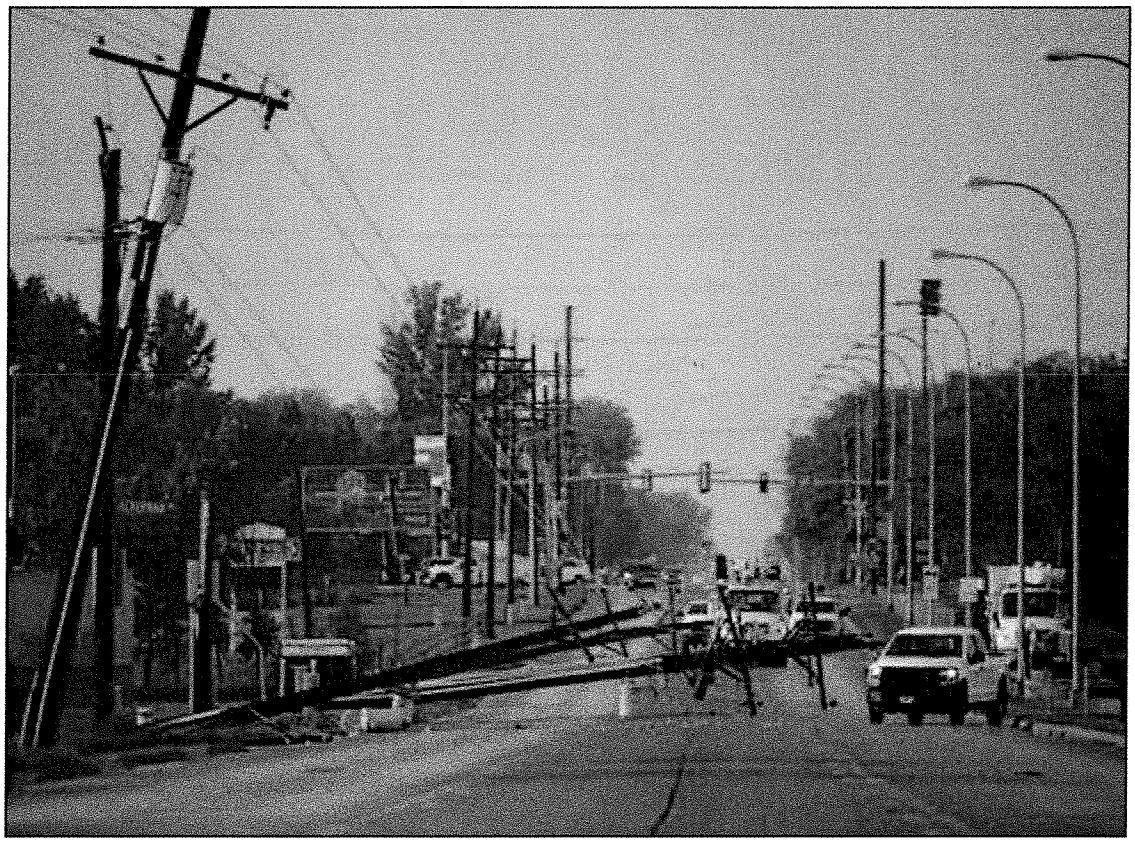
BROWN COUNTY
SOUTH DAKOTA

NATURAL HAZARD MITIGATION PLAN
(UPDATE)
EXPIRES:



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I. INTRODUCTION

CHANGES/REVISIONS TO INTRODUCTION:

- Changes were made in the language and the data used in this section. The overall format was not changed.
- Community lifelines and their impact on Brown County was included to reflect the new FEMA Building Resilient Infrastructure and Communities (BRIC) policies which were established in 2021. Brown County profile was updated with new census data.
- Additional demographic information was added to this section.

INTRODUCTION

Natural, technological, and man-made hazards can severely impact daily life for Brown County residents. These events can threaten residents' health, welfare, and security. Citizens in Brown County has been affected by winter blizzards, summer thunderstorms, extreme heat and cold, drought, flooding, tornados, high winds, hail, and hazardous spills. Mitigation reduces the effect and costs of hazards on residents. Brown County, working in conjunction with the 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 help guide and focus natural hazard mitigation activities in the county.

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

Mitigation planning identifies and analyzes the specific risks and their effect on Brown County 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 they created, it is not an emergency response.

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 that compliments the content of this plan.

PURPOSE OF THE PRE-DISASTER MITIGATION PLAN

In October of 2000, the Disaster Mitigation Act (DMA2K) was signed to amend the 1988 Robert T. Stafford Disaster Relief and Emergency Assistance Act. Section 322 (a-d) requires 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.

The purpose of this plan is to meet the hazard mitigation planning needs for Brown County and participating entities. Consistent with the Federal Emergency Management Agency's (FEMA) guidelines, this plan will review all possible activities to create efficient solutions to disasters, link hazard management policies to activities, educate and the public, build public and political support for mitigation activities, and develop plan implementation for future hazard mitigation projects.

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. This plan identifies the specific risks and lists measures for pre- and post-disaster mitigation. Implementation of both the short- and long-range projects will minimize loss of life and damage. The projects listed will reduce hazards' impact on the community's lifelines. Lifelines enable operation of critical government and community functions. They affect citizens, the economy, the environment, and well-being of the county. Jurisdiction agencies and officials can create public awareness to the impact of natural hazards. This plan is a guide to help prevent or reduce Brown 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 Brown 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 before, during and after the event.
- 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 the 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 a natural disaster.

LONG-TERM GOALS

- Eliminate or reduce long-term risk to human 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 for funding projects established as hazard mitigation strategies; and
- Establish a regional platform to enable the community to take advantage of shared goals, resources, and the availability of outside resources.

WHAT IS HAZARD MITIGATION?

Hazard Mitigation is cost-effective actions to reduce vulnerability of people and property to natural hazards. There are three categories: first: activities that keep the hazard away from people, property, and structures; second: measures that keep people, property, and structures away from the hazard; and third: measures that reduce the impact of the hazard on the area. This mitigation plan contains strategies of all three categories.

Mitigation must be practical, cost effective, environmentally, and politically acceptable. Limiting the impact of natural hazards should not cost more than the damages. 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 potential hazards. Generators can be used when the power goes out for multiple reasons from storms to tornados and 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 for natural hazards is to protect capital investments before building. Incorporating mitigation into planning activities 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 for hazards.

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

processes allows it 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 Brown 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. These community lifelines are:

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

These are recognized by FEMA as the basic services communities need and prioritizes resources before and after a natural hazard. The process of response becomes more efficient when stability is established through mitigation before a disaster.

BROWN COUNTY PROFILE

Brown County is home to 38,839 residents and is the fourth most populated county in South Dakota. It is rectangular and the thirteenth largest county in South Dakota by land size: 36 miles wide and 48 miles long. The geographic area is 1,731 square miles, of which 1,712 is land and 19 miles is water. There is an average of 22.69 persons per square mile. Just over 17% of the population is older than age 65. Total countywide property values are nearly $2.4 billion dollars.

The seat of Brown County is in the City of Aberdeen, situated at the intersection of US Highway 281 and US Highway 12. Aberdeen is the largest city in Brown County with 28,225 residents occupying 13,227 housing units and occupies 16.59 square miles of the county with .02 square miles covered in water. Groton is the second largest community in Brown County, located 20 miles east of Aberdeen. It has 1,673 residents and 687 occupied homes. It covers approximately 1.8 square miles. Communities located in Brown County are shown in Figure 1.1.

Aberdeen has a vibrant higher education community and populations fluctuate depending on the time of the year. Home to Northern State University and Presentation College, those facilities bring in around 3,900 students to Aberdeen each fall. As a regional city center, Aberdeen has Avera St. Luke's Hospital and Sanford Hospital to

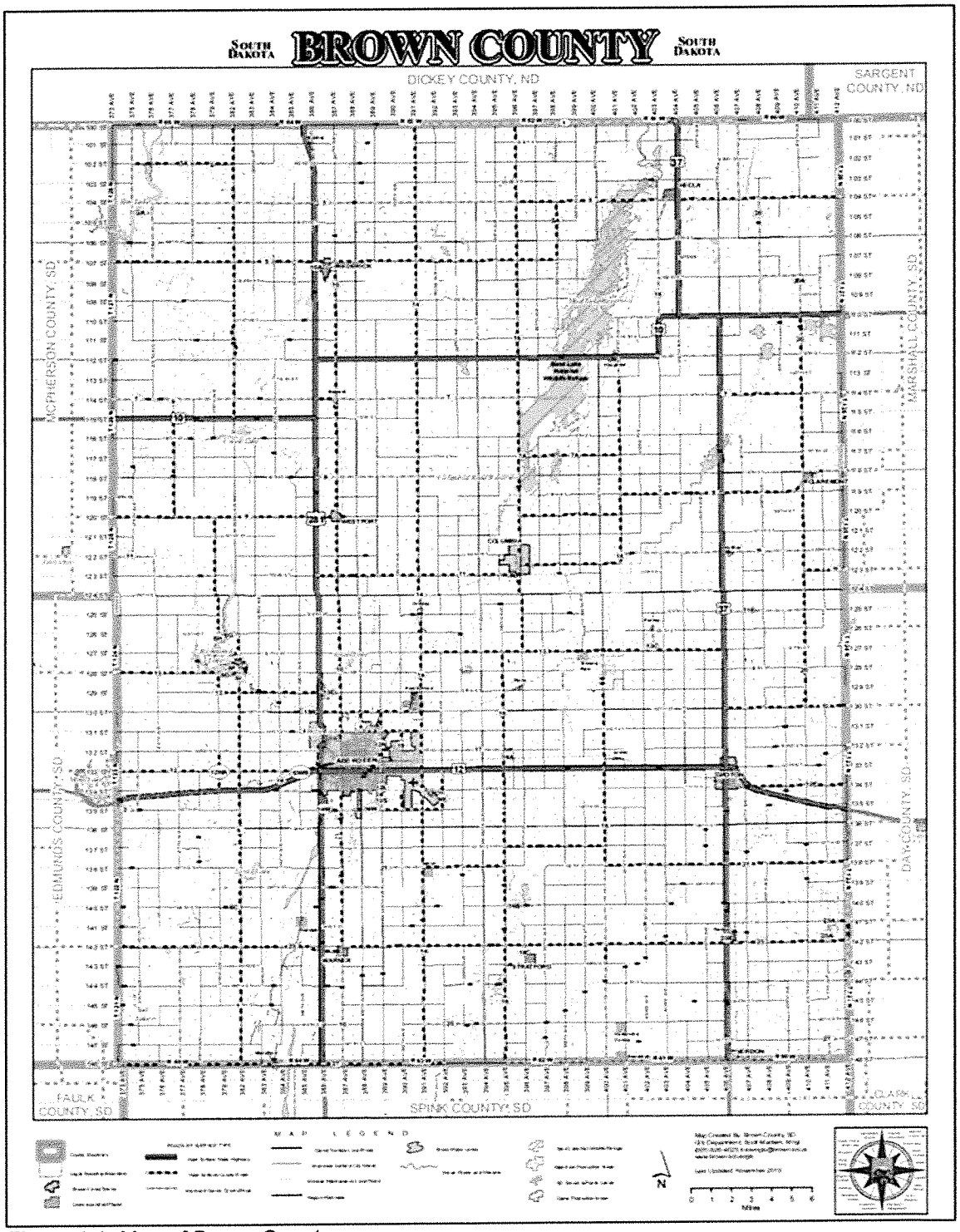


Figure 1.1: Map of Brown County

assist local and rural patients as a regional healthcare center. Many people commute to and from the city for work, education, and activities. Aberdeen also offers many business and shopping opportunities in the area.

As a regional hub, activities draw people from outside the area for sporting events, community events, shopping and visiting. Tourists come to visit Wylie Park and Storybook Land, along with participating in the many events Aberdeen offers year-round. An estimated 1,500 people visit Storybook Land daily during the summer season. The Brown County Fair draws over 225,000 people. Likewise, the YMCA Youth Basketball tournaments draw 2,500. Arts in the Park draws over 30,000 and the BMX Nationals drew 1,000 participants, not including the spectators. Many new industries have located or expanded in the area, allowing for faster growth, and increasing population. New residents require knowledge on how to respond in emergency situations and adapt to different weather conditions.

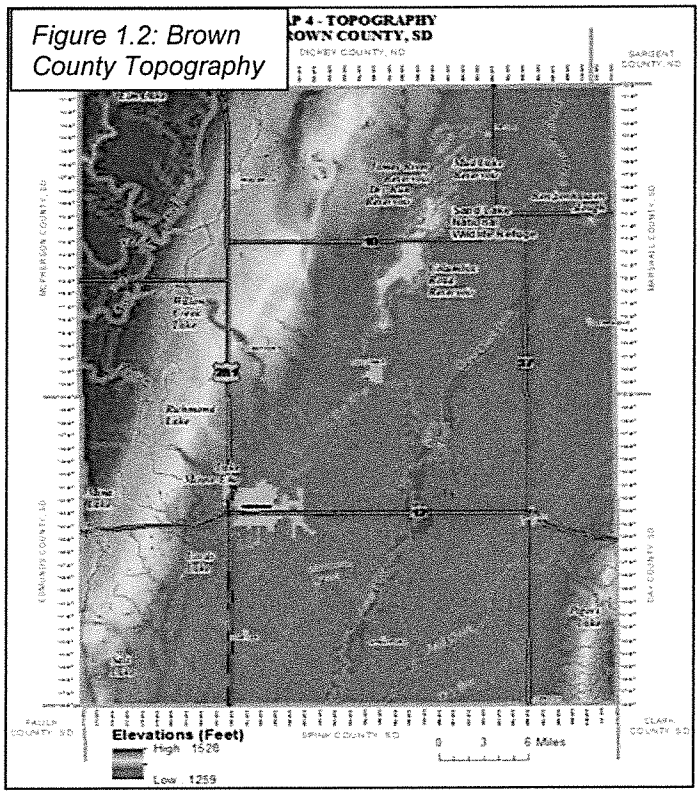


Figure 1.2: Brown County Topography

Participants and spectators at events require accommodations which can strain resources of the county and city, sometimes beyond capacity. Many of these people are unaware of the emergency processes during a natural hazard. Emergency response agencies may be taxed if there is a natural hazard during these times. Winter and summer weather hazards have affected many area events.

Two Federal Highways run through Brown County: US Highway 281 and US Highway 12. South Dakota 37 and South Dakota 10 are two state highways. There are county roads throughout the 44 townships of Brown County and ten incorporated towns. Power is supplied through Northwestern Energy for natural gas and electrical power. Although the company is working on burying power lines for mitigation of power loss from summer and winter storms, there are still lines that are vulnerable.

Figure 1.2 illustrates the elevation of the County and the surrounding area of the James River Valley. The James is a very slow-moving river and drops an average of one foot from north to south in Brown County. The lowest elevation is where the James River exits the county. There are three large areas where water collects: Sand Lake, Putney Slough, and the Hecla Basin. The slow-moving water systems cause waterways to swell beyond the borders during heavy precipitation. The Elm River flows along Elm Lake and is fast-moving and meets the James River at Columbia in the northeast corner of Brown County. The Elm is controlled by a spillway, creating a reservoir. Aberdeen has claim on the top 12 feet of water, making it the City's main supply. The strength of the Elm River can cause the James River to back flow during years of heavy moisture. This causes the James River to swell past its banks and can cause perpetual flooding. The James River was the record-holder for longest days at flood stage. From April 21, 2019, until August 31, 2020, the James River was at flood stage. The 518 days set a record.

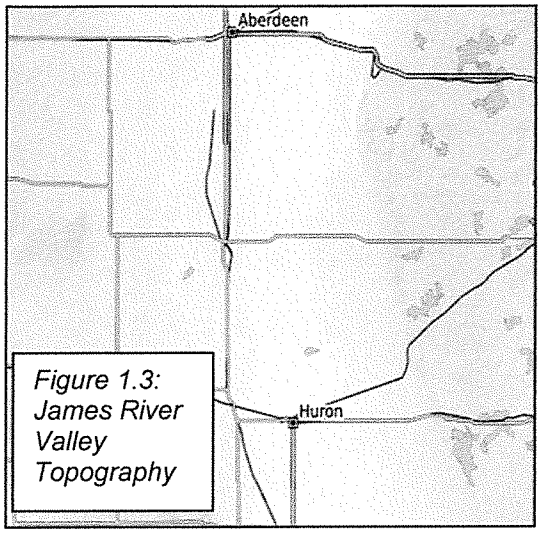


Figure 1.3: James River Valley Topography

Brown County is in the James River Valley. This is characterized by low elevation changes and a relatively flat terrain. Figure 1.3 illustrates how the river valley affects the landscape in Brown County. The third river in Brown County is the Maple River. This river enters north of Frederick and joins the Elm River near US Highway 281.

Richmond Lake is the main lake in the area while Willow Creek and Snake Creek flow through the area also. Moccasin Creek flows through Aberdeen. Brown County's total water area is 18.54 square miles.

Named for Alfred Brown, a member of the South Dakota state legislature in 1879, the County was organized in 1881. Columbia was the first town and was originally named the county seat. In 1882 the Milwaukee Railroad reached Aberdeen followed by the Northwestern Railroad. Columbia was asked by Northwestern Railroad to make the city a crossing point for the James River. Columbia refused and Northwestern Railroad extended its line 40 miles past Columbia. Due to a reduction in river shipping and the loss of the railroad crossing Columbia lost the county seat in 1887 and it was transitioned Aberdeen by 1890. The county built the Brown County Courthouse and dedicated it March 24, 1904.

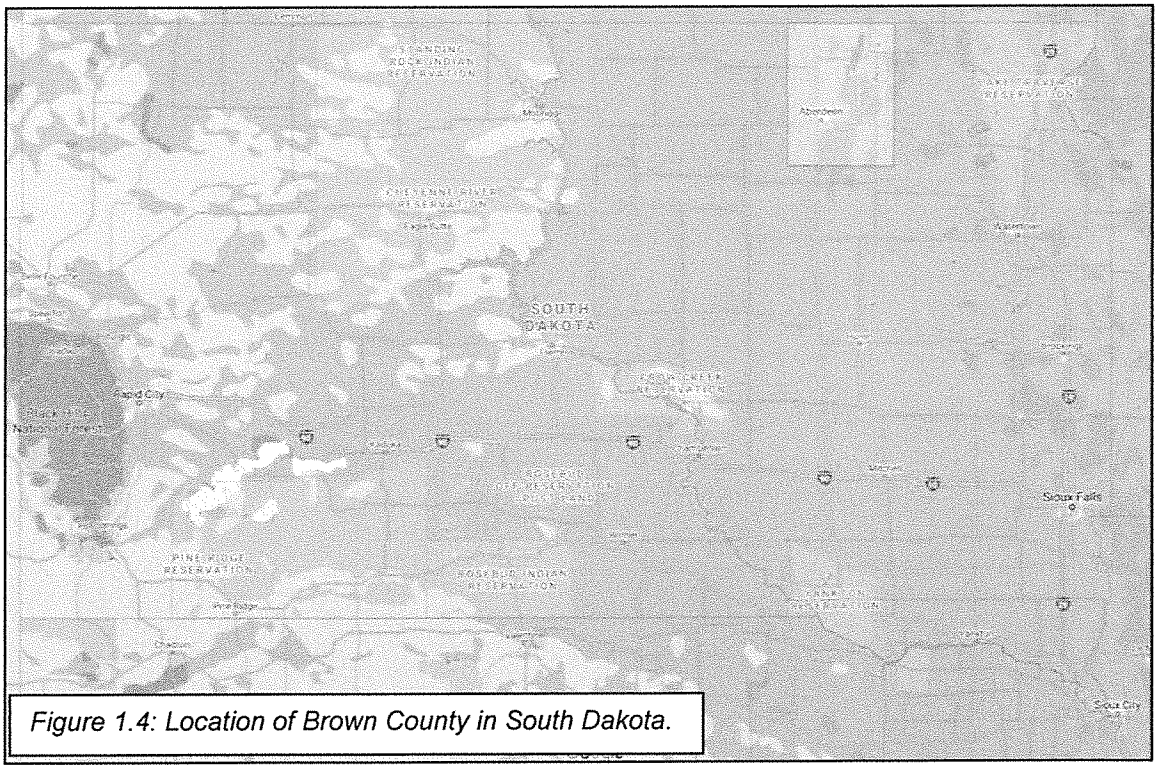


Figure 1.4: Location of Brown County in South Dakota.

Aberdeen was officially plotted January 3, 1881, by Charles Prior of the Milwaukee Railroad and was named for his boss, Alexander Mitchell's, home in Aberdeen,

Scotland. Initially nicknamed the "Town in the Frog Pond," flooding was periodic and frustrating. A pump system was created to pump out water that flowed into basements, but it took weeks. In 1884 a project was formed to use an artesian well to control the water. During the digging, the engineers found flaws in the plan when water came blasting out and flooded Main Street with over four feet of water. However, the artisan well that was discovered became the City's first water supply.

Aberdeen was built around the railroad system. The city had four different companies build depots, changing the City's nickname to the "Hub City" due to the hub-like tracks through town. The city is bisected by Moccasin Creek.

Groton was organized in 1881 as a stop for the Chicago Milwaukee and St. Paul Railroad. Named after Groton, Massachusetts, the city is at the junction of US Highway 12 and SD Highway 37 and is eight miles from the James River. Many smaller towns in the area were originally intended as train stops and grew until railroad usage decreased.

POPULATION DEMOGAPHICS

According to the U.S. Census Bureau, population increased by 2,308 people from 2010 (36,531) to 2019 (38,839.) There is a distribution of 22.44 persons per square mile. 17.01% of the population is 65 and older. Table 1.1 shows the ten incorporated jurisdictions in Brown County and total population per the 2010 Census and the 2019 American Community Survey Results.

Table 1.1: Population in Brown County Jurisdictions

City	2010 US Census Population	2019 Population per American Community Survey	Percent change from 2010 to 2019	Percent of the Brown County Population
Aberdeen	25,713	28,225	10%	74.0%
Claremont	48	106	121%	.30%
Columbia	90	140	56%	.40%
Frederick	286	190	-34%	.40%
Groton	1555	1673	8%	4.00%
Hecla	219	249	14%	.60%
Stratford	58	52	-10%	.10%
Verdon	3	4	33%	.01%
Warner	355	476	34%	1.00%
Westport	76	98	29%	.20%
Unincorporated	8,128	7,626	-6%	19.00%
Brown County	36,531	38,839	6%	100.00%

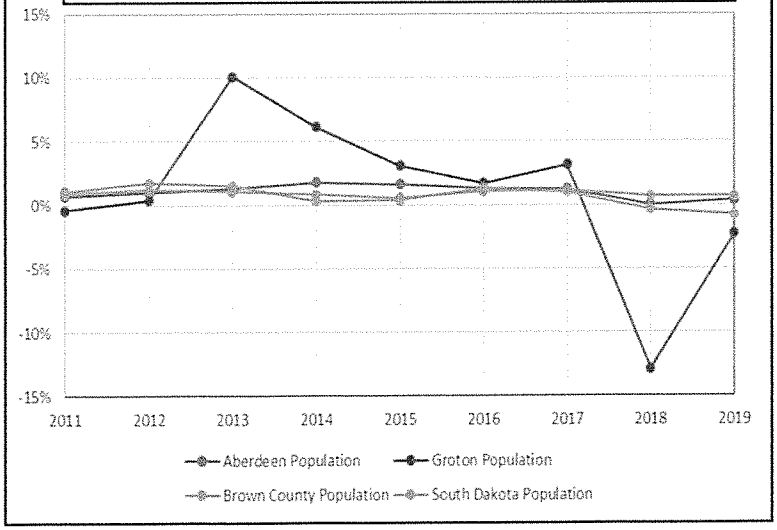
Table 1.2 lists the 44 Brown County Townships population in 2019. This chart includes organized townships only and does not include any unorganized locales in the Brown County area and are not separated by the Census Bureau.

Table 1.2 Brown County Township Population			
Township	**Population**	**Township**	**Population**
Aberdeen	1,533	Allison	4
Bates	0	Bath	780
Brainard	60	Cambria	14
Carlisle	97	Claremont	199
Columbia	82	Easton Hanson	126
East Rondell	93	Franklyn	41
Frederick	33	Garden Prairie	142
Garland	181	Gem	123
Greenfield	19	Groton	28
Hecla	52	Henry	73
Highland	54	Lansing	36
Liberty	121	Lincoln	1168
Mercier	76	New Hope	40
North Detroit	71	Oneota	86
Ordway	345	Osceola	40
Palmyra	82	Portage	24
Prairiewood	403	Putney	10
Ravinia	433	Richland	38
Riverside	63	Savo	53
Shelby	71	South Detroit	99
Warner	627	West Hanson	8
West Rondell	55	Westport	77

**Additional populations include Grassland Hutterite Colony (Westport), The Hutterville Hutterite Colony (Stratford), The Long Lake Hutterite Colony (Westport), and The Newport Hutterite Colony (Claremont).

Figure 1.5 shows the growth of Brown County's population compared with South Dakota, Aberdeen, and Groton. Brown County has about 3.3% of the state's population and is 91% Caucasian, 2.5% black or African American, 3.5% American Indian and 3% Asian. 3.9% of residents are foreign born which is lower than the national average of 13.6% and closer to the South Dakota average of 3.48%. The poverty rate of Brown County is 10.5%. There are an average 2.39 persons per household. 93% of the residents have a high school diploma or GED and 29.4% have a bachelor's degree or higher education. Four Hutterite colonies are in Brown County: The Grassland Hutterite Colony, the Hutterville

Figure 1.5: Percent of Population Growth Chart



Hutterite Colony, the Long Lake Hutterite Colony, and the Newport Hutterite Colony. There are 18,018 housing units in the Brown County area.

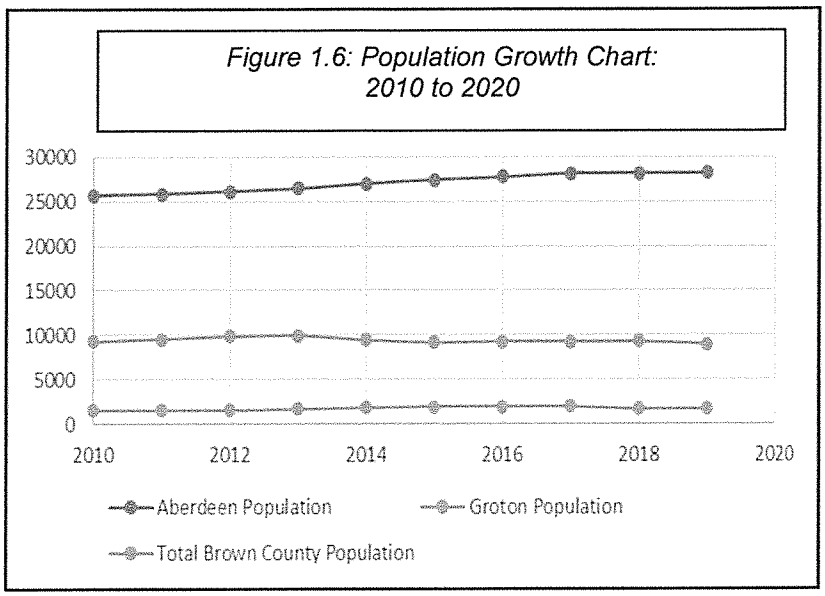


Figure 1.6: Population Growth Chart: 2010 to 2020

Aberdeen has approximately 3.2% of the state's total population and is the third largest city in South Dakota. Currently, Aberdeen's population is 28,225, up from 25,713 in 2010. Aberdeen's population has grown an average of 1.04% a year which is faster than South Dakota's and Brown County's rate of .90%. Aberdeen's poverty rate is 12.6%. The total number of housing units in the Aberdeen area is 13,227. Increasing manufacturing opportunities, a regional medical center with two hospitals, and two local higher education facilities aid in Aberdeen's ability to attract and retain residents. Average of residents with high school or greater education is 92.3% with 29.3% of the population having a bachelor's degree or greater. Aberdeen's Housing Study illustrated that there was a need for homes and infrastructure to support additional residents as Aberdeen has been adding 301-328 people per year since 2010. Groton has also experienced increased growth throughout the last decade at a rate of 1%, which is larger than South Dakota's. Groton currently has 687 housing units which is a significant increase from 597 in 2010.

ECONOMIC PROFILE

Brown County's economy has grown along with its population. The highest percentage of jobs in Brown County are Health Care and Social Assistance (3,482 people), Manufacturing (2,894 people), and Retail (2,849 people). Average household income in Brown County is: $58,216. Residential home ownership is 65.9%. Aberdeen has a median household income of $52,651 and a home ownership rate of: 67.4%. Aberdeen's low unemployment rate (2.9%) creates difficulties in attracting and retaining workers. Development agencies are constantly working to draw talent to the area.

Table 1.3: Income Statistics

Area	Median Family Income	Per Capita Income	Percentage Below Poverty	Unemployment **August 2021*
Aberdeen	$52,651	$30,802	12.6%	3.0%
Brown County	$58,216	$33,122	10.5%	2.8%
South Dakota	$56,274	$29,953	13.1%	2.9%
United States	$61,937	$33,831	13.1%	5.2%

Table 1.3 shows income statistics for Brown County, Aberdeen, South Dakota, and the United States. Brown County has a higher per capita income than the rest of South

Dakota and is nearly has high as the rest of the United States. The percentage of residents who are below poverty is lower than the United States and South Dakota.

GOVERNANCE

Brown County is governed by a five-member board of commissioners. The sheriff's office has 65 full time and 20 part time employees based in Aberdeen to serve the county's rural areas and small communities, as well as manage the Brown County Jail. The Aberdeen Police Department operates in Aberdeen with a staff of 50 commissioned offices, nine staff employees, and six volunteer reserve officers. The City of Groton has a four-man police force patrolling the area. Both coordinate with Brown County when needed. The South Dakota Highway Patrol station is located west of Aberdeen and serves the area. Ambulance services are provided by the Aberdeen Ambulance Service, Aberdeen Advanced Care Ambulance, Inc and Midwest Medical Transport Company. The Aberdeen Rural Fire Department and Aberdeen Fire and Rescue run an ambulance service and coordinate with other area departments when needed. There are 10 volunteer fire and rescue departments throughout the county: Bath Fire Department, Columbia Fire Department, Frederick Fire Department, Groton Fire Department, Hecla Fire Department, Stratford Fire Department, Hutterville Community Fire Department, and the Warner Fire Department.

CLIMATE

Brown County is warm in the summer with hot spells and occasional cool days. Winters are cold characterized by artic air surging over the area. Average annual snowfall is 38 inches and average annual rainfall is 22 inches. The average high temperature is 85 and the average low is 1 degree. Brown County is sunny an average of 199 days annually and there are 7 months where there can be snowfall. The highest recorded winter snowfall amount was 110.8 inches in 1936 to 1937. The largest annual rainfall amount recorded was 42.11 inches in 1896. On July 9, 1936, the high record hit 115 degrees. The lowest temperature recorded was February 9, 1994, at -45 degrees. Highest windspeed was 110.47 miles per hour recorded July 31, 2008. There are weather extremes in Brown County, like many South Dakota counties. These extremes make mitigation difficult due to the variety, severity, and unpredictability of hazards.

TRANSPORTATION

Transportation planning for streets and roads begins with understanding the relationship between land use and road network. Streets and roads function for mobility and land access. Interstate highways prioritize mobility while local roads prioritize land access to farms and residences. In between these two extremes, mobility and land access varies depending on the function of the road network.

Functional classification is the process of grouping streets and roads into classes according to the function they are intended to provide. Listed below is Brown County's functional classification system. The classification is according to the rural systems classification as developed 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 the principal arterials, provide less mobility and slightly more land access, and distribute travel to smaller towns, and major resorts attracting longer trips.

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. It passes Warner and goes through the west side of Aberdeen. It continues north passing Westport, Barnard, and Frederick. US Highway 12 runs east to west, dividing the county along the southern end, intersecting Groton, Bath and Aberdeen. SD Highway 37 intersects Groton and moves north through Hecla. SD Highway 10 also moves through the northern part of the county intersecting Houghton near Sand Lake and the Wildlife Refuge.

Rural township roads generally show effects of high flooding. Maps of flooded roads are updated and available to the public by Emergency Management to inform drivers of issues. There are 675 miles of roads maintained by Brown County, according to the Brown County Master Transportation Plan. Road maintenance and repair is impacted by flooding. There have been roads raised and reconstructed as the county works through its Pavement Management Plan.

Aberdeen's Master Transportation Plan details its community transit systems. Highway 12 also known as "6th Ave", runs through Aberdeen. The road experiences congestion at intersections. The addition of the beef processing plant south of Aberdeen also increases traffic. Aberdeen has expanded its 30 miles of pedestrian and bike trails, indicating its desire to make Aberdeen a bicycle-friendly community. Transit services are provided by Ride Line and private taxis. By 2032 it is forecast that there will be nine intersections and seven roadways needing improvement due to capacity issues.

Brown County has multiple airfields. The Aberdeen Regional Airport is the main airport service for residents. County Air Service, Thorson Airfield – SD 05, Groton Muni Airport 2e6, Reney NDB AB 203, Ott Landing Strip, Hite Private Airport SD49 and Krueger Landing Strip are all airfields in the county. There are two helicopter pads, one each at Sanford and St. Luke's hospitals.

NATIONAL FLOOD INSURANCE PROGRAM PARTICIPATION

Brown County participates in the National Flood Insurance Program. Currently FEMA is working with the county and communities to update the flood maps for NFIP use. Table 1.4 lists population, latitude and longitude, elevation, and NFIP status of communities in the county. Population statistics are from the 2019 Census and location and elevation were from Google Earth. NFIP status was provided by Department of Public Safety Office of Emergency Management.

Table 1.4: Brown County Municipalities Overview				
Name *(Cities and Towns)*	**Pop. *(2019 American Community Survey)***	**Location**	**Elevation**	**NFIP *(National Flood Insurance Program)***
Aberdeen	28,225	45°27'52" N, 98°29'11" W	1,295 ft.	Yes
Claremont	106	45°40'19" N, 98°00'55" W	1,340 ft.	Yes
Columbia	140	45°36'47" N, 98°18'44" W	1,304 ft.	Yes
Frederick	190	45°50' N, 98°30' W	1,381 ft.	Yes
Groton	1,673	45°26'51" N 98°5'54" W	1,302 ft.	Yes
Hecla	249	45°52'29" N, 98°09'06" W	1,299 ft.	Yes
Stratford	52	45°18'59" N, 98°29'46" W	1,302 ft	Yes
Verdon	4	45°14'38" N, 98°05'50" W	1,306 ft.	No
Warner	476	45°19'33" N, 98°29'42" W	1,298 ft.	Yes
Westport	98	45°38'56" N, 98°29'48" W	1,332 ft.	Yes
Brown County (Total – Including Rural Areas)	38,839	45°45'29" N, 98°15'15" W	1,289 ft.	Yes

I. PREREQUISITES

CHANGES/REVISIONS TO PREREQUISITES:

- The plan participants table was revised to reflect new participants in the Brown County Natural Hazard Mitigation Plan for 2022.
- A Record of Participation was added to illustrate participating jurisdiction requirements.

ADOPTION BY LOCAL GOVERNING BODY

The Brown County Commission oversees the update of the Brown County Natural Hazard Mitigation Plan. The Commission has tasked the Brown 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

This plan is multi-jurisdictional and serves the entire area located in Brown County, South Dakota. There are ten incorporated municipalities. Some municipalities elected not to participate in the planning process and the update of the 2016 Brown County Pre-Disaster Mitigation (PDM) Plan to the Brown County 2022 Natural Hazard Mitigation Plan. Participating local jurisdictions include Brown County, Aberdeen, Groton, and Stratford. 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
Stratford	Brown County	Claremont
	Aberdeen	Columbia
	Groton	Frederick
		Hecla
		Verdon
		Warner
		Westport

The Brown County Commission and participating municipalities will pass 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**
Brown County Commission	
Aberdeen	
Claremont	N/A
Columbia	N/A
Frederick	N/A
Groton	
Hecla	N/A
Stratford	
Verdon	N/A
Warner	N/A
Westport	N/A

Barnard, Bath, Elm Lake, Ferney, Houghton, Ordway, Putney, Richmond Lake, Prairiewood Village Tacoma Park are unincorporated communities with very small populations (20 people or less) except for Bath, Elm Lake, and Richmond Lake. Bath is 6 miles outside of Aberdeen and has experienced growth in the last decade, with an estimated population of 150 people. Elm Lake is in the northwest corner of Brown County with a small portion located in McPherson County. Approximately 50 people live in the development around Elm Lake. Richmond Lake is northwest of Aberdeen and has approximately 650 people. Richmond Lake has an organized sanitary district but is not an incorporated municipality.

Northern Electric no longer participates in county Natural Hazard Mitigation plans due to the State allowing rural electric companies to adopt the State Plan to cover all areas in their jurisdiction rather than participating in and adopting several county plans.

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. 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 2.3 Record of Participation shows the requirements of participating communities and the communities that met that participation requirement.

Table 2.3 Record of Participation											
Nature of Participation	Brown County	Aberdeen	Claremont	Columbia	Frederick	Groton	Hecla	Stratford	Verdon	Warner	Westport
Attended Meetings or work sessions (a minimum of 1 meeting will be considered satisfactory).	☒	☒	☐	☐	☐	☒	☐	☒	☐	☐	☐
Submitted inventory and summary of reports and plans relevant to hazard mitigation.	☒	☒	☐	☐	☐	☒	☒	☒	☐	☒	☐
Submitted 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)	☒	☒	☐	☐	☐	☒	☐	☒	☐	☐	☐

II. PLANNING PROCESS

CHANGES/REVISIONS TO PLANNING PROCESS:

- Updates were made to the planning process. The Local Mitigation Plan Review Tool was used to ensure all requirements are met. The process was updated with information about BRIC (Building Resilient Infrastructure and Communities.)
- Tables with representatives listed was also added to the plan.
- A table showing the opportunities for public comments was added.
- A survey was completed as part of the planning process and is discussed in this part of the plan.
- Documents that were reviewed in the planning process were discussed.

DOCUMENTATION OF THE PLANNING PROCESS

"An open and public involvement process is essential to the development of an effective plan." Requirement 201.6(b).

Planning for the 2022 Natural Hazard Mitigation Plan Update began at the Brown County Commission Meeting at the Brown County Courthouse September 8, 2020. 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 July 19, 2021. Invitations to attend the planning meetings were sent to neighboring counties for input in the planning process. Public notices were placed on the Emergency Manager's Facebook page and the *Aberdeen American News*. 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:

July 19, 2021, 1 p.m. at the Brown County Courthouse
August 9, 2021, 1 p.m. at the Brown County Courthouse
September 20, 2021, 1 p.m. at the Brown County Courthouse
October 18, 2021, 1 p.m. at the Brown County Courthouse

Public planning meetings were at the County Courthouse. Commission and City Council meetings of participating municipalities were used to inform the public about the required Natural Hazard Mitigation Plan update. Some used ZOOM for their meetings and communications. Afterward, representatives from participating jurisdictions worked through the 2016 Plan, noting deficiencies, corrections, and updates that needed to be made. Additional information was added to ensure that current requirements are met.

To ensure that the updated plan included everything required by FEMA, the plan author used the FEMA planning tool to guide discussions. The 2016 Plan was then compared to the new Planning Tool and any part of the 2016 Plan that was not needed for the new requirements was eliminated and deficiencies were noted as areas of focus. The sections of the 2016 plan that were useful were reorganized and put under the appropriate sections of the new plan. This was completed through several work sessions which were advertised on social media, web pages of the participants and public meetings. The date of the next meeting was set at the end of each of the meetings. These methods of notifying the public of the plan update process were determined by the steering committee to be the most likely way to create public

awareness and involvement in updating the Plan. Brown County also chose to elicit public input through a survey posted on county and public websites. The Plan author followed the direction provided at the FEMA G318 Mitigation Planning Workshop for Local Governments, used the FEMA Multi-Hazard Mitigation How-To Guidance and Planning Tool, and included some of the new guidance from FEMA regarding BRIC (Building Resilient Infrastructure and Communities) to develop the plan. BRIC focused on FEMA's new hazard mitigation and response structure.

FEMA's new mitigation planning process focused on lifelines. These lifelines were:

- Safety and Security
- Food, Water, Shelter
- Health and Medical
- Energy (Power and Fuel)
- Communications
- Transportation
- Hazardous Materials

Each of these categories focus on fundamental services the community requires to be stable. Mitigation prevents disruption and supports lifelines during a natural hazard. These components of society need focused intervention when disrupted.

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.

The public was provided several opportunities at City 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, that 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.

No comments from the public were received during the public comment period at the City Council meetings. 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 were given by these officials. Comments were also elicited from the public through the survey conducted by the County. The list of comments in located in Appendix D.

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

The Brown County Emergency Manager and Northeast Council of Governments led the Natural Hazard Mitigation Plan update. Local jurisdictions were represented by city council members and/or finance officers who attended the meetings. The council members took the information from the work sessions back to their jurisdictions 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.

City of Aberdeen Engineer Robin Bobzien was instrumental in leading the discussions at the PDM planning meetings; as well as representatives from local jurisdictions such as city council members and/or finance officers who attended. Northern State University chose to participate due to their student population. Those who attended the initial planning meeting for the Plan update were asked to provide information whenever necessary. Attendees reviewed the drafts and provided comments after Northeast Council of Governments initiated changes to the existing plan. Each of the participating local jurisdictions had a member of their councils represent the municipalities' interest in the plan. Those representatives are listed by jurisdiction in Table 3.1:

Table 3.1 Brown County Natural Hazard Mitigation Planning Committee	
Brown County	Scott Meints, Emergency Manager
Aberdeen	Robin Bobzien, Aberdeen City Engineer, Joe Gaa Aberdeen City Manager
Claremont	**
Columbia	**
Frederick	**
Hecla	Jessica Casey, Finance Officer
Groton	Hope Block, Finance Officer
Stratford	Dave Bourassa, Trustee
Verdon	**
Warner	Nichol Townsend, Finance Officer
Westport	**
** Did not participate 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 are 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 3.2: List of Representatives Involved in the Plan	
Brown County	
Doug Fjeldheim	Commission Chairman
Rachel Kippley	Commission Vice Chair
Mike Wiese	Commissioner
Dennis Feickert	Commissioner
Duane Sutton	Commissioner
Aberdeen	
Travis Schaunaman	Mayor
Alan Johnson	Council Member
Tiffany Langer	Council Member
Dave Lunzman	Council Member
Justin Reinbold	Council Member
Mark Remily	Council Member
Josh Rife	Council Member
Rob Ronayne	Council Member
Clint Rux	Council Member
Claremont	
Shane Johnson	President
Frank Rasmussen	Trustee
Jason Spencer	Trustee
Columbia	
Corey Mitchell	President
Ellen Harr	Trustee
Cole Kampa	Trustee
Trevor Meints	Trustee
Dana Mohr	Trustee
Frederick	
Scott Campbell	Mayor
Jeff Kosters	Commissioner
Troy Millard	Commissioner
Groton	
Scott Hanlon	Mayor
Karyn Babcock	Council Member
David Blackmun	Council Member
Jon Cutler	Council Member
Kristie Fliehs	Council Member
Emily Kappes	Council Member
Shirley Wells	Council Member
Hecla	
Jay Osterloh	Mayor
Mary Freudenthal	Council Member

Chad Peterson	Council Member
Randy Pfutzenreuter	Council Member
Gene Skoglund	Council Member
Hal Treeby	Council Member
Terry Ulmer	Council Member
Stratford	
Vern Prickett	President
Dave Bourassa	Trustee
Lloyd Jark	Trustee
Verdon	
Renee Hanlon	President
Scott Hanlon	Trustee
Warner	
David Fair	President
Mike Bertsch	Trustee
Gaylon Townsend	Trustee
Westport	
Mitch Wilson	President
Shane Storm	Trustee
Derek Shoenfelder	Trustee

TECHNICAL REVIEW OF EXISTING DOCUMENTS

The review and incorporation of existing plans, studies, reports, and technical information was completed by local jurisdictions. Each community was asked to provide a list of documents they have. Many of the smaller communities do not have such documents. The 2016 plan was a resource for the 2022 plan because most of the natural hazard profile research was completed. The plan author reviewed several existing documents including but not limited to the South Dakota State Hazard Mitigation Plan, the Brown County Comprehensive Plan, the Brown County Rural Development Site Analysis, Brown County Pavement Management Plan, Aberdeen Growth Plan, Aberdeen Housing Study, Aberdeen Traffic Study, County Zoning Ordinances, Aberdeen Ordinances, Northern State University Campus Emergency Procedures, Brown County Burn Bans, Brown County flood prevention ordinance, and flood insurance rate maps for the jurisdictions. Each community was contacted to determine if changes were made to the technical documents.

Brown County updated and adopted their Comprehensive Plan November 19, 2019. The County Zoning was updated as of 2015. South Dakota State Law requires that communities that have not adopted a building code automatically fall under IBC 2018. The County Planning and Zoning Director addresses building permits and processes to ensure they match what is allowed by the County. Building permits can be substantial or less than substantial and the process for approval can require homeowners match current building standards on their existing home before making more changes. This prevents future issues by bringing the building up to current codes if there are additional things the owner would like to do. Brown County is currently undergoing FEMA flood mapping to update the flood insurance rate maps that are used. A summary of the technical review and incorporation of existing plans is included on page 24 Table 3.3.

The City of Aberdeen has full-time planning staff, which addresses residential and commercial buildings. Aberdeen also has the HAZUS programs to analyze hazards.

They have some training completed on the system, but the process is not complete. Aberdeen's Growth Plan focuses on land use for residential and business growth. Goals are to increase Aberdeen's attractiveness to area and out-of-area residents and managing growth. The strategy includes but is not limited to: encouraging development compatible with Aberdeen's long-term goals, revitalizing neighborhoods while providing affordable housing to attract and retain talent, developing downtown into a vibrant community area, encouraging growth while keeping Aberdeen's small-town character, enhancing Aberdeen's appearance, and encouraging retention while attracting residents from outside the area. Other goals included enhancing transportation alternatives, and more comprehensive and fiscally responsible development.

Aberdeen's development is reviewed and amended as needed. All zoning amendments go through a public hearing process. There is a public notice, approval required by the planning commission, followed by a first and second reading of the amendment.

Within Aberdeen, Northern State University has a Campus Emergency Plan that was discussed due to the high number of student residents. NSU has enrollment of 3,400 students. As a diverse population, with international students, their plan emphasizes safety within the facilities and has maps in each residence hall to direct students to where it is safest in each building.

The City of Groton has a Comprehensive Plan. Development is more restricted there not only due to lack of developers, but the location of flood plains to the east, southeast, and northwest. There are ordinances that require a flood certificate but only if the resident is building in the flood plain. There are concerns the lack of curb and gutter in areas of Groton reduces control of water. Groton has their own electrical distribution system which distributes power from the Western Area Power Administration and Heartland Power District. Growth will require upgrades to the system as it occurs.

Stratford follows Brown County ordinances and zoning. Access on roads has been one issue for the community. Water released from North Dakota impacts the town. Repeated flooding affects travel throughout the area. Flooded roads cause concern, especially when it takes longer to use detours in emergency situations. They do not have an official plan addressing these issues currently.

Tacoma Park has building codes and drainage ordinances but to receive a permit for building, residents go through the Brown County Planning and Zoning office. There have been repeated floods due to their location in the James River Valley. Tacoma Park was a recreation area for Brown County. Although not incorporated, the residents have dealt with flooding from the James River. There has been erosion from the flooding which reduced land area. The levee was upgraded nine years ago but water has overtopped it since during flooding on the James River. There is a busy railway that goes through Tacoma Park that needs to be upgraded due to water eroding the area supporting the track when there is flooding.

Table 3.3: Record of Review (Summary): Local Jurisdiction											
Program / Policy / Technical Documents	**Brown Co.**	**Aberdeen**	**Claremont**	**Columbia**	**Frederick**	**Groton**	**Hecla**	**Stratford**	**Verdon**	**Warner**	**Westport**
Comprehensive Plan	✓	✓	NP	NP	NP	✓	NP	NP	NA	NP	NP
Growth Management Plan	✓	✓	NP	NP	NP	✓	NP	NP	NP	NP	NP
Flood Damage Prevention Ordinance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Floodplain Management Plan	✓	✓	NP	NP	NP	✓	NP	NP	NP	NP	NP
Flood Insurance Studies/Eng. Studies for waterways	✓	✓	NP	NP	NP	NA	NP	NP	NP	NP	NP
Hazard Vulnerability Analysis (By local Emergency Mgmt. Agency)	✓	C	C	C	C	C	C	C	C	C	C
Emergency Operations Plan	✓	✓	NP	NP	NP	✓	NP	NP	NP	NP	NP
Zoning Ordinance	✓	✓	C	C	C	✓	C	C	C	C	C
Building Code	NP	✓	C	C	C	✓	C	C	C	C	C
Drainage Ordinance	✓	✓	NP	NP	NP	✓	C	NP	✓	NP	NP
Critical Facilities maps	✓	✓	NP	NP	NP	✓	NP	NP	NP	NP	NP
Existing Land Use maps	✓	✓	NP	NP	NP	✓	NP	NP	NP	NP	NP
Elevation Certificates	✓	✓	NP	NP	NP	✓	NP	NP	NP	NP	NP
State Hazard Mitigation Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
HAZUS	NA	NA	NP	NP	NP	NA	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

2016 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, only sections requiring updated information were changed. Participants were asked to focus on the mitigation strategy and risk assessment. Review of the plan took place over the course of several two-hour work sessions and at City Council and Commission meetings that were held at the several locations and times on the following dates listed in Table 3.4:

Table 3.4: Opportunities for Public Comment

Location of Opportunity	Date	Type of Participation			How Meeting was Advertised				
		Council /Comm Meeting	PDM Meeting	Survey	Public Notice	Radio	Website	Social Media	Newspaper
Brown County									
	09/08/20	☒	☐	☐	☒	☐	☒	☐	☒
	04/06/21	☒	☐	☐	☒	☐	☒	☐	☒
	07/19/21	☐	☒	☐	☒	☐	☒	☒	☐
	07/20/21	☒	☐	☐	☒	☐	☒	☐	☒
	08/09/21	☐	☒	☐	☒	☒	☒	☒	☒
	09/20/21	☐	☒	☐	☒	☐	☐	☐	☒
	10/18/21	☐	☒	☐	☒	☒	☒	☐	☒
Aberdeen									
	09/20/21	☒	☐	☐	☒	☐	☒	☒	☒
Claremont									
		☐	☒	☒	☒	☐	☒	☒	☐
Columbia									
		☐	☒	☒	☒	☐	☒	☒	☐
Frederick									
		☐	☒	☒	☒	☐	☒	☒	☐
Groton									
	07/20/21	☒	☐	☐	☒	☐	☒	☐	☒
	08/17/21	☒	☐	☐	☒	☐	☒	☐	☒
Hecla									
Stratford									
Warner									
Westport									

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

PUBLIC INVOLVEMENT [§201.6(b)(1)]

An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.

The public was given opportunity to comment on the plan during the drafting stages, at the Natural Hazard Mitigation Plan Planning Meetings and at County Commission, City Council and City Commission meetings. 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. The Planning Committee approved the use of a survey to elicit public comments. The survey, available online and in paper, had 35 respondents and allowed comments to be made. The survey and its report are in Appendix D.

SURVEY

A public survey was conducted during the plan update process. Surveys were distributed through the Emergency Management Facebook page. Most of the respondents were in Aberdeen. The second most was Rural Brown County (23.5) and Groton (20.6%). Severe Winter Weather was considered the most likely to occur (25 responses) along with Strong Winds (24 Responses) and Tornado and Drought (22 Responses each.) Flood had 19 responses and Wildfire had 18.

Of the respondents, 47.1% had been negatively impacted by a natural hazard in the last ten years with an additional 11.8% impacted by a hazard more than ten years ago. The most common hazard that impacted residents was Strong Winds followed by Summer Storms, Drought, Sever Winter Weather, Flood, and Wildfire. Most (18 respondents) had to take and alternate route to their activities and 17 had damage done to personal property. Four residents were displaced for three or more days, and one resident knew someone injured due to a natural hazard. Most residents (82.4%) had a safe place to go in the event of a tornado and half knew where the storm shelters were in their areas. 42.4% of respondents felt that there was a need for a storm shelter in their area.

Most residents (17 respondents) had the ability to survive for at least two days without power. Some said they could survive up to two weeks and five stated they had access to a generator. When asked if local government should do more to mitigate for hazards, most (56.3%) said no. Of the remaining 43.8% who said that more could be done some of the mitigation suggestions were: ASL interpreters for storms shelters, better drainage systems for the town, and managing Elm Lake better during spring. A copy of the survey, and its results is attached in Appendix D.

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

An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities…to be involved in the planning process.

Before the first planning meeting, an email was sent to neighboring emergency managers in the counties of: Spink, McPherson, Edmunds, Day, and Marshall. After the plan was drafted it was posted on the Brown County Website, City of Aberdeen Website, and emailed to all participants and to the emergency managers in the neighboring counties of: Spink, McPherson, Edmunds, Day, and Marshall. Everyone who received an email copy of the plan draft was allowed 32 days to comment on the draft.

IV. RISK ASSESSMENT

CHANGES/REVISIONS TO RISK ASSESSMENT:

- Almost all figures in this section were updated, as necessary.
- Values of structures in the Critical Facilities List was replaced with the structure's BRIC function for the community.
- The planning team created simplified risk assessment worksheets for plan participants to complete (See Appendix C for the completed worksheets)
- A probability table (Table 4.2) was added to this section.
- Many other elements of this section were also updated, including:
  - Overall Summary of Vulnerability
  - Jurisdictional Summary of Vulnerability
  - Hazard Profile
- Two elements of this section included significant updating and the addition of significant narrative that was new to this Plan. Those elements include:
  - Analyzing Development Trends
  - Unique or Varied Risk

IDENTIFYING HAZARDS

A summary of natural hazard occurrences in Brown County since 2010 is provided in Appendix E. 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 newspaper *The Aberdeen American News,* the vulnerability index through the CDC, airnow.gov, Climate Explorer website, National Climate Assessment, National Levee Database, and drought.gov. These websites accumulated information over time, yet there are instances where it seems the data was incomplete. The plan writer extrapolated based on the reputable available data and planning committee input.

Although the accumulation of occurrences is broad, a complete compilation does not exist due to the remoteness of the area. For example: one can assume that although there was hail in Aberdeen, there would be damages, even if 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. 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 Brown County hazards through NOAA were drought, lightning, and extreme temperatures. Although these are common in Brown 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

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

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 E. 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 Brown County and the increased risk, occupied housing units and the difference over the last 10 years is included.

Table 4.1: Brown County Municipalities Overview

Name *(Cities and Towns)*	Pop. *(2010 American Community Survey)*	Pop. *(2019 American Community Survey)*	Diff. in Pop.	Location	Elev.	Occupied Units in Hazard Area (2010)	Occupied Units in Hazard Area (2019)	Diff - Housing Units (2010 to 2019)
Aberdeen	25,713	28,225	488	45°27'52" N, 98°29'11" W	1,295 ft.	12,030	13,227	1,197
Claremont	48	106	58	45°40'19" N, 98°00'55" W	1,340 ft.	33	51	18
Columbia	90	140	50	45°36'47" N, 98°18'44" W	1,304 ft.	66	71	5
Frederick	286	190	-96	45°50' N, 98°30' W	1,381 ft.	158	128	30
Groton	1,555	1,673	118	45°26'51" N 98°5'54" W	1,302 ft.	597	687	90
Hecla	219	249	30	45°52'29" N, 98°09'06" W	1,299 ft.	158	171	13
Stratford	58	52	-6	45°18'59" N, 98°29'46" W	1,302 ft	22	44	22
Verdon	3	4	1	45°14'38" N, 98°05'50" W	1,306 ft.	5	2	-3
Warner	355	476	121	45°19'33" N, 98°29'42" W	1,298 ft.	148	177	29
Westport	76	98	22	45°38'56" N, 98°29'48" W	1,332 ft.	24	57	33
Brown County (Total – With Rural Areas)	36,531	38,839	2,308	45°45'29" N, 98°15'15" W	1,289 ft.	16,516	18,018	1,502

The scope, information on previous occurrences, and the probability of future events for each hazard is in Table 4.2 and the data is in Appendix E. While the planning committee reviewed all hazard events from the last 100 years, the list for some hazards was

extremely long. The information provided is not a complete history, but an overview from the last ten years and was summarized in this section. 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 E.

Table 4.2: Probability of Events Occurring in Brown County				
Event	**Probability**	**# of Events**	**# of Years**	**Source**
Dam Failure as rated by the National Inventory of Dams	Low	3 of the 12 are high hazard; 9 are low	10	National Inventory of Dams
Wildfire	100%	1,057	10	SD State Fire Marshall
Drought	40%	4 years	10	NOAA
Flood	80%	8 years	10	NOAA
Flash Floods	60%	6	10	NOAA
Total flood events	100%	12	10	NOAA
Hail	100%	103	10	NOAA
High Winds/Thunderstorm Winds	100%	141	10	NOAA
Funnel Cloud/Tornado	50%	5	10	NOAA
Extreme Temperatures	100%	28	10	NOAA
Winter Weather/Blizzards/ Ice Storms/Winter Storms	100%	53	10	NOAA

Table 4.2 lists hazards in Brown County and their probabilities. Hazards listed are based on the events that occurred in the last 10 years. The hazard rating of dam failure is low to significant, meaning that there can be significant hazard to downstream areas if the dam breeched. Of twelve dams, three have a high down hazard rating. One dam that has potential for hazard in Brown County is Mina Lake Dam. Although in Edmunds County and currently being repaired, a breech would impact Brown County significantly.

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

Brown County, Avera St. Luke's Hospital, and Northern State University are part of a National Oceanic and Atmospheric Associate (NOAA) program that recognizes organizations for being StormReady. StormReady jurisdictions must maintain a 24-hour warning point and Emergency Operations Center to relay hazards. They must ensure that the Warning Point and EOC can monitor local weather and flood observation data, that hazardous weather and flooding is addressed in emergency management plans, conduct community preparedness programs for hazardous weather and flooding, and train storm spotters. Establishing an effective relationship with Emergency Management and local National Weather Service is essential.

SUMMARY OF VULNERABILITY

Table 4.3 is a list of natural hazards produced from the FEMA worksheets completed by each local jurisdiction located in Brown County. Representatives from each community completed the worksheet for their location. Representatives of Brown County completed the worksheet for county-wide risks. All the worksheets are included as Appendix C.

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

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 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 were placed in the Unlikely to Occur column.

Only the High Probability and Low Probability hazards will be evaluated 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 Brown County. Public input on natural hazards was conducted in the survey. A report on the responses to the survey is included in Appendix D. Vulnerability to hazards were assessed in a similar way and the responses are listed in Table 4.4.

Due to the natural landscape, similarities, and the widespread nature of these hazards most parts of Brown 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	Brown Co.	Aberdeen	Claremont	Columbia	Frederick	Groton	Hecla	Stratford	Verdon	Warner	Westport
Dam Failure	L	H				L	M	L		NA	
Drought	H	H				H	L	L		M	
Earthquakes	NA	H				NA	NA	L		NA	
Extreme Cold	H	H				H	H	L		H	
Extreme Heat	H	H				H	M	H		L	
Flash Flood	H	H				H	M	H		L	
Flood	H	H				H	M	H		M	
Freezing Rain/Sleet	H	H				H	H	L		H	
Hail	M	H				H	M	M		M	
Heavy Rain	H	M				H	H	M		H	
Heavy Snow	H	M				H	H	M		H	
Ice Jam	M	M				L	NA	L		NA	
Landslides	NA	L				NA	NA	L		NA	
Lightning	H	L				H	M	M		H	
Rapid Snow Melt	H	M				M	H	M		M	
Strong Winds	H	M				H	H	M		H	
Subsidence	L	L				NA	NA	NA		NA	
Thunderstorms	M	H				H	M	M		H	
Tornadoes	H	M				H	H	M		M	
Urban Fire	H	M				H	NA	M		H	
Utility Disruption	L	H				M	M	M		H	
Wildfire	M	L				H	L	M		L	
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)										

Brown County Summary of Vulnerability:
Brown County identified they are most vulnerable to Drought, Extreme Cold, Flood, Freezing Rain/Sleet/Ice, Hail, Heavy Rain, Heavy Snow, Ice Jam, Thunderstorms, and Utility Disruption. These hazards were given an "H" for high risk. Moderate Risk ("M") events were: Extreme Heat, Flash Flood, Lightning, Rapid Snow Melt, Strong Winds, Tornado, and Urban Fire. Most types of hazards such as winter weather, extreme cold and heat, drought, and thunderstorms are county-wide and affect large areas in Brown County. Table 4.5 lists the Presidential Disasters that affected Brown County from 1969.

Table 4.5: Brown 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-999-SD	May 6, 1993, to September 10, 1993	July 19, 1993	Flooding, Severe Storms
DR-1031-SD	March 1, 1994, to July 29, 1994	June 21, 1994	Severe Storm, Flooding
DR-1052-SD	March 1, 1995, to June 20, 1995	May 26, 1995	Severe Storms and Flooding
DR-1156-SD	January 3, 1997, to January 31, 1997	January 10, 1997	Severe Winter Storms/Blizzards
DR-1173-SD	February 3, 1997, to May 24, 1997	April 7, 1997	Severe Storms and Flooding
DR-1218-SD	April 25, 1998, to June 22, 1998	June 1, 1998	Flooding, Severe Storms and Tornadoes
DR-1375-SD	March 1, 2001, to April 30, 2001	May 17, 2001	Winter Storms and Flooding
DR-1620-SD	November 27, 2005, to November 29, 2005	December 20, 2005	Severe Winter Storm
DR-1702-SD	May 4, 2007, to June 8, 2007	May 22, 2007	Severe Storms, Tornadoes and Flooding
DR-1844-SD	March 11, 2009, to July 6, 2009	June 16, 2009	Severe Storms and Flooding
DR-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

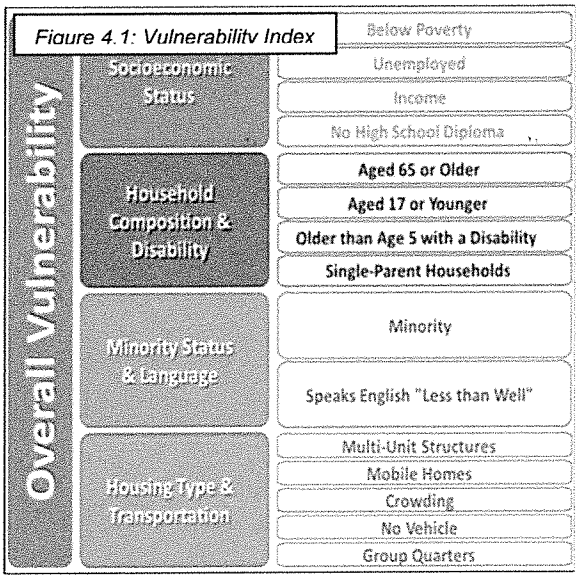
Brown County has had seventeen Presidential Disaster Declarations. Twelve of the seventeen disaster declarations included flooding. Six were flooding based on summer

storms and four on winter storms. One was due to drought. The widespread impact of these disasters shows the entire county is vulnerable.

Brown County has had many township roads under water due flooding. Flooding makes roads softer, more susceptible to damage and 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. The widespread nature of flooding can cause the county to build up roads just to make them temporarily passable, reducing funds available for other development. Damage to roads continues in drought due to the repeated exposure to high heat alternated with high water.

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.

Drought impacts crops, livestock, and the area, especially since Brown County's economy is reliant on agriculture. During the last ten years, Brown 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.



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. Brown County has an overall vulnerability index of 0.3287 on a scale of 0 (lowest) to 1 (highest) vulnerability, which shows a moderate vulnerability to disasters, according to the index.

Aberdeen Summary of Vulnerability: Aberdeen is unique as they are a much larger town with a higher population than other municipalities. They have indicated that they have a high vulnerability to: Dam Failure, Drought, Extreme Cold, Extreme Heat, Flash Flood, Flood, Freezing Rain/Sleet, Hail, Thunderstorms, and Utility Disruption. They have a medium vulnerability to: Heavy Rain and Snow, Ice Jams, Rapid Snow Melt, Strong Winds, Tornadoes, and Urban Fires.

Aberdeen has Northern State University and Presentation College, both of which has populations that are vulnerable to events. There are concerns about safety and access

for food and emergency services to these residents if an event occurs that doesn't allow students to travel off campus. Access to storm shelters is limited but students are directed to safer areas of the building with emergency procedures and maps.

Aberdeen's transportation system, Rideline, enables many in the area to travel throughout the town for appointments and resources. The transportation system will continue working in an emergency as long as it is considered safe. The Aberdeen Regional Airport has concerns about flooding. They are especially vulnerable due to their location and elevation. They currently can store 14 million gallons of water in retention ponds and have a pump that can be used to clear water out of the airport. There are concerns about pump usage since the water that they remove would go downstream, possibly overwhelming those areas.

Aberdeen's population is also vulnerable to natural events that impact the water supply. Significant drought causes a drop in the water in the area. Aberdeen has claim to the first twelve feet of water in the Elm reservoir, which is its main water source. There are secondary water supplies, but not as readily available. Aberdeen's current supply and system are near capacity, due to growth. Constant improvements to sewers and storm sewers are required. Storm sewers to withstand large flood events and retention ponds have been installed to reduce the risk of flooding, but due to the low elevation of Aberdeen, more are needed. As development increases, there are flood ordinances to direct developers as to retention ponds and floodway regulations within developments.

Sirens are also a concern. Replacement of alarm sirens was done decades ago, and new updated sirens are needed. Storm shelters are not a priority for Aberdeen. Generally, when there is a storm, residents do not utilize the shelters since there are neighbors or family that accommodate the residents who do not have shelter. Aberdeen is also a support for the incorporated and unincorporated communities in the area. They provide resources and assistance in the event of a natural hazard.

Groton Summary of Vulnerability: Groton has indicated that they are highly vulnerable to: Drought, Extreme Cold and Heat, Flash Flood and Flood, Freezing Rain/Sleet, Hail, Heavy Rain and Snow, Lightning, Strong Winds, Thunderstorms, Tornados, and Urban Fires. There is a medium level of vulnerably with: Rapid Snow Melt, and Utility Disruption.

Groton is located about 20 miles away from Aberdeen. Groton has their own clinic and has emergency resources in their area. The local EMS and Fire Station help to reduce the impact of natural hazards in the area. There are also residents who will go into snowstorms and blizzards on snowmobiles in the event of an emergency with residents. These people will locate the patient and get them to emergency care as quickly as they can. Groton also has their own electrical grid.

Storm shelters are a concern for Groton as they have vulnerability to storms. They set the state rainfall record at 8.74 inches in a 24-hour period from May 5th to May 6th, 2007. A severe storm which blew down power lines and damaged trees occurred October 10, 2021. Expansion of the storm sewer and curb and gutter is needed to help address rainfall issues when they occur.

Hecla Summary of Vulnerability: Hecla has indicated that they are most vulnerable to: Extreme Cold, Freezing Rain/Sleet/Ice, Heavy Rain, Heavy Snow, Rapid Snow Melt,

Strong Winds, and Tornado. They have medium vulnerability to: Dam Failure, Extreme Heat, Flash Flood, Flood, Hail, Lightning, Thunderstorm, and Utility Interruption.

Hecla is especially concerned with flooding caused by dams from North Dakota. There are times when water is released, and they have found themselves with a much higher water level due to that. There is also concern about dam failure from North Dakota since they are downstream and would be heavily impacted if that were to occur. Heavy Rain, Heavy Snow, Freezing Rain/Sleet/Ice and Rapid Snow Melt increases their water table causing flooding of their sewer system and overwhelming their lift station and lagoon. Strong winds and tornados are also a concern. Hecla has had flooding the in seven of the last ten years. Recurring flooding damages infrastructure along with homes and structures and makes the city more vulnerable.

Stratford Summary of Vulnerability: Stratford has indicated that they are moderately vulnerable to heavy rain and snow, ice jams, rapid snow melt, high winds, thunderstorms, tornados, urban fires, utility interruption and wildfires. Located 20 miles away from Aberdeen, they are only two miles from the James River. When North Dakota releases water from upstream it causes flooding throughout the town. Stratford reduced its vulnerability when it installed a culvert allowing water to flow more freely in town. Water doesn't flow unless the ditches and culverts are consistently cleaned out by area residents to maintain a way for the water to flow through the area.

Flooding around Stratford has caused many issues, especially when traveling throughout the area. Residents had to take a 30-mile detour to get to church, which is located three miles away from town. The situation caused one resident to use his boat and use that for transportation to the church instead of his car.

Warner Summary of Vulnerability: Warner has indicated that they are highly vulnerable to: Extreme Cold, Freezing Rain/Sleet, Flood, Heavy Rain and Snow, Lightning, Strong Winds, Subsidence, Urban Fires, and Utility Disruption. They are moderately vulnerable to: Drought, Flood, Hail, Rapid Snow Melt, and Tornadoes.

Warner is 10 miles from Aberdeen. Due to the proximity, they have access to resources during a natural hazard. Emergency situations can be coordinated with the Aberdeen emergency response system. One item of vulnerability is that residents may not realize how dangerous a weather situation is until it's too late. Being so close many residents work outside the Warner area. Storms can make travel conditions hazardous. During a snowstorm February 18, 2013, two miles south of Warner, a woman and her two children were taken to the hospital when a van collided with a semi.

Tacoma Park Summary of Vulnerability: Tacoma Park indicated that they are extremely vulnerable to drought, flash flooding, flood, freezing rain/sleet/ice, hail, heavy rain, heavy snow, ice jams, strong winds, subsidence, tornados, and fires (both urban and wild). They are moderately vulnerable to dam failure, earthquakes, extreme cold and heat, lightening, rapid snow melt, thunderstorms, and utility interruption. Since they are in a rural area, they are more vulnerable to area hazards which prevent safe travel.

Vulnerability to the unpredictable James River is a concern. Erosion caused by the river has made them vulnerable to high water events. A levee that was raised 9 years ago has been overtopped by the James River. Erosion by water of the supports of the railroad bridge is a concern due to collapse.

ASSESSING VULNERABILITY: OVERVIEW

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

NATURAL HAZARDS IN THE PLAN JURISDICTION

Descriptions of the natural hazards likely to occur in the Plan Jurisdiction were taken from the 2016 Brown County Natural Hazard Mitigation Plan. For all the hazards identified the probability of future occurrence is expected to be the same for all the jurisdictions in the Plan.

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

Blizzards are snowstorms that are 3 hours or more and cause winds 35 m/h or greater, visibility of less than ¼ mile, temperatures lower than 20°F and white out conditions. Blizzards can cause icy roads, closed roads, downed power lines and trees. Residents are especially vulnerable because people leave their homes rather than staying inside. During a blizzard people often get stuck, stranded, and lost when driving their vehicles which prompts emergency responders to go out to rescue them.

Drought is a period of prolonged lack of moisture. Droughts are indicated by high temperatures, high winds, and low relative humidity. A decrease in the amount of precipitation can adversely affect streams, reservoirs, lakes, and groundwater levels. Crops and vegetation are harmed when moisture is not present. Semi-arid conditions are consistently present in eastern South Dakota. A small reduction in normal precipitation, especially during July or August can produce crop failure or lower yields. South Dakota's economy is closely tied to agriculture which increases potential losses on the state's economy during drought. Roughly every 50 years a significant drought is experienced, while less severe droughts can occur as often as every three years.

Earthquakes are shifting the Earth's surface causing rapid shaking. Earthquakes can cause structures to collapse, disrupt utilities and cause landslides, flash floods, fires, avalanches, and tsunamis. The underground point of origin of an earthquake is called its focus; the epicenter is on the surface above the origin. They occur in the area but are generally very mild and are measured by the Richter scale.

Extreme Cold in eastern South Dakota is below zero degrees Fahrenheit. Low temperatures often accompany a winter storm, causing power failures and icy roads. Extreme cold is dangerous causing health emergencies in vulnerable populations such as those without shelter, who are stranded, who live in a home that is poorly insulated or without heat. Exposure is the biggest threat/vulnerability to human life; however, incidences of exposure are rare.

Extreme Heat is excessively hot weather, and may be accompanied by high humidity, generally over 100 degrees. Extreme heat has caused widespread crop damage, deaths from hyperthermia, and widespread power failures. Loss of power can result in death to vulnerable populations when the heat and humidity is so high, the body cannot effectively cool itself. Livestock is also affected by high heat, impacting the economy.

Flooding is an overflow of water that submerges land, causing property damage or forcing evacuation of people and vital resources. Floods can develop slowly or quickly as rivers swell during an extended period of rain, or during a warming trend following a heavy snow. Even a very small stream or dry creek bed can overflow and create flooding. Two different types of flooding hazards are present within Brown County.

1. Inundation flooding occurs most often in spring. The greatest risks are during rapid snowmelt before ice is completely off the rivers. The major source of inundation flooding comes from the Elm River and the James River. The most vulnerable areas and residences are along the James River, Moccasin Creek, Elm River, Maple River, and Willow Creek in the flood plain.

2. Flash flooding is typically during the summer. This flooding is primarily localized, but enough rain can be produced to cause inundation flooding. The threat of flooding would be increased during times of high soil moisture.

Floods can result in injuries and loss of life when quickly moving water is involved. Six inches of moving water is enough to sweep a vehicle off a road. Disruption of communication, transportation, electric service, and community services, along with contamination of water supplies and transportation accidents occur. The flooding of township roads is a concern for the entire county during periods of heavy precipitation. Concern areas are addressed in the Mitigation Section of this plan.

Freezing Rain occurs when temperatures drop below 30 degrees Fahrenheit during rain. It can cause slippery surfaces and buildup on power lines, poles, trees, and structures. The additional weight can cause structures to cave in and tree branches and power lines to break. Brown County is susceptible due to the structures and surfaces that cannot be protected. Traffic on the roads and highways are the biggest hazard. Sometimes ice is unnoticeable and is black ice, creating dangerous driving conditions.

Hail is formed by rising currents of air. These currents carry water droplets to where they freeze and then fall as round ice particles. Hailstones are water and ice and measure between 5 and 150 millimeters in diameter on average and can cause damage to property and crops. Severe thunderstorms produce larger stones. Brown County and local jurisdictions are vulnerable due to the widespread nature of the hazard. Mitigation is difficult and is usually insurance policies.

Heavy Rain occurs when more than 0.30 inches (0.762 cm) per hour falls. Intense rainfall can cause flash flooding while longer periods can cause rivers to overflow. It causes damage to structures by causing sewers to back up while the excess water fills basements. Roads and bridges can be washed out, causing traffic hazards. Roads must be closed causing rural traffic. All areas of the County are vulnerable. Storm sewers are built for the typical storm and do not accommodate excessive rains.

Ice Jams occur when warm temperatures and heavy rain cause snow to melt rapidly and cause frozen rivers to swell, breaking the ice on top. Large ice chunks float downstream and pile near narrow passages causing impact damage to bridges, roads, and culverts.

Landslides are a geological phenomenon such as rock falls, deep failure of slopes and shallow debris flows. They can occur in offshore, coastal, and onshore environments.

Gravity is the main reason landslides occur, but sub-surface conditions make an area/slope prone to failure. There is a low chance of occurrence in Brown County due to the flat topography.

Lightning is a buildup of electrical charges during the formation of thunderstorms caused by rapidly rising air and precipitation movement in the cloud. Lightning bolts reach temperatures near 50,000° F in a split second. The rapid heating, expansion, and cooling of air near the lightning bolt causes thunder. Electrical lines and poles are vulnerable because of the height and charge. Flickering lights and short blackouts are common. Lightning can cause fires, especially when combined with drought. These fires will be treated under the fire section of the plan. Most injuries occur near the end of thunderstorms when individuals leave shelter before the storm is over and are struck.

Severe Winter Storms deposit four or more inches of snow in a 12-hour period or six inches of snow in a 24-hour period. There are four categories: freezing rain, sleet, snow, and blizzard. Winter storms can range from moderate to blizzard and occur between October to April. Winter storms occur frequently. Heavy snow can immobilize transportation, down power lines and trees and cause structure collapse. Livestock and wildlife are also vulnerable. Most storms occur countywide. The greatest danger during winter weather is traveling. Individuals may venture out even though it's not safe.

Sleet does not cling to objects like freezing rain but can make the ground very slippery. This increases the number of traffic accidents and personal injuries. Sleet can slow operations in a community and can accumulate on power lines.

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

Snow Drifts are caused by wind blowing snow and cold temperatures. Drifts can be small drifts on roadways causing cautionary driving, or 20-40-foot-high drifts that block entire highways, roads, and structures for days. Populations at highest vulnerability for this type of hazard are rural homeowners, who are approximately 20% of the county, and the elderly. Highway closures and slow transportation is an issue, especially for rural areas. Emergency services will be delayed during winter storms.

Strong Winds are over 40 m/h and are common. Winds over 50 m/h occur and can cause destruction of property and flying debris. Strong winds also include wind from thunderstorms. These downward blasts of air are categorized as either microbursts or macrobursts depending on the amount of geographical area covered. Microbursts cover less than 2.5 miles in diameter and macrobursts cover greater than 2.5 miles in diameter. Trees, poles, power lines, and weak structures are vulnerable. Downed power lines and trees cause hazards for power failure, structural damage or even injury and death. Strong winds are common in Brown County.

Subsidence is a sinking of an area of land. The opposite of subsidence is uplift, which results in an increase in elevation. There is a very low probability of occurring in the area. Jurisdictions do not consider themselves particularly vulnerable to this hazard.

Summer Storms are caused by changes in temperature and air pressure. Thunderstorms may cause hail, lightning, strong winds, and tornados. The annual risk

for summer storms is very high. Summer storms cause utility problems and limited loss of power. Typical interruptions last around 1 to 3 hours. Warning time for summer storms is normally several hours, sufficient for relocation and evacuation if necessary.

Thunderstorms are formed when moisture, rapidly rising warm air, and warm and cold air masses combine. Thunderstorms can cause hail, lightning, strong winds and heavy rain. The entire county experiences thunderstorms and is only vulnerable when weather events outside the norm occur. Specific vulnerabilities are further identified in the paragraphs for "Lightening," "Tornadoes," and "Heavy Rains".

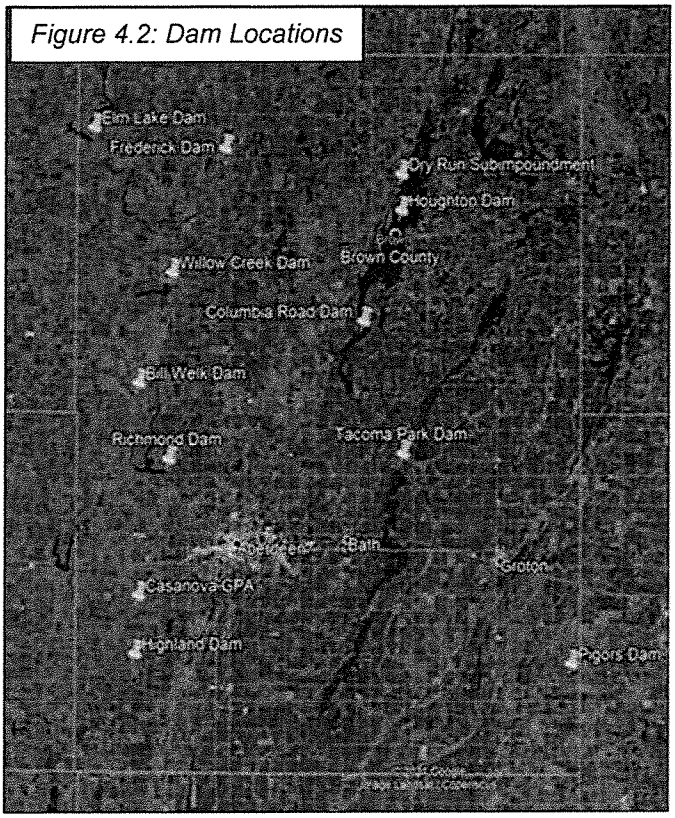
Tornadoes are violent windstorms that may occur singularly or in multiples due to severe thunderstorms. They develop when cool air overrides warm air, causing the warm air to rapidly rise. Touchdown may or may not occur. The Fujita Tornado Damage Scale categorizes tornadoes based on their wind speed:

F0=winds less than 73 m/h
F1=winds 73-112 m/h
F2=winds 113-157 m/h
F3=winds 158-206 m/h
F4=winds 207-260 m/h
F5=winds 261-318 m/h
F6=winds greater than 318 m/h

Tornados are dangerous and occur most often in May, June, and July between 4 pm and 6 pm. The fairgrounds can be more vulnerable because of high seasonal populations. All schools, mobile home parks, nursing homes, and hospitals are at high risk. Tornados may occur with little or no warning. Historical data on tornadoes and thunderstorms is incomplete due to lack of reporting. Summer storms in Brown County usually produce a wide range of damage making estimates difficult.

Wildfires are uncontrolled blazes that spread quickly. It can change direction unexpectedly and jump gaps, such as roads, rivers, and fire breaks. Ignition can be natural sources or human. Wildfires can cause extensive damage to property and human life. They can be beneficial for plants dependent on fire for growth, but large wildfires can cause issues with air quality. Due to the flat landscape, wildfires can be spotted and addressed. During drought, Brown County has higher risk for fires and burning restrictions are enforced. Moisture amounts have the biggest impact on fire. During wet years, fire danger is low.

Figure 4.2: Dam Locations



DAM FAILURE

Dam breach or failure is a concern for the citizens of Brown 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. 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 dam's down hazard level. Dams with a high hazard level can cause a high level of destruction downstream compared with low hazard dams. Brown County has 12 dams in the county.

The extent of damage depends on the size of the dam and circumstances of the failure. A large dam failure might 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 for a season and extreme financial hardship to many area farmers. Aberdeen's water supply is dependent on the Elm River Dam. If this dam were to break, not only would it be a severe down hazard, but it would severely impact the water supply.

The Elm Lake Dam near Frederick was built in 1937. In July 2020 the dam was damaged by summer storms, causing slabs of concrete to break off the spillway. The state of South Dakota, along with Brown County and the City of Aberdeen are allocating funds for the repairs. Bids were opened Tuesday August 24, 2021, and the total lowest bidder was VEIT Specialty Contracting at a cost of $5,773,370 for the base bid and alternates. The South Dakota School and Public Lands department will be overseeing the project and $4 million will be coming through the state for the project and $1 million from the City of Aberdeen. The new Elm Lake spillway will be wider than what currently exists. It will span 170 feet compared with 150 feet at its current width and the dam crest will be four and a half feet higher. Although the crest will be higher, the water will flow from the same elevation. The added height will help hold back water in periods of heavy water flows. Current plans do not include the bridge that is currently used to access the area. Once work is complete on the dam, access plans will then begin.

Richmond Elm, and Willow Creek Dams are high hazard dams. Richmond Dam holds back water for Richmond Lake and the Willow Creek Dam holds back water near Westport. Willow Creek is another of Aberdeen's water sources. Figure 4.2 illustrates the location of dams in Brown County and Table 4.6 lists each dam and its location.

Table 4.6: Dam Locations in Brown County

ID	Name	Owner	Location (Lat/Long)	Year Built	Hazard	Insp Date:	Height (ft)	Max Storage (acre-feet)
SD00005	Tacoma Park	GF&P	45°32'24.0"N 98°14'48.0"W	1935	Low	N/A	20	80
SD00006	Richmond	S&PL	45°32'06.0"N 98°35'30.0"W	1935	High	8/23/17	52	19800
SD00008	Willow Creek	City of Aberdeen	45°42'54.0"N 98°35'18.0"W	1934	High	5/23/01	49	7650
SD00079	Frederick	GF&P	45°50'06.0"N 98°30'42.0"W	1931	Low	N/A	20	145
SD00328	Elm Lake Dam	S&PL	45°51'18.0"N 98°42'18.0"W	1937	High	8/24/17	52	28800
SD01191	Houghton Dam/ Mud Lake Dam	US F&W	45°46'30.0"N 98°15'00.0"W	1939	Low	7/18/12	7	43524
SD01192	Columbia Road Dam	US F&W	45°40'05.0"N 98°18'20.0"W	1939	Low	7/17/12	10.5	41933
SD02138	Pigors Dam	GF&P	45°20'12.0"N 97°59'54.0"W	1937	Low	5/30/17	20	950
SD02202	Highland Dam	S&PL	45°20'48.0"N 98°38'24.0"W	1937	Low	11/15/16	14	450
SD02396	Dry Run Subimpoundment	US F&W	45°48'36.0"N 98°15'00.0"W	1938	Low	N/A	10	260
SD02410	Casanova GPA	GF&P	45°24'12.0"N 98°38'06.0"W	1995	Low	N/A	9	238
SD02440	Bill Welk Dam	Bill Welk	45°36'30.0"N 98°38'12.0"W	1996	Low	N/A	15	441

DROUGHT AND WILDFIRE

South Dakota'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 the eastern portion of the state. 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 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.

South Dakota's economy is closely tied to agriculture. Even moderate drought can magnify economic losses and its impact statewide during drought conditions, especially prolonged drought. Roughly every 50 years a significant drought occurs within the county, while less severe drought can happen every three years. The most common time of the year for drought tends to be July through October. The intensity can vary from None to Extreme Drought. Brown County generally is none to abnormally dry. But

there have been periods of moderate to severe drought. This can contribute to a reduction in available water for crops and livestock if conditions hold or get worse quickly, as in a flash drought. High periods of drought can destroy crops and kill livestock. Table 4.7 shows drought conditions over the last ten years.

Table 4.7: National Drought Monitor January 4, 2011 to October 13, 2020	
Months	**Condition**
January 4, 2011 to January 31, 2012	None to D0 Abnormally Dry
February 7, 2012 to April 10, 2012	D1 Moderate Drought
April 17, 2012 to June 19, 2012	None to D0 Abnormally Dry
June 26, 2012 to July 24, 2012	D1 Moderate Drought
July 31, 2012 to September 11, 2012	D0 Abnormally Dry
September 18, 2012 to April 9, 2013	D1 Moderate Drought to D2 Severe Drought
April 16, 2013 to August 20, 2013	None to D0 Abnormally Dry
August 27, 2013 to October 1, 2013	D1 Moderate Drought
October 8, 2013 to March 10, 2015	None to D0 Abnormally Dry
March 17, 2015 to May 5, 2015	D1 Moderate Drought
May 12, 2015 to October 18, 2016	None to D0 Abnormally Dry
October 25, 2016 to November 29, 2016	D1 Moderate Drought
December 6, 2016 to May 23, 2017	None to D0 Abnormally Dry
May 30, 2017 to May 22, 2018	D1 Moderate Drought to D0 Abnormally Dry
May 29, 2018 to October 23, 2018	D1 Moderate to D2 Severe Drought
October 30, 2018 to August 4, 2020	None to D0 Abnormally Dry
August 11, 2020 to May 18, 2021	D1 Moderate Drought
May 25, 2021 to August 31, 2021	D2 Severe Drought to D4 Extreme Drought
September 7, 2021 to October 5, 2021	D1 Moderate Drought

Severe Drought began in the region in May 2021. According to Laura Edwards, State Climatologist, the D3 category may be seen three times a century. That level of drought severely impacts farmers and ranchers. Shocks to the agricultural sector of South Dakota's economy reverberates throughout the economy. As temperatures are projected to increase well into the future due to climate change, its reasonable to expect that drought and its effects will also increase.

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. Rainfall was below normal everywhere, and less than half of normal in much of the area. 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 generally 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. Brown 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, Brown County was affected. Particularly dry summers were in 1934 and 1936.

- 1880s-1890s: The years 1887, 1894-1896, 1898-1901 were very dry.

Severe drought impacts fire and air quality also. Drought makes fires more common. Something as simple as a tossed cigarette or sparks from a train can cause fires. There were 1,057 fires recorded in Brown County from 2009 to 2019. 338 were structure fires, 205 were vehicle fires, and 514 were other fires. The "other fires" category includes fires of natural vegetation, outside rubbish, special outside fires, cultivated vegetation and crop fires. There were 21 civilian injuries and six civilian deaths. Of the fire service volunteers, there were eight fire-related injuries. Total damages from fires in Brown County was $23,389,300. It is unknown which fires were the result of human activity.

Drought can intensify and create a fast-moving wildfire when combined with South Dakota's high winds. When there is no rain and crops die, winds can cause dust storms. Such windstorm happened June 1, 2018, after an abnormally dry period, according to NOAA. Wind gusts up from 60 to 80 miles an hour stirred up the dust. This resulted in a "black blizzard" situation where visibility was reduced to less than an eighth of a mile at times in the evening, causing multiple traffic accidents. The high winds also caused power lines to come down and some trees started on fire. This illustrates how all these different natural hazards can come together to create a situation where there can be significant and widespread loss. Another impact of fire is smoke, even from fires that are states away, severely impacting air quality and increasing the likelihood for respiratory issues with people and animals. Fine particles in smoke can cause short and long-term health problems. This can affect traffic conditions if strong enough.

Due to concerns with situations where there are high winds and relatively dry conditions, there is a requirement in Brown County's Ordinance Title 18: Fire Safety states that Brown County may prohibit or restrict open burnings and that they will take steps to inform the public when a restriction is in place. Brown County enacted a burn ban after three fires that occurred in Brown County over a week in March of 2021. The original burn ban was set to expire March 31, 2021 but was extended because of continuing drought. Brown County is working to determine if changes need to be made to the burn ban ordinance.

Table 4.8 shows the type and number of calls received by Brown County Fire Departments from January 1, 2009, to December 31, 2019. Total fire loss was $23,389,300 and injuries numbered 63 and 15 deaths. These numbers are only through 2019. Due to the drought of 2020, there may be a much larger impact and cost of fires.

Table 4.8: Fire Summary by Incident Type: 2009-2019								
	Freq	% Of Total	No Aid	Aid Given	Aid Received	Other Aid Given	Exp	Total
Fires								
Structure Fires	338	3.27%	260	92	78	0	12	442
Vehicle Fires	205	1.98%	176	30	28	1	2	237
Other	514	4.97%	337	221	176	1	1	736
Total:	1,057	10.22%	773	343	279	2	14	1,350
Pressures, Ruptures, Explosion Overheat	58	.56%	58	0	0	0	0	58
Rescue Calls								
Emerg. Med Threat	3,978	38.45%	3,870	14	102	6	0	3,992
All Other	67	0.65%	65	5	1	1	0	72
Total Call	4,045	39.09%	3,935	19	103	7	0	4,064
Haz Cond. Calls	1,177	11.38%	1,162	8	12	3	0	1,185
Service Calls	990	9.57%	980	5	9	1	0	995
Good Intent Calls	620	5.99%	597	111	22	1	0	731
Special Incidents Calls	45	0.43%	43	1	2	0	0	40
Unknown Incident Type	0	0.00%	0	0	0	0	0	0

Casualty Summary	Civilian	Fire Service	
Fire Related Inj.	21	8	Total Fire $ Loss
Non-Fire Rel inj.	29	5	$23,389,300
Fire Rel Deaths	6	0	Total $ Loss
Non-Fire Re Death	9	0	$23,907,308

HAIL

Hail events are common in Brown 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 E. It is reasonable to expect that at least some property or crop damage was sustained though it may not have been reported. It is possible that such damage was not reported because it was believed to be insignificant, or because those responsible did not report to the proper agencies. Although there were many storms listed in the database, there was only one storm that had cost of damages. 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.

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 Brown County was 1.23 inches. A 1.23-inch hailstorm can punch through shingles on roofs, break window frames, severely damage crops, cars, and structures. The largest hail recorded in Brown County were August 15, 1987, and June 23, 2002. These storms produced 4.50-inch hail. The most current large hail record was at Winship August 23, 2020, at 4.00 inches. A storm Sunday August 23, 2021 caused substantial damage to trees and power lines with tennis-ball sized hail and 79 mph winds. The storm occurred the last day of the Brown County Fair and could have been disastrous if it occurred when the fair had higher attendance.

HIGH/SEVERE WIND

Severe wind events are very common in eastern South Dakota. Several times a year Brown County can expect strong winds greater than 40 mph. Gusts of wind higher than 100 mph have been recorded. Wind can be damaging 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. September 25, 1986 two girls were killed when high winds tore through their trailer park in Aberdeen, starting a fire in their home.

High winds are hard to mitigate and are frequent. 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 Brown County mitigates for wind events is tie down ordinances for mobile homes to keep them secure. Anchored homes are still susceptible to windspeeds over 90 miles per hour. Due to the frequency, Brown County Building Code establishes a threshold of 90 miles per hour wind resistance for construction purposes. Damaging winds are more prevalent and widespread than tornadoes. High winds tear branches off trees causing additional damage to homes, cars, and crops. June 7th, 2020, a large thunderstorm moved through the area and caused windspeeds up to 90 miles per hour. This storm caused shingle damage, uprooted trees, and damaged structures.

LIGHTNING

The severity of lightening 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 by lightning. People who leave shelter during thunderstorms to watch or follow lightening have the possibility of being struck. NOAA has only one incidence of flooding in their database in Brown County over the last 10 years, but it is apparent that lightning occurred due to the commonality of thunderstorm and hail event history. The only recorded event of lightening in the NOAA database was June 5, 2014. The lighting strike took out the elevator and phone system of the Citizens Building in downtown Aberdeen causing around $2,000 in recorded damages.

TORNADOS AND THUNDERSTORMS

The annual risk for intense summer storms is very high. All of Brown 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 Brown County fairgrounds area is particularly vulnerable because of a high seasonal population.

Thunderstorms and tornados in the County are common and widespread. Appendix E shows the extent and severity. The County continues to educate residents of the dangers of such storms through public service announcements and other media.

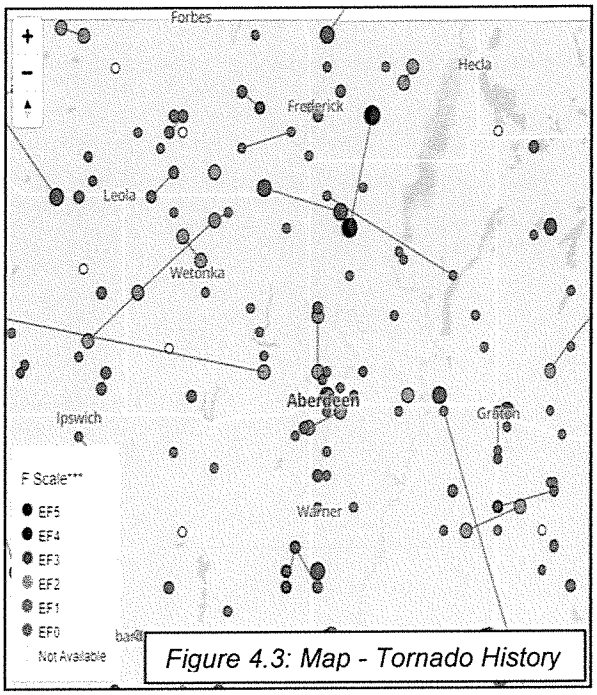


Figure 4.3: Map - Tornado History

The map in Figure 4.8 shows a history of tornados from 1950 to present. Gathering historical data on tornadoes is difficult due to occurrences and unconfirmed reports. Each year a few tornadoes affect the county. June 23, 2002, Brown County had a storm that produced multiple tornados. An F3 and F4 tornado were reported around Barnard. The storm uprooted trees, broke power lines, destroyed buildings and equipment. No one was injured during the storm and estimated losses were over a million dollars. Tornado warnings were issued for Aberdeen and Groton October 9, 2021, but no damages were reported.

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 a 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

Extreme temperatures are common in Brown County. At least once a year there is extreme heat and cold. Information from NOAA's website is in Appendix E. 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. February 6th – 14th 2020 high temperatures did not get above 0. Extreme cold is common, even with climate change. Variations in weather patterns can push air from polar regions. The arctic air moves over Brown 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 4.4 is a wind chill chart that shows temperatures when wind and cold combine.

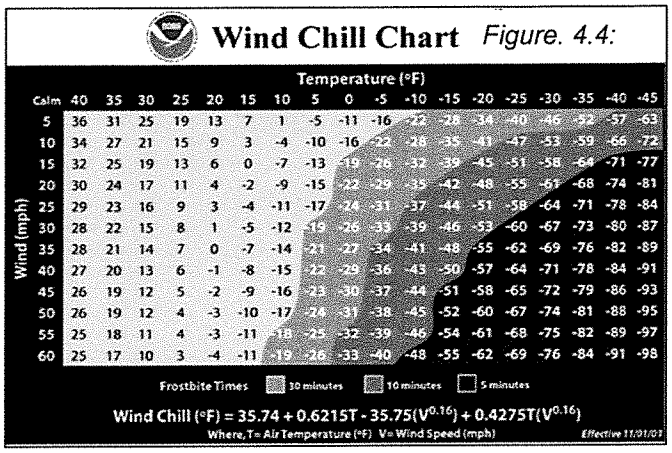


Figure. 4.4:

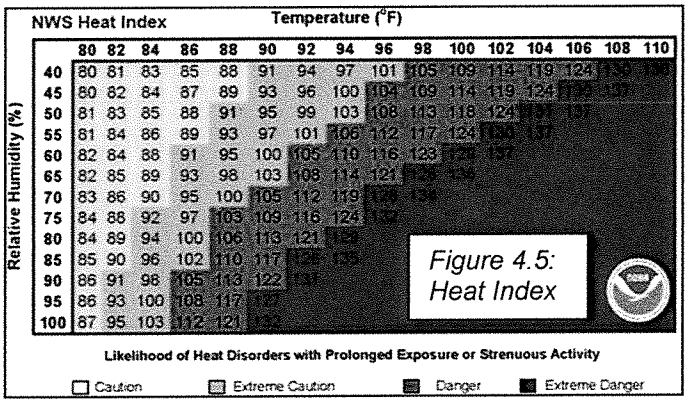


Figure 4.5: Heat Index

Heat is also dangerous. Summer average temperatures shift higher due to climate change causing warmer temperatures. This increases 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 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 now be sufficient to meet higher demands and impacts residents depend on those systems. Figure 4.5 is the heat index.

WINTER STORMS

Winter storms are common in Brown County and are considered extreme in many parts of the country. Planning and response mechanisms for snow and ice storms are routine procedures. Response in snowstorms is handled 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. Beginning in October 2019 and ending in April of 2019, Brown County was repeatedly exposed to winter storms. Those storms shut down transportation and impacted the economy, later accumulating to spring flooding in 2019. A list of recorded winter storm occurrences is included in Appendix E.

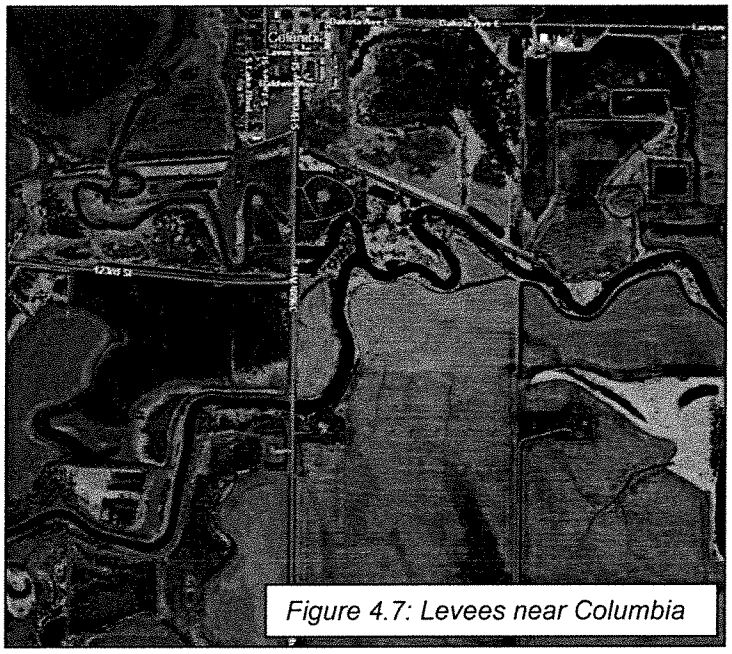


Figure 4.7: Levees near Columbia

FLOOD

Flooding is a temporary overflow of water onto land not normally covered by water producing measurable property damage or forcing evacuation of people and resources. Floods can cause injuries and even death when fast flowing water is involved. Six inches of moving water can sweep a vehicle off the road. Disruption of communication, transportation, electric service, and community services, along with contamination of water supplies and transportation accidents are common.

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

Aberdeen has worked to establish storm water systems to reduce the impact. Levees are also used to mitigate against flooding of Moccasin Creek in Aberdeen. Brown County has three levee systems and one currently in development. Two levee systems are in Columbia where the James River and the Elm River meet. The other is in Aberdeen along Moccasin Creek. The third being developed in along Camino Real subdivision. This subdivision on the outskirts of Aberdeen will be severely impacted if there were flooding. Aberdeen's growth contributes to concerns that as the City expands, there will be additional measures needed to reduce the impact of flooding.

There are two types of levees: accredited and non-accredited. FEMA accredits a levee when it provides adequate protection in a flood and operation and maintenance plans are enforced by the levee owner. Accredited levees can be used to lower flood insurance requirements. If a non-accredited levee is protecting a development, the homes are not eligible for reduction in risk on the FIRM. Levees help reduce the risk, but do not eliminate it. Levees can and sometimes do fail or are overtopped and can create more damage than if the levee had not been built by trapping water.

Figure 4.7 illustrates the two levee systems located near Columbia, the James River North Side levee is located north of the James River and helps to protect nine people, seven buildings, and approximately $1.74 million dollars of property. The levee is .91 miles and is a non-accredited levee system. South of Columbia along the Elm River is

the Elm River South Side levee. It was constructed in 1969 and is also non-accredited. It is .74 miles long and currently protects no people, buildings, or property.

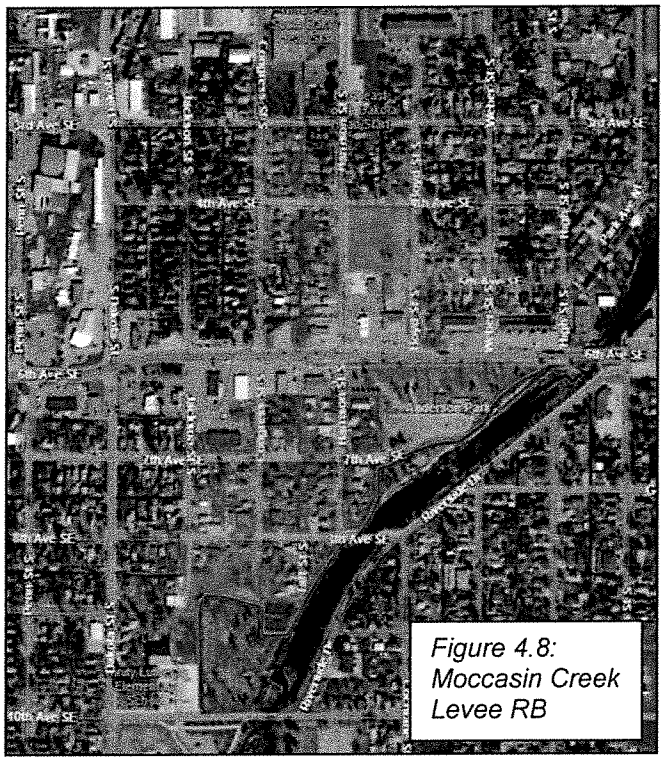


Figure 4.8: Moccasin Creek Levee RB

The Moccasin Creek RB (Right Bank) system begins on the north side of Aberdeen. Initially tying into an access road that was raised during flooding in 1997 it goes east for about a half mile then moves southward along the tributary of moccasin creek. Ranging from four to seven feet in height, it runs for 2.7 miles and is shown in Figure 4.8. The levee protects 5,453 people and 2,126 buildings with a property value of $591 million dollars. This levee is accredited with FEMA and according to a risk assessment on September 14, 2017, the risk is low. There are seepage concerns due to unwanted vegetation, animal burrows and culverts with 1-4 inches of joint separation.

A second levee system is located along Moccasin Creek on the west side beginning near Anderson Park and is shown in Figure 4.9. This levee is non-accredited with FEMA and protects a population of 302 and 129 buildings with a property value of $77.6 million. It is .55 miles in length and was constructed in 1969. Farther south of the levee system is Aberdeen's soccer fields. As water flows along Moccasin Creek southward through Aberdeen, high water levels can flow into the fields which act as a holding area until the waters recede.

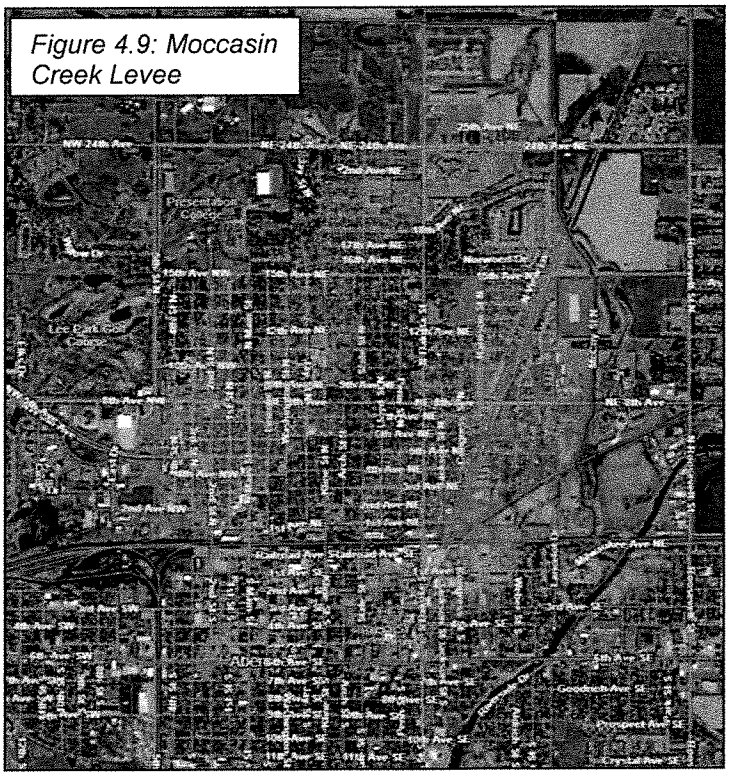


Figure 4.9: Moccasin Creek Levee

Brown County's Flood Damage Prevention Ordinance was instated to reduce damages to flood prone areas. There is a floodplain permitting process for building in flood prone areas. Buildings must be certified that the lowest floor is at least one foot above

the base flood elevation and that new construction must have water resistant electrical, heating, ventilation, and plumbing. Another aspect is buildings must be anchored and secured to prevent buoyancy.

A floodproofing certificate, signed by a professional engineer, is required for any nonresidential structure located in or adjacent to a floodplain. This form sets the elevations, and the lowest floor of the structure, which must have at least one foot of freeboard. Freeboard is an additional amount of height above the base flood elevation. This is required for new buildings and buildings needing substantial improvements or additions that are in or adjacent to the floodplain. Residential structures will have the lowest floor at least one foot above the base flood elevation to obtain a FEMA elevation certificate. If the building does not have a basement and is slab on grade, the lowest floor must also have one foot of freeboard, as certified according to FEMA with a certificate. These preventative actions are an illustration of how protective mitigation can be in situations of recurring events. Holding pond areas are also established depending on how the structure affects the normal flow of water. According to the Brown County Rural Development Site Analysis, all CAFOs and other structures are prohibited from building in a 100-year flood plain.

There is a lack of drainage in Brown County because the topography is very flat. It takes time for the water to either move downstream or evaporate. There can be flooded roads which obstruct access to homes and farmland. This flooding can hinder development in Brown County. Load limits and reduced speed limits are placed on roads to prevent further degradation. Croplands are also 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 generally occurs near the James River, Elm River, or Moccasin Creek. Flash flooding, where the water accumulates quickly has occurred and is often associated with massive rainfall and rapid snowmelt. May 5-6, 2007, the area received nine inches of rain during the two-day period. Groton received a record breaking 8.74 inches in a 24-hour period. These conditions contributed to massive flooding throughout the area. Nearly 75% of homes in Aberdeen reported some water in their basements. Many homes were condemned throughout the region. The entire county was declared a disaster area.

High water tables impact Brown County by causing residents to continually run sump pumps. If power was 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, such as Claremont, Columbia, and Frederick do how have the resources to administer floodplains on their own and reach out the County's Planning and Zoning Department for assistance.

NFIP: [§201.6(c)(2)(ii)]
Brown County participates in NFIP. Currently, Brown County is part of the Community Rating System (CRS) program. As part of the NFIP there is flood insurance and benefits available in the event of a flood. The following table lists participating jurisdictions Brown County. NFIP Participation Community Status book listing is in Table 4.8.

Table 4.8: Federal Emergency Management Agency
Community Status Book Report
SOUTH DAKOTA
Communities Participating in the National Flood Program

CID	Community Name	County	Init FHBM Id	Init FIRM Id	Curr Eff Map Date	CRS Entry Date	Curr Class	% Disc SFHA
460006	BROWN COUNTY*	BROWN COUNTY	12/20/74	09/30/88	09/29/10	09/30/88		
460007	ABERDEEN, CITY OF	BROWN COUNTY	10/05/73	06/01/79	09/29/10	10/01/17	9	05%
460105	CLAREMONT, TOWN OF, NSFHA COMM	BROWN COUNTY	04/25/75	09/30/88	(NSFHA)	03/05/10		
460008	COLUMBIA, CITY OF	BROWN COUNTY	12/06/74	07/17/78	09/29/10	04/07/94		
460009	FREDERICK, TOWN OF	BROWN COUNTY	11/22/79	03/01/79	03/18/08	03/01/78		
460179	GROTON, CITY OF	BROWN COUNTY	07/11/75	03/01/78	03/18/08	03/01/78		
460294	HECLA, CITY OF	BROWN COUNTY		09/30/88	(NSFHA)	09/03/86		
460065	STRATFORD, TOWN OF	BROWN COUNTY		03/18/08	(NSFHA)	03/08/10		
460298	WARNER, CITY OF	BROWN COUNTY	04/22/80	03/18/08	09/29/10 (M)	06/08/98		
460011	WESTPORT, TOWN OF	BROWN COUNTY	03/06/79	08/05/86	03/18/08	08/05/86		

The town of Verdon is the only community located in Brown County not an NFIP participant. All other jurisdictions participate in NFIP.

FEMA is currently working to create new flood maps and will continue updating and enhancing as more information is collected. Once the maps are complete, FEMA will make them public. There will be a 90-day appeal and comment period followed by letter of final determination and adoption and compliance with the new local standards to complete the updating process of the maps. The James River Basin is part of this flood study. The James River recently finished 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. Moccasin Creek is also a slow-moving body of water. When flooded, the creek spreads out and crosses roads. 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 Brown County. Figure 4.10 shows the many areas of Brown County susceptible to flooding.

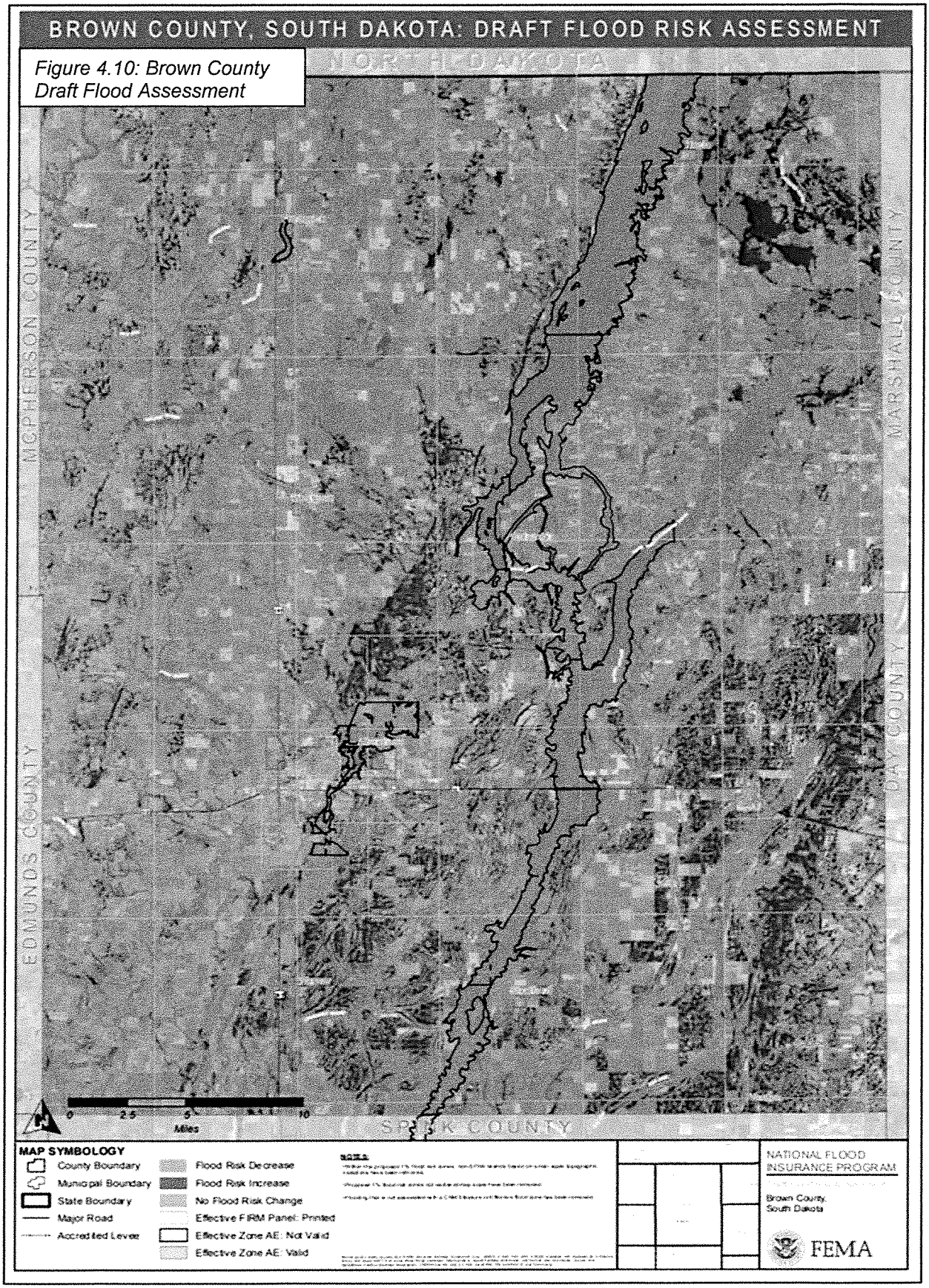


Figure 4.10: Brown County Draft Flood Assessment

Figure 4.11 is Brown 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.

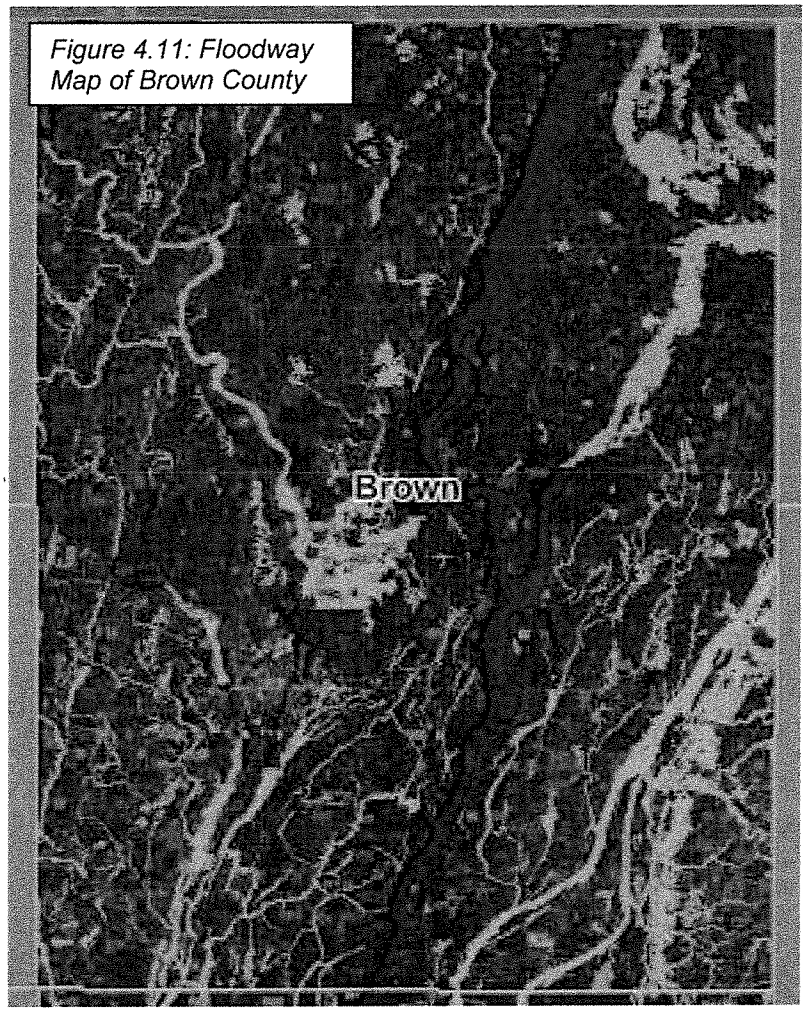


Figure 4.11: Floodway Map of Brown County

The new maps are not approved and final at the time of this plan adoption. Once updated, the maps will require new revised ordinances to address the changes in the FIRMs. Following adoption, Brown 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% of 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.

NATIONAL FLOOD INSURANCE PROGRAM PARTICIPATION

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

Residents throughout the county participate in the NFIP. Over half of the cities and towns in Brown County have had flooding that resulted in claims. According to the South Dakota Department of Public Safety rural Brown County and participating

jurisdictions currently have a total of 186 policies in force for flood insurance. Participants and losses are listed in Table 4.10.

Table 4.10: NFIP Insurance Participants and Losses					
	Policies in Force	Insurance in Force	Paid Losses	Total Losses Paid	Sub. Dam. Claims since 1978
Brown County	24	$3,907,700	58	$626,131	5
Aberdeen	146	$35,704,000	404	$2,485,551	20
Claremont	0	$0	0	$0	0
Columbia	1	$280,000	1	$21,299	0
Frederick	6	$938,300	7	$70,814	1
Groton	3	$269,100	5	$27,921	1
Hecla	0	$0	2	$5,688	0
Stratford	0	$0	1	$7,284	0
Verdon	0	$0	0	$0	0
Warner	0	$0	0	$0	0
Westport	6	$492,000	8	$39,166	1
Total:	186	$41,591,100	486	$3,283,854	28

**Claremont and Warner are participating in NFIP, but Verdon is a non-participant.

The Brown County Planning and Zoning Department maintains the 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 from the private sector and the responsibility remains with the developer. 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 H.

ADDRESSING VULNERABILTY: REPETITIVE LOSS PROPERTIES

Requirement §201.6(c)(2)(ii): [The risk assessment] must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged by floods.

Repetitive loss properties are those for which two or more losses of at least $1,000 each have been paid under the National Flood Insurance Program (NFIP) within any 10-year period since 1978. Most of the repetitive loss structures are in Aberdeen but there are repetitive losses all over the county, currently totaling 34. Total payments in participating jurisdictions is $371,379. 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 July 2021. Table 4.11 is the numbers of repetitive loss properties and the payments that were issued.

Table 4.11: NFIP Repetitive Losses						
	RL Buildings (Total)	RL Buildings (Insured)	RL Total	RL (Insured)	RL Payments (Total)	RL Payments (Insured)
Brown County	2	0	2	0	$27,277	$0
Aberdeen	30	2	46	3	$296,014	$22,548
Claremont	0	0	0	0	$0	$0
Columbia	0	0	0	0	$0	$0
Frederick	1	0	2	0	$42,400	$0
Groton	0	0	0	0	$0	$0
Hecla	1	0	2	0	$5,688	$0
Stratford	0	0	0	0	$0	$0
Verdon	0	0	0	0	$0	$0
Warner	0	0	0	0	$0	$0
Westport	0	0	0	0	$0	$0
Total:	34	2	52	3	$371,379	$22,548

**Claremont, Columbia, Stratford, Warner, and Westport are NFIP participants, but Verdon is a non-participant.

ASSESSING VULNERABILITY: IDENTIFYING STRUCTURES

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

One of the primary purposes of this plan is identifying critical structures and facilities in Brown County. This helps determine what is at risk. In the event of a disaster, Brown County and participating entities can prevent further loss of life by generator powered critical facility shelters. Brown 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 reduces exposure. The City of Aberdeen has the only two hospitals in Brown 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 Brown County plan that may not 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 attracts 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 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 Brown County are in the City of Aberdeen. Table 4.12 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 are in Bath, Columbia, Frederick, Groton, Hecla, Stratford, Hutterville, and Warner for emergency response by their fire departments countywide.

The information provided in Table 4.12 was updated from the 2016 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 4.12: Critical Structures in Brown County

Brown County					
Location	**Address**	**Type**	**BRIC Function**	**Structure Name**	**Owner**
Brown County	25 Market St.	Government Facilities	Communications	Brown County Courthouse	Public
Brown County	Various Locations in County	Routers	Communications	Various Communication Tower Sites	Public
Aberdeen	25 Market St.	Emergency Services	Communications	Brown County Communications	Public
Aberdeen	22 Court St.	Government Facilities	Safety and Security	Brown County Sheriff's Office	Public
Brown Co.	Throughout Brown County	Government Facilities	Safety and Security	11 Fire Departments	Public
Brown Co.	SE Corner to NW Corner Brown County	Natural Gas	Energy	Northern Border Transport Line	Private
Brown Co.	SW NE Sec 19-T126N-R64W	Dam	Water	Willow Creek Dam	Public
Brown Co.	SE Sec.31-T128N-R65W	Dam	Water	Elm Lake Dam	Public
Aberdeen	Brown Co. 10 and 387th Ave	Fairgrounds	Communication	Brown County Fair	Public
Aberdeen	NE SE Sec. 23-102N-64W	Dam	Water	Richmond Dam	Public
Brown Co.	13225 379th Ave	Landfill	Hazardous Materials	Brown County Landfill	Public
Aberdeen	3133 8th Ave NE	Government Facilities	Transportation	Brown County Highway Department	Public

Aberdeen					
Location	**Address**	**Type**	**BRIC Function**	**Structure Name**	**Owner**
Aberdeen	123 S. Lincoln St.	Government Facilities	Communications	Aberdeen Municipal Building	Public
Aberdeen	205 S. State & N Hwy 281 & 15th Ave	Hospitals & Clinics	Health and Medical	Avera St. Luke's Hospital Campuses	Private
Aberdeen	15 4th Ave SW	Telecommunications	Communications	Qwest Building	Private
Aberdeen	1200 S. Jay St.	Education	Communications	Northern State University	Public
Aberdeen	38469 133rd St.	Gas Processing	Energy	Heartland Fuels	Private
Aberdeen	1 mile S. of Aberdeen on Br. Co. 10	Electric Power Generations	Energy	Northwestern Energy Substations & Gas Lines	Private
Aberdeen	12948 386th Ave	Petroleum Pipelines	Energy	Nustar	Private
Aberdeen	1500 N 2nd St.	Public Institution	School	Presentation College	Private
Aberdeen	824 Brown Co. 14 S	Weather Service and EAS	Communications	National Weather Service	Public
Aberdeen	824 Brown Co. 14 S	Weather Service and EAS	Communications	NOAA & EAS Transmission Site	Public
Aberdeen	E Hwy 12	Aviation/Airport	Transportation	Aberdeen Regional Airport	Public
Aberdeen	123 S. Lincoln St.	Law Enforcement Facilities	Safety and Security	Aberdeen Police Department	Public
Aberdeen	12668 391st Ave.	Treatment Facility	Food, Water, Shelter	Aberdeen Water Treatment Facility	Public
Aberdeen	Aberdeen SD	Treatment Facility	Food, Water, Shelter	Aberdeen Wastewater Treatment Facility	Public
Aberdeen	123 S. Lincoln St.	Government Facilities	Food, Water and Shelter	Aberdeen Public Works	Public
Aberdeen	1024 3rd Ave SW	Government Facilities	Transportation	Aberdeen Parking and Traffic	Public
Aberdeen	3317 8th Ave NE	Defense Industry Base	Safety and Security	BAE Systems	Private
Aberdeen	38458 133rd St.	Agriculture	Food, Water, Shelter	Aberdeen Livestock Sales Company	Private
Aberdeen	S. 5th St.	Agriculture	Food, Water, Shelter	Hub City Livestock Auction Inc.	Private
Aberdeen	111 2nd Ave SE	Chemical Hazmat	Emergency Response	Aberdeen Regional Haz. Mat. Team	Public
Aberdeen	2905 3rd Ave SE	Hospital	Health and Medical	Sanford Hospital	Private
Aberdeen	Various	Water Supply	Food, Water and Shelter	Water Booster Stations	Public
Aberdeen	Various	Water Treatment	Food, Water and Shelter	Lift Stations	Public
Aberdeen	Aberdeen SD	Emergency Management	Safety and Security	SD Emergency Management Regional Coordinator	State
Aberdeen	121 S 2nd Ave SE	Fire Department	Safety and Security	Aberdeen Fire Department	Public
Aberdeen	1825 8th Ave NW	Fire Department	Safety and Security	Aberdeen Fire and Rescue #2	Public
Aberdeen	2422 S 5th St.	Fire Department	Safety and Security	Aberdeen Rural Fire Station #1	Public
Aberdeen	1005 Melgaard Rd. S.	Fire Department	Safety and	Aberdeen Fire and	Public

			Security	Rescue Station #3	
Aberdeen	2731 US-12	Emergency Services	Safety and Security	Highway Patrol	State
Aberdeen	13 135th St.	Agriculture	Food, Water, Shelter	DemKota Ranch Beef	Private
Aberdeen	21 2nd Ave NW	Ambulance Service	Safety and Security	Aberdeen Ambulance Service	Public
Aberdeen	121 S 2nd St	Ambulance Service	Safety and Security	Aberdeen Advanced Care Ambulance	Public
Aberdeen	111 2nd Ave SE	Ambulance Service	Safety and Security	Aberdeen Advanced Care Ambulance	Public
Aberdeen	2919 Industrial Ave Suite #2	Ambulance Service	Safety and Security	Midwest Medical Transport	Public
Aberdeen	1700 US 281	Medical	Health and Medical	Aberdeen Health and Rehab	Public
Aberdeen	1202 S 5th St	Post Office	Communications	US Post Office	Public
Aberdeen	2200 S Roosevelt St.	Education	Communications	Aberdeen Central High School	Public
Aberdeen	1500 US 281	Education	Communications	Aberdeen Christian School	Private
Aberdeen	923 S Dakota St.	Education	Communications	Trinity Lutheran School	Private
Aberdeen	501 3rd Ave SE	Education	Communications	Roncalli Elementary	Private
Aberdeen	419 1st Ave NE	Education	Communications	Roncalli Primary School	Private
Aberdeen	1400 N Dakota St.	Education	Communications	Aberdeen Catholic Schools – Jr./Sr. High	Private
Aberdeen	515 8th Ave NW	Education	Communications	Montrssori School of Aberdeen	Private
Aberdeen	3010 Milwaukee Ave NE	Education	Communications	Mike Miller Elementary	Public
Aberdeen	1900 N State St.	Education	Communications	CC Lee. Elementary	Public
Aberdeen	612 14th Ave SE	Education	Communications	May Overby Elementary	Public
Aberdeen	819 8th Ave NE	Education	Communications	OM Tiffany Elementary	Public
Aberdeen	1500 S 3rd St.	Education	Communications	Simmons Elementary	Public
Aberdeen	414 S 10th St.	Education	Communications	Lincoln Elementary	Public
Aberdeen	2200 N Dakota St.	Education	Communications	Holgate Middle School	Public
Aberdeen	1300 S 3rd St.	Education	Communications	Simmons Middle School	Public
Aberdeen	1224 S 3rd St.	Education	Communications	Aberdeen Public Schools – District Office	Public
Aberdeen	605 14th Ave SE	Education	Communications	SD School for the Blind and Visually Impaired	Public
Aberdeen	1520 390th Ave	Waste Disposal	Hazardous Materials	Dependable Sanitation	Private
Aberdeen	610 Co Rd 19	Industrial	Health and Medical	3M	Private
Aberdeen	Aberdeen SD	Education	Communications	Barnett Center	Public
Aberdeen	4816 8th Ave NE	Industrial	Food, Water, Shelter	AGP Soybean Plant	Private
Aberdeen	3319 8th Abe NE	Industrial	Safety and Security	BAE Systems	Private
Aberdeen	4820 Capital Ave NE	Industrial	Communications	Midstates Inc	Private
Aberdeen	515 Commerce St.	Industrial	Communications	Twin City Fan	Private
Aberdeen	2914 Industrial Ave.	Industrial	Energy	Hub City Inc.	Private
Aberdeen	4815 8th Ave. NE	Industrial	Food, Water,	Ag Processing	Private

			Shelter	Aberdeen	
Aberdeen	1707 4th Ave SE Suite A	Education	Communication	Service to the Blind and Visually Impaired	Public
Aberdeen	38435 133rd St	Waste Disposal	Hazardous Waste	A-1 Sanitation	Private
Aberdeen	203 S Washington	Community Center	Communication	Aberdeen Civic Arena	Public
Aberdeen	1025 6th Ave SW	Religious	Food, Water and Shelter	Salvation Army	Private
Aberdeen	420 S Washington St.	Homeless Facility	Food, Water and Shelter	The Journey Home	Public
Aberdeen	115 4th Ave SE	Federal	Safety and Security	Federal Building	Federal
Aberdeen	2005 S Merton St.	Women's/Children's Shelter	Food, Water and Shelter	Safe Harbor	Public
Aberdeen	422 S Washington St.	Emergency Operations	Safety and Security	Regional Interagency Office	State
Aberdeen	38456 US-12 West	Water Distribution	Water	WEB Water Development	Private
Aberdeen	102 4th Ave SE	Federal	Safety and Security	US District Court	Federal
Aberdeen	38469 133rd St.	Ethanol	Energy	Glacial Lakes Energy	Private
Claremont					
Location	**Address**	**Type**	**BRIC Function**	**Structure Name**	**Owner**
Claremont	Claremont SD	Emergency Services	Safety and Security	Claremont Rural Fire Station #1	Public
Claremont	201 6th St.	Religious	Communication	Claremont United Methodist Church	Private
Claremont	11873 410th Ave	Agriculture	Food, Water and Shelter	Full Circle Ag	Private
Columbia					
Location	**Address**	**Type**	**BRIC Function**	**Structure Name**	**Owner**
Columbia	5 N Broadway	Post Office	Communication	US Post Office	Federal
Columbia	Columbia	Community Center	Communication	American Legion Post 58 Community Center	Private
Columbia	24 S Mill St.	Agricultural	Food, Water and Shelter	Agtegra Cooperative	Private
Columbia	10 N Broadway St.	City	Safety and Security	Columbia City Office	Public
Columbia	126 N James St.	Religious	Communications	St. John's Lutheran Church	Private
Columbia	10 N Broadway	Emergency Services	Safety and Security	Columbia Rural Fire Station #1	Public
Frederick					
Location	**Address**	**Type**	**BRIC Function**	**Structure Name**	**Owner**
Frederick	10700-10726 386th Ave.	Gas Station	Energy	Agtegra Coop	Private
Frederick	202 Main St.	School	Communications	Frederick Area School	Public
Frederick	406 3rd Ave	Fire Station	Safety and Security	Frederick Rural Fire Station 1	Public
Frederick	406 3rd Ave	Community Center	Communications	Frederick Community Center	Public
Frederick	413 Main St.	Post Office	Communications	US Post Office	Federal
Frederick	3rd Ave	Religious	Communications	St. Paul's Lutheran Church	Private

Groton					
Location	**Address**	**Type**	**BRIC Function**	**Structure Name**	**Owner**
Groton	40425 133rd St.	Energy/oil/natural gas	Gas Processing	POET Biorefining	Private
Groton	5 miles S. of Groton on SD Hwy 37	Energy/electricity	Electric Power Generations	WAPA Electric Substation	Private
Groton	209 S. Main	Government Facilities	Law Enforcement Facilities	Groton Police Department	Public
	8 East Hwy 12	Clinic	Health and Medical	Avera Clinic of Groton	Private
Groton	1409 N Broadway	Electric Coop	Energy	Basin Electric Power Cooperative	Private
Groton	209 N Main St.	City Hall	Safety and Security	City of Groton Office	Public
Groton	40161 128th St	Cultural Center	Communications	Granary Rural Cultural Center	Public
Groton	1106 N 2nd St.	Rehabilitation Center	Health and Medical	Avantara Rehabilitation Center	Private
Groton	205 E 2nd Ave	Transit	Transportation	Groton Community Transit	Public
Groton	28 N Main St	Newspaper	Communications	Groton Dakota Press	Private
Groton	810 N 1st St	School	Communications	Groton Elementary School	Public
Groton	406 N 2nd St	School	Communications	Groton Area School District	Public
Groton	235 E 1st Ave	Utility	Communications	James Valley Communications	Private
Groton	13 N Main St.	Community	Communications	American Legion	Private
Groton	406 N 2nd St	School	Communications	Groton Area High School	Public
Groton	Junction of Hwy 12 and 37	Grocery	Food, Water and Shelter	Ken's Food Fair and Shell Express	Private
Groton	1205 N 1st St	Pharmacy	Health and Medical	Lori's Pharmacy	Private
Groton	201 N Main St.	Post Office	Communications	US Post Office	Federal
Groton	109 N 3rd St.	Community Center	Communications	Groton Community Center	Public
Groton	12 N Main St.	Community Center	Communications	American Legion Lounge	Private
Groton	305 E Railroad Ave	Emergency Services	Safety and Security	Groton Fire and Rescue	Public
Groton	12766 406th Ave	Airport	Transportation	Groton Municipal Airport	Public
Groton	201 E 7th Ave	Lift Station	Food, Water and Shelter	Lift Station Ablen Sewer Lift	Public
Groton	300 E Aspen Ave.	Lift Station	Food, Water and Shelter	Lift Station Aspen Sewer Lift	Public
Groton	1510 N Broadway	Lift Station	Food, Water and Shelter	Lift Station Cottonwood Sewer Lift	Public
Groton	106 W Hwy 12	Lift Station	Food, Water and Shelter	Lift Station Hanlon Sewer Lift	Public
Groton	604 E 5th Ave	Lift Station	Food, Water and Shelter	Lift Station Olive Grove Sewer Lift	Public
Groton	1306 N 3rd St.	Lift Station	Food, Water and	Lift Station Olson Sewer	Public

			Shelter	Lift	
Groton	1 S Madison St	Lift Station	Food, Water and Shelter	Lift Station Railroad Sewer Lift	Public
Groton	301 E Aspen Ave	Water	Food, Water and Shelter	Well House	Public
Groton	16 E Railroad Ave	Water	Food, Water and Shelter	Water Tower/Pump House	Public
Groton	810 N Broadway	Electricity	Energy	Substation	Public
Groton	10 E Railroad Ave	Electricity	Energy	Substation	Public
Groton	10 E Railroad Ave.	Government Facilities	Communication	City Shop	Public
Groton	705 N 6th St.	Community	Food, Water and Shelter	Rosewood Court	Private
Hecla					
Location	**Address**	**Type**	**BRIC Function**	**Structure Name**	**Owner**
Hecla	Junction of SD Hwy 37 & SD 10	Energy/electricity	Electric Power Generations	Hecla Electric Substation	Private
Hecla	202 5th St.	Government	Safety and Security	Brown County Highway Department – Hecla	Public
Hecla	510 Elm St.	Government	Safety and Security	Hecla Public Works	Public
Hecla	2nd St.	Government	Food, Water and Shelter	Hecla Water Pump	Public
Hecla	315 Main St.	Government	Food, Water and Shelter	Hecla Water Tower	Public
Hecla	606 6th St.	Government	Food, Water and Shelter	Sewer Lift Pump and Control	Public
Hecla	218 Main St.	Agriculture	Food, Water and Shelter	Hecla City Bar & Grill	Public
Hecla	408 Main St.	Government	Food, Water and Shelter	Hecla Gymnasium	Public
Hecla	718 Walnut Street	Agriculture	Energy	Zastrow's Service Station	Private
Hecla	321 Main Street	Religious	Communications	United Methodist Church	Private
Hecla	402 Main Street	Telephone	Communications	James Valley Telecommunications	Private
Hecla	304 Main Street	Government	Food, Water, and Shelter	Brown Marshall Soil Conservation	Public
Hecla	226 Main St.	Government	Communications	US Post Office	Federal
Hecla	511 Main St.	Religious	Communications	Hecla LCMC Lutheran Church	Private
Hecla	702 Pine St.	Religious	Communications	Prince of Peace Lutheran Church	Private
Hecla	206 Main St.	Community Center	Communications	Hecla Community Center	Public
Hecla	206 Main St.	Emergency Services	Safety and Security	Hecla Rural Fire Station 1	Public
Hecla	408 2nd St.	Agriculture	Food, Water and Shelter	Full Circle Ag	Private
Hecla	512 2nd St	Agriculture	Food, Water and Shelter	Hecla Implement	Private
Hecla	310 Depot St.	Agriculture	Food, Water and Shelter	Dakota Plains Feed & Grain	Private

Hecla	225 W Main St.	Agriculture	Food, Water and Shelter	Great Frontier Meats	Private
Stratford					
Location	**Address**	**Type**	**BRIC Function**	**Structure Name**	**Owner**
Stratford	14625 401st Ave	Agriculture & Food	Food, Water and Shelter	Hutterville Colony	Private
Stratford	267 Rondell Ave	Community Center	Communications	Stratford Community Center	Public
Stratford	250 Rondell Ave	Fire Station	Safety and Security	Stratfor Rural Fire Station 1	Public
Stratford	Stratford	Lift Station	Food, Water and Shelter	Stratford Lift Station	Public
Verdon					
Location	**Address**	**Type**	**BRIC Function**	**Structure Name**	**Owner**
Verdon	40 3rd St	Business	Food, Water and Shelter	Hanlon Brothers Construction	Private
Warner					
Location	**Address**	**Type**	**BRIC Function**	**Structure Name**	**Owner**
Warner	22 Main St. W	Federal Govt	Communications	US Post Office	Federal
Warner	11 Main St. E	City Office	Safety and Security	Warner City Office	Public
Warner	11 Main St. W	Community Center	Communications	Warner Community Center	Public
Warner	221 Central Ave	Fire Department	Safety and Security	Warner Rural Fire Station	Public
Warner	38565 142nd St.	Agriculture	Food, Water and Shelter	Agtegra Coop Warner	Private
Warner	110 E Main St.	Religious	Communications	St. John Lutheran Church	Private
Warner	110 1st Ave SW	School	Communications	Warner School	Public
Westport					
Location	**Address**	**Type**	**BRIC Function**	**Structure Name**	**Owner**
Westport	25 BC Hwy 10	Restaurant	Food, Water and Shelter	SHeD Bar & Grill	Private
Westport	14 Main St. W	Federal Government	Communications	US Post Office	Federal
Westport	11 2nd Ave W	Religious	Communications	Sacred Heart Church	Private

ASSESSING VULNERABILITY: ESTIMATING POTENTIAL LOSSES

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

The Director of Equalization's office provided the assessed valuation of properties in the jurisdictions. All parcels with structures, whether owner occupied or not were included in the valuations provided in Table 4.13 through Table 4.23. These reports did not include the number of people in each structure. Population numbers are listed in each table. Some residents can literally count each structure in their community and sometimes each person. Each structure is an important piece of their history and identity. This shows how vital these structures and each person is to the community.

Table 4.13: Brown County (Rural) 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	2,631	100%	$346,973,065	100%	38,839	100%
Commercial	294	100%	$135,683,430	100%		100%
Agricultural	1,978	100%	$62,307,693	100%		100%
Religious						
Government						
Mob. Homes	346	100%	$10,080,704	100%		100%
Utilities						
School						
Total	**5,249**	**100%**	**$555,044,892**	**100$**	**38,839**	**100%**

Table 4.14: Aberdeen 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	8,143	100%	$1,131,507,997	100%	28,225	100%
Commercial	1,493	100%	$563,901,122	100%		100%
Agricultural	1	100%	$85,360	100%		100%
Religious						
Government						
Mob. Homes	510	100%	$6,518,791	100%		100%
Utilities						
School						
Total	**10,147**	**100%**	**$1,702,013,270**	**100%**	**28,225**	**100%**

Table 4.15: Claremont 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	58	100%	$1,637,870	100%	106	100%
Commercial	13	100%	$453,143	100%		100%
Agricultural	1	100%	$144	100%		100%
Religious						
Government						
Mob. Homes	7	100%	$83,300	100%		100%
Utilities						
School						
Total	**79**	**100%**	**$2,174,457**	**100%**	**106**	**100%**

Table 4.16: Columbia 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	81	100%	$4,122,459	100%	140	100%
Commercial	21	100%	$746,009	100%		100%
Agricultural	6	100%	$48,807	100%		100%
Religious						
Government						
Mob. Homes	11	100%	$206,727	100%		100%
Utilities						
School						
Total	**119**	**100%**	**$5,124,002**	**100%**	**140**	**100%**

Table 4.17: Frederick 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%	$5,270,409	100%	190	100%
Commercial	30	100%	$2,500,815	100%		100%
Agricultural	4	100%	$67,025	100%		100%
Religious						
Government						
Mob. Homes	9	100%	$126,588	100%		100%
Utilities						
School						
Total	**168**	**100%**	**$7,964,837**	**100%**	**190**	**100%**

Table 4.18: Groton 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	501	100%	$64,496,310	100%	1,673	100%
Commercial	104	100%	$12,437,321	100%		100%
Agricultural						
Religious						
Government						
Mob. Homes	26	100%	$803,142	100%		100%
Utilities						
School						
Total	**631**	**100%**	**$77,736,773**	**100%**	**1,673**	**100%**

Table 4.19: Hecla 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	163	100%	$3,865,114	100%	249	100%
Commercial	44	100%	$2,035,801	100%		100%
Agricultural						
Religious						
Government						
Mob. Homes	16	100%	$250,746	100%		100%
Utilities						
School						
Total	**226**	**100%**	**$6,151,391**	**100%**	**249**	**100%**

Table 4.20: Stratford 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	40	100%	$1,005,695	100%	52	100%
Commercial	13	100%	$456,655	100%		100%
Agricultural		100%		100%		100%
Religious						
Government						
Mobile Homes	13	100%	$422,127	100%		100%
Utilities						
School						
Total	**66**	**100%**	**$1,884,477**	**100%**	**52**	**100%**

Table 4.21: Verdon 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	4	100%	$8,705	100%	4	100%
Commercial	5	100%	$284,904	100%		100%
Agricultural	1	100%	$13,320	100%		100%
Religious						
Government						
Mob. Homes	2	100%	$57,240	100%		100%
Utilities						
School						
Total	**12**	**100%**	**$364,169**	**100%**	**4**	**100%**

Table 4.22: Warner 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	166	100%	$24,117,856	100%	476	100%
Commercial	19	100%	$1,549,324	100%		100%
Agricultural		100%		100%		100%
Religious						
Government						
Mob. Homes	2	100%	$20,015	100%		100%
Utilities						
School						
Total	**187**	**100%**	**$25,687,195**	**100%**	**476**	**100%**

Table 4.23: Westport 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%	$2,306,478	100%	98	100%
Commercial	6	100%	$82,671	100%		100%
Agricultural		100%		100%		100%
Religious						
Government						
Mob. Homes	12	100%	$234,865	100%		100%
Utilities						
School						
Total	**66**	**100%**	**$2,624,014**	**100%**	**98**	**100%**

ASSESSING VULNERABILITY: ANALYZING DEVELOPMENT TRENDS

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

Requirement §201.6(c)(3) The plan should document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs.

Requirement §201.6(d)(3): A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding.

The land use and development trends for each jurisdiction were identified by the representatives on the planning committee. Although some areas in Brown County are declining, many are thriving. Brown County has grown by 2,308 residents from 36,531 to 38,839. Aberdeen has grown by approximately 2,332 people from 2010 (25,893) to 2019 (28,225.) Aberdeen's focus on community development and improvement has

attracted residents to the area. Other communities in Brown County experiencing growth are Groton, Claremont, Columbia, Hecla, and Warner. Some smaller jurisdictions have not maintained plans for growth due to the size of the jurisdiction. All communities participating in the plan have had development.

Brown County: Brown County is experiencing increased population growth and development. The focus of the Brown County Commission has been on drawing in commercial businesses for economic growth and working with regulations to ensure that growth is sustainable.

The building permit process originates with Brown County's Planning and Zoning Department. That office looks at floodplains, variances and other key indicators before the building permit is approved. If any variance is needed, the building permit goes before the Brown County Planning and Zoning Commission. Brown County is not responsible for most incorporate cities and towns. Stratford, Columbia, Claremont, and Verdon are the towns that the County issues building permits for due to lack of employees. They do assist other cities, and even counties, when asked.

When someone wants to build in the floodway (which is very rare) an engineer is used to determine the impact up and down stream. The engineer must be a certified land surveyor. County ordinance states that the building must have at least one foot of freeboard above the Base Flood Evaluation. In Brown County, that is 1300 feet, but the elevation can vary. The surveyor issues a final construction elevation certificate, after construction is completed.

Housing development has occurred in the County on the outskirts of Aberdeen, near Richmond Lake and Tacoma Park. Most commercial and industrial development in Brown County happens in incorporated municipalities, not in rural areas of the County. There is a 3-mile area that is under Brown County jurisdiction and there is some deviation.

Brown County has recently updated their Comprehensive Plan. It was adopted in October 2019 and includes policies to encourage development in compatible land use areas, deter development which adversely impacts the flooding potential in the County and requiring mitigation or adversely impacts soil stability, retain runoff with open natural drainage systems and encourage infill development and redevelopment where appropriate.

Mud Creek, near Groton, has a Mud Creek Drainage District. To reduce the impact of flooding, the drainage district takes responsibility to address cleanup and issues in the area. The District is financed by a small tax on the landowners adjacent to Mud Creek.

Aberdeen: The Planning and Zoning Office at the City of Aberdeen handles all building permit applications. Being a larger community with larger City departments, the City of Aberdeen has several departments that review the applications – they are routed to the Engineering Department, Building Department and Forestry Department for review and approval.

There have been several new housing developments within the City in the last five years. Occupied housing in Aberdeen has increased the number of homes by 1,197 occupied units. The amount went from 12,030 in 2010 to 13,227 in 2019.

The City of Aberdeen has completed several upgrades to their water and wastewater system with projects in the last five years. They will also be building a new water tower in the northeast part of town. As the City has grown, needs for additional water and wastewater treatment facilities has been indicated by both current facilities working nearly at capacity with no backups. A pipeline from the Missouri River to Aberdeen has been proposed as a solution to the lack of drinking water. Another challenge facing Aberdeen is the stormwater system was designed to past standards of capacity and as water has become more of concern nationally, those standards of gallons per minute were increased slightly for the area.

The airport in Aberdeen has also made many improvements. One of these is the purchase of pumps to address possible flooding in the airfield. If there are water concerns, one of the pumps can remove approximately 5,000 gallons per minute and the other can pump approximately 2,000 gallons per minute. There is storage for 14 million gallons of water at the location.

Both hospitals in Aberdeen have made substantial improvements in the last five years. Northern State University, the public university, has also built several new dormitories, a regional science center and has new football stadium on campus. Presentation College, a small private university, has also built new student suites, a winter Dome for athletics and a new clinical/hospital Simulation Center in the last several years. The Aberdeen School District has opened a new elementary school. Several manufacturing and industrial businesses have made substantial improvements to their facilities

As Aberdeen works to mitigate the impacts of the development that has rapidly occurred, they have developed building ordinances to address the water issues that can follow that development. Ordinances for retention ponds per area of land developed and green space are a required piece to building and developing in the area.

Groton: Building permits in Groton are available at City Hall. The City does have zoning and a zoning map in place. Setbacks from property lines are required (or a variance requested). The water table in Groton is high. Homeowners are required to have drain tile in their basement and around the outside perimeter of the house. Construction must be approved by the Finance Officer to make sure they are not in a Flood Zone.

Groton has seen growth in residential housing in the last several years and that trend is expected to continue. They would like to see a housing developer lead and help plan for some of that growth. Groton's population was estimated to be 1,673 in 2019, an increase of 118 people from 2010 to 2019. Housing units also increased by 90 from 597 occupied homes to 687.

The Groton Area School District recently completed a major renovation of the Groton Area Elementary School. The school updated its classrooms and increased the school by an additional 5,900 square feet of administration and commons area.

In the last five years, the City of Groton has completed a water study and a sewer and storm sewer study. They have built a new water tower, pumphouse with pumps, water lines, and installed a backup generator at their lift station. Future developments include additional water system upgrades.

Hecla: Building projects are approved through the County.

Stratford: Building permits in the Town of Stratford are handled through Brown County. Stratford is not located in a Flood Hazard Area. Stratford has seen developments of new homes in the last five years, despite the population being less than 100. Stratford is currently conducting a storm water study to determine what improvements can be made to help with high water. They purchase their water through the WEB Water system.

Warner: Warner has had development with housing also. There has been increased development there due to the proximity to Aberdeen. The population of Warner increased from 355 in 2010 to 476 in 2019. Occupied housing units also increased and went from 148 in 2010 to 177 in 2019. Warner is currently working with the Land and Water Conservation Fund to install new playground equipment for the town.

UNIQUE OR VARIED RISK ASSESSMENT

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

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. The Brown County area has generally increased in population and development, increasing their vulnerability to natural hazards. All communities participating in the plan have had growth in their areas.

One topic of concern was that there are many older commercial buildings throughout Brown County. There haven't been official building codes adopted as of 2021. These older buildings are more vulnerable to natural hazards because the lack of codes in Brown County. The only identified solution was that as buildings are renovated, the lack of building codes is addressed and the buildings improved to those specifications.

Brown County:
Brown County is a flat region of South Dakota. Natural hazards are generally widespread. The average elevation of 1,315 feet, ranging from 1,381 feet to 1,298 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 rural nature of many of Brown 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 road conditions and accessibility.

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.

Brown County has a few areas of concentrated populations that are not organized municipalities. These include Richmond Lake, Prairiewood, Bath, Tacoma Park, and others. Elm Lake also has seasonal residents/campers. Populations in these areas exceed some of the smaller municipalities in the county. Typically, where there is a higher concentration of people, there is a greater risk.

The area in northeastern Brown County around the Sand Lake National Wildlife Refuge and Sand Lake experiences flooding and high water more than other parts of the county. Some roads around Sand Lake are perpetually under water.

There are storm shelters at the Brown County Courthouse and at the state campground at Richmond Lake Recreation Area for County residents. Most residents take shelter in their basements in the event of a tornado or high wind event.

Brown County is home to the Brown County Fair at the fairgrounds north of Aberdeen, which occurs every August. There are facilities on the fairgrounds that act as storm shelters but there are no FEMA approved storm shelters. There are several hundred camping spots available for those who stay during the fair, and in the event of a summer storm, many people would be in danger. The Brown County Fair regularly draws 250,000 people during the week. That greatly exceeds the population of the county of around 38,000 people

The Mina Lake Dam is located less than a mile west of Brown County. The dam is maintained and regulated by the South Dakota Game, Fish and Parks. Mina Lake 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, much of the impacts of flooding from that failure would be borne by residents in Brown County. Mina Lake Dam was found to have pieces of the concrete chute slabs broken due to high water volumes. The process of repairing the spillway has begun.

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

Farmers and other rural residents are more impacted by drought than residents of municipalities. Farmer's livelihoods, by nature, 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.

Aberdeen: Aberdeen is the largest community in Brown County and third largest city in South Dakota, making population the most obvious characteristic that differs it from the surrounding communities in Brown County. While the risks to natural hazards may be the same for residents in Aberdeen, there are many more resources within the city. There are two hospitals, paid EMS and fire department staff, and full-time city departments for public works, planning and zoning. Because of these resources, city residents are likely at lower risk to effects of a natural hazard. Although Aberdeen has resources available that not all communities in the area have, they also have additional

vulnerable populations to serve as well. Two higher education facilities, nursing homes, and higher population requires additional resources and attention in a hazard event.

Aberdeen is the lowest city in Brown County. This creates concerns when there are years with heavy precipitation. Increased water along Moccasin Creek and Foot Creek can have significant impact on the city causing widespread flooding. Proactive mitigation measures taken by the city reduces, but does not eliminate, the impact of floods. Installation of holding ponds, storm sewer system upgrades, levees and facilities like the soccer fields which hold water from Moccasin Creek are measures which help the city reduce the impact of flooding.

The city has installed backup generators at a few of the major pumping systems. They also have portable generators ready to mobilize to smaller lift stations to keep them operating during outage periods. Standards for storm water containment has increased over the time that Aberdeen has spent investing in their storm sewer system, meaning that the amount of water the system should be able to discharge from the area has increased because the rate of rainfall has increased.

In additional to population, the City of Aberdeen is unique in that it gets drinking water from Elm Lake and Willow Lake (as opposed rural water systems). Elm Lake is a man-made reservoir located in northwestern Brown County. Since Elm Lake is the designated drinking water supply for the City, Aberdeen has the legal right to the top 12 feet of the pool level below the crest of the dam. Water flows down the Elm River almost 30 miles before reaching the City's water treatment plant located on the northeast side of the City. Currently, Aberdeen's water and wastewater systems are at maximum capacity with no redundancies. This is a vulnerability since there has been significant economic growth in the area. When there is drought and the water supply drops, so does Aberdeen's access to water. Although Aberdeen has additional water sources, there are limits there too, especially during drought. Aberdeen is also vulnerable if the Elm Dam were to breach. The dam spillway had broken and required rapid repairs. The process of repairing this dam began in 2021.

In addition to its dependence on the Elm River for drinking water, the City is also largely dependent on the Moccasin Creek; historically for wastewater disposal, and in recent decades for storm water removal. Water from the storm sewers is deposited directly into the Creek. The creek is slow-moving and approximately 100 to 150 feet wide from bank to bank. The headwaters of Moccasin Creek are located north of Aberdeen and flow through the southeast portion of the City to the confluence of the James River east of the town of Warner. Lift stations have been installed throughout the City to help overcome the flat topography and lack of natural flow. The City of Aberdeen's dependence on the natural water systems that flow through it, requires continuous efforts towards preserving the natural characteristics of those systems which includes regulating activities that occur in the vicinity of the creek and regulating the floodplain.

Groton: Groton is at risk to flooding due to a high groundwater table. Residents state that "Groton was built in a swamp." The City has three areas of town where Mud Creek branches out and flows through town. The south, east, and west parts of town are all affected by the creek. The west ditch often backs up and covers the ground. On the southeast side of town, Mud Creek sometimes overflows into the golf course, however, no streets or structures are affected. On the east side of town, the City's ability to

expand is limited to the nearby east branch of the creek. Mud Creek, like many other creeks in Brown County is a slow-moving creek with flat topography beneath it.

Groton is one of the few communities in South Dakota that has its own municipal electric service, meaning it is not provided power by a rural electric cooperative. While owning its own power stations has its benefits, it can also be costly to maintain. Necessary improvements such as upgrading powerlines, substations, and poles, as well as burying overhead powerlines, when necessary, can be very difficult to finance internally. Due to the small number of municipal-owned power services, there are not many state or federal programs available to assist in the costs of improvements or upgrades.

The Pierpont Dam is located about twelve miles east of Groton. The dam is maintained and regulated by the State of South Dakota and the City does not see the dam as a significant hazard or threat. If the dam did breach or fail, it would flow south and west, in the direction of Groton. The dam was last inspected May 30, 2017. Inspections have noted some cracking and spalling of the concrete spillway along with several trees and brush growing on the embankment. Another inspection was planned for the Fall of 2019 on the spillway surface but because water was running over the spillway, an inspection couldn't be performed.

Hecla: Located 50 miles from Aberdeen, access to resources is limited. Hecla has had a reduction in population since the 2010 census. The proximity of Hecla to the James River has a serious impact on the flooding that occurs. On average, Hecla has flooding seven of the last ten years. They have had flooding from: March 2011 to December 2011, May of 2013 to August 2013, May of 2014 to August 2014, May of 2015 to July of 2015, February 2017 to May 2017 and from April 2019 to August 2020. These repeated flood events expose Hecla to recurring damages.

Stratford: Stratford has vulnerability due to the rural nature of their community. They are also close in proximity to the James River. When there is water released from North Dakota, that area is vulnerable to the flooding that occurs when the James River is over capacity. Although the town has installed a culvert and work to maintain the ability for water to flow through the area, there is still vulnerability to flooding. Resources are also limited in the town. In the event of an emergency, Stratford does have their own fire department to respond to emergencies. During widespread events that affect travel, there would be difficulties if a resident were to require medical care. Stratford works to maintain the flow of water throughout the town to try to prevent flooding from smaller precipitation events.

Like other small towns, the rural nature of Stratford puts its residents at higher risk. During severe weather such as blizzards or other winter storms, residents who need urgent medical care may not be able to make it to the nearest hospital for urgent or emergency care. Most residences in town have basements where people can take shelter in the event of a tornado or high wind event. Stratford has natural drainage in town, meaning there is no storm sewer system. They are at risk for flooding but do regularly pump water out of ditches and clean out the ditches to help the water to keep flowing. In the past, residents who lived near Stratford have faced detours of up to 30 miles to get from their home to church, which is normally only 3 miles away. Some have used boats to travel the distance.

Warner: Although ten miles from Aberdeen their proximity makes them able to utilize additional area resources if necessary. Warner has grown, in part, due to the fact they are near Aberdeen and its resources while being far enough away to require self-sufficiency. The population of Warner has from 355 to 476 and housing units has from 158 to 171. Emergency response does take longer living 10 miles outside Aberdeen. In the event of a snowstorm, residents can choose to travel one mile to Highway 281 or travel eight miles along a smaller highway, Highway 10, to get to Aberdeen. In blackout circumstances, this can be dangerous no matter how far the distance. Many of the residents in Warner work outside the town, many in Aberdeen. This makes Warner more vulnerable because residents may not realize how treacherous travel conditions can be until it is too late.

Tacoma Park: Tacoma Park is unincorporated and located along the James River and 17 miles northeast of Aberdeen and is a rural area of Brown County. Being along the unpredictable and slow-moving James River makes the area more prone hazards involving the river. Part of the area is in a floodway and the rest is in the floodplain.

There is erosion due to the repeated rise and fall of the James River. Tacoma Park has a levee that was upgraded nine years ago. It has been breached once since being raised. Another concern is that there is a railway that is consistency being hit by water, eroding railway track. This railway serves many agricultural businesses in the area and is essential, especially during harvest.

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 were listed in the plan.
- Projects were transitioned to a table format.

MITIGATION REQUIREMENTS

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

Requirement §201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard with particular emphasis on new and existing buildings and infrastructure.

Requirement §201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard with particular emphasis on new and existing buildings and infrastructure.

MITIGATION OVERVIEW

The State Hazard Mitigation Plan addresses several mitigation categories including warning and forecasting, community planning, and infrastructure reinforcement. Brown County and participant's greatest needs are flood mitigation, generators, storm shelters and public awareness. There are several aspects tying into the State's plan.

A main concern for Brown County is flooding. Due to its history, Brown 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. Residents can sign up through the South Dakota Helpline Center by texting AlertBrown to 85511. Aberdeen residents can sign up for alerts through the Notify Me website and choose what types of area alters they wish to receive.

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 2016 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)(iv) & Requirement 201.6 (c)(3)(iii)

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 2016 Plan were reviewed. They were 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 5.11.

Projects including non-eligible items such as roads, maintenance or preparedness and response were removed from the plan due to ineligibility of those projects and that they were not mitigation. Some projects were deemed similar and were items that were in the previous plan that were left in. Those projects were condensed and prioritized.

Table 5.1: Brown County Mitigation Goals and Actions		
Section 1: Mitigation Activities for Flood Hazard Events		
Goal #1: Reduce the impact of flood hazard in the county.		
Action: #1 **Priority:** Moderate **Funding:** County, State, Federal, City	Fortify existing levees. Focus will be at where the Elm River and Moccasin Creek met and building up Tacoma Park. These levees need to be upgraded. A 15-25% increase in height will be reduce flooding. **Community lifelines:** Safety and Security, Food, Water and Shelter, Transportation **Cost/Benefit:** materials and labor at bid costs, possible easements; benefits are protection of residences, infrastructure, and crop land	**Timeframe:** Ongoing **Oversight:** Army Corps of Engineers County, City
Action: #2 **Priority:** Moderate-High **Funding:** County, Federal	Raise roads to prevent water from running over and creating unsafe conditions due to deteriorating surfaces. Study is required to determine which roads are best to begin with and how expansive the county should go. **Community Lifelines:** Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefit:** Costs is bid costs to increase the height of roads. The benefit is that the county would be able to be accessible in times of county-wide high-water events and emergencies.	**Timeframe:** Ongoing **Oversight:** County Highway Dept.
Action: #3 **Priority:** Moderate **Funding:** County, City, Federal	Construct a holding pond near the airport to hold excess water during heavy rain events. **Community Lifelines:** Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefit:** Costs is the labor and materials to construct the holding pond. The benefit is the ability to retain more water in a specific area rather than having it add to flooding.	**Timeframe:** Ongoing **Oversight:** County, Aberdeen
Completed	Replacement/reinforcement of floodgate where the James River and Crow Creek Channel meets. This structure has been in use since 1912.	**Date Complete:** **2016**
Goal #2: Educate and inform Brown County residents about flood safety		
Action: #1 **Priority:** High **Funding:** County, City, Federal	Distribute information to residents to deal with flooding. This would address transportation, home protection, insurance information, safety issues and how to proceed after the flood is over **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Costs would be minimal due to printing of materials. Benefits would be residents would be better informed to make decisions before, during and after flooding.	**Timeframe:** Ongoing **Oversight:** County, Cities
Action: #2 **Priority:** High **Funding:** County, City,	Install "High Water" flood markers along rivers and creeks from flood or storm events to allow for clear visibility. These elevation markers can be used throughout the county to indicate high flood levels. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical	**Timeframe:** Ongoing **Oversight:** County, Cities

Federal	**Costs/Benefits**: Costs would be minimal and would require markers being installed on trees/power poles as a record for future recurrence. Benefits would be residents would be better informed about floods past and present to determine future construction impact.	
Completed	Add additional stream gages along rivers in the county.	**Date Complete: 2019**
Goal #2: Dredging of drainage problems throughout the County.		
Action: #1 **Priority:** High **Funding:** County, State, Federal	Study of Mud Creek, especially near Groton and the slough/lagoon area. Minimizing the effects of Mud Creek would address the floodplain in the southeast quarter of Groton, which would aid development. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits:** Costs would the study. Benefits would be more knowledge as to how Mud Creek responds to flood events and how best to mitigate the effects. Over 200 structures are in the floodplain. Ability to reduce the impact of flooding will help residents and government.	**Timeframe:** 3 years once funding is secured **Oversight:** County, Cities, Army Corps of Engineers
Action: #2 **Priority:** High **Funding:** County, State, Federal	Clean out the James River and tributaries. A study should be done to determine areas in which debris and earth build up causing the river to backup and flood land. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Costs would be the work of planning and dredging the James River and tributaries. Benefits is the ability of the James River to flow freely before high water events occur. This would reduce the amount of water that would flood the area.	**Timeframe:** Ongoing **Oversight:** County, Cities, Army Corps of Engineers
Action: #3 **Priority:** Medium **Funding:** City, County, State, Federal, Private	"Knife in" drain tile piping in ditches to reduce water collection and possible flooding of roads in the county. The LIDAR study could assist with this process identifying ditches that would be ideal for water reduction. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs and there may be environmental impacts. Benefit would be a reduction of flammable materials and reduction in damages to infrastructure, structures, and even residents.	**Timeframe:** Ongoing **Oversight:** County, State
Section 2: Mitigation Activities for Severe Weather Hazards		
Goal #1: Increase public awareness and education of severe weather.		
Action: #1 **Priority:** High **Funding:** County, State, Federal, Private	Create awareness about the dangers of severe weather and how to respond. Education materials can be distributed at events in the area to educate residents. Printed materials would be beneficial when internet and electricity is out, and communication is minimal. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials can be created and distributed at a minimal cost. Benefit: educating the	**Timeframe:** Ongoing **Oversight:** County, Cities, National Weather Service

	public on how to address severe weather and the most effective way to protect themselves.	
Goal #2: Improve public safety during severe weather.		
Action: #1 **Priority:** Very High **Funding:** County, State, Federal, Private	Purchase and install generators at places throughout the county that vulnerable populations depend on for assistance. The Salvation Army assists county-wide in disasters and would require a generator for their food bank if power was lost. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be residents would have safe places to go in the event of a hazard.	**Timeframe:** Two years once funding secured **Oversight:** County, Cities
Action: #2 **Priority:** Very High **Funding:** County, State, Federal, Private	Construct additional shelters with generators focusing on mobile home parks, campgrounds and vulnerable cities and towns in the County. Additional areas of concern are Melgaard Park, Wylie Park, Westport, and Groton. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be residents would have safe places to go in the event of a hazard. **The County has added storm shelters at Elm Lake and Richmond Lake State Park since 2010.	**Timeframe:** Two years once funding secured **Oversight:** County, Cities,
Goal #3: Reduce utility disruption during severe weather situations *Currently working on 146th Street through James River bottom.*		
Action: #1 **Priority:** Moderate **Funding:** County, State, Federal, Private	Upgrading utility lines. There are three project areas: 1. Advise utility companies of future construction projects. 2. Burial of utility lines when needed. 3. Require upgrading of overhead lines when age or disaster provide opportunity. There are many ways electrical companies can upgrade their systems: Guy wires, power anchors, dead-end poles, cross arms, anti-galloping services, T2 conductors, and pole testing. *As electrical companies are included in South Dakota's Mitigation Plan, the project would be listed in Brown County's plan but would go through the state for funding.* **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be residents would have reliable electrical power in the event of a hazard.	**Timeframe:** Ongoing **Oversight:** Participating Electrical Companies, State
Action: #2 **Priority:** Moderate **Funding:** County, State, Federal, Private	Removal of trees from power lines. High winds, prevalent throughout the county, frequently toss tree limbs into power lines. This is particularly dangerous for rural residents with limited communication and shelter access. *As electrical companies are included in South Dakota's Mitigation Plan, the project would be listed in Brown County's plan but would go through the state for funding.* **Community Lifelines**: Safety and Security, Food, Water	**Timeframe:** Ongoing **Oversight:** Participating Electrical Companies, State

	and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be residents would have reliable electrical power in the event of a hazard and reduce the damage done from falling branches/trees.	
Goal #4: Reduce crippling impacts of winter storms, especially rural areas		
Action: #1 **Priority:** Moderate **Funding:** County, State, Federal, Private	Survey areas in need of shelterbelts and plant trees accordingly. Diversity of trees needs to be increased due to losses from diseases and pests impacting the area. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be residents would have more protection from the hazards associated with winter storm events.	**Timeframe:** Ongoing **Oversight:** Cities, County, State
Section III: Mitigation Activities for Fire and Drought Hazards		
Goal #1: Increase firefighting capabilities.		
Action: #1 **Priority:** Moderate-High **Funding:** City, County, State, Federal, Private	Find funding sources to pay for persons to fill positions while individuals are at training courses. Training courses often last several days and replacements for those days are hard to find and pay for. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be residents would have more protection from the hazards associated with winter storm events.	**Timeframe:** Ongoing **Oversight:** Cities, County, State
Goal #2: Reduce the negative effects droughts have on Brown County.		
Action: #1 **Priority:** Moderate-High **Funding:** City, County, State, Federal, Private	Finish mapping cleanouts and field identify with a sign so that they can be easily found. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be a reduction in the amount of material that can cause fires to spread.	**Timeframe:** Ongoing **Oversight:** Cities, County, State
Action: #2 **Priority:** Moderate **Funding:** City, County, State, Federal, Private	Dredge reservoirs to improve water quality. Reservoirs silt in and dredging helps water to flow to more places, quickly and easily. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs and there may be environmental impacts. Benefit would be a higher quantity of accessible water in times of drought.	**Timeframe:** Ongoing **Oversight:** Cities, County, State
Action: #3 **Priority:** Moderate	Have rural fire departments locate dry fire hydrants. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid	**Timeframe:** 3 years with available funding **Oversight:**

Funding: City, County, State, Federal, Private	costs and there may be environmental impacts. Benefit would be a higher quantity of accessible water in times of drought.	Cities, County, State ***Currently in progress***
Goal #3: Reduce the negative effects wildfires have on Brown County.		
Action: #1 **Priority:** High **Funding:** City, County, State, Federal, Private	Burn areas along the James and other Rivers to ensure a fire break rather than ignition fuel. This was proposed because of the April 2003 wildfire which burned around 7,000 acres. Dry, rotten brush along the James River provided fuel for the fire. **Sand Lake Wildlife Refuge already does this for their area.** **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs and there may be environmental impacts. Benefit would be a reduction of flammable materials to cause fires to spread and the reduction in danger to residents and infrastructure.	**Timeframe:** 3 years with available funding **Oversight:** Cities, County, State
Section IV: Mitigation Activities for Infrastructure Hazards		
Goal #1: Create a safer flying environment for airplane passengers flying to or from the Aberdeen Regional Airport – *Man-made hazards are no longer considered part of the Hazard Mitigation Plan, so these goals were removed.*		
Goal #2: Prepare areas within the county for hazardous material incidents - *Man-made hazards are no longer considered part of the Hazard Mitigation Plan so these goals were removed*		
Goal #3: Increase road safety.		
Action: #1 **Priority:** High **Funding:** City, County, State, Federal, Private	Remove trees from the right of way on township and county roads. Large tree branches can easily fall during regular high wind, thunderstorms, and snow. These are a danger to vehicles as well as pedestrian traffic. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs and there may be environmental impacts. Benefit would be a reduction of flammable materials and reduction in damages to infrastructure, structures, and even residents.	**Timeframe:** Ongoing **Oversight:** Cities, County, State
Goal #4: Reduce the chances of and minimize the negative effects of terrorism - *Man-made hazards are no longer considered part of the Hazard Mitigation Plan, so these goals were removed.*		
Section V: General Technological Mitigation Activities		
Goal #1: Develop a working computer aided mapping project for the County. This would be model using overlays of GIS data, HazMat, and Roads.		
Completed	Detailed mapping software allows more accurate estimates of losses due to hazard events. These programs allow analysis and application of the data.	**Oversight:** Cities, County, State **Completion Date: 2016**
Goal #2: Computer aided dispatch. This would serve all emergency situations.		

Completed	Computer- aided dispatch would assist personnel in responding more quickly to emergency calls.	**Oversight:** Cities, County, State **Completion Date: 2016**
Goal #3: Use HAZUS software to estimate losses in flooding situations. Information may also be able to be used for other hazard areas.		
Completed	HAZUS software allows more accurate estimates of losses in flooding. The program allows analysis and application of the data.	**Oversight:** Cities, County, **Completion Date: 2016**

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 City of Aberdeen 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 cost estimates are based on bid costs and will be updated as the processes moves forward.

Table 5.2: City of Aberdeen Mitigation Goals and Actions		
Goal #1: Reduce the impact of drought hazard within the City of Aberdeen		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	**Missouri Water Pipeline -** The City of Aberdeen's current water supply is vulnerable to drought conditions and not sufficient for future population and drought projections. The City is currently studying alternative water sources. The most available source appears to be the Missouri River, which would require a nearly 100-mile pipeline. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability to control water during flood events.	**Timeframe:** 3 years depending on funding **Oversight:** City of Aberdeen
Goal #2: Reduce the possibility of flood hazard within the City of Aberdeen		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	**Kline Street Storm Sewer-** This is the City's main conduit for Storm Water conveyance. The pipe ranges from 60" to 96". It is near Water and Sanitary Sewer infrastructure. Inflow and Infiltration is an issue when the Storm Sewer becomes overwhelmed from heavy rains, causing issues for downstream lift stations and the Wastewater Treatment Plant. Replacement of much of the Kline Street infrastructure has been completed over the past decade. The area that needs replacement is from 3rd Ave N. to 9th Ave N. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability to control water during flood events.	**Timeframe:** 3 years depending on funding **Oversight:** City of Aberdeen
Action: #2 **Priority:** High **Funding:** City, State, Federal, Private	**Moccasin Creek –** Moccasin Creek is a shallow drainage way and runs through Aberdeen. During heavy rains it floods. In times of drought, it dries up and becomes a smelly eyesore. The City aspires to make improvements to the creek to help improve water flow, aesthetics, and create a recreational waterway. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical	**Timeframe:** 3 years depending on funding **Oversight:** City of Aberdeen

	Costs/Benefits: Materials and labor would be at bid costs. Benefit would be the ability to control water during flood events.	
Action: #3 **Priority:** High **Funding:** City, State, Federal, Private	**Forest Acres Holding Pond Expansion -** This project would expand the existing holding pond to help protect homes that are vulnerable during rains more than 1.5". This system handles the bulk of the land mass in the Forest Acres Addition. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability to control water during flood events.	**Timeframe:** 3 years depending on funding **Oversight:** City of Aberdeen
Action: #4 **Priority:** High **Funding:** City, State, Federal, Private	**NE Storm Sewer Equalization/Upsizing -** This project would tie 2 storm sewer holding ponds and pumping systems. This would allow the system that is fullest to flow to the lesser used system and alleviate flooding. This would help protect dozens of homes that were flooded in 2007. These properties are vulnerable during rains of 3.5" in a 24-hour period. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability to control water during flood events.	**Timeframe:** 3 years depending on funding **Oversight:** City of Aberdeen
Action: #5 **Priority:** High **Funding:** City, State, Federal, Private	**1st Ave NE Storm Sewer Upsizing -** This project is to reduce street flooding and associated risks to structures. These properties are vulnerable during rains of 2" in a 24-hour period. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability to control water during flood events.	**Timeframe:** 3 years depending on funding **Oversight:** City of Aberdeen
Action: #6 **Priority:** High **Funding:** City, State, Federal, Private	**Baird Park Holding Pond & Lift -** This project would take overflow from the Fairgrounds Road system, which has been overloaded 4 times in the last 15 years. This area would be long term storage until the Fairgrounds Road system is able to handle it. This is a regional drainage system improvement but would locally help residential structures too. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability to control water during flood events.	**Timeframe:** 3 years depending on funding **Oversight:** City of Aberdeen
Action: #7 **Priority:** High **Funding:**	**NW Holding Pond Phase II -** This project expands the current holding pond of 85-acre feet to 150-acre feet. This is a regional drainage system improvement and would provide 100+ year protection from most flood related events. **Community Lifelines**: Safety and Security, Food, Water	**Timeframe:** 3 years depending on funding **Oversight:**

City, State, Federal, Private	and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability to control water during flood events.	City of Aberdeen
Completed	**North Boyd Street Holding Pond -** This project would provide necessary water volume storage. These homes are vulnerable during intense rains of 1" or less. This system handles drainage from as far north as 8th Ave. and as far west as N Arch Street.	**Oversight:** City of Aberdeen **Completion Date:** **2017**
Completed	**Melrose/Lawson St Storm Sewer Holding Pond -** This project would provide necessary water storage. This project would provide "backdoor" relief for the Melrose Storm Sewer system. Properties in the Melrose addition and those adjacent to Lawson Street are vulnerable to flooding during rains more than 2".	**Oversight:** City of Aberdeen **Completion Date:** **2017**
Completed	**North Boyd Street Storm Sewer -** This project would provide additional storm sewer capacity. Currently homes are vulnerable during intense rains of 1" or less. This part of the system handles drainage from other neighborhoods.	**Oversight:** City of Aberdeen **Completion Date:** **2017**
Goal #3: Reduce the impact of summer storms within the City of Aberdeen		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	**Warning Siren Update and Expansion -** This project upgrades and expands the warning siren system of Aberdeen. The current system is over 20 years old and due to Aberdeen's rapid growth, requires updates and expansion to alert residents effectively. **Community Lifelines**: Safety and Security, Communication, **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability to notify the public of impending severe weather	**Timeframe:** 3 years depending on funding **Oversight:** City of Aberdeen

Table 5.3: City of Claremont Mitigation Goals and Actions		
Goal #1: Reduce the impact of severe storms on the community		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Purchase portable generator for City Hall and Fire Hall. This project would ensure that the building could be used as a storm shelter in the event of power failure. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have access to power during outages.	**Timeframe:** 3 years depending on funding **Oversight:** City, County
Goal #2: Reduce the impact of flood hazards within the City of Claremont		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Upgrade Storm drainage system to prevent flash flooding, ground saturation and sewage from backing up into homes. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have access to power during outages.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #2 **Priority:** High **Funding:** City, State, Federal, Private	Rip-rap lagoon due to higher levels to prevent erosion. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have access to power during outages.	**Timeframe:** 3 years depending on funding **Oversight:** City
Goal #3: Reduce the impact of wildfire and structural fires		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Improve fire protection capabilities by constructing additional water supply and improving infrastructure to allow hookups to hydrants. An addition to the fire hall with a 2 X 10,000-gallon poly tank for water storage is needed for additional water storage in the city. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have access to power during outages.	**Timeframe:** 3 years depending on funding **Oversight:** City

***City of Claremont did not participate in the 2016 plan update; therefore, changes made to their mitigation strategy goals and actions were to streamline the goals and reduce projects that weren't mitigation.

Table 5.4: City of Columbia Mitigation Goals and Actions		
Goal #1: Reduce the impact of flooding in the community.		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Improve roads that have been washed away due to extremely high-water table. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability to reduce damages due to flooding.	**Timeframe:** Ongoing **Oversight:** City

***City of Columbia did not participate in the 2016 plan update; therefore, changes made to their mitigation strategy goals and actions were to streamline the goals and reduce projects that weren't mitigation.

Table 5.5: City of Frederick Mitigation Goals and Actions		
Goal #1: Reduce the impact of flood hazard in the community.		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Provide 24-hour monitoring of the inflow to sewer mains and obtain permission from DENR for pumping those mains. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have access to power during outages.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #2 **Priority:** High **Funding:** City, State, Federal, Private	Purchase generators for stand-by power during natural hazard occurrences. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have access to power during outages.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #3 **Priority:** High **Funding:** City, State, Federal, Private	Install pumps, plugs, and valves for maintenance in the sewer system prior to flooding. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have access to power during outages.	**Timeframe:** 3 years depending on funding **Oversight:** City
Goal #1: Reduce the impact of severe winter and summer storms on the community.		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Purchase backup generators for the fire hall/community center and school. The school is the largest place that could house citizens in the event of a snowstorm and loss of power throughout the community. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have access to power during outages.	**Timeframe:** 3 years depending on funding **Oversight:** City

***City of Frederick did not participate in the 2016 plan update; therefore, changes made to their mitigation strategy goals and actions were to streamline the goals and reduce projects that weren't mitigation.

Table 5.6: City of Groton Mitigation Goals and Actions		
Goal #1: Reduce the impact of severe storms on the community.		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Storm shelter in Groton City Park with a generator for the shelter and lift station. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have storm protection for residents and access to power during outages.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #2 **Priority:** High **Funding:** City, State, Federal, Private	Purchase an Emergency Electric Power Backup Generator for the lift stations to ensure their operation during power loss events. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have access to power during outages.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #3 **Priority:** High **Funding:** City, State, Federal, Private	Storm shelter in the bathrooms at the ball field with signage and remote locks. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have access to safety in the event of hazardous weather.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #4 **Priority:** High **Funding:** City, State, Federal, Private	Purchase an Emergency Electric Power Backup Generator for Storm Shelter at School Arena to use during power outage. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have access to power during outages.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #5 **Priority:** High **Funding:** City, State, Federal, Private	Bury powerlines throughout town. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be protection of power lines and reduction of potential for loss of power to residents due to snowstorms.	**Timeframe:** Ongoing **Oversight:** City
Action: #6 **Priority:** High **Funding:** City, State, Federal, Private	Purchase an Emergency Electric Power Backup Generator for City Hall to ensure its operation during hazardous events. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have access to power during outages.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #7	Storm shelter at the swimming pool.	**Timeframe:**

Priority: High **Funding:** City, State, Federal, Private	**Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be the ability have access to safety in the event of hazardous weather.	3 years depending on funding **Oversight:** City
Completed	Replace 100-year-old water tower as it has become a wind hazard.	**Oversight:** City **Completion Date: September 2021**
Completed	Improve storm warning system.	**Oversight:** City **Completion Date: 2016**
Completed	Purchase a steamer that can be used to thaw frozen areas around culverts that do not allow for water to drain properly.	**Oversight:** City **Completion Date: 2019**
Removed: Jurisdictional change in priorities.	Supply weather radios and smoke detectors to all residents.	**No longer a priority.**
Removed: Jurisdictional change in priorities.	Plant Living Snow Fence, Tree Shelterbelt- NW area of Groton – Prevention of drifting snow during storms	**No longer a priority.**
Goal #2: Reduce the impact of flood hazard within the city.		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Improve code enforcement to help mitigate flooding. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be reduction in danger to residents to promptness of alert system.	**Timeframe:** Ongoing **Oversight:** City
Action: #2 **Priority:** High **Funding:** City, State, Federal, Private	Rebuild streets with curb and gutter to help water flow to storm sewer. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits:** Materials and labor would be at bid costs. Benefit would be reduction in areas of Groton where water would collect and possibly flood.	**Timeframe:** 3 years depending on funding **Oversight:** City
Currently in process **Priority:** High	Gravel & Road Fabric & Street Resurfacing **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid	**Timeframe:** Ongoing **Oversight:** City

Funding: City, State, Federal, Private	costs. Benefit would be greater access to areas where roads were previously under water and improve roads.	
Completed	Expand storm sewer. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical	**Oversight:** City **Completion Date:** 2008
Removed: Jurisdictional change in priorities	New Street Equipment –Track Backhoe	**No longer a priority. City rents equipment due to liability.**
Goal #3: Reduce the impact of wildfire and structural fires within the City.		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	The City's ongoing mitigation goal is to improve code enforcement to mitigate for wildland and structural fires. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Costs would be the time associated with community leaders to enact the ordinances and designate responsibility for enforcement. Benefits would be a cost-effective process to reduce wildland and structural fires.	**Timeframe:** Ongoing **Oversight:** City
Removed: Jurisdictional change in priorities	Drill a new well. Accessible to all citizens in the city as a backup water supply should anything happen to the supply of water from WEB Water.	**City has alternate source through agreement with Golf Course.**

Table 5.7: City of Hecla Mitigation Goals and Actions		
Goal #1: Reduce the impact of severe storms on the community.		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Purchase a 30 KW generator to be used at the designated storm shelters (Community Center and/or the Hecla Gymnasium) if power is lost for extended period. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Hecla's ability to supply residents with access to power in the event of a power outage.	**Timeframe:** 3 years depending on funding **Oversight:** City
Goal #1: Reduce the impact of flooding on the community.		
Action: #1 **Priority**: High **Funding**: City, State, Federal, Private	Sewer Upgrades – There was sewer line infiltration of 80% due to high water. This causes Hecla to discharge their lagoon frequently and sewer lift pump failure because the pump must run higher amounts than normal. This occurs when the James River is high and in periods of heavy rain. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Hecla's ability to handle water as is comes, especially in periods of heavy rain and high-water table.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #2 **Priority**: High **Funding**: City, State, Federal, Private	Dike Project – The James River was at flood stage for nearly two years in the past. This has a significant impact due to the high water. Hecla is proposing to build a dike around the town to prevent loss of homes and infrastructure to flood and if there is a high-water amount released from North Dakota due to dam failure or water release. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Hecla's ability to handle water as is comes, especially in periods of heavy rain and high-water table.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #3 **Priority:** High **Funding:** City, State, Federal, Private	Roads have been ruined because of the high-water table. The community would like to make improvements to the roads that have been washed away due to the extremely high-water table. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Hecla's ability to continue to be accessible in the event of a flood.	**Timeframe:** Ongoing **Oversight:** City

Table 5.8: City of Stratford Mitigation Goals and Actions		
Goal #1: Reduce the impact of flooding on the community.		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Improve drainage throughout Stratford. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Stratford's ability to continue to be accessible in the event of a flood.	**Timeframe:** 3 years depending on funding **Oversight:** City

Table 5.9: City of Verdon Mitigation Goals and Actions		
Goal #1: Reduce the impact of flooding in the community.		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Identify culverts that are too small and replace with the appropriate size. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Verdon's ability to continue to be accessible in the event of a flood.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #2 **Priority:** High **Funding:** City, State, Federal, Private	Remove a tree that blocks water from flowing through the drainage canal south of Verdon. A fence was built through it and a tree has grown in it which doesn't allow the water to flow. The canal is in Spink County and will require cooperation and coordinated efforts between the Counties so the project can be completed. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Verdon's ability to reduce the impact of water by allowing it to flow.	**Timeframe:** 3 years depending on funding **Oversight:** City

***City of Verdon did not participate in the 2016 plan update; therefore, changes made to their mitigation strategy goals and actions were to streamline the goals and reduce projects that weren't mitigation.

Table 5.10: City of Warner Mitigation Goals and Actions		
Goal #1: Reduce flood hazard in Warner.		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Construct additional storm water line north of West Main St. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Warner would have reduced damage from flooding.	**Timeframe:** 3 years depending on funding **Oversight:** City
Completed	Develop storm water outlets, replace riprap to prevent flooding in the town and erosion of the outlet.	**Oversight:** City **Completion Date:** **2019**
Completed	Cement the storm water grade on the east side of town for better drainage.	**Oversight:** City **Completion Date:** **2018**

Table 5.11: City of Westport Mitigation Goals and Actions		
Goal #1: Mitigate flooding in the area.		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Construct an earthen dike with flap gates from storm water discharge around the city of Westport, where needed, to prevent city flooding from the Elm River. The objective is to get Westport out of the 100-year floodplain. This will reduce the impact of repeated flooding which causes damage to structures and infrastructure. The reduction in flood insurance costs would also make Westport more appealing for business. It will also eliminate the need for emergency storm sewer and overflow pump. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Westport would have reduced damage from flooding.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #2 **Priority:** High **Funding:** City, State, Federal, Private	Conduct a drainage study including an analysis of drain tile, and current water and sewer systems. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Westport would have reduced damage from flooding.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #3 **Priority:** High **Funding:** City, State, Federal, Private	Construct a storm water drainage system with an emergency sewer water overflow pump. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Westport would have reduced damage from flooding.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #4 **Priority:** High **Funding:** City, State, Federal, Private	Explore and implement use of backflow preventers in homes. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Westport would have reduced damage from flooding.	**Timeframe:** 3 years depending on funding **Oversight:** City
Goal #2: Mitigate for summer and winter storms.		
Action: #1 **Priority:** High **Funding:** City, State, Federal, Private	Support a power system for times of outages with a generator. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Westport would have reduced damage from flooding.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #2	Identify, develop, and implement emergency plans,	**Timeframe:**

Priority: High **Funding:** City, State, Federal, Private	including maintenance of equipment and facilities. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Westport would have reduced damage from flooding.	3 years depending on funding **Oversight:** City
Action: #3 **Priority:** High **Funding:** City, State, Federal, Private	Upgrade public buildings for storm safety, up to and including a storm shelter with radio-controlled locks for access. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Westport would have reduced damage from flooding.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #4 **Priority:** High **Funding:** City, State, Federal, Private	Purchase software and hardware to conduct GIS mapping and develop a database. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Westport would have reduced damage from flooding.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #5 **Priority:** High **Funding:** City, State, Federal, Private	Snow fences with a cooperative effort to leave selected crops in place. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Westport would have reduced damage from flooding.	**Timeframe:** 3 years depending on funding **Oversight:** City
Action: #6 **Priority:** High **Funding:** City, State, Federal, Private	Clean up debris along the river and flood plains. **Community Lifelines**: Safety and Security, Food, Water and Shelter, Transportation, Communication, Health and Medical **Costs/Benefits**: Materials and labor would be at bid costs. Benefit would be Westport would have reduced damage from flooding.	**Timeframe:** 3 years depending on funding **Oversight:** City

***City of Westport did not participate in the 2016 plan update; therefore, changes made to their mitigation strategy goals and actions were to streamline the goals and reduce projects that weren't mitigation.

IMPLEMENTATION OF MITIGATION ACTIONS

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

Upon adoption of the updated Brown 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 2022 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 2016 Plan as was used for the 2022 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 Brown County into the future.

V. 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): [the plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

Brown 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 Brown 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, objectives, and mitigation strategies will be readdressed and amended as necessary based on new information, additional experience, and the implementation progress of the plan. The approach to this plan update effort will be 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 Brown County Emergency Manager, during the plan's annual review to take place the end of each county fiscal year. All affected local jurisdictions (cities, towns, and counties) will be required to hold a public hearing and adopt the recommended amendment by resolution prior to considerations by the planning committee.

INCORPORATION INTO EXISTING PLANNING MECHANISMS

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

Brown County, Aberdeen and Groton currently have comprehensive, or capital improvements plans. All the other jurisdictions do not have the resources, staff, funding, or need for such planning mechanisms. The Brown County and the City of Aberdeen 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 Brown County and Aberdeen 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 Brown County jurisdictions will continue to seek outside funding assistance for mitigation projects in both the pre- and post-disaster environment. Primary Federal and State grant programs have been identified and briefly discussed, along with local and non-governmental funding sources, as a resource for the local jurisdictions

Federal

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

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

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

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

FEMA provides BRIC grants to 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	*Water, power & sanitary systems
*Draining & irrigation channels	*Airports & parks
*Schools, city halls & other buildings	

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

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

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

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

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

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

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): [the plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

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 Brown County Emergency Management Office located at 124 S 1st St Aberdeen, SD, and the NECOG office. Comments will always be received whether orally, written or by e-mail. All ongoing workshops and trainings will be

open to the public and appropriately advertised. Ongoing press releases and interviews will help disseminate information to the 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.

APPENDIX A

APPENDIX B

SEPTEMBER 8, 2020 – GENERAL MEETING

Meeting called to order by Commission Chair Kippley at 8:45 A.M. in the Commission Chambers, Courthouse Annex, Brown County, SD. Present were Commissioners Fjeldheim, Wiese, Feickert and Sutton. Commissioner Feickert led the Pledge of Allegiance.

MINUTES:

Moved by Wiese, seconded by Fjeldheim to approve the general meeting minutes of September 1, 2020. All members present voting aye. Motion carried.

CLAMS:

Moved by Sutton, seconded by Feickert to approve the following claims:
Professional Fees: Aberdeen Advanced Care Ambulance $267.80; Avera St. Luke's $462.96; Brevik Law Office $189.75; Carlsen Funeral Home $114.19; Clark Engineering $2,268.95; DevNet $3,445.31; Mark Katterhagen $9.00; KEI $3,576.49; Lucy Lewno $140.00; Lincoln Co. Treasurer $30.00; Darcy Lockwood $9.00; NEMHC $1,014.00; Schneider Geospatial $2,475.00; SD DENR $4,691.90; Kristi Spitzer $200.00; UND – Pathology $4,565.61; Yankton Co. Treasurer $338.40. Publishing: Dakota Broadcasting $1,000.00; Groton Independent $286.22; Hub City Radio $300.00. Rentals: Ameripride $346.64; Dakota Electronics $66.00. Repairs & Maintenance: Aberdeen Chrysler Center $17.95; Butler Machinery $1,598.00; Crawford Trucks & Equip. $15.34; DFP $34.23; DataSpec $449.00; Diamond Mowers $44.54; DMI $10,500.00; HF Jacobs & Son Construction $12,851.96; Lawson Products $9.65; Midstates Printing $375.51; Prairie Lakes Archaeological Services $910.00; RDO Equip. $3,845.61; Steven Lust Automotive $124.91; TranSource $1,008.00; Trinity Services Group $100.00; Walth Safety Service $290.00; Woodman Refrigeration $2,005.30; Zastrow's Sales & Service $200.00. Supplies: Aberdeen Chrysler Center $61.00; AgTegra $21,608.49; Bakken Build Maint. $500.00; Behnke Pit $26,532.75; Butler Machinery $24.34; Carlsen Funeral Home $375.00; Cash-Wa $3,834.65; Century Business Products $96.84; Cole Papers $234.39; Crawford Trucks & Equip. $3,386.84; DFP $2,469.31; Dakota Oil $242.43; Diamond Mowers $2,950.67; Earthgrains $396.50; Fastenal $302.92; FedEx $86.99; Genlantis $13,213.00; Gorder Supply $283.83; Jebro $20,474.65; KEI $95.54; Ken's SuperFair Foods $604.57; Kessler's $71.88; Lar-Jo's $150.00; Lawson Products $114.27; Leidholdt Tool Sales $134.00; Lucy Lewno $6.50; Matthew Bender $117.43; McKesson Medical $716.36; Midstates Printing $320.50; Moore Sewing $60.00; Pantorium Cleaners $56.00; RDO Equip. $1,517.82; Running's $762.78; TranSource $4,453.37; Van Diest Supply $4,192.00; Walth Safety Service $14.50; Zastrow's Sales & Service $126.79. Travel & Conf.: KEI $152.00; Mark Milbrandt – Imprest $446.00. Utilities: AT&T $1.11; CenturyLink $1,078.74; Exec. Mgmt. $102.95; Midcontinent $368.03; NWPS $13,728.94; Town of Frederick $61.00. Machinery & Equip.: Beck Motors $34,411.00.
All members present voting aye. Motion carried.

HR REPORT: No report this week.

SHERIFF REPORTS:

Moved by Feickert, seconded by Wiese to approve the following August 2020 Sheriff Reports: Incidents and offenses, Prisoner care, JDC, and Money deposited with the County Treasurer. All members present voting aye. Motion carried.

PRE-DISASTER MITIGATION (PDM) GRANT AWARD:

Moved by Sutton, seconded by Fjeldheim to authorize chair to sign grant agreement EMD-2020-PC-0005 to receive federal share of funds in the amount of $14,625.00. All member present voting aye. Motion carried.

ORDINANCE 171 – ADOPTION:
Moved by Sutton, seconded by Feickert to adopt ordinance 171, an ordinance to amend Title 4, Second Revision Brown County Ordinances, as amended, to rezone the following described property from Chapter 4.06 Agricultural Preservation District (AG-P) to Chapter 4.07 Mini-Ag District (M-AG): East 30 Rods of South 55 Rods in the SE1/4 of Section 25-T124N-R64W of the 5th P.M., Brown County, South Dakota. (12891 388th Ave). Roll call vote: Commissioner Feickert – aye, Sutton –aye, Wiese –aye, Fjeldheim – aye, Kippley – aye. Ordinance adopted.

ORDINANCE 172 – ADOPTION

Moved by Fjeldheim, seconded by Sutton to adopt ordinance 172, an ordinance to amend Title 4, Second Revision Brown County Ordinances, as amended, to rezone the following described property from Chapter 4.06 Agricultural Preservation District (AG-P) to Chapter 4.07 Mini-Ag District (M-AG): Lot 2, "HAPI 2020-1 Subdivision" in the NE1/4 of the NW1/4 of Section 6-T123N-R63W of the 5th P.M., Brown County, South Dakota. (1522 130th St NE). Roll call vote: Commissioner Feickert – aye, Sutton – aye, Wiese –aye, Fjeldheim – aye, Kippley – aye. Ordinance adopted.

ORDINANCE 173 – ADOPTION:

Moved by Feickert, seconded by Wiese to adopt ordinance 173, an ordinance to amend Title 4, Second Revision Brown County Ordinances, as amended, to rezone the following described property from Chapter 4.06 Agricultural Preservation District (AG-P) to Chapter 4.07 Mini-Ag District (M-AG): Lot 1 & 2, Gabler-Brakefield Addition in the NE1/4 of Section 22-T122N-R64W of the 5th P.M., Brown County, South Dakota; Lot 1, "Johnson South Subdivision" and Lot 1, "Johnson South 2nd Subdivision" in the NE1/4 of section 22-T122N-R64W, Brown County, South Dakota. (38585 139th St and 38579 139th St). Roll call vote: Commissioner Feickert – aye, Sutton –aye, Wiese –aye, Fjeldheim – aye, Kippley – aye. Ordinance adopted.

ORDINANCE 174- ADOPTION:

Moved by Wiese, seconded by Fjeldheim to adopt ordinance 174 as amended to consider an ordinance amending Second Revision Brown County Ordinances, Title 4 Zoning, Chapters 4.01 – 4.07 and 4.32; Title 5 Subdivision Regulations, Chapter 5.01. The adopted ordinance will be made available for public inspection at the Brown County Auditor's Office during regular business hours. Roll call vote: Commissioner Feickert – aye, Sutton –aye, Wiese –aye, Fjeldheim – aye, Kippley – aye. Ordinance adopted.

PROVISIONAL BUDGET 2021 – PUBLIC HEARING:
Public hearing held as advertised for 2021 provisional budget. Opportunity for public comment was given. No action taken.

POLICY MANUAL – CALL IN PAY:
Moved by Sutton, seconded by Feickert to approve the following employee policy:
Call-In Pay Policy
The purpose of this policy is to guarantee hourly, nonexempt employees a minimum number of hours as required by law for employees who respond to a call-in for work between the time they leave their shift and begin their next shift.

Non-Essential Employees

A "call-in" is defined as an unscheduled request made by an appropriate management official for an hourly non-essential employee to return to the employment location to do unforeseen or emergency work after leaving the location at the end of the regular shift and before the beginning of the next regularly scheduled shift.

When a non-essential employee is responding to a call-in, the employee will be given a minimum of two (2) hours' work at the higher of his or her regular job rate or the rate of the job assigned. The two (2) hours will count towards the regular hours worked. Should the work entail more than two (2) hours, the Department Head may accordingly adjust the worked hours.

Essential Employees

When an essential employee responding to a call-in outside their regular scheduled shift (i.e. training, meetings), the employee will be given a minimum of two (2) hours' work. Should the work entail more than two (2) hours, the Department Head may accordingly adjust the worked hours.

All members present voting aye. Motion carried.

POLICY MANUAL – LEAVE SHARING POLICY:

Discussion on transitioning to paid time off (PTO) with an extended sick leave bank benefit to employees. Draft policy on file with the Brown County Auditor and available for public inspection. No action taken.

EXECUTIVE SESSION:

Moved by Fjeldheim, seconded by Sutton to go into executive session to discuss personnel and contracts per SDCL 1-25-2(1,4). All members present voting aye. Motion carried. The Chair declared the executive session closed with no action taken.

ADJOURNMENT:

Moved by Sutton, seconded by Wiese to adjourn the Brown County Commission at 10:30a.m. All members present voting aye. Motion carried.

Cathy McNickle, Brown County Auditor

Published once at the total approximate cost of $_____.

AGENDA- REGULAR MEETING
BROWN COUNTY COMMISSION
COMMISSIONER'S CHAMBERS, COURTHOUSE ANNEX
25 MARKET STREET, ABERDEEN SD

TUESDAY APRIL 6, 2021

8:45 a.m. – 8:46 a.m. - Pledge of Allegiance, Approval of Agenda
8:46 a.m. – 8:50 a.m. – Scott Meints (Emergency Management Director), Lesleann Palmer & Alison (NECOG) BC PDM Plan and Contract
8:50 a.m. – 9:00 a.m. – Gene Loeschke (Equalization Director) Annual Conference with Director of Equalization and Discretionary Formula Resolution
9:00 a.m – 9:05 a.m. – Dawn Shepard, South Dumpsite

- Approve General Meeting Minutes of March 30, 2021
- Claims
- HR Report
- Fair Contracts
- Bridge Improvement Grant Award
- Lease_Dakota Slidewayz
- Lease_Mosbrucker Rodeo
- Claim Assignments
- Abatement

Public Comment and any other matters to come before the Commission for discussion

BROWN COUNTY COMMISSION
Tue, Apr 6, 2021 8:30 AM - 11:30 AM (CDT)

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Brown County Mitigation Plan Contract Meeting

April 6, 2021

The Mitigation plan:

-a plan of actions to reduce the long-term risk of natural hazards that Brown County is vulnerable to such as: wildfire, tornados, summer storms, drought, ice storms, tornados, flooding, and high winds.

-purpose is to create a comprehensive, long-term plan before a disaster occurs

-the actions in the plan reduce or eliminate the need for preparedness in the future

-The PDM is required to be updated every 5 years by FEMA

- The current Brown County Period of Performance ends January 31, 2022

-by updating the plan, Brown County is eligible to receive funds for disaster mitigation projects though FEMA.

-mitigation actions should be in the plan for FEMA to consider funding through pre-disaster mitigation grants

Public participation is encouraged

-FEMA allows for a 75% grant with a local match of 25%

-That 25% can be in-kind, cash donations and cash payments made from the jurisdiction

-Public participation is encouraged at meetings, which helps Brown County meet their in-kind match of $4875 for the plan

Current rate for FEMA volunteer rate is: $22.57 per hour as of July of 2021.

-Generally, in-person meetings gather the most information but with the coronavirus, remote meetings are approved through FEMA.

-Surveys have also been used to gather public input.

-We plan for three meetings through the planning process, but may do more if needed

Once contract is signed with NECOG:

-Will plan for a meeting in ~~January~~ the summer to begin work

-Potential timeline: ~~meetings in January, March, and May~~ July meetings will be held monthly to provide time for each jurisdiction to prepare their part

-after the final meeting, it plan will be presented to the public and FEMA for comments

-after the comment period, the plan will be presented for adoption at participating jurisdictions, once adopted, the plan will be finalized by FEMA

APRIL 6, 2021 –GENERAL MEETING

Meeting called to order by Commission Chair Fjeldheim at 8:45 A.M. in the Commission Chambers, Courthouse Annex, Brown County, SD. Present were Commissioners Feickert, Sutton and Wiese. Commissioner Kippley attended over the phone. Commissioner Feickert led the Pledge of Allegiance.

APPROVAL OF AGENDA:

Moved by Sutton, seconded by Feickert to approve the agenda. All members present voting aye. Motion carried.

MINUTES:

Moved by Sutton, seconded by Wiese to approve the general meeting minutes of March 30, 2021. All members present voting aye. Motion carried.

CLAIMS:

Moved by Feickert, seconded by Wiese to approve the following claims:
Other: Aberdeen Kirby $320.00; City of Hecla $800.00; Emma Burnham Public Library $1,000.00; Groton Township $1,000.00; City of Aberdeen $12,000.00; Warner Library $1,000.00. Professional Fees: City of Aberdeen $498.91; Avera St. Luke's $54.18; Avera McKennan Hospital $74.71; Avera St. Luke's $1,268.19; BCT $21.20; Drew Becker $200.00; Birmingham & Cwach Law Office $476.85; CGI $1,164.52; Cogley Law Office $7,656.25; Dohrer Law Office $7,656.25; Christopher Haar $7,116.71; Houston Engineering $6,411.40; Mark Katterhagen $27.00; Kuck Law $7,070.31; Lucy Lewno $290.00; Darcy Lockwood $27.00; Matthew Bender $68.08; Jerald McNeary $7,070.31; NE Mental Health Center $1,586.00; Sanford Health $4,431.13; SD Dept. of Health $1,215.00; State of South Dakota $16,671.85; Christy Griffin-Serr Law $7,070.31; Tammy Stolle Court Reporting $36.50; Taliaferro Law Firm $7,656.25; Tyler Technologies $520.00; University of North Dakota $300.00; West Publishing $350.10. Publishing: Groton Independent $107.55. Repairs & Maintenance: Aberdeen Clean-All $325.00; Dakota Doors $3,383.77; Lang's Audio TV & Appliance $246.00; Nardini Fire Equipment $190.50; Pro-Windmill $345.00; Pierson-Ford $79.18; Ringgenberg Electric $2,433.90; Sherwin Williams $81.01; Kirby Kiesz $142.80; Western States Fire $3,789.42. Supplies: American Business Forms $100.00; Aramark $77.43; Cole Papers $354.60; Farnams Genuine Parts $279.98; Fastenal $51.13; GovConnection $544.36; L.G. Everist $6,559.03; Larry Becker $802.47; Leidholdt Tool Sales $89.02; Lucy Lewno $8.76; Marco $19.33; McKesson Medical $239.39; Menards $313.02; Midstates Printing $828.00; Performance Rentals $100.00; Runnings $61.14; Kirby Kiesz $171.54. Travel & Conference: Regency Midwest Ventures $606.00. Utilities: AT & T Mobility $197.42; Qwest Corporation $60.62; Montana Dakota Utilities $44.11; Northwestern Energy $2,552.39. All members present voting aye. Motion carried.

HR REPORT:

Moved by Sutton, seconded by Wiese to approve the HR Office Report, which includes the following:

- Acknowledge retirement of Daryl Lloyd, Brown County Highway Department, full-time, effective April 2, 2021.
- Approve hiring of Brandon Richardson as full-time Brown County Correctional officer effective April 5, 2021 @ $16.82/hour.
- Approve hiring of Breanna Locke Brown County Fairgrounds full-time summer-help effective April 12, 2021 @ $12.29/hour.
- Approve hiring of John Noyes as Brown County State's Attorney intern effective May 12, 2021 @ $500/week.

All members present voting aye. Motion carried.

FAIR CONTRACTS:
Moved by Feickert, seconded by Wiese to approve the following Brown County Fair Agreement: Deb Stamm @ $100 (4-H Judge). All members present voting aye. Motion carried.

BRIDGE IMPROVEMENT GRANT AWARD
Moved by Wiese, seconded by Sutton to approve and authorize the Chair to sign the Bridge Improvement Grant (BIG) Agreement with the SD Department of Transportation for Rehabilitation/Replacement of BRO-8007(00)21-1, PCN 08FG. All members present voting aye. Motion carried.

LEASE_DAKOTA SLIDEWAYZ:
Lease tabled for next week. No actions taken.

LEASE_MOSBRUCKER RODEO:
Moved by Kippley, seconded by Feickert to approve lease agreement with Mosbrucker Rodeo for the lease of Expo Building and Expo Addition on April 9-10. All members present voting aye. Motion carried.

CLAIM ASSIGNMENTS:
Moved by Feickert, seconded by Sutton to to authorize Auditor sign documentation to assign claim against an individual to Credit Collection Bureau for the purpose of collecting liens. All members present voting aye. Motion carried.

ABATEMENTS:
Moved by Sutton, seconded by Wiese to approve the following abatement: West Rondell Township @ $13,189.77. All members present voting aye. Motion carried.

BROWN COUNTY PDM PLAN AND CONTRACT:
Scott Meints(EM Director), Lesleann Palmer & Alison Kiesz(NECOG) met with the Commission to discuss about the Pre Disaster Mitigation Plan Assistance for Brown County. Moved by Sutton, seconded by Wiese to approve and authorize the chair to sign the agreement for Pre Disaster Mitigation (PDM) Plan Assistance with Northeast Council of Governments (NECOG). All members present voting aye. Motion Carried

ANNUAL CONFERENCE WITH DOE:
Gene Loeschke, Director of Equalization, met for conference per SDCL 10-3-14, discussing County Equalization, County Consolidated Boards of Equalization and the Agricultural Land Assessment. No actions taken.

DISCRETIONARY FORMULA RESOLUTION:
Commissioner Sutton offered the following Resolution:

RESOLUTION 19-21

Whereas, The Brown County Commission has adopted a "discretionary formula" for certain structures in Brown County

Whereas, SDCL 10-6-35.2 authorizes the Board of County Commissioners, at its discretion, to adopt a formula for the assessment of structures classified as "industrial".

Whereas, for the purpose of this resolution an "industrial structure" is defined as: "Generally, any property used in a manufacturing activity, including a factory, wholesale bakery, dairy plant, food processing plant, mill, mine, quarry, all locally assessed utility property, and the like". Glossary for Property Appraisal and Assessment, pg134, (International Association of Assessing Officers, 2nd ed. 2013).

Whereas, SDCL 10-6-35.2 states the formula may include for any or all of the five tax years following construction, all, any portion, or none of the assessed valuation for tax purposes.

Whereas, the board of County Commissioners may, if requested by the owner of any property described as above, not apply the above formula, in which case the full assessment shall be made without application of the formula. In waiving this formula for one structure for one owner, the Board of County Commissioners is not prohibited from applying the formula for subsequent new structures by that owner.

Whereas, the current discretionary formula does allow for a level of assessment for all qualifying structures to be at 0% the first year, 0% the second year, 0% the third year, 0% the fourth year and 0% the fifth year.

Whereas, the assessed value during any of the five years may not be less than the assessed valuation of the property year proceeding the first year of the tax years following construction.

Whereas, any structure that is partially constructed on the assessment date may be valued for tax purposes pursuant to this resolution and the valuation may not be less than the assessed valuation of the property in the year preceding the beginning of construction.

Whereas, the county hopes all eligible projects will avail themselves to the formula, and exercise their responsibility to notify the county.

THEREFORE BE IT RESOLVED, the Brown County Board of Commissioners hereby adopts a new discretionary formula as authorized by SDCL 10-6-35.2. Upon recommendation by the Director of Equalization and approval by the Board of County Commissioners, the level of assessment for structures on properties classified as "industrial" as defined previously in this document, and built on land with "industrial zoning" classification, shall be 0% the first year, 0% the second year, 0% the third year, 0% the fourth year, and 0% the fifth year. This formula shall be applied to any new industrial structures and additions with construction start date of July1, 2020 or later.

Dated this 6th day of April, 2021.

Seconded by Commissioner Wiese. Roll call vote: Commissioners Feickert-nay, Sutton-aye, Wiese-aye, Fjeldheim-aye, Kippley-aye. Resolution adopted.

SOUTH DUMPSITE RELOCATION:
Dawn Shepard met with the Commission to inquire and gather updates about south dumpsite relocation area. No actions taken.

PLANNING & ZONING SECRETARY:

Scott Bader (P&Z Director) met with the commission to discuss about updating the job description and salary compensation for its department secretary prior to hiring. No actions taken.

ADJOURNMENT:
Moved by Sutton, seconded by Feickert to adjourn the Brown County Commission at 9:44a.m. All members present voting aye. Motion carried.

Jeannette McClain, Brown County Deputy Auditor
Published once at the total approximate cost of $_____.

Brown County
Local Emergency Planning Committee
April 20th, 2021

A. Call to Order.
Members Present: (Zoom)-JR Huebner, Joel Weig, Michael Thompson, Scott Meints, Mike Stucke, Patti Woods, Jason Herbeck, Rich Krokel, Kent Jones, Susan Kornder, John Florey.

B. Reading, Correction and Approval of Meeting Minutes from March 16th, 2021.

C. Motion by Mike Stucke to approve minutes as read. Motion second by Rich Krokel. Motion carried upon vote.

D. Secretary/Treasurer's Report. Balance $1212.78. Motion by Joel Weig to accept the treasurer's report. Motion Second by JR Huebner. Motion carried upon vote.

E. Old Business.
1. County burn ban has expired
2. Pre-Disaster Mitigation Plan update- Scott and NEGOG met with commission. There will probably be meetings in the future because of the soft match requirements. We will send emails as we know what needs to be done.

F. New Business.
1. Flu/Coronavirus/West Nile/Zika Virus/POD Updates/information- S.D. DOH/Brown County Health Department not available. Scott Meints gave the following information. There are about 80 active cases. The hospitalizations have gone up to 9 but usually are in the 1,2,3 range. Vaccinations are currently at about 51% in Brown County.
2. LEPC Roster update of Jessica Peterson from POET Biorefining. Mike Stucke made the motion and a second by Rich Krokel to update the roster. Motion carried.
3. Reminder Severe Weather Awareness week. It is a good time to practice your drills and plans. The test watch will be at 1000 and test warning at 1015 tomorrow with siren and radio testing.
4. Mike Stucke offered if anyone would like to tour the new generation station tomorrow at 10 or 1:30 they are welcome..
5. Rich Krokel that the airport will be doing a table top drill probably in July. There will be emails to follow if you would like to be involved.
6. SARA Title III Tier II Reporting information for 2021- Approximately 36 reports received as of the March Meeting.
7. National Weather Service – Weather/Forecast Updates-NONE
8. Closure designation for DENR File # 2021.008: pertaining to a fire event at Gary's Autobody, 2502 6th Avenue SE, Aberdeen, South Dakota.

   Proposed Tommy Car Wash 102&124 6th Ave. SW, Aberdeen, South Dakota Limited Phase II Environmental Site Assessment-Department of Environment and Natural Resources File Number-2021.025. No further action.

Brown County
Local Emergency Planning Committee
April 20th, 2021

Closure designation for DENR file #2021.021: pertaining to a diesel release at the Aberdeen Railyard, North 2nd Street, Aberdeen, South Dakota

Any other New Business.

Motion to adjourn by Rich Krokel with second by Joel Weig. Motion carried.

F. Announcements

1. Next Meeting May 18th, 2020 at 11:30 A.M.

2021 Meeting Dates

~~January 19~~ -Covid	~~February 16th~~ Covid
~~March 16th~~	~~April 20th~~
May 18th	June 15th
July 20th	August 17th
September 21st	October 196th
November 16th	December 21st

All meetings start at 11:30 A.M. and conclude by 12:45 P.M.

G. Adjournment of LEPC Meeting.

H. Emergency Plan, Facility or Exercise Review Activity (ies).

Brown County
Local Emergency Planning Committee
May 18th, 2021

A. Call to Order.
Members Present: (Zoom)-JR Huebner, Joel Weig, Michael Thompson, Scott Meints, Mike Stucke, Patti Woods, Kent Jones, John Florey, DeAnna Harber, Sarah Jesz, Fah Latterell, Tony Jones, Marcy Harder,

B. Reading, Correction and Approval of Meeting Minutes from April 20th, 2021. Correction made to the spelling of Mike Stucke's name.

C. Motion by Mike Stucke to approve minutes as read. Motion second by Scott Meints. Motion carried upon vote.

D. Secretary/Treasurer's Report. Balance $1212.78. Motion by Mike Stucke to accept the treasurer's report. Motion Second by JR Huebner. Motion carried upon vote.

E. Old Business.
1. Airport Table-top Exercise. No report
2. PDM Plan Update. Nothing new, waiting on NECOG.
3. Northwestern Energy site tours. All went good.
4. Any other Old Business.

F. New Business.
1. Flu/Coronavirus/West Nile/Zika Virus/POD Updates/information- S.D. DOH/Brown County Health Department. DeAnna Harber reported as of May 8th there were no confirmed cases of Flu. There were 7 hospitalizations, 2 deaths and 69 cases all year. The COVID Moderna vaccination is available for 18 years and older at the BC DOH office. To schedule an appointment call 211. At this time there are 59 active cases, 92 deaths and a total of 5586 cases to date.
2. Two train derailments over weekend. One in SE Minnesota – Goose Lake/Albert Lea area, 20 cars and one in NW Iowa – Sibley, fire and hazardous materials involved; 47 cars.
3. No spills locally.
4. SARA Title III Tier II Reporting Information for 2021- Approximately 36 reports received, as of March meeting.
5. National Weather Service – Weather/Forecast Updates-No report
6. Any other New Business.

Any other New Business.

Motion to adjourn by Mike Stucke with second by Tony Jones. Motion carried.

F. Announcements
1. Next Meeting June 15th, 2021 at 11:30 A.M.

2021 Meeting Dates

Brown County
Local Emergency Planning Committee
May 18th, 2021

~~January 19~~ -Covid	~~February 16th~~ Covid
~~March 16th~~	~~April 20th~~
May 18th	June 15th
July 20th	August 17th
September 21st	October 196th
November 16th	December 21st

All meetings start at 11:30 A.M. and conclude by 12:45 P.M.

G. Adjournment of LEPC Meeting.

H. Emergency Plan, Facility or Exercise Review Activity (ies).

JULY 20, 2021 – GENERAL MEETING
Meeting called to order by Commission Chair Fjeldheim at 8:45 A.M. in the Commission Chambers, Courthouse Annex, Brown County, SD. Present were Commissioners Feickert, Sutton, Wiese and Kippley. Commissioner Fjeldheim led the Pledge of Allegiance.

APPROVAL OF AGENDA:
Moved by Sutton, seconded by Feickert to approve the agenda with the addition of a possible adoption for rezone ordinances. All members present voting aye. Motion carried.

ORDINANCE 199_SECOND READING AND ADOPTION READING:
Moved by Sutton, seconded by Kippley to adopt rezone ordinance 199: Applicant Lyndse Dellman requesting to rezone the following property from Chapter 4.06 Agriculture Preservation District (AG-P) to Chapter 4.07 Mini Ag District (M-AG): Lot 1, "Bagley Subdivision" in the NW ¼ of Section 2-T128N-R61W of the 5th P.M. Brown County, South Dakota (10048 404th Ave). Roll call vote: Commissioner Feickert-aye, Sutton-aye, Wiese-aye, Kippley-aye, Fjeldheim-aye. Ordinance adopted.

ORDINANCE 200_SECOND READING & ADOPTION:
Moved by Feickert seconded by Wiese to adopt rezone ordinance 200: Applicant Matt Oswald requesting to rezone the following property from Chapter 4.06 Agriculture Preservation District (AG-P) to Chapter 4.07 Mini Ag District (M-AG): The South 707' of the West 701' of the NW ¼ of Section 7-T123N-R61W of the 5th P.M., Brown County, South Dakota (13148 400th Ave). Commissioner Feickert-aye, Sutton-aye, Wiese-aye, Kippley-aye, Fjeldheim-aye. Ordinance adopted.

TEMPORARY MALT BEVERAGE LICENSE HEARING:
Moved by Feickert, seconded by Wiese approve Temporary Malt Beverage License for Aberdeen Aqua Addicts Waterski Team - S ½ of SW ¼ of NW ¼ of Sec 35-T123N-R64W of the 5th P.M. Brown County, SD (3301 S Highway 281) . Roll call vote: Commissioner Feickert-aye, Sutton-aye, Wiese-aye, Kippley-aye, Fjeldheim-aye. Motion carried.

OPENING AUDIT CONFERENCE 2020 (SD DEPARTMENT OF LEGISLATIVE AUDIT):
Christopher Theroux, SD Department of Legislative Audi, met with the Commission to discuss the 2020 audit of Brown County. Moved by Kippley, seconded by Feickert to authorize chair to sign engagement letter for the 2020 Opening Audit Conference. All members present voting aye. Motion carried.

RURAL DUMPSITE CONTRACTS:
Mike Scott, Landfill Manager, met with the Commission to discuss status of rural dumpsites in the county, specifically the Elm Lake location. Moved by Sutton, seconded by Wiese to redo contract for the Elm Lake dumpsite location (placing contract under Brown County's name) and to do a counter-offer of $500 yearly fee paid by the County to be renewed every 5 years. All members present voting aye. Motion carried.

AMERICAN FOUNDATION FOR SUICIDE PREVENTION_CLUBHOUSE LEASE:
Moved by Feickert, seconded by Wiese to approve $100 rate for the use of the Clubhouse for an event on September 18 by the American Foundation for Suicide Prevention. All members present voting aye. Motion carried.

COUNTY BURN BAN:

A member of the public aired out his concern regarding the current burn ban in Brown County. He opens up about controlled burning that farmers normally do to manage their lands but are not able to do this time due to the burn ban in place. EM Director Scott Meints will do some research on what other nearby counties are doing to address the same situation. No actions taken.

MUTUAL AID AGREEMENT:
Tabled for next week. No actions taken.

MINUTES:
Moved by Sutton, seconded by Wiese to approve the general meeting minutes of July 13, 2021. All members present voting aye. Motion carried.

PAYROLL & CLAIMS:
Moved by Feickert, seconded by Wiese to approve the following payroll & claims: PAYROLL Commission $4,327.95; Auditor $8,960.57; Treasurer $13,731.76; SA $23,725.33; SVAWA $1,575.00; Maintenance $8,502.76; Assessor $15,800.21; Register of Deeds $9,124.94; VSO $4,574.75; GIS $2,411.38; IT $7,349.27; HR $3,648.58; Sheriff $42,909.68; Jail $56,938.06; Court Security $4,830.73; JDC $23,344.38; Welfare $2,982.62; Museum $8,625.67; Parks/Fairgrounds $6,025.30; Fair Board $3,541.11; 4-H $1,349.93; Weed $4,209.85; Planning & Zoning $3,864.71; Highway $40,490.81; Dispatch $32,362.30; Emergency $4,160.96; Teen Court $703.97; JDAI $1,846.25; 24/7 Sobriety $1,267.25; Landfill $15,447.32; FICA $21,400.57; Medicare $5,005.02; HSA $150.00. CLAIMS: Repairs & Maintenance: Ace Refrigeration Llc $96.90; Assurance Land Surveying $516.53; City Of Aberdeen $9,475.00; Eilers Water Conditioning & Lawn Irrigation $187.50; House Of Glass $87.58; Hub City Roofing $87,453.00; Interior Design Concepts, Inc $720.16; Leidholt Electric Llc $122.45; Midwest Alarm $256.20; Pantorium Cleaners Inc. $189.32; Pierson-Ford-Lincoln -Mercury $76.24; Sewer Duck Inc $475.00; Showtime Investments, Inc $282.85; Sterling Solutions Inc $750.00; Timothy C. Gardner $25.00; Titan Machinery - Aberdeen Nh $9,073.08; Woodman Refrigeration, Inc $9,700.00. Supplies: 446-Praxair Distribution, Inc $701.70; Aberdeen Pit Stop $4.99; Advance Auto Parts $836.40; Ashley Farrand Dunham $40.00; Century Business Products $2,528.28; Charm-Tex $434.34; Cole Papers $297.28; Dakota Supply Group $1,481.87; Gannett Holdings LLC Ohio $293.51; Gretchen A. Sharp $40.00; Id&C $523.64; Jensen Rock & Sand Inc $25,059.81; Kesslers $119.04; Leidholdt Tool Sales, Llc $23.71; Lucy Lewno $4.50; Menards $176.46; Michelle E Winchester $45.00; Northern Valley Communication $26.83; O'Reilly Auto Enterprises, LLC $4.99; Pierson-Ford-Lincoln -Mercury $27.94; Randall E. Weber $353.00; Rdo Equipment Co. - Ag $450.00; Runnings $14.27; Titan Machinery - Aberdeen NH $594.30; Walth Safety Service Inc $250.00; West Publishing Corp. $2,279.37. Travel & Conference: Sarah Swenson $21.15; SD State 4-H Office $55.00; Erin Spencer $151.34; Sarah J Jesz $153.22; Shay Potter $448.38; Haydn Podoll $351.50. Utilities: City Of Aberdeen $3,488.83; City Of Hecla $101.32; Dependable Sanitation Inc $348.00; James Valley Telecommunications $217.50; Northern Electric Coop, Inc $86.00; Northern Valley Communication $1,499.96; Northwestern Energy & Communications $2,601.01; Sanford Health Occupational Medicine Aberdeen $42.00; Verizon Wireless Services LLC $3,115.63. Rentals: Sewer Duck Inc $175.00; 446-Praxair Distribution, Inc $45.87; Pantorium Cleaners Inc. $175.56. Others: Bantz, Gosch & Cremer LLC $85,636.69; Baranko Brothers, Inc $1,106,711.07. All members present voting aye. Motion carried.

HR REPORT:
Moved by Sutton seconded by Wiese to approve the HR Office Report, which includes the following:

- Approve Jodi Brown's Domestic Violence grant, effective July 1, 2021 through June 30, 2022 @ $40,950.00 effective July 4, 2021.

- Approve increase of Jodi Brown's county portion of wages @ $1035.24 per pay period as the Domestic Violence grant amount went down.
- Approve Kelsi Vinger's JDAI grant, effective July 1, 2021 through June 30, 2022 @ $48,000.00, effective July 4, 2021.
- Approve transfer of Tobias Stugelmayer from Brown County Building Maintenance Custodian to Brown County Landfill Facility Maintenance @ $16.07/hour effective July 26, 2021. Request to fill.
- Acknowledge the following personal miles driven at $0.56 per mile for the month of April & May: Kendell Titze 216 @ $120.96, John Florey 234 @ $131.04, Dirk Rogers 1,444 @ $808.64, Mike Scott 360 @ $201.60

All members present voting aye. Motion carried.

LANDFILL CELL 4 PROJECT PAY ESTIMATE #3:
Moved by Sutton, seconded by Wiese to approve pay estimate #3 for Baranko Brothers in the amount of $1,106,711.07 for cell four construction at the landfill. All members present voting aye. Motion carried.

LEASES:
Moved by Feickert, seconded by Wiese to approve the following leases: Lee Thompson for the lease of the Richmond Lake Youth Camp Lodge and dorm on Aug 5-8, 2021 with approved alcohol use permission; Boy Scouts for the lease of the Richmond Lake Youth Camp and Infirmary on June 12, 2021. All members present voting aye. Motion carried.

LOTTERY PERMITS:
Moved by Kippley, seconded by Sutton to approve the following lottery permit applications: Richmond Lake Association for a raffle on July 31, 2021 at Anchors Away; Aspire Foundation for a raffle on August 22, 2021 at the Brown County Fair. All members present voting aye. Motion carried.

TEMPORARY MALT BEVERAGE PERMIT:
Moved by Sutton, seconded by Wiese to approve temporary malt beverage license to Aberdeen Hockey Association at the Brown County Clubhouse on August 16-22, 2021. All members present voting aye. Motion carried,

DEPUTY CORONER APPOINTMENT:
Moved by Kippley, seconded by Wiese to approve appointment of Dan Snyder as Deputy Coroner. All members present voting aye. Motion carried.

PUBLIC COMMENTS/DISCUSSION_MITIGATION PLAN:
Commission Duane Sutton discussed Brown County Mitigation. Brown County is working with North Eastern Council of Governments (NECOG) to develop a comprehensive mitigation plan for Brown County. Mitigation meetings will be held over the next few months and proposed mitigation plan will be available for public review before adoption. No actions taken.

PUBLIC COMMENTS/DISCUSSION_JAMES RIVER CULVERT:
Two members of the public met with the Commission to discuss about the degrading condition of a culvert on the James River that drains all property from south Tacoma Park east of highway 18. The last time it has been replaced was 25 years ago and a $12,000 quote was provided to replace the culvert and gate this time. The Board of Commissioners advised to have them check with the state railroad and the

James River District for a cost-share. The county will assist so they can purchase the culvert at a county price to lower some cost. No actions taken.

PUBLIC COMMENTS/DISCUSSION_SOUTH DUMPSITE LOCATION:
Ross Aldentaler, Deputy States Attorney, discussed status of the South Dumpsite purchasing contract. No actions taken.

EXECUTIVE SESSION:
Moved by Sutton, seconded by Wises to go into executive session to discuss personnel per SDCL 1-25-2(1). All members present voting aye. Motion carried. The chair declared executive session closed with no action taken.

ADJOURNMENT:
Moved by Sutton, seconded by Wiese to adjourn the Brown County Commission at 10:54 a.m. All members present voting aye. Motion carried.

Jeannette McClain, Brown County Deputy Auditor
Published once at the total approximate cost of $_____.

Groton City Council Meeting Agenda

July 20, 2021 – 7:00pm
120 N Main Street
(NOTICE ADDRESS)

(IF YOU WOULD LIKE TO CALL IN TO THIS MEETING, PLEASE MAKE PRIOR ARRANGEMENTS TO DO SO BY CALLING CITY HALL 605-397-8422)

1. Public Comments - pursuant to SDCL 1-25-1
(Public Comments will offer the opportunity for anyone not listed on the agenda to speak to the council. Speaking time will be limited to 3 minutes. No action will be taken on questions or items not on the agenda.)

2. Minutes

3. Bills

4. June Finance Report

5. Second Reading of Ordinance #748 Appropriation Ordinance Schedule

6. First Reading of Ordinance #749 Regarding the Issuance of Local Medical Cannabis Establishment Permits and/or Licenses

7. Grant Application for $15,000 from the American Rescue Plan Act for the Wage Memorial Library has been APPROVED

8. Groton Mitigation Plan Update

9. AB Contracting Application for Payment #5 – $28,808.70

10. Utility Easement

11. 2021 South Dakota Risk & Safety Conference – November 3&4, 2021 – Pierre, SD

12. Executive session personnel & legal 1-25-2 (1) & (3)

13. Hire Electric Utility Supervisor

14. Assistant Finance Officer Wage

15. Adjournment

July 20, 2021

The Groton City Council met on the above date at 7:00pm at 120 N Main Street for their second monthly meeting with the following members present: Wells, Blackmun, Bahr, Cutler, Fliehs and Hanlon presiding. Also present were: Attorney Drew Johnson, Paul Kosel, and Finance Officer Hope Block.

Public comments were welcomed pursuant to SDCL 1-25-1, but none were received.

The minutes from the previous meeting were approved on a motion by Fliehs and seconded by Cutler. All members voted aye.

Moved by Wells and seconded by Bahr to authorize the following bills for payment. All members voted aye.

Payroll	$41,027.04	Employee salaries
Executive	$470.97	
Administrative	$3,759.50	
Public Safety	$7,968.59	
Public Works	$8,608.81	
Culture & Recreation	$20,219.17	
First State Bank	$10,875.59	SS and WH
First State Bank	$495.82	HSA contributions
Dakotaland FCU	$690.00	Employee savings
United States Postal Service	$207.88	Utility billing postage
Auto Zone	$155.76	Filters and coolant
Locke Electric	$696.68	Repair underground wire break, add outlet at City Hall, lights at ball field, AC at community center, load management install
SD State Treasurer	$11,297.35	Sales and excise 6/21
James Valley	$782.88	Utilities
Greg's Repair	$181.99	17 Ford blower motor repair
Mike Frey	$150.00	Jr Legion Claremont tournament fee
Dale Ringgenberg	$935.00	Sewer repairs
Jamie Rossow	$334.41	Sewer repairs
Patios Plus	$489.80	Sewer repairs at Rossow's
TMC Construction	$392.70	Sewer repairs at Rossow's
McGannon Plumbing and Heating	$343.59	Sewer repairs at Rossow's
McGannon Plumbing and Heating	$368.68	Sewer repairs at Ringgenberg's
KR Body Shop	$500.00	Windshield replacement '15 Equinox - travel damage from Pierre trip (Block)
Aaron Severson	$439.04	Coach mileage reimbursement
Dustbusters Enterprises Inc	$3,229.20	Dust guard
Van Diest	$1,430.00	Mosquito control chemical
Harve's Sport Shop	$69.51	Baseball card books
SD One Call	$192.15	Message fees
Dairy Queen	$156.00	Food for resale
Associated Supply Company	$180.50	Vac hose for pool
Colonial Research	$290.02	Cleaners
Badger Meter	$24.92	Cellular service fee
Core & Main	$233.05	Curb box, nuts
Matheson Tri-Gas	$60.00	Fire extinguisher service at City Hall
Wesco	$73.40	Brackets

JGE	$596.41	Hydraulic leak repair on skid loader
IMEG	$11,081.04	Construction, staking, admin, survey, design, bid
Groton Independent	$82.57	Publishing
Cole Papers	$65.44	Trash bags
Heartland Waste	$8,115.38	Garbage hauling
DGE Engineering	$268.50	Midco fiber review
Ecolab	$212.00	Pest control
Heartland Consumer Power	$69,009.26	Power 6/21
Best Western Ramkota Hotel	$129.99	Lodging for Budget Training
Bryan Rock Productions	$1,084.41	Agrilime
True Pitch, Inc.	$1,028.00	Clay for field maintenance
Matt Locke	$207.70	Lodging reimbursement
Seth Erickson	$207.70	Lodging reimbursement
Farmers Union	$1,440.00	Fuel
Nelson Sales and Service	$209.85	Carburetor, element air cleaner for ballfield chromer
Ken's Food Fair	$6,853.20	Food for resale, gas, batteries
Western Area Power	$19,392.03	Power 6/21
Mac's	$39.42	Eye screw for ball field
Menards	$132.76	Picture frames, wire rope cable, and clamps
MJ's Sinclair	$3,215.35	Gas, tire repairs
Groton Area School District	$72.50	Toilet paper
Running's	$105.97	Charger booster, ratchet strap
Hope Block	$166.24	Travel expense for Midwest Assistance Workshop, and meals for budget training
Kristie Fliehs	$233.20	Travel expense for budget training

Moved by Cutler and seconded by Blackmun to approve the June Finance Report. All members voted aye.

The second reading of Ordinance #748 Appropriation Ordinance Schedule was approved on a motion by Blackmun and seconded by Wells. All members voted aye.

The first reading of Ordinance #749 Regarding the Issuance of Local Medical Cannabis Establishment Permits and/or Licenses was approved on a motion by Bahr and seconded by Cutler. All members voted aye.

An announcement was made that the grant application for $15,000 from the American Rescue Plan Act for the Wage Memorial Library has been approved. This grant will provide new laptops, computers, IPads and an automated book system for the Wage Memorial Library.

The Groton Mitigation Plan was discussed. The plan will expire February 2022, and needs to be updated in order for the City of Groton to be able to access FEMA grants. Council members will bring ideas to update the Mitigation Plan to the next council meeting.

Moved by Blackmun and seconded by Cutler to approve the AB Contracting Application for Payment #5 for $28,808.70. All members voted aye.

A utility easement with Pharis Real Estate Limited Partnership was approved on a motion by Bahr and seconded by Fliehs. All members voted aye.

Kosel and Block were approved to attend the 2021 South Dakota Risk & Safety Conference November 3rd & 4th in Pierre, SD on a motion by Blackmun and seconded by Wells. All members voted aye.

Moved by Cutler and seconded by Bahr to adjourn into executive session for personnel and legal items 1- 25-2 (1) & (3) at 7:33pm. All members voted aye. Council reconvened into regular session at 8:30pm.

Moved by Cutler and seconded by Fliehs to hire Todd Richard Gay as the Electric Utility Supervisor at $50 per hour with two weeks of vacation for the remainder of 2021 along with four weeks of vacation in 2022. This motion will also implement $200 per week on call pay for the Electric Department employees splitting on call time equally. All members voted aye.

After Assistant Finance Officer, Kellie Locke's 6-month probationary period, she will receive a dollar per hour raise on a motion by Bahr and seconded by Wells. All members voted aye.

Moved by Bahr and seconded by Wells to adjourn the meeting at 8:32 pm. All members voted aye.

_____ _____

Scott Hanlon, Mayor Hope Block, Finance Officer

Published once at the total approximate cost of $_____.

Brown County
Local Emergency Planning Committee
July 20th, 2021

A. Call to Order.
Members Present: (Zoom)- Joel Weig, Michael Thompson, Scott Meints, , Kelly Serr, Tony Jones, Dave Lunzman, Mike Stucke, Robin Bobzien, Kent Jones, Sarah Jesz, Jessica Peterson, Jason Herbeck.

B. Reading, Correction and Approval of Meeting Minutes: Tabled

C. Secretary/Treasurer's Report. Balance $1212.78. Tabled

D. Old Business.
1. PDM Plan update: first meeting was held July 19th. Started the process, next meeting Aug 9th.
2. Aberdeen Airport exercise update: conducted an abbreviated exercise that met all of the requirements of 49 CFR §1542.301 and §1542.307. It also satisfied our 14 CFR Part .139.325 (Annual review of the AEP) and Exhibit 10.
3. County Burn Ban update: still in effect. Commission looking at possible alternatives.
4. Any other Old Business.

E. New Business.
1. Flu/Coronavirus/West Nile/Zika Virus/POD Updates/information- S.D. DOH/Brown County Health Department. Email from DeAnna Harber as follows: Jessica Mundahl is the new Asst Administrator for Public health preparedness and Response. She took over for Rick LaBrie and will oversee the POD program and will be our point of contact. She will be touching base will all the PODS to get a feel for our readiness level. I gave her Mark Stoks and Freddie Robinson's contact information as she wanted to touch base with the POD managers.
   West Nile detection in Brooking and Codington
   Business as usual at the Health Department. In the planning stages for flu vaccinations.
   We do have COVID vaccine available. People can call 211 to schedule at our office.
2. EM exercise: will be a communications exercise on Aug 11.
3. Updated on local spills, 4 since last meeting AGP, 3M, C Express and Glacial Lakes. All have been cleaned up and closed.
4. SARA Title III Tier II Reporting Information for 2021- Approximately 36 reports received, as of March meeting.
5. National Weather Service – Weather/Forecast Updates: DRY DRY DRY
   Nataional changes for WEA alerts. WEA alerts will not go out for baseball size hail and 80 mph winds. This will be in effect on July 28th, 2021.
   Precip for early next week should stay rain. Local radar is down for updates.

6. Mike Stucke gave an update on the NWS power plant pertaining to the Feb outages with the grid. Mike also has invited BCEM, AFD down for updated tours as some things have changed.

Any other New Business.

Motion to adjourn by Mike Stucke with second by Robin Bobzien. Motion carried.

F. Announcements

1. Next Meeting August 17th, 2021 at 11:30 A.M.

2021 Meeting Dates

~~January 19~~ -Covid	~~February 16th~~ Covid
~~March 16th~~	~~April 20th~~
~~May 18th~~	~~June 15th~~
July 20th	August 17th
September 21st	October 196th
November 16th	December 21st

All meetings start at 11:30 A.M. and conclude by 12:45 P.M.

G. Adjournment of LEPC Meeting.

H. Emergency Plan, Facility or Exercise Review Activity (ies).

Brown County Mitigation Planning Meeting

Agenda

July 19, 2021

1 pm – 3 pm

I. **Introductions**

II. **Getting Started with the Update**
   a. "Sign in-sheet"
   b. Participation requirements
   c. Schedule for participation
   d. Local match requirements
   e. Importance of updates and City/Council meetings and including a "Mitigation Plan Update" on the City/Council agendas.
   f. Review of GAP report from 2016 Plan

III. **Plan Organization**
   a. What is Mitigation?
   b. 2011 Local Mitigation Plan Review Guide
   c. Risk Assessment Worksheet/Overall Summary of Vulnerability Worksheet
   d. Mitigation Projects

IV. **Other Stakeholder**
   a. Are there any other groups we need to invite for comments about participation or projects?

V. **Next Meeting**

Lesleann Palmer

Subject:	Brown County Mitigation meeting
Location:	Brown County Courthouse Community Room
Start:	Mon 7/19/2021 1:00 PM
End:	Mon 7/19/2021 3:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Lesleann Palmer
Required Attendees:	travis.schaunaman@aberdeen.sd.us; alan.johnson@aberdeen.sd.us; justin.reinbold@aberdeen.sd.us; clint.rux@aberdeen.sd.us; tiffany.langer@aberdeen.sd.us; mark.remily@aberdeen.sd.us; rob@ronaynelawoffice.com; dave.lunzman@aberdeen.sd.us; josh.rife@aberdeen.sd.us; karl.alberts@aberdeen.sd.us; jordan.mcquillen@aberdeen.sd.us; mary.campton@aberdeen.sd.us; ron.wager@aberdeen.sd.us; scotthanlon3 @hotmail.com; karyn.kesterson@gmail.com; kafliehs@gmail.com; joncutler@hotmail.com; ejkappes03@gmail.com; city.hope@nvc.net; city.april@nvc.net; cityoffrederick@nvc.net; fnbscott@nvc.net; jeff.kosters@k12.sd.us; jmelnc@nvc.net; mmikkonen9@gmail.com; kbl.ffdra@hotmail.com; richgaylebake@gmail.com; heclalmmp@nvc.net; rpfutzenreuter@hotmail.com; haltreeby659@gmail.com; mary.fruedenthal@firstsavingsbanks.com; gskog@nvc.net; tulmer20@gmail.com; heclasd@heartlandpower.org; dana@frohlinglaw.com; clarecity@nvc.net; cmitch@nvc.net; 206.apd@abderdeen.sd.us; harrcons@nvc.net; trevormeints17 @icloud.com; bikrtman113068@yahoo.com; columbiacity@nvc.net; stratford1906 @gmail.com; kj@nvc.net; sp.moen@gmail.com; pitrat72@gmail.com; shanestorm@sheehanmacksales.com; pnyexp43@gmail.com; westportcity@nrctv.com; cityofwarner@midconetwork.com; sutton.duane@gmail.com; dennisfeickert@yahoo.com; thekippleys@nrctv.com; doug.fjeld44@gmail.com; wiese@nvc.net; cathy.mcnickle@browncounty.sd.gov; carlsen5778@gmail.com; mark.milbrandt@browncounty.sd.gov; ernest.thompson@browncounty.sd.gov; kent.jones@browncounty.sd.gov; sheila.enderson@browncounty.sd.gov; dirk.rogers@browncounty.sd.gov; Scott Meints; Alison Kiesz; joe.gaa@aberdeen.sd.us; robin.bobzien@aberdeen.sd.us; fireprevention@aberdeen.sd.us

Greetings:

My name is Lesleann Palmer with the Northeast Council of Governments. Alison Kiesz and I will be working with you on the update to Brown County's Natural Hazard Mitigation Plan. Brown County has contracted with NECOG for the update which occurs every five years. The current plan expires February 16, 2022. We will be having our first meeting at the Brown County Courthouse in the Community Room at 1 pm.

This will be the first of three meetings to discuss Brown County's Natural Hazard Mitigation Plan Update. This meeting is public and all are invited to attend. We will begin discussing the purpose of the mitigation plan update and will update the hazard profile of Brown County. It's important that each municipality has a representative at the meetings – usually Finance officer, and/or council members. Other municipality and county employees are welcome to attend and the

general public is encouraged to participate also. Please respond to either the calendar invite or this email and let me know how many will be attending from your jurisdiction so we can plan accordingly.

A FEMA- approved mitigation plan allows each participating jurisdiction to be eligible for FEMA funding for mitigation projects through the Hazard Mitigation Grant Program (HMGP). This program will provide up to 75% grant for eligible projects. Participation in the update of the plan is required to be eligible for the grant. The Natural Hazard Mitigation Program encourages projects and funding to help jurisdictions become more resilient to natural hazards. Some examples of qualifying projects are storm shelters, increasing storm water capacity, backup generators for critical facilities, relocation or acquisition of flood prone properties, and grade raises, etc. Applications can be submitted to FEMA for their 75% grant for these types of items.

Our first meeting will be spent reviewing the current plan, especially the mitigation strategy, priorities and risk assessments. There will also be discussion of new projects or hazards that have developed since the last plan update. I will be sending out an agenda and reminder as we get closer to the date. If you have any questions, please contact myself or Alison Kiesz here at NECOG and we will be more than happy to answer any questions. We look forward to working with all of you to update the Plan!

Lesleann Palmer
Northeast Council of Governments
416 Production Street N., Suite 1
Aberdeen, SD 57401
Telephone: 605-626-2595
Fax: 605-626-2975

PDM Planning Meeting 7/19/21

NAME	LOCAL JURISDICTION	MILES TRAVELED	PHONE	EMAIL
Karla Nelson	BC States Attorney's Office	–	605-626-7130	karla.nelson@brown county.sd.gov
Ernest Thompson	BCSA		605-626-7130	Ernest.Thompson@brown county.sd.gov
Duane Sutton	Brown Co.		216-0804	duanesutton@yahoo.com
Paul I. Kosel	Groton City	20x2	605-397-7460	paperpaul@groton.sd.net
Hope Black	Groton City	20x2	605-397-8422	city.hope@nvc.net
David Bourassa	Stratford	20x2	336-689-8189	dbbourassa@hotmail.com
Cathy Menicke	Brown Co	–	605-626-7110	cathy.menicke@browncounty.sd.gov
Scott Meints	Brown Co	–	605-626-7122	Scott.meints@brown County.SD.Gov
Rob Ronayne	Aberdeen Council	3	6052250100	Rob@Ronaynelawoffice.com

PDM Planning Meeting 7/19/21

NAME	LOCAL JURISDICTION	MILES TRAVELED	PHONE	EMAIL
Joe Gaa	City of Aberdeen		626-7025	joega@aberdeen.id.us
ROBIN BOBZIEN	CITY OF ABR		626-7010	robin.bobzien@aberdeen.id.us
Mike Wiese	BR Co			

aberdeen news

LOCAL

County seeks input on multi-hazard mitigation plan

Elisa Sand Aberdeen News

Published 6:00 a.m. CT Aug. 1, 2021

Brown County residents will have an opportunity to provide suggestions for the next Multi-Hazard Mitigation Plan.

Work is happening now to update the county's plan, which identifies potential disasters that could affect the county — like tornadoes, fires or flooding — and identifies mitigation efforts.

A public meeting discussing an update to the plan is Aug. 9 from 1 to 3 p.m. in the community room of the Brown County Courthouse Annex, 25 Market St., according to a news release from the Brown County Emergency Management office.

Emergency Management Director Scott Meints said counties are required to have a multi-hazard mitigation plan and to periodically update it.

The goal of the meeting, he said, is to gather input from people and communities throughout Brown County about potential mitigation efforts that could be added to the plan.

Some examples of qualifying projects are storm shelters, increasing stormwater capacity, backup generators for critical facilities, relocation or acquisition of flood-prone properties and grade raises.

"If there's something they think should be mitigated, now's their chance," he said.

While he has some ideas on what could be aded to enhance the plan — storm shelters, for instance — Meints said the plan is for the entire area, and he wants to hear ideas from other communities and agencies.

"This is a community plan, not just Brown County," he said.

The process of updating the plan is funded through a grant from the Federal Emergency Management Agency. The plan is required by federal law to qualify for federal grants if

natural disasters occur and to help with mitigation projects, according to the release.

Public comments are welcome. For more information, contact the Brown County Emergency Management Office at 605-626-7122 or email EmergencyManagement@browncounty.sd.gov.

Brown County Mitigation Planning Meeting

Agenda

August 9, 2021

1 pm

Brown County Courthouse Community Room

I. **Introductions**
II. **Getting Started**
    a. "Sign in-sheet"
    b. Local match requirements
    c. Opportunity for public participation
        i. County Commission Meetings/ City Council Meetings
III. **Mitigation Strategies and Current Conditions**
    a. Technical Documents
    b. Mitigation Projects (handout)
    c. Current Conditions (flooding or other)
IV. **Risk Assessment**
    a. Critical Structures (handout)
    b. Risk assessment worksheets
V. **Other Stakeholders**
    a. Surveys
    b. Are there any groups to target?
VI. **Development Trends**
    a. What kinds of development is going on in each community?
VII. **Next Meeting**

PDM Planning Meeting August 9, 2021 1 p.m. Brown County Courthouse

NAME	LOCAL JURISDICTION	MILES TRAVELED	PHONE	EMAIL
Patti Woods	Brown Co		215-5831	patti-woods@brown.sd.gov
Scott Meints	BCEM			
Karla Nelson	Brown Co		626-7130	
Rich Krokel	Airport		626-7020	rich.krokel@aberdeen.sd.us
Tom Wanthie	Ride Line		605-626-3333	tom.wanthie@aberdeen.sd.us
Linda Burdette	Bron Public		605-228-0635	burdette1323@abe.midco.net
Diana Nielsen			605-228-2946	nielsen1314@hotmail.com
Gary Nielsen	Tacoma Park		605-228-2946	
Joe Gaa	Aberdeen		[illegible]	joe.gaa@aberdeen.sd.us
Robin Bogzen	ABR		216 2227	
Justin Fraase	NSU		701 361 4116	justn.fraase@northern.edu
Chad Nilson	AFR		216-0005	chad.nilson@aberdeen.sd.us
Charles Coleman	Tacoma Park		380-9114	
Cathy Mehlhaff	Brown Co.			
Elda Sanchez	Am. News		270-1381/626-2301	
Susan M Morn	Stratford	20	228-2039	Stratford1906@gmail.com
Hope Black	Groton	40	397-8427	city.hope@nvc.net
Paul Kosel	Groton	40	605 397-7460	Paperpaul@grotonsd.net

BROWN COUNTY
EMERGENCY MANAGEMENT
124 South 1st Street
ABERDEEN, SD 57401-4227

Scott A. Meints
DIRECTOR

OFFICE: 605-626-7122
FAX: 605-626-2933
Scott.meints@browncounty.sd.gov

MEDIA RELEASE

Date: 07/27/2021 **Time:** 10:30AM **Release #** 072721-1

Contact: Brown County Emergency Management Office

To be released: IMMEDIATELY

Brown County has received a grant from FEMA to conduct and update the existing Pre-Disaster Mitigation (PDM) Plan. Federal Law requires that each state have a Multi-Hazard Mitigation Plan and the State of South Dakota requires local jurisdictions to have individual plans in order to be eligible for Federal grant dollars in the event that a natural disaster occurs in our area and to also help with mitigation project funding.

A meeting for the Brown County and Local Jurisdiction Pre-Disaster Mitigation Plan Update will be held on Monday, August 9th , 2021 from 1:00pm to 3:00pm at the Brown County Courthouse Community Room. Address of 25 Market Street Aberdeen, SD 57401

This meeting is part of the steps for Brown County in updating the Multi-Hazard Mitigation Plan. The Hazard Mitigation Program encourages projects and funding to help jurisdictions become more resilient to natural hazards. Some examples of qualifying projects are storm shelters, increasing storm water capacity, backup generators for critical facilities, relocation or acquisition of flood prone properties, and grade raises, etc.

Public Involvement is a part of the PDM Plan and anyone who is interested in developing the Plan is encouraged to attend.

Questions can be directed to the Brown County Emergency Management Office at 605-626-7122 or emailed to: EmergencyManagement@browncounty.sd.gov.

***

Lesleann Palmer

Subject:	Brown County PDM Meeting
Location:	Brown County Courthouse Community Room
Start:	Mon 8/9/2021 1:00 PM
End:	Mon 8/9/2021 3:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Lesleann Palmer
Required Attendees:	travis.schaunaman@aberdeen.sd.us; alan.johnson@aberdeen.sd.us; justin.reinbold@aberdeen.sd.us; clint.rux@aberdeen.sd.us; tiffany.langer@aberdeen.sd.us; mark.remily@aberdeen.sd.us; rob@ronaynelawoffice.com; dave.lunzman@aberdeen.sd.us; josh.rife@aberdeen.sd.us; karl.alberts@aberdeen.sd.us; jordan.mcquillen@aberdeen.sd.us; mary.campton@aberdeen.sd.us; ron.wager@aberdeen.sd.us; scotthanlon3 @hotmail.com; karyn.kesterson@gmail.com; kafliehs@gmail.com; joncutler@hotmail.com; ejkappes03@gmail.com; city.hope@nvc.net; city.april@nvc.net; cityoffrederick@nvc.net; fnbscott@nvc.net; jeff.kosters@k12.sd.us; jmelnc@nvc.net; mmikkonen9@gmail.com; kbl.ffdra@hotmail.com; richgaylebake@gmail.com; heclalmmp@nvc.net; rpfutzenreuter@hotmail.com; haltreeby659@gmail.com; mary.fruedenthal@firstsavingsbanks.com; gskog@nvc.net; tulmer20@gmail.com; heclasd@heartlandpower.org; dana@frohlinglaw.com; clarecity@nvc.net; cmitch@nvc.net; 206.apd@abderdeen.sd.us; harrcons@nvc.net; trevormeints17 @icloud.com; bikrtman113068@yahoo.com; columbiacity@nvc.net; stratford1906 @gmail.com; kj@nvc.net; sp.moen@gmail.com; pitrat72@gmail.com; shanestorm@sheehanmacksales.com; pnyexp43@gmail.com; westportcity@nrctv.com; cityofwarner@midconetwork.com; sutton.duane@gmail.com; dennisfeickert@yahoo.com; thekippleys@nrctv.com; doug.fjeld44@gmail.com; wiese@nvc.net; cathy.mcnickle@browncounty.sd.gov; carlsen5778@gmail.com; mark.milbrandt@browncounty.sd.gov; ernest.thompson@browncounty.sd.gov; kent.jones@browncounty.sd.gov; sheila.enderson@browncounty.sd.gov; dirk.rogers@browncounty.sd.gov; Scott Meints; Alison Kiesz; joe.gaa@aberdeen.sd.us; robin.bobzien@aberdeen.sd.us; fireprevention@aberdeen.sd.us
Optional Attendees:	snelson3373@hotmail.com; Dave Fair; Rife, Josh; Karla Nelson; Paper Paul

Good afternoon

Alison and I would like to thank everyone who attended the first meeting for Brown County's Mitigation Plan on Monday. Your attendance and participation is essential for Brown County's plan. Please make sure to add mitigation to the meetings and agenda to inform the public and also for the in-kind match. After the meeting is held, please send me the minutes with the attendees as well as times of the meetings so I can update the in-kind amounts.

I have also attached the risk assessment worksheets to this email. If you were unable to attend the meeting, please feel free to fill them out and send them to me. I will add those to the plan. If you have any questions, please don't hesitate to contact me.

Here is the Mitigation Plan update to add to the meeting agendas.
"The first meeting for Brown County's Natural Hazard Mitigation Plan update was Monday July 19. Discussion was had about the previous plan and projects. Hazard Identification and Hazard Vulnerability worksheets were completed for information about hazards and vulnerabilities for Brown County. The committee discussed the current hazards that have affected the area and dispersed the projects that were listed in the previous plan for review by local city councils and commissions. The current plan expires February 16, 2022. Once the plan is updated and complete, Brown County will be eligible to apply for funding for mitigation projects through FEMA.

The next meeting is scheduled for August 9 at 1 pm at the Brown County Courthouse Community Room. All are invited to attend and give input on the plan."

Thank you all again,
Lesleann

Brown County Mitigation Planning Meeting

Agenda

September 20, 2021

1pm to 3 pm

Brown County Courthouse Community Room

I. **Introductions**
II. **Getting Started**
    a. "Sign in-sheet"
    b. Local match requirements
    c. Opportunity for public participation
        i. County Commission Meetings/ City Council Meetings
        ii. Opportunities for Comments on Draft Plan:
III. **Risk Assessment**
    a. State's Climate
    b. Recent Development:
    c. Unique and Varied Risk (how is each area different in their hazard vulnerability)
IV. **Survey Results**
    a. Input from residents:
V. **Mitigation Strategy**
    a. Project discussion: Future Projects and completed projects for each jurisdiction
VI. **Critical Structures**
    a. Updates to critical structures and infrastructure
VII. **Plan Process Progress**

PDM Planning Meeting September 20, 2021 1 p.m. Brown County Courthouse

NAME	LOCAL JURISDICTION	MILES TRAVELED	PHONE	EMAIL
Laura Edwards	statewide	< 1	626-2870	laura.edwards@sdstate.edu
Hope Black	Groton	40	605 397 8422	city.hope@nvc.net
Patt Woods	Groton			
Scott Meints	Groton			
Paul Kosel	Groton	40	605-397-7460	cityshupe@grotonsd.net
Charles Coleman	Tacoma Park	20	380-0114	—
ROBIN BOBZIEN	CITY OF ABERDEEN		626-7017	
Suzanne Moen	Stratford	20	228-2039	Stratford1906@gmail.com
Michael J. Thompson	Aberdeen LEPC Chair	1½	229-4457	MJThompson99FM@outlook.com
Cathy McMichael	Brown County	0	626-7110	

Hazard mitigation plan meeting is Monday

Aberdeen News USA TODAY NETWORK
Published 1:00 a.m. CT Sep. 17, 2021

The next meeting concerning updates to the county's Natural Hazard Mitigation Plan is Monday at 1 p.m. in the Brown County Courthouse Community Room.

That's in the basement of the courthouse annex at 25 Market St.

The two-hour meeting is a required step in updating the county's Natural Hazard Mitigation Plan. The Hazard Mitigation Program encourages projects and funding to help jurisdictions become more resilient to natural hazards.

Brown County SD Office of Emergency Management

Government Organization

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124 South 1st Street
Aberdeen, SD 57401

To help the citizens and responders of Brown County prepare, respond, recover, and mitigate against all types of disasters.

Brown County is located on the North Dakota border in the Northeastern part of the state. We have a population of 36,531 people or about 21.1 people ... **See More**

7,925 people follow this

13 people checked in here

http://www.brown.sd.us/emergency-management/home

(605) 626-7122

Typically replies within a few hours
Send Message

emergencymanagement@browncounty.sd.gov

Open Now
8:00 AM - 5:00 PM

Government Organization

Suggest Edits

Is this the correct category for Brown County SD Office of Emergency Management?

Government Building

Yes Unsure No

Photos

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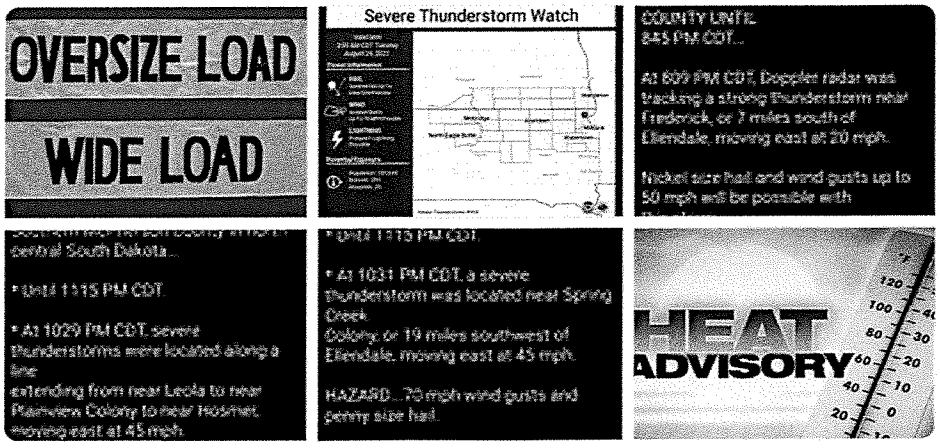

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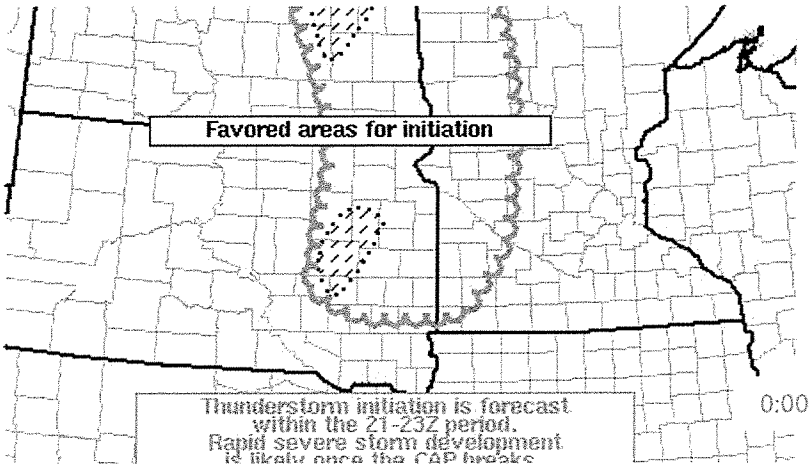

3

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Brown County SD Office of Emergency Management

4m ·

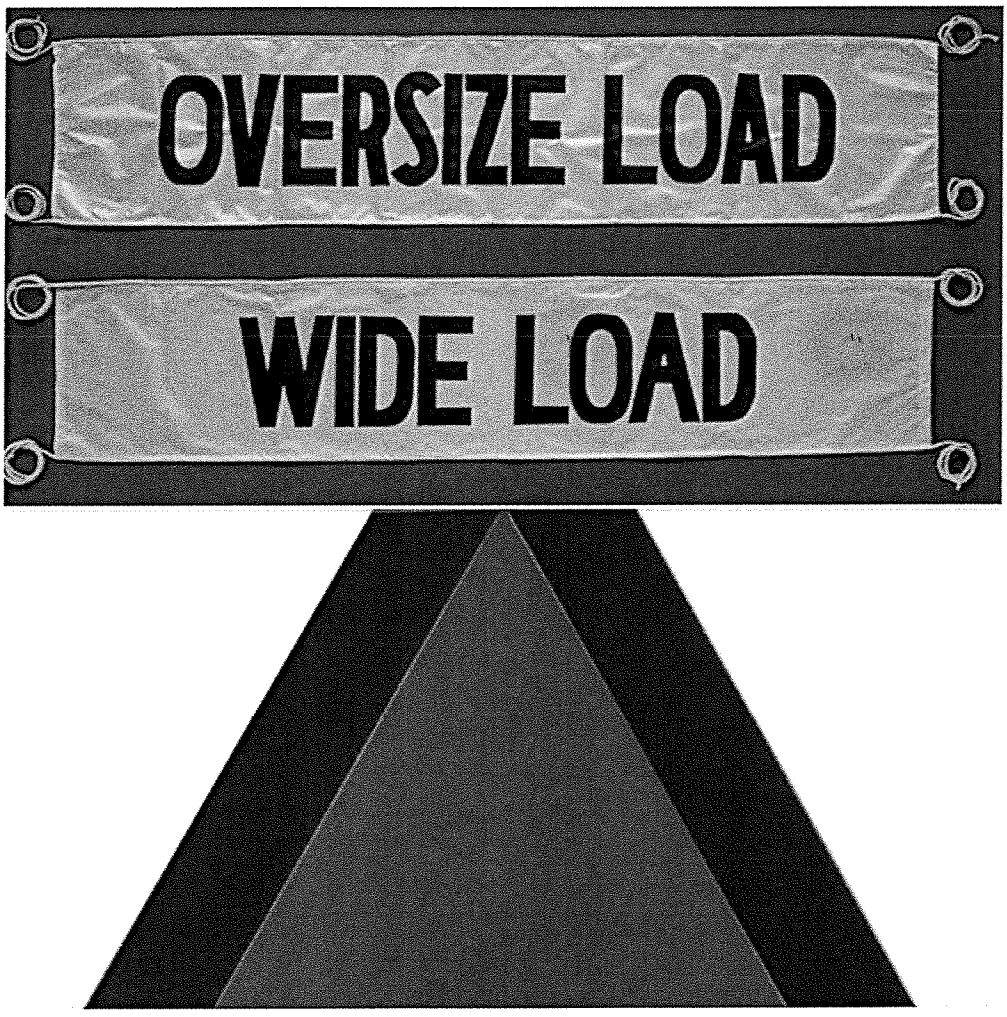
BCEM is currently working on updating our 5 year PDM (Pre Disaster Mitigation) plan and we are looking for your input. Below is a link to a quick survey to help us understand what you feel is important when it comes to natural disaster issues. We would appreciate your feedback.
https://www.mvalchemer.com/.../Brown-County-Hazard...

Brown County Hazard Mitigation Survey

Like Comment Share

Brown County SD Office of Emergency Management
September 19 at 1:48 PM ·

As harvest is getting underway we want to remind you of the extra vehicles on the roadways. Please slow down move over for farm machinery. We want everyone to make it home.
Stay Safe Friends...



66 4 Comments 62 Shares

Like Comment Share

Most Relevant

Write a comment...

Bryan Mardian
And farm equipment operators need to be reminded

SDWARN

News & Events

News
[+] SDWARN Functional Exerc...
[+] Member Access Requireme...
Events
[+] SDWARN Functional Exerc...
[+] Annual Business Meeting
More news & events

Become a SDWARN member today!

- Updates on news & events
- Access to online resources
- And much more!

>> Click here to sign up!

Contact Us

Brad Lawrence
SDWARN Chair
Contact Brad
P: 605-256-7522
Greg Gross
South Dakota Association of Rural Water Systems (SDARWS)
Contact Greg
P: 605-556-7219

What is SDWARN?

SDWARN is a statewide Water/Wastewater Agency Response Network (WARN) of "utilities helping utilities" to prepare for the next natural or human-caused emergency. Click here to learn more.

Why do we need SDWARN?

Water and wastewater systems provide our communities with a life-sustaining resource that is of vital importance to maintaining public health, sanitation and safety. When water and wastewater services are interrupted for extended periods of time, a community's well-being quickly deteriorates, as evidenced by Hurricane Katrina. And without an adequate water supply, our communities are vulnerable to devastating fires. By restoring water and wastewater service in the most efficient manner possible, SDWARN provides renewed hope for fast recovery from such disasters.

How does SDWARN help?

SDWARN provides water and wastewater utilities with:

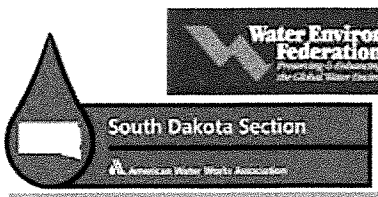
- A Mutual Aid Agreement and process for sharing emergency resources among water and wastewater agencies statewide.
- A mutual assistance program consistent with other statewide mutual aid and assistance programs and the National Incident Management System.
- The resources to respond and recover more quickly from a natural or human caused disaster.
- A forum for developing and maintaining emergency contacts and relationships.

Why Join SDWARN?

Who is more likely to have that specialized pump or valve your system needs to get back on line in a hurry? That's right, another water or wastewater system. So join your peers in SDWARN and become part of the network dedicated to keeping our communities healthy, sanitary and safe.

Renewed hope

When water and wastewater service is restored, people have a renewed sense of hope that recovery is forthcoming!


Water Environment Federation
South Dakota Section

SOUTH DAKOTA WATER & WASTEWATER ASSOCIATION
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South Dakota Association of
Environmental Professionals

RURAL
WATER CENTER

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Brown County
Local Emergency Planning Committee
September 21st, 2021
Minutes

A. Call to Order.

Kelly Serr, Mike Stucke, Deanna Harber, Scott Meints, Sarah Jesz, Joel Weig, Joe Alvarez, Tony Jones, Candy Perry, Mike Thompson

B. Reading, Correction and Approval of Meeting Minutes from September 21st, 2021.

Moved by Mike Stucke and seconded by Deanna Harber to approve meeting minutes as e-mailed. Motion carried by vote.

C. Secretary/Treasurer's Report. Tabled to next meeting with absence of Secretary/Treasurer. Previous balance- $ 1,212.78.

D. Old Business.

1. Pre-Disaster Mitigation Plan Update status report. Second Public meeting yesterday.
   Public meeting yesterday. Discussed Soft Match requirements. State climatologist gave weather projections for future. Wetter springs and possibly September. Soil moisture higher/elevated. Warmer minimum temperatures and overnight temperature. More precipitation in bigger events.
   State hazard plan- Isolated sites away from ready shelter.
   Critical structures/infrastructure discussion.
   Next meeting October 18th at 1:00 P.M. in Community Room.
2. County burn ban lifted on August 23rd. Scott Meints- working on revised procedure or ordinance at present. Not present to County Commission at present.
3. .
4. Any other Old Business.

E. New Business.

1. Flu/Coronavirus/West Nile/Zika Virus/POD Updates/information- S.D. DOH/Brown County Health Department.
   Deanna Harber- High Community spread. 381 active cases in Brown County. Individual testing at home, order kit at COVIDSD.gov. 48-72 hour turnaround on results. Flu vaccine is in. $46.00 if no insurance per dose. 36 cases and 1 death last year. Sanford Flu Clinic weekend.
2. Election of Officers for 2022 upcoming at November meeting.
3. Hazardous Materials incident responses or events since September meeting.

Brown County
Local Emergency Planning Committee
September 21st, 2021
Minutes

Scott Meints - Closure of Tank Removals from former Hardees site- Two (2). Windstorm event from a few weeks ago. Northwestern Energy transformer fluid/oil release(s) on poles down on North Roosevelt Street- Closure.

4. Scott Meints – Annual report of railroad transportation of hazardous materials information sent to hospitals and fire departments.
5. Scott Meints - Working on 82nd Civil Support team [S. D. National Guard] visit/training for October.
6. SARA Title III Tier II Reporting Information for 2021- Approximately 36 reports received, as of March meeting.
7. National Weather Service – Weather/Forecast Updates.
   Kelly Serr- Wind event, hail, etc. Day to Grant County, 225 mile path of destruction. 4.10 inches of rain for August. Greater in Northern Brown, Day and Grant counties. 2.05 inches of rain for September so far. Normal temperatures forecast. Dry next week. Above normal temperatures for October. First freeze October 1st to 10th. 32° F or lower- Frost/Freeze warning issued.
8. Any other New Business.

F. Announcements

1. Next Meeting October 19th, 2021 at 11:30 A.M.

2021 Meeting Dates

~~January 19th~~	~~February 16th~~
~~March 16th~~	~~April 20th~~
~~May 18th~~	~~June 15th~~
~~July 20th~~	~~August 17th~~
~~September 21st~~	October 19th
November 16th	December 21st

All meetings start at 11:30 A.M. and conclude by 12:45 P.M.

G. Adjournment of LEPC Meeting.

Moved by Mike Stucke and seconded by Candy Perry for adjournment. Motion carried by vote.

H. Emergency Plan, Facility or Exercise Review Activity (ies).

Brown County Mitigation Planning Meeting

Agenda

October 18, 2021

1pm to 3 pm

Brown County Courthouse Community Room

I. **Introductions**
II. **Getting Started**
    a. "Sign in-sheet"
    b. Local match requirements
    c. Opportunity for public participation
        i. County Commission Meetings/ City Council Meetings
        ii. Opportunities for Comments on Draft Plan:
III. **Survey Results**
    a. Input from residents.
IV. **Mitigation Strategy**
    a. Updates on completed projects.
V. **Project Discussion**
    a. Project discussion: Future Projects for each jurisdiction
VI. **Plan Process Progress**
    a. Plan submission to SD OEM and FEMA
    b. Public input period

PDM Planning Meeting October 18, 2021 1 p.m. Brown County Courthouse

NAME	LOCAL JURISDICTION	MILES TRAVELED	PHONE	EMAIL
Michael J. Thompson	B.C. LEPC Chair	1½	(605) 229-4457	MjThompsonFM99c outlook.com

PDM Planning Meeting October 18, 2021 1 p.m. Brown County Courthouse

NAME	LOCAL JURISDICTION	MILES TRAVELED	PHONE	EMAIL
Scott Meints	BCEM			
Patti Woods	BCEM			
Paul Kosel	Groton	40	605-397-7460	cityshop@grotonsd.net
Hope Block	"	"	605 397 8422	city.hope@nvc.net
Chad Nilson	Aberdeen Fire	0	216-0305	chad.nilson@aberdeen.sd.us
Charles Coleman	Tacoma Park	29	380-9114	
Cathy Meyerhoff	Brown Co.	0		
Tom Jones	The Salvation Army	0	225-7410	
Sid Schroeder	Tacoma Park	0	252-0040	sidlsch@hotmail.com

BROWN COUNTY COMMISSION AGENDA
REGULAR MEETING TUESDAY
October 19, 2021
COMMISSIONER'S CHAMBERS, COURTHOUSE ANNEX - 25 MARKET STREET, ABERDEEN SD

8:45 a.m. - 8:46 a.m. – Pledge of Allegiance, Approval of Agenda
8:46 a.m. – 8:48 a.m. - First Reading Rezone Ord 203 and 204 (Mini Ag)
8:48 a.m. – 9:00 a.m. - Aberdeen Hockey Fair Concession Contract
9:00 a.m. – 9:05 a.m. - Scott Meints (Emergency Manager) Pre-Disaster Mitigation Plan Update
9:05 a.m. – 9:10 a.m. - Scott Bader (Planning and Zoning Director) Permit Fee Changes, Planning/Zoning Commission Application Fee Changes, Cannabis fee

- Approve General Meeting Minutes of October 12, 2021
- Claims
- Set Hearing Date and Authorize Advertising for Medical Cannabis Ordinance
- HR Report

Public Comment and any other matters to come before the Commission for discussion

Brown County Commission 10/19/21
Tue, Oct 19, 2021 8:30 AM - 11:00 AM (CDT)

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Brown County
Local Emergency Planning Committee
October 19th, 2021

A. Call to Order.
Members Present: (Zoom)-JR Huebner, Michael Thompson, Scott Meints, Mike Stucke, Patti Woods, Kent Jones, DeAnna Harber, Sarah Jesz, Fah Latterell, Tony Jones, Marcy Harder, Tanner Jondahl, Candi Perry, Mark Hanley, Dave McNeil, Chad Nilson, Kelly Serr, Robin Bobzien, Dave Lunzman, Jason Herbeck

B. Reading, Correction and Approval of Meeting Minutes from July 20th, 2021.
One correction WEA alerts will NOW not not.

C. Motion by Chad Nilson to approve minutes as read. Motion second by Dave Lunzman. Motion carried upon vote.

D. Reading, Correction and Approval of Meeting Minutes from September 21st, 2021.
Corrections B. May 18th not September 21; D-2 presented; E-3 July not September.

E. Motion by Chad Nilson to approve minutes as read. Motion second by Robin Bobzien. Motion carried upon vote.

F. Secretary/Treasurer's Report. Balance $3326.13 after deposit of $2113.35 state. Motion by Mike Stucke to accept the treasurer's report. Motion Second by Robin Bobzien. Motion carried upon vote.

G. Old Business.
   1. Pre-Distaster Mitigation Plan Update status report. Fourth Public meeting 10/18/2021. Draft copy is available if you don't have one. There have been a few additions and corrections and it is pretty much ready to go.
   2. Any other Old Business.

H. New Business.
   1. Flu/Coronavirus/West Nile/Zika Virus/POD Updates/information- S.D. DOH/Brown County Health Department. DeAnna Harber reported as of 10/14/2021 no influenza; they are vaccinating at many locations. COVID is high community spread, 240 active, 16.5% positive rate, 193 hospital occupancy statewide.
      No update for POD. They did fill Alexandra Little position with Rick Forkel not sure if he will take over POD.
   2. Election of Officers for 2022 upcoming at November meeting.
   3. Hazardous Materials incident responses or events since September meeting. One report of a spill at the Starlite of some damaged totes in a trailer after he had to make a sudden traffic change. 30 gallons of hydraulic fluid.
   4. LEPC Grant application paperwork received. Due in Pierre November 30th. Has to be in Pierre, not postmarked or mailed by the 30th.
   5. SARA Title III Tier II Reporting Information for 2021- Approximately 36 reports received, as of March meeting. Added 3 more this week. Total 39.
   6. National Weather Service – Weather/Forecast Updates-No report
      Strange October with severe weather from October 9-13. SD had 6 tornado touchdowns with no damage and Minnesota had 5-6 with some damage.

Brown County
Local Emergency Planning Committee
October 19th, 2021

Brentford had a radar confirmed tornado. Forecast is a system will move in tomorrow with rain abut only have to go as far as Eagle Butte to see snow. There will be cold behind this system and below normal temps for the rest of the week with another system to move in Saturday and Sunday. We will see wetter weather for the rest of the month. The official Winter Weather outlook trends toward the La Niña pattern with lower temps, cold more frequently with clipper systems. The frost freeze warnings will no longer be issued since it is the end of the growing season.

7. Any other New Business.

Any other New Business.

Motion to adjourn by Chad Nilson with second by Mike Stucke. Motion carried.

F. Announcements

1. Next Meeting November 16th, 2021 at 11:30 A.M.

2021 Meeting Dates

~~January 19~~ -Covid	~~February 16th~~ Covid
~~March 16th~~	~~April 20th~~
~~May 18th~~	June 15th NO meeting
~~July 20th~~	August 17th NO meeting
~~September 21st~~	~~October 19th~~
November 16th	December 21st

All meetings start at 11:30 A.M. and conclude by 12:45 P.M.

G. Adjournment of LEPC Meeting.

H. Emergency Plan, Facility or Exercise Review Activity (ies).

APPENDIX C

Braun County Totals

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Brown County

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Mike Wiese
Brown County

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Brown County

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Duane Sutton-Brown Co

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Brown (Auditor)

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Mitigation Planning

Ments - Brown Co

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Brown County

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Mike Wiese
Brown County

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Brown County

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Duane Sutton - Brown Co.

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Brown (Auditor)

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Mitigation Planning

Meints - Brown Co

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Aberdeen Totals

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Mitigation Planning

CITY OF MEDFORD

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Anderson

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Rob Ronaye
Alsea City Council

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Rob Ronaye
Abdn City Council

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

CITY OF ABERDEEN

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Aberdeen

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

F.M.

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

C

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

RC

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Roerwick

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Group Totals Sheet

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Paul
City of Groton

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Groton City

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Paul
City of Groton

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Groton City

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Heda

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Hecla

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Stratford

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

Scattered

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Tacoma Park Association

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

Hazard	High Probability to Occur	Low Probability to Occur	Unlikely to Occur
	(at least once per year)	(Hazards that may have occurred in the past or could occur in the future but do not occur on a yearly basis)	(Hazards or disasters that have never occurred in the area before and are unlikely to occur
Dam Failure		✓	
Drought	2.	✓	
Earthquake			✓
Extreme Cold	✓		
Extreme Heat	✓		
Flash Flood		✓	
Flood		✓	
Freezing Rain/Sleet/Ice	✓		
Hail	✓		
Heavy Rain	✓		
Heavy Snow	✓		
Ice Jam		✓	
Landslide		✓	✓
Lightning		✓	
Rapid Snow Melt		✓	
Strong Winds	✓		
Subsidence		✓	
Thunderstorm	✓		
Tornado		✓	
Urban Fire		✓	
Utility Interruption	✓		
Wild Fire		✓	

Mitigation Planning

Worksheet #2

Risk Assessment Worksheet - Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words, if the hazard occurs is there a potential impact to the community?

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

Warner

Mitigation Planning

Worksheet #1

Risk Assessment Worksheet - Hazard Identification

What is the probability of occurrence of the following hazards?

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

APPENDIX D

The Free Plan is limited to 100 responses per survey and 3 surveys. Click here to upgrade your account!

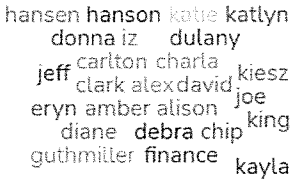
Report for Brown

Nov 1, 2021

Response Counts

Completion Rate:	**100%**	
	Complete	35
		Totals: 35

1. Name:



Show Responses

2. Where do you live in Brown County?

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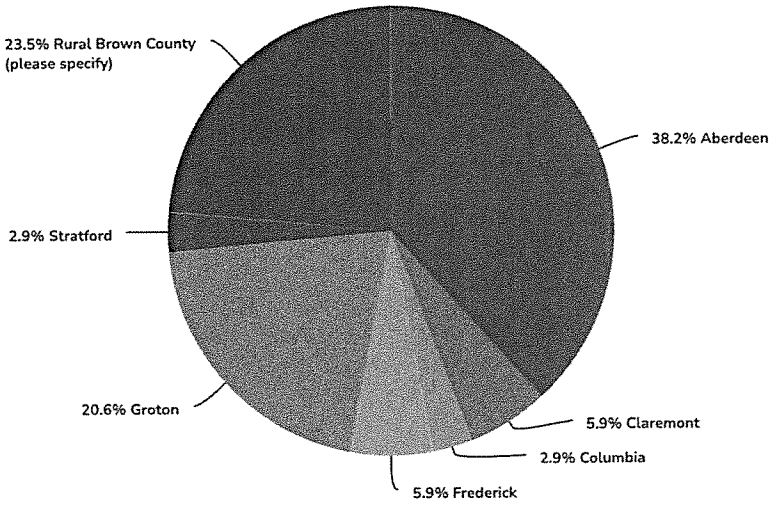

Value	Percent	Responses
Aberdeen	38.2%	13
Claremont	5.9%	2
Columbia	2.9%	1
Frederick	5.9%	2
Groton	20.6%	7
Stratford	2.9%	1
Rural Brown County (please specify) (click to view)	23.5%	8
		Totals: 34

Rural Brown County (please specify)	Count
Around Tacoma Park	1
Bath	1
Conde address, physical location in Brown County one mile north of the Brown/Spink County line.	1
Ferney	1
Ordway	1
SW of Aberdeen about 10 miles	1
West of Mansfield	1
north of Aberdeen	1
Totals	8

3. Which of the following hazards are most likely to happen where you live? Please rank 1-7 (1 occurring the most often and 7 the least often to occur)

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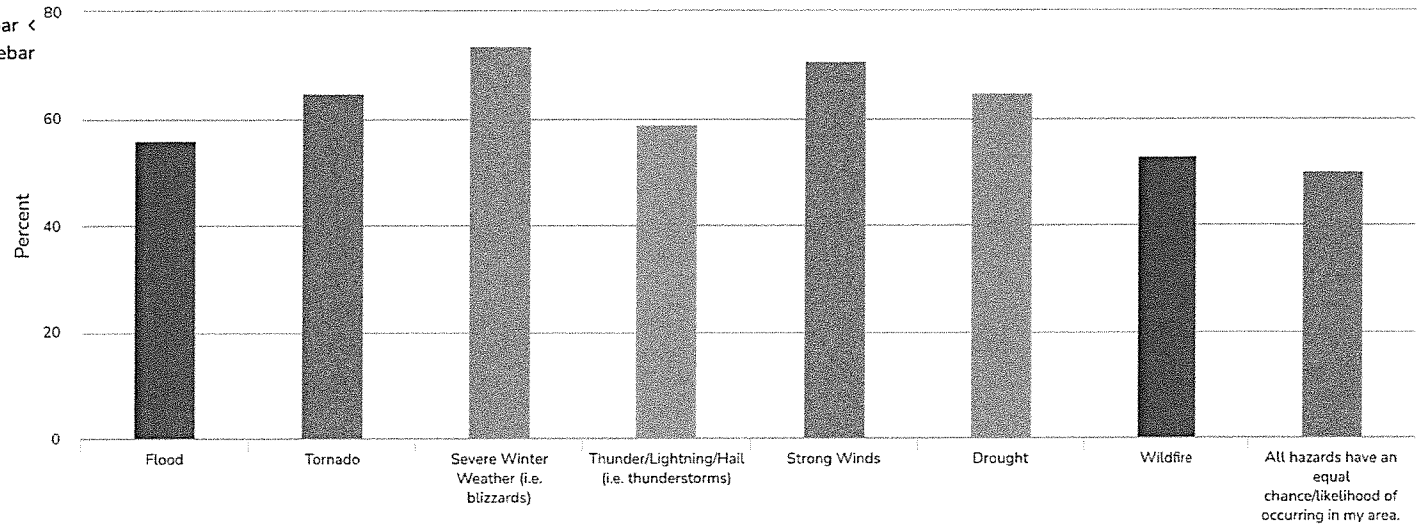
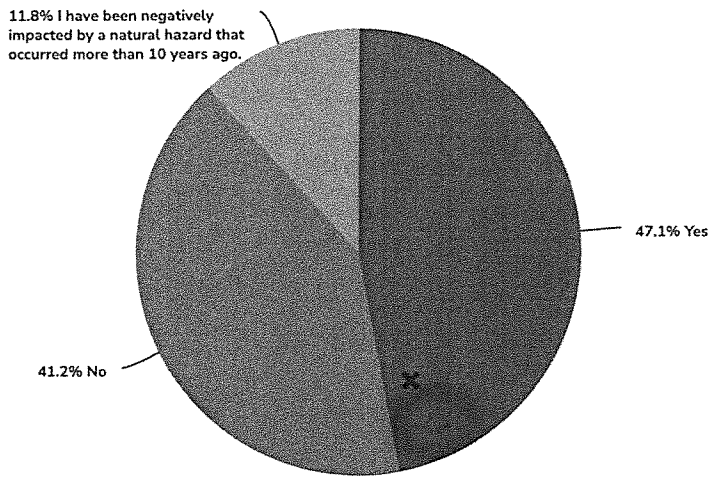


Value	Percent	Responses
Flood (click to view)	55.9%	19
Tornado (click to view)	64.7%	22
Severe Winter Weather (i.e. blizzards) (click to view)	73.5%	25
Thunder/Lightning/Hail (i.e. thunderstorms) (click to view)	58.8%	20
Strong Winds (click to view)	70.6%	24
Drought (click to view)	64.7%	22
Wildfire (click to view)	52.9%	18
All hazards have an equal chance/likelihood of occurring in my area. (click to view)	50.0%	17

4. Have you been negatively affected by a natural hazard in the last 10 years?



Value	Percent	Responses
Yes	47.1%	16
No	41.2%	14

Totals: 34

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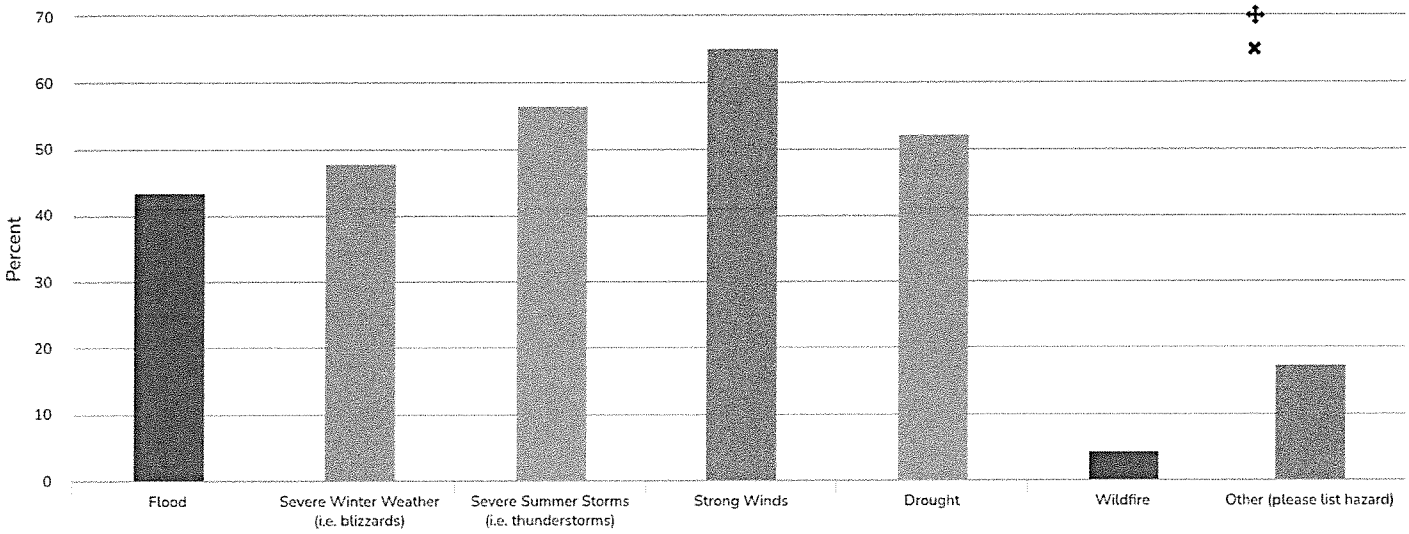
› Expand

Value	Percent	Responses
I have been negatively impacted by a natural hazard that occurred more than 10 years ago.	11.8%	4
		Totals: 34

5. If you have been negatively affected buy a natural hazard in the last 10 years, what were you affected by? (you can choose more than one)



Value	Percent	Responses
Flood	43.5%	10
Severe Winter Weather (i.e. blizzards)	47.8%	11
Severe Summer Storms (i.e. thunderstorms)	56.5%	13
Strong Winds	65.2%	15
Drought	52.2%	12
Wildfire	4.3%	1
Other (please list hazard) (click to view)	17.4%	4

6. Did the natural hazard cause any of the following? (you can choose more than one)

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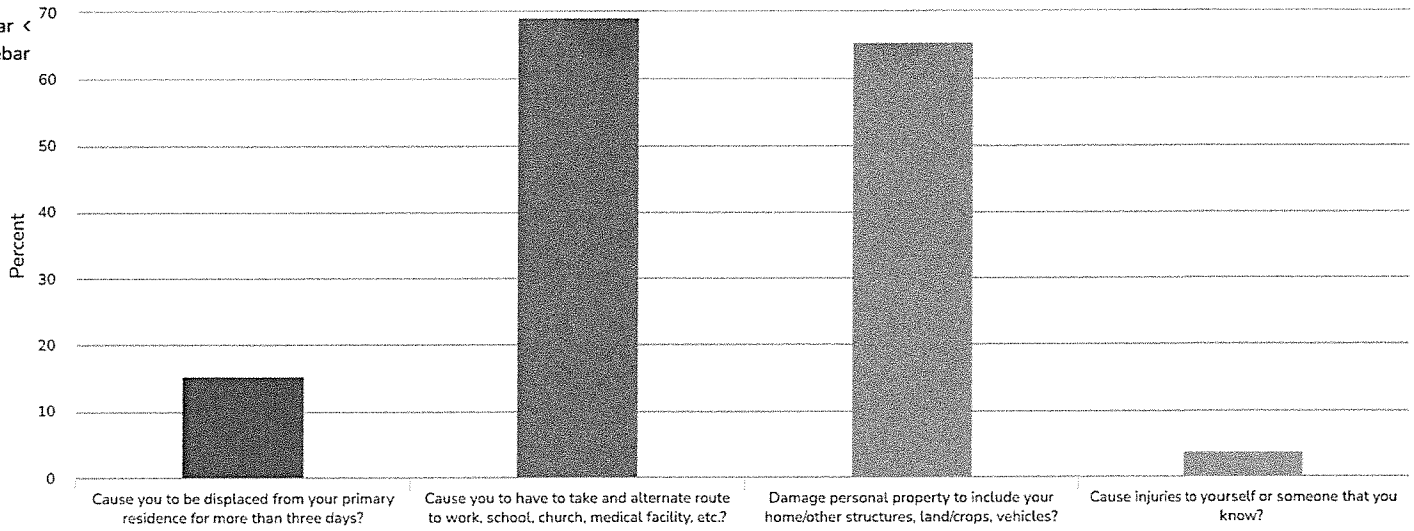
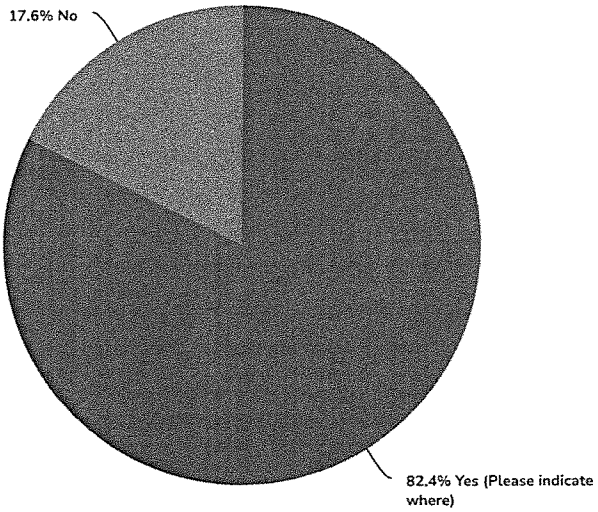


Value	Percent	Responses
Cause you to be displaced from your primary residence for more than three days?	15.4%	4
Cause you to have to take and alternate route to work, school, church, medical facility, etc.?	69.2%	18
Damage personal property to include your home/other structures, land/crops, vehicles?	65.4%	17
Cause injuries to yourself or someone that you know?	3.8%	1

7. Do you have a safe place to go in the event of a tornado?



Value	Percent	Responses
Yes (Please indicate where) (click to view)	82.4%	28
No	17.6%	6
		Totals: 34

Yes (Please indicate where)	Count
Basement	10
Basement	6
Totals	26

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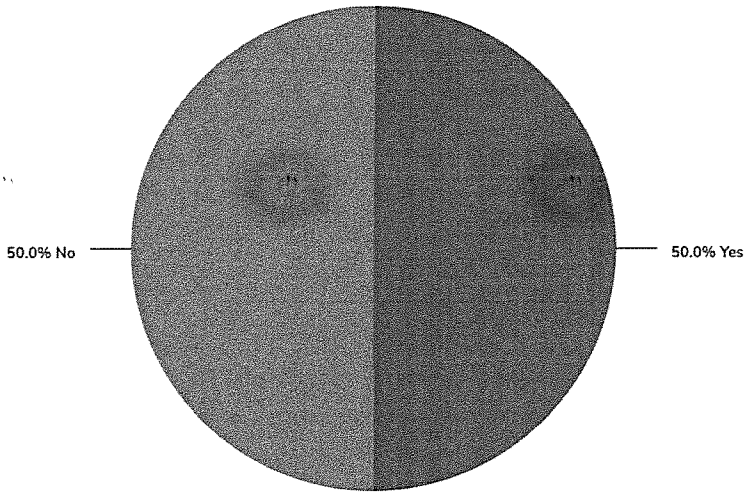
Yes (Please indicate where)	Count
basement	3
Crawl space	1
Family	1
Family	1
My home basement	1
Reinforced area in basement	1
Windowless interior basement room	1
storm shelter	1
Totals	26

8. Do you know where storm shelters are located in your area?



Value	Percent	Responses
Yes	50.0%	17
No	50.0%	17
		Totals: 34

9. Is there need for a storm shelter in your area?

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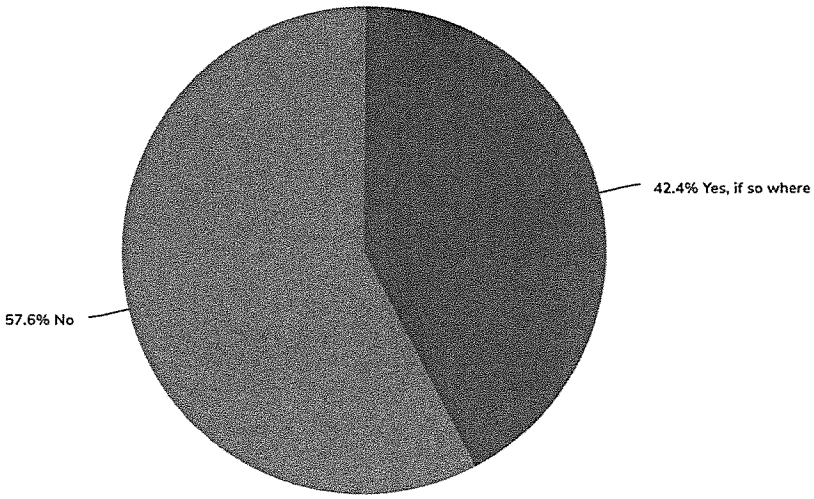

Value	Percent	Responses
Yes, if so where (click to view)	42.4%	14
No	57.6%	19
		Totals: 33

Yes, if so where	Count
Aberdeen	2
Around town	1
Better access for disabled in Stratford	1
Ferney doesn't have one	1
I wouldn't have any idea where you would put one in a rural setting.	1
Not sure	1
School	1
School facilities work well.	1
Water treatment plant	1
Totals	10

10. Do you have an alternate source of heat if you were to lose power in a severe winter storm?

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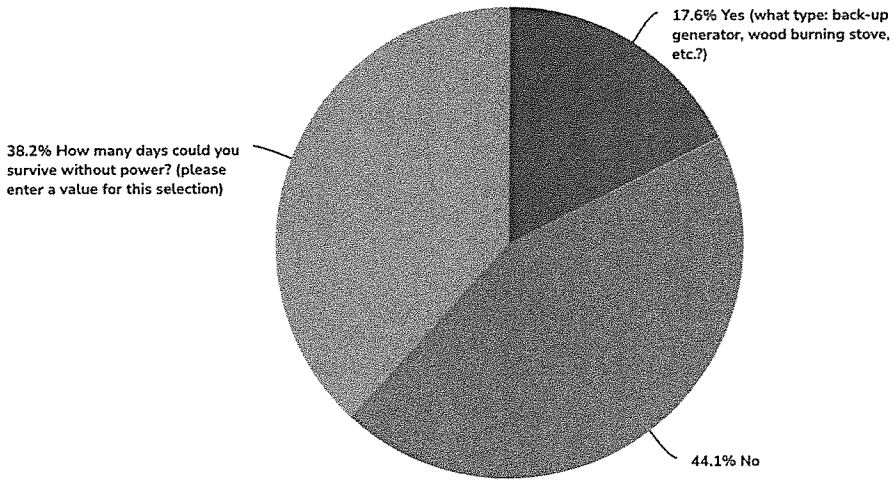

Value	Percent	Responses
Yes (what type: back-up generator, wood burning stove, etc.?) (click to view)	17.6%	6
No	44.1%	15
How many days could you survive without power? (please enter a value for this selection) (click to view)	38.2%	13
		Totals: 34

Yes (what type: back-up generator, wood burning stove, etc.?)	Count
Generator	2
Generator	1
back-up generator	1
generator	1
Totals	5

How many days could you survive without power? (please enter a value for this selection)	Count
3	3
10	1
14	1
2	1
2-3	1
3-4 days	1
5-7	1
My well soon a water pump, so the pipes could freeze so not too long in freezing weather.	1
Physically forever, mentally couple days	1
seven days or more if roads accessible for propane delivery	1
several weeks	1
Totals	13

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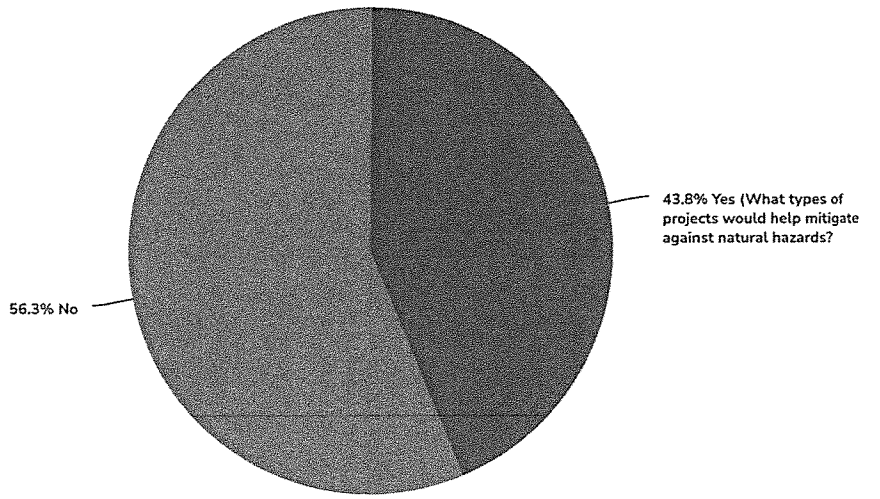
11. Do you feel local governing bodies could/should do more to mitigate effects of natural hazards that occur in the Brown County area?



Value	Percent	Responses
Yes (What types of projects would help mitigate against natural hazards? (click to view)	43.8%	14
No	56.3%	18
		Totals: 32

Yes (What types of projects would help mitigate against natural hazards?	Count
All roads be plowed in the town of Bath. Road to the church and road even if it is a loop	1
Asl interpreters actual access to the storm shelter	1
Better drainage systems for the town and surrounding area for flooding.	1
Flood	1
Fortification of alternate roads should we have another flooding across James River	1
Manage elm lake levels better to prevent flooding in wet springs	1
Not sure what you can do.	1
Plowing in a more timely manner on my street, trimming of dead branches	1
something to help people especially in the winter in blizzards conditions when power is loss when they dont have a source of heat	1
Totals	9

APPENDIX E

APPENDIX E:

Brown County Natural Hazards

From January 1, 2011 to March 1, 2021

(Resource: National Oceanic and Atmospheric Administration Database)

NOAA Drought Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
BROWN (ZONE)	10/1/2012	0:00	Drought		0	0	0.00K	0.00K
BROWN (ZONE)	11/1/2012	0:00	Drought		0	0	0.00K	0.00K
BROWN (ZONE)	12/1/2012	0:00	Drought		0	0	0.00K	0.00K
BROWN (ZONE)	1/1/2013	0:00	Drought		0	0	0.00K	0.00K
BROWN (ZONE)	2/1/2013	0:00	Drought		0	0	0.00K	0.00K
BROWN (ZONE)	6/6/2017	6:00	Drought		0	0	0.00K	0.00K
BROWN (ZONE)	7/1/2017	0:00	Drought		0	0	0.00K	0.00K
BROWN (ZONE)	8/1/2017	0:00	Drought		0	0	0.00K	0.00K
BROWN (ZONE)	6/5/2018	6:00	Drought		0	0	0.00K	0.00K
BROWN (ZONE)	7/1/2018	0:00	Drought		0	0	0.00K	0.00K
BROWN (ZONE)	8/14/2018	7:00	Drought		0	0	0.00K	0.00K
BROWN (ZONE)	9/1/2018	0:00	Drought		0	0	0.00K	0.00K
BROWN (ZONE)	10/1/2018	0:00	Drought		0	0	0.00K	0.00K
Total: 13					0	0	0	0

Brown County had four years with drought that lasted more than a month. There is approximately a 40% chance that there will be a drought during the year in Brown County.

NOAA Dust Storm Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
BROWN (ZONE)	6/1/2018	19:45	Dust Storm		0	0	0.00K	0.00K
Total: 1					0	0	0	0

Brown County had one recorded dust storm in NOAA's website occurring in the county. This would indicate a 10% chance of a dust storm occurring each year.

NOAA Flash Flood Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
ABERDEEN	7/5/2011	0:30	Flash Flood		0	0	0.00K	0.00K
ABERDEEN	7/10/2011	17:08	Flash Flood		0	0	0.00K	0.00K
ABERDEEN	8/23/2014	23:20	Flash Flood		0	0	0.00K	0.00K
COLUMBIA	8/6/2015	5:30	Flash Flood		0	0	0.00K	0.00K
(ABR) RGNL A	12/25/2016	17:40	Flash Flood		0	0	0.00K	0.00K
FREDERICK	7/25/2020	2:30	Flash Flood		0	0	0.00K	0.00K
Total: 6					0	0	0	0

There are six reports of flash flood in the Brown County area. There is a 60% chance of a flash flood occurring in the County in a year.

NOAA Flood Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
WINSHIP	3/15/2011	8:00	Flood		0	0	0.00K	0.00K
HECLA	3/22/2011	8:00	Flood		0	0	0.00K	0.00K
WINSHIP	3/22/2011	8:00	Flood		0	0	0.00K	0.00K
HECLA	4/1/2011	0:00	Flood		0	0	0.00K	0.00K
WINSHIP	4/1/2011	0:00	Flood		0	0	0.00K	0.00K
WINSHIP	4/3/2011	7:00	Flood		0	0	0.00K	0.00K
WINSHIP	5/1/2011	0:00	Flood		0	0	0.00K	0.00K
HECLA	5/1/2011	0:00	Flood		0	0	0.00K	0.00K
HECLA	6/1/2011	0:00	Flood		0	0	0.00K	0.00K
WINSHIP	6/1/2011	0:00	Flood		0	0	0.00K	0.00K
WINSHIP	6/20/2011	14:00	Flood		0	0	0.00K	0.00K
WINSHIP	6/22/2011	7:00	Flood		0	0	0.00K	0.00K
HECLA	7/1/2011	0:00	Flood		0	0	0.00K	0.00K
WINSHIP	7/1/2011	0:00	Flood		0	0	0.00K	0.00K
HECLA	8/1/2011	0:00	Flood		0	0	0.00K	0.00K
HECLA	9/1/2011	0:00	Flood		0	0	0.00K	0.00K

HECLA	10/1/2011	0:00	Flood		0	0	0.00K	0.00K
HECLA	11/1/2011	0:00	Flood		0	0	0.00K	0.00K
HECLA	12/1/2011	0:00	Flood		0	0	0.00K	0.00K
STRATFORD	1/1/2012	0:00	Flood		0	0	0.00K	0.00K
HECLA	5/30/2013	22:00	Flood		0	0	0.00K	0.00K
HECLA	6/1/2013	0:00	Flood		0	0	0.00K	0.00K
HECLA	7/1/2013	0:00	Flood		0	0	0.00K	0.00K
HECLA	8/1/2013	0:00	Flood		0	0	0.00K	0.00K
PLANA	9/1/2013	0:00	Flood		0	0	0.00K	0.00K
HECLA	5/4/2014	11:00	Flood		0	0	0.00K	0.00K
HECLA	6/22/2014	20:15	Flood		0	0	0.00K	0.00K
HECLA	7/1/2014	0:00	Flood		0	0	0.00K	0.00K
HECLA	8/31/2014	6:00	Flood		0	0	0.00K	0.00K
HECLA	5/18/2015	2:45	Flood		0	0	0.00K	0.00K
HECLA	6/1/2015	0:00	Flood		0	0	0.00K	0.00K
HECLA	7/1/2015	0:00	Flood		0	0	0.00K	0.00K
FREDERICK	8/6/2015	8:15	Flood		0	0	0.00K	0.00K
FREDERICK	8/12/2016	0:30	Flood		0	0	0.00K	0.00K
WINSHIP	2/21/2017	12:15	Flood		0	0	0.00K	0.00K
HECLA	2/21/2017	17:30	Flood		0	0	0.00K	0.00K
HECLA	3/1/2017	0:00	Flood		0	0	0.00K	0.00K
HECLA	4/21/2018	22:00	Flood		0	0	0.00K	0.00K
HECLA	5/1/2018	0:00	Flood		0	0	0.00K	0.00K
WINSHIP	3/27/2019	0:00	Flood		0	0	0.00K	0.00K
WINSHIP	3/30/2019	14:30	Flood		0	0	0.00K	0.00K
WINSHIP	4/1/2019	0:00	Flood		0	0	745.30K	0.00K
RICHMOND	4/1/2019	0:00	Flood		0	0	0.00K	0.00K
FREDERICK	4/1/2019	0:00	Flood		0	0	0.00K	0.00K
BARNARD	4/1/2019	0:30	Flood		0	0	0.00K	0.00K
HECLA	4/2/2019	0:00	Flood		0	0	0.00K	0.00K

WINSHIP	4/2/2019	1:00	Flood		0	0	0.00K	0.00K
ABERDEEN	4/3/2019	13:00	Flood		0	0	0.00K	0.00K
HECLA	5/1/2019	0:00	Flood		0	0	0.00K	0.00K
WINSHIP	5/1/2019	0:00	Flood		0	0	0.00K	0.00K
WINSHIP	6/1/2019	0:00	Flood		0	0	0.00K	35.970M
HECLA	6/1/2019	0:00	Flood		0	0	0.00K	0.00K
HECLA	6/21/2019	20:00	Flood		0	0	0.00K	0.00K
HECLA	7/1/2019	0:00	Flood		0	0	0.00K	0.00K
HECLA	8/1/2019	0:00	Flood		0	0	0.00K	0.00K
HECLA	9/1/2019	0:00	Flood		0	0	0.00K	0.00K
HECLA	10/1/2019	0:00	Flood		0	0	0.00K	0.00K
HECLA	11/1/2019	0:00	Flood		0	0	0.00K	0.00K
HECLA	12/1/2019	0:00	Flood		0	0	0.00K	0.00K
HECLA	1/1/2020	0:00	Flood		0	0	0.00K	0.00K
HECLA	2/1/2020	0:00	Flood		0	0	0.00K	0.00K
HECLA	3/1/2020	0:00	Flood		0	0	0.00K	0.00K
HECLA	4/1/2020	0:00	Flood		0	0	0.00K	0.00K
HECLA	5/1/2020	0:00	Flood		0	0	0.00K	0.00K
HECLA	6/1/2020	0:00	Flood		0	0	0.00K	0.00K
HECLA	7/1/2020	0:00	Flood		0	0	0.00K	0.00K
WINSHIP	7/24/2020	22:00	Flood		0	0	0.00K	0.00K
WINSHIP	7/24/2020	23:30	Flood		0	0	0.00K	0.00K
HECLA	8/1/2020	0:00	Flood		0	0	0.00K	0.00K
BATH	9/1/2020	0:00	Flood		0	0	0.00K	0.00K
Total: 70					0	0	745.30K	35.970M

There are 70 occurrences of flood in the Brown County area from 2011 to 2021. Of those occurrences, flooding occurred over 8 time periods: 3/15/2011 to 1/1/2012; 5/30/2013 to 9/1/2013; 5/4/2014 to 8/31/2014; 5/18/2015 to 8/6/2015; 8/12/2016; 2/21/2107 to 3/1/2017; 4/21/2018 to 5/1/2018; 3/27/2019 to 9/1/2020. Considering each of these as a flood, there is an 80% chance of flooding on a given year in Brown County.

NOAA Hail Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
HOUGHTON	5/9/2011	22:50	Hail	1.00 in.	0	0	0.00K	0.00K
STRATFORD	5/21/2011	16:40	Hail	0.75 in.	0	0	0.00K	0.00K
RICHMOND	7/4/2011	21:03	Hail	1.00 in.	0	0	0.00K	0.00K
GAGE	7/4/2011	21:45	Hail	1.00 in.	0	0	0.00K	0.00K
ABERDEEN	7/4/2011	22:15	Hail	1.00 in.	0	0	0.00K	0.00K
ABERDEEN	7/4/2011	22:22	Hail	1.00 in.	0	0	0.00K	0.00K
RICHMOND	7/4/2011	23:48	Hail	1.00 in.	0	0	0.00K	0.00K
ABERDEEN	7/10/2011	17:42	Hail	0.75 in.	0	0	0.00K	0.00K
(ABR)ABERDEEN RGNL A	7/10/2011	17:45	Hail	0.75 in.	0	0	0.00K	0.00K
HECLA	5/26/2012	23:01	Hail	1.00 in.	0	0	0.00K	0.00K
WESTPORT	6/1/2012	16:00	Hail	1.00 in.	0	0	0.00K	0.00K
BATH	6/1/2012	16:50	Hail	1.00 in.	0	0	0.00K	0.00K
FERNEY	6/1/2012	17:15	Hail	1.00 in.	0	0	0.00K	0.00K
RICHMOND	6/17/2012	16:29	Hail	1.00 in.	0	0	0.00K	0.00K
ORDWAY	6/17/2012	16:35	Hail	1.00 in.	0	0	0.00K	0.00K
HUFFTON	6/17/2012	16:45	Hail	1.00 in.	0	0	0.00K	0.00K
JAMES	6/17/2012	17:05	Hail	2.25 in.	0	0	0.00K	0.00K
GROTON MUNI ARPT	6/17/2012	17:15	Hail	1.00 in.	0	0	0.00K	0.00K
JAMES	6/17/2012	17:45	Hail	1.75 in.	0	0	0.00K	0.00K
BARNARD	6/19/2012	1:55	Hail	1.75 in.	0	0	0.00K	0.00K
WINSHIP	6/19/2012	2:50	Hail	1.00 in.	0	0	0.00K	0.00K
BATH	8/28/2012	2:20	Hail	0.88 in.	0	0	0.00K	0.00K
FREDERICK	8/28/2012	2:45	Hail	1.75 in.	0	0	0.00K	0.00K
BARNARD	8/28/2012	2:55	Hail	1.00 in.	0	0	0.00K	0.00K
RICHMOND	6/19/2013	21:55	Hail	0.88 in.	0	0	0.00K	0.00K
WINSHIP	7/9/2013	17:50	Hail	1.50 in.	0	0	0.00K	0.00K
FREDERICK	7/9/2013	17:55	Hail	1.00 in.	0	0	0.00K	0.00K
FREDERICK	7/9/2013	17:58	Hail	1.75 in.	0	0	0.00K	0.00K

BARNARD	7/9/2013	18:01	Hail	1.25 in.	0	0	0.00K	0.00K
WESTPORT	7/9/2013	18:05	Hail	2.50 in.	0	0	0.00K	0.00K
COLUMBIA	7/9/2013	18:05	Hail	2.75 in.	0	0	0.00K	0.00K
COLUMBIA	7/9/2013	18:10	Hail	1.75 in.	0	0	0.00K	0.00K
PUTNEY	7/9/2013	18:15	Hail	1.75 in.	0	0	0.00K	0.00K
GROTON MUNI ARPT	7/9/2013	18:23	Hail	1.00 in.	0	0	0.00K	0.00K
GROTON MUNI ARPT	7/9/2013	18:30	Hail	2.00 in.	0	0	0.00K	0.00K
GROTON	7/9/2013	18:32	Hail	1.75 in.	0	0	0.00K	0.00K
GROTON	7/9/2013	18:34	Hail	1.50 in.	0	0	0.00K	0.00K
GROTON	7/9/2013	18:35	Hail	1.75 in.	0	0	0.00K	0.00K
HECLA	9/18/2013	17:00	Hail	2.00 in.	0	0	0.00K	0.00K
BATH	9/18/2013	17:50	Hail	1.00 in.	0	0	0.00K	0.00K
TACOMA PARK	9/18/2013	18:01	Hail	1.75 in.	0	0	0.00K	0.00K
GROTON MUNI ARPT	9/18/2013	18:45	Hail	1.75 in.	0	0	0.00K	0.00K
RICHMOND	9/18/2013	20:51	Hail	1.00 in.	0	0	0.00K	0.00K
ABERDEEN	9/18/2013	21:00	Hail	1.50 in.	0	0	0.00K	0.00K
ABERDEEN	9/18/2013	21:03	Hail	1.75 in.	0	0	0.00K	0.00K
PLANA	9/18/2013	21:15	Hail	1.00 in.	0	0	0.00K	0.00K
RUDOLPH	6/13/2014	22:41	Hail	1.00 in.	0	0	0.00K	0.00K
ABERDEEN	8/3/2014	16:47	Hail	1.00 in.	0	0	0.00K	0.00K
ABERDEEN	8/3/2014	16:50	Hail	1.25 in.	0	0	0.00K	0.00K
ABERDEEN	8/3/2014	16:52	Hail	1.75 in.	0	0	0.00K	0.00K
ABERDEEN	8/3/2014	16:53	Hail	1.00 in.	0	0	0.00K	0.00K
ABERDEEN	8/3/2014	16:55	Hail	1.00 in.	0	0	0.00K	0.00K
ABERDEEN	8/3/2014	16:55	Hail	0.88 in.	0	0	0.00K	0.00K
HECLA	5/28/2015	18:15	Hail	0.75 in.	0	0	0.00K	0.00K
RICHMOND	6/21/2015	23:00	Hail	1.00 in.	0	0	0.00K	0.00K
RICHMOND	6/21/2015	23:00	Hail	1.00 in.	0	0	0.00K	0.00K
RICHMOND	6/21/2015	23:05	Hail	2.75 in.	0	0	0.00K	0.00K
RICHMOND	6/21/2015	23:10	Hail	1.75 in.	0	0	0.00K	0.00K

ABERDEEN	6/21/2015	23:11	Hail	1.00 in.	0	0	0.00K	0.00K
GAGE	6/21/2015	23:15	Hail	1.50 in.	0	0	0.00K	0.00K
BATH	6/21/2015	23:18	Hail	1.75 in.	0	0	0.00K	0.00K
FERNEY	6/22/2015	0:10	Hail	1.00 in.	0	0	0.00K	0.00K
GAGE	6/27/2015	16:55	Hail	1.00 in.	0	0	0.00K	0.00K
ABERDEEN	7/5/2015	1:58	Hail	1.00 in.	0	0	0.00K	0.00K
ABERDEEN	7/5/2015	2:00	Hail	1.75 in.	0	0	0.00K	0.00K
(ABR)ABERDEEN RGNL A	7/5/2015	2:00	Hail	2.00 in.	0	0	0.00K	0.00K
WARNER	7/17/2015	16:43	Hail	1.00 in.	0	0	0.00K	0.00K
BARNARD	7/17/2015	16:49	Hail	1.00 in.	0	0	0.00K	0.00K
BARNARD	7/17/2015	17:06	Hail	1.75 in.	0	0	0.00K	0.00K
STRATFORD	7/17/2015	17:25	Hail	1.75 in.	0	0	0.00K	0.00K
FERNEY	7/17/2015	17:48	Hail	1.25 in.	0	0	0.00K	0.00K
COLUMBIA	8/5/2015	23:47	Hail	1.00 in.	0	0	0.00K	0.00K
COLUMBIA	8/6/2015	0:01	Hail	0.88 in.	0	0	0.00K	0.00K
RUDOLPH	5/26/2016	19:20	Hail	1.00 in.	0	0	0.00K	0.00K
RUDOLPH	5/26/2016	19:30	Hail	1.00 in.	0	0	0.00K	0.00K
RUDOLPH	5/26/2016	19:35	Hail	0.88 in.	0	0	0.00K	0.00K
ABERDEEN	6/3/2016	13:06	Hail	1.00 in.	0	0	0.00K	0.00K
FREDERICK	8/1/2016	19:48	Hail	0.88 in.	0	0	0.00K	0.00K
FREDERICK	8/1/2016	20:15	Hail	0.75 in.	0	0	0.00K	0.00K
GROTON MUNI ARPT	8/1/2016	22:03	Hail	1.00 in.	0	0	0.00K	0.00K
GROTON MUNI ARPT	8/1/2016	22:05	Hail	1.00 in.	0	0	0.00K	0.00K
ABERDEEN	6/13/2017	2:50	Hail	1.00 in.	0	0	0.00K	0.00K
BATH	6/13/2017	17:00	Hail	1.00 in.	0	0	0.00K	0.00K
COLUMBIA	6/18/2017	18:22	Hail	1.00 in.	0	0	0.00K	0.00K
ABERDEEN	7/5/2017	17:21	Hail	1.00 in.	0	0	0.00K	0.00K
RICHMOND	7/5/2017	17:22	Hail	1.00 in.	0	0	0.00K	0.00K
BATH	7/5/2017	17:48	Hail	1.00 in.	0	0	0.00K	0.00K
BATH	7/5/2017	17:48	Hail	1.75 in.	0	0	0.00K	0.00K

JAMES	7/5/2017	18:00	Hail	1.75 in.	0	0	0.00K	0.00K
WARNER	7/5/2017	18:05	Hail	1.00 in.	0	0	0.00K	0.00K
FREDERICK	7/5/2017	19:48	Hail	1.50 in.	0	0	0.00K	0.00K
BARNARD	7/5/2017	20:05	Hail	1.00 in.	0	0	0.00K	0.00K
RICHMOND	9/19/2017	18:00	Hail	1.50 in.	0	0	0.00K	0.00K
WESTPORT	9/19/2017	18:17	Hail	1.00 in.	0	0	0.00K	0.00K
FREDERICK	9/19/2017	18:17	Hail	0.75 in.	0	0	0.00K	0.00K
HOUGHTON	9/19/2017	18:49	Hail	1.00 in.	0	0	0.00K	0.00K
HOUGHTON	9/19/2017	19:08	Hail	1.50 in.	0	0	0.00K	0.00K
HOUGHTON	7/2/2018	19:47	Hail	1.00 in.	0	0	0.00K	0.00K
WESTPORT	8/26/2018	7:32	Hail	1.25 in.	0	0	0.00K	0.00K
BARNARD	8/27/2018	7:30	Hail	1.75 in.	0	0	0.00K	0.00K
BARNARD	6/4/2019	14:45	Hail	1.00 in.	0	0	0.00K	0.00K
GAGE	6/4/2019	15:40	Hail	1.25 in.	0	0	0.00K	0.00K
PUTNEY	8/17/2019	15:59	Hail	1.00 in.	0	0	0.00K	0.00K
BARNARD	4/6/2020	19:45	Hail	0.88 in.	0	0	0.00K	0.00K
WESTPORT	4/6/2020	19:50	Hail	1.00 in.	0	0	0.00K	0.00K
HUFFTON	4/6/2020	20:20	Hail	1.75 in.	0	0	0.00K	0.00K
CLAREMONT	4/6/2020	20:25	Hail	1.50 in.	0	0	0.00K	0.00K
ABERDEEN	6/4/2020	17:59	Hail	1.00 in.	0	0	0.00K	0.00K
BARNARD	6/20/2020	15:17	Hail	0.75 in.	0	0	0.00K	0.00K
COLUMBIA	6/20/2020	16:54	Hail	1.25 in.	0	0	0.00K	0.00K
CLAREMONT	6/20/2020	17:52	Hail	1.00 in.	0	0	0.00K	0.00K
WINSHIP	8/23/2020	16:30	Hail	4.00 in.	0	0	0.00K	0.00K
WINSHIP	8/23/2020	16:58	Hail	1.00 in.	0	0	0.00K	0.00K
Total: 103					0	0	0	0

There were 103 total events from January 1, 2011, to March 1, 2021. That indicates that there will be a 100% change that there will be a drought event at some point in the year.

August 23, 2020: An isolated severe thunderstorm produced very large hail measuring 4 inches. No damages or injuries were reported.

NOAA Lightning Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
ABERDEEN	6/5/2014	7:00	Lightning		0	0	2.00K	0.00K
Total: 1					0	0	2,000	0

There was one lighting occurrence in the NOAA databanks. Although lightening generally occurs with thunderstorms, which occur frequently, there is only a 10% chance of lightning in a year in Brown County.

NOAA Funnel Cloud Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
(ABR)ABE RGNL A	5/17/2015	11:10	Funnel Cloud		0	0	0.00K	0.00K
GROTON	7/11/2016	19:13	Funnel Cloud		0	0	0.00K	0.00K
Total: 2					0	0	0	0

There are two funnel cloud occurrences recorded in the NOAA database. This would indicate that there is a 20% chance of funnel clouds in a given year in Brown County. As stated, previously, funnel clouds are hard to record.

NOAA Tornado Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
COLUMBIA	6/1/2012	16:27	Tornado	EF0	0	0	0.00K	0.00K
GROTON	6/13/2017	17:05	Tornado	EF0	0	0	0.00K	0.00K
FREDERICK	6/7/2020	19:30	Tornado	EF0	0	0	0.00K	0.00K
Total: 3					0	0	0	0

There were three recorded tornado sighting in NOAA's records. This means there is a 30% chance of tornados during a year in Brown County.

NOAA Thunderstorm Wind Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
RICHMOND	7/4/2011	22:10	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
ABERDEEN	7/5/2011	0:00	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
HECLA	7/10/2011	15:55	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
ABERDEEN	7/10/2011	16:00	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
HECLA	7/10/2011	16:00	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
CLAREMONT	7/10/2011	16:30	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
HECLA	7/23/2011	1:30	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
(ABR)ABE RGNL A	6/17/2012	16:49	T Storm Wind	55 kts. MG	0	0	0.00K	0.00K
WESTPORT	7/25/2012	3:45	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
RICHMOND	7/29/2012	18:15	T Storm Wind	52 kts. MG	0	0	0.00K	0.00K
RICHMOND	7/29/2012	18:15	T Storm Wind	52 kts. MG	0	0	0.00K	0.00K
RICHMOND	8/3/2012	16:23	T Storm Wind	55 kts. MG	0	0	0.00K	0.00K
RICHMOND	6/12/2013	2:33	T Storm Wind	57 kts. MG	0	0	0.00K	0.00K
WINSHIP	9/9/2013	2:20	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
RICHMOND	9/18/2013	20:48	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
RICHMOND	9/18/2013	20:49	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
WESTPORT	9/18/2013	21:04	T Storm Wind	56 kts. EG	0	0	0.00K	0.00K
RICHMOND	5/27/2014	16:07	T Storm Wind	65 kts. MG	0	0	0.00K	0.00K
RICHMOND	6/18/2014	20:05	T Storm Wind	57 kts. MG	0	0	0.00K	0.00K
GROTON	6/18/2014	20:24	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
BATH	6/18/2014	20:40	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
GROTON MUN A	6/18/2014	20:45	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
RICHMOND	7/21/2014	19:37	T Storm Wind	58 kts. MG	0	0	0.00K	0.00K
RICHMOND	8/17/2014	20:04	T Storm Wind	55 kts. MG	0	0	0.00K	0.00K
WINSHIP	6/21/2015	22:45	T Storm Wind	51 kts. MG	0	0	0.00K	0.00K
BARNARD	6/21/2015	22:54	T Storm Wind	50 kts. MG	0	0	0.00K	0.00K
WESTPORT	6/21/2015	22:56	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
ABERDEEN	6/21/2015	23:19	T Storm Wind	56 kts. MG	0	0	0.00K	0.00K

RICHMOND	6/27/2015	17:10	T Storm Wind	52 kts. MG	0	0	0.00K	0.00K
ABERDEEN	7/5/2015	1:58	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
FREDERICK	7/16/2015	14:20	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
WESTPORT	7/17/2015	17:03	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
COLUMBIA	7/17/2015	17:21	T Storm Wind	63 kts. MG	0	0	0.00K	0.00K
CLAREMONT	7/17/2015	17:50	T Storm Wind	70 kts. EG	0	0	0.00K	0.00K
FREDERICK	7/23/2015	21:23	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
HOUGHTON	7/23/2015	21:50	T Storm Wind	70 kts. EG	0	0	0.00K	0.00K
ABERDEEN	7/28/2015	0:10	T Storm Wind	56 kts. EG	0	0	0.00K	0.00K
GROTON	7/28/2015	0:45	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
COLUMBIA	8/6/2015	0:30	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
PLANA	6/3/2016	13:06	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
WARNER	6/3/2016	13:30	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
WINSHIP	6/22/2016	1:55	T Storm Wind	65 kts. EG	0	0	0.00K	0.00K
WINSHIP	6/22/2016	1:57	T Storm Wind	54 kts. MG	0	0	0.00K	0.00K
WINSHIP	6/22/2016	2:02	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
WINSHIP	6/22/2016	2:02	T Storm Wind	56 kts. MG	0	0	0.00K	0.00K
HOUGHTON	6/22/2016	2:13	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
WINSHIP	7/4/2016	16:52	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
WINSHIP	7/4/2016	16:52	T Storm Wind	65 kts. EG	0	0	0.00K	0.00K
WINSHIP	7/4/2016	17:10	T Storm Wind	56 kts. MG	0	0	0.00K	0.00K
GROTON	7/11/2016	19:13	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
GROTON	7/11/2016	19:15	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
GROTON	7/11/2016	19:18	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
ABERDEEN	7/16/2016	14:30	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
(ABR)ABE RGNL A	7/16/2016	14:35	T Storm Wind	63 kts. MG	0	0	0.00K	0.00K
PLANA	7/16/2016	14:40	T Storm Wind	70 kts. EG	0	0	0.00K	0.00K
FERNEY	7/16/2016	15:00	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
RICHMOND	7/16/2016	22:39	T Storm Wind	51 kts. MG	0	0	0.00K	0.00K
WINSHIP	7/26/2016	12:40	T Storm Wind	61 kts. MG	0	0	0.00K	0.00K

FREDERICK	8/1/2016	20:15	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
WESTPORT	8/1/2016	21:15	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
GROTON MUNI A	8/1/2016	22:03	T Storm Wind	68 kts. MG	0	0	0.00K	0.00K
GROTON	8/1/2016	22:07	T Storm Wind	56 kts. EG	0	0	0.00K	0.00K
GROTON	8/1/2016	22:40	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
WINSHIP	8/3/2016	22:42	T Storm Wind	70 kts. MG	0	0	0.00K	0.00K
HECLA	8/3/2016	23:10	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
WINSHIP	8/10/2016	1:00	T Storm Wind	61 kts. MG	0	0	0.00K	0.00K
(ABR)ABE RGNL A	8/10/2016	1:12	T Storm Wind	50 kts. MG	0	0	0.00K	0.00K
RICHMOND	8/10/2016	20:51	T Storm Wind	65 kts. MG	0	0	0.00K	0.00K
WARNER	5/28/2017	15:41	T Storm Wind	53 kts. MG	0	0	0.00K	0.00K
RICHMOND	6/13/2017	2:27	T Storm Wind	53 kts. MG	0	0	0.00K	0.00K
RICHMOND	6/13/2017	2:29	T Storm Wind	62 kts. MG	0	0	0.00K	0.00K
ABERDEEN	6/13/2017	2:45	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
GROTON	6/13/2017	3:00	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
ABERDEEN	6/13/2017	18:03	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
ABERDEEN	6/13/2017	18:05	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
PLANA	6/13/2017	18:15	T Storm Wind	56 kts. EG	0	0	0.00K	0.00K
CLAREMONT	6/13/2017	18:27	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
RICHMOND	7/5/2017	17:16	T Storm Wind	70 kts. MG	0	0	0.00K	0.00K
RICHMOND	7/18/2017	4:30	T Storm Wind	51 kts. MG	0	0	0.00K	0.00K
JAMES	9/19/2017	19:33	T Storm Wind	65 kts. EG	0	0	0.00K	0.00K
WARNER	6/5/2018	23:40	T Storm Wind	70 kts. EG	0	0	0.00K	0.00K
WINSHIP	7/4/2018	2:20	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
ABERDEEN	7/10/2018	6:03	T Storm Wind	62 kts. MG	0	0	0.00K	0.00K
WARNER	6/4/2019	17:36	T Storm Wind	62 kts. MG	0	0	0.00K	0.00K
ABERDEEN	7/17/2019	23:54	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
BATH	7/18/2019	0:10	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
ABERDEEN	7/19/2019	7:44	T Storm Wind	70 kts. EG	0	0	0.00K	0.00K
(ABR)ABE RGNL A	7/19/2019	7:47	T Storm Wind	68 kts. MG	0	0	0.00K	0.00K

RICHMOND	6/4/2020	17:45	T Storm Wind	62 kts. MG	0	0	0.00K	0.00K
ABERDEEN	6/4/2020	17:59	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
(ABR)ABE RGNL A	6/4/2020	18:03	T Storm Wind	70 kts. MG	0	0	0.00K	0.00K
GROTON	6/4/2020	18:19	T Storm Wind	70 kts. EG	0	0	0.00K	0.00K
GROTON	6/4/2020	18:19	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
GROTON	6/4/2020	18:19	T Storm Wind	65 kts. EG	0	0	0.00K	0.00K
RICHMOND	6/7/2020	19:20	T Storm Wind	59 kts. MG	0	0	0.00K	0.00K
RICHMOND	6/7/2020	19:25	T Storm Wind	69 kts. MG	0	0	0.00K	0.00K
WESTPORT	6/7/2020	19:30	T Storm Wind	70 kts. EG	0	0	0.00K	0.00K
RICHMOND	6/7/2020	19:30	T Storm Wind	57 kts. MG	0	0	0.00K	0.00K
BARNARD	6/7/2020	19:30	T Storm Wind	70 kts. EG	0	0	0.00K	0.00K
BARNARD	6/7/2020	19:30	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
FREDERICK	6/7/2020	19:34	T Storm Wind	57 kts. MG	0	0	0.00K	0.00K
WESTPORT	6/7/2020	19:35	T Storm Wind	70 kts. EG	0	0	0.00K	0.00K
FREDERICK	6/7/2020	19:35	T Storm Wind	65 kts. EG	0	0	0.00K	0.00K
BARNARD	6/7/2020	19:36	T Storm Wind	53 kts. MG	0	0	0.00K	0.00K
FREDERICK	6/7/2020	19:39	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
FREDERICK	6/7/2020	19:39	T Storm Wind	65 kts. EG	0	0	0.00K	0.00K
BARNARD	6/7/2020	19:40	T Storm Wind	65 kts. EG	0	0	0.00K	0.00K
RICHMOND	6/7/2020	19:40	T Storm Wind	61 kts. MG	0	0	0.00K	0.00K
WINSHIP	6/7/2020	19:40	T Storm Wind	65 kts. EG	0	0	0.00K	0.00K
HECLA	6/7/2020	19:40	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
WINSHIP	6/7/2020	19:40	T Storm Wind	78 kts. EG	0	0	0.00K	0.00K
FREDERICK	6/7/2020	19:40	T Storm Wind	65 kts. EG	0	0	0.00K	0.00K
FREDERICK	6/7/2020	19:40	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
CLAREMONT	6/7/2020	19:55	T Storm Wind	65 kts. EG	0	0	0.00K	0.00K
WARNER	6/7/2020	20:15	T Storm Wind	61 kts. MG	0	0	0.00K	0.00K
ABERDEEN	6/7/2020	20:18	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
ABERDEEN	6/7/2020	20:20	T Storm Wind	52 kts. EG	0	0	0.00K	0.00K
(ABR)ABE RGNL A	6/17/2020	18:13	T Storm Wind	50 kts. MG	0	0	0.00K	0.00K

RICHMOND	7/4/2020	18:45	T Storm Wind	50 kts. MG	0	0	0.00K	0.00K
(ABR)ABE RGNL A	7/5/2020	20:22	T Storm Wind	51 kts. MG	0	0	0.00K	0.00K
RICHMOND	7/17/2020	21:40	T Storm Wind	65 kts. EG	0	0	0.00K	0.00K
BATH	7/17/2020	22:16	T Storm Wind	51 kts. MG	0	0	0.00K	0.00K
(ABR)ABE RGNL A	7/17/2020	22:22	T Storm Wind	62 kts. MG	0	0	0.00K	0.00K
WINSHIP	7/24/2020	22:54	T Storm Wind	51 kts. MG	0	0	0.00K	0.00K
HECLA	7/25/2020	22:24	T Storm Wind	61 kts. EG	0	0	0.00K	0.00K
STRATFORD	7/25/2020	23:30	T Storm Wind	56 kts. EG	0	0	0.00K	0.00K
Total: 126					0	0	0	0

There were 126 occurrences of thunderstorm winds in Brown County. This would show that the chance of Thunderstorms occurring is 100% each year in Brown County.

NOAA High Wind Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
BROWN (ZONE)	10/7/2011	10:00	High Wind	50 kts. MG	0	0	0.00K	0.00K
BROWN (ZONE)	10/18/2012	7:28	High Wind	59 kts. MG	0	0	0.00K	0.00K
BROWN (ZONE)	6/21/2013	16:20	High Wind	50 kts. MG	0	0	0.00K	0.00K
BROWN (ZONE)	1/8/2015	12:00	High Wind	50 kts. MG	0	0	0.00K	0.00K
BROWN (ZONE)	10/11/2015	15:24	High Wind	51 kts. MG	0	0	0.00K	0.00K
BROWN (ZONE)	11/18/2015	14:10	High Wind	57 kts. MG	0	0	0.00K	0.00K
BROWN (ZONE)	2/7/2016	14:46	High Wind	51 kts. MG	0	0	0.00K	0.00K
BROWN (ZONE)	1/30/2017	13:30	High Wind	51 kts. MG	0	0	0.00K	0.00K
BROWN (ZONE)	3/7/2017	14:28	High Wind	60 kts. MG	0	0	0.00K	0.00K
BROWN (ZONE)	10/3/2018	13:20	High Wind	51 kts. MG	0	0	0.00K	0.00K
BROWN (ZONE)	7/3/2020	2:05	High Wind	52 kts. EG	0	0	0.00K	0.00K
BROWN (ZONE)	11/8/2020	9:00	High Wind	51 kts. MG	0	0	0.00K	0.00K
BROWN (ZONE)	12/23/2020	10:00	High Wind	52 kts. MG	0	0	0.00K	0.00K
BROWN (ZONE)	1/14/2021	8:45	High Wind	51 kts. MG	0	0	0.00K	0.00K
Total: 14					0	0	0	0

There were 14 high wind occurrences in Brown County from 2011 to 2021. This would mean that there is a 100% chance of high winds occurring in the area in a year.

NOAA Dense Fog Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
BROWN (ZONE)	9/15/2019	7:00	Dense Fog		0	0	0.00K	0.00K
Total: 1					0	0	0	0

There was one occurrence of dense fog in Brown County area. This would mean that there is a 10% chance of dense fog occurring in the area.

NOAA Excessive Heat Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
BROWN (ZONE)	7/16/2011	12:00	Excessive Heat		0	0	0.00K	0.00K
BROWN (ZONE)	7/19/2016	12:00	Excessive Heat		0	0	0.00K	0.00K
Total: 2					0	0	0	0

There were two occurrences if excessive heat in the Brown County area. This would indicate a 20% chance of extreme heat in a year.

NOAA Cold/Wind Chill Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
BROWN (ZONE)	3/8/2011	0:00	Cold/wind Chill		1	0	0.00K	0.00K
BROWN (ZONE)	1/27/2014	1:00	Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	2/2/2015	6:00	Cold/wind Chill		1	0	0.00K	0.00K
Total: 3					2	0	0	0

There were three occurrences of cold/wind chill in Brown County between 2011 and 2021. This would indicate that there is a 30% chance of extreme cold in the Brown County area.

NOAA Extreme Cold/Wind Chill Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
BROWN (ZONE)	2/2/2011	2:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	2/8/2011	5:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	1/18/2012	15:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	1/20/2013	22:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	1/31/2013	3:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	12/23/2013	3:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	12/28/2013	23:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	1/5/2014	11:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	1/23/2014	2:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	3/1/2014	20:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	2/22/2015	7:30	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	1/17/2016	2:53	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	12/18/2016	1:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	12/26/2017	7:30	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	12/31/2017	6:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	1/1/2018	0:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	1/15/2018	6:25	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	1/25/2018	16:00	Ext Cold/wind Chill		1	0	0.00K	0.00K
BROWN (ZONE)	1/29/2019	9:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	2/8/2019	2:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	3/2/2019	22:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	2/12/2020	14:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
BROWN (ZONE)	2/6/2021	0:00	Ext Cold/wind Chill		0	0	0.00K	0.00K
Total: 23					1	0	0	0

There were 23 reports of extreme cold/wind chill in the Brown County area between 2011 and 2021. This would indicate that there is a 100% chance of Brown County experiencing extreme cold/wind chill each year.

NOAA Ice Storm Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
BROWN (ZONE)	4/14/2013	4:00	Ice Storm		0	0	0.00K	0.00K
BROWN (ZONE)	12/25/2016	11:00	Ice Storm		0	0	0.00K	0.00K
Total: 2					0	0	0	0

There were two ice storms in the NOAA database for Brown County. This would show that there is a 20% chance of Ice storms occurring in the area in a year.

NOAA Heavy Snow Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
BROWN (ZONE)	3/22/2011	19:30	Heavy Snow		0	0	0.00K	0.00K
BROWN (ZONE)	11/9/2014	22:00	Heavy Snow		0	0	0.00K	0.00K
BROWN (ZONE)	11/30/2015	12:00	Heavy Snow		0	0	0.00K	0.00K
BROWN (ZONE)	12/1/2015	0:00	Heavy Snow		0	0	0.00K	0.00K
BROWN (ZONE)	3/12/2017	7:00	Heavy Snow		0	0	0.00K	0.00K
BROWN (ZONE)	3/5/2018	5:00	Heavy Snow		0	0	0.00K	0.00K
BROWN (ZONE)	4/8/2018	8:00	Heavy Snow		0	0	0.00K	0.00K
BROWN (ZONE)	10/10/2018	1:00	Heavy Snow		0	0	0.00K	0.00K
BROWN (ZONE)	1/18/2019	2:30	Heavy Snow		0	0	0.00K	0.00K
BROWN (ZONE)	2/19/2019	18:00	Heavy Snow		0	0	0.00K	0.00K
BROWN (ZONE)	3/9/2019	5:00	Heavy Snow		0	0	0.00K	0.00K
BROWN (ZONE)	10/10/2019	12:00	Heavy Snow		0	0	0.00K	0.00K
BROWN (ZONE)	10/20/2020	1:00	Heavy Snow		0	0	0.00K	0.00K
BROWN (ZONE)	10/21/2020	23:30	Heavy Snow		0	0	0.00K	0.00K
Total: 14					0	0	0	0

There were 14 occurrences of Heavy Snow in the Brown County area. This would show that there is a 100% chance of a heavy snow occurrence in the area.

NOAA Blizzard Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
BROWN (ZONE)	1/1/2011	0:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	2/20/2011	11:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	3/11/2011	18:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	2/29/2012	5:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	12/9/2012	7:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	2/10/2013	15:30	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	2/18/2013	12:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	3/18/2013	0:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	1/16/2014	8:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	1/26/2014	8:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	3/31/2014	15:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	12/26/2016	8:30	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	12/4/2017	15:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	12/27/2018	10:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	12/31/2018	6:05	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	1/27/2019	21:30	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	2/7/2019	8:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	3/13/2019	23:00	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	4/11/2019	6:30	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	12/29/2019	10:30	Blizzard		0	0	0.00K	0.00K
BROWN (ZONE)	1/18/2020	0:30	Blizzard		0	0	0.00K	0.00K
Total: 21					0	0	0	0

There are 21 occurrences of blizzards in the Brown County area. This would show that there is a 100% chance of blizzards in a year in Brown County.

NOAA Winter Storm Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
BROWN (ZONE)	4/15/2011	3:00	Winter Storm		0	0	0.00K	0.00K
BROWN (ZONE)	12/8/2012	14:00	Winter Storm		0	0	0.00K	0.00K
BROWN (ZONE)	1/28/2013	13:00	Winter Storm		0	0	0.00K	0.00K
BROWN (ZONE)	4/10/2013	21:00	Winter Storm		0	0	0.00K	0.00K
BROWN (ZONE)	4/13/2013	22:00	Winter Storm		0	0	0.00K	0.00K
BROWN (ZONE)	12/3/2013	11:00	Winter Storm		0	0	0.00K	0.00K
BROWN (ZONE)	12/15/2015	19:00	Winter Storm		0	0	0.00K	0.00K
BROWN (ZONE)	2/13/2016	21:00	Winter Storm		0	0	0.00K	0.00K
BROWN (ZONE)	11/29/2019	20:00	Winter Storm		0	0	0.00K	0.00K
BROWN (ZONE)	12/1/2019	0:00	Winter Storm		0	0	0.00K	0.00K
BROWN (ZONE)	12/28/2019	2:00	Winter Storm		0	0	0.00K	0.00K
Total: 11					0	0	0	0

There were 11 occurrence of winter storms in Brown County from 2011 to 2021. This would indicate that there is a 100% chance of a winter storm occurring in a year.

NOAA Winter Weather Data January 1, 2011, to December March, 1, 2021								
Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
BROWN (ZONE)	12/15/2014	3:00	Winter Weather		0	0	0.00K	0.00K
BROWN (ZONE)	12/26/2014	8:00	Winter Weather		0	0	0.00K	0.00K
BROWN (ZONE)	1/16/2015	23:10	Winter Weather		0	0	0.00K	0.00K
BROWN (ZONE)	2/10/2015	2:00	Winter Weather		0	0	0.00K	0.00K
BROWN (ZONE)	4/9/2020	7:05	Winter Weather		0	0	0.00K	0.00K
Total: 5					0	0	0	0

There were 5 winter weather events occurring in the area during 2011 to 2021. This would show that there is a 50% chance of a winter weather event occurring in the Brown County area.

APPENDIX F

APPENDIX F:

Secs. 22-1—22-18. - Reserved.
ARTICLE II. - FLOOD DAMAGE CONTROL
DIVISION 1. – GENERALLY

Sec. 22-22. - Methods of reducing flood losses.
In order to accomplish its purposes, this article includes methods and provisions for:

(1) Restricting or prohibiting uses which are dangerous to health, safety and property, due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities;
(2) Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
(3) Controlling the alteration of natural floodplains, stream channels and natural protective barriers which help accommodate or channel floodwaters;
(4) Controlling filling, grading, dredging and other development which may increase flood damage; and
(5) Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.
(Code 1980, § 31-77; Code 2003, § 15-34; Code 2011, § 22-22; Ord. No. 08-02-02, 2-25-2008)

Sec. 22-27. - Compliance.
No structure or land shall hereafter be constructed, located, extended, converted or altered without full compliance with the terms of this article and other applicable regulations.

(Code 1980, § 31-79(c); Code 2003, § 15-39; Code 2011, § 22-27; Ord. No. 08-02-02, 2-25-2008)

Sec. 22-28. - Basis for establishing the areas of special flood hazard.
The areas of special flood hazard identified by the Federal Emergency Management Agency (FEMA) Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for the City of Aberdeen, South Dakota," dated March 18, 2008, with an accompanying flood insurance rate map, is hereby adopted by reference and declared to be a part of this article. The flood insurance study and the FIRM are on file at the city finance office in the city municipal building.

(Code 1980, § 31-79(b); Code 2003, § 15-40; Code 2011, § 22-28; Ord. No. 08-02-02, 2-25-2008)

DIVISION 2. - ADMINISTRATION AND ENFORCEMENT

Sec. 22-60. - Development permit required.
A development permit shall be obtained before construction or development begins within any area of special flood hazard established in section 22-28. Application for a development permit shall be made on forms furnished by the public works director/city engineer and may include, but not be limited to, plans in duplicate drawn to scale, showing the nature, location, dimensions and elevations of the area in question; existing or proposed structures, fill, storage of materials and drainage facilities and the location of the foregoing. The application shall be accompanied by the permit fee provided in the city fee schedule on file in the office of the finance officer.

(Code 1980, § 31-82; Code 2003, § 15-61; Code 2011, § 22-60; Ord. No. 08-02-02, 2-25-2008)

Sec. 22-61. - Designation of the public works director/city engineer.
The public works director/city engineer is hereby appointed to administer and implement this article by granting or denying development permit applications within the city limits in accordance with its provisions.

(Code 1980, § 31-83; Code 2003, § 15-62; Code 2011, § 22-61; Ord. No. 08-02-02, 2-25-2008)

Sec. 22-62. - Duties and responsibilities of the public works director/city engineer.
Duties of the public works director/city engineer shall include, but not be limited to:

(1) Permit review.

a. Review all development permits to determine that the permit requirements of this article have been satisfied;
b. Review all development permits to determine that all necessary permits have been obtained from federal, state, or local governmental agencies from which prior approval is required;
c. Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, ensure that the encroachment provisions of section 22-87 are met.

(2) Use of other base flood data. When base flood elevation data has not been provided in accordance with section 22-28, obtain, review, and reasonably utilize any base flood elevation and floodway data available from any federal, state, or other source. Where base flood elevation data are utilized, all new construction, substantial improvements, or other development in zone A are administered in accordance with subsection (3) of this section and section 22-86.

(3) Information to be obtained and maintained.

a. Obtain and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement;
b. For all new or substantially improved floodproofed structures:
1.Verify and record the actual elevation (in relation to mean sea level) to which the structure has been floodproofed;
2.Maintain the floodproofing certifications required in section 22-60;c.Maintain for public inspection all records pertaining to the provisions of this article.

(4) Alteration of watercourses.
a. Notify adjacent communities and the U.S. Army Corps of Engineers prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.
b. Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.

(5) Interpretation of FIRM boundaries. Make interpretations, where needed, as to the exact location of the boundaries of the areas of special flood hazard (i.e., where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in section 22-63.
(Code 1980, §§ 31-84—31-88; Code 2003, § 15-63; Code 2011, § 22-62; Ord. No. 08-02-02, 2-25-2008)

Sec. 22-63. - Variance procedure.
(a)Appeal board.

(1) The board of zoning adjustment as established by the city shall hear and decide appeals and requests for variances from the requirements of this article.

(2) The board of zoning adjustment shall hear and decide appeals when it is alleged there is an error in any requirement, decision or determination made by the public works director/city engineer in the enforcement or administration of this article.

(3)Those aggrieved by the decision of the board of zoning adjustment, any taxpayer may appeal such decision within 30 days after the filing of any decision in the office of the board but not thereafter, present to a court of record a petition duly verified, setting forth that such decision is illegal in whole or in part and specifying the grounds of the illegality, whereupon such decision of such board shall be subject to review by certiorari as provided in SDCL 11-4-25 and 11-4-26.

(4) In passing upon such applications, the board of zoning adjustment shall consider all technical evaluations, all relevant factors, standards specified in other sections of this article, and:

a. The danger that materials may be swept onto other lands to the injury of others

b. The danger of life and property due to flooding or erosion damage;

c. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

d. The importance of the services provided by the proposed facility to the community;

e. The necessity to the facility of a waterfront location where applicable;

f. The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;

g. The compatibility of the proposed use with existing and anticipated development;

h .The relationship of the proposed use of the comprehensive plan and floodplain management program for that area;

i. The safety of access to the property in times of flood for ordinary and emergency vehicles;

j. The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site; and

k. The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities, such as sewer, gas, electrical and water systems, and streets and bridges.

(5) Upon consideration of the factors of subsection (a)(4) of this section and the purposes of this article, the board of zoning adjustment may attach such conditions to the granting of variances as it deems necessary to further the purposes of this article.

(6) The public works director/city engineer shall maintain the records of all appeal actions and report any variances to FEMA and the state office of emergency management.

(b) Conditions for variances.

(1) Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing the provisions of subsection (a)(4) of this section have been fully considered. As the lot size increases beyond the one-half acre, the technical justifications required for issuing the variance increases.

(2) Variances may be issued for the reconstruction, rehabilitation and restoration of structures listed on the National Register of Historic Places or the state inventory of historic places without regard to the procedures set forth in the remainder.

(3) Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

(4) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

(5) Variances shall only be issued upon:

a. A showing of good and sufficient cause;

b. A determination that failure to grant the variance would result in exceptional hardship to the applicant; and

c. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, creating nuisances, causing fraud on or victimization of the public as identified in subsection (a)(4) of this section or conflicting with existing local laws or ordinances.

(6) Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.
(Code 1980, § 31-89; Code 2003, § 15-64; Code 2011, § 22-63; Ord. No. 08-02-02, 2-25-2008)

Secs. 22-64—22-84. - Reserved.

DIVISION 3. - FLOOD HAZARD REDUCTION

Sec. 22-85. - General standards.

In all areas of special flood hazard, the following standards are required:

(1) Anchoring.

a. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure and capable of resisting the hydrostatic and hydrodynamic loads.

b. All manufactured homes must be elevated and anchored to resist flotation, collapse or lateral movement and capable of resisting the hydrostatic and hydrodynamic loads. Methods of anchoring may include, but are not limited to, the use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces. Specific requirements may be:1.Over-the-top ties provided at each of the four corners of the manufactured home with two additional ties per side at intermediate locations with manufactured homes less than 50 feet long requiring

one additional tie per side;2.Frame ties provided at each corner of the home with five additional ties per side at intermediate points with manufactured homes less than 50 feet long requiring four additional ties per side;3.All components of the anchoring system capable of carrying a force of 4,800 pounds; and4.Any additions to the manufactured home similarly anchored.

(2) Construction materials and methods. All new construction and substantial improvements shall be constructed:

a. With materials and utility equipment resistant to flood damage;

b. Using methods and practices that minimize flood damage;

c. With electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

(3) Utilities.

a .All new and replacement water supply systems shall be designed to minimize or eliminate the infiltration of floodwaters into the system;

b. New and replacement sanitary sewage systems shall be designed to minimize or eliminate the infiltration of floodwaters into the systems and discharge from the systems into floodwaters; and

c. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding

(4) Subdivision proposals.

a. All subdivision proposals shall be consistent with the need to minimize flood damage;

b. All subdivision proposals shall have public utilities facilities, such as sewer, gas, electrical and water systems, located and constructed to minimize flood damage;

c. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and

d. Base flood elevation data shall be provided for subdivision proposals and other proposed development which contain at least 50 lots or five acres whichever is less.

(Code 1980, § 31-90; Code 2003, § 15-81; Code 2011, § 22-85; Ord. No. 08-02-02, 2-25-2008)

Sec. 22-86. - Specific standards.

In all areas of special flood hazard where base flood elevation data have been provided as set forth in section 22-28, basis for establishing the areas of special flood hazard, or in section 22-62(2), use of other base flood data, the following provisions are required:

(1) Residential construction. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to one foot above base flood elevation.

(2) Nonresidential construction. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the

lowest floor, including basement, elevated to one foot above the base flood elevation or, together with attendant utility and sanitary facilities, shall:

a. Be floodproofed so that below the base flood elevation the structure is watertight with walls substantially impermeable to the passage of water;

b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

c. Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting the provisions of this subsection (2).

(3) Openings in enclosures below the lowest floor. For all new construction and substantial improvements, fully enclosed areas below the lowest floor that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:

a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;

b. The bottom of all openings shall be no higher than one foot above grade;

c. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

(4) Below grade residential crawlspace construction. New construction and substantial improvement of any below grade crawlspace shall:

a. Have the interior grade elevation, which is below base flood elevation, no lower than two feet below the lowest adjacent grade;

b. Have the height of the below grade crawlspace measured from the interior grade of the crawlspace to the top of the foundation wall, not exceed four feet at any point;

c. Have an adequate drainage system that allows floodwaters to drain from the interior area of the crawlspace following a flood;

d. Meet the provisions of section 22-85(1) and (2) and subsection (3) of this section.

(5) Manufactured homes.

a. Anchoring. Manufactured homes shall be anchored in accordance with section 22-85(1).

b. All manufactured homes or those to be substantially improved shall conform to the following requirements:

1.Require that manufactured homes that are placed or substantially improved on a site:

(i)Outside of a manufactured home park or subdivision;(ii)In a new manufactured home park or subdivision;(iii)In an expansion to an existing manufactured home park or subdivision; or(iv)In an existing manufactured home park or

subdivision on which a manufactured home has incurred substantial damage as the result of a flood; be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated to one foot above the base flood elevation and be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.

2.Require that manufactured homes to be placed or substantially improved on-sites in existing manufactured home parks or subdivisions, that are not subject to the provisions in subsection (5)b.1 of this section, are elevated so that either:

(i)The lowest floor of the manufactured home is at or above the base flood elevation; or(ii)The manufactured home chassis is supported by reinforced piers or other foundation elements that are no less than 36 inches in height above grade; and securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.

(6) Recreational vehicles. Require that recreational vehicles either: a. Are on the site for fewer than 180 consecutive days; b. Are fully licensed and ready for highway use; or c. Meet the permit requirements and elevation and anchoring requirements for manufactured homes.

(Code 1980, § 31-91; Code 2003, § 15-82; Code 2011, § 22-86; Ord. No. 08-02-02, 2-25-2008)

Sec. 22-87. - Floodways.

Located within areas of special flood hazard established in section 22-86 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles and erosion potential, the following provisions apply:

(1) Prohibit encroachments, including fill, new construction, substantial improvements and other development, unless certification by a registered professional engineer or architect is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge;

(2) If subsection (1) of this section is satisfied, all new construction and substantial improvements shall comply with all the applicable flood hazard reduction provisions of this division, provisions for flood hazard reduction.

(Code 1980, § 31-92; Code 2003, § 15-83; Code 2011, § 22-87; Ord. No. 08-02-02, 2-25-2008)

Secs. 22-88—22-116. - Reserved.

APPENDIX G

APPENDIX G
CHAPTER 4.09 PLANNED MOBILE HOME PARK DISTRICT (R-2)

4.0901 Intent. This district is created to preserve and enhance property values in the County by providing designated, distinctive areas of not less than two (2) acres having a minimum of three hundred (300) feet in width in which mobile homes may be situated for residential dwelling purposes. It is the intent that this district be a desirable, prominent area providing adequate open space and essentially the same considerations given to citizens of other residential districts.

4.0902 Permitted Principal Uses and Structures. The following principal uses and structures shall be permitted in Planned Mobile Home Park Districts(s) (R-2):

1. Mobile home dwellings;

2. Laundromats including facilities for coin operated washing and drying machines designed for mobile home residents; and

3. Parks and playgrounds.

4.0903 Permitted Accessory Uses and Structures. Only those accessory uses and structures customarily incidental to principal uses and structures.

4.0904 Minimum Lot Requirements. The minimum lot area for individual mobile homes shall be four thousand (4,000) square feet. The overall density of any mobile home park shall not exceed eight (8) units per gross acre, and the net density of any particular acre shall not exceed ten (10) units per acre.

4.0905 Minimum Yard Requirements. The minimum distance required for the separation of a mobile home from any other mobile home shall be twenty-five (25) feet from side to side, twenty-five (25) from side to rear, and twenty (20) from rear to rear; front setback from private drive of twenty (20) feet.

4.0906 Mobile Home Parks. A mobile home park may be established by following the rezoning process for the Planned Mobile Home Park District (R-2) provided:

1. A request for a change in zoning districts to Planned Mobile Home Park (R-2) shall set forth the location and legal description of the proposed mobile home park property, and sketch of the proposed mobile home park, showing dimensions, driveways, proposed location of sanitary conveniences and other buildings and improvements.

2. Certification of compliance with all ordinances and regulations regarding mobile home park licensing and zoning, health, plumbing, electrical, building, fire

prevention, and all other applicable ordinances and regulations shall be a prior requirement for granting said Planned Mobile Home Park District (R-2).

4.907 Mobile Home Regulations Within a Mobile Home Park.

1. Planned Mobile Home Developments (R-2)

a. Planned mobile home developments are permitted as a matter of right in districts zoned as planned Mobile Home Park Districts (R-2). However, to implement the Statement of Intent for this district, the following standards shall be met by any applicant;

1. The proposed property shall be located so that it shall not be necessary excessive traffic movement from the park to pass through an existing single-family residential area or area suitable for future single-family residential development.

2. The property shall be convenient to schools, parks, and shopping facilities.

3. The property is not within an area used nor planned for industrial development, nor will the occupants of the proposed park be in any way adversely affected by nearby existing or planned industrial uses.
b. Access and Street Requirements:

1. All mobile home spaces must be served from internal private streets within the mobile home park and there shall be no direct access from a mobile home space to a public street or alley. These streets must be at least graveled.

2. A minimum of two (2) off-street parking spaces shall be provided for each mobile home space; guest parking in the ratio of one parking space per five (5) mobile home spaces shall be interspersed throughout the mobile home park.

3. No internal private street access to public streets shall be located closer than one hundred (100) feet to any public street intersection.

4. All streets shall be lighted in accordance to the standards of the City-County.

5. Stop signs shall be placed at all public street intersections. Yield signs placed appropriately on internal private streets.

6. Entrance to mobile home parks shall have direct connections to a public road and shall be designed to allow free movement of traffic on such adjacent public roads.

7. Streets should be of adequate widths to accommodate the contemplated parking and traffic load in accordance with the type of street with ten (10) feet

minimum moving lanes for collector streets, nine (9) feet minimum moving lanes for minor streets, and seven (7) feet minimum lanes for parallel parking.

c. Other Requirements:

1. Applicants shall comply with appropriate requirements of the Subdivision Regulations as contained in Title 5.

2. Each mobile home park shall provide screened areas or enclosed containers that are accessible for refuse collection of an adequate size for the number of units served, and shall provide for the disposal of such refuse on a regularly scheduled basis.

3. Additional development requirements may be prescribed as conditions when such requirements are determined to be necessary to ensure the protection of the character of the neighboring properties, the compatibility of land uses, and the health and safety of mobile home park occupants.

4. All electric service will be underground.

TITLE 18 FIRE SAFETY

Chapter 18.01 Burning off land or other flammable material (Controlled Burn) without a sufficient firebreak and considering weather a misdemeanor. It is a Class II misdemeanor to set or cause to be set on fire any wood, marsh, prairie grass stubble land or any other flammable material at any time of the year without first having in place a natural or manmade firebreak and without giving due caution to the prevailing and forecast weather conditions. The escape of any such burning shall be deemed prima facie evidence that said firebreak was insufficient. Source SDCL 34-35-10

Chapter 18.02 The Brown County Commission, upon the request of the President of the Brown County Fire Chief Association, or the Director of Brown County Emergency Management or the Brown County Sheriff may prohibit or restrict open burning, in all or part of Brown County in order to protect the public health and safety. Source SDCL 34-29B-11.1

Chapter 18.03 Reporting of controlled burns. Anyone who burns off land or other flammable material shall before such burn notify the Brown County Communications Center and provide the following information. Location of the burn, time of burn, substance to be burned, approximate completion time of the burn and a contact phone number for the responsible person. Once the burn has been completed or extinguished the Brown County Communications Center shall again be notified advising of the location and that the burn is out and safe. Anyone who violates this section in whole or part is guilty of a Class II misdemeanor.

Chapter 18.04 Negligently allowing fire to spread as misdemeanor – Failure to extinguish fire – Interference with control efforts. Anyone who negligently kindles or causes to be kindled, any fire in any woods, brush, fields, marshes, stubble, or prairies and leaves it unquenched or who negligently or without full precaution to prevent said fire from spreading, permits it to spread beyond his own land or not, or who finding any uncontrolled fire burning, fails to give immediate warning and to make reasonable attempt to quench it, or who at any fire is guilty of any disobedience to the lawful orders of any public official or fireman attempting to control said fire, or who interferes with any such officer in any such case or refuses to assist in controlling said fire is guilty of a Class II misdemeanor. Source SDCL 34-35-9

Chapter 18.05 Liability for fire. Anyone who sets a fire as provided in 18.01 is liable for damages for all injury and fire suppression and extinguishment caused by the fire. Criminal prosecution is not a prerequisite to liability for damages or for fire suppression and extinguishment cost. Source SDCL 5-4-17 Chapter 18.06 Sections 18.01 and 18.03 shall not apply to the burning of household and yard waste, providing such burning is done so, safely. It shall be deemed negligent if such fire escapes the original site of the fire and shall be punishable in accordance with 18.04.

Chapter 18.07 Declaration of a fire danger emergency and prohibiting open burning. 2 Title 18 Fire Safety

18.0701 When weather or other conditions exist which may make the open burning of any substance unduly hazardous and a danger to public safety, the Brown County Board of Commissioners may by resolution declare a "Fire Danger Emergency".

18.0702 If a "Fire Danger Emergency" is declared, all open burning of any substance shall be prohibited within any or all of the unincorporated area of Brown County until such time as the resolution declaring the "Fire Danger Emergency" shall have been rescinded by appropriate action of the Brown County Board of Commissioners.

18.0703 Any person who shall create, commit, maintain or permit to be created, committed or maintained an open burning in violation of a resolution declaring a "Fire Danger Emergency" shall be deemed to have committed a public nuisance in violation and subject to all criminal and civil penalties provided for therein. Any person that maintains, commits, or fails to abate a public nuisance as required under the provisions of this ordinance shall be subject to a maximum penalty of thirty (30) days in jail, a $200 fine, or both. Each and every day that the violation continues may constitute a separate offense. Section 1. DEFINITION: "Open burning" the intentional burning of any substance whether natural or manmade, or the intentional casting off of any burning substance, whether natural or manmade, except the burning of such substance in a container sufficient so as to

prohibit the escape of any of the burning substance, or any sparks, flames or hot ashes from the container. The escape of any such burning substance, or the escape of any sparks, flames or hot ashes from any such container shall be deemed prima facie evidence that the container was insufficient so as to meet the exception from the definition of any open burning set forth herein. The maintaining of a fire in any interior fireplace, stove or furnace is specifically excluded from the definition of an open burning as contemplated by this ordinance.

18.0704 This ordinance is declared to be necessary for the immediate preservation of the public safety in accordance with the provision of SDCL 7-18A-8e

APPENDIX H

APPENDIX H

BROWN COUNTY CHAPTER 4.19 FLOODPLAIN DISTRICT (FP)

4.1901 Statutory Authorization. The Legislature of the State of South Dakota has in SDCL 9-36 and 7-18-14 (State Statute delegating authority) delegated the responsibility to local government units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the Brown County Commission of Brown County, South Dakota does ordain as follows:

4.1902 Findings Of Fact. 1) The flood hazard areas of Brown County are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare. 2) These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazard which increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated or otherwise protected from flood damage also contribute to the flood loss.

4.1903 Intent. The intent of the Floodplain District (FP) is to delineate reasonable high watermarks within the jurisdiction of this Title. For the reasons of health, safety, and the general welfare, certain safeguards are needed to: 1) protect human life and life; 2) minimize the expenditure of public money for costly flood control projects; 3) to minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; 4) to minimize prolonged business interruptions; 5) to minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard; 6) to help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas; 7) to ensure that potential buyers are notified that property is in an area of special flood hazard; and 8) to ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

4.1904 Methods Of Reducing Flood Losses. In order to accomplish its purposes, this ordinance includes methods and provisions for: 1) restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities; 2) requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; 3) controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or

channel flood waters; 4) controlling filling, grading, dredging, and other development which may increase flood damage; and, 5) preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.

4.1905 Lands To Which This Ordinance Applies. This ordinance shall apply to all areas of special hazard within the jurisdiction of Brown County, South Dakota.
4.1906 Basis For Establishing The Areas Of Special Flood Hazard. The areas of special flood hazard identified by the Federal Emergency Management Agency in a scientific and engineering report entitled, "The Flood Insurance Study for Brown County, South Dakota dated September 29, 2010, with an accompanying Flood Insurance Rate Map (FIRM), is hereby adopted by reference and declared to be a part of this ordinance. The FIRM panel numbers are 25, 50, 75, 100, 125, 150, 200, 209, 217, 225, 250, 275, 300, 325, 350, 375, 400, 425, 450, 475, 500, 550, 575, 590, 595, 600, 602, 606, 610, 625, 675, 700, 725, 734, 742, 750, 751, 752, 753, 754, 756, 760, 761,765, 770, 800, 825, 828, 829, 850, 875, 900, 925, 950, 975, 1000, 1025, 1050, 1075, 1100, 1125, 1150, 1175, 1200, & 1225. The Flood Insurance Study and FIRM are on file at the Brown County Courthouse, 25 Market Street, Aberdeen, South Dakota.

4.1907 Compliance. No structure or land shall hereafter be constructed, located, extended, converted or altered without full compliance with the terms of this ordinance and other applicable regulations.

4.1908 Abrogation and Greater Restrictions. This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another ordinance, easement, covenants, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

4.1910 Interpretation. In the interpretation and application of this ordinance, all provisions shall be: 1) Considered as minimum requirements; 2) Liberally construed in favor of the governing body; and, 3) Deemed neither to limit nor repeal any other powers granted under State statutes.

4.1911 Dual Districts. FP Districts (zones) will be found in conjunction with another district. Within these dual districts, the permitted uses, special exceptions, yard and lot requirements, etc., will be the same as those in the district found jointly with the FP district. The FP designation requires additional standards/requirements because of their proximity in and to flood prone areas.

4.1912 Flood Insurance Rate Map Utilized as Basis for FP District Designation. The FIRM is the basis for the FP zone designation. Any shaded areas on the FIRM constitutes a FP District which must be cross-checked with the Zoning Map to determine its joint district. This chapter shall apply to all areas of special flood hazards within the jurisdiction of this Title. The areas of special flood hazards identified in a scientific and engineering report entitled, "The Flood Insurance Study for the County of Brown", dated September 29, 2010, with an accompanying Flood Insurance Rate Map is hereby adopted by reference and declared to be a part of this Title.

4.1913 Permitted Principal Uses and Structures. Only those permitted uses and structures allowed in the district listed jointly with the FP District.

4.1914 Special Exceptions. Only those special exceptions that are allowed in the district listed jointly with FP designation.

4.1915 Yard, Lot, and Area Requirements. Yard, lot, and area requirements shall be those that are required in the districts that are listed with the FP designation.

4.1916 Establishment of Development Permit. A Development Permit shall be obtained before construction or development begins within any area of special flood hazard established in Chapter 4.1912. A property receiving a Letter of Map Amendment or Letter of Map based upon fill must also obtain a development permit. Application for a Development Permit shall be made on forms furnished by the Zoning Administrator. The administrator shall require, review, and record information that may include, but not be limited to, plans in duplication drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Where base flood elevations are utilized, all new construction, substantial improvements and other development must comply with requirements of Section 4.1922, Use of Other Base Flood Data. Specifically, the following information is required.

1. Elevation in relation to mean sea level, of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.

2. Elevation in relation to mean sea level to which any new or substantially improved structure has been flood proofed;

3. Certification by a registered professional engineer or architect that the flood proofing methods for any non-residential structure meet the flood proofing criteria in Chapter 4.1912; and

4. Description of the extent to which any watercourse will be altered or relocated as a result of the proposed development.

The administrator shall review all development permit applications to determine: 1. that the requirements of this Title have been satisfied; 2. that all necessary permits have been obtained from those Federal, State, or local agencies from which prior approval is required; 3. if the proposed development adversely affects the flood carrying capacity of the area of special flood hazard. For the purpose of this Chapter "adversely affects" means damage to adjacent properties because of rises in flood stages attributed to physical changes of the channel and the adjacent overbank areas. If it is determined that there is no adverse effect and the development is not a building, the permit shall be granted. If it is determined that there could be an adverse effect, then technical justification (i.e., a registered professional engineer) for the proposed development shall be required. If the proposed development is a building, the provisions of this Title shall apply. All information obtained pertaining to the provisions of this Chapter shall be maintained for public inspection. When base flood elevation data has been provided in accordance with Chapter 4.1906, the administrator shall obtain, review, and reasonably utilize any base flood elevation and floodway data available in order to administer Chapter 4.1912. Alterations of watercourses require the notification of adjacent communities and the State Dept. of Disaster and Emergency Services. Evidence of such notification must additionally be submitted to the Federal Emergency Management Agency. Maintenance within the altered or relocated watercourse so that flood carrying capacity is not diminished is also required.

4.1917 General Standards. In all areas of special flood hazards, the following standards are required:

1. Anchoring.

a. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure and be capable of resisting the hydrostatic and hydrodynamic loads.

b. All manufactured homes must be elevated and anchored to resist flotation, collapse, or lateral movement and be capable of resisting the hydrostatic and hydrodynamic loads. Methods of anchoring may include, but are not limited to, use of over-the-top or frame

ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces. Specific requirements may be:

(1) Over-the-top ties be provided at each of the four corners of the manufactured home, with two additional ties per side at intermediate points, with manufactured homes less than 50 feet long requiring one additional tie per side.

(2) Frame ties be provided at each corner with five additional ties per side at intermediate points, with homes less than 50 feet long requiring four additional ties per side.

(3) All components of the anchoring system be capable of carrying a force of 4,800 pounds, and;

(4) Any additions to the home be similarly anchored.

2. Construction Materials and Methods.

a. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

b. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

c. All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

3. Utilities.

a. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system, and,

b. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into the flood waters, and,

c. On-site water disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

4. Subdivision Proposals.

a. All subdivision proposals shall conform to Title 5, Chapter 5.0305 of the First Revision of the Brown County Ordinances. 4.1918 Specific Standards. In all areas of special flood hazards, where base flood elevation data has been provided as set forth in Section 4.1906, Basis for Establishing the Areas of Special Flood Hazard or Section 4.1922 Use of Other Base Flood Data, the following standards are required:

1. New construction and substantial improvements of any residential structure shall have the lowest floor, including basement, elevated to one foot above the base flood elevation.

2. New construction and substantial improvements of any commercial, industrial, or other nonresidential structure shall either have the lowest floor, including basement, elevated to one foot above the level of the base flood elevation; or, together with attendant utilities and sanitary facilities, shall:

a. Be floodproofed so that below the base flood elevation the structure is watertight with walls substantially impermeable to the passage of water;

b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy; and

c. Be certified by a registered engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting the provisions of this paragraph. Such certifications shall be provided to the official as set forth in 4.1916.

d. Properties that have received a Letter of Map Amendment or Letter of Map Revision based upon fill must still have their lowest floor elevated or floodproofed to one foot above the base flood elevation.

3. Manufactured Homes.

a. Manufactured homes shall be anchored in accordance with 4.1917.

b. All manufactured homes or those to be substantially improved shall conform to the following requirements:

1) Require that manufactured homes that are placed or substantially improved

on a site a) outside of a manufactured home park or subdivision, b) in a new manufactured home park or subdivision, or c) in an expansion to an existing manufactured home park or subdivision, or d) in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage: as the result of a flood, be elevated on a permanent foundation such that the lowest floor of the manufactured home is at or above the base flood elevation and is securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.

2) Require that manufactured homes to be placed or substantially improved on sites in existing manufactured home parks or subdivisions that are not subject to the provisions in b-1) above be elevated so that either a) the lowest floor of the manufactured home is at or above the base flood elevation, or b) the manufactured home chassis is supported by reinforced piers or other foundation elements that are no less than 36 inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

5. Recreational Vehicles

1) Require that recreational vehicles either a) be on site for fewer than 180 consecutive days, b) be fully licensed and ready for highway use, or c) meet the permit requirements and elevation and anchoring requirements for manufactured homes.

4.1919 Encroachment. The cumulative effect of any proposed development, shall not increase the water surface elevation of the base flood more than one foot at any point.

4.1920 The Designation Of The Zoning Administrator. The Zoning Administrator is hereby appointed to administer and implement this ordinance by granting or denying development permit applications in accordance with its provisions.

4.1921 Duties And Responsibilities Of The Zoning Administrator. Duties of the Zoning Administrator shall include, but not be limited to:

1) Permit Review

a. Review of all development permits to determine that the permit requirements of this ordinance have been satisfied;

b. Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of 4.1928-1 are met.

4.1922 Use Of Other Base Flood Data. When base flood elevation data has not been provided in accordance with Section 4.1906, Basis For Establishing The Areas Of Special Flood Hazard, the Zoning Administrator shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from any Federal, State, or other source. Where base flood elevation data are utilized, all new construction, substantial improvements, or other development in Zone A are administered in accordance with Sections 4.1923, Information To Be Obtained And Maintained and 4.1918, Specific Standards.

4.1923 Information To Be Obtained And Maintained.
1) Obtain and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.

2) For all new or substantially improved floodproofed structures:
(i) Verify and record the actual elevation (in relation to mean sea level) to which the structure has been floodproofed.
(ii) Maintain the floodproofing certifications required in Section 4.1921.

3) Maintain for public inspection all records pertaining to the provisions of this ordinance.

4.1924 Alteration Of Watercourses.

1) Notify adjacent communities and the State Department of Public Safety Emergency Management prior to any alteration or relocation of a watercourse and submit evidence of such notification to the Federal Emergency Management Agency.

2) Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.

77 Title 4 Zoning 4.1925 Interpretation Of FIRM Boundaries. Make interpretations, where needed, as to the exact location of the boundaries of the areas of special flood hazard (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 4.1930.

4.1926 Openings In Enclosures Below The Lowest Floor. For all new construction and substantial improvements, fully enclosed areas below the lowest floor that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:

1) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.

2) The bottom of all openings shall be no higher than one foot above grade.

3) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

4.1927 Below-Grade Residential Crawlspace Construction. New construction and substantial improvement of any below-grade crawlspace shall:

1) Have the interior grade elevation, that is below base flood elevation, no lower than two feet below the lowest adjacent grade.

2) Have the height of the below grade crawlspace measured from the interior grade of the crawlspace to the top of the foundation wall, not exceed four feet at any point.

3) Have an adequate drainage system that allows floodwaters to drain from the interior area of the crawlspace following a flood.

4) Meet the provisions of Section 4.1917-1, Anchoring; Section 4.1917-2, Construction Materials and Methods; and 4.1926, Openings in Enclosures Below the Lowest Floor.

4.1928 Floodways. Located within areas of special flood hazard established in Section 4.1906 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

1) Prohibit encroachments, including fill, new construction, substantial improvements, and other development unless certification by a registered professional engineer or architect is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

2) If Section 4.1928-1 is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of this Chapter 4.19.

4.1929 Warning and Disclaimer of Liability. The degree of flood protection required by this Chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This Title does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This Title shall not create liability on the part of Brown County, any officer or employee thereof, or the Federal Emergency Management Agency, for any flood damages that result from reliance on this Title or any administrative decision lawfully made thereunder.

4.1930 Variance Procedures. The Brown County Zoning Board of Adjustment shall hear and decide on
appeals and requests for variances from the requirements of this Chapter. The Zoning Board of Adjustment shall consider:

1. The danger that materials may be swept onto other lands to the injury of others.

2. The danger to life and property due to flooding or erosion damage.

3. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners.

4. The importance of the services provided by the proposed facility to the community.

5. The necessity to the facility of a waterfront location.

6. The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage.

7. The compatibility of the proposed use with the existing and anticipated development.

8. The relationship of the proposed use to the comprehensive plan and floodplain management program for that area.

9. The safety of access to the property in times of flood for ordinary and emergency vehicles.

10. The expected heights, velocities, rate of rise, and sediment transport of the flood waters and the effects of wave action expected at the site.

11. The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as gas, electrical, and water systems, streets and bridges.

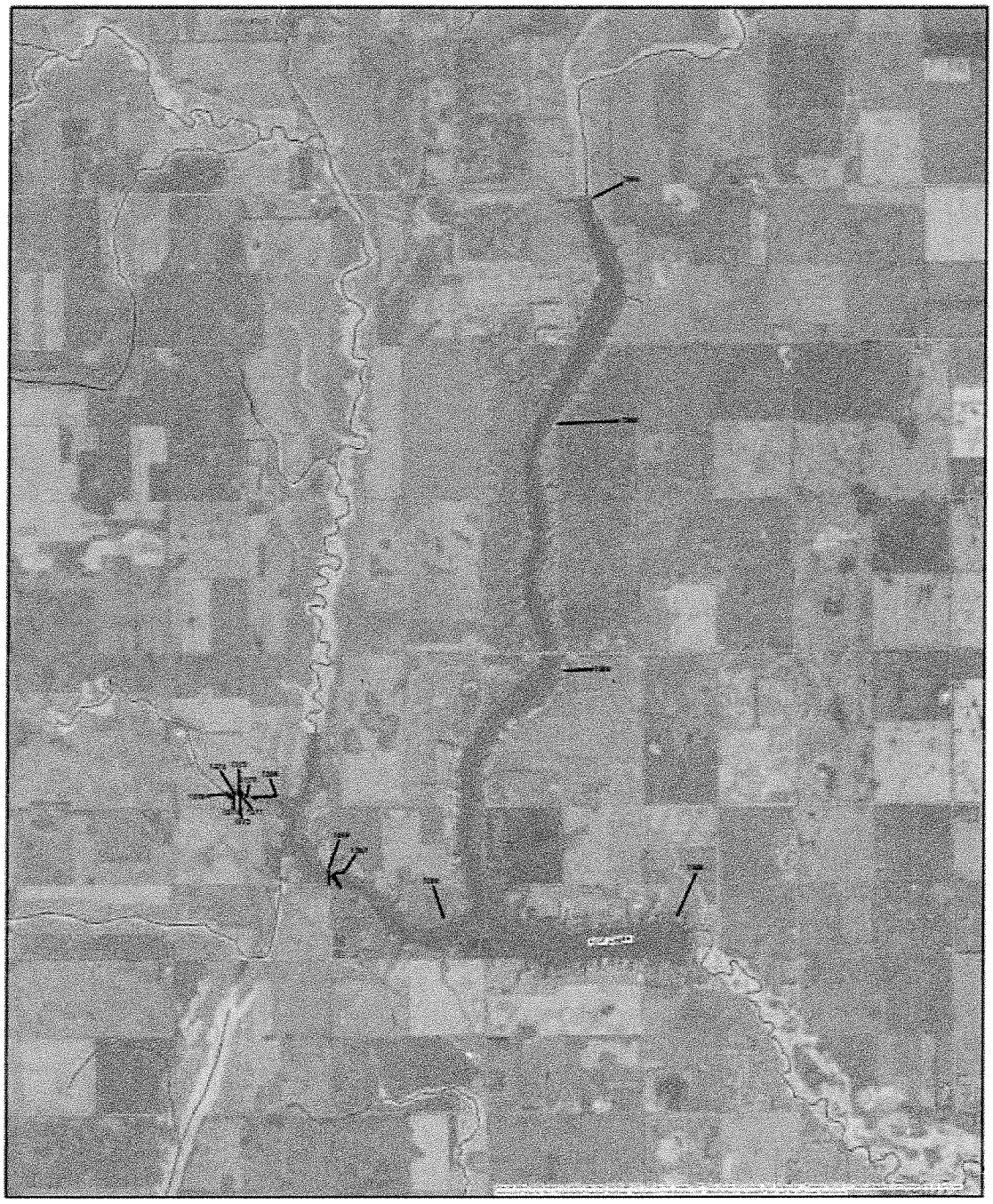
The Zoning Board of Adjustment may attach conditions to the granting of variances as it deems necessary to further the purposes of this Chapter. Generally variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base level, providing items 1-11 above have been considered. As the lot size increases beyond one-half acre, the technical justifications required for issuance of a variance increases.

Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places without regard to the procedures set forth in the remainder of this Chapter. Variances shall not be issued within any designated floodway if any increase in flood levels during the base discharge would result. Variances shall only be issued upon a determination that the variance is the minimum necessary to afford relief. Variances shall only be issued upon:

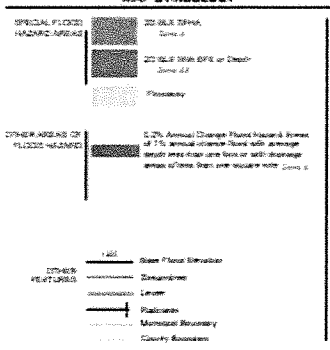
1. A showing of good and sufficient cause.
2. A determination that failure to grant the variance would result in exceptional hardship to the applicant, and,
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

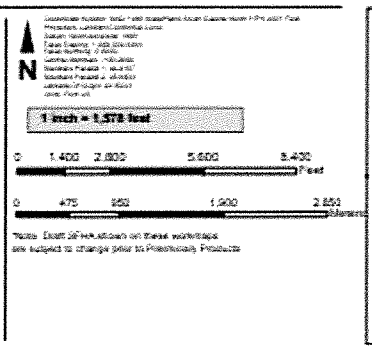
Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk from the reduced lowest floor elevation. All variances shall be reported to the Federal Emergency Management Agency.

PRELIMINARY BROWN COUNTY FIRM Maps P. 146-158



MAP SYMBOLOGY



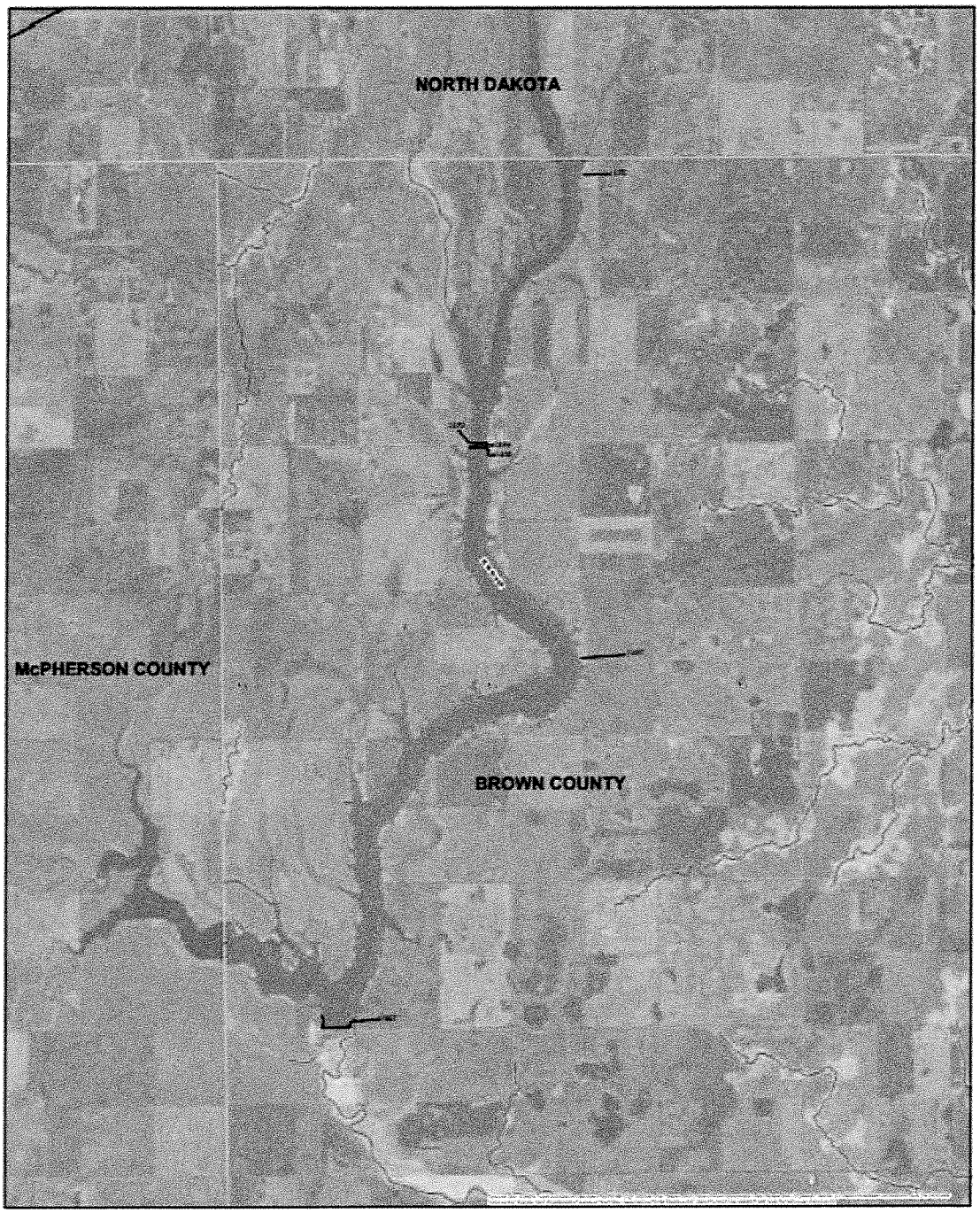


NATIONAL FLOOD INSURANCE PROGRAM

SOUTH DAKOTA 2D BLE WORKMAP

Foot Creek Reach, South Dakota
Brown County

FEMA



MAP SYMBOLOGY

N

1 inch = 1,675 feet

0 1,450 2,900 5,800 8,700 Feet

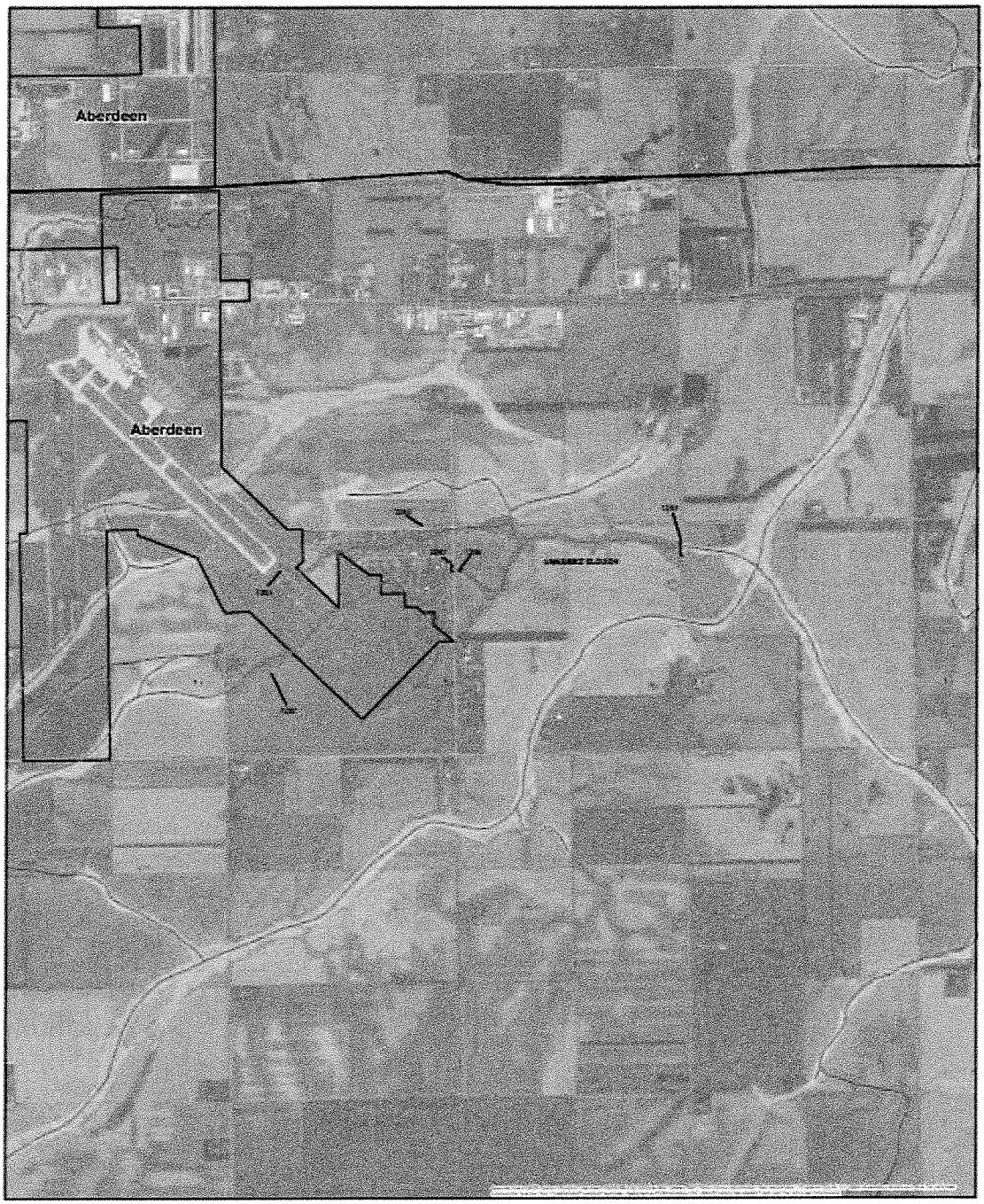
0 500 1,000 2,000 3,000 Meters

NATIONAL FLOOD INSURANCE PROGRAM

SOUTH DAKOTA 2D BLE WORKMAP

Elm River Reach, South Dakota
Brown County

FEMA



MAP SYMBOLOGY

N

1 inch = 1,064 feet

0 900 1,800 3,600 5,400 Feet

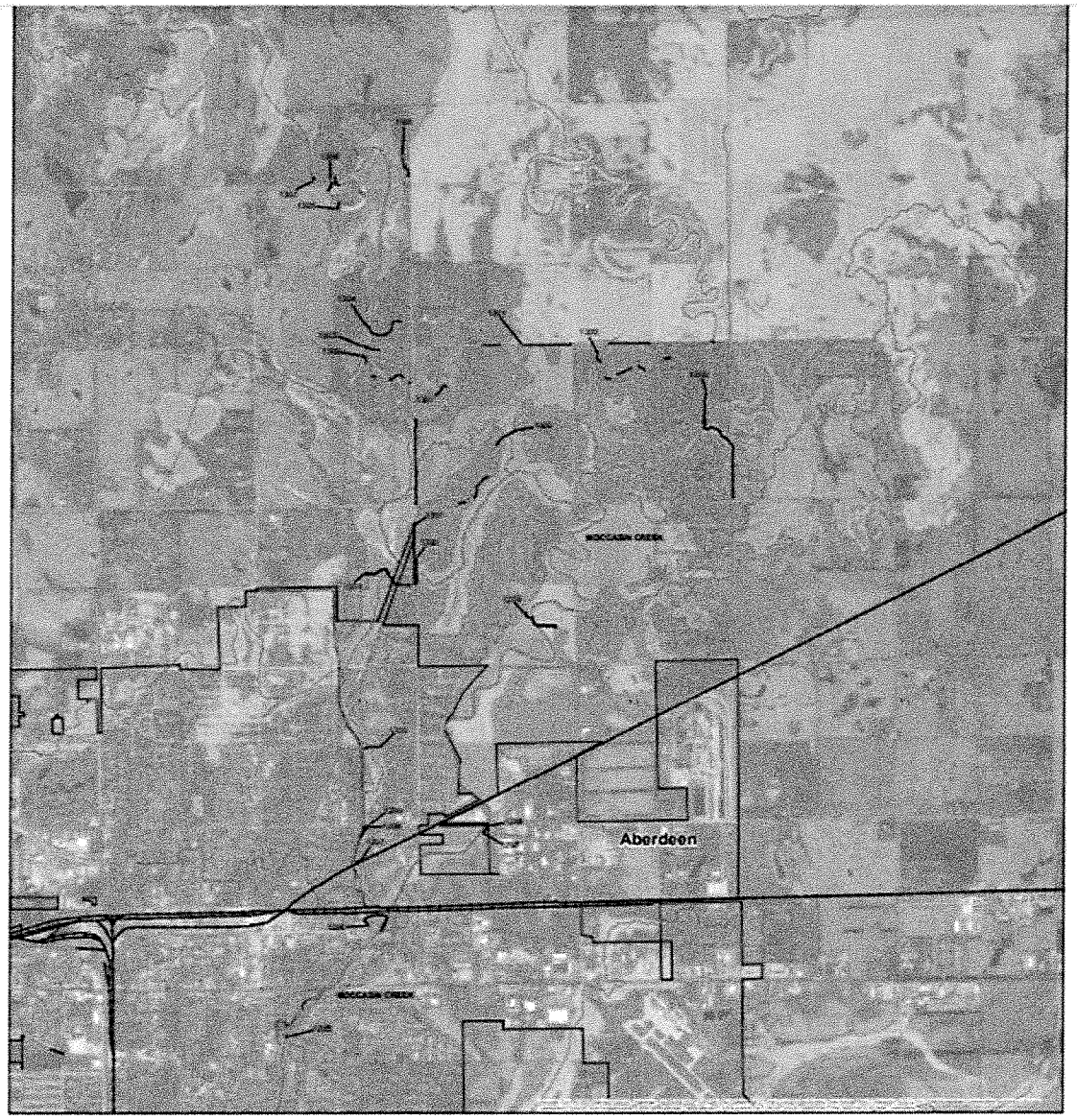
0 325 640 1,280 1,920 Meters

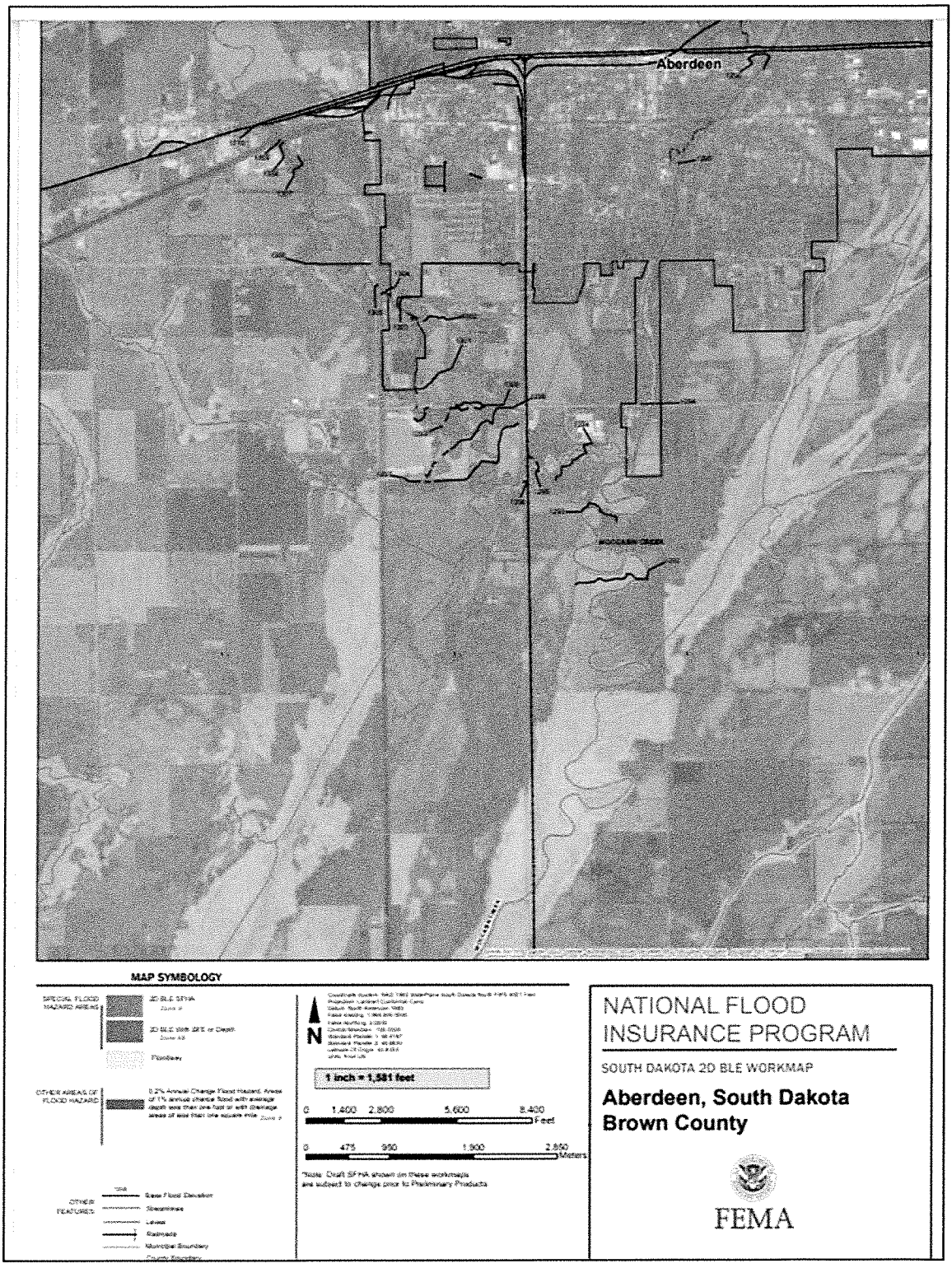
NATIONAL FLOOD INSURANCE PROGRAM

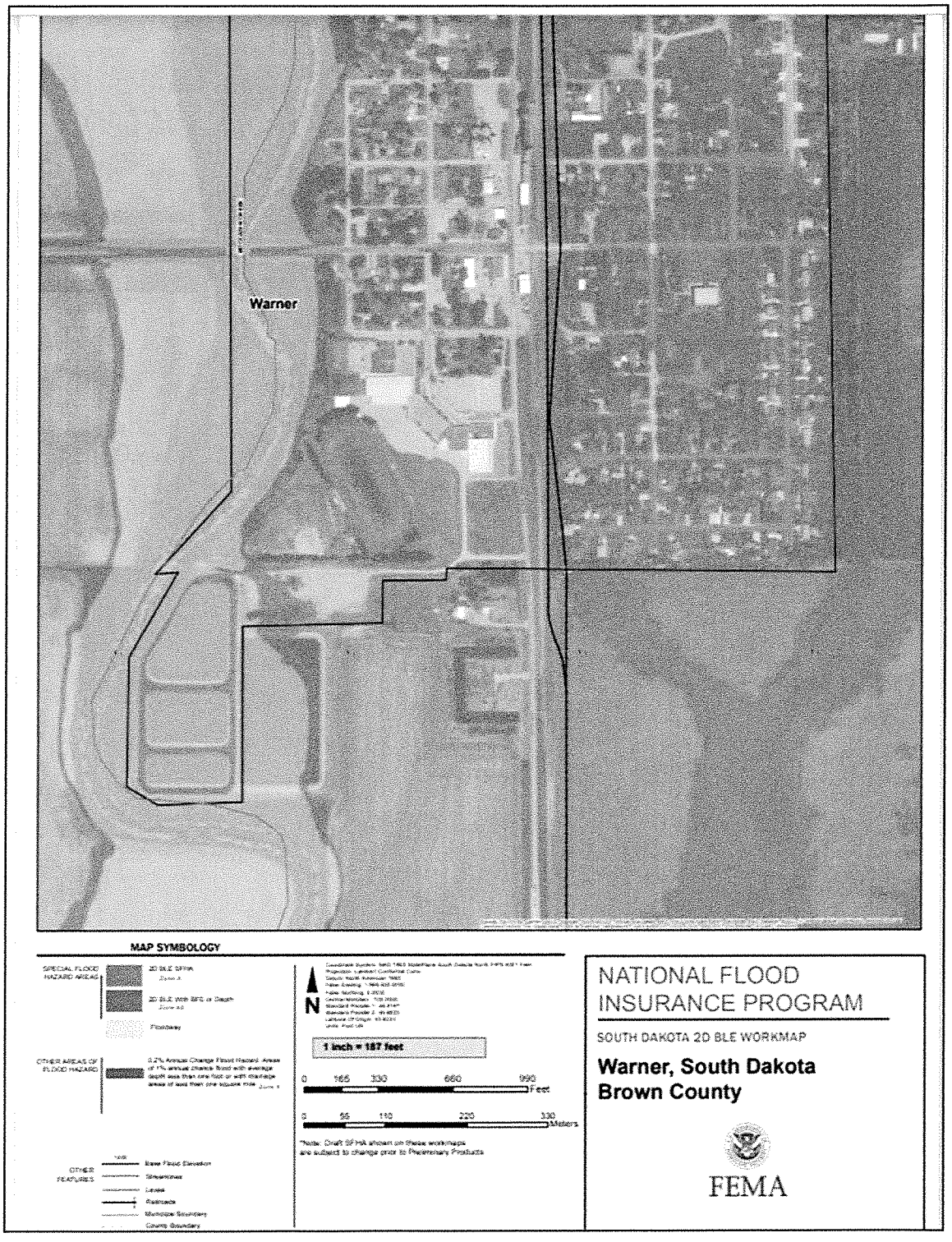
SOUTH DAKOTA 2D BLE WORKMAP

Aberdeen, South Dakota
Brown County

FEMA


Aberdeen
MAP SYMBOLOGY
1 inch = 1,669 feet
0 1,450 2,900 5,800 8,700
Feet
0 500 1,000 2,000 3,000
Meters
NATIONAL FLOOD INSURANCE PROGRAM
SOUTH DAKOTA 2D BLE WORKMAP
Aberdeen, South Dakota
Brown County
FEMA


Aberdeen
MAP SYMBOLOGY
SPECIAL FLOOD HAZARD AREAS
Floodway
OTHER AREAS OF FLOOD HAZARD
OTHER FEATURES
Base Flood Elevation
Streamline
Levee
Railroads
Municipal Boundary
N
1 inch = 1,581 feet
0 1,400 2,800 5,600 8,400
Feet
0 475 950 1,900 2,850
Meters
NATIONAL FLOOD INSURANCE PROGRAM
SOUTH DAKOTA 2D BLE WORKMAP
Aberdeen, South Dakota
Brown County
FEMA


Warner
MAP SYMBOLOGY
SPECIAL FLOOD HAZARD AREAS
2D BLE SFHA
2D BLE With BFE or Depth
Floodway
OTHER AREAS OF FLOOD HAZARD
0.2% Annual Chance Flood Hazard
OTHER FEATURES
Base Flood Elevation
Streamlines
Levee
Railroads
Municipal Boundary
County Boundary
N
1 inch = 187 feet
0 165 330 660 990
Feet
0 55 110 220 330
Meters
*Note: Draft SFHA shown on these workmaps are subject to change prior to Preliminary Products
NATIONAL FLOOD INSURANCE PROGRAM
SOUTH DAKOTA 2D BLE WORKMAP
Warner, South Dakota
Brown County
FEMA

MAP SYMBOLOGY

SPECIAL FLOOD HAZARD AREAS

OTHER AREAS OF FLOOD HAZARD

OTHER FEATURES

N

1 inch = 165 feet

0 145 290 580 870 Feet

0 45 90 180 270 Meters

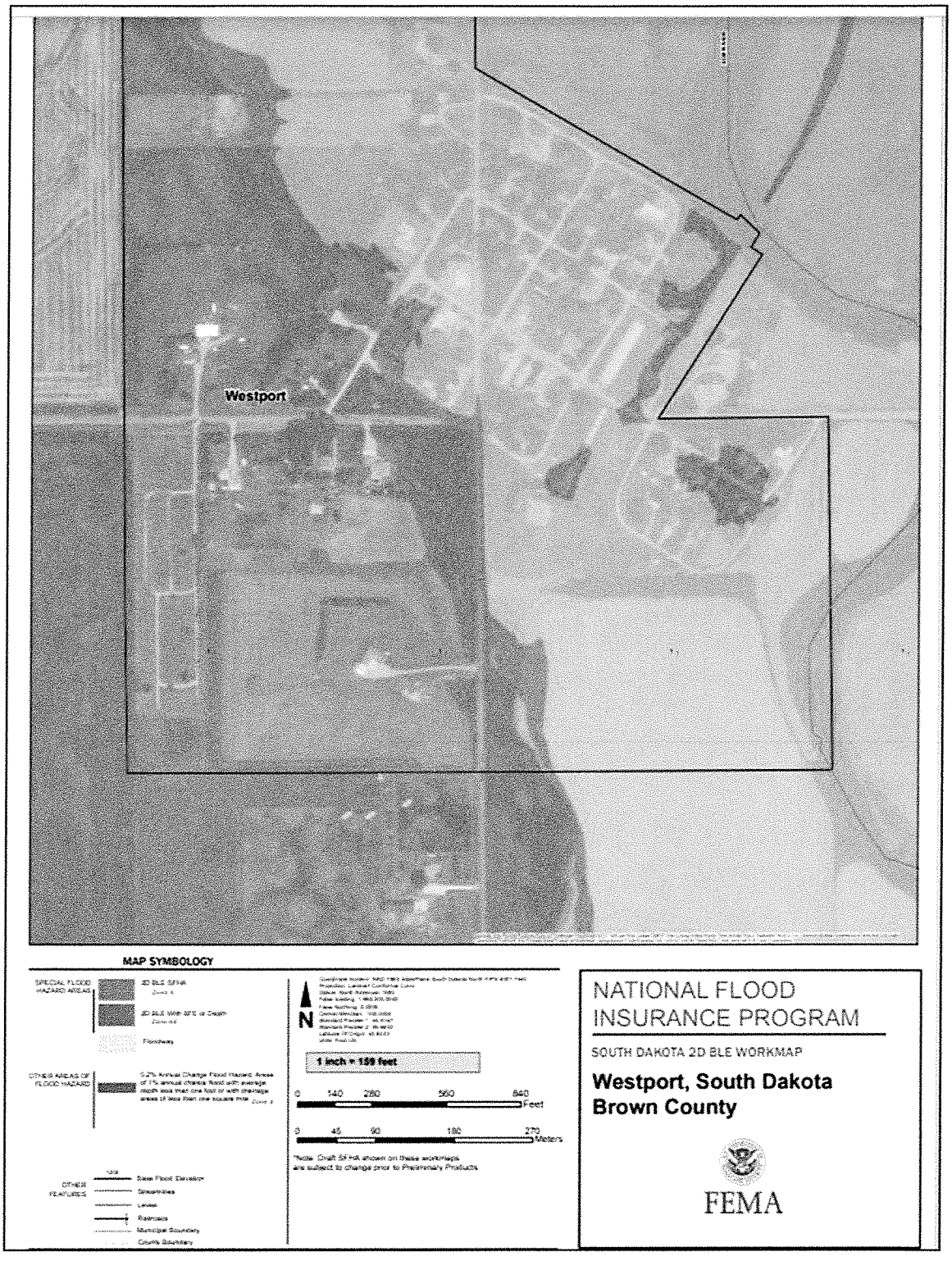
*Note: Draft SFHA shown on these workmaps are subject to change prior to Preliminary Products.

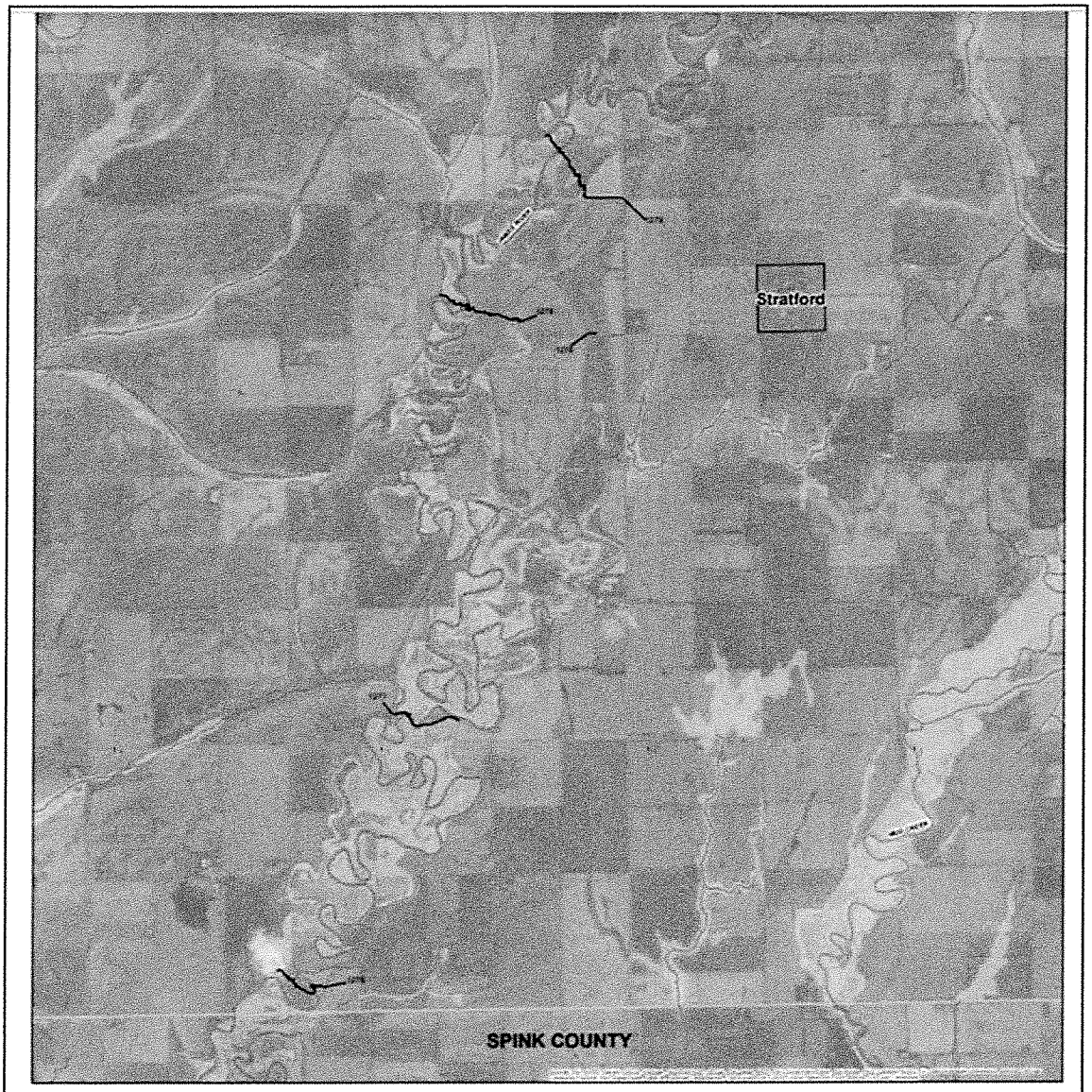
NATIONAL FLOOD INSURANCE PROGRAM

SOUTH DAKOTA 2D BLE WORKMAP

Verdon, South Dakota
Brown County

FEMA


Westport
MAP SYMBOLOGY
SPECIAL FLOOD HAZARD AREAS
Floodway
OTHER AREAS OF FLOOD HAZARD
OTHER FEATURES
Base Flood Elevation
Streamlines
Levee
Roadways
Municipal Boundary
County Boundary
N
1 inch = 159 feet
0 140 280 560 840
Feet
0 45 90 180 270
Meters
NATIONAL FLOOD INSURANCE PROGRAM
SOUTH DAKOTA 2D BLE WORKMAP
Westport, South Dakota
Brown County
FEMA



MAP SYMBOLOGY

SPECIAL FLOOD HAZARD AREAS

OTHER AREAS OF FLOOD HAZARD

OTHER FEATURES

N

1 inch = 1,937 feet

0 1,700 3,400 6,800 10,200 Feet

0 550 1,100 2,200 3,300 Meters

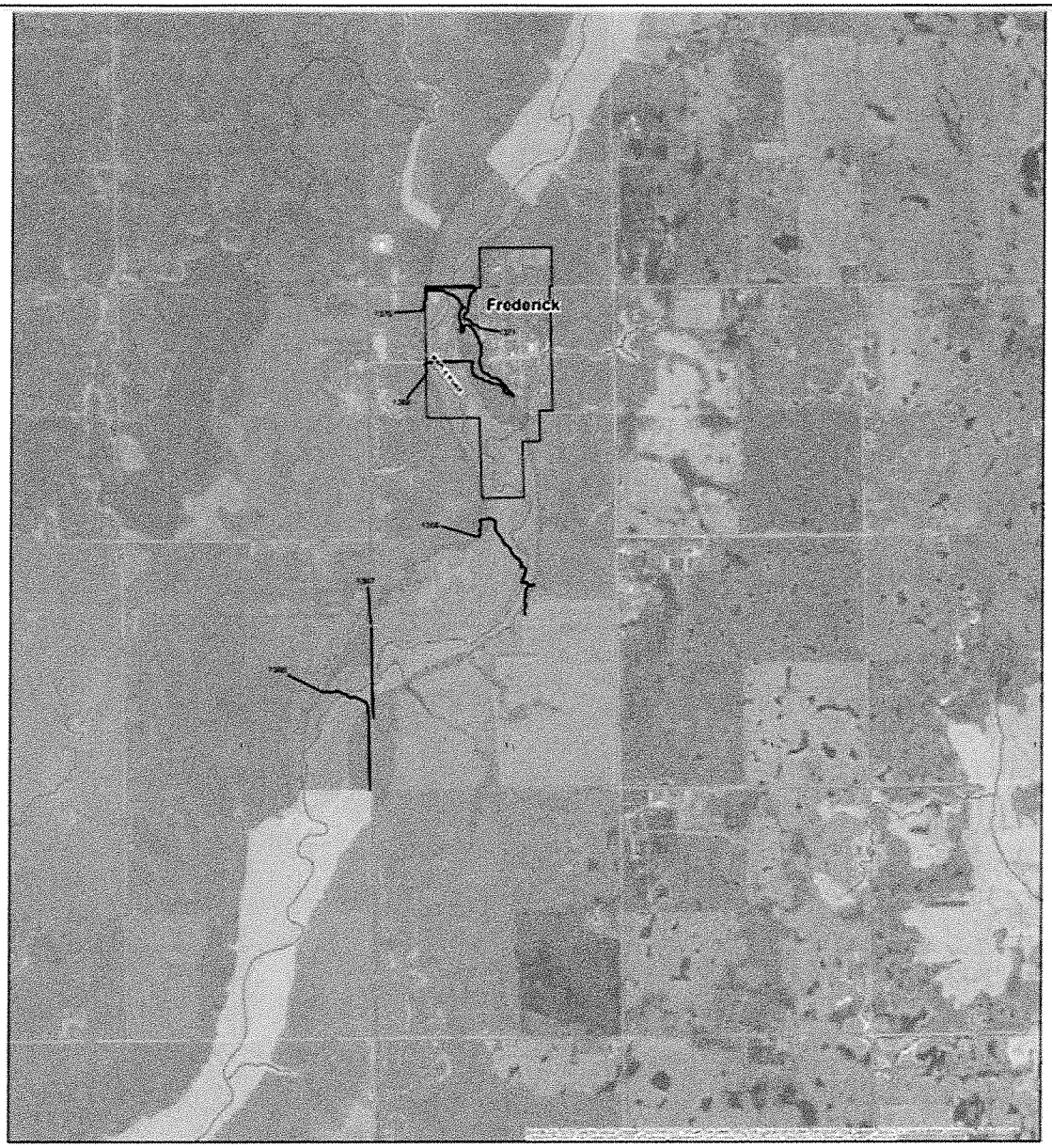
Note: Draft SFHA shown on these workmaps are subject to change prior to Preliminary Products

NATIONAL FLOOD INSURANCE PROGRAM

SOUTH DAKOTA 2D BLE WORKMAP

Stratford, South Dakota
Brown County

FEMA



MAP SYMBOLOGY

SPECIAL FLOOD HAZARD AREAS
1% ANNUAL CHANCE FLOOD HAZARD
Zone A
1% ANNUAL CHANCE FLOOD HAZARD
With BFE or Depth
Zone AE
Floodway

OTHER AREAS OF FLOOD HAZARD
0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X

OTHER FEATURES
Base Flood Elevation
Streams/rivers
Levee
Railroads
Municipal Boundary
County Boundary

N

1 inch = 1,050 feet

0 900 1,800 3,600 5,400 Feet

0 315 630 1,260 1,890 Meters

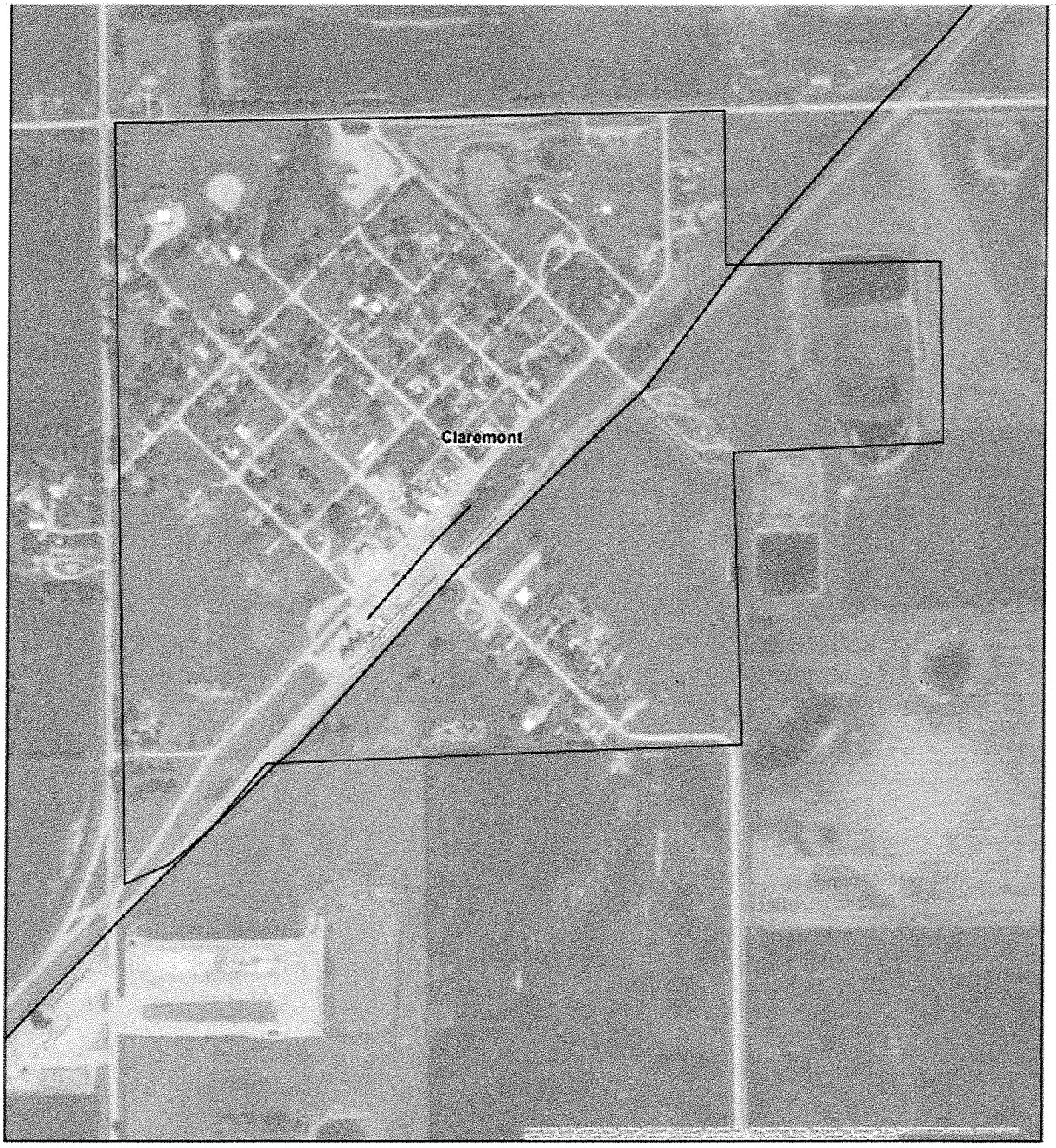
*Note: Draft SFHA shown on these workmaps are subject to change prior to Preliminary Products

NATIONAL FLOOD INSURANCE PROGRAM

SOUTH DAKOTA 2D BLE WORKMAP

Frederick, South Dakota
Brown County

FEMA



MAP SYMBOLOGY

SPECIAL FLOOD HAZARD AREAS
- 2D BLE SFHA
- 2D BLE With SFE or Depth
- Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile

OTHER FEATURES
- Base Flood Elevation
- Streamlines
- Levee
- Railroads
- Municipal Boundary
- County Boundary

N

1 inch = 210 feet

0 185 370 740 1,110 Feet

0 62.5 125 250 375 Meters

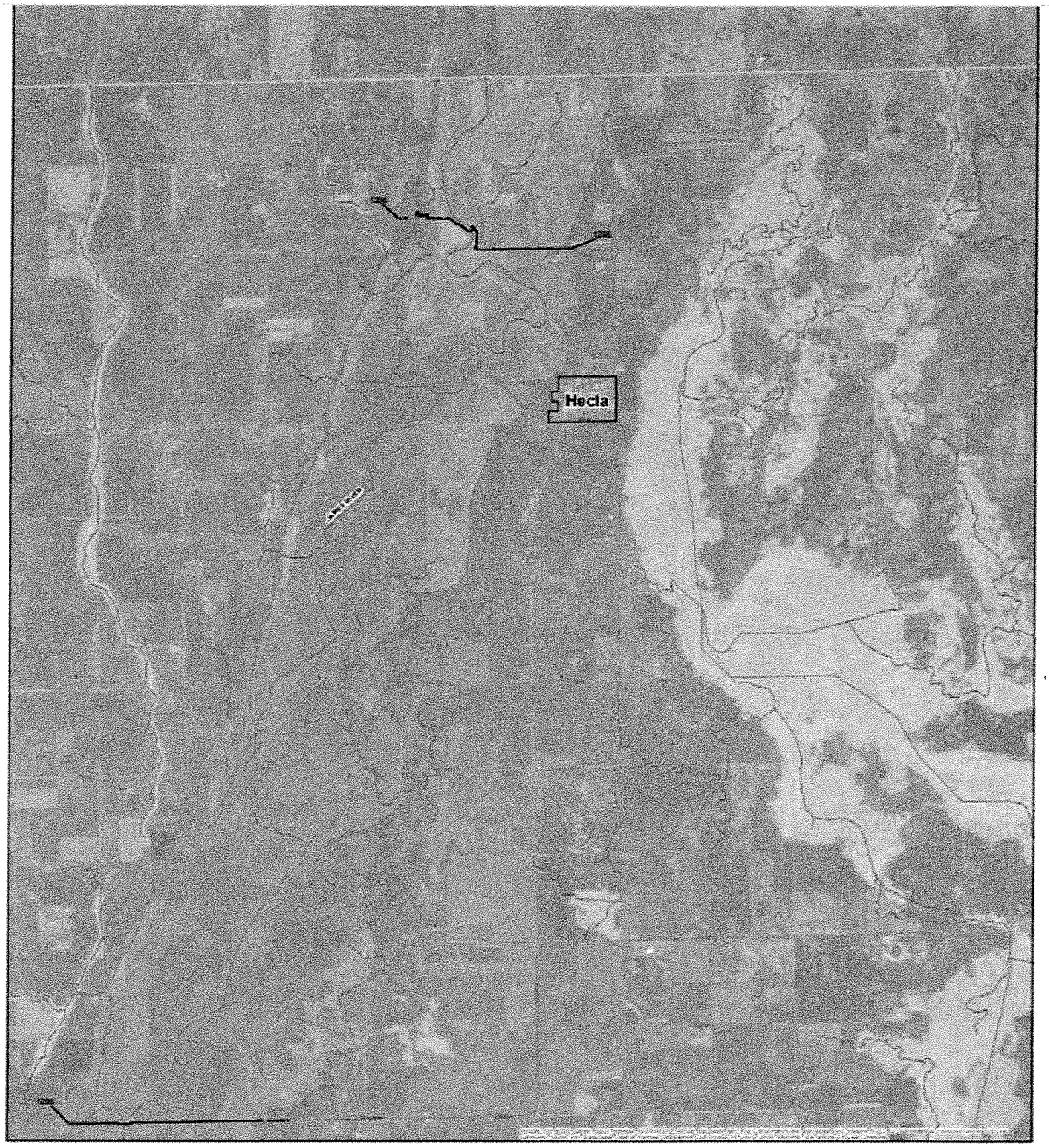
*Note: Draft SFHA shown on these workmaps are subject to change prior to Preliminary Products

NATIONAL FLOOD INSURANCE PROGRAM

SOUTH DAKOTA 2D BLE WORKMAP

Claremont, South Dakota
Brown County

FEMA



MAP SYMBOLOGY

SPECIAL FLOOD HAZARD AREAS
- 1D BLE SFHA
- 1D BLE With SFE or Depth
- Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard: Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile

OTHER FEATURES
- Base Flood Elevation
- Streamlines
- Levee
- Riverbank

N

1 inch = 2,990 feet

0 2,650 5,300 10,600 15,900 Feet

0 900 1,800 3,600 5,400 Meters

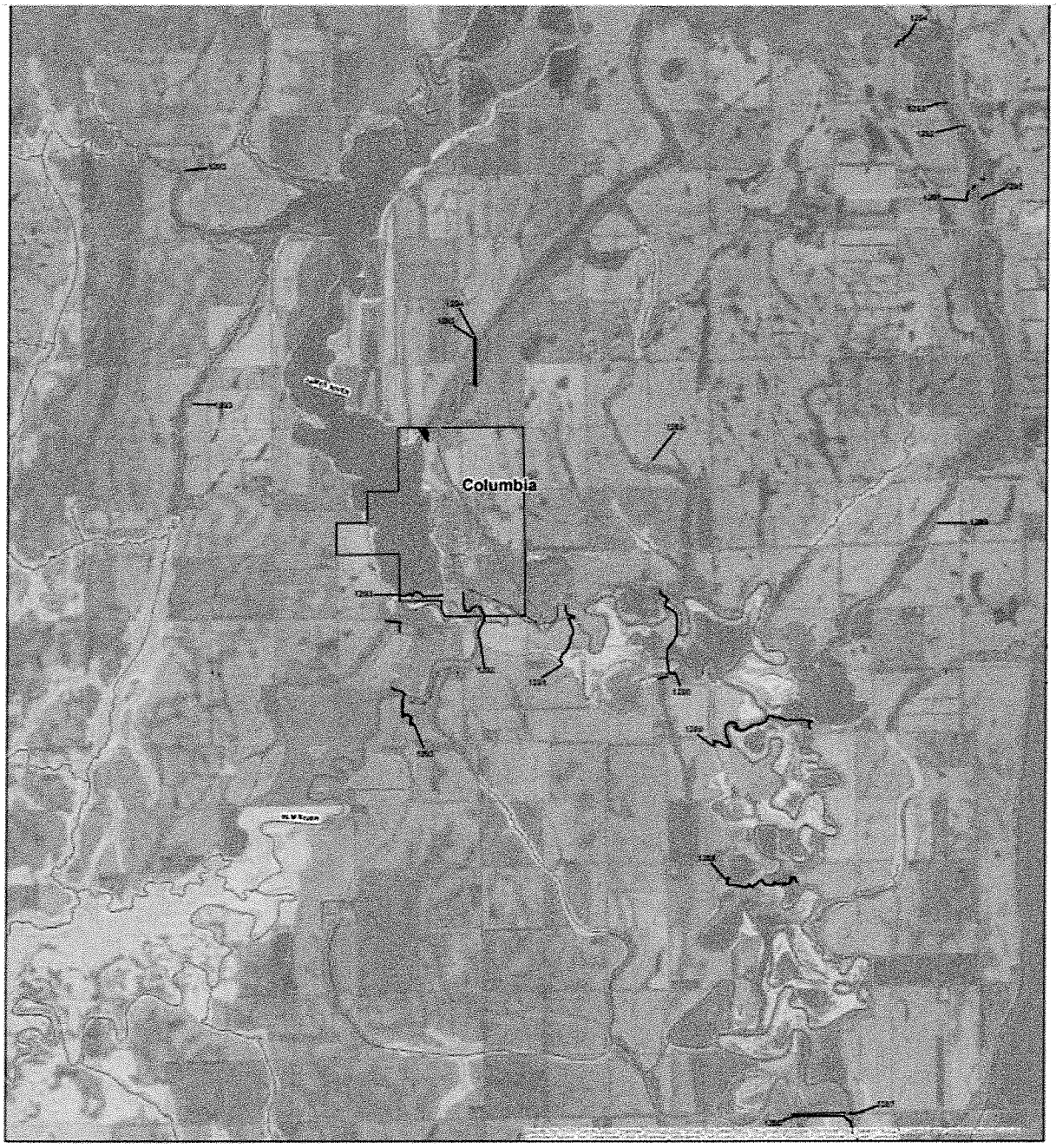
*Note: Draft SFHA shown on these workmaps are subject to change prior to Preliminary Products

NATIONAL FLOOD INSURANCE PROGRAM

SOUTH DAKOTA 2D BLE WORKMAP

Hecla, South Dakota
Brown County

FEMA



MAP SYMBOLOGY

SPECIAL FLOOD HAZARD AREAS
2D BLE SFHA
Zone A
2D BLE With SFE or Depth
Zone AE
Floodway

OTHER AREAS OF FLOOD HAZARD
0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X

OTHER FEATURES
Base Flood Elevation
Streamlines
Levee
Railroads
Municipal Boundary

N

1 inch = 2,090 feet

0 1,850 3,700 7,400 11,100 Feet

0 625 1,250 2,500 3,750 Meters

*Note: Draft SFHA shown on these worksheets are subject to change prior to Preliminary Products

NATIONAL FLOOD INSURANCE PROGRAM

SOUTH DAKOTA 2D BLE WORKMAP

Columbia, South Dakota
Brown County

FEMA

Aberdeen

Policies in Force:	146
Insurance in Force:	$35,704,000.00
No. of Paid Losses:	404
Total Losses Paid:	$2,485,551.02
Sub. Damage Claims Since 1978:	20

Rep Loss

	AE, A1-30, AO, AH, A	B, C, X	TOTAL
RL Buildings (Total)	13	17	30
RL Buildings (Insured)	1	1	2
RL Losses (Total)	18	28	46
RL Losses (Insured)	2	1	3
RL Payments (Total)	$116,915.24	$179,098.69	$296,013.93
Building	$111,190.87	$166,393.52	$277,584.39
Contents	$5,724.37	$12,705.17	$18,429.54
RL Payments (Insured)	$10,169.03	$12,379.21	$22,548.24
Building	$10,169.03	$12,379.21	$22,548.24
Contents	$.00	$.00	$.00

Brown County

Policies in Force:	24
Insurance in Force:	$3,907,700.00
No. of Paid Losses:	58
Total Losses Paid:	$626,131.43
Sub. Damage Claims Since 1978:	5

Rep Loss

	AE, A1-30, AO, AH, A	B, C, X	TOTAL
RL Buildings (Total)	2	0	2
RL Buildings (Insured)	0	0	0
RL Losses (Total)	2	0	2
RL Losses (Insured)	0	0	0
RL Payments (Total)	$27,276.67	$.00	$27,276.67

Building	$27,276.67	$.00	$27,276.67
Contents	$.00	$.00	$.00
RL Payments (Insured)	$.00	$.00	$.00
Building	$.00	$.00	$.00
Contents	$.00	$.00	$.00

Claremont

Participating in the NFIP; no policies, payouts or repetitive loss properties.

Columbia

Policies in Force:	1
Insurance in Force:	$280,000.00
No. of Paid Losses:	1
Total Losses Paid:	$21,299.76
Sub. Damage Claims Since 1978:	0

No repetitive loss properties

Frederick

Policies in Force:	6
Insurance in Force:	$938,300.00
No. of Paid Losses:	7
Total Losses Paid:	$70,813.67
Sub. Damage Claims Since 1978:	1

	AE, A1-30, AO, AH, A	B, C, X	TOTAL
RL Buildings (Total)	1	0	1
RL Buildings (Insured)	0	0	0
RL Losses (Total)	2	0	2
RL Losses (Insured)	0	0	0
RL Payments (Total)	$42,400.00	$.00	$42,400.00
Building	$38,800.00	$.00	$38,800.00
Contents	$3,600.00	$.00	$3,600.00
RL Payments (Insured)	$.00	$.00	$.00
Building	$.00	$.00	$.00

Contents	$.00	$.00	$.00

Groton

Policies in Force:	3
Insurance in Force:	$269,100.00
No. of Paid Losses:	5
Total Losses Paid:	$27,921.06
Sub. Damage Claims Since 1978:	1

No repetitive loss properties

Hecla

Policies in Force:	
Insurance in Force:	
No. of Paid Losses:	2
Total Losses Paid:	$5,688.34
Sub. Damage Claims Since 1978:	0

	AE, A1-30, AO, AH, A	B, C, X	TOTAL
RL Buildings (Total)	0	1	1
RL Buildings (Insured)	0	0	0
RL Losses (Total)	0	2	2
RL Losses (Insured)	0	0	0
RL Payments (Total)	$.00	$5,688.34	$5,688.34
Building	$.00	$5,688.34	$5,688.34
Contents	$.00	$.00	$.00
RL Payments (Insured)	$.00	$.00	$.00
Building	$.00	$.00	$.00
Contents	$.00	$.00	$.00

Stratford

Policies in Force:	
Insurance in Force:	
No. of Paid Losses:	1

Total Losses Paid:	$7,284.41
Sub. Damage Claims Since 1978:	0

No repetitive loss properties

Verdon

Not participating in the NFIP; thus no policies, payouts or repetitive loss properties.

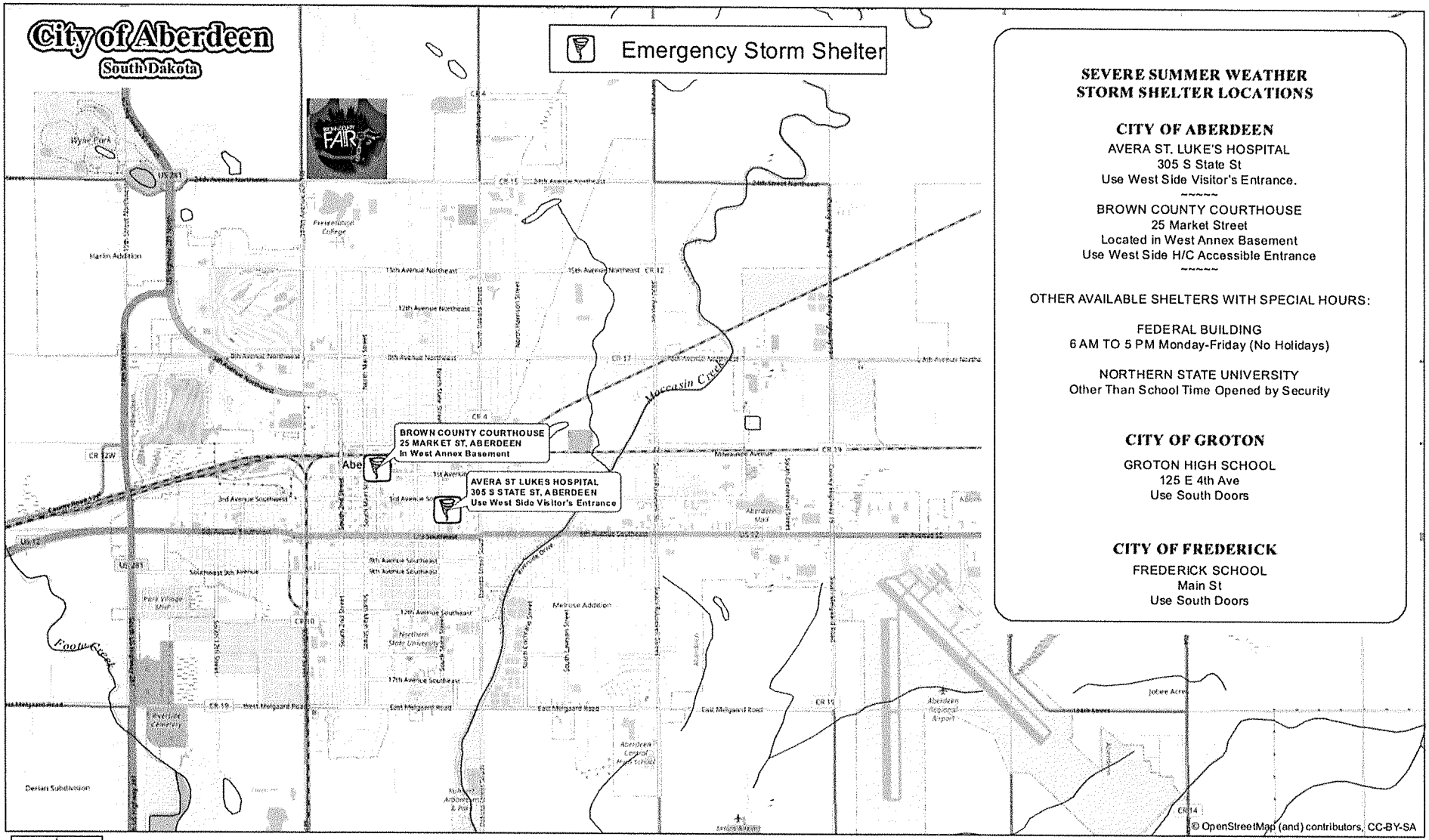
Warner

Participating in the NFIP; but no policies, payouts or repetitive loss properties.

Westport

Policies in Force:	6
Insurance in Force:	$492,000.00
No. of Paid Losses:	8
Total Losses Paid:	$39,166.06
Sub. Damage Claims Since 1978:	1

No repetitive loss properties.



SEVERE SUMMER WEATHER
STORM SHELTER LOCATIONS

CITY OF ABERDEEN

AVERA ST. LUKE'S HOSPITAL
305 S State St
Use West Side Visitor's Entrance.

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BROWN COUNTY COURTHOUSE
25 Market Street
Located in West Annex Basement
Use West Side H/C Accessible Entrance

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OTHER AVAILABLE SHELTERS WITH SPECIAL HOURS:

FEDERAL BUILDING
6 AM TO 5 PM Monday-Friday (No Holidays)

NORTHERN STATE UNIVERSITY
Other Than School Time Opened by Security

CITY OF GROTON

GROTON HIGH SCHOOL
125 E 4th Ave
Use South Doors

CITY OF FREDERICK

FREDERICK SCHOOL
Main St
Use South Doors

EMERGENCY STORM SHELTERS MAP

LAST UPDATED:
06/22/2021

0 0.25 0.5 1 Miles

N

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