# SPINK 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 Spink County.
- Maps and figures were used to illustrate Spink County.
- Additional information was given surrounding BRIC.
- Demographic, economic and climate data was added to give additional details on the population of Spink County.
- National Flood Insurance Participation was added to the Spink County Municipalities Overview.

## INTRODUCTION

Natural hazards can severely impact the health, welfare, and security of Spink County residents. Residents are affected by storms, extreme temperatures, drought, flooding, tornados, high winds, and hail. Mitigation reduces the impact and costs of hazards. Spink 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 Spink 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, 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 Spink 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 Spink 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 Spink 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 tornados 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 Spink 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.*

## SPINK COUNTY PROFILE

### GEOGRAPHIC PROFILE

Spink County was established in 1873 as part of the Dakota Territory and was incorporated in 1879. Redfield, the county seat, was first settled in 1878 and was incorporated in 1883. Redfield became the county seat in 1886 after a six-year battle, with Ashton which resulted in an election choosing Redfield as the Spink County seat. As a crossway for the Chicago and Northwestern Railways, the town grew quickly. The Milwaukee, Chicago and Northwestern Railroads served the area bringing additional people and supplies. Only one major railway is still in use in the county – the Burlington Northern Santa Fe Railroad (BNSF) which runs north-south through Tulare, Redfield, and Mellette. The South Dakota Developmental Center was established in 1902 just north of Redfield and is still in operation today.

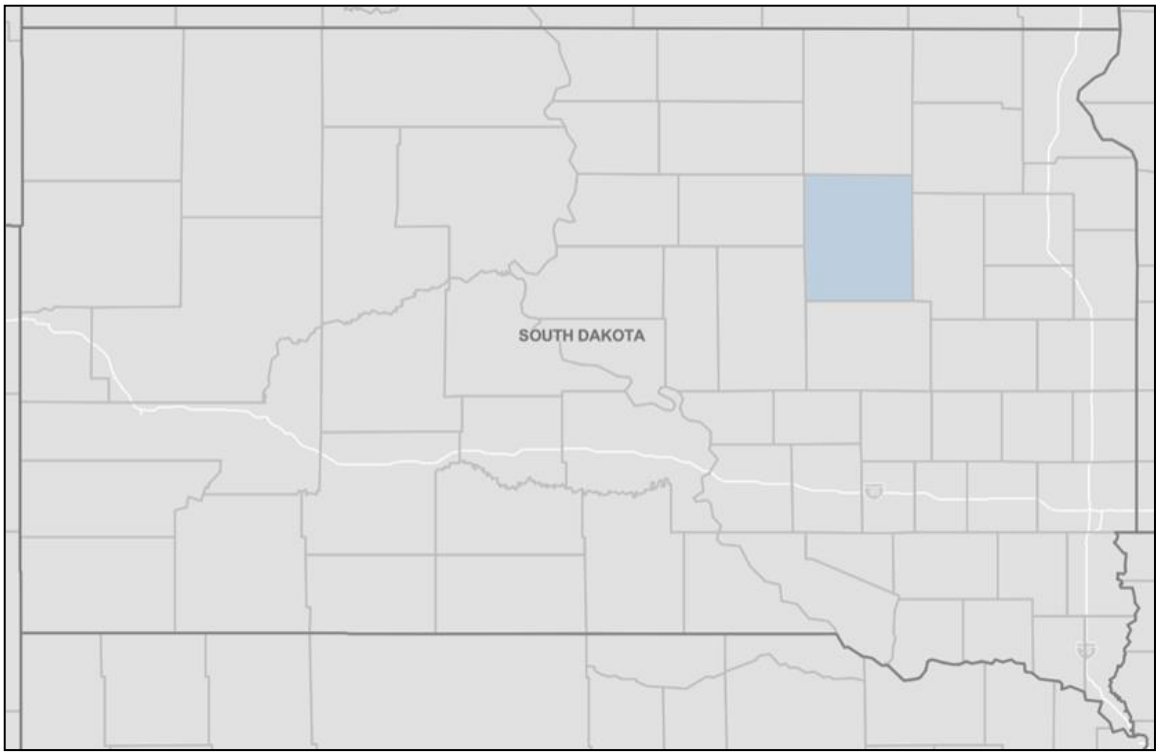



*Figure 1.1: Map of South Dakota*

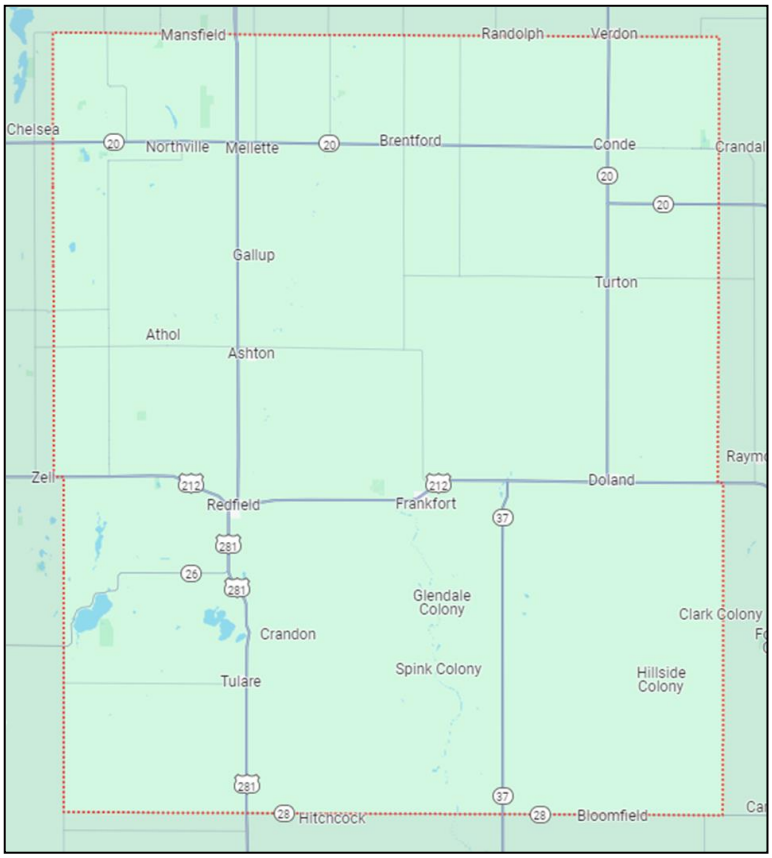



*Figure 1.2: Map of Spink County*

| Table 1.2: Spink County Fast Facts | |
|---|---|
| **Geographic Area** | • 1,504 square miles (17th largest county in SD by total area)<br>• 1,322 average feet elevation to a high of 1,424 square feet at northeast corner<br>• Total water area: 6.2 square miles<br>• Located at the north end of "tornado alley."<br>• Bordered by Faulk, Hand, Brown, Beadle, Day, and Clark counties. |
| **Waterways** | • Total water area: 6.2 square miles<br>• Rivers: James River<br>• Creeks: Turtle Creek, Timer Creek, Snake Creek<br>• Lakes: Twin, Cottonwood, Dudley, Bierman, Redfield, Mirage |
| **Soil Composition** | • Rich, deep river bottom lands near waterways to plain clay-based soils in west Spink |
| **Land Uses** | • Heavy croplands and pasturelands |
| **Major Highways** | • North/South: Highways 37 and 281<br>• East/West: Highways 212, 20, 26 and 28 |
| **Organization** | • Created in 1873<br>• Organized in Dakota Territory July 22, 1879<br>• Named after Secretary of State of South Dakota Honorable S.L. Spink |
| **Cities and Towns** | • Redfield (County Seat)<br>• Ashton, Conde, Doland, Frankfort, Mellette, Brentford, Northville, Tulare and Turton<br>• Athol*, Crandon*, and Mansfield* (* not incorporated)<br>• Five Hutterite Colonies: Clark, Fordham, Hillside, Glendale, and Spink<br>• 37 townships |
| **Water Supplier** | • Web Water Rural Water System<br>• Mid Dakota Rural Water System |
| **Electric Supplier** | • Northern Electric Cooperative |

*Table 1.2: Spink County Wikipedia, 2020 Natural Hazard Mitigation Plan*

The James River bisects the county north to south. It takes approximately one hundred miles of river to cover the fifty miles to cross the county and is the destination for runoff water in the county. Areas along the river occasionally flood due to slow-moving water.

| Table 1.3: Waterways of Spink County | | |
|---|---|---|
| **Classified Stream** | **From** | **To** |
| **Foster Creek** | James River | S6, T114N, R60W |
| **James River** | Missouri River | North Dakota Border |
| **Mud Creek** | James River | S.D. Highway 37 |
| **Snake Creek** | James River | S26, T124N, R66 |
| **South Fork Snake Creek** | Convergence with Snake Creek | S23, T118N, R70W |
| **Timber Creek** | James River | S31, T118, R61W |
| **Turtle Creek** | James River | S17, T113N, R65W |
| **Wolf Creek** | Turtle Creek | S10, T114N, R66W |

*Table 1.3: Waterways of Spink County data from Classified Streams Report*

Development of the Dakota Access crude oil pipeline, which crosses through Spink County was completed in 2017 at a cost of $3.78 billion. The 30-inch pipeline carries crude oil 1,172 miles from western North Dakota to Illinois. From there it connects to another line carrying oil from the Bakken in North Dakota to Gulf Coast refineries. In April 2011, the County started conversations about the pipeline and the following statement was provided as record of those discussions:

> *At a regular meeting of the Spink County Planning and Zoning Board held on April 5, 2011, the Board decided not to proceed with the writing of a hazardous materials pipeline ordinance for Spink County. This was not an easy decision to make, and a great deal of research and consideration went into this decision.*
>
> *The Spink County Planning and Zoning Board took several steps to write an ordinance that would protect our citizens, our natural resources, and our roads, while at the same time adhering to State and Federal guidelines regarding pipeline construction and safety. Pipeline ordinances from other counties across the nation were compiled and studied, as were case studies, safety statistics, articles, and numerous other types of research. Contacts from the local, State, and Federal levels were consulted regarding the feasibility of writing a pipeline ordinance, the rights of the county to enforce certain measures pertaining to pipeline construction and location versus existing State and Federal regulations. Since so many concerns of the county are already covered by State and Federal entities, the Planning and Zoning Board does not feel that it would be in the county's best interest to write an ordinance that simply reiterated what the State and Federal government have already dictated.*
>
> *The Planning and Zoning Board will explore measures to negotiate haul road agreements, conditional use permits, and noise buffer requirements if a hazardous materials pipeline runs through Spink County.*

The County chose not to approve their own ordinance due to the belief that they are already covered by the State and Federal regulations that are to be adhered to by the Dakota Access Pipeline.

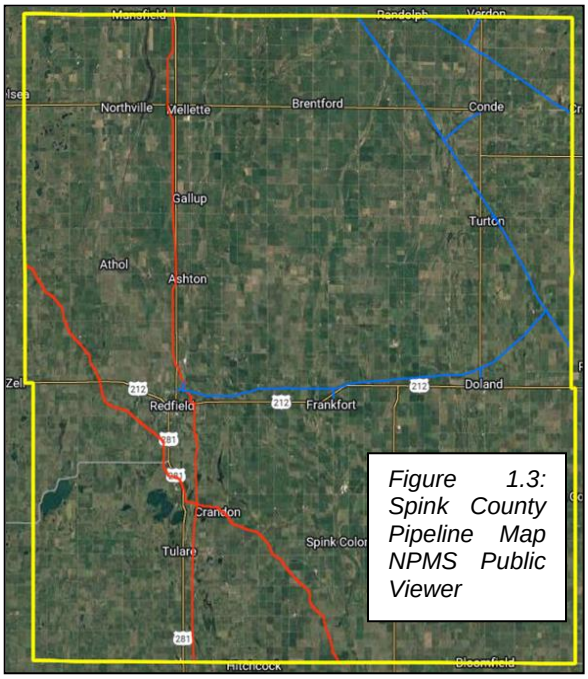



*Figure 1.3: Spink County Pipeline Map NPMS Public Viewer*

There is only one pump station for the Dakota Access Pipeline in South Dakota, which is located approximately seven miles southeast of Redfield. In Figure 1.3, there is a map of the hazardous liquid pipelines. The red lines represent oil pipelines while the blue lines represent natural gas transmission pipelines that run through Spink County.

Another pipeline that has been proposed to go through Spink County is a carbon pipeline. Summit Carbon Solutions has proposed a pipeline that runs through Spink County. The pipeline was denied through the Public Utilities Commission of South Dakota on September 11, 2023. However, Summitt Carbon Solutions has reapplied for a path through South Dakota from Iowa to North Dakota. The

justification for the project is carbon sequestration will help ethanol plants become more environmentally friendly and meet green initiatives for an environmentally friendly product. This would reduce the amount of carbon being released by these facilities, making their products follow carbon reduction guidelines. This pipeline would transport carbon to a sequestration facility removing it from the atmosphere and holding it underground.

Summitt is currently trying to attain the land from landowners to complete the project. One item of concern is concentrated carbon acidifies water, and a rupture would impact aquafers, lakes, and rivers. CO2 is an asphyxiant that would harm humans and animals if there was a leak. It would be difficult to help people caught around a leak due to the impact on machinery and that liquified CO2 sinks and the only way to remove it from the area is wind or weather. There are concerns that local Emergency Medical Services would not be equipped to safely handle a rupture.

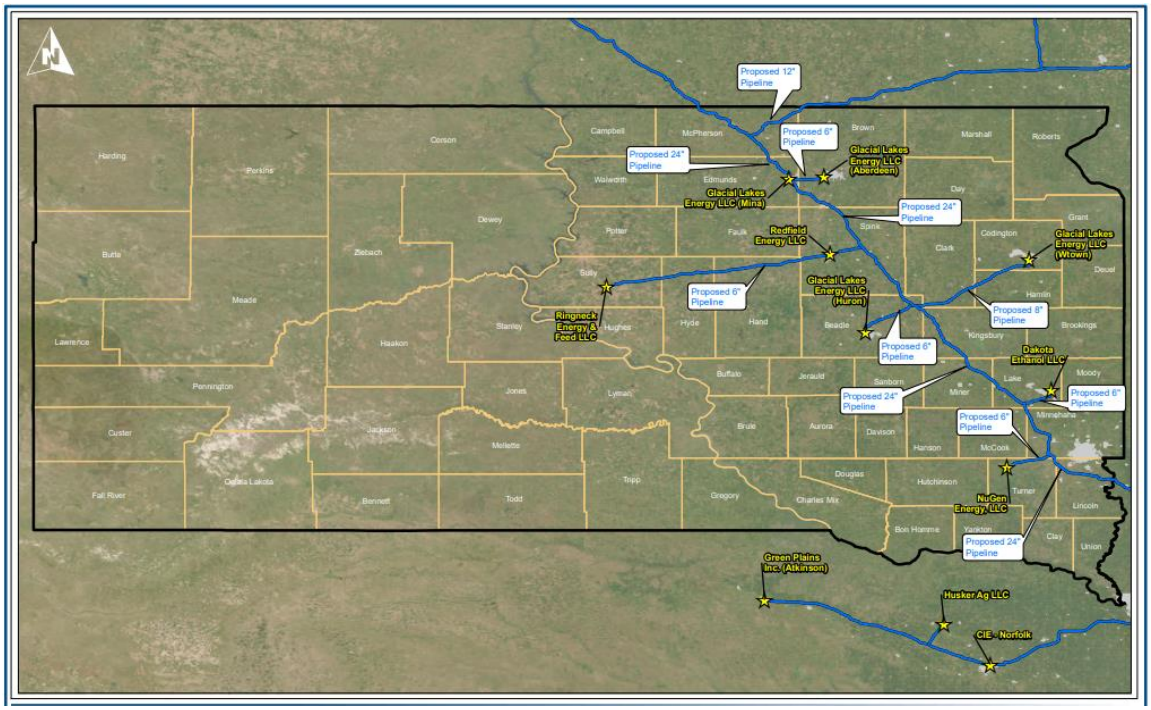


*Figure 1.4: Map of Summit Carbon Pipeline Plan*

## POPULATION DEMOGAPHICS

According to the Census Bureau, in 2020 the County had a population of 6,361, a decline of 1 percent from the 2010 census (6,415) and a density of 4.22 people per square mile. Redfield, Spink County's seat is the largest city in Spink County with a population of 2,214. According to the 2020 Census, the County is predominately white (94.7%.) Most of the residents within the County fall into the low-moderate income category. Agriculture and agriculture-related businesses remain a major source of employment for the area. Table 1.4 lists each municipality and the population.

| Table 1.4: Population in Spink County Jurisdictions | | | | |
|---|---|---|---|---|
| **City** | **2020 US Census Population** | **2010 Population per American Community Survey** | **Percent change from 2010 to 2020** | **Percent of the Spink County Population** |
| **Redfield** | 2214 | 2333 | -5.10% | 34.81% |
| **Ashton** | 108 | 122 | -11.48% | 1.70% |
| **Brentford** | 88 | 77 | 14.27% | 1.38% |
| **Conde** | 142 | 140 | 1.43% | 2.23% |
| **Doland** | 199 | 180 | 10.56% | 3.13% |
| **Frankfort** | 134 | 149 | -10.07% | 2.11% |
| **Mansfield**** | 86 | 93 | -7.53% | 1.35% |
| **Mellette** | 199 | 210 | -5.24% | 3.13% |
| **Northville** | 139 | 143 | -2.80% | 2.19% |
| **Tulare** | 211 | 207 | 1.93% | 3.32% |
| **Turton** | 55 | 48 | 14.58% | 0.86% |
| **Unincorporated** | 2786 | 2713 | 2.69% | 43.80% |
| **Spink County** | **6361** | **6415** | **-0.84%** | **100.00%** |

*Table 1.4: Population if Spink County Jurisdictions from 2020 Decennial Census*
**The unincorporated town of Athol is included in the township and county numbers.*
*** Mansfield is an unincorporated town on the border of Brown and Spink; however, its population was counted by the census due to it being a census-designated area.*
***Additional populations include the Hutterite Colonies of: Spink (Frankfort), Fordham (Doland), Glendale (Frankfort), Hillside (Doland), and Clark (Doland).*

Spink County's population has slightly reduced from 2010. There was a loss of fifty-four people (-.84%) between 2010 and 2020. The community with the largest percentage loss was Ashton. The community with the largest percentage of growth was Turton.

| Table 1.5: Spink County Community Demographics | |
|---|---|
| **Population per 2020 Census** | 6,361 |
| **People per Square Mile** | 4.22 |
| **Median Age of Residents** | 45 years old |
| **65+ Years Old Residents** | 22.9% |
| **19 Years Old and Younger Residents** | 24.5% |
| **Veterans** | 6.9% |
| **Male to Female Ratio** | Nearly 1:1 (50.8% male/49.2% female) |
| **Family Size** | 3.19 people per family |

*Table 1.5: Spink County Population Demographics from 2020 Decennial Census*

Table 1.6 lists the 37 Spink County Townships population in 2020. This chart includes organized townships only.

| Table 1.6: Spink County Township Population | | | |
|---|---|---|---|
| **Township** | **Population** | **Township** | **Population** |
| **Antelope** | 53 | **Jefferson** | 59 |
| **Athol** | 54 | **Lake** | 104 |
| **Belle Plaine** | 71 | **La Prairie** | 41 |
| **Belmont** | 63 | **Lincoln** | 350 |
| **Benton** | 42 | **Lodi** | 53 |
| **Beotia** | 27 | **Mellette** | 106 |
| **Buffalo** | 48 | **Northville** | 164 |
| **Capitola** | 278 | **Olean** | 36 |
| **Clifton** | 39 | **Prairie Center** | 102 |
| **Conde** | 37 | **Redfield** | 389 |
| **Cornwall** | 56 | **Richfield** | 26 |
| **Crandon** | 72 | **Spring** | 39 |
| **Exline** | 64 | **Sumner** | 10 |
| **Frankfort** | 45 | **Tetonka** | 58 |
| **Garfield** | 50 | **Three Rivers** | 61 |
| **Great Bend** | 47 | **Tulare** | 46 |
| **Groveland** | 47 | **Turton** | 16 |
| **Harmony** | 53 | **Union** | 35 |
| **Harrison** | 31 | | |

*Table 1.6: Spink County Township Population from 2020 Decennial Census*

***Additional populations included in the township numbers are the Hutterite Colonies of: Spink (Frankfort), Fordham (Doland), Glendale (Frankfort), Hillside (Doland), and Clark (Doland).*

**ECONOMIC PROFILE**

Redfield is Spink County's largest city and is situated at the intersection of US Highway 281 and US Highway 212. The Burlington Northern Santa Fe Railroad runs through the city, increasing access to industry. Table 1.7 gives a brief look at Spink County's economic profile based on the 2020 census.

| Table 1.7: Spink County 2020 Economic Profile | |
|---|---|
| **Total Employment Establishments** | • 186 |
| **Education Attainment** | • 90.6% high school degree or higher |
| **Employment** | • Private Company: 46.5%<br>• Self-Employed: 22.5%<br>• Private Non-Profit: 10.0%<br>• Government: 21.0% |
| **Employment and Labor Force Status** | • 58.2% of residents in the workforce |
| **Top Five Industries** | • Educational, Health, and Social Services: 22.0%<br>• Ag, Forestry, Fishing, Hunting and Mining: 20.3%<br>• Retail: 8.3%<br>• Public Administration: 8.1%<br>• Other Services (other than public admin): 7.7% |
| **Workforce** | • 3,696 residents between the ages of 16 to 64 (58.1% of residents)<br>• 1,456 residents over 65 (22.9% of residents) |
| **Homeownership Rate** | • 74.0% |
| **Average Rent** | • $681 |
| **Median Worked Hours per Week** | • 42.5 |

*Table 1.7: Spink County 2020 Economic Profile from 2020 Decennial Census*

Table 1.8 shows income statistics for Redfield, Spink County, South Dakota, and the United States. Spink County and Redfield have a lower percentage of residents unemployed and below poverty than the United States average. There is a larger percentage of residents who are disabled in Redfield due to the South Dakota Developmental Center. This adds to Redfield's vulnerable population.

| Table 1.8: Income Statistics | | | | | |
|---|---|---|---|---|---|
| **Area** | **Median Family Income** | **Per Capita Income** | **Percentage Below Poverty** | **Unemployment **2020 Census*** | **Disabled Populations** |
| **Spink County** | $65,795 | $37,138 | 12.5% | 1.6% | 11.2% |
| **Redfield** | $56,205 | $33,330 | 10.6% | 1.9% | 14.6% |
| **South Dakota** | $69,728 | $37,618 | 12.5% | 3.5% | 13.2% |
| **United States** | $74,755 | $41,804 | 12.6% | 5.4% | 13.4% |

*Table 1.8: Income Statistics data from 2020 Decennial Census*

## GOVERNANCE AND EMERGENCY SERVICES

Spink County is governed by a five-member board of commissioners. Each incorporated town is served by a council or board. The county sheriff's office is in Redfield and has eight deputies and six dispatchers to serve the area. Ambulance services are provided by the Community Memorial Hospital, which constructed a new Emergency Medical Services building with support from Redfield and Spink County. Fire departments are in Redfield, Doland, Tulare, Conde, Mellette, Northville, and Brentford.

## CLIMATE

Spink County is in the James River Valley, which has some of the largest temperature variances in the world. Table 1.9 shows the average weather of Spink County.

| Table 1.9: Spink County Climate | |
|---|---|
| **Winter Temperature Averages** | Average low: 3 degrees<br>Average high: 25 degrees |
| **Summer Temperature Averages** | Average low: 57 degrees<br>Average high: 84 degrees |
| **Snowfall** | Average of 29 inches of snow per year |
| **Rainfall** | Average of 22 inches of rain per year |
| **Sunny days** | 206 days a year |

*Table 1.9: Spink County Climate data from USAFacts.org*

## 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 Spink 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.

US Highway 281 runs along the western side of the county, moving north to south to the North Dakota border.

Rural township roads generally show impacts of high flooding. There are 703 miles of roads, 142 bridges and many smaller bridges and box culverts maintained by the Spink County Highway Department. The Spink County Highway & Bridge Improvement Plan covered from 2018 to 2022. Bridge updates and repairs have been a priority due to flooding from the James River. Road maintenance and repair is impacted by flooding. Load limits are routinely set by the County to protect roads that are soft from moisture.

The department has 13 full-time employees and two administrative personnel. There are several seasonal employees added each summer.

## NATIONAL FLOOD INSURANCE PROGRAM PARTICIPATION

The five jurisdictions of Spink County, Ashton, Doland, Redfield and Tulare participate in the National Flood Insurance Program (NFIP). Brentford, Conde, Frankfort, Mellette, Northville, and Turton currently do not participate in the NFIP. Table 1.10 lists population, latitude and longitude, elevation, and NFIP status of communities in the county. Population statistics are from the 2020 Census and location and elevation were taken from Google Earth. NFIP status was provided by the State NFIP Coordinator.

**Table 1.10: Spink County Municipalities Overview**

| Name *(Cities and Towns)* | Pop. *(2020 American Community Survey)* | Location | Elevation | NFIP *(National Flood Insurance Program)* |
|---|---|---|---|---|
| **Redfield** | 2214 | 44º 52’ 33.06” N<br>98º 31’ 07.41” W | 1305 ft | Yes |
| **Ashton** | 108 | 44º 59’ 41.93” N<br>98º 29’ 52.36” W | 1292 ft | Yes |
| **Brentford** | 88 | 45º 09’ 36.89” N<br>98º 19’ 22.35” W | 1301ft | No |
| **Conde** | 142 | 45º 09’ 25.88” N<br>98º 05’ 51.31” W | 1322 ft | No |
| **Doland** | 199 | 44º 53’ 44.91” N<br>98º 06’ 02.36” W | 1351ft | Yes |
| **Frankfort** | 134 | 44º 52’ 35.97” N<br>98º 18’ 13.30” W | 1298 ft | No |
| **Mansfield**** | 86 | 45º 14’ 34.72” N<br>98º 33’ 46.86” W | 1298 ft | No |
| **Mellette** | 199 | 45º 09’ 15.95” N<br>98º 29’ 51.32” W | 1297 ft | No |
| **Northville** | 139 | 45º 09’ 14.17” N<br>98º 34’ 57.01” W | 1299 ft | No |
| **Tulare** | 211 | 44º 44’ 16.84” N<br>98º 30’ 35.36” W | 1316 ft | Yes |
| **Turton** | 55 | 45º 02’ 58.86” W<br>98º 05’ 44.41” N | 1331 ft | No |
| **Spink County (Total – Including Rural Areas)** | **6415** | **44º 50’ 33.02” N<br>98º 21’ 06.02” W** | | **Yes** |

*Table 1.10: Spink 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 Spink County Natural Hazard Mitigation Plan for 2022.
- 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 Spink County Commission oversees the update of the Spink County Natural Hazard Mitigation Plan. The Commission has tasked the Spink 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 Spink County, South Dakota. There are ten incorporated municipalities. Some municipalities elected not to participate in the planning process and the update of the 2020 Spink County Pre-Disaster Mitigation (PDM) Plan to the Spink County 2025 Natural Hazard Mitigation Plan. Participating jurisdictions include Spink 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 |
|---|---|---|
| Brentford | Spink County | Ashton |
| | Doland | Conde |
| | Redfield | Frankfort |
| | Tulare | Mellette |
| | | Northville |
| | | Turton |

The Spink 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** |
| **Spink County** | |
| **Redfield** | |
| **Ashton** | |
| **Brentford** | |
| **Conde** | |
| **Doland** | |
| **Frankfort** | |
| **Mellette** | |
| **Northville** | |
| **Tulare** | |
| **Turton** | |

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 | Spink County | Redfield | Ashton | Brentford | Conde | Doland | Frankfort | Mellette | Northville | Tulare | Turton |
| 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 emphasizing 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 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.
- Spink 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 Spink County Commission Meeting at the Spink County Courthouse November 10, 2022. At that meeting, discussions were held to approve the grant funding the Plan and for NECOG to write the Natural Hazard Mitigation Plan. Public planning meetings began February 28, 2024, at the Spink 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 Spink County webpage and the *Redfield Press*. 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 28, 2024, 1 p.m. at the Spink County Courthouse**
**April 3, 2024, 1 p.m. at the Spink County Courthouse**
**May 22, 2024, 1 p.m. at the Spink County Courthouse**

Public planning meetings were at the Spink 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 requirements were met. The updates were completed through three work meetings with the planning committee.

These meetings were advertised at each jurisdiction's public meetings. The date of each meeting was set that the need of 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 in.

Spink County also elicited input at the Spink County Township meeting March 13, 2024, Fire Department meetings, LEPC meetings, and Spink County Storm Spotter Training April 11, 2024. These meetings allowed the public to give input regarding hazards in the Spink County area. Spink County also used surveys which were posted on the county and public websites for public input.

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 development 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 Spink 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. NorthWestern Energy had participated in the past but is now included in the State Hazard Mitigation plan.

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 of the participating local jurisdictions had a member of their councils represent the municipalities' interest in the plan.

The representatives were asked to share the plan progress at their council meetings and ensure that those attending the meetings were aware that they were invited to make comments on and participate in the process of updating the plan. The municipalities put the plan update on the agenda and allowed people to comment. 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 Spink County Natural Hazard Mitigation Planning Committee | |
|---|---|
| **Spink County** | **Brian Johnson, Commissioner<br>Andrew Rindelaub, Emergency Manager** |
| **Ashton** | |
| **Brentford** | **Alene Duff, President** |
| **Conde** | |
| **Doland** | **Kam Deslauriers, Finance Officer** |
| **Frankfort** | |
| **Mellette** | |
| **Northville** | |
| **Redfield** | **Adam Hansen, Finance Officer** |
| **Tulare** | **Brian Hull, President** |
| **Turton** | |
| **** Did not participate in the plan** | |

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

| Table 3.2: List of Representatives Involved in the Plan | |
|---|---|
| **Spink County** | |
| Suzanne Smith | Commission Chair |
| Brian Johnson | Commission Vice Chair |
| Dave Albrecht | Commissioner |
| Brett Knox | Commissioner |
| Kevin Siebrecht | Commissioner |
| Jenna Appel | Sheriff |
| Amy Akin | Sheriff's Office |
| Tracy Miller | Director of Equalization |
| | |
| **Redfield** | |
| Frank Schwartz | Mayor |
| Amy Akin | Council Member |
| Brent Derscheid | Council Member |
| Jessi Lewis | Council Member |
| Joe Morrissette | Council Member |
| Todd Schwartz | Council Member |
| Michael Siebrecht | Council Member |
| Matthew Weller | Council Member |
| Keith Gall | Council Member |
| | |
| **Ashton** | |
| Bob Oberfoell | President |
| Pete Lahr | Trustee |
| Deb Mahnke | Trustee |
| | |
| **Brentford** | |
| Ryan Remily | President |
| Brad Henjum | Trustee |
| Michael Smith | Trustee |
| | |

| | |
|---|---|
| **Conde** | |
| Ashley Jost | Mayor |
| Austin Hearnen | Commissioner |
| Amanda Mayrose | Commissioner |
| | |
| **Doland** | |
| Stuart Bell | Mayor |
| Greg Drayer | Council Member |
| Linda Hofer | Council Member |
| Kyle Knox | Council Member |
| Joe Remily | Council Member |
| Roger Vick | Council Member |
| Timothy Wolberg | Council Member |
| | |
| **Frankfort** | |
| Russell Bau | Mayor |
| Leonard Bau | Council Member |
| Joe Hurst | Council Member |
| Greg Ratushay | Council Member |
| | |
| **Mellette** | |
| Brian Bauer | President |
| Natalie Bunge | Trustee |
| Leslie Ford | Trustee |
| Brent Hartman | Trustee |
| Mike Johnson | Trustee |
| Jonathan Knight | Trustee |
| Ryan Palmer | Trustee |
| | |
| **Northville** | |
| Clayton Blachford | President |
| Kelly Lofswold | Trustee |
| David Peterson | Trustee |
| | |
| **Tulare** | |
| Brian Hull | President |
| George Dooley | Trustee |
| Doug Tipton | Trustee |
| | |
| **Turton** | |
| Kevin Teigen | President |
| Garrett Rahm | Trustee |
| Patrick Schneider | Trustee |
| ***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** | **Spink Co.** | **Redfield** | **Ashton** | **Brentford** | **Conde** | **Doland** | **Frankfort** | **Mellette** | **Northville** | **Tulare** | **Turton** |
| **Comprehensive Plan** | NA | ✓ | NP | NP | NP | NP | NP | NP | NP | NP | NP |
| **Capital Improvements Plan** | NA | ✓ | NP | NP | NP | NP | NP | NP | NP | NP | NP |
| **Flood Damage Prevention Ordinance** | ✓ | ✓ | C | C | C | C | C | C | C | C | C |
| **Floodplain Management Plan** | ✓ | ✓ | C | C | C | C | C | C | C | C | C |
| **Flood Insurance Studies/Hydrology Studies** | ✓ | ✓ | C | C | C | C | C | C | C | C | C |
| **Transportation Plan** | ✓ | C | C | C | C | C | C | C | C | C | C |
| **Emergency Operations Plan** | ✓ | C | C | C | C | C | C | C | C | C | C |
| **Zoning Ordinance** | ✓ | ✓ | C | C | C | C | C | C | C | C | C |
| **Building Code** | ✓ | ✓ | C | C | C | C | C | C | C | C | C |
| **Drainage Ordinance** | ✓ | ✓ | C | C | C | C | C | C | C | C | C |
| **Critical Facilities maps** | ✓ | ✓ | C | C | C | C | C | C | C | C | C |
| **Existing Land Use maps** | ✓ | ✓ | C | C | C | C | C | C | C | C | C |
| **Elevation Certificates** | ✓ | ✓ | C | C | C | C | C | C | C | C | C |
| **State Hazard Mitigation Plan** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **HAZMAT** | ✓ | C | C | C | C | C | C | C | C | C | C |
| **Bridge Plan** | ✓ | C | C | C | C | C | C | C | C | C | C |
| **Community Operations Plan** | ✓ | C | C | C | C | C | C | C | C | C | C |
| **HAZUS** | NA | NA | NP | NP | NP | NP | NP | NP | NP | NP | NP |
| **NA** | : the plan does not apply 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 |
| ***Spink County Hazard Mitigation Plan* (2020)** | Used throughout the 2025 Mitigation Plan |
| ***Five-year County Highway & Bridge Improvement Plan* (2018-2022)** | Spink County's Profile and Spink County Projects |
| ***Spink County Zoning*** | Hazard Profile |
| ***Redfield Ordinances*** | Hazard Profile |
| ***Redfield Comprehensive Plan**** | |
| ***Spink County Flood Prevention Ordinance*** | Hazard Profile |
| ***Redfield Flood Prevention Ordinance*** | Hazard Profile |
| ***Spink County Flood Maps*** | Hazard Profile |
| ***Capital Improvements Plan – Redfield**** | |
| ***Flood Damage Prevention Ordinance and Management Plan – Spink County and Redfield*** | Hazard Profile |
| ***Flood Insurance Studies*** | Hazard Profile |
| ***Spink 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 |
| ***Redfield Press*** | Spink County Profile |
| ***Aberdeen American News*** | Spink County Profile |
| ***FEMA.gov*** | Used throughout the plan as a resource |
| ***Google*** | Used throughout the plan as a resource |
| ***Wikipedia*** | Used throughout the plan as a resource |
| ***Spink County Classified Stream Report*** | Used throughout the plan as a resource |
| ***NPMS Public Viewer Spink County Pipelines*** | Used throughout the plan as a resource |
| ***Summit Carbon Pipeline Plans*** | Spink County Profile |
| ***State of South Dakota Mitigations Project Map*** | Hazard Profile |
| ***USAFacts.com*** | Spink 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 Spink County.

**2020 NATURAL HAZARD MITIGATION PLAN REVIEW**

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. Review of the plan occurred during several 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: Spink County Mitigation Meetings**

| Date | Location | Meeting Type | Advertisement | Stakeholders Represented |
|---|---|---|---|---|
| **5/3/22** | Redfield | Public | Public Notice | Spink County Commission |
| **11/9/22** | Northville | Public | Public Notice | Northville Public Meeting |
| **11/10/22** | Redfield | Public | Public Notice | Spink County Commission |
| **12/5/22** | Mellette | Public | Public Notice | Mellette Public Meeting |
| **12/06/22** | Redfield | Public | Public Notice | Spink County Commission |
| **12/20/22** | Redfield | Public | Public Notice | Spink County Commission |
| **1/24/23** | Redfield | Public | Public Notice | Spink County Commission |
| **2/7/23** | Redfield | Public | Public Notice | Spink County Commission |
| **2/24/23** | Redfield | Public | Public Notice | Spink County Commission |
| **1/3/24** | Redfield | Public | Public Notice | Spink County Commission |
| **2/28/24** | Redfield | Planning | Email | Planning Meeting |
| **3/4/24** | Redfield | Public | Public Notice | Redfield Public Meeting |
| **3/12/24** | Redfield | Public | Public Notice | Spink County Township Meeting |
| **3/19/24** | Redfield | Public | Public Notice | Spink County Commission |
| **4/3/24** | Redfield | Planning | Email | Planning Meeting |
| **4/8/24** | Redfield | Public | Public Notice | Weather Spotter Training Meeting |
| **6/6/24** | Redfield | Public | Public Notice | Spink County Commission |
| **5/22/24** | Redfield | Planning | Email | Planning Meeting |
| **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.

**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 elicited 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 in paper, had 66 respondents.

**SURVEY**

A public survey was conducted during the plan update. Surveys were distributed through the Emergency Management Facebook page and communicated at meetings and in the *Redfield Press*. Of the 66 responses from the survey, most of the respondents (61%) were in Redfield. 18% were in Rural Spink County. The hazards that were most likely to occur were: Strong Winds (78.8%), Severe Winter Weather (72.7%) and Thunder/Lightning/Hail (71.2%.) 51.5% of respondents had been negatively impacted by a natural hazard in the last 10 years.

Residents who had been negatively impacted were most impacted by: Strong Winds (40.9%) Severe Winter Weather (36.4%) and Severe Summer Storms (30.3%.) 50% of respondents said that the natural hazards inflicted damage to personal property. 33.3%

of respondents had to take an alternative route to destinations when traveling. One resident had a natural hazard cause the death of someone that they knew. 89.4% of respondents had a safe place to go in the event of a tornado and 10.6% did not. Respondents indicated that there are storm shelters available to 39.4% of respondents. 30.3% did not have one and 30.3% did not know. Respondents (53%) indicated that they either did not have or did not know where storm shelters are in their area.

Residents having access to power during an outage is a concern due to the remoteness of the area. 48% did not have an alternative power source. Some responses to the questions were: "do you have an alternative supply of power and how long can you survive without it" were varied. Some responses were: "Portable Gas generator, about 20 hours" and "Blankets and burners I can go for months" and "Don't have one." Generators and fireplaces were the most common sources. Residents who did not have access to alternate power sources stated they were going to city halls, community centers, friends, work, or trying to find someone to take them in. Most residents stated that they could survive several days as long as they had somewhere to go, which in rural areas may require residents to leave the safety of their homes in search of shelter.

When asked about mitigation measures that the county can take respondents most common answer was planning and communication. Another option was to clear the James River. One comment was that the alert system that they are currently using is fantastic and that making sure it's not being used for unrelated things will help residents know when a serious threat is approaching.

## 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: Brown, Day, Clark, Beadle, Hand, and Faulk. After the plan was drafted it was posted on the Spink County Website, City of Redfield website, and emailed to all participants and to the emergency managers in the neighboring counties of: Brown, Day, Clark, Beadle, Hand, and Faulk. 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 3.6: Neighboring Emergency Managers**

| Neighboring County | Emergency Manager | Response Received | Comments |
|---|---|---|---|
| **Beadle** | Taylor Jans | No | None |
| **Brown** | Scott Meints | No | None |
| **Day** | Bryan Anderson | No | None |
| **Faulk** | Michelle Brand | No | None |
| **Hand** | Arlen Gortmaker | No | None |
| **Clark** | David Lewis | No | None |

## IV. RISK ASSESSMENT

**CHANGES/REVISIONS TO RISK ASSESSMENT:**

- All figures in this section were updated, as necessary.
    - Analyzing Development Trends
    - Unique or Varied Risk
- 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 Spink County.
- Added subsidence as a risk to the county due to multiple jurisdiction concerns.
- Redfield Energy and SDDC's Estimated Potential Dollar Losses to Vulnerable Structures statistics were added to Redfield's table.
- NFIP requirements were added to this section.

### IDENTIFYING HAZARDS

A summary of natural hazard occurrences in Spink 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 Redfield Press* 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 Spink County, there would be damage, even if it was just minor insurance claims. NOAA does not always account for these damages. 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 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 Spink County hazards through NOAA were drought, lightning, and extreme temperatures. Although these are common in Spink 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. A 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 Spink County and the increased risk, occupied housing units and the difference over the last 10 years is included.

**Table 4.1: Spink 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) |
|---|---|---|---|---|---|---|---|---|
| **Redfield** | 2333 | 2214 | -119 | 44º 52' 33.06" N 98º 31' 07.41" W | 1305 ft | 1187 | 1158 | -29 |
| **Ashton** | 122 | 108 | -14 | 44º 59' 41.93" N 98º 29' 52.36" W | 1292 ft | 64 | 48 | -16 |
| **Brentford** | 77 | 88 | 11 | 45º 09' 36.89" N 98º 19' 22.35" W | 1301 ft | 33 | 39 | 6 |
| **Conde** | 140 | 142 | 2 | 45º 09' 25.88" N 98º 05' 51.31" W | 1322 ft | 111 | 102 | -9 |
| **Doland** | 180 | 199 | 19 | 44º 53' 44.91" N 98º 06' 02.36" W | 1351 ft | 131 | 117 | -14 |
| **Frankfort** | 149 | 134 | -15 | 44º 52' 35.97" N 98º 18' 13.30" W | 1298 ft | 82 | 70 | -12 |
| **Mansfield*** | 93 | 86 | -7 | 45º 14' 34.72" N 98º 33' 46.86" W | 1298 ft | 39 | 39 | 0 |
| **Mellette** | 210 | 199 | -11 | 45º 09' 15.95" N 98º 29' 51.32" W | 1297 ft | 100 | 97 | -3 |
| **Northville** | 143 | 139 | -4 | 45º 09' 14.17" N 98º 34' 57.01" W | 1299 ft | 61 | 58 | -3 |
| **Tulare** | 207 | 211 | 4 | 44º 44' 16.84" N 98º 30' 35.36" W | 1316 ft | 103 | 109 | 6 |
| **Turton** | 48 | 55 | 7 | 45º 02' 58.86" W 98º 05' 44.41" N | 1331 ft | 45 | 43 | -2 |
| **Unincorporated** | 2713 | 2786 | 73 | 44º 50' 33.02" N 98º 21' 06.02" W | 1288 ft | 1183 | 1103 | -76 |
| **Spink County** | **6361** | **6415** | **-54** | **44º 50' 33.02" N 98º 21' 06.02" W** | **1288 ft** | **3139** | **2983** | **-156** |

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

*Mansfield is an unincorporated town on the border of Spink and Brown Counties.

**Athol is an unincorporated town and is not listed in the 2020 census. The population numbers were included in the unincorporated population numbers.

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 history, 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.

**Table 4.2: Probability of Events Occurring in Spink County**

| Event | Probability | # of Events | # of Years | Source |
|---|---|---|---|---|
| **Dam Failure as rated by the National Inventory of Dams** | Low | 1 of the 4 dams are high hazard | 10 | National Inventory of Dams |
| **Wildfire** | 100% | 210 events over 10 years | 10 | SD State Fire Marshall |
| **Drought** | 50% | 5 years of drought | 10 | NOAA |
| **Flood** | 40% | 4 years with flood | 10 | NOAA |
| **Flash Floods** | 20% | 3 events over 2 years | 10 | NOAA |
| **Total flood events** | 70% | 7 events | 10 | NOAA |
| **Hail** | 90% | 79 events/31 days/9 years | 10 | NOAA |
| **High Winds** | 70% | 19 events/7 years | 10 | NOAA |
| **Thunderstorm Winds** | 100% | 33 Events/31 Days | 10 | NOAA |
| **Funnel Cloud/Tornado** | 50% | 7 events/5 years | 10 | NOAA |
| **Extreme Temperatures – Cold/Heat** | 100% | 30 events | 10 | NOAA |
| **Winter Weather/Blizzards/ Ice Storms/Winter Storms** | 100% | 50 events | 10 | NOAA |
| **Dense Smoke and Dust Occurrences** | 20% | 2 events/ 2 Years | 10 | NOAA |

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

Hazard probabilities are based on events that occurred in the last 10 years. The hazard rating of dam failure is low to significant, meaning there can be significant hazard to downstream areas if the dam breaches. Of six dams, one has a high down hazard rating.

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

## SUMMARY OF VULNERABILITY

Table 4.3 is a list of natural hazards produced from the FEMA worksheets completed by each local jurisdiction located in Spink County. Representatives from each community completed the worksheet for their location. Representatives of Spink 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 Spink County.

**Table 4.3: Natural Hazards Categorized by Likelihood of Occurrence**

| High Probability | Low Probability | Unlikely to Occur |
|---|---|---|
| Drought | Flash Flood | Dam Failure |
| Extreme Cold | Flood | Earthquake** |
| Extreme Heat | Subsidence | Landslide |
| Freezing Rain/Sleet/Ice | Tornado | Ice Jam |
| Hail | Urban Fire | |
| Heavy Rain | Utility Interruption | |
| Heavy Snow | Wildfire | |
| Lightning | ***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. | |
| Rapid Snow Melt | | |
| Strong Winds | | |
| Thunderstorm | | |
| | | |

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 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 Spink 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 Spink 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: Overall Summary of Vulnerability by Jurisdiction | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Natural Hazards Identified** | **Spink Co.** | **Ashton** | **Athol** | **Brentford** | **Conde** | **Doland** | **Frankfort** | **Mellette** | **Northville** | **Redfield** | **Tulare** | **Turton** |
| **Dam Failure** | M | | | N/A | N/A | N/A | L | N/A | N/A | L | N/A | N/A |
| **Drought** | H | | | H | M | H | H | L | M | H | M | L |
| **Earthquakes** | L | | | N/A | N/A | N/A | N/A | L | N/A | N/A | L | N/A |
| **Extreme Cold** | H | | | H | M | H | H | M | M | H | M | M |
| **Extreme Heat** | H | | | H | L | H | H | M | M | H | M | M |
| **Flash Flood** | M | | | H | M | H | H | M | L | H | M | L |
| **Flood** | M | | | H | M | H | H | M | M | M | M | M |
| **Freezing Rain/Sleet** | M | | | H | M | H | H | M | M | H | M | M |
| **Hail** | M | | | H | N/A | H | H | H | M | H | M | M |
| **Heavy Rain** | M | | | H | H | H | H | M | M | H | M | M |
| **Heavy Snow** | M | | | H | H | H | H | M | M | H | M | M |
| **Ice Jam** | L | | | H | N/A | M | H | L | L | M | L | N/A |
| **Landslides** | L | | | N/A | N/A | N/A | L | N/A | N/A | L | N/A | N/A |
| **Lightning** | M | | | H | L | H | H | M | M | H | M | M |
| **Rapid Snow Melt** | M | | | H | M | H | H | L | M | H | M | M |
| **Strong Winds** | H | | | H | M | H | H | H | M | H | M | M |
| **Subsidence** | L | | | M | L | H | L | L | L | M | N/A | L |
| **Thunderstorms** | H | | | H | M | H | H | H | M | H | M | M |
| **Tornadoes** | H | | | H | H | H | H | H | M | M | H | L |
| **Urban Fire** | L | | | M | H | L | L | M | M | M | HM | L |
| **Utility Disruption** | L | | | H | M | H | H | L | M | M | M | L |
| **Wildfire** | L | | | M | H | H | H | M | M | L | H | 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) | | | | | | | | | | | |

## SPINK 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.*

Spink County has been included in twenty-one Presidential Disaster Declarations. Fourteen included flooding. Nine of the flood disasters were based on summer storms and three on winter storms. Spink County had disaster declarations for nine summer storms and five winter storms. One disaster declaration was an ice storm, and 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 causing freezing or overheating and damaging crops and feed for livestock. Hail and winds damage buildings and crops along with potentially hurting residents and livestock.

Spink 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 Spink County since 1969.

| Table 4.5: Spink County Presidential Disaster Declarations 1969 - 2020 | | | |
|---|---|---|---|
| **Disaster** | **Incident Period** | **Declaration Date** | **Reason** |
| **DR-257-SD** | April 18, 1969 | April 18, 1969 | Flooding |
| **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-1075-SD** | October 22, 1995, to October 24, 1995 | January 5, 1996 | Ice Storms |
| **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-1596-SD** | June 7, 2005, to June 8, 2005 | July 22, 2005 | Severe Storm |
| **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-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-4440-SD** | March 13, 2019, to April 26, 2019 | June 7, 2019 | Severe Winter Storms 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-4664-SD** | June 11, 2022, to June 14, 2022 | August 2, 2022 | Severe Storm, Straight Line Winds, Tornados and Flooding |

*Table 4.5: data from FEMA Disaster Declarations Database*

In response to these disaster declarations, Spink County, and jurisdictions within the county, have implemented mitigation projects. They have received funding through FEMA for five backup generators for lift stations, three warning sirens, an acquisition for a home that was flooded (which was withdrawn by the homeowner) and fifteen mitigation projects for power line burials throughout the county. Figure 4.1 is a map of Spink County and the locations of mitigation projects.

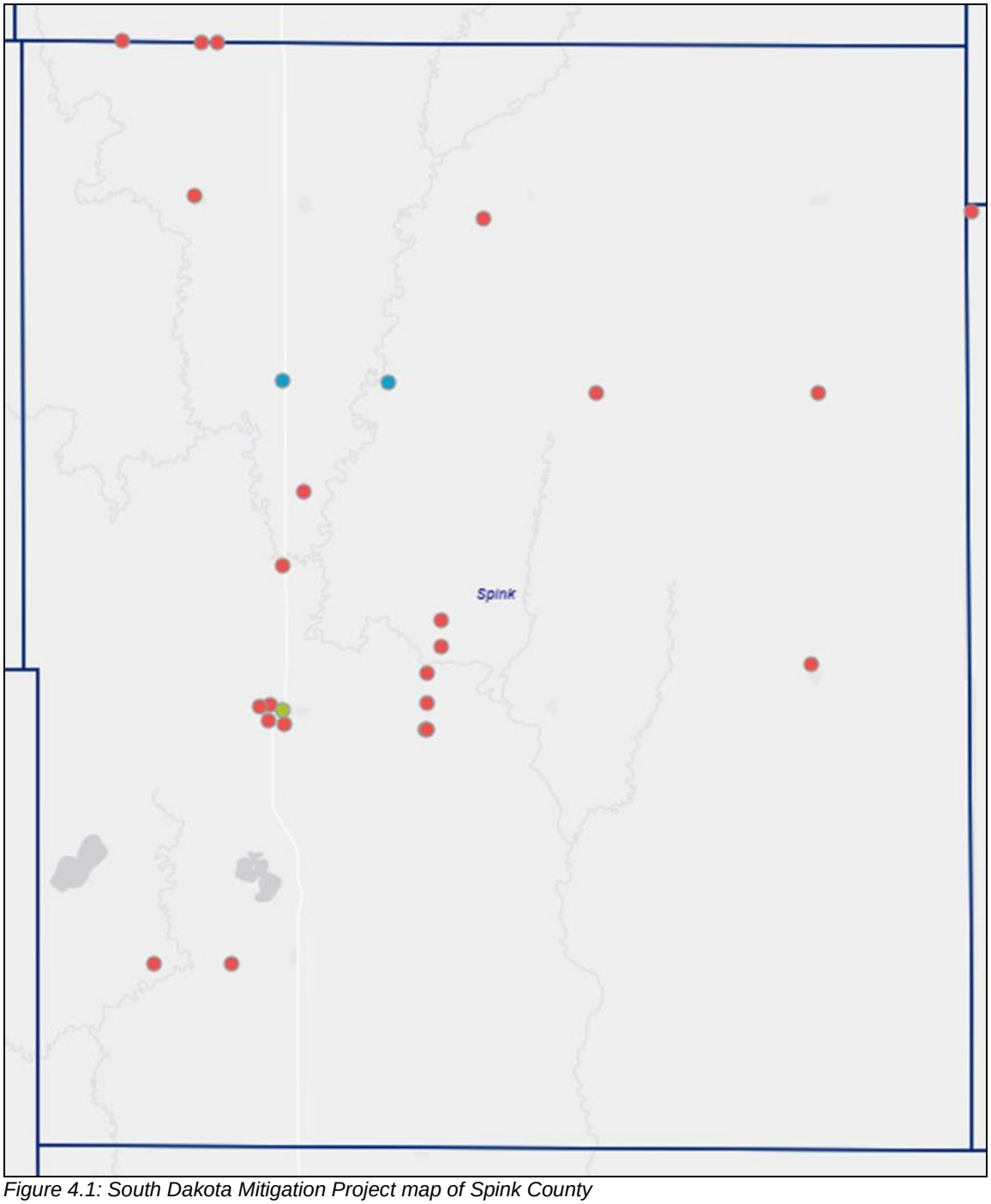



*Figure 4.1: South Dakota Mitigation Project map of Spink County*

## 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 4.6: 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.<br>• Can cause considerable damage depending on the vulnerable structures and residents downstream from the event. |
| **Spink County Dams** | • 6 Dams in Spink County |

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

Dam breach or failure is a concern for the citizens of Spink 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. Table 4.7 lists each dam and its location.

| Table 4.7: Dam Locations in Spink County | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **ID** | **Name** | **Owner** | **Location - Lat/Long** | **Year Built** | **Type/ Hazard** | **Insp Date:** | **Height (ft)** | **Max Storage (acre-feet)** |
| **SD 00699** | Redfield Lake | GF&P | 44.87723823 -98.52855161 | 1939 | Earth/ High | 8/3/2022 | 30 ft. | 12,000 |
| **SD 00038** | Mirage or Doland | GF&P | 44.78393391 -98.09712064 | 1972 | Earth/ Low | 10/22/2019 | 38 ft. | 1,600 |
| **SD 00700** | Dudley Dam | S&PL | 44.67112541 -98.29140414 | 1936 | Earth/ Low | 10/22/2019 | 20 ft. | 200 |
| **SD 00701** | Crook Dam | Ted & Jackie Pazour | 44.88222195 -98.2230899 | 1951 | Earth/ Low | N/A | 11 ft. | 250 |
| | SDDCR Dam | | 44.885084 -98.520569 | | | | | |
| | Cemetery Dam | | 44.884229 -98.516886 | | | | | |

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

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.

Spink County has four dams listed in the National Inventory of Dams. All are earth dams and only one is a high hazard dam. The dam at Redfield Lake, if it were to breach, would have major downstream effects in and around Redfield. There has been significant development in Redfield and that is vulnerable to a dam failure. Figure 4.2 illustrates the location of dams in Spink County.

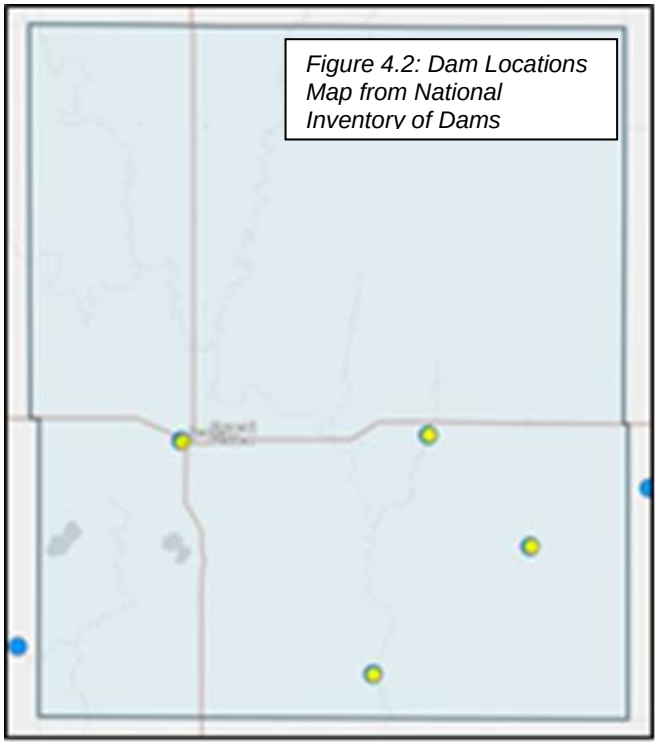


*Figure 4.2: Dam Locations Map from National Inventory of Dams*

There are two dams on Turtle Creek in Redfield that are not listed in the National Inventory of Dams. One dam is near the Greenlawn Cemetery in Redfield and the other is near the South Dakota Developmental Center. Both dams were built in the 1950s. Redfield recently needed to stabilize the dam at a cost to the city of $160,000. South Dakota School and Public Lands is responsible for the dam near the South Dakota Developmental Center. Both need extensive repairs.

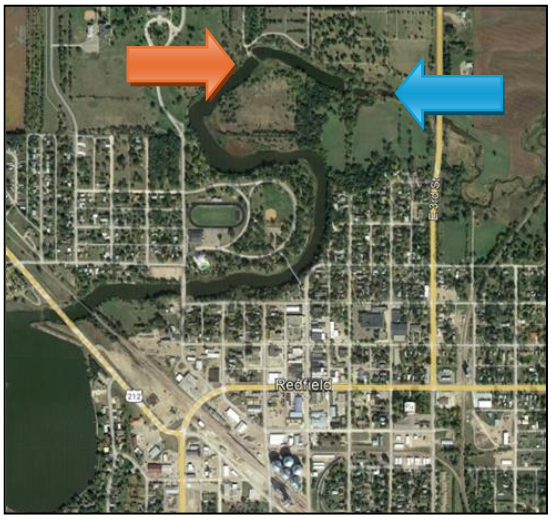



*Figure 4.3: Dams north of Redfield.*

*Figure 4.4: Closer look at dams on Turtle Creek.*

*Figure 4.5: Dam near Redfield Cemetery.*

*Figure 4.6: Dam near SDDC in Redfield.*

**DROUGHT**

| Table 4.8: 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 Spink 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<br>• Generally due to high temperatures and low relative humidity in the summer but can occur in the winter due to lack of snow. |

*Table 4.8: Drought and Wildfire descriptions from National Risk Index*

Spink 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.

| Table 4.9: NOAA Drought Event Statistics | |
|---|---|
| **Number of Events in last 10 Years: Drought** | 17 Events |
| **Number of Years with events: Drought** | 5 years |
| **Possible number of days with events per year Drought** | 497 Days |
| **Probability of future annual events: Drought** | 50% Chance (5/10) |

Figure 4.7 illustrates the time periods of drought in Spink 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.

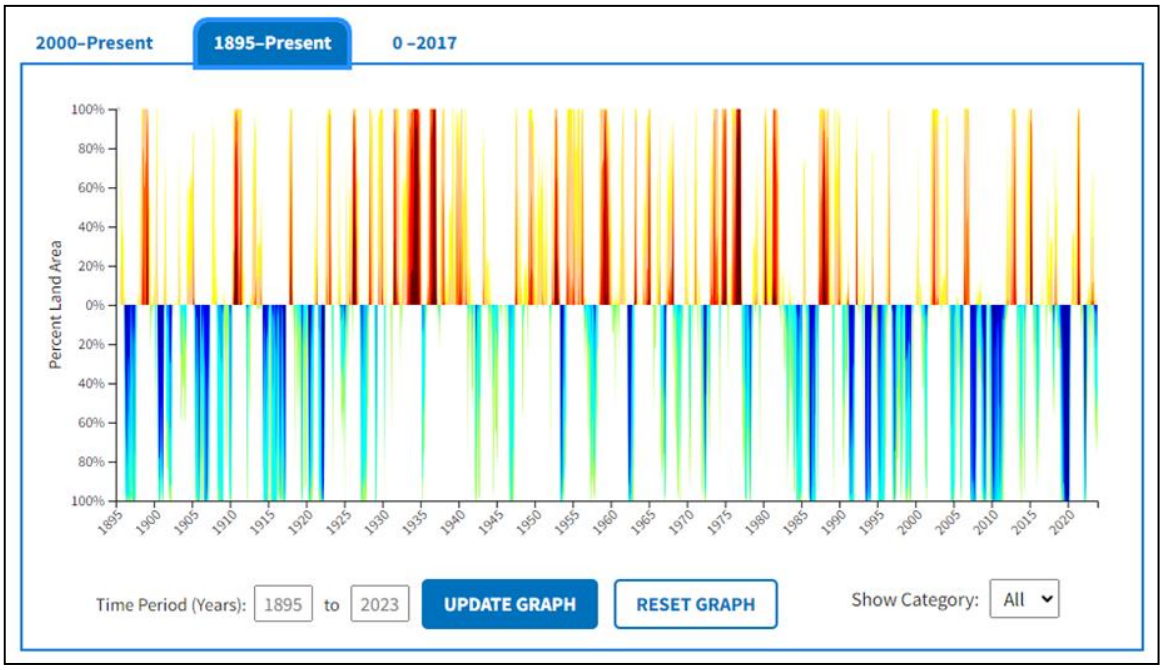



*Figure 4.7: National Integrated Drought Information Conditions for Spink County from drought.gov*

The intensity can vary from None to Extreme Drought. Table 4.10 shows drought conditions according to the National Drought Monitor from January 1, 2013, to December 26, 2023. January 2013 to April 2018 is generally None to Moderate. 2020 to 2023 has more severe drought conditions from Moderate to Severe Drought.

| Table 4.10: National Drought Monitor<br>January 1, 2013, to December 26, 2023 | |
|---|---|
| **Months** | **Condition** |
| **January 1, 2013 to February 5, 2013** | Severe Drought |
| **February 12, 2013 to April 9, 2013** | Moderate Drought |
| **April 16, 2013 to May 21, 2013** | Abnormally Dry |
| **May 28, 2013 to June 2, 2015** | Moderate Drought |
| **June 9, 2015 to July 19, 2016** | None |
| **June 28, 3026 to December 20, 2016** | Abnormally Dry |
| **December 27, 2016 to May 2, 2017** | None |
| **May 9, 2017 to September 19, 2017** | Moderate Drought |
| **September 26, 2017 to April 10, 2018** | Abnormally Dry |
| **April 17, 2018 to June 1, 2021** | Moderate Drought |
| **June 8, 2021 to August 10, 2021** | Severe Drought |
| **August 17, 2021 to August 31, 2021** | Extreme Drought |
| **September 7, 2021 to October 5, 2021** | Severe Drought |
| **October 12, 2021 to April 26, 2022** | Abnormally Dry |
| **May 3, 2022 to July 26, 2022** | None |
| **August 2, 2022 to September 27, 2022** | Moderate Drought |
| **October 4, 2022 to December 13, 2022** | Severe Drought |
| **December 20, 2022 to October 10 2023** | Moderate Drought |
| **October 12, 2023 to December 26, 2023** | None |

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

Spink County generally is in abnormally dry to moderate drought. But there have been periods of moderate to severe drought. High periods of drought can destroy crops and kill livestock increasing the potential financial impact on Spink County.

| Table 4.11: 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. Spink 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, Spink 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 Spink 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 Spink County on June 1, 2018, after an abnormally dry period, according to NOAA. Wind gusts from 60 to 80 miles an hour stirred up dust. This resulted in a "black blizzard" where visibility was reduced to less than an eighth of a mile in the evening, causing multiple traffic accidents. The high winds also downed power lines and some trees and fields started on fire, damaging crops. This illustrates how different natural hazards can come together to create a situation where there can be significant and widespread loss. Severe drought impacts fire too. Drought makes fires more common due to dry vegetation catching fire.

**WILDFIRE**

| Table 4.12: 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<br>• Ignition can be caused by natural or human-caused causes.<br>• More likely to occur when there is drought or hot temperatures causing drier than normal vegetation.<br>• Can change direction or jump barriers, especially under windy conditions. |

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

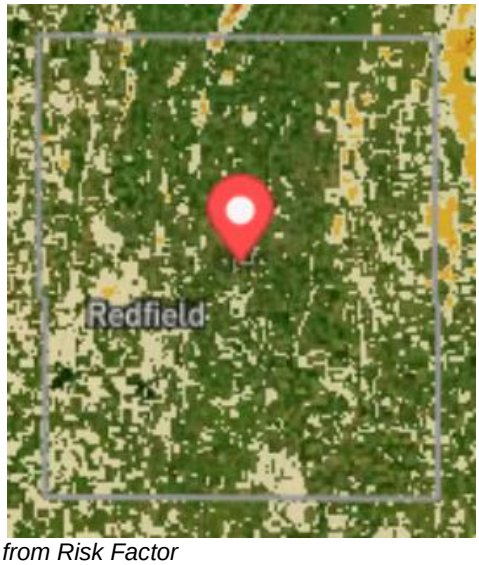
Something as simple as a tossed cigarette or sparks from a train can cause fires. Due to concerns with situations where there are high winds and relatively dry conditions, Spink County's Ordinances empower Spink County Commissioners to instate a burn ban. This restricts residents from open burning in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

| Table 4.13: South Dakota Fire Marshall Office Wildfire Event Statistics | |
|---|---|
| **Number of Events in last 10 Years: Wildfire** | 210 Events |
| **Number of Years with events: Wildfire** | 10 Years |
| **Possible number of days with events per year: Wildfire** | 21 Days |
| **Probability of future events: Wildfire** | 100% chance (10 years/10 years with events) |

The commission is looking at adjusting the burn ban. They are discussing increasing fines for non-compliance. The current fine is $250, and the increase would be to $1,000. The county is also looking at having a mandatory reporting requirement for residents who are planning to burn. By requiring the reporting of the burn, they will reduce the number of calls for burning and will be able to reduce the number of fires during a burn ban. The County uses red flag warnings as the determining factor for a burn ban. A burn ban can only be instated or lifted by the county commission. All jurisdictions except for Redfield follow requirements set by the county. In Redfield, there are water restrictions which are set by the council. Burning requires a fire pit that has a cover.

Figures 4.8 and 4.9 are from Risk Factor and are a projection of the illustration of the fire risk in Spink 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.


*Figures 4.8 and 4.9: Spink County Wildfire Risk 2024 vs. 2054 from Risk Factor*

The information in Table 4.14 was received from the State Fire Marshall, Doug Hinkle for 2012 to 2022. There were 210 fires recorded in Spink County. Of the fires, 52 were structure fires, 48 were vehicle fires, and 110 were other fires. The "other fires" category includes fires of natural vegetation, outside rubbish, special outside fires, cultivated vegetation and crop fires. There were three civilian injuries and one civilian death. Of the fire service volunteers, there were three fire-related injuries and no deaths. Total damage from fires was $5,005,760. It is unknown which fires resulted from human activity. Although Spink County did not have any fire related deaths, there were three civilian injuries and three responder injuries from fires.

Details given by the planning committee show that Spink County has had more events due to high heat. There have been more heat exposure incidents resulting in response from Spink County's Sheriff's Office. There have been more fire calls in the winter and the county has had to instate burn bans even in the winter due to lack of moisture. High winter winds can stir up coals and restart the fire.

| Table 4.14: Fire Summary by Incident Type: 2012-2022 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Freq | % Of Total | No Aid | Aid Given | Aid Received | Other Aid Given | Exp | Total |
| **Fires** | | | | | | | | |
| Structure Fires | 52 | 12.97% | 40 | 6 | 11 | 1 | 0 | 58 |
| Vehicle Fires | 48 | 11.97% | 44 | 3 | 3 | 1 | 0 | 51 |
| Other | 110 | 27.43% | 87 | 17 | 20 | 3 | 0 | 127 |
| Total: | 210 | 52.37% | 171 | 26 | 34 | 5 | 0 | 236 |
| Pressures, Ruptures, Explosion Overheat | 4 | 1.00% | 4 | 0 | 0 | 0 | 0 | 4 |
| **Rescue Calls** | | | | | | | | |
| Emerg. Med Treat | 80 | 19.95% | 77 | 1 | 1 | 2 | 0 | 81 |
| All Other | 19 | 4.74% | 11 | 0 | 4 | 4 | 0 | 19 |
| Total Calls | 99 | 24.69% | 88 | 1 | 5 | 6 | 0 | 100 |
| Haz Cond. Calls | 24 | 5.99% | 23 | 1 | 1 | 0 | 0 | 25 |
| Serv. Calls | 30 | 7.48% | 30 | 0 | 0 | 0 | 0 | 30 |
| Good Intent Calls | 16 | 3.99% | 15 | 1 | 1 | 0 | 0 | 17 |
| Severe Weather or National Disaster Calls | 5 | 1.25% | 5 | 0 | 0 | 0 | 0 | 5 |
| Special Incidents Calls | 2 | 0.50% | 2 | 0 | 0 | 0 | 0 | 2 |
| Unknown Incident Type | 0 | 0.00% | 0 | 0 | 0 | 0 | 0 | 0 |
| Total False Calls | 11 | 2.74% | 11 | 0 | 0 | 0 | 0 | 11 |
| Total Calls | 401 | 100% | 349 | 29 | 41 | 11 | 0 | 446 |
| Casualty Summary | | Civilian | | Fire Service | | | | |
| Fire Related Injury | | 3 | | 3 | | Total Fire $ Loss | | |
| Non-Fire Related Injury | | 9 | | 0 | | $5,005,760 | | |
| Fire Related Deaths | | 0 | | 0 | | Total $ Loss | | |
| Non-Fire Related Death | | 1 | | 0 | | $5,838,460 | | |

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

## DENSE SMOKE AND DUST STORMS

| Table 4.15: Dense Smoke and Dust Storms | |
|---|---|
| Dense smoke impacts residents with unhealthy levels of particles in the air, affecting residents who have medical issues. This can also affect healthy individuals if the particle count in the air is high enough. There are six levels set by the number of particulates in the air. Dense smoke can come from fires hundreds of miles away.<br><br>Dust storms are when high winds are combined with drought dry conditions. Due to the lack of moisture and vegetation, winds accumulate and lift soil from the ground and carries it through the air causing issues with air quality. | |
| **Dense Smoke** | • Occurs in conjunction with wildfires.<br>• Can spread from a great distance.<br>• Affects air quality. Air quality scale based on particles in the air and their concentration.<br>• *Green: 0-50 - Good*<br>• *Yellow: 51-100 - Moderate*<br>• *Orange: 101 – 150 – Unhealthy for Sensitive Groups*<br>• *Red: 151 – 200 – Unhealthy*<br>• *Purple: 201 – 300 – Very Unhealthy*<br>• *Maroon: 201 and higher – Hazardous* |
| **Dust Storms** | • Wind gusts that stir up large amounts of dust decreasing visibility and air quality. |

*Table 4.15: Dense Smoke and Dust Storm description from the NOAA Database*

Air quality can be extremely impacted by wildfires not just in Spink County but also from wildfires elsewhere in the world. Air quality warnings have been issued due to wildfire smoke from California and Canada in previous years. Climate change impacts fires worldwide and that impact on air quality cannot be overlooked. The Air Quality Index is based on the concentration of particles in the air. The higher the value, the higher the value the greater the number of particles in the air and the higher the impact on health.

| Table 4.16: NOAA Smoke and Dust Storm Event Statistics | |
|---|---|
| **Number of Events in last 10 Years: Smoke and Dust Storms** | 2 Events |
| **Number of Years with events: Smoke and Dust Storms** | 2 Years |
| **Possible number of days with events: per year Smoke and Dust Storms** | 2 Days with Events |
| **Probability of future events: Smoke and Dust Storms** | 20% chance of Dense Smoke each year (2 Event /10 Years) |

NOAA recorded an instance in Spink County September 5, 2023, where smoke from Canada moved into South Dakota. A rainstorm then moved into the area and when combined with the smoke, reduced visibility for the area to as low as ¼ mile. Air Quality was significantly reduced for thirty-six hours. The air quality index from Aberdeen's National Weather Services recorded an Air Quality high of 166 for Spink County, which was unhealthy for all people, causing outdoor activities to be cancelled.

According to the planning committee, there have been more occurrences of dense smoke in the area. Even in the spring of 2024, there were "zombie fires" in Canada that reignited from smoldering over the winter. These fires increased the amount of smoke in

the Spink County area. Residents have been negatively impacted by these events. There have been instances of employees unable to work due to the impact of smoke on their lungs.

Figure 4.10 shows the Particle Pollution scale for dense smoke events. The range is from 0 to over 301. The higher the amounts of particles in the air, the worse the air is for residents. There is little that can be done other than reducing time outdoors inside to reduce exposure to the particles.

AQI Basics for Ozone and Particle Pollution

| Daily AQI Color | Levels of Concern | Values of Index | Description of Air Quality |
|---|---|---|---|
| Green | Good | 0 to 50 | Air quality is satisfactory, and air pollution poses little or no risk. |
| Yellow | Moderate | 51 to 100 | Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution. |
| Orange | Unhealthy for Sensitive Groups | 101 to 150 | Members of sensitive groups may experience health effects. The general public is less likely to be affected. |
| Red | Unhealthy | 151 to 200 | Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects. |
| Purple | Very Unhealthy | 201 to 300 | Health alert: The risk of health effects is increased for everyone. |
| Maroon | Hazardous | 301 and higher | Health warning of emergency conditions: everyone is more likely to be affected. |

See the Activity Guides to learn ways to protect your health when the AQI reaches unhealthy levels.

*Figure 4.10: described air quality data values from Airnow.gov.*

Dust storms are common in the area and when combined with drought conditions and high heat, they create lack of visibility and reduced air quality. Winds in Spink County can reach up to 60-80 miles per hour or more. Traffic accidents can occur due to the lack of visibility. On June 1, 2018, there was a dust storm which downed power lines, destroyed crops, and caused a fire when power lines fell, and trees started on fire. There were also car accidents due to the lack of visibility. An accident occurred when a trailer tipped due to the high winds, and another was a lack of visibility due to dust and blowing dirt that led to a head on collision.

**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.<br><br>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.<br>• Make other natural hazards even more hazardous and destructive.<br>• Causes snow drifting, extreme cold with wind chill, spreads 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 Spink County Natural Hazard Mitigation Plan*

Severe wind events are common in eastern South Dakota. Several times a year Spink 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. Wind combined with other hazards such as fire, cold or snow can create a danger even more destructive. High winds have caused deaths.

| Table 4.18: NOAA High and Severe Wind Events | |
|---|---|
| **Number of Events in last 10 Years: High Winds** | 19 Events |
| **Number of Years with events: High Winds** | 7 Years with High Wind Events |
| **Possible number of days with events per year: High winds** | Average of 2.71 Days per Year |
| **Probability of future events: High Winds** | 70% (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 windspeed over 64 miles per hour can cause widespread damage to buildings and potentially, people. Mobile homes are very susceptible to high winds due to the lack of a foundation.

One way that Spink County mitigates wind events is tie down ordinances for mobile homes to keep them secure. Spink County Ordinance states 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. “Double wide” trailers do not require over the top ties but are still required to have the frame ties. Redfield’s requires concrete pilings as well, at least six feet deep. The home must be anchored to the piling as recommended by the manufacturer. Damaging winds are more

prevalent and widespread than tornadoes. High winds tear branches off trees causing additional damage to homes, cars, and crops.

**THUNDERSTORMS, HEAVY RAIN AND LIGHTNING**

| Table 4.19: 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.<br><br>Heavy rains 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.<br><br>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.<br>• Causes hail, lightning, thunder, high winds, and heavy rain. |
| **Heavy Rains** | • Occurs when more than 3.30 inches (0.762 sm) per hours falls. |
| **Lightning** | • A buildup of electrical charge due to rapidly rising air and precipitation movement in thundercloud.<br>• Can reach temperatures of up to 50,000 F in a split second.<br>• Rapid heating, expansion, and cooling of air near lighting is what causes thunder. |

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

The annual risk for intense summer storms is very high. All of Spink County is susceptible to summer storms. Warning time is normally several hours, enough for relocation and evacuation if necessary. Tornadoes may 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. The Spink County fairgrounds area and the campgrounds in Redfield are particularly vulnerable because of a high seasonal population.

| Table 4.20: NOAA Thunderstorm, Heavy Rain, and Lightning Events | |
|---|---|
| **Number of Events in last 10 Years: Thunderstorm Events** | 33 Events in the last 10 Years |
| **Number of Years with events: Thunderstorm Events** | 10 |
| **Possible number of days with events per year: Thunderstorm Events** | 31 Days |
| **Probability of future events: Thunderstorm Events** | 100% (10 years with events/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 of 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.

The severity of lightning can range from significant to insignificant depending on where it strikes and what structures are hit. Water towers, cell phone towers, power lines, trees, and common structures all have the possibility of being struck and damaged by lightning. People who leave shelter during thunderstorms to watch or follow lightning have the possibility of being struck.

Heavy rains can lead to flooding. If a city has a storm sewer system, heavy rain can overload it causing flooding. Many cities in Spink County do not have storm sewer systems and the heavy rains cause flooding though the towns and surrounding areas.

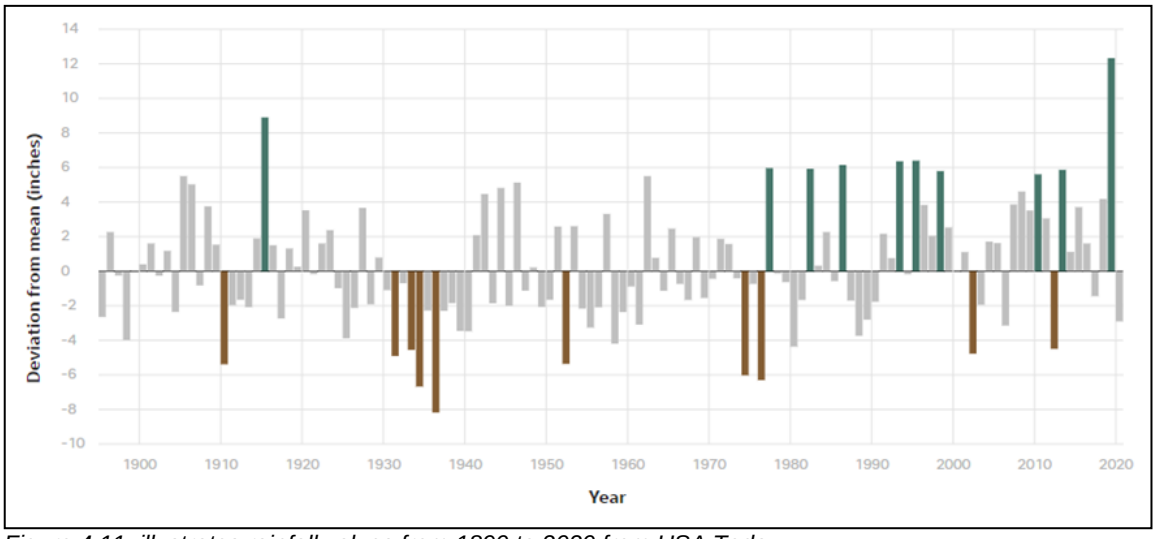



*Figure 4.11: illustrates rainfall values from 1890 to 2020 from USA Today*

This chart in Figure 4.11 shows the amounts of rainfall since 1895. South Dakota has had three of the top ten wettest years on record since 2001. Eight of the wettest years have been in the last 50 years. Comparing 1961-1990 with rainfall averages in 1991-2020, the average annual precipitation has increased 3.1 inches, and the number of heavy rainfall events has increased 23.7% in the last 30 years. The driest 30-year period ended in 1959.

**HAIL**

| Table 4.21: 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.<br>• Water droplets are pushed upwards by storm winds and fall as ice pellets.<br>• Measure 5 to 150 millimeters in diameter on average.<br>• More severe thunderstorms create larger hailstones. |

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

Hail events are common in Spink 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 the spring, summer, and fall and causes widespread damage each year.

| Table 4.22: NOAA Hail Events | |
|---|---|
| **Number of Events in last 10 Years: Hail** | 31 days; 79 events |
| **Number of Years with events: Hail** | 9 years |
| **Possible number of days with events per year: Hail** | 2.81 events per year |
| **Probability of future events: Hail** | 90% (9 events /10 years) |

The widespread damage hail creates can make it hard to mitigate. Hail as small as mothballs makes holes in leaves, affecting crops. The average size in the last 10 years recorded by NOAA in Spink 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 four inches and was recorded at Spink Colony June 21, 2013, in a widespread storm that caused damage in multiple counties in South Dakota. In that storm, damaging winds up to 90 miles per hour uprooted trees and caused considerable damage. A woman was killed, and her husband was seriously injured. The storm left thousands without power.

## TORNADOES AND FUNNEL CLOUDS

| Table 4.23: 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 that may occur as many as one or multiple at a time.<br>• Occur most often in May, June, and July between 4 p.m. to 6 p.m.<br>• Occurs when cool air overrides warm air causing the warm air to rise rapidly.<br>• May not touch down on the ground.<br>• Fujita Tornado Damage Scale based on windspeed:<br>• *F0 = less than 73 m/h*<br>• *F1 = 73-112 m/h*<br>• *F2 = 113-157 m/h*<br>• *F3 = 158-206 m/h*<br>• *F4 = 207-260 m/h*<br>• *F5 = 261-318 m/h*<br>• *F6 = greater than 318 m/h* |
| **Funnel Clouds** | • May or may not produce a tornado.<br>• Indicates a high probability of tornadic activity of the storm. |

*Table 4.23: Tornado and Funnel Cloud Hazard description from the 2020 Spink County Natural Hazard Mitigation Plan*

The map in Figure 4.12 shows the history of tornados from 1955 to 2019 for South Dakota from South Dakota's 2024 Hazard Mitigation Plan. Figure 4.12 shows tornadoes that have been specific to Spink 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 may occur with little or no warning, are unpredictable, common, and widespread. Specific areas within the county are at risk if hit by a tornado or severe storms. The Spink County fairgrounds area and the campgrounds in Redfield are particularly exposed because of a high seasonal population. Appendix D shows the extent and severity. The County continues to educate residents of the dangers of such storms through public service announcements and other media along with drills at area schools.

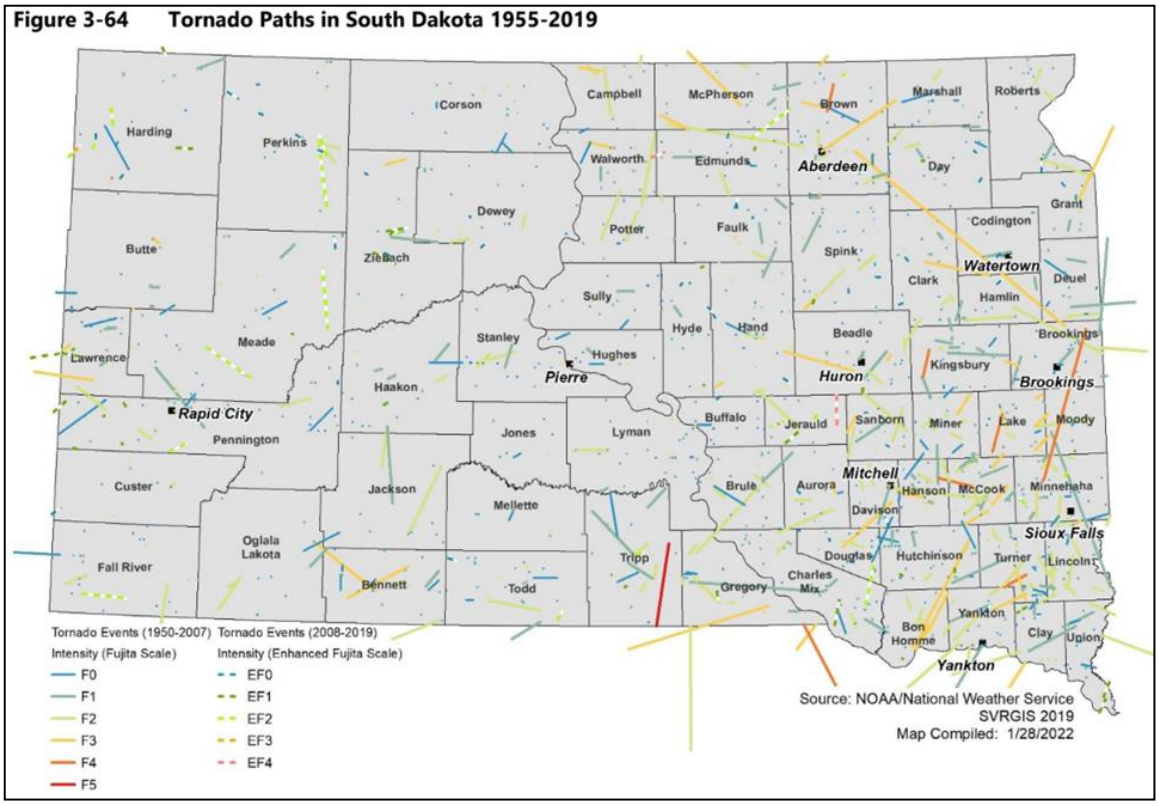



*Figure 4.12: Map of Tornado paths in South Dakota from South Dakota's 2024 Hazard Mitigation Plan*

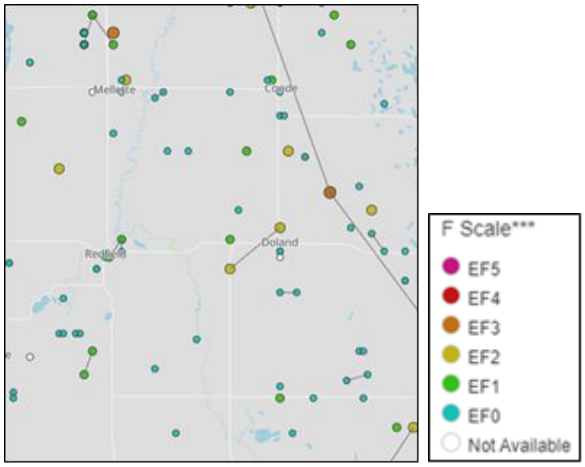



*Figure 4.13: Map of Tornado Paths in Spink County from the 2024 South Dakota Hazard Mitigation Plan*

| Table 4.24: NOAA Tornado and Funnel Clouds Events | |
|---|---|
| **Number of Events in last 10 Years: Tornadoes and Funnel Clouds** | 7 Tornadoes and Funnel Clouds |
| **Number of Years with events: Tornadoes and Funnel Clouds** | 5 Years with Tornadoes and Funnel Clouds |
| **Possible number of days with events per year: Tornadoes and Funnel Clouds** | 7 Days with Tornadoes and Funnel Clouds |
| **Probability of future events: Tornadoes and Funnel Clouds** | 50% chance of a Tornado or Funnel Cloud per Year (5 years with events/10 years) |

Table 4.24 shows Spink 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. 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.

**EXTREME TEMPERATURES**

| Table 4.25: 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 for the dangers. | |
| **Extreme Cold** | • Below 0 degrees F.<br>• Can accompany winter storms, adding to the danger.<br>• Causes danger to residents outside for too long and exposed to the cold.<br>• 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 greater than 100 F and can be accompanied by high humidity.<br>• Can increase drought, causing crop damage and danger to livestock.<br>• Can cause danger to residents without ability to get 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 4.25: Extreme Heat and Cold description from the 2020 Spink County Natural Hazard Mitigation Plan*

Extreme temperatures are common in Spink 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 which occurs in the winter.

February 6th – 14th 2020: high temperatures did not get above 0 degrees Fahrenheit. Extreme cold is common and widespread. Variations in weather patterns can push air from polar regions. The arctic air moves over Spink County, causing significant drops in temperatures. Power outages occur by overloading power grids to maintain heat. Pipes and infrastructure can be affected in structures and public utilities. 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 -59 degrees Fahrenheit. 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 4.26: NOAA Extreme Temperature Events | |
|---|---|
| **Number of Events in 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** | 2.4 Days per Year |
| **Probability of future events: Cold** | 100% |
| **Number of Events in last 10 Years: Heat** | 5 events |
| **Number of Years with events: Heat** | 3 out of the last 10 years |
| **Possible number of days with events per year: Heat** | .45 Days per Year |
| **Probability of future events: Heat** | 27% |

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 also vulnerable. Rural water systems may not be sufficient to meet higher demands and impacts residents depend on those systems.

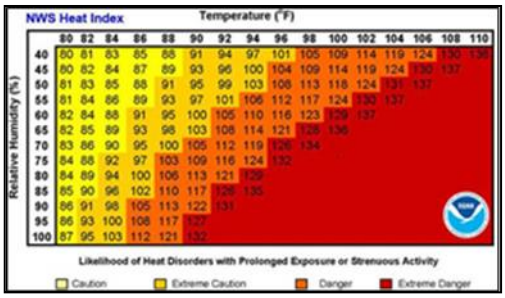
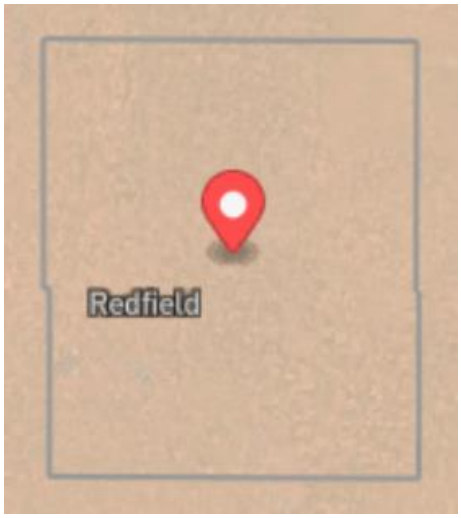


*Figure 4.14: Heat Index Chart from NOAA*

*Figure 4.15: Wind Chill Chart from NOAA*

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, Spink 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 Spink County Dispatch office due to the health issues caused by high heat on residents.





*Figures 4.16 and 4.17: Present day Extreme Heat (2024) and Estimates of Extreme Heat (2054)*

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

| Table 4.27: Winter Hazards | |
|---|---|
| All winter hazards have serious impact 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** | • Lasts three hours or more.<br>• Winds greater than 35 miles per hour<br>• Temperatures below 20 degrees F<br>• 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.<br>• Accumulates on every surface of the ground. |
| **Snow Drifts** | • Wind blows snow into large accumulations. Can be as high as 20-40 feet. |

*Table 4.27: Winter Hazards description from the 2020 Spink County Natural Hazard Mitigation Plan*

Winter storms and blizzards are common in Spink 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 rains.

| Table 4.28: NOAA Winter Events | |
|---|---|
| **Number of Events in last 10 Years: Winter Hazards** | 50 events in the last 10 years |
| **Number of Years with events: Winter Hazards** | 10 Years with a Winter Hazard |
| **Possible number of days with events per year: Winter Hazards** | 4.55 Days with a Winter Hazard per year |
| **Probability of future events: Winter Hazards** | 100% chance of Winter Hazard each year |

Beginning in October 2022 and ending in April of 2023, Spink County was repeatedly exposed to winter storms, blizzards, high winds, and ice storms. Those storms shut down transportation and impacted the economy, later accumulating to spring flooding in 2023. A list of recorded winter storm occurrences is included in Appendix D.

The Spink County Sheriff's Office has had many times where they are needed to respond to stranded motorists. If the weather is too dangerous to send first responders, dispatch will instruct the motorist on how to survive the weather until help can arrive. This process emphasizes that the resident stays with the vehicle and makes sure that the tailpipe is clear and will give survival instructions. Dispatch checks on the person each hour to make sure that they are still ok. Once the weather is passable, a first responder is sent to the stranded motorist.

The Spink County Sheriff's Department receives more calls for assistance for heath emergencies during snowstorms. This may be due to residents having concerns that they may not make it to the hospital in time if they wait out the storm. Spink County has many volunteer groups trained to give aid in those situations. The volunteer emergency services (Conde Ambulance, Wildcat Rescue in Mellette, Northville, and Brentford) are on call to assist in medical emergencies where it will take the ambulance services a great deal of time to get to. These volunteers go through training and respond when called. They all have basic EMT certifications, and their fast response helps save the lives of Spink County residents.

Like many rural areas in the nation, Spink County does have issues ensuring their EMT services are staffed. EMTs come to fill in from other areas. They are also having issues getting volunteers for their ambulance services. Currently, Spink County works with a grant to have the cost of the course covered 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. CPR courses are available, and the Redfield School is looking at offering these courses as an option to students.

## SUBSIDENCE

| Table 4.29: Subsidence | |
|---|---|
| Subsidence (sinkholes) is a concern due to the water tables and the high impact on land that widespread flooding brings. This hazard is a concern near Turtle Creek in Redfield where there are homes that are near the edge of the creek and Brentford where the water tables are high. | |
| **Subsidence** | • Collapse of land along a lake shore or other water body due to erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or an unusually high-water level caused by a storm.<br>• Can be accompanied by flash flood or a wave surge.<br>• Can be caused by reduction in groundwater. |

*Table 4.29: Subsidence description from the 2020 Spink County Natural Hazard Mitigation Plan*

There has been subsidence along rivers and streams in Spink County. Turtle Creek in Redfield has been experiencing subsidence over time. There is concern significant loss of land along the creek will damage homes located there. The water levels of the creeks and streams of Spink County are greatly impacted by the James River which has repeatedly experienced significant flooding in its history.

| Table 4.30: Subsidence Events in Spink County | |
|---|---|
| **Number of Events in the last 10 Years: Subsidence** | Unknown |
| **Number of Years with Events: Subsidence** | Unknown |
| **Possible number of days with events per year Subsidence** | Unknown |
| **Probability of future events: Subsidence** | Unknown |

## FLOOD

| Table 4.31: 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.<br>• Residents and structures can be washed away.<br>• Can develop quickly or over time.<br>• Caused by heavy rains, ice jams blocking waterways, and heavy snowmelt.<br>• Two types: inundation and flash.<br>• *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.*<br>• *Flash Flooding: usually in the summer, caused by heavy rainfall and is localized. Can overwhelm stormwater systems, culverts, and other systems to deal with water.* |

*Table 4.31: Flood Hazard description from the 2020 Spink County Natural Hazard Mitigation Plan*

Numerous flood events happened in Spink County over the past 50 years. Most are overland flooding from heavy rainfall and spring thaw causing the James River to rise above flood stage. The most typical structures affected are low-lying streets and roads. Croplands are affected, impacting agriculture. Critical infrastructure and housing are the biggest concern when it comes to mitigation. Multiple locations in Spink County are susceptible. The James River drainage basin runs through the county and due to the low elevation, makes the entire county vulnerable.

| Table 4.32: NOAA Flood and Flash Flood Events | |
|---|---|
| **Number of Events in the last 10 Years: Flood** | James River was above flood stage 518 days |
| **Number of Years with Events: Flood** | 4 Years with Flood |
| **Possible number of days with events per year Flood** | 710 days with flood over 4 years |
| **Probability of future events: Flood** | 40% of a Flood Event annually |
| **Number of Events in the last 10 Years: Flash Flood** | 3 Flash Floods Events |
| **Number of Years with Events: Flash Flood** | 2 Years |
| **Possible number of days with events per year Flash Flood** | 3 days of Flash Flooding |
| **Probability of future events: Flash Flood** | 20% of a Flash Flood event annually |

There is a lack of drainage in Spink County because the topography is very flat. It takes time for the water to either move downstream or evaporate. Roads can flood, which obstructs access to homes and farmland. This flooding can hinder development in Spink County. Load limits and reduced speed limits are placed on roads to prevent further degradation. Croplands are lost when there is flooding. Sometimes, flooding can delay planting or harvesting indefinitely, impacting the economy. Flooding can happen anywhere in the county although it occurs near the James River. Flash flooding, where the water accumulates quickly, has occurred, and is often associated with massive rainfall and rapid snowmelt. 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 another option to control floodwaters but due to the widespread nature of the James River, there are no levees in the county listed on the National Levee Database.

High water tables impact Spink 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 a gray area for the smaller 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 inside a floodplain, a certificate from a surveyor is required to ensure the structure is above the base flood elevation and has the correct amount of freeboard.

According to the South Dakota State Historical Society flooding has been a common occurrence in Spink County's history. At Redfield heavy snow during the winter of 1897 caused significant snowmelt in March into the James River. The increase raised the James River 15 feet in places. As heavy rains fell north of Redfield, this water, combined with the snowmelt, washed out bridges and tracks and stopped the trains in the area. Flooding of the James River at Ashton SD increased the level of the James

River between a peak of seven feet in 1945 and 19.14 feet in 1950. This water level submerged all but the upper support beams of a truss bridge east of Ashton. More recently, a storm on May 5, 2007, dumped 8.02 inches of rain on Redfield and the surrounding Spink County area. This event caused flooding and the James River to increase over flood stage up to historic levels. Spink County was declared a disaster area, and resources were sent to assist in recovery.

FEMA created new flood maps for Spink 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 Spink County. Figure 4.18 shows the areas of Spink 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 Spink 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 the 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 new updated flood maps, Spink 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 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.

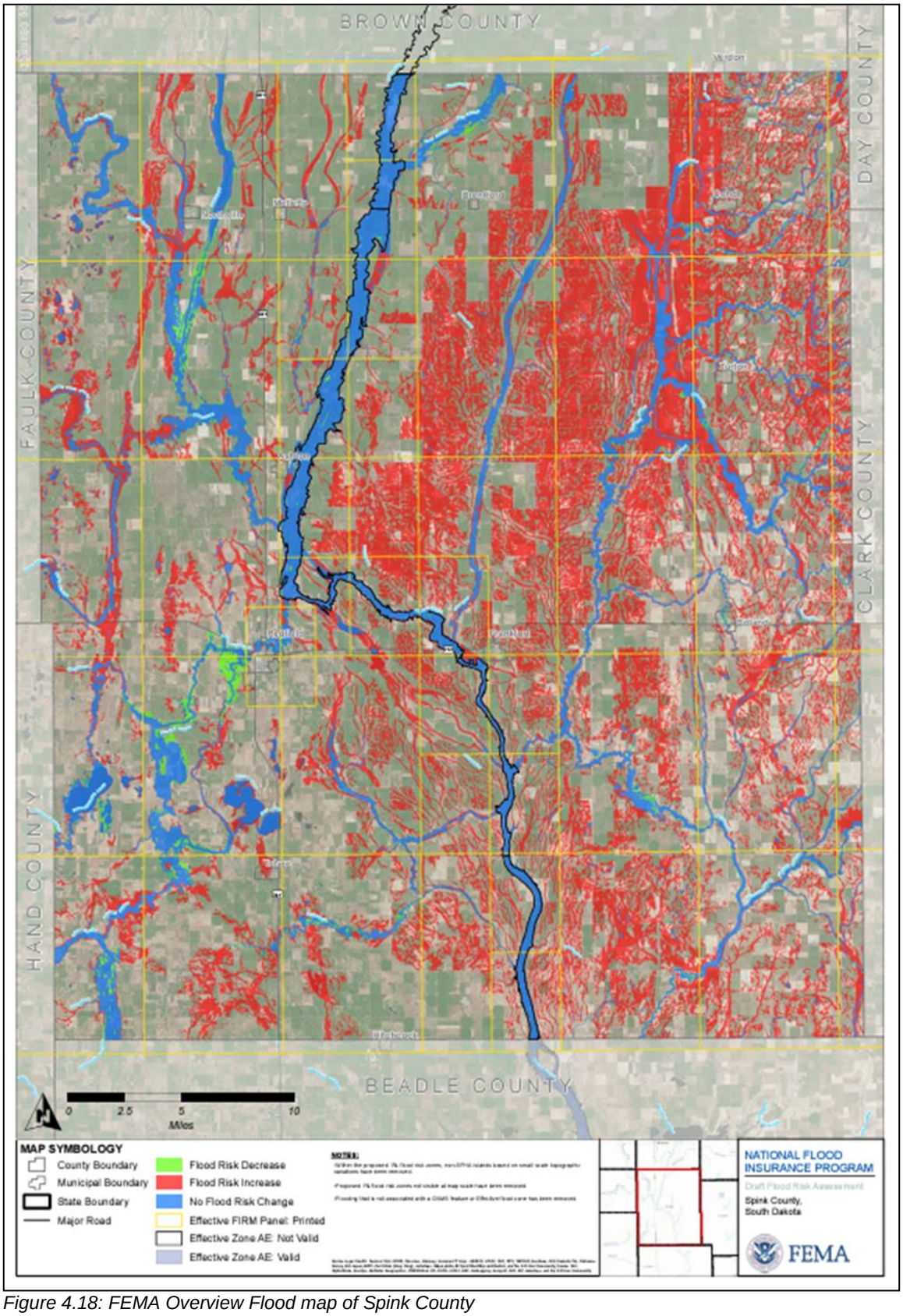



*Figure 4.18: FEMA Overview Flood map of Spink County*

## ADDITIONAL HAZARDS

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

## 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)]

Spink County participates in NFIP. As part of the NFIP there is flood insurance and benefits available in the event of a flood. The following list is of NFIP participating jurisdictions in Spink County. NFIP Participation Community Status book listing is in Table 4.33. Currently, Spink County is not part of the Community Rating System (CRS) program. 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%.

**Table 4.33: Federal Emergency Management Agency**
**Community Status Book Report**
**SOUTH DAKOTA**
**Communities Participating in the National Flood Program**
**Effective 1/3/2024**

| CID | Community Name | County | Init FHBM Id | Init FIRM Id | Curr Eff Map Date | Reg Emer-Date | Curr Class | % Disc SFHA |
|---|---|---|---|---|---|---|---|---|
| **460077#** | ASHTON, CITY OF | SPINK COUNTY | 12/06/74 | 10/19/10 | (NSFHA) | 12/12/12 | | |
| **460078#** | CONDE, CITY OF | SPINK COUNTY | 12/20/74 | 10/19/10 | 10/19/10(M) | 09/21/11 | | |
| **460079#** | DOLAND, CITY OF | SPINK COUNTY | 02/07/75 | 10/19/10 | 10/19/10(M) | 11/12/85 | | |
| **460081#** | REDFIELD, CITY OF | SPINK COUNTY | 08/02/74 | 11/15/85 | 10/19/10(M) | 11/15/85 | | |
| **460076#** | SPINK COUNTY * | SPINK COUNTY | 01/10/78 | 08/05/86 | 10/19/10 | 08/05/86 | | |
| **460145#** | TULARE, TOWN OF | SPINK COUNTY | 07/25/75 | 10/19/10 | 10/19/10(M) | 11/01/12 | | |
| **Communities Not in the National Flood Program** | | | | | | | | |
| **460002#** | FRANKFORT, CITY OF | SPINK COUNTY | | 10/19/10 | 10/19/10 | 10/19/11 | | |
| **460080#** | NORTHVILLE, TOWN OF | SPINK COUNTY | 12/13/74 | 10/19/10 | 10/19/10 | 12/13/75 | | |

*Table 4.33: Community Status book from FEMA.gov*

Residents throughout the county participate in the NFIP. Flooding that has resulted in insurance claims has occurred throughout Spink County and in Redfield. According to the South Dakota Department of Public Safety rural Spink County and participating jurisdictions currently have a total of 13 policies in force for flood insurance. Participants and losses are listed in Table 4.34.

| Table 4.34: NFIP Insurance Participants and Losses | | | | | | |
|---|---|---|---|---|---|---|
| **Location** | **Initial FIRM** | **Policies in Force** | **Insurance in Force** | **Paid Losses** | **Total Losses Paid** | **Sub. Dam. Claims from 1978 on** |
| **Ashton** | 10/19/2010 | 0 | 0 | 0 | 0 | 0 |
| **Doland** | 11/12/1985 | 0 | 0 | 0 | 0 | 0 |
| **Frankfort** | 10/19/2010 | 0 | 0 | 0 | 0 | 0 |
| **Redfield** | 11/15/1985 | 3 | $515,000.00 | 10 | $144,847.30 | 1 |
| **Spink County** | 08/05/1986 | 10 | $1,884,000.00 | 67 | $871,660.06 | 13 |
| **Total:** | | 13 | $2,399,000.00 | 77 | $1,016,507.39 | 14 |

*Table 4.34: NFIP Insurance Participants and Losses from the South Dakota Department of Public Safety*

The Spink County Planning and Zoning Department maintains Flood Insurance Rate Maps for all planning mechanisms in the county, specifically development of new homes and businesses. When a business, resident, or colony wants to develop they are instructed to hire a surveyor/engineer to document that the structure will be above the floodplain. 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.

## ADDRESSING VULNERABILTY: 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 Redfield and Ashton but there are repetitive losses all over the county, currently totaling 8. Total payments in participating jurisdictions are $3,875,695.59 for contents and structures. 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 4.35 is the numbers of repetitive loss properties and the payments that were issued.

| Table 4.35: 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** |
| **Redfield** | Single Family | 3 | A | $42,652.53 | $43,290.36 | $85,942.89 |
| **Redfield** | Business Non-Residential | 4 | C | $35,825.93 | $0.00 | $35,825.93 |
| **Redfield** | Single Family | 4 | C | $135,906.81 | $25,993.01 | $151,899.82 |
| **Ashton** | Other–Non-Residential | 2 | X | $62,482.74 | $0.00 | $62,482.74 |
| **Ashton** | Single Family | 2 | C | $75,389.10 | $13,551.49 | $88,940.59 |
| **Tulare** | Single Family | 2 | C | $30,183.55 | $0.00 | $30,183.55 |
| **Ashton** | Other-Non-Residential | 2 | C | $38,989.42 | $0.00 | $38,989.42 |
| **Spink County** | Single Family | 2 | C | $14,837.57 | $1,000.00 | $15,839.57 |
| **Total County Payment** | | 21 | | $3,620,996.14 | $25,469.45 | $3,875,695.59 |

*Table 4.35: 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.*

Spink Courtny's overall vulnerability is low, according to CDC.gov and the National Risk Index. Both reference Spink 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. Spink 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 Spink County. The residents at the South Dakota Developmental Center would require more care if needing to respond to a severe weather event. Nursing homes in Redfield would also require more care in the event of a storm. Other vulnerable populations include residents that are older than 65. Some of these residents would need assistance responding to a weather event. Mobile homes throughout the county and visitors to the area campgrounds would also require assistance seeking suitable shelter in the event of a storm.

Maps of Social Vulnerability of Spink County are in Appendix G. Based on the maps, there is a range of vulnerabilities throughout the county. Redfield has a higher vulnerability based on socioeconomic, household, racial and ethics and housing type/transportation characteristics. This could be that Redfield has a higher population than other parts of the county. The county has higher vulnerability east of the James River based on socioeconomic and household characteristics.

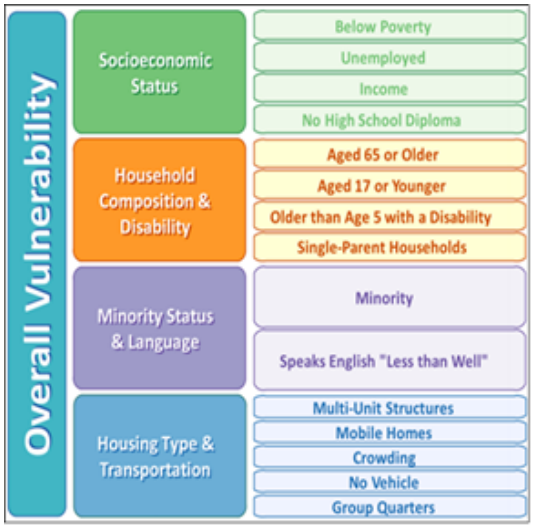



*Figure 4.19: Social Vulnerability Table*

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

| Table 4.36: FEMA Risk Rating for Spink County | | |
|---|---|---|
| **Risk** | **Rating** | **Score** |
| **Cold Wave** | Relatively High | 95.9 |
| **Drought* Crop Risk Only** | Very Low | 24.5 |
| **Earthquake** | Very Low | 18.3 |
| **Hail** | Relatively Moderate | 88.3 |
| **Heat Wave** | Relatively Low | 49.0 |
| **Ice Storm** | Relatively Moderate | 81.3 |
| **Landslide** | Very Low | 6.6 |
| **Lightning** | Very Low | 16.4 |
| **Riverine Flooding** | Relatively Moderate | 76.5 |
| **Strong Wind** | Relatively Low | 49.9 |
| **Tornado** | Relatively Low | 37.7 |
| **Wildfire** | Relatively Low | 66.7 |
| **Winter Weather** | Relatively High | 93.7 |

*Table 4.36: 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 on the community ranging from natural disasters to human caused threats. Spink County has an overall vulnerability index of 0.0554 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 Spink County. This helps determine what is at risk. In the event of a disaster, Spink County and participating entities can prevent further loss of life by generator powered critical facility shelters. Spink 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 Redfield has the only hospital in Spink 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 a disaster. It can be a place to disperse supplies like food, water, and power. Although some structures in the Spink 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 Spink County are in the City of Redfield. 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. Additional resources for fire capabilities are in Mellette, Conde, Doland, Redfield, and Tulare. Spink County also assists area fire departments when called and able.

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.

| Table 4.37: Critical Structures in Spink County | | | | | |
|---|---|---|---|---|---|
| **Spink County** | | | | | |
| **Location** | **Address** | **Type** | **BRIC Function** | **Structure Name** | **Owner** |
| **Spink County** | 1218 E 7th Ave. | Government Structure | Transportation | Spink County Hwy Shop | County |
| **Spink County** | 210 E 7th Ave. | Government Structure | Communications | Spink County Courthouse | County |
| **Spink County** | Redfield | Government Structure | Communications | Spink County Fairgrounds | County |
| **Spink County** | 1518 E 7th Ave. | Emergency Services | Transportation | Spink County Highway Office | County |
| **Spink County** | 225 E 8th Ave. | Government Structure | Communications | Spink County Museum | County |
| **Spink County** | 210 E 7th Ave. | Government Structure | Safety and Security | Spink County Sheriff | County |
| **Spink County** | Redfield Energy 38650 171St St. | Agriculture | Energy | Administration Office Building | Private |
| **Spink County** | Redfield Energy 38650 171St St | Agriculture | Energy | Cooling Tower | Private |
| **Spink County** | Redfield Energy 38650 171St St | Agriculture | Energy | Energy Center | Private |
| **Spink County** | Redfield Energy 38650 171St St | Agriculture | Energy | Grain Rec. Bldg. DDG | Private |
| **Spink County** | Redfield Energy 38650 171St St. | Agriculture | Energy | Grain Storage | Private |
| **Spink County** | Redfield Energy 38650 171St St | Agriculture | Energy | Misc Storage Tanks | Private |
| **Spink County** | Redfield Energy 38650 171St St | Agriculture | Energy | NH3 Tank | Private |
| **Spink County** | Redfield Energy 38650 171St St | Agriculture | Energy | Process Bldg. | Private |
| **Spink County** | Redfield Energy 38650 171St St | Agriculture | Energy | Tank Farm | Private |
| **Redfield** | | | | | |
| **Location** | **Address** | **Type** | **BRIC Function** | **Structure Name** | **Owner** |
| **Redfield** | 626 Main St. | Government Bldg. | Communications | City Hall | City |
| **Redfield** | Redfield | Wastewater | Water | Comfort Station | City |

| | | | | | |
|---|---|---|---|---|---|
| | | Facilities | | | |
| **Redfield** | Redfield | Wastewater Facilities | Water | Comfort Station | City |
| **Redfield** | 111 W 10th Ave | Hospital | Health and Medical | Community Memorial (4 buildings) | City |
| **Redfield** | Redfield | Government Structure | Communications | Emergency Sirens | City |
| **Redfield** | 38463 US Hwy 212 | Government Structure | Food, Water and Shelter | Have-A-Rest Campground | City |
| **Redfield** | Redfield | Government Structure | Hazardous Materials | Landfill Bldg. | City |
| **Redfield** | Redfield | Government Structure | Water | Lift Station | City |
| **Redfield** | Redfield | Government Structure | Water | Lift Station (1300 E 3rd) | City |
| **Redfield** | Redfield | Government Structure | Water | Lift Station (912 W 4th) | City |
| **Redfield** | Redfield | Government Bldg. | Water | Pump House | City |
| **Redfield** | Redfield | Government Bldg. | Water | Pump House | City |
| **Redfield** | 101 E. 6th | Government Bldg. | Food, Hydration, Shelter | Redfield Elementary | City |
| **Redfield** | 111 E 6th Ave | Government Bldg. | Food, Hydration, Shelter | Redfield Jr.-Sr. High School | City |
| **Redfield** | Redfield | Government Structure | Communications | Redfield Cemetery | City |
| **Redfield** | 17267 W 3rd St. | Government Bldg. | Food, Hydration, Shelter | SDDC Campus | City |
| **Redfield** | Redfield | Government Bldg. | Water | Sewer Pipe Storage | City/State of SD |
| **Redfield** | Redfield | Government Bldg. | Transportation | Truck Storage | City |
| **Redfield** | Redfield | Government Bldg. | Water | Water Storage Building | City |
| **Redfield** | Redfield | Government Bldg. | Water | Water Storage Warehouse | City |
| **Redfield** | Redfield | Government Structure | Water | Water Tower | City |
| **Redfield** | Redfield | Government Bldg. | Transportation | Street Shop | City |
| **Redfield** | 1005 W Commercial Lane | Agriculture | Energy | Agtegra | Private |
| **Redfield** | Redfield | Government Structure | Water | Dam | City |
| **Redfield** | 17430 385th Ave. | Government Bldg. | Transportation | Redfield Airport | City |
| **Redfield** | 1227 E 3rd St. | Agriculture | Energy | Agtegra Cooperative | Private |
| **Redfield** | 1015 E 3rd St. | Agriculture | Energy | Avantara Redfield | Private |
| **Redfield** | 126 W 12th Ave | Nursing Home | Health and Medical | Eastern Star Home | Private |

| | | | | | |
|---|---|---|---|---|---|
| **Redfield** | 1010 W 5th St. | Nursing Home | Health and Medical | Lakeside Assisted Living | Private |
| **Redfield** | 5 E 5th Ave. | Government Bldg. | Communications | Carnegie Library | City |
| **Redfield** | 24 E 6th Ave. | Government Bldg. | Communications | Post Office | Federal |
| **Redfield** | 715 W 3rd St. | Government Bldg. | Communications | Chicago and Northwestern Railroad Depot | City |
| **Redfield** | 309 W 3rd St. | Government Structure | Communications | Redfield Parks and Recreation | City |
| **Redfield** | 401 W 3rd St. | Government Bldg. | Communications | Pool, Bathhouse, and Waterslide | City |
| **Redfield** | 309 W 3rd St. | Government Bldg. | Safety and Security | Army National Guard | City |
| **Redfield** | 905 W 2nd St. | Government Bldg. | Food, Hydration, Shelter | NESD Head Start | State of SD |
| **Redfield** | PO Box 420 801 E 1st St. | Hospital Response | Health and Medical | Redfield EMS Building | City |
| **Ashton** | | | | | |
| **Location** | **Address** | **Type** | **BRIC Function** | **Structure Name** | **Owner** |
| **Ashton** | 101 Main St. | Government Bldg. | Communications | Post Office | Federal |
| **Ashton** | 14 Main St. | Government Bldg. | Food, Hydration, Shelter | City Hall | City |
| **Brentford** | | | | | |
| **Location** | **Address** | **Type** | **BRIC Function** | **Structure Name** | **Owner** |
| **Brentford** | Brentford | Public Structure | Communications | Ball Field, Park, Tennis Courts | City |
| **Brentford** | Brentford | Emergency Structure | Safety and Security | Fire Hall | City |
| **Brentford** | 101 4th St. | Government Structure | Communications | Post Office | Federal |
| **Brentford** | Brentford | Public Works | Water | Sewer Lagoon | City |
| **Brentford** | Brentford | Public Works | Communications | Storage Garage | City |
| **Brentford** | S Main St. | Private | Communications | American Legion | City |
| **Conde** | | | | | |
| **Location** | **Address** | **Type** | **BRIC Function** | **Structure Name** | **Owner** |
| **Conde** | Conde | Government Equipment | Energy | Portable Generators (2) | City |
| **Conde** | Conde | Government Structure | Water | Pumphouse and Generator | City |
| **Conde** | 165 2nd St. | Government Building | Communications | City Hall (in school) | City |
| **Conde** | Conde | Public Structure | Food, Hydration, Shelter | Community Center | City |
| **Conde** | Conde | Government Structure | Communications | High Band Radio Antenna | Public |
| **Conde** | Conde | Government Structure | Food, Hydration, Shelter | Municipal Building | City |
| **Conde** | Conde | Government Structure | Transportation | Municipal Shop | City |

| | | | | | |
|---|---|---|---|---|---|
| **Conde** | Conde | Government Structure | Water | Lift Station | City |
| **Conde** | Conde | Government Structure | Water | Ground Water Storage | City |
| **Conde** | 125 Broadway St. | Emergency Structure | Safety and Security | Fire Station | City |
| **Conde** | 180 Broadway St. | Government Structure | Communications | Post Office | City |
| **Doland** | | | | | |
| **Location** | **Address** | **Type** | **BRIC Function** | **Structure Name** | **Owner** |
| **Doland** | 405 Humphrey Dr. | Government Structure | Food, Hydration, Shelter | Public School | City |
| **Doland** | 106 2nd St. | Government Structure | Communications | Finance Office | City |
| **Doland** | 405 Humphrey Dr. | Government Structure | Food, Hydration, Shelter | Community Library | City |
| **Doland** | 204 Humphrey Dr. | Government Structure | Communications | Post Office | City |
| **Frankfort** | | | | | |
| **Location** | **Address** | **Type** | **BRIC Function** | **Structure Name** | **Owner** |
| **Frankfort** | Frankfort | Government Structure | Communications | City Park, Ball Fields | City |
| **Frankfort** | Frankfort | Government Structure | Safety and Security | Fire Station | City |
| **Frankfort** | Frankfort | Government Structure | Water | Lift Station | City |
| **Frankfort** | 611 Jefferson Ave. | Government Structure | Communications | Post Office | City |
| **Frankfort** | 404 Maple St. | Government Structure | Communications | City Hall | City |
| **Frankfort** | 602 Jefferson Ave. | Government Structure | Food, Hydration, Shelter | Community Center | City |
| **Mellette** | | | | | |
| **Location** | **Address** | **Type** | **BRIC Function** | **Structure Name** | **Owner** |
| **Mellette** | 221 3rd St. | School | Food, Hydration, Shelter | Northwestern High School | City |
| **Mellette** | 1st St. | Government Structure | Safety and Security | Fire Hall | City |
| **Mellette** | Mellette | Government Structure | Water | Lift Station | City |
| **Mellette** | Mellette | Government Structure | Water | Lagoon | City |
| **Mellette** | Mellette | Government Structure | Water | Water Storage | City |
| **Mellette** | Mellette | Government Structure | Water | Pump House | City |
| **Mellette** | Main St. | Government Structure | Food, Hydration, Shelter | Community Center | City |
| **Mellette** | 4 Main St | Financial | Communications | American Bank and Trust | Private |
| **Mellette** | 24 Main St. | Community | Food, Hydration, Shelter | American Legion | Private |
| **Mellette** | 1 Main St. | Government Structure | Communications | Post Office | City |

| | | | | | |
|---|---|---|---|---|---|
| **Mellette** | 1st St. | Government Structure | Communications | City Hall | City |
| **Mellette** | Railway Ave. | Agriculture | Energy | Agtegra | Private |
| **Northville** | | | | | |
| **Location** | **Address** | **Type** | **BRIC Function** | **Structure Name** | **Owner** |
| **Northville** | Northville | Government Structure | Water | Pump House | City |
| **Northville** | Northville | Government Structure | Water | Lift Station | City |
| **Northville** | Northville | Government Structure | Safety and Security | Fire Station | City |
| **Northville** | Northville | Government Structure | Transportation | City Shop | City |
| **Northville** | Northville | Government Structure | Food, Hydration, Shelter | Community Building, Gym, | City |
| **Northville** | 306 Elm St. | Government Structure | Communications | Post Office | City |
| **Tulare** | | | | | |
| **Location** | **Address** | **Type** | **BRIC Function** | **Structure Name** | **Owner** |
| **Tulare** | 109 Main St. | Financial | Communications | Bank | Private |
| **Tulare** | | Religious | Food, Hydration, Shelter | Baptist Church | Religious |
| **Tulare** | 110 Main St. | Government Structure | Communications | City Hall | City |
| **Tulare** | 112 Main St. | Government Structure | Safety and Security | Fire Hall | City |
| **Tulare** | 105 US Hwy 281 | Supplier | Food, Hydration, Shelter | Meat Locker | Private |
| **Tulare** | 112 Main St. | Government Structure | Food, Hydration, Shelter | Community Hall | City |
| **Tulare** | 205 Main St. | Government Structure | Communications | Post Office | City |
| **Tulare** | Tulare | Religious | Food, Hydration, Shelter | Salem Church | Religious |
| **Tulare** | 401 4th Ave. | Government Structure | Food, Hydration, Shelter | Hitchcock Tulare School | City |
| **Tulare** | 205 Ohio St. | Religious | Food, Hydration, Shelter | United Church | Private |
| **Tulare** | Tulare | Government Structure | Water | Water Tower | City |
| **Tulare** | Tulare | Government Structure | Water | Pump House | City |
| **Tulare** | 18290 US Hwy 281 | Agriculture | Energy | Agtegra | Private |
| **Tulare** | Tulare | Government Structure | Water | Lift Station | City |
| **Turton** | | | | | |
| **Location** | **Address** | **Type** | **BRIC Function** | **Structure Name** | **Owner** |
| **Turton** | Turton | Religious | Food, Hydration, Shelter | St. Joseph Catholic Church | Private |
| **Turton** | 108 Center St. | Government Structure | Communications | Post Office | City |
| **Turton** | 123 Center St. | Financial | Food, Hydration, Shelter | Farmers State Bank | Private |

## 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?*

The Director of Equalization's office was contacted to provide the assessed valuation of properties in the jurisdictions. Due to the extensive records required and privacy concerns, they were unable to give an exact updated accounting of structures. However, each structure is an important piece of Spink County's history and identity. The value of structures will vary as time passes and valuations increase or decrease depending on the economic values of the structures. The statistics in each table for each jurisdiction are from the 2020 Spink County Mitigation Plan. 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.

**Table 4.38: Spink County Estimated Potential Dollar Losses to Vulnerable Structures**

| Type of Structure | Number of Structures | | Value of Structures | | Number of People | |
|---|---|---|---|---|---|---|
| | Number of Parcels - Structures | % in Hazard Area | Value of Structures | % in Hazard Area | Number of People | % in Hazard Area |
| Residential | 3122 | 100% | $122,936,468 | 100% | 6415 | 100% |
| Commercial | 408 | | $30,468,845 | | | |
| Agricultural | | | | | | |
| Religious | 1334 | 100% | $14,723,780 | 100% | | |
| Government | 26 | 100% | Unknown | | | |
| Mob. Homes | 37 | 100% | Unknown | | | |
| Utilities | 4 | 100% | Unknown | | | |
| School | | | | | | |
| **Total** | **4931** | **100%** | **$153,405,283+** | **100%** | **6415** | **100%** |

**Table 4.39: Redfield Estimated Potential Dollar Losses to Vulnerable Structures**

| Type of Structure | Number of Structures | | Value of Structures | | Number of People | |
|---|---|---|---|---|---|---|
| | Number of Parcels - Structures | % in Hazard Area | Value of Structures | % in Hazard Area | Number of People | % in Hazard Area |
| Residential | 918 | 100% | $47,618,060 | 100% | 2,333 | 100$ |
| Commercial | 187 | 100% | $18,915,376 | 100% | | |
| Agricultural | | | | | | |
| Religious | | | | | | |
| Government | 106 | 100% | $28,587,257 | 100% | | |
| Mob. Homes | 4 | 100% | $10,027,000 | 100% | | |
| Utilities | 28 | 100% | $10,000,000+ | 100% | | |
| School | | | | | | |
| **Total** | **1,143** | **100%** | **$115,147,693+** | **100%** | **2,333** | **100%** |

| Table 4.40: Ashton Estimated Potential Dollar Losses to Vulnerable Structures | | | | | | |
|---|---|---|---|---|---|---|
| Type of Structure | Number of Structures | | Value of Structures | | Number of People | |
| | Number of Parcels - Structures | % in Hazard Area | Value of Structures | % in Hazard Area | Number of People | % in Hazard Area |
| Residential | 70 | 100% | $1,714,623 | 100% | 122 | 100% |
| Commercial | 11 | 100% | $180,386 | 100% | | |
| Agricultural | | | | | | |
| Religious | | | | | | |
| Government | 2 | 100% | $100,000 | 100% | | |
| Mob. Homes | 8 | 100% | $49,663 | 100% | | |
| Utilities | | | | | | |
| School | | | | | | |
| **Total** | **91** | **100%** | **$2,044,672** | **100%** | **122** | **100%** |

| Table 4.41: Brentford Estimated Potential Dollar Losses to Vulnerable Structures | | | | | | |
|---|---|---|---|---|---|---|
| Type of Structure | Number of Structures | | Value of Structures | | Number of People | |
| | Number of Parcels - Structures | % in Hazard Area | Value of Structures | % in Hazard Area | Number of People | % in Hazard Area |
| Residential | 38 | 100% | $1,000,000 | 100% | 77 | 100% |
| Commercial | 3 | 100% | $400,000 | 100% | | |
| Agricultural | | | | | | |
| Religious | 1 | 100% | $70,000 | 100% | | |
| Government | | | | | | |
| Mob. Homes | | | | | | |
| Utilities | 1 | 100% | $600,000 | 100% | | |
| School | | | | | | |
| **Total** | **43** | **100%** | **$2,070,000** | **100%** | **77** | **100%** |

| Table 4.42: Conde Estimated Potential Dollar Losses to Vulnerable Structures | | | | | | |
|---|---|---|---|---|---|---|
| Type of Structure | Number of Structures | | Value of Structures | | Number of People | |
| | Number of Parcels - Structures | % in Hazard Area | Value of Structures | % in Hazard Area | Number of People | % in Hazard Area |
| Residential | 125 | 100% | $3,797,821 | 100% | 140 | 100% |
| Commercial | 27 | 100% | $484,020 | 100% | | |
| Agricultural | 1 | 100% | $74,330 | 100% | | |
| Religious | 1 | 100% | $632,400 | 100% | | |
| Government | 11 | 100% | $3,300,000 | 100% | | |
| Mob. Homes | | | | | | |
| Utilities | | | | | | |
| School | | | | | | |
| **Total** | **155** | **100%** | **$7,893,970** | **100%** | **140** | **100%** |

| Table 4.43: Doland Estimated Potential Dollar Losses to Vulnerable Structures | | | | | | |
|---|---|---|---|---|---|---|
| Type of Structure | Number of Structures | | Value of Structures | | Number of People | |
| | Number of Parcels - Structures | % in Hazard Area | Value of Structures | % in Hazard Area | Number of People | % in Hazard Area |
| Residential | | | | | 180 | 100% |
| Commercial | | | | | | |
| Agricultural | | | | | | |
| Religious | | | | | | |
| Government | | | | | | |
| Mobile Homes | | | | | | |
| Utilities | | | | | | |
| School | | | | | | |
| Total | | | | | **180** | **100%** |

| Table 4.44: Frankfort Estimated Potential Dollar Losses to Vulnerable Structures | | | | | | |
|---|---|---|---|---|---|---|
| Type of Structure | Number of Structures | | Value of Structures | | Number of People | |
| | Number of Parcels - Structures | % in Hazard Area | Value of Structures | % in Hazard Area | Number of People | % in Hazard Area |
| Residential | 90 | 100% | $2,787,000 | 100% | 178 | 100% |
| Commercial | 1 | 100% | Unknown | 100% | | |
| Agricultural | 2 | 100% | Unknown | 100% | | |
| Religious | 1 | 100% | $100,000 | 100% | | |
| Government | 1 | 100% | Unknown | 100% | | |
| Mob. Homes | | | | | | |
| Utilities | | | | | | |
| School | | | | | | |
| Total | **95** | **100%** | **$2,887,000+** | **100%** | **178** | **100%** |

| Table 4.45: Mellette Estimated Potential Dollar Losses to Vulnerable Structures | | | | | | |
|---|---|---|---|---|---|---|
| Type of Structure | Number of Structures | | Value of Structures | | Number of People | |
| | Number of Parcels - Structures | % in Hazard Area | Value of Structures | % in Hazard Area | Number of People | % in Hazard Area |
| Residential | | | | | 130 | 100% |
| Commercial | | | | | | |
| Agricultural | | | | | | |
| Religious | | | | | | |
| Government | | | | | | |
| Mob. Homes | | | | | | |
| Utilities | | | | | | |
| School | | | | | | |
| Total | | | | | **130** | **100%** |

| Table 4.46: Northville Estimated Potential Dollar Losses to Vulnerable Structures | | | | | | |
|---|---|---|---|---|---|---|
| Type of Structure | Number of Structures | | Value of Structures | | Number of People | |
| | Number of Parcels - Structures | % in Hazard Area | Value of Structures | % in Hazard Area | Number of People | % in Hazard Area |
| Residential | 59 | 100% | $5,605,000 | 100% | 143 | 100% |
| Commercial | 3 | 100% | Unknown | 100% | | |
| Agricultural | 2 | 100% | $6,300,000 | 100% | | |
| Religious | 1 | 100% | $120,000 | 100% | | |
| Government | 1 | 100% | $50,000 | 100% | | |
| Mob. Homes | | | | | | |
| Utilities | | | | | | |
| School | | | | | | |
| **Total** | **66** | **100%** | **$12,075,000** | **100%** | **143** | **100%** |

| Table 4.47: Tulare Estimated Potential Dollar Losses to Vulnerable Structures | | | | | | |
|---|---|---|---|---|---|---|
| Type of Structure | Number of Structures | | Value of Structures | | Number of People | |
| | Number of Parcels - Structures | % in Hazard Area | Value of Structures | % in Hazard Area | Number of People | % in Hazard Area |
| Residential | 89 | 100% | | | 207 | 100% |
| Commercial | 16 | 100% | | | | |
| Agricultural | | | | | | |
| Religious | 5 | 100% | | | | |
| Government | 4 | 100% | | | | |
| Mob. Homes | | | | | | |
| Utilities | 1 | 100% | | | | |
| School | 3 | 100% | | | | |
| **Total** | **118** | **100%** | | | **207** | **100%** |

| Table 4.48: Turton Estimated Potential Dollar Losses to Vulnerable Structures | | | | | | |
|---|---|---|---|---|---|---|
| Type of Structure | Number of Structures | | Value of Structures | | Number of People | |
| | Number of Parcels - Structures | % in Hazard Area | Value of Structures | % in Hazard Area | Number of People | % in Hazard Area |
| Residential | | | | | 48 | 100% |
| Commercial | | | | | | |
| Agricultural | | | | | | |
| Religious | | | | | | |
| Government | | | | | | |
| Mob. Homes | | | | | | |
| Utilities | | | | | | |
| School | | | | | | |
| **Total** | | | | | **48** | **100%** |

| Table 4.49: Spink County Housing | | | |
|---|---|---|---|
| **Jurisdiction** | Housing Units Occupied | Housing Units Unoccupied | Total |
| **Redfield** | 1033 | 125 | 1,158 |
| **Ashton** | 40 | 8 | 48 |
| **Brentford** | 38 | 1 | 39 |
| **Conde** | 72 | 30 | 102 |
| **Doland** | 88 | 29 | 117 |
| **Frankfort** | 58 | 12 | 70 |
| **Mansfield** | 32 | 7 | 39 |
| **Mellette** | 89 | 8 | 97 |
| **Northville** | 50 | 8 | 58 |
| **Tulare** | 96 | 13 | 109 |
| **Turton** | 25 | 18 | 43 |
| **Spink County** | 2,520 | 463 | 2,983 |
| **Total** | 4,141 | 722 | 4,863 |

## 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.*

The land use and development trends for each jurisdiction were identified by the representatives on the planning committee. Spink County had a slight reduction in its population. Spink County has gone from 6,415 residents in 2010 to 6,361 in 2020. Redfield's population was 2,333 in 2010 and is currently at 2,214. Although the population has seen a slight decrease countywide, there are jurisdictions that are seeing an increase in population and homes. Housing and business development remain strong and a focus for Spink County and all jurisdictions.

**Spink County:** Spink County's population is slowly declining. In 2000, Spink County had 7,454 residents. In 2010, that number decreased to 6,415 (-13.94%) and is currently at 6,361 (-1.54%). The percentage of the population of Spink County that is 65 years or older has also increased from 19% in 2000 to 20.4% in 2010 to 20.9% in 2020. This makes it more difficult to replace essential members for emergency services such as police, Emergency Medical Services, and fire fighters.

Spink County has two economic development corporations. Grow Spink focuses on Spink County. Beadle and Spink Enterprise Community, Inc (BASEC) is a non-profit that focuses on all of Spink County and most of Beadle County except for Huron and Redfield. These organizations work with communities to attract residents and businesses to the area and beautify communities.

Development in Spink County is addressed through the Planning and Zoning Commission, which is the Spink County Commissioners. The commission receives and processes building permits and variances. If the building is on a floodplain a survey is required to ensure the builder is compliant with floodplain building codes. An engineer is required to sign off on the plans. Cottonwood Lake is the most common area in Spink

County's floodplain to have building permit requests. The County is responsible for building and development within the county and all municipalities except Redfield.

Spink County works to reduce the impact of disaster county wide. Multiple electrical line burials have been completed by Northern Electric. Sirens and generators have been installed county-wide to mitigate the impact of tornadoes and power outages.

Spink County has a significant number of workers who commute from within and outside the county. There are many residents who work in Beadle, Brown, or other counties near Spink. There are also residents who travel from the counties to work in Spink County. Accessibly is essential to these workers and traveling conditions can impact travel along the highway system and the services in Spink County. Spink County has focused on road and bridge improvements to assist accessibility. In Redfield alone, it's estimated that there are over 900 people that commute in Redfield daily. According to the state of South Dakota's estimates, there are 10,000 people who either travel through, to or are in Redfield on a given day.

**Redfield:** Redfield is the most populated city in Spink County and the County seat. Redfield also provides goods and services to Spink County residents such as medical, retail, and financial. Development is coordinated with the City Finance Officer who addresses building permit requests. Zoning, building codes, setback information and floodplain administration are all through the City Finance office.

Redfield has the Redfield Area Development Corporation, part of Grown Spink, and the Redfield Chamber of Commerce, which helps expand economic, commercial, industrial, and residential development. Currently, there are two development projects that the Redfield Area Development Corporation is working on. Prairie Winds Estates on the west side of Redfield and Packard's Addition on the Northwest side of Redfield.

Redfield has focused on development through improving infrastructure such as their water and wastewater project, roads, schools, hospital, and their clinic. Redfield's $23 million project of replacing their elementary, middle, and high school began spring of 2017 and was completed in 2020. The Redfield Community Memorial Hospital has 25 beds for critical access and their ambulance service covers approximately 1,800 square miles. A new Emergency Medical Services building was built in 2023 to not only house their ambulances but provide a place for EMS who travel to Redfield for work and allow a space for public outreach. Redfield's Community Hospital remodeled the clinic in 2024.

**Brentford**: Brentford has had an increase in the population from 77 in 2010 to 88 in 2020. According to the Census data, there has been an increase in housing units from 47 to 49. Building permits are through the County. Approval and guidelines must match the requirements set county-wide which follow IBC 2021. The city council is responsible for providing approval for development in the town. Brentford is currently working to address concerns with their water and wastewater systems.

**Doland**: Doland's population has gone from 180 to 199 since 2010. Doland has 157 housing units in 2020 up from 127 in 2010. Doland has had improvements made to their school and has added a splash pad to the community for children. Doland's Housing and Development Corporation is an important pattern for Doland's housing and business development. Doland also works with the Doland Community Foundation with assists

with funding community needs for projects in Doland. In 2019 Doland invested $2.87 million in replacing the school buildings built in 1911, 1928 and 1959 with a 90-by-250-foot addition to their school.

**Tulare**: Tulare's population has also increased from 207 in 2010 to 211 in 2020. Total housing units in 2020 was 140 while in 2010 there were 115 housing units. Development is approved by the City Council while building permits and guidelines are set by the county. Tulare has a current project that is improving their lift station and the outflow line to the lagoon. The City has also replaced their water tower and maintenance building and is looking at storm sewer improvements. Development is regulated by the city council. Building codes and permits are through the county.

## 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.

**Spink County:**

Spink County has identified in the Risk Assessment worksheet that the county is most vulnerable to Extreme Cold, Extreme Heat, Strong Winds and Tornadoes. They have moderate risk of Flash Floods, Floods, Freezing Rain/Sleet, Hail, Heavy Rain, Heavy Snow, Lightning, and Rapid Snow Melt. "H" indicates that the county has high risk, and the "M" indicates a moderate risk.

Spink County is a flat region of South Dakota. Natural hazards are generally widespread. The rural nature of many of Spink County's communities make them vulnerable due to the distance to travel to get resources in an event. Also, emergency services may be affected by a flooded road or a blinding blizzard which may make it nearly impossible to assist residents in an emergency. Residents who require urgent medical care may not be able to make it to the nearest hospital due to distance, road conditions and accessibility. Spink County uses a group called Wildcat Rescue to reach rural residents in emergency situations. This gives the county flexibility in response to injuries and accidents. The volunteers of the first-response group serve Northville, Mellette and Brentford. The group has EMTs, nurses, and paramedics.

Extreme weather conditions may damage cell towers or internet connectivity. This has become a greater issue due to the reliance on the internet and cell phones to communicate, especially rurally. If an ice storm or tornado damages the internet or cell towers, the result can be devastating to the area's communication system as there are limited alternatives for communication. Due to the rural aspects of Spink County,

communications are essential to the area. To communicate with residents, Spink County has multiple methods to inform and warn residents of weather hazards.

Table 4.49 lists these methods the County can use to communicate emergency conditions from natural hazards along with community information. Residents can sign up on the jurisdiction websites. In Redfield, when residents sign up for utilities, they are given the information sheet to sign up for the alerts. The sheriff's office works with the National Weather service to issue weather alerts as they occur. Per training, text alerts from the Sheriff's office are used only when there are severe weather emergencies.

| Table 4.49: Spink County Emergency Communication Methods | |
|---|---|
| **Area Newspaper** | *Redfield Press* |
| **Webpages** | Spink County Webpage, Redfield, Doland Public Schools, Tulare Schools |
| **Radio** | KQ1380 |
| **Social media (Facebook)** | Spink County Sheriff's Department, Spink County Emergency Management, Spink County Ambulance Service, Redfield, Conde, Doland, Frankfort, Mellette, Northville, Tulare, Turton |
| **Sirens** | All communities fully in Spink County (Mansfield and Hitchcock are partially in other counties) |
| **Email** | Emails sent through the City of Redfield |
| **Text Alerts (IPAWS and NIXLE))** | County service – alerts sent through the Spink County Sheriff's office. |

Programs that Spink County uses to inform residents about the hazards that weather events can cause are weather spotting training with the National Weather Service, Tornado drills with the schools for students and the hospitals and nursing homes. Spink County saferooms are located at the Spink County Courthouse, the Armory in Redfield, the pool house at the Redfield pool, ethanol plants throughout the County have rooms rated for storm safety. Rural locations such as Tulare and Brentford do not have specified locations that are rated for saferooms. Due to high water levels, there is a limited number of basements for residents. In Brentford, one option that they have is to access Kremp Construction's basement, a private contractor in the area who has a large building. Tulare has no safe room. Agtegra has locations throughout the county, including Tulare, and each has a storm shelter, however it is too small to be used as a community storm shelter.

Throughout Spink County, there are storm shelters in the ethanol plants, however, there is not enough space to accommodate the populations of some of the surrounding towns. Area schools can be used for winter storm shelters. They are in Doland, Tulare, Redfield, and Mellette. Doland, Mellette and Redfield have all recently either constructed new schools or updated their schools. There are storm shelters at the Spink County Courthouse, the Armory, and the Redfield Pool house in Redfield for County residents. Some residents take shelter in their basements in the event of a tornado or high wind event. However, due to high water table throughout the county, residents do not have basements to seek shelter. Tulare and Brentford are two municipalities that have this problem. Redfield is also home to the Spink County Fair.

There are five Hutterite Colonies in or near Spink County. The colonies do have their own firefighting equipment, have basements or other buildings in which to take shelter and have backup generators to power essential operations if the power is out. All the colonies are in the rural, unincorporated areas of the county.

In the event of a fire, the fire departments within the county coordinate with each other for mutual aid, along with departments in other counties. If there is not sufficient water for the demands of a fire, there are aquifers that the departments can pull from. Another secondary source of water is the grain elevators which store extra water in the event of a fire. These partners will assist with extra water is needed. Due to the rural nature of many of the fires, accessibly to a sufficient water supply can be difficult.

Farmers and other rural residents are more impacted by drought than residents of municipalities. Farmers are dependent on the weather. Drought can cause a reduction in crop yields and impact livestock. It can also cause crops to be more vulnerable to fires. Many of the area firefighting districts assist other fire districts when assistance is requested. Water is provided to northern Spink County by WEB water systems and Mid Dakota rural water systems in the southern part of the county.

Spink County is vulnerable to inundation and flash flooding as illustrated in the flood maps in Appendix F due to the James River and its tributaries. Typically, the James River is at its highest in the spring when snowmelt from the north flows southward and is added to the snowmelt in the county. The average elevation of 1,314 feet, ranging from 1,424 feet to 1,296 feet. Due to the flat terrain, many of the lakes, streams and creeks in the area are slow-moving. When water hazard events occur, the water collects in the area and is slow to move out, causing significant damage to structures and residents of the area. The most flood prone areas would be the areas surrounding the James River, Cottonwood Lake, Turtle Creek, and Snake Creek which converge within several miles of Redfield. The James River Basin is the largest of the East River Basin Systems and covers a substantial part of Eastern South Dakota. Cottonwood Lake has a housing development. Flooding can impact homes that are located along the Lake. Flash flooding can occur within the county during heavy rains when the soil is already saturated, and water has nowhere else to go. FEMA flood maps have been approved by Spink County and new updated insurance rates will be assessed to homeowners who had their homes move into floodplains.

Spink County maintains 703 miles of roads throughout the county. Of those, 142 bridges are on the state's inspection list. Spink County has been proactive in maintaining bridges and addressing the ones that need to be repaired to prevent issues with travel for residents. There are also culverts and other structures the county uses to address the flooding issues that occur; however, Spink County has had many township roads under water due to flooding. Flooding makes roads softer, more susceptible to damage and sometimes even unpassable. Flooding of roads is a concern because travel is more difficult in an emergency, to receive EMS services, and impacts the economy by affecting farmers and hunters, who contribute to the Spink County's economy. The widespread nature of flooding can cause the county to build roads up just to make them temporarily passable, reducing funds available for other development. Spink County has enacted load limits on roads because roads get easily damaged when heavy traffic traverses them during wet years.

Damage to county roads continues in drought due to the repeated exposure to high heat alternated with high water. Drought impacts crops, livestock, and the area, especially since Spink County's economy is reliant on agriculture. During the last ten years, according to NOAA's Storm Events Database, Spink County has experienced multiple periods of drought ranging from moderate to severe. As the possibility of increasing temperatures due to global warming, area vulnerability and its impact on the economy can be more severe than historic weather patterns.

Winter weather is widespread and brings hazardous amounts of ice, snow, high winds, and extremely cold temperatures. Storms can be dangerous, impacting driving conditions and causing freezing temperatures. Snow can last long periods of time and accumulate to create flooding when the snow melts and can cause ice jams in the local waterways. Summer storms can cause accumulation of water through heavy rains and a lack of dispersion. Although some jurisdictions have storm sewers, many do not.

**Redfield:**
Redfield indicated that they have a High "H" Vulnerability to Drought, Extreme Cold and Heat, Flash Flood, Freezing Rain/Sleet, Hail, Heavy Rain and Snow, Lightning, Rapid Snow Melt, Strong Winds, and Thunderstorms. Redfield has a Moderate "M" Vulnerability to Flood, Ice Jam, Subsidence, Tornadoes, Urban Fire, and Utility Disruption on their risk assessment worksheets.

Redfield is the largest community in Spink County and is also the county seat. Of all cities in Spink County, Redfield has the largest number of resources and provides aid to surrounding communities when requested. Redfield has a community hospital, EMS service, and fire department. The County Sheriff's office is also located in Redfield. The city also has full-time city departments for public works and finance.

Specific populations that are more vulnerable include the residents at the South Dakota Developmental Center, and campers in the Have a Rest campground. The South Dakota Developmental Center provides services to people with intellectual and/or developmental disabilities. As of January 2023, the Developmental Center has between 74 to 80 residents. Some of the residents are in their 60s, 70s, and 80s which adds to the vulnerability of the residential population. The Have a Rest campground is located near Redfield Dam. There are nineteen sites available. Campers are vulnerable to weather events if a severe weather event affects the dam. The dam is maintained and regulated by the South Dakota Game, Fish and Parks. Redfield Dam is considered a high hazard dam based on the damage it could cause if a breach were to occur. If the dam were to breach or fail, the impacts of flooding from that failure will be borne by residents in Spink County.

Turtle Creek runs through Redfield and there is flooding risk due to its connection to the James River. Four homes have been acquired in the past from FEMA due to flooding. There is still a home located in the floodplain and although there were attempts to acquire it the current homeowner has refused the acquisition through FEMA. Turtle Creek does have an area of concern for landslides on the north end of Main Street. Bank stabilization in that area is needed.

In the event of a fire, Redfield does not have a secondary source of water. The fire departments do have equipment that allows access to the use of waterways, however,

depending on the amount of water in the waterway, it may not be enough. There is water storage at the South Dakota Developmental Center, but there is not easy access.

Redfield has a vulnerability to snow like the rest of the county. However, there are portions of town that get hit harder with snowfall. Accumulations of snow are higher on the outskirts of town instead of throughout Redfield.

Redfield has worked to mitigate their vulnerability. They installed generators at their lift stations and have storm shelters at the armory and the pool house. Currently, Redfield's water and wastewater systems are being replaced due to the age of the system. Stormwater systems under the highway are being addressed by South Dakota during the construction process. Redfield has stated that the stormwater systems are not adequate, especially during heavy rain. Upgrades are planned by South Dakota when they replace highways 212 and 281 over the next couple of years.

**Brentford:**
Brentford's Risk Assessment worksheet results indicated a High Vulnerability "H" to Drought, Extreme Cold and Heat, Flash Flood, Flood, Freezing Rain/Sleet, Hail, Heavy Rain and Snow, Ice Jams, Lightning, Rapid Snow Melt, Strong winds, Thunderstorms, Tornadoes, and Utility Disruption. Brentford indicated a Moderate "M" vulnerability to Subsidence, Urban Fire and Wildfire.

Brentford has a high risk of flooding due to the higher water table. It is also vulnerable to tornadoes because the high-water table makes it impossible to build basements under homes. Brentford residents must use the basement of a local contractor as shelter during a hazardous event. Brentford is also vulnerable because many who live there work outside of Brentford. Traveling to and from work and services may be dangerous depending on the weather hazards that occur. Brentford does not have a storm sewer.

In the event of a fire, Brentford does not have a secondary source of water. The fire departments do have equipment that allows access to the use of waterways, however, depending on the amount of water in the waterway, it may not be enough.

**Doland**:
Doland has indicated that there is a "H" High Vulnerability to Drought, Extreme Cold and Heat, Flash Flood, Flood, Freezing Rain/Sleet, Hail, Heavy Rain and Snow, Lightning, Rapid Snow Melt, Strong Winds, Subsidence, Thunderstorms, Tornadoes, Utility Disruption, and Wildfire. Moderate Vulnerability "M" for Brentford is Ice Jams on their Risk assessment worksheets.

Doland has a school located within its boundaries which increases vulnerability if there is a hazard during school. Students are bussed in from areas as far north as Turton and as far south as Union township. Winter hazards would leave students vulnerable. Doland has many residents who work outside of the town. This vulnerability to weather is a hazard throughout Spink County.

In the event of a fire, Doland does not have a secondary source of water. The fire departments do have equipment that allows access to the use of waterways, however, depending on the amount of water in the waterway, it may not be enough.

**Tulare:**
Tulare has indicated that they have a High Risk to Tornadoes, Urban Fire and Wildfire. They have Moderate “M” Risk to Drought, Extreme Heat and Cold, Flash Flood, Flood, Freezing Rain/Sleet, Hail, Heavy Rain and Snow, Lightning, Rapid Snow Melt, Strong Wind, Thunderstorms, and Utility Disruption.

Tulare has a high-water table which contributes to vulnerability. Residents cannot build basements for safety during a severe storm or tornado. Residents have taken precautions in the event of a power outage. There have been many power loss events in Tulare’s history, most residents have a generator or know someone who has one. Storm sewers are not adequate, and Tulare is looking to upgrade their system.

In the event of a fire, Tulare does not have a secondary source of water. The fire departments do have equipment that allows access to the use of Mud Lake, however, depending on the amount of water in the waterway, it may not be enough. Agtegra (an area grain processor) also has water sources available for their own firefighting capabilities. Cities can access that storage if needed, however, there may not be enough in the event of a serious fire.

# 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 to 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. Spink

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

A main concern for Spink County is flooding. Due to its history, Spink 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 system 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 Nixle. Residents can submit their information through the Nixle system at www.nixle.com and sign up on the website. Spink County's Sheriff's office has been using Nixle since 2012. Residents can choose to opt out at any time.

## 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. However, it 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.

Plan participants had a specific goal and action for mitigation projects. Many small rural towns and townships have problems accomplishing capital improvements due to more restricted budgets. Improvements are limited because of fewer revenue options. The focus of mitigation will be on the project that the community chose. The other concern is the required 25% match for mitigation projects to occur with FEMA funding. Projects were prioritized by the number of residents to benefit and the reduction in damages that occurred after implementation. Projects are listed from Table 5.1 to Table 5.3.

Projects that were beyond Spink County felt 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. Funding projects were discussed along with the projects needing to meet a benefit cost analysis. Options for the town's portion such as in-kind match were discussed to cover the cost of some projects. Coordination with other jurisdictions to have a multi-jurisdictional project was also an option that was discussed.

| Table 5.1: Mitigation Goals and Actions | |
|---|---|
| **Flood Hazard Events** | |
| **Section 1: Mitigation to reduce the impact of flooding in Spink County** | |
| **Goal #1: Reduce the impact of flood, flash flood, and rapid snow melt.** | |
| **Project: #1 IN PROGRESS** | Improve bridges throughout the County. Bridges with a rating of 50.00 or lower are the priority for the Spink County Highway Department to repair, remove, replace or install culverts. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA |
| **Priority** | High |
| **Funding Source** | Spink County, FEMA BRIC, FEMA FMA, SD DOT |
| **Timeframe** | ASAP |
| **Cost** | Costs will be determined based on labor and material costs. |
| **Notes** | As bridges are replaced/repaired, other bridges will move up in the priority based on use, sufficiency rating and funding. A Benefit Cost Analysis will be required for FEMA funding taking into consideration the amount of traffic and the cost of repairs. The full list of bridges is in Appendix H. The project has been partially completed since the County has continued to repair bridges as funds were available. The county will continue until complete. |

| | |
|---|---|
| **Project: #2 IN PROGRESS** | County Road 15 Improvements (T117N R64W Sec. 23 & 24) The purpose is to build up the road and shoulders to make safer and less flood prone. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA |
| **Priority** | High |
| **Funding Source** | Spink County, FEMA BRIC, FEMA FMA, SD DOT |
| **Timeframe** | ASAP |
| **Cost** | Costs will be determined based on labor and material costs. |
| **Notes** | Project has been partially completed. The county will continue until complete. |

**The following projects were removed by the county.**

| | |
|---|---|
| **Project: REMOVED** | Clean out the James River and its tributaries. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA |
| **Priority** | Project removed from mitigation project list. |
| **Funding Source** | |
| **Timeframe** | |
| **Cost** | |
| **Notes** | Project was removed due to environmental impacts, cost and scope of project. |

| | |
|---|---|
| **Project: REMOVED** | Use HAZUS software to determine flood risk in county. |
| **Responsible Entity** | |
| **Priority** | Project removed from mitigation project list. |
| **Funding Source** | |
| **Timeframe** | |
| **Cost** | |
| **Notes** | FEMA completed the mapping of Spink County, and those maps will be used to calculate flooding hazards. |

| **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** | Evaluate the need to construct storm shelters and construct where needed through the county and place signage along major roadways to alert travelers where to go in the event of a storm. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA |
| **Priority** | High |
| **Funding Source** | Spink County, FEMA BRIC, FEMA FMA, SD DOT, USDA |
| **Timeframe** | As funding becomes available. |
| **Cost** | Costs will be determined based on labor and material costs. |
| **Notes** | Spink County acknowledges the need for storm shelters throughout the county and is willing to work with jurisdictions to ensure they are available to residents. |

| | |
|---|---|
| **Project #2** | Evaluate existing critical structures to determine the ability to retrofit into shelters. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA |
| **Priority** | High |
| **Funding Source** | Spink County, FEMA BRIC, FEMA FMA, SD DOT |
| **Timeframe** | As funding becomes available. |
| **Cost** | Costs will be determined based on labor and material costs. |
| **Notes** | There are buildings through the county jurisdictions that could possibly be retrofitted to be a storm shelter for residents. |

| | |
|---|---|
| **Project #3** | Install generators throughout the county in critical facilities to ensure vital services can continue during power outages. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA |
| **Priority** | High |
| **Funding Source** | Spink County, FEMA BRIC, FEMA FMA, USDA |
| **Timeframe** | As funding becomes available. |
| **Cost** | Costs will be determined based on labor and material costs. |
| **Notes** | Certain jurisdictions have already begun working to get generators needed. Spink will need to evaluate the need for generators throughout the impact. |

| | |
|---|---|
| **Project #4** | Use HAZUS software to determine tornado risk in county. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA |
| **Priority** | Low |
| **Funding Source** | Spink County, FEMA BRIC, FEMA FMA |
| **Timeframe** | Ongoing |
| **Cost** | Based on cost of software and training |
| **Notes** | Spink County is wanting to use the HAZUS software to evaluate tornado activity through the county and its impact. |

| **The following projects were removed by the county.** | |
|---|---|
| **Project REMOVED** | Protect the public from summer and winter storms through information and education campaigns. Marketing products such as coloring books, magnets, stickers, and other products can be used. |
| **Responsible Entity** | |
| **Priority** | Project was removed from priority list. |
| **Funding Source** | |
| **Timeframe** | |
| **Cost** | |
| **Notes** | Spink County currently has education of storms at their schools, and they work with rural residents on education campaigns to be able to serve in emergencies through their Wildcat Rescue program as EMTs. These programs are ongoing. |

| | |
|---|---|
| **Project REMOVED** | Survey areas in need of snow shelterbelts and plant trees accordingly. |
| **Responsible Entity** | |
| **Priority** | Project was removed from priority list. |
| **Funding Source** | |
| **Timeframe** | |
| **Cost** | |
| **Notes** | Project was removed by county due to limited impact on winter hazards. |

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

| | |
|---|---|
| **Project #1** | Work with Game, Fish and Parks and School and Public Lands to create a Planning Committee to review and update or rewrite the Redfield Dam Emergency Preparedness Plan and include Cemetery Dam. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA, Redfield |
| **Priority** | High |
| **Funding Source** | Spink County, School and Public Lands, SD GF&P, SD OEM, FEMA |
| **Timeframe** | 3 – 5 years. As soon as funding is available. |
| **Cost** | Costs will be determined based on labor and material costs. |
| **Notes** | The current plan does not include the dam by SDDCR or the Cemetery Dam. Both of which have had reports that stated concerns with the stability of the dams. |

| | |
|---|---|
| **Project #2** | Check the dam levees throughout the county and ensure that they are working correctly and make needed repairs. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA |
| **Priority** | Moderate |
| **Funding Source** | Spink County, School and Public Lands, Game, Fish and parks, County, SD OEM, FEMA |
| **Timeframe** | 3-5 years as soon as funding is available. |
| **Cost** | Costs will be determined based on labor and material costs. |
| **Notes** | This would be a study to ensure that the design of the dams and levees is adequate in a high-water flood event. |

| | |
|---|---|
| **Project #3** | Work with Game, Fish and Parks to complete and analysis of the Redfield reservoir dam failure inundation are to better understand the downstream risk from dam failure. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA, City of Redfield |
| **Priority** | Moderate |
| **Funding Source** | Spink County, FEMA BRIC, FEMA FMA, SD DOT, SD GF&P |
| **Timeframe** | 3-5 years |
| **Cost** | Costs will be determined based on labor and material costs. |
| **Notes** | The review of downstream impact would help to ensure that the dams and levees in Spin County would be strong enough to hold in high water or flooding events. |

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

| | |
|---|---|
| **Project #1** | Continue to receive assistance from rural residents trained in firefighting and who have water tanks and other useful fire-fighting tools. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA |
| **Priority** | High |
| **Funding Source** | Spink County, FEMA BRIC, FEMA FMA, SD DOT |
| **Timeframe** | Ongoing |
| **Cost** | Costs will be determined based on labor and material costs. |
| **Notes** | This item is preparedness however, in rural areas its essential to have residents who volunteer, and programs to support those volunteers, to provide these services in emergency situations. |

| | |
|---|---|
| **Project #2** | Well field development. More wells and availability of water means better sanitation, better firefighting capabilities, and more water for homeowners during droughts. Environmental issues should be considered and addressed. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA |
| **Priority** | High |
| **Funding Source** | Spink County, FEMA BRIC, FEMA FMA, SD DOT |
| **Timeframe** | Ongoing |
| **Cost** | Costs will be determined based on labor and material costs. |
| **Notes** | This is also preparedness however, due to the rural nature of Spink County, access to water may be difficult in times of drought. Access to wells during rural fires will assist the county in fighting fires effectively and keeping residents and property safe. |

| | |
|---|---|
| **Project #3** | Local dry fire hydrants throughout county. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA |
| **Priority** | Moderate |
| **Funding Source** | Spink County, FEMA BRIC, FEMA FMA, SD DOT |
| **Timeframe** | Ongoing |
| **Cost** | Costs will be determined based on labor and material costs. |
| **Notes** | This project is preparedness. This will require assistance of other jurisdictions as Spink County does not have the capacity. |

| | |
|---|---|
| **Project #4** | Work with state forester to complete a wildlife risk assessment and create a wildlife risk map. |
| **Responsible Entity** | Spink County Commission, Spink County Emergency Manager, Spink County Highway Department, SD OEM, FEMA |
| **Priority** | Low |
| **Funding Source** | Spink County, FEMA BRIC, FEMA FMA, SD DOT, SD GF&P |
| **Timeframe** | Ongoing |
| **Cost** | Costs will be determined based on labor and material costs. |
| **Notes** | This would illustrate the impact natural hazards have on wildlife. Hunting and fishing are an important part of Spink County's economy and know 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 for 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 2019 and 2024 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.

| Table 5.2: Mitigation Goals and Actions | |
|---|---|
| **Section 3: Mitigation to reduce the impact of flooding.** | |
| **Goal #1: Reduce the impact of flood, flash flood, and rapid snow melt.** | |
| **Project #1** | Conduct a hydrology study including storm sewers and culverts in jurisdictions and determine if repairs or additional or larger pipe is necessary for areas in and around the jurisdictions. |
| **Responsible Entity** | Redfield, Brentford, Conde, Doland, Frankfort, Mellette, Northville, Tulare, Turton |
| **Priority** | High |
| **Funding Source** | FEMA BRIC, FEMA FMA, SD OEM, the Jurisdictions |
| **Timeframe** | 1-2 years |
| **Oversight** | Participating jurisdiction, SD OEM |
| **Notes** | Brentford: drainage issues throughout town<br>Conde: culverts through town<br>Frankfort: storm sewer lines and culverts throughout town<br>Mellette: drainage issues along 2nd Ave.<br>Northville: drainage line to Snake Creek<br>Redfield: storm sewer drainage capacity throughout town<br>Tulare: storm sewers throughout the town |

| | |
|---|---|
| **Project #2** | Installation of storms sewer and culverts as needed based on the hydrology study. |
| **Responsible Entity** | Redfield, Brentford, Conde, Frankfort, Mellette, Tulare, |
| **Priority** | High |
| **Funding Source** | FEMA BRIC, FEMA FMA, SD OEM, DANR, USDA the Jurisdictions |
| **Timeframe** | As soon as funding is available. |
| **Oversight** | Participating jurisdictions, SD OEM |
| **Notes** | Based on the findings from the hydrology study, installation of culverts and storm sewer would be beneficial to the area to get water away from residents. |

| | |
|---|---|
| **Project #3** | Complete Turtle Creek Embankment projects listed in the Turtle Creek Study. |
| **Responsible Entity** | Redfield |
| **Priority** | High |
| **Funding Source** | City of Redfield, FEMA BRIC, FEMA FMA, SD OEM, SD DOT, |
| **Timeframe** | Ongoing |
| **Oversight** | Redfield, SD OEM |
| **Notes** | The Bank Stabilization Study will help to direct Redfield on projects to stabilize the embankment of Turtle Creek. There are homes that are located along the embankment and stabilization will prevent possible loss of homes. |

| | |
|---|---|
| **Project #4** | Acquire flood prone properties and repetitive loss properties located in the flood zone. |
| **Responsible Entity** | Redfield |
| **Priority** | High |
| **Funding Source** | Redfield, FEMA BRIC, FEMA FMA, SD OEM, SD DOT, |
| **Timeframe** | As soon as possible |
| **Oversight** | Redfield, SD OEM |
| **Notes** | The property in question was in the process of being acquired when it was sold. The current resident is not interested in an acquisition at this time; however, the City in Redfield would like to acquire the property if circumstances change to prevent future flood issues. |

| **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** | Winter and summer storms shelters |
| **Responsible Entity** | Redfield, Ashton, Brentford, Conde, Doland, Frankfort, Mellette, Northville, Tulare, Turton, South Dakota Developmental Center |
| **Priority** | High |
| **Funding Source** | FEMA BRIC, SD OEM, USDA, the Jurisdictions |
| **Timeframe** | Ongoing until each jurisdiction has a shelter. |
| **Oversight** | SD OEM, the Jurisdictions |
| **Notes** | The South Dakota Developmental Center would be included for this project as part of South Dakota and the City of Redfield. There are residents who are unable to be moved quickly and a saferoom would allow these vulnerable populations to have shelter. |

| | |
|---|---|
| **Project #2** | Purchase generators for emergency shelters and lift stations. |
| **Responsible Entity** | Brentford, Frankfort, Conde, Doland, Northville, Redfield, Tulare |
| **Priority** | High |
| **Funding Source** | FEMA BRIC, SD OEM, USDA, the Jurisdictions |
| **Timeframe** | Ongoing until all jurisdictions have generators that meet their need. |
| **Oversight** | SD OEM, the Jurisdictions |
| **Notes** | Generators would support infrastructure in a power failure. Each jurisdiction has certain pieces of infrastructure that would require backup power. |

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

| | |
|---|---|
| **Project #1** | Review and rewrite (if needed) the Redfield Dam Emergency Preparedness Plan including Cemetery Dam and the dam by SDDCR. |
| **Responsible Entity** | Redfield |
| **Priority** | High |
| **Funding Source** | FEMA BRIC, SD OEM, Redfield |
| **Timeframe** | 3-5 years |
| **Oversight** | Redfield, SD OEM |
| **Notes** | The review and rewrite of the plan would allow the study to focus on the needs for the dams in Redfield. |

| | |
|---|---|
| **Project #2** | Complete an analysis of the Redfield reservoir dam and Crooks dam failure inundation area to understand the downstream risk of failure. |
| **Responsible Entity** | Redfield, Frankfort |
| **Priority** | High |
| **Funding Source** | FEMA BRIC, SD OEM, the Jurisdictions, |
| **Timeframe** | 3-5 years |
| **Oversight** | SD OEM, the Jurisdictions |
| **Notes** | This analysis will help to reduce impact of a potential impact of dam failures. |

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

| | |
|---|---|
| **Project #1** | Locate dry fire hydrants and install fire hydrants within the jurisdictions. |
| **Responsible Entity** | Brentford, Conde, Doland, Frankfort, Mellette, Northville, Redfield, Tulare, Turton |
| **Priority** | High |
| **Funding Source** | FEMA BRIC, SD OEM, the Jurisdictions, |
| **Timeframe** | Ongoing |
| **Oversight** | SD OEM, the Jurisdictions |
| **Notes** | Redfield has the capabilities to locate dry hydrants. Installation of hydrants would help with fire response in the more rural jurisdictions. |

| Section 4: Mitigation to reduce the impact of Subsidence. |
|---|
| **Goal #1: Reduce the impact of subsidence.** |

| | |
|---|---|
| **Project #1** | Work with Redfield to stabilize areas of Turtle Creek to prevent additional subsidence of the embankments. |
| **Responsible Entity** | Redfield |
| **Priority** | High |
| **Funding Source** | FEMA BRIC, SD OEM, Redfield |
| **Timeframe** | 3-5 years |
| **Oversight** | SD OEM, Redfield |
| **Notes** | There are homes on the banks of Turtle Creek that are located on the banks. They are in danger of collapse if further destabilization occurs. |

| | |
|---|---|
| **Project #2** | Work with communities to find areas of concern for subsidence and stabilization for those areas. |
| **Responsible Entity** | Brentford, Doland |
| **Priority** | Medium |
| **Funding Source** | FEMA BRIC, SD OEM, the Jurisdictions |
| **Timeframe** | 3-5 Years |
| **Oversight** | SD OEM, the Jurisdictions |
| **Notes** | Concerns about subsidence throughout the town due to high ground water levels would merit a study to ensure that the towns are safe. |

| **Table 5.3: Completed and In Progress Mitigation Goals and Actions** |
|---|
| **Completed Mitigation Projects for Natural Hazards** |

| | |
|---|---|
| **Project COMPLETED** | Purchase generators for emergency shelters and lift stations. |
| **Responsible Entity** | Redfield |
| **Priority** | High |
| **Funding Source** | FEMA, Redfield |
| **Timeframe** | |
| **Oversight** | |
| **Notes** | Project was completed with the assistance of FEMA. |

| | |
|---|---|
| **Project COMPLETED** | Make improvements to the list station that is being impacted by the high ground water and excessive amounts of snow and rain. |
| **Responsible Entity** | Mellette |
| **Priority** | |
| **Funding Source** | DANR, Mellette |
| **Timeframe** | |
| **Oversight** | |
| **Notes** | Project was completed with the assistance of DANR |

| | |
|---|---|
| **Project COMPLETED** | Additional water storage capacity for the Town of Northville |
| **Responsible Entity** | Northville |
| **Priority** | |
| **Funding Source** | DANR, Northville |
| **Timeframe** | |
| **Oversight** | |
| **Notes** | Completed with the assistance of DANR |

## 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 Spink 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, the 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 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 Spink County into 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.*

Spink County and all the participating local jurisdictions thereof 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.

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 Spink 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 Plan Planning Committee for review and approval prior to final submission of the updated plan.

**PLAN AMENDMENTS**

Plan amendments will be considered by the Spink 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.*

Redfield is the only jurisdiction that currently has comprehensive, or capital improvements plans. All the other jurisdictions do not have a planning mechanism like that. Spink County and the City of Redfield will consider the mitigation requirements, goals, actions, and projects when it considers and reviews the other existing planning documents. 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 Spink County and Redfield lack planning mechanisms in which to incorporate the mitigation actions identified in this plan, it was determined that each year when the budget is prepared the municipalities will also consider the mitigation actions at that time. The local jurisdictions will post a permanent memo to their files as a reminder for them to incorporate their annual review of the mitigation actions identified into the budget preparation process. This does not require the projects be included in the budget, it is a reminder to city officials that they have identified mitigation projects in the Plan that should be considered if the budget allows.

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

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

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

FMA is a pre-disaster grant program and is available to states on an annual basis. This funding is available for mitigation planning and implementation of mitigation measures only and is based upon a 75% Federal share/25% non-Federal share. States administer the FMA program and are responsible for selecting projects for funding from the applications submitted by all communities within the state. The state then forwards selected applications to FEMA for an eligibility determination. Although individuals cannot apply directly for FMA funds, their local government may 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 governments overall mitigation strategy for the disaster area and comply with program guidelines. Examples of projects that may be funded include the acquisition or relocation of structures from hazard-prone areas, the retrofitting of existing structures to protect them from future damages; and the development of state or local standards designed to protect buildings from future damages.

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

**Title: 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<br>Agency: US Department of Agriculture Rural Development |
| --- |
| The Community Facilities Funding from USDA is an affordable option for communities to provide facilities to 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 re-write, efforts will be continued to encourage and facilitate public involvement and input. The plan will be available for public view and comment at the Spink County Emergency Management Office located at 210 E. 7th Ave, Redfield, 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.