Council** in: Pierpont
Priority	High
Funding Source	**Participating Jurisdictions**, **Private Dam owners**, FEMA BRIC, SD OEM, SD School and Public Lands, SD Game, Fish and Parks,
Timeframe	
Cost	$50000 to 100000
Notes	Pierpont Dam has been identified by the owner, SD School and Public Lands, as deteriorating. If the dam were to breach, there is minimal impact except to fields and crops. The dam itself is under the authority of the SD School and Public Lands.

Section 3: Mitigation to reduce the impact of Wildfire/Drought.
Goal #1: Reduce the impact of wildfires, extreme heat and drought.

Project #1	Construct a water storage tank for additional reserves in the event of a fire.
Responsible Entity	**Bristol, Grenville, Andover mayor,** FEMA, SD OEM, SD DANR, USDA RD
Priority	High
Funding Source	Participating jurisdictions general funds, FEMA HMA, SD DANR SRF, USDA RD WEP, USDA RD CF
Timeframe	5 years
Cost	$1500000 – 2000000
Notes	

Project #1	Continue compliance with the County's burn ban process to ensure that fires within each jurisdiction to prevent fires.
Responsible Entity	**Webster, Bristol, Grenville, Andover Waubay mayor,** FEMA, SD OEM, SD DANR, USDA RD
Priority	High
Funding Source	Participating jurisdictions general funds,
Timeframe	5 years
Cost	$500 annually
Notes	

Project #2	Educate the public on water and soil conservation processes to prevent water loss before drought conditions begin.
Responsible Entity	**Webster, Bristol, Grenville, Andover Waubay mayors,** FEMA, SD OEM, SD DANR, USDA RD
Priority	High
Funding Source	Participating jurisdictions general funds,
Timeframe	5 years
Cost	$500 annually
Notes	

Project #3	Share information about locations in the community that can be used for heat shelters if they do not have air conditioning.
Responsible Entity	**Bristol, Grenville, Waubay, Webster Mayors, Day County Emergency Manager, SD OEM, FEMA**
Priority	Low
Funding Source	**Day County**, FEMA BRIC, FEMA FMA, SD DOT, SD GF&P
Timeframe	Ongoing – annual outreach through social medica
Cost	$1000
Notes	This would illustrate the impact natural hazards have on wildlife. Hunting and fishing are an important part of the Day County economy and knowing the risk is the first step in mitigating the risks.

Project #4	Communicate practices like planting vegetation to stabilize soil and applying mulches to reduce wind erosion in dust storms
Responsible Entity	**Bristol, Grenville, Waubay, Webster Mayors, Day County Emergency Manager, SD OEM, FEMA**
Priority	Low
Funding Source	**Day County**, FEMA BRIC, FEMA FMA, SD DOT, SD GF&P
Timeframe	Ongoing – annual outreach through social medica
Cost	$1000
Notes	This would illustrate the impact natural hazards have on wildlife. Hunting and fishing are an important part of the Day County economy and knowing the risk is the first step in mitigating the risks.

Project #5	Inform landowners about fuel management including clearing brush, cutting high grass, planting fire-resistant plants, and creating fuel/fire breaks.
Responsible Entity	**Bristol, Grenville, Waubay, Webster Mayors, Day County Emergency Manager, SD OEM, FEMA**
Priority	Low
Funding Source	**Day County**, FEMA BRIC, FEMA FMA, SD DOT, SD GF&P
Timeframe	Ongoing – annual outreach through social medica
Cost	$1000
Notes	This would illustrate the impact natural hazards have on wildlife. Hunting and fishing are an important part of the Day County economy and knowing the risk is the first step in mitigating the risks.

Project #6	Use existing warning systems and monitoring to integrate dust storms and dense smoke advisories to residents.
Responsible Entity	**Bristol, Grenville, Waubay, Webster Mayors, Day County Emergency Manager, SD OEM, FEMA**
Priority	Moderate
Funding Source	FEMA BRIC, SD OEM, the Jurisdictions,
Timeframe	Review annually as funding becomes available
Cost	$10000 to 50000
Notes	Increase warnings and monitoring of weather advisories for dense smoke and dust storms to reduce the impact of these hazards by reducing travel and outdoor activities.

Table 5.3: Completed and In Progress Mitigation Goals and Actions

Completed Mitigation Projects for Natural Hazards

Project COMPLETED	Andover storm sewer project along Railroad Ave.
Responsible Entity	Andover city council, DANR SRF
Priority	
Funding Source	Andover city, DANR SRF,
Timeframe	2020-2025
Cost	$1100000
Notes	

Project COMPLETED	Construct a storm shelter adjacent to the fire hall for summer storms and high wind events.
Responsible Entity	Waubay city council, FEMA SD OEM
Priority	
Funding Source	Waubay City council,
Timeframe	
Cost	$1,200,000
Notes	Waubay is still working to get a supplemental generator for the facility to ensure power in the event of a storm. (400 amp service - $24000)

IMPLEMENTATION OF MITIGATION ACTIONS

Requirement: 201.6(c)(3)(iii)) … *Does the plan contain an action plan that describes how the actions identified will be prioritized, implemented, and administered by each jurisdiction?*

***C5-a**. The plan must identify who is responsible for administering each action, along with the actions' potential funding sources and expected timeframes for completion.*

***C5-b**. The action plan must identify who is responsible for administering each action, along with the action's potential funding sources and expected time frames for completion.*

Upon adoption of the updated Day County Natural Hazard Mitigation Plan, each jurisdiction is responsible for implementing its mitigation actions. The planning required for implementation is the sole responsibility of the jurisdictions that participated in the plan update. All municipalities have indicated that they do not have the financial capability to move forward with projects identified in the plan currently, however, all will consider applying for funds through the State and Federal Agencies once funds are available. If and when the municipalities are able to secure funding for the mitigation projects, they will move forward with the projects identified. Since some of the local jurisdictions only had one mitigation action/goal, prioritization was not necessary. Jurisdictions with several mitigation projects will prioritize those projects in a manner that will ensure benefit is maximized to the greatest extent possible. A benefit cost analysis will be conducted on the project after the decision to move forward is made.

The 2025 Natural Hazard Mitigation Plan was approved after revisions were recommended by FEMA and made by the plan author. At that time, the plan was drafted under the requirements of the 2020 FEMA Mitigation version of the Crosswalk. Since then, FEMA has produced several planning documents to help aid in the development of local mitigation plans. Some of those documents include the Local Mitigation Planning Handbook from March 2013, and October 1, 2011, Plan Review Guide, and the Local Mitigation Plan Review Tool. Since disaster mitigation was a relatively new concept at that time, the same depth of planning was not utilized in the 2020 Plan as was used for the 2025 plan update. It is anticipated with the amount of time, energy, and professional guidance involved during the drafting process of the updated plan that the County has created a document that has validity and a clear purpose which will be more likely to fit in with the existing planning mechanisms that exist county-wide. Additionally, by involving most of the local jurisdictions and bringing the plan to the attention of neighboring communities, the planning process has brought more awareness of mitigation to residents in the County, which will encourage future involvement. This participation in the mitigation process will only add to the resiliency of Day County in the future.

VI: PLAN MAINTENANCE

CHANGES/REVISIONS TO PLAN MAINTENANCE:

- Programs were updated to reflect suggestions from FEMA.

MONITORING, EVALUATING, AND UPDATING THE PLAN

Requirement §201.6(c)(4)(i)): *Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating, and updating the mitigation plan within a five-year cycle)?*

D2-a*. The plan must identify how, when, and by whom the plan will be tracked for implementation over its five-year cycle.*

D2-b*. The plan must identify how, when and by whom the plan will be assessed for effectiveness at achieving its stated purpose and goals.*

D2-c*. The plan must identify how, when, and by whom the plan will be reviewed and revised at least once every five years.*

Day County and all the participating local jurisdictions will incorporate the findings and projects of the Natural Hazard Mitigation Plan in all planning areas as appropriate. Periodic monitoring and reporting of the plan are required to ensure that the goals and objectives are kept current and that mitigation efforts are being carried out. Day County and Webster have planning capabilities to incorporate the plan into current planning mechanisms. Although the other participating jurisdictions do not have the planning capabilities of the county and Webster, they will review the plan annually. NECOG will assist the communities with implementing this requirement by following up with the participating jurisdictions for changes. In the past, the participating jurisdictions, excluding Day County and Webster, have not incorporated the plan into their planning.

During implementation of mitigation strategies, the jurisdictions may experience lack of funding, budget cuts, staff turnover, and/or a general failure of projects. These scenarios are not a reason to discontinue and fail to update the Natural Hazard Mitigation Plan. A good plan needs to provide for periodic monitoring and evaluation of successes and failures and allow for appropriate changes to be made.

ANNUAL REPORTING PROCEDURES

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

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

FIVE YEAR PLAN REVIEW

Every five years the plan will be reviewed and completely updated. All information in the plan will be evaluated for completeness and accuracy based on new information. New

property development activities will be added and evaluated for impacts. New or improved sources of hazard related data will also be included.

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

The goals, aims, and mitigation strategies will be readdressed and amended as necessary based on new information, additional experience, and the implementation progress of the plan. The approach to this plan update effort will be the same as the one used for the original plan development. The Emergency Manager will meet with the Natural Hazard Mitigation Planning Committee for review and approval prior to final submission of the updated plan. The effectiveness of the plan will be determined by projects that are continuing current projects and completion of new projects. The plan review will be conducted at an open public meeting to allow for public input.

PLAN AMENDMENTS

Plan amendments will be considered by the Day County Emergency Manager, during the plan's annual review to take place at the end of each county fiscal year. All affected local jurisdictions (cities, towns, and counties) will be required to hold a public hearing and adopt the recommended amendment by resolution prior to considerations by the planning committee.

INCORPORATION INTO EXISTING PLANNING MECHANISMS

Requirement: 201.6(c)(4)(ii): *Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvements plans, when appropriate.*

- ***D3-a****. The plan must describe the communities' process to integrate the plan's data, information, and hazard mitigation goals and actions into other planning mechanisms.*
- ***D3-b****. The plan must identify the local planning mechanisms where hazard mitigation information/actions may be integrated. The identified list of planning mechanisms must be applicable to the plan participant(s) and not contradict the identified capabilities.*
- ***D3-c****. A multi-jurisdictional plan must describe each participant's individual process for integrating information from the mitigation strategy into their identified planning mechanisms.*

Day County and the participating jurisdictions will consider the mitigation requirements, goals, actions, and projects when it considers and reviews the other existing planning documents. Webster and Day County are the only jurisdictions that currently have comprehensive, or capital improvements plans. All the other jurisdictions are under the county for planning and zoning. Mitigation projects will be considered and prioritized in conjunction with non-mitigation projects, such as water and wastewater infrastructure improvements, new construction of schools, parks, etc.

The rest of the local jurisdictions cannot incorporate the requirements of the mitigation plan into other planning mechanisms because they do not have any other planning mechanisms that currently exist. The risk assessment which was conducted is specific

to mitigation actions and projects included in the Plan and is not tied into any other mechanisms that would initiate conversations or actions by the city councils to move forward with actions or projects outlined in the Plan. Absence of such mechanisms creates a problem for the local jurisdictions because ideas, projects, and actions identified due to the Natural Hazard Mitigation Plan update process often never move forward because they are forgotten so no mechanism exists to initiate the process of completing them. Local jurisdictions identified one unrelated mechanism that could be used to remedy the problem. Municipalities are required by State law to prepare budgets for the upcoming year and typically consider any expenditure for the upcoming year at that time. South Dakota Codified Law 9-21-2 provides that:

> The governing body of each municipality shall, no later than its first regular meeting in September of each year or within ten days thereafter, introduce the annual appropriation ordinance for the ensuing fiscal year, in which it shall appropriate the sums of money necessary to meet all lawful expenses and liabilities of the municipality….an annual budget for these funds shall be developed and published no later than December thirty-first of each year.

Since all the local jurisdictions except Day County and Webster lack planning mechanisms in which to incorporate the mitigation actions identified in this plan, it was determined that each year when the budget is prepared the municipalities will also consider the mitigation actions at that time. The local jurisdictions will post a permanent memo to their files as a reminder for them to incorporate their annual review of the mitigation actions identified into the budget preparation process. This does not require the projects to be included in the budget, it is a reminder to city officials that they have identified mitigation projects in the Plan that should be considered if the budget allows. Review of the plan will be completed annually with NECOG sending a worksheet for Emergency Mangers to review.

POTENTIAL FUNDING SOURCES

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

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

Federal

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

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

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

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

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

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

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

FMA is a pre-disaster grant program and is available to states on an annual basis. This funding is available for mitigation planning and implementation of mitigation measures only and is based upon a 75% Federal share/25% non-Federal share. States administer the FMA program and are responsible for selecting projects for funding from the applications submitted by all communities within the state. The state then forwards selected applications to FEMA for an eligibility determination. Although individuals cannot apply directly for FMA funds, their local government may apply on their behalf.

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

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

To meet these objectives, FEMA can fund up to 75% of the eligible costs of each project. The state or local cost-share match does not need to be cash; in-kind services or materials may also be used. With the passage of the Hazard Mitigation and Relocation Assistance Act of 1993, federal funding under the HMGP is now based on 15% of the federal funds spent on the Public and Individual Assistance programs (minus administrative expenses) for each disaster.

The HMGP can be used to fund projects to protect either public or private property, so long as the projects in question fit within the state and local government's overall mitigation strategy for the disaster area and comply with program guidelines. Examples of projects that may be funded

include the acquisition or relocation of structures from hazard-prone areas, the retrofitting of existing structures to protect them from future damage; and the development of state or local standards designed to protect buildings from future damage.

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

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

FEMA's Public Assistance Program, through Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, provides funding to local governments following a Presidential Disaster Declaration for mitigation measures in conjunction with the repair of damaged public facilities and infrastructure. The mitigation measures must be related to eligible disaster related damages and must directly reduce the potential for future, similar disaster damages to the eligible facility. These opportunities usually present themselves during the repair/replacement efforts.

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

Public facilities are operated by state and local governments, Indian tribes or authorized tribal organizations and include:

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

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

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

Title: SBA Disaster Assistance Program
Agency: US Small Business Administration

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

Title: Community Development Block Grants
Agency: US Department of Housing and Urban Development

The community Development Block Grant (CDBG) program provides grants to local governments for community and economic development projects that primarily benefit low- and moderate-income people. The CDBG program also provides grants for post-disaster hazard mitigation and recovery following a Presidential disaster declaration. Funds can be used for activities such as acquisition, rehabilitation or reconstruction of damaged properties and facilities and for the redevelopment of disaster areas.

Title: Drinking Water, Sanitary, & Storm Sewer Funding Agency: Department of Agriculture and Natural Resources
South Dakota's Department of Agriculture and Natural Resources allocates funding for South Dakota's Water, Wastewater and Stormwater projects. These projects are intended to improve and maintain infrastructure through grants, principal forgiveness and low interest loans.

Title: Water and Environmental Programs Agency: US Department of Agriculture and Rural Development
South Dakota's USDA Rural Development programs allocate funding for South Dakota's Water, Wastewater and Stormwater projects. These projects are intended to improve and maintain infrastructure through grants, principal forgiveness and low interest loans. Communities with a population of 10,000 residents or less are the focus of this program.

Title: Community Facilities Funding Agency: US Department of Agriculture Rural Development
Community Facilities Funding from USDA is an affordable option for communities to provide facilities for their community. The funding is a mix of grant and loan funds which is based on the median income of the population. These grant and loan funds can be used to assist jurisdictions in projects in primarily rural areas that have a population of less than 20,000 residents. Funding can be used to purchase, construct, and/or improve essential community facilities, purchase equipment and pay for related project expenses.

Local

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

Non-Governmental

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

CONTINUED PUBLIC PARTICIPATION/INVOLVEMENT

Requirement: 201.6(c)(4)(iii): *Is there discussion of how each community will continue public participation in the plan maintenance process?*

> ***D1-a.*** *The plan must describe how the participant(s) will continue to seek public participation after the plan has been approved and during the plan's implementation, monitoring, and evaluation.*

During interim periods between the five-year reviews, efforts will be continued to encourage and facilitate public involvement and input. The plan will be available for public view and comment at the Day County Emergency Management Office located at 711 W. 1st St Webster, SD and the NECOG office at 416 Production St. N. Ste #1 Aberdeen SD. Comments will always be received whether orally, written or by e-mail. All ongoing workshops and training courses will be open to the public and appropriately advertised. Ongoing press releases and interviews will help disseminate information to the public and encourage participation.

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

Annually, Emergency Management will work with each participating jurisdiction to fill out a worksheet reviewing hazards that occurred, damages that happened, mitigation measures used, and projects completed. A review of the worksheets will occur with the next mitigation plan update.