U.S. Department of Homeland Security
Region VIII
Denver Federal Center, Building 710
P.O. Box 25267
Denver, CO 80225-0267

FEMA

R8-MT

October 16, 2019

Turner County Commissioners
P.O. Box 638
Parker, South Dakota 57053

Dear Turner County Commissioners:

We are pleased to announce the approval of the Turner County Pre-Disaster Hazard Mitigation Plan as meeting the requirements of the Stafford Act and Title 44 Code of Federal Regulations §201.6 for a local mitigation plan. This approval extends to Turner County and the Cities of Centerville, Chancellor, Davis, Marion, Hurley, and Viborg.

The approved jurisdictions are hereby eligible for FEMA Hazard Mitigation Assistance grant programs. All requests for funding will be evaluated individually according to the specific eligibility and other requirements of the particular programs under which the application is submitted. Approved mitigation plans may be eligible for points under the National Flood Insurance Program Community Rating System.

This plan is approved through October 15, 2024. A local jurisdiction must revise its plan and resubmit it for approval within five years to continue to be eligible for mitigation project grant funding. We have provided recommendations for the next plan update on the enclosed Plan Review Tool.

We wish to thank the jurisdicitons for participating in the planning process and commend your continued commitment to reducing future disaster losses. Please contact Jim Poppen, State Hazard Mitigation Officer, South Dakota Office of Emergency Management, at jim.poppen@state.sd.us or (605) 773-8095 with any questions on the plan approval or mitigation grant programs.

Sincerely,

Jeanine D. Petterson
Mitigation Division Director

Enclosure
cc: Jim Poppen, State Hazard Mitigation Officer, South Dakota Office of Emergency Management



TURNER COUNTY PRE-DISASTER HAZARD MITIGATION PLAN UPDATE 2019

Approved: October 16,2019

PREPARED BY:
Turner County Emergency Management

Technical Assistance Provided By:
South Eastern Council of Governments

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Executive Summary

The Hazard Mitigation Plan for Turner County, South Dakota is an update of the 2013 *Turner County Pre-Disaster Mitigation Plan*. The purpose of this Mitigation Plan update is to ensure that Turner County's strategies to reduce risks to people and property from hazard events are relevant and effective. This plan is in compliance with the Federal Emergency Management Agency's (FEMA) latest Local Mitigation Planning Guidance and the requirements of the Disaster Mitigation Act of 2000. Through the development and adoption of this update Turner County and the incorporated communities within are eligible for FEMA Hazard Mitigation Grant Programs.

Section 1: Introduction outlines the purpose and scope of the planning process. The Hazard Mitigation Plan Update for Turner County is a multi-jurisdictional plan that includes all unincorporated areas of the county as well as the cities of Centerville, Chancellor, Davis, Hurley, Marion, and Viborg. The purpose of the plan is to help Turner County anticipate, withstand, and recover from hazards and in turn, reduce the risks to life and property associated with hazard events. The scope of the planning process was two-fold: to revise the 2013 plan in order to create a user-friendly document that addresses the current needs of the county, while at the same time meeting the requirements of the Disaster Mitigation Act of 2000.

Section 2: Planning Process discusses the process that was used to develop the Plan. Most jurisdictions participated in the development of the Plan's update through representation on the Hazard Mitigation Planning Team. Throughout the planning process, all meetings were open to

the public. In addition, a public meeting was held to allow residents and other stakeholders to provide input into the Plan's updates.

Section 3: Risk Assessment identifies and profiles the hazard events that threaten Turner County. This section provides a discussion of local assets and analyzes hazard events that have occurred since the 2013 Plan was adopted, describes the county's progress toward meeting the mitigation goals that were established in the 2013 Plan, and assesses each individual community's vulnerabilities.

Section 4: Mitigation Strategies details the mitigation goals, objectives, and action items that were developed through the plan update process. Five overall goals were established during the planning process:

- *Reduce injury and loss of life from hazards;*
- *Reduce damage to existing and future structures;*
- *Reduce the losses to critical facilities, utilities, and infrastructure from hazards;*
- *Reduce impacts to the economy, the environment, and cultural resources from hazards;*
- *Support and assist local mitigation capabilities and efforts.*

Section 5: Action Plan & Implementation sets forth the Hazard Mitigation Plan implementation process and establishes roles and responsibilities related to the update and maintenance of the Plan.

Section 6: Plan Adoption provides evidence of the formal adoption of the Plan by Turner County and the participating jurisdictions.

The *Hazard Mitigation Plan Update for Turner County* was developed by the Turner County Emergency Management Department with the technical assistance of the South Eastern Council of Governments.

Section One: Introduction

Turner County is vulnerable to natural and manmade disasters that have the potential to impact the County's infrastructure, the welfare of its residents, and the economy. Past disasters have inflicted costly damages upon Turner County. While these disasters cannot be eliminated, with mitigation planning, the response and recovery from these events can be improved and adverse impacts to individuals, businesses, and communities can be reduced. Hazard mitigation is the effort to make communities more resilient, and better able to anticipate, withstand, and recover from hazard events.



In order to be eligible for FEMA's Hazard Mitigation Assistance (HMA) grant programs, the Disaster Mitigation Act of 2000 (DMA 2000) requires that local governments have a FEMA-approved mitigation plan in place. In these plans, local jurisdictions must demonstrate that proposed mitigation projects assess the unique risks and capabilities of each community. They must be updated every five years to demonstrate that progress has been made toward meeting the community's mitigation goals and to ensure that the plan continues to be an effective mitigation tool.

The Turner County Pre-Disaster Hazard Mitigation Plan is an update of the 2013 Pre-Disaster Mitigation Plan. This document details the planning process that was used to update the Plan; considers changes in the built environment and population of the county and its communities since 2013; examines the communities progress toward meeting the mitigation goals set in the previous Plan; re-evaluates hazard threats; and establishes new mitigation goals that will lead to more resilient communities.

The Turner County Pre-Disaster Hazard Mitigation Plan Update is a multi-jurisdictional plan that includes the unincorporated areas of Turner County and the cities of:

Centerville	Chancellor	Davis
Hurley	Marion	Viborg

The plan provides goals, objectives, and mitigation activities developed by the Mitigation Planning Team that will guide the County's disaster mitigation efforts over the next five years.

SECTION TWO: PLANNING PROCESS



A diverse group of emergency management professionals, local officials, and citizens participated in the hazard mitigation planning process. In April 2018, the Emergency Management Director from Turner County invited community members and local and regional agency representatives to be part of the Mitigation Planning Team. In addition, a request was made to each participating City to appoint a specific person to represent their jurisdiction on the Mitigation Planning Team.

Members of the Mitigation Planning Team were tasked with participating in the planning meetings, providing information and documents used to update the Plan, proposing mitigation actions, and reviewing the draft as it was assembled. The target was to include representation from a diverse section of hazard mitigation stakeholders. Individuals from the following groups were invited to participate on the planning team:

- Turner County (commissioners, planning/zoning staff, floodplain administrator, etc.)
- Municipalities within the counties (Mayors, city council members, finance officers, public works staff, etc.)
- Utility providers, including MidAmerican Energy and Southeastern Electric Cooperative
- Other entities including engineering firms with an interest in hazard mitigation.
- Emergency Managers from surrounding counties.

Table 2.1 Lists the planning team members, including their attendance at the planning meetings that were held as the plan was being developed.

HAZARD MITIGATION PLANNING TEAM REPRESENTATIVES							
NAME	**REPRESENTING**	**POSITION**	**MEETING ATTENDANCE**				
			9-13-18	**10-11-18**	**11-8-18**	**12-13-18**	**04-23-19**
Patty Brooks	SECOG	Planner	X	X	X		
Leslie Mastroianni	SECOG	Planner				X	
Sara Lum	SECOG	Planner					X
Jim Poppen	State of SD	Hazard Mitigation Officer	X				
Brad Georgeson	Turner County	Emergency Manager	X	X	X	X	X
Darol Hostetler	Chancellor		X				
Heath McManaman	Chancellor	Finance Officer	X	X	X		
Jay Love	Davis	Mayor	X				X
Daniel Severson	Chancellor	City Council	X				
Jared Hybertson	Centerville	Economic Development Coordinator	X	X	X	X	
Jeff Jeno	Marion	Mayor	X	X	X	X	X
Tracy Hummel	Hurley	City Clerk	X		X	X	
Lori Jorgensen	Viborg	Finance Officer	X	X	X		X
Jay Jorgensen	TM Rural Water District		X	X	X		
Dustin Sulzle	City of Marion	City Superintendent		X			
Adam Frerichs	State of SD	Hazard Mitigation Officer			X		
Julie Anderson	ICAP	Community Service Worker				X	

In addition to the participating entities, invitations were sent to Stockwell Engineers, Banner Associates, Sayre Associates and TM Rural Water District.

The communities of Parker, Dolton, and Monroe did not actively participate in the planning team meetings.

Public notices of the initial and subsequent planning sessions were sent to the following newspapers:

- *Hurley Leader*
- *Centerville Journal*
- *The Marion Record*
- *The New Era*

- *The Daily Republic*

Meeting 1

The initial Mitigation Planning Team ("Team") meeting was held September 13, 2018. At this meeting, the group was introduced to the hazard mitigation planning process and the purpose of the plan update. Important definitions (hazard mitigation and climate change) were presented along with examples of possible mitigation projects.

The Team was asked to look at the current disaster mitigation plan found on the County's website. Team members were tasked with going to their respective jurisdictions to initiate dialogue regarding hazards in the community.

Meeting leaders reiterated the importance of engaged involvement in the update process and stressed the desire to include a diverse representation of stakeholders in the county.

Meeting 2

The second Team meeting was held October 11, 2018. At this meeting, discussions focused on the locations and values of critical infrastructure. The Team, as a group, identified the probability of hazards occurring in the area and the vulnerability of persons and property associated with the hazards. The team discussed the associated impacts of those hazards with a high probability of occurrence and determined areas of impact. The Team was asked to identify the mitigation activities that have been accomplished since the previous plan was adopted.

Meeting 3

The third Team meeting was held November 8, 2018. The Team reviewed the five Goals and Objectives as presented in the April 2014 State of South Dakota Hazard Mitigation Plan. The Team elected to adopt the State of South Dakota's hazard mitigation goals and objectives. The team developed hazard problem statements. As a group, discussion and comparison was made between the problem statements and the adopted goals and objectives.

Meeting 4

The fourth meeting was held December 13, 2018. Team discussion revolved around specific mitigation projects, how to determine cost, established a timeframe for completion, resources to assist in project completion, and project prioritization.

The Team also discussed the effect of the proposed mitigation projects on hazards and how each project would meet the Plan's goals and objectives.

Meeting 5

The final team meeting was held April 23, 2019. The Team reviewed the final draft of the 2019 Turner County Pre-Disaster Hazard Mitigation Update.

Public Forums

The final draft was also presented to the residents of Turner County at a public forum also held on April 23, 2019 at the County Courthouse in Parker.

COORDINATION WITH OTHER PLANS

During the Plan update process, existing planning documents were referenced to ensure that new plan goals aligned with other established plans and processes within the County. Each jurisdiction's Comprehensive Plan was reviewed and evaluated to ensure the Comprehensive Plan's goals and objectives were comparative with the Turner County Pre-Disaster Mitigation Plan Update. The current *State of South Dakota Hazard Mitigation Plan* provided a foundation to assess hazard vulnerability for Turner County.

Jurisdiction Plans

Turner County	*Turner County Comprehensive Plan 2007-2027*
City of Centerville	*Centerville Comprehensive Plan 2035*
City of Davis	*Davis Comprehensive Plan 2017-2035*
City of Hurley	*Hurley Comprehensive Plan 2030*
City of Monroe	*Monroe Comprehensive Plan 2035*
City of Viborg	*Viborg Comprehensive Plan 2035*

SECTION THREE: RISK ASSESSMENT



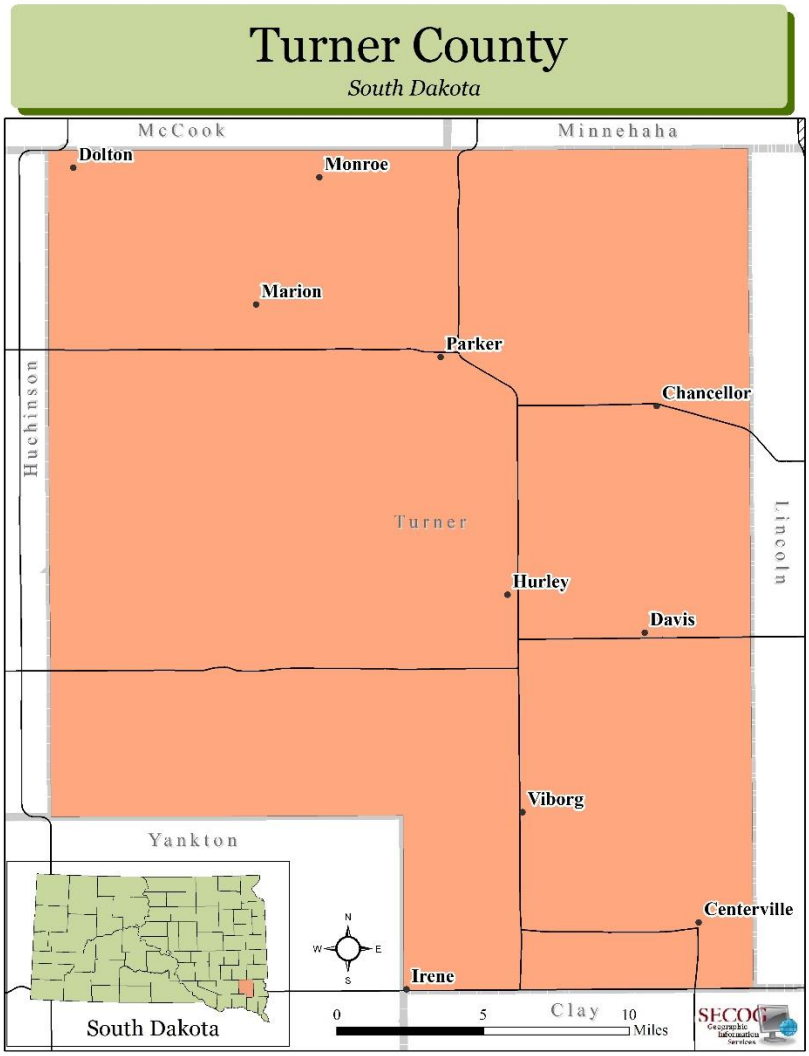
A step-by-step approach was utilized to identify potential hazard risk for Turner County. Hazard risk is influenced by a community's assets – things like population and development characteristics, public facilities and infrastructure, the natural environment, and the local economy – and how those assets relate to hazard threats. This section will describe the multi-jurisdictional assets, profile hazards, and detail progress that has been made on previous mitigation goals.

Numerous resources were used to complete this risk assessment for Turner County. The State of South Dakota Hazard Mitigation Plan was a major source of information on potential hazard risks. In addition, hazard histories were obtained from a number of sources, including the National Climate Data Center, National Weather Service, Department of Agriculture, and the United States Geological Survey. The Mitigation Planning Team helped identify and describe Turner County assets.

The Mitigation Planning Team reviewed a variety of potential hazards and assessed their potential impacts on Turner County. The list of potential hazards was narrowed down to focus on those that have the most significant impact on the area and where potential pre-disaster mitigation activities would result in the most substantial benefit.

COMMUNITY ASSETS

Turner County



People

Turner County is part of the Sioux Falls Metropolitan Statistical Area (MSA). The Sioux Falls MSA is the most densely populated area in South Dakota. The estimated population in the MSA is approximately 268,000. Turner County, in the far southwestern corner of the MSA, has an estimated population of 8,242 according to American Community Survey (ACS) 2017 estimates. The ACS further states that in 2010, the population density per square mile in Turner County was 13.5 persons in contrast to Sioux Falls' population density of 2,109.1 persons per square mile.

Turner County has seen a slight decline in population over the last several years. The 2010 US Census indicated a population of 8,347 residents. The 2013-2017 American Community Survey 5-year estimates a decrease in population to 8,242. There are 4,017 housing units in Turner County with an owner-occupied housing rate of 78.1 percent. In comparison, the State of South Dakota's owner-occupied housing rate is 67.9 percent.

Median household income in Turner County of $54,294 trended slightly higher than the $54,126 median household income for the State of South Dakota (US Census Bureau, 2013-2017 American Community Survey 5-year estimates). Current American Community Survey data states an estimated 10.6 percent of Turner County individuals live below the poverty level.

The median age in Turner County was 43.7 years in 2017. The median age has remained roughly the same in the last ten years. Services and facilities for vulnerable populations in the county are located in the urban areas. There are no formal senior housing or assisted living facilities located outside the urban areas. Additionally, there are no organized child care centers located in the rural areas of the county.

Vulnerable populations have special needs during times of disaster. In the context of emergencies, vulnerable groups may include individuals with disabilities, very young children, and the elderly. One measure of the strength of a community's response and recovery system is its attentiveness to its most vulnerable citizens–children, the frail elderly, the disabled, and the impoverished and disenfranchised.

The following table provides insight into the populations who may face difficulty with evacuations, understanding emergency communications, or may need access to specialized medical equipment and medications.

	PERCENT WITH A DISABILITY	PERCENT UNDER 5 YEARS OLD	PERCENT 65 YEARS AND OVER
South Dakota	8.3%	7.1%	16.3%
Turner County	9.2%	6.2%	20.8%

Table 3-1: US Census Bureau, 2013-2017American Community Survey 5-year estimates

The South Dakota Department of Social Services lists seven child care providers in Turner County. However, this count does not include many of the in-home child care providers. Nursing homes, assisted living facilities, and housing reserved for senior citizens are easily identified during disaster response. Seniors or persons with a disability, like home day care providers, not in an identified facility are more vulnerable to hazards.

Economy

The 2012 US Census Survey of Business Owners states that there are 811 companies in Turner County. As of 2012, over 97 percent of county land is used for agriculture. Farming and agriculture-related businesses are the economic driver in Turner County. According to the 2012 Census of Agriculture, the number of farms had grown by ten-percent over a five-year span to total 794. The average farm size is 484 acres and over 384,000 acres of land in Turner County is dedicated to farming. The average farm has a market value of crop and livestock sales of $229,448.

Built Environment

There are six highways that cross through Turner County. US Highway 18 is an east-west highway that passes through Turner County and connects to Interstate 29. It extends across the northern plains over 1,000 miles from Wyoming to Wisconsin. US Highway 81 runs parallel to the western edge of Turner County. SD State Highway 19 is an 86-mile highway that runs through Turner County as it travels from Humboldt, South Dakota from the north through Turner County to Vermillion, South Dakota to the south. South Dakota State Highway 44 is a 379-mile stretch of roadway that passes through Turner County as it spans the area between Rapid City all the way to Interstate 29 south of Sioux Falls, South Dakota.

Depending on the city, the communities of Turner County are served by South Lincoln Rural Water System, TM Rural Water District, and B-Y Water District.

TM Rural Water District has several assets in rural Turner County. TM constructed a new Water Treatment Plant in 2008 with a capacity of 4.0 million gallons per day. TM gets the majority of its water from five wells drilled into the Dolton and Upper Vermillion Missouri (UVM) Aquifers. The District also has an agreement with B-Y Rural Water District for supplemental water. Today the TM Rural Water District provides potable drinking water to 1,450 rural residences, 4 cities and one ethanol plant. Every year additional users are added onto the water system and due to its location adjacent to Sioux Falls, it is anticipated that the District will continue to grow in the coming years. The District produces and distributes over 625,000,000 gallons of water each year through 880 miles of distribution line.

South Lincoln Rural Water System, Inc. is a 501(c)3 non-profit corporation, receiving its Article of Incorporation from the State of South Dakota on December 21, 1976. The organization was funded by Rural Development and state agencies and led by an eleven person board with a vision and determination to provide a safe and reliable source of water for their rural residence, farms and livestock. South Lincoln Rural Water System now has over a 1000 miles of pipeline and delivers water to over 1,825 members throughout the counties of Minnehaha, Turner, Lincoln, and Union. In addition to its rural membership, South Lincoln provides bulk water to the communities of Alcester, Chancellor, Worthing, and Fairview. South Lincoln Rural Water is also one of the twenty original members that make up the Lewis and Clark Regional Water System.

Natural Environment

Agricultural land takes a front seat in Turner County's rural economy. There are no state parks in Turner County, but there is one recreational lake, called Swan Lake. Swan Lake is located northwest of the City of Viborg, South Dakota. The lake is 208 acres in size and surrounded by cabins. Turner County does not have any major regional recreation parks, but it does have three Waterfowl Production Areas. Managed by the U.S. Fish and Wildlife Service, Waterfowl Production Areas preserve wetlands and grasslands critical to waterfowl and other wildlife.

Almost the entirety of Turner County is located in the Vermillion River Basin Watershed. The Vermillion River drains approximately 1.43 million acres in fourteen counties in southeastern South Dakota. The river has its beginnings as two separate streams, called the East Fork and the West Fork of the Vermillion River, which drain approximately 292,579 acres and 256,440 acres, respectively, and converge as the Vermillion River near the city of Parker. The river continues south toward Centerville emptying into the Missouri River near the city of Vermillion.

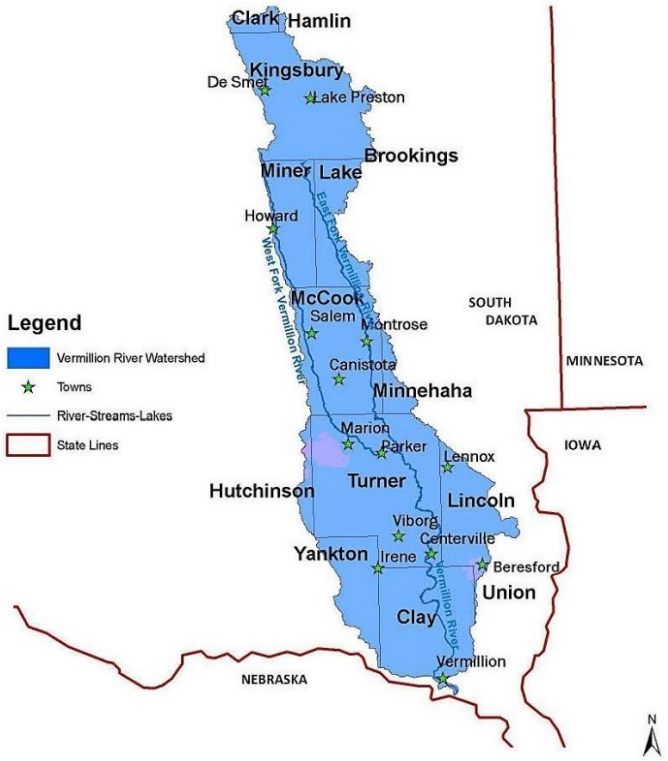


Figure 3-1

The Basin is formed within a topographic feature known as the Coteau de Prairies. The Coteau has what is known as a flatiron shape lying in a general northwest to southeast direction. It is about 200 miles long and 80 miles wide at the widest point. The northern part of the Coteau de Prairies has geologically developed features of potholes, sloughs, and lakes. During periods of

low precipitation, these features tend to hold back water and do not contribute to the drainage of the Vermillion River. Conversely, during wet years, this area can accumulate enough moisture to greatly increase the water supply to the drainage basin. These wet years pose a higher risk for flood hazards in Turner County.

In general, most soil in the region is fertile with adequate rainfall to meet agricultural production needs. In terms of precipitation, the average annual rainfall is 26.8 inches and falls during the spring and summer months. Snowfall occurs mostly in light to moderate amounts during the winter, and the annual average is at 33.6 inches. The climate of the region is considered a humid continental climate which is characterized by hot, relatively humid summers and cold, drier winters (High Plains Climate Data Center).

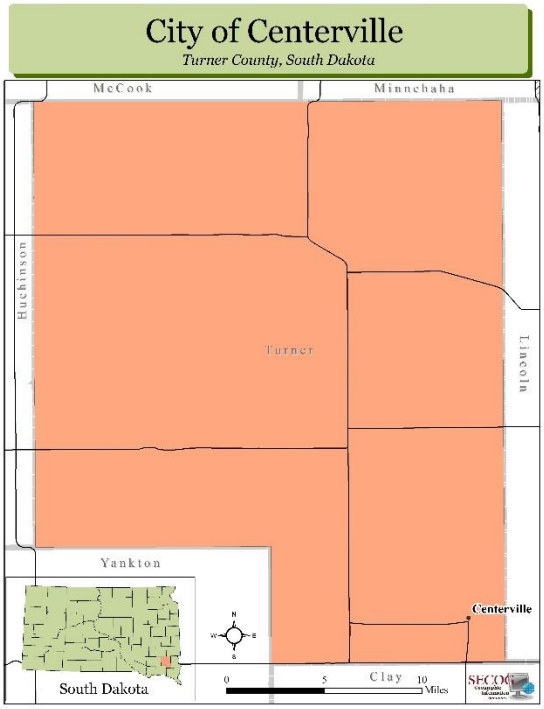
Population density may also have an impact on the hazard mitigation activities and the cost-benefit relationship of mitigation activities. In Turner County –

Area in Square Miles	618
Water Area in Square Miles	1
Land Area in Square Miles	617
Population Density per Square Mile of Land Area	13.5

Centerville

People

Centerville is located in the southeast corner of the county. According to the 2013-2017 American Community Survey, Centerville's population was 891. This is an increase from the 882 residents counted during the 2010 US Census, but a drop from the 910 residents in 2000. There are 477 housing units in Centerville with an owner-occupied housing rate of 72.7 percent.



Median household income in Centerville was an estimated $40,938 according to the 2013-2017 American Community Survey 5-year estimates. The median household income in Centerville is less than the median household income of Turner County. This trend continues with the number of residents living in poverty. The estimated 12.3 percent of residents living in poverty is higher than the 10.6 percent rate of Turner County.

Economy

Turner County is part of the Sioux Falls Metropolitan Statistical Area (MSA). Centerville residents have a few job opportunities available locally, as well as multiple options for commuters to Sioux Falls, Beresford, Vermillion and Yankton.

The local economy has a mix of small business such as banking, car repair, insurance, tax accounting, restaurants, shops, salons and other services.

Built Environment

There is one highway that serves Centerville directly. Centerville is connected to SD Highway 46 to the south and SD Highway 19 to the west by SD Highway 19A. SD 19A is an 8.161-mile-long alternate route of SD 19.

SD Highway 19 is a nearly 87-mile long state highway in connecting the Nebraska state line, south of Vermillion, to Madison, SD through Viborg, Hurley, and Parker in Turner County. SD 19 formerly entered Centerville, but was shifted to the south and its former path was re-designated as SD 19A. SD Highway 46 is a state route running west to east. It begins in Pickstown and runs east to the Iowa border.

The current municipal water supply comes from a connection to the Lewis and Clark Regional Water System that provides a maximum capacity of 220 gallons/minute and 316,800 gallons per day for residential use. The city sewer system, updated in 2013, has both primary and secondary lagoon with wetland easement. The city compost site is located at the west end of Garfield Street and is available to all city residents. MidAmerican Energy provides natural gas and Xcel Energy provides electric.

Fire protection and ambulance services are provided by the Centerville Volunteer Fire Department and Centerville Volunteer Ambulance Service, respectively. The fire department has an ISO rating of 8.

The Centerville Medical Clinic offers primary health care to the residents of Centervillle. The Centerville Medical Clinic, provided by Pioneer Memorial Hospital and Health Services, is a certified Rural Health Clinic. In addition to primary care, the Centerville Medical Clinic offers access to some specialty care and minor surgery. Centerville is also home to a branch of the Good Samaritan Society. The Good Samaritan Society facility in Centerville is an assisted living facility with 21 certified beds.

Centerville has a small commercial, or downtown, district, along Broadway Street. Businesses and services located in this area include restaurants, a bank, post office, medical care, pharmacy, automotive services, and other service providers.

The Centerville School District has just under 250 students enrolled in K-12 and provides before and after school programs. It is also home to Tuffy's Tots Daycare and Learning Center; there are also home day care providers to supplement child care needs.

Natural Environment

Centerville covers approximately .72 square miles of land and has no water area. The topography of Centerville is indicative of the Great Plains. The Vermillion River skirts the northwest corner of town and is the western boundary of Gunderson Park.

The City of Centerville has three city parks, a large athletic complex and is in the process of creating a bike trail system connecting all parks. City parks include Peder Larsen Park, Gunderson Park, and Stan Schmeidt Athletic Complex and Pascal Field. The parks include a mini-golf area, pool, playground equipment, picnic areas, basketball courts, and athletic fields.

Population density in the non-rural areas has an impact on housing, a community's infrastructure, access to resources, and public safety. Population density may also have an impact on the hazard mitigation activities and the cost-benefit relationship of mitigation activities. In Centerville –

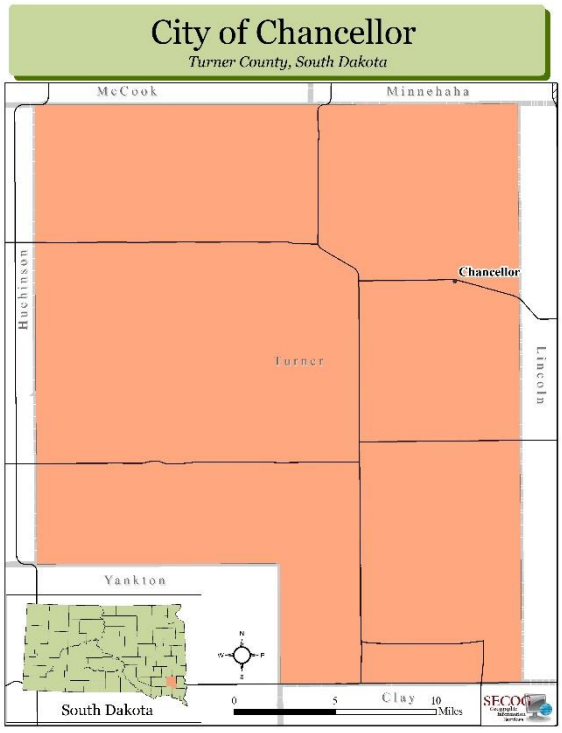
Area in Square Miles	.72

Water Area in Square Miles	0.00
Land Area in Square Miles	.72
Population Density per Square Mile of Land Area	1,225

Chancellor

People

Chancellor is located in the northeastern part of the county. According to the 2013-2017 American Community Survey, Chancellor's population was 300. This is an increase from the 264 residents counted in both the 2000 and the 2010 US Census. There are 159 housing units in Chancellor with an owner-occupied housing rate of 76.7 percent.



Median household income in Chancellor was an estimated $54,861 according to the 2013-2017 American Community Survey 5-year estimates. The median household income in Chancellor is slightly more than the median household income of Turner County. This trend changes with the number of residents living in poverty. The estimated 11 percent of residents living in poverty is slightly higher than the 10.6 percent rate of Turner County.

Economy

Turner County is part of the Sioux Falls Metropolitan Statistical Area (MSA). Chancellor residents have a few job opportunities available locally, as well as multiple options for commuters to Sioux Falls.

POET Biorefining built a plant just east of Chancellor in 2003. This facility was expanded in 2008, which makes it the largest of all POET plants. The plant utilizes over 35 million bushels of locally grown corn and processes it into 110 million gallons of ethanol on an annual basis. The plant employs approximately 60 people.

The local economy has limited services, but does have a bank, convenience store, and post office.

Built Environment

There is one state highway that serves Chancellor directly. South Dakota Highway 44 travels directly through Chancellor in the east-west direction. County Highway 41 intersects SD-44 in Chancellor in the north-south direction.

SD Highway 44 is a state highway in southern South Dakota that runs from just west of Rapid City east to Interstate 29 south of South Falls. It is 379 miles long.

Water is supplied to Chancellor and the nearby POET Biorefinery by the South Lincoln Rural Water System. The South Lincoln Rural Water System, Inc. is a 501(c)3 non-profit corporation that started delivering water to its members in 1980. South Lincoln Rural Water System is one of the twenty original members of the Lewis and Clark Regional Water System. MidAmerican Energy provides natural gas and Xcel Energy provides electric.

Fire protection and ambulance services are provided by the Chancellor Volunteer Fire Department and the Lennox and Parker Area Ambulances.

Medical services do not exist in Chancellor, but there are services available in Lennox, which is 5 miles away. Sanford Health has a clinic located in Lennox. There is also a chiropractic clinic, dental clinic, pharmacy and assisted living facility available in Lennox.

Chancellor has a small commercial, or downtown, district, along Main Street. Services in this area are limited, but include a bank, convenience store, and post office.

Chancellor is part of the Lennox School District, which operates LWC Junior High School/Lennox High School in Lennox. There are no child care services licensed with the state of South Dakota in Chancellor, but there are seven childcare providers available in Lennox, which is located 5 miles from Chancellor.

Natural Environment

Chancellor covers approximately .22 square mile of land and has no water area. The topography of the Chancellor area is nearly flat. There is a small park with some athletic fields and picnic areas in the southwest part of town.

Population density in the non-rural areas has an impact on housing, a community's infrastructure, access to resources, and public safety. Population density may also have an impact on the hazard mitigation activities and the cost-benefit relationship of mitigation activities. In Chancellor –

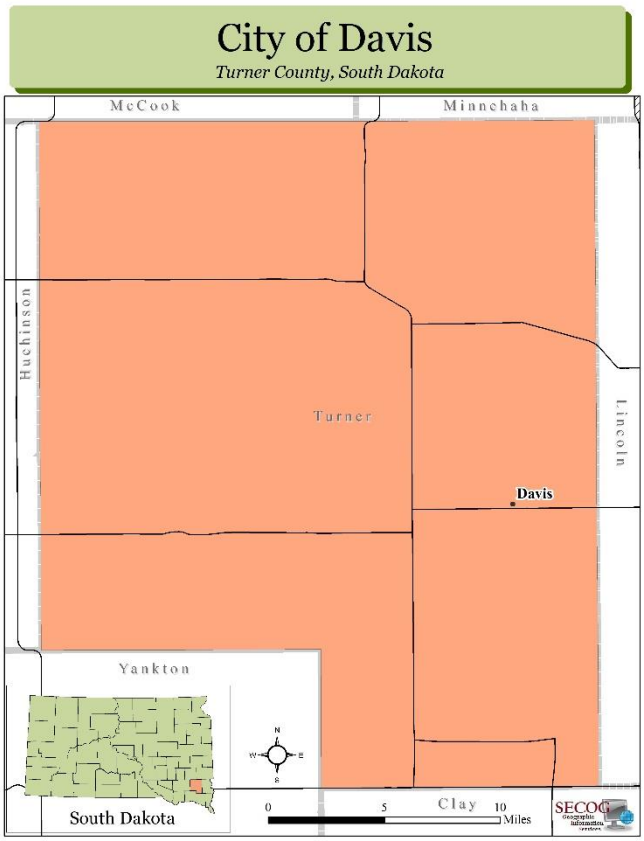
Area in Square Miles	0.22

Water Area in Square Miles	0.00
Land Area in Square Miles	0.22
Population Density per Square Mile of Land Area	1,200

Davis

People

Davis is located in the east central part of the county. According to the 2013-2017 American Community Survey, there were 62 Davis residents. This is a slight decrease from the 85 residents counted during the 2010 and 2000 US Census. There are 50 housing units in Davis with an owner-occupied housing rate of 88.1 percent.



Median household income in Davis was an estimated $45,577 according to the 2013-2017 American Community Survey 5-year estimates. The median household income in Davis is less than the $54,294 median household income of Turner County. This trend changes with the number of residents living in poverty. The estimated 8.1 percent of residents living in poverty is significantly lower than the 10.6 percent rate of Turner County.

Economy

Turner County is part of the Sioux Falls Metropolitan Statistical Area (MSA). Davis residents have very few job opportunities available locally, but there are as multiple options for commuters to Sioux Falls and other small towns in the area such as Lennox, Parker, and Chancellor, which is home to a POET biorefinery.

The local economy has limited services, but does have a general store and post office.

Built Environment

There is one highway that serves Davis directly. United States Highway 18 travels directly through Davis in the east-west direction. US Highway 18 extends from Orin, Wyoming to Milwaukee, Wisconsin.

The Town of Davis is connected to the T-M Rural Water District, which is a water user district that was created in 1983. Currently the town has 56 users who are using approximately 100,000 gallons per month with peak usage occurring in the months of June and July. The town is fortunate to have an excellent water source and capacity for future development does not appear to be a major concern.

The system consists of PVC water lines. The new system was installed approximately 13 years ago with the new PVC replacing the old cast iron pipes. It was at that time that the town also abandoned their old wells to connect to T-M Rural Water District.

Presently the Town does not provide sanitary sewer collection and treatment system services. All domestic users utilize a private septic system.

Fire protection and ambulance services are provided by the Davis Volunteer Fire Department and Hurley Area Ambulance, respectively.

Medical services do not exist in Davis, but there are services available in Lennox, which is 12.5 miles away. Sanford Health has a clinic located in Lennox. There is also a chiropractic clinic, dental clinic, pharmacy and assisted living facility available in Lennox.

Services in Davis are limited, but include a post office and general store.

Davis is part of the Viborg-Hurley School District, which operates Viborg-Hurley Elementary, Viborg-Hurley Middle School, Viborg-Hurley High School, and Cameron Colony. There are no child care services licensed with the state of South Dakota in Davis, but there are seven childcare providers available in Lennox, which is located 12.5 miles from Davis.

Natural Environment

Davis covers .43 square miles of land. The Vermillion River is directly west of the City of Davis. There is one city park located in Davis.

Population density in the non-rural areas has an impact on housing, a community's infrastructure, access to resources, and public safety. Population density may also have an impact on the hazard mitigation activities and the cost-benefit relationship of mitigation activities. In Davis –

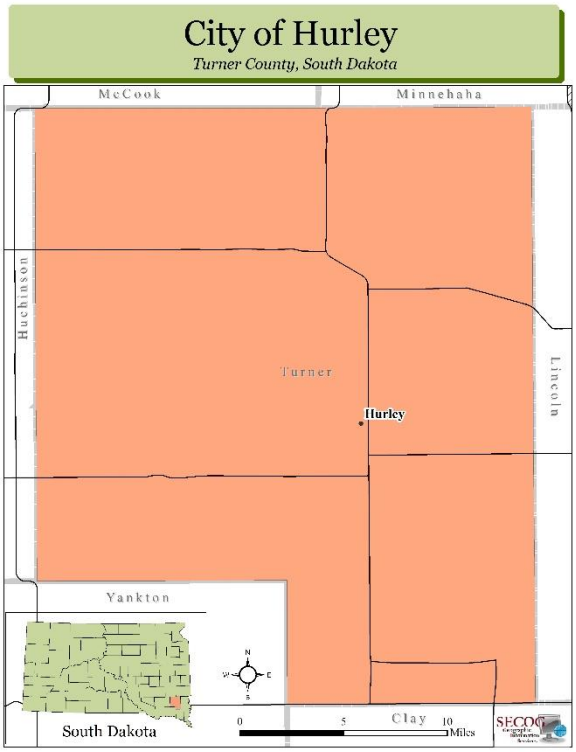
Area in Square Miles	0.43
Water Area in Square Miles	0.00
Land Area in Square Miles	0.43
Population Density per Square Mile of Land Area	197.7

Hurley

People

Hurley is located in the central part of the county. According to the 2013-2017 American Community Survey, Hurley's population was 379 residents. This is a decrease from the 415 residents counted during the 2010 US Census and 426 residents in 2000. There are 168 housing units in Hurley with an owner-occupied housing rate of 85.5 percent.

Median household income in Hurley was an estimated $46,406 according to the 2013-2017 American Community Survey 5-year estimates. The median household income in Hurley is less than the median household income of Turner County. This trend continues with the number of residents living in poverty. The estimated 14.2 percent of residents living in poverty is considerably higher than the 10.6 percent rate of Turner County.



Economy

Turner County is part of the Sioux Falls Metropolitan Statistical Area (MSA). Hurley residents have a few job opportunities available locally, as well as multiple options for commuters to Sioux Falls, Beresford, and Parker.

The local economy has limited services, but does have a convenience store.

Built Environment

There is one state highway that serves Hurley directly. South Dakota Highway 19 travels along the eastern edge of Hurley in the north-south direction. SD Highway 19 is a nearly 87-mile long state highway in connecting the Nebraska state line, south of Vermillion, to Madison, SD through Viborg, Hurley, and Parker in Turner County.

The City is provided water by the Turner-McCook Rural Water District through a 6" water main. In 1996, the City completed a major replacement project of the City's water distribution system. Infrastructure that was replaced includes: 27,500 feet of cast iron pipe (replaced with PVC pipe), meter pit, hydrants, valves and crossings. The City has 2,857 feet of cast iron pipe remaining. For water storage, the City utilizes a 42,000 gallon elevated water tower. The majority of the City of Hurley's current collection and wastewater treatment plant was constructed in 1922. In 1989, the City expanded the wastewater treatment plant and the present Infiltration/Percolation system.

The City of Hurley's fire protection is currently provided by the Hurley Volunteer Fire Department. A total of thirty-five volunteer fire fighters serve with the department; of these thirty-five, eight are certified Emergency Medical Technicians. The volunteer fire department is housed in a facility located on the corner of Main Street and Iowa Avenue. The City of Hurley's ambulance service is currently provided by the Hurley Volunteer Ambulance Department. The ambulance service is located within the same facility as the fire department. A total of eight members have EMT certification with one member having paramedic level training.

Medical services do not exist in Hurley, but there are services available in Parker, which is located 10 miles north of Hurley. The Parker Medical Clinic offers primary health care to the residents of Hurley. The Parker Medical Clinic, provided by Pioneer Memorial Hospital and Health Services, is a certified Rural Health Clinic. In addition to primary care, the Parker Medical Clinic offers access to some specialty care and minor surgery. There is also a chiropractic clinic, dental clinic, pharmacy and assisted living facility available in Parker.

Hurley does not have a downtown commercial district. Services in Hurley are limited, but there is one convenience store, restaurant, post office, funeral home, library, museum, hair salon, car wash and bank.

Hurley is part of the Viborg-Hurley School District, which operates Viborg-Hurley Elementary, Viborg-Hurley Middle School, Viborg-Hurley High School, and Cameron Colony. There is one child care service provider in Hurley.

Natural Environment

Hurley covers approximately 0.62 square miles of land and has no water area. The topography of Hurley is flat. Hurley has one city park and a ball field.

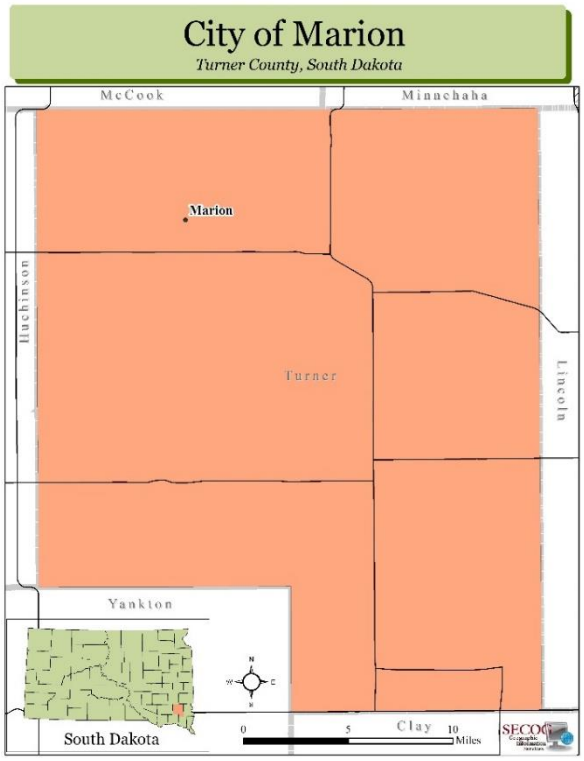
Population density in the non-rural areas has an impact on housing, a community's infrastructure, access to resources, and public safety. Population density may also have an impact on the hazard mitigation activities and the cost-benefit relationship of mitigation activities. In Hurley –

Area in Square Miles	0.62
Water Area in Square Miles	0.00
Land Area in Square Miles	0.62
Population Density per Square Mile of Land Area	669.4

Marion

People

Marion is located in the northwestern part of the county. According to the 2013-2017 American Community Survey, Marion's population was 829 residents. This is an increase from the 784 residents counted during the 2010 US Census, but less than the 892 residents in 2000. There are 393 housing units in Marion with an owner-occupied housing rate of 69.7 percent.



Median household income in Marion was an estimated $46,250 according to the 2013-2017 American Community Survey 5-year estimates. The median household income in Marion is less than the median household income of Turner County. This trend continues with the number of residents living in poverty. The estimated 16.9 percent of residents living in poverty is considerably higher than the 10.6 percent rate of Turner County.

Economy

Turner County is part of the Sioux Falls Metropolitan Statistical Area (MSA). Marion residents have a few job opportunities available locally, as well as multiple options for commuters to Sioux Falls.

The local economy has a mix of small business such as auto repair, convenience stores, a lumber company, pharmacy, restaurant, coffeeshop, salons, health clinic, dental clinic, and other services.

Built Environment

There is one state highway that serves Marion directly. South Dakota Highway 44 is located on the south side of Marion and runs in the east-west direction. SD 44 is as state highway in southern South Dakota that runs from west of Rapid City east to Interstate 29 south of Sioux Falls. It is 379 miles long.

Marion's daily municipal water needs a re provided by TM Rural Water District through direct connection to the City's water main system. The District supplies potable treated water to the City through a connection located at the west central area of the City on Florida Street. The water is supplied on an "as needed" basis. The District has contracted with the City to provide the treated water at a not to exceed rate of 125 gallons per minute or 150,000 gallons per day.

The City of Marion's fire protection is currently provided by the Marion Volunteer Fire Department. The City of Marion's ambulance service is currently provided by the Marion Volunteer Ambulance Department.

The Marion Rural Medical Clinic is a satellite clinic of the Rural Medical Clinic in Freeman, SD. The Marion Rural Medical Clinic offers primary health care to the residents of Marion. In addition to primary care, the Marion Rural Medical Clinic offers access to some specialty care and minor surgery. There is also a chiropractic clinic, dental clinic, pharmacy, and nursing home facility available in Marion.

Marion has a small commercial, or downtown, district, along Broadway Avenue. Businesses and services located in this area includes a restaurant, post office, coffeeshop, pharmacy, funeral home, and convenience store.

The Marion School District has approximately 200 students in K-12. The school district serves neighboring rural communities of Dolton and Monroe. There is one child care service provider located in Marion.

Natural Environment

Marion covers approximately 0.87 square miles of land and has no water area. The West Fork Vermillion River is located about a mile northeast of Marion. Marion is also only a few miles away from both the Miller and Plucker Waterfowl Production Areas.

The City has a community park, Hieb Memorial Park, which has picnic areas, athletic fields, pool and a playground.

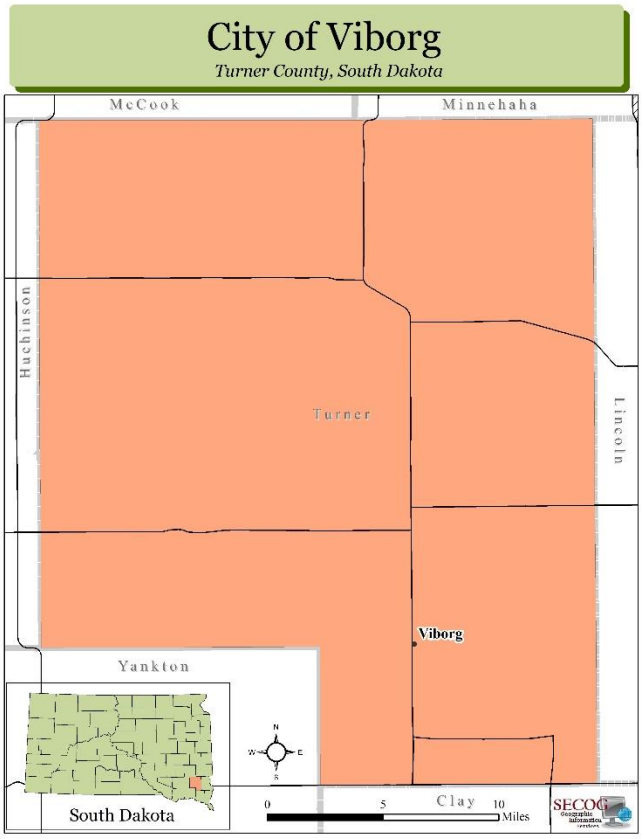
Population density in the non-rural areas has an impact on housing, a community's infrastructure, access to resources, and public safety. Population density may also have an impact on the hazard mitigation activities and the cost-benefit relationship of mitigation activities. In Marion –

Area in Square Miles	0.87
Water Area in Square Miles	0.00
Land Area in Square Miles	0.87
Population Density per Square Mile of Land Area	901.1

Viborg

People

Viborg is located in the south central part of the county. According to the 2013-2017 American Community Survey, Spencer's population was 842 residents. This is an increase from the 782 residents counted during the 2010 US Census and the 832 residents in 2000. There are 424 housing units in Viborg with an owner-occupied housing rate of 57.4 percent.



Median household income in Viborg was an estimated $38,594 according to the 2013-2017 American Community Survey 5-year estimates. The median household income in Viborg is less than the median household income of Turner County. This trend continues with the number of residents living in poverty. The estimated 18.5 percent of residents living in poverty is considerably higher than the 10.6 percent rate of Turner County.

Economy

Turner County is part of the Sioux Falls Metropolitan Statistical Area (MSA). Viborg residents have a few job opportunities available locally, as well as multiple options for commuters to Sioux Falls.

The local economy has a mix of small business such as a small grocery store, pharmacy, restaurants, auto services, shops, banks, salons, health clinic, and other services.

Built Environment

There is one state highway that serves Viborg directly. South Dakota Highway 19 travels through Viborg in the north-south direction. Within city limits it is Viborg's Main Street. SD Highway 19 is a nearly 87-mile long state highway in connecting the Nebraska state line, south of Vermillion, to Madison, SD through Viborg, Hurley, and Parker in Turner County.

Viborg's daily municipal water needs are provided by TM Rural Water District. TM Rural Water District has several assets in rural Turner County. TM constructed a new Water Treatment Plant in 2008 with capacity of 4.0 million gallons per day. TM gets the majority of its water from five wells drilled into the Dolton and Upper Vermillion Missouri (UVM) Aquifers. The District also has an agreement with B-Y Water District for supplemental water. Today the TM Rural Water District provides potable drinking water to 1,450 rural residences, 4 cities, which includes Viborg, and one ethanol plant.

The City of Viborg's fire protection is currently provided by the Viborg Volunteer Fire Department. A total of forty volunteer fire fighters serve with the department. The City of Viborg's ambulance service is currently provided by the Viborg Community Ambulance Service.

The Viborg Medical Clinic and Pioneer Memorial Hospital and Health Services provide medical care to residents of Viborg. The Viborg Medical Clinic offers services in family medicine, internal medicine, podiatry, urology, and cardiology. Pioneer Memorial Hospital and Health Services provides many levels of hospital care as well as clinic services. Nursing home, memory care, assisted living, and independent living are also available through Pioneer Memorial. There is also a chiropractic clinic, dental clinic, and pharmacy available in Viborg.

Viborg has a small commercial or downtown district along Broadway Avenue. Businesses and services located in this area include a small grocery store, restaurants, shops, movie theatre, a bank, pharmacy, convenience store, and other services.

Viborg is part of the Viborg-Hurley School District, which operates Viborg-Hurley Elementary, Viborg-Hurley Middle School, Viborg-Hurley High School, and Cameron Colony. There are no child care services licensed with the state of South Dakota in Viborg, but there are two childcare providers available in Centerville, which is located 10 miles southeast of Viborg.

Natural Environment

Viborg covers approximately 0.4 square miles of land and has no water area.

The City has a community park with picnic areas, playground and athletic fields adjacent to the school. Viborg also has a community center.

Population density in the non-rural areas has an impact on housing, a community's infrastructure, access to resources, and public safety. Population density may also have an impact on hazard mitigation activities and the cost-benefit relationship of mitigation activities. In Viborg –

Area in Square Miles	0.4
Water Area in Square Miles	0.00
Land Area in Square Miles	0.4

Population Density per Square Mile of Land Area	1,955

HAZARD PROFILES

The Turner County Pre-Disaster Mitigation Plan Update establishes a framework for identifying mitigation goals and prioritizing actions to help make the residents of Turner County more disaster resilient and safe. The Team reviewed a variety of potential hazards and assessed their potential impacts on the area. The list of potential hazards was narrowed to focus on hazards that have the most significant impact on the area and hazards where potential pre-disaster mitigation activities would result in the most substantial benefit. As part of this assessment, data was compiled and maps were produced to help analyze the potential impacts of various hazards.

In particular, the following hazards were discussed by the Mitigation Planning Team as potential hazards to address in the Turner County Pre-Disaster Mitigation Plan Update 2019:

Agricultural Pests/Diseases	**Tornado**	**Drug Abuse**
Drought	**Active Shooter**	**Wildfire**
Floods	**Hazardous Materials**	**Windstorm**
Summer Storm	**Geological Hazards**	
Winter Storm	**Water Contamination**	

Table: 3-5: All potential Hazards

The Mitigation Planning Team decided to focus on natural hazards in the Turner County Pre-Disaster Mitigation Plan Update. The Team felt that disaster mitigation projects would be most effective in addressing and mitigating against the impact of natural hazards. Man-made hazards such as terrorism were considered to have a low probability of occurrence. No known incident of terrorism has occurred in the county. In addition, man-made hazards such as transportation incidents and hazardous materials are covered in the Turner County Hazardous Materials Plan.

Probability

The likelihood that a disaster event will take place within a defined period. For purposes of this analysis, the probability of a hazard is considered "high" if it were likely to occur five times in a ten-year period, "medium" if it were to occur one to two times in a ten-year period, and "low" if it were likely to occur less than one time in a ten-year period.

Vulnerability

The potential impact of a hazard in terms of monetary impact, disruption, and potential to result in injury or loss of life. For purposes of this analysis, a "high" vulnerability assessment is a hazard that is likely to threaten human life and a substantial amount of property. A "medium" vulnerability assessment is a hazard that this is unlikely to threaten human life, but some risk exists, and the hazard may pose a significant risk to property. A "low" vulnerability assessment is a hazard that is unlikely to threaten human life or pose a risk to property.

The following table illustrates the Team's analysis of the area's vulnerability to identified hazards and the probability of occurrence within a ten-year period.

		Vulnerability		
		Low	**Medium**	**High**
Probability of Occurrence	**Low**			
	Medium	Hazardous Materials Active Shooter/Terrorism		
	High	Wind Storm Ag Pests and Diseases	Drought and Wildfire Summer Storm	Tornado Winter Storms Floods

Figure 3-5: Probability and Vulnerability

Drought was considered a hazard for Turner County. Several droughts have been recorded in the area over the past 60 years; however, Turner County have not been subject to a Presidential Declaration related to drought during that time. The most recent prolonged period of drought, according to the National Center for Environmental Information Storm Events Database, were the months between June 2012 and April 2013. A review of United States Department of Agriculture Risk Management Agency data shows that over the past 10 years, about $69.5 million in crop damages occurred in Turner County as a result of drought conditions. While this hazard has a significant impact on the agricultural economy and on local economies reliant on the agricultural sector, the Team decided that occurrence data in Turner County did not warrant inclusion. As depicted in the map below, rainfall totals in southeastern South Dakota average higher than the rest of the state. Western South Dakota has been severely impacted by drought conditions.

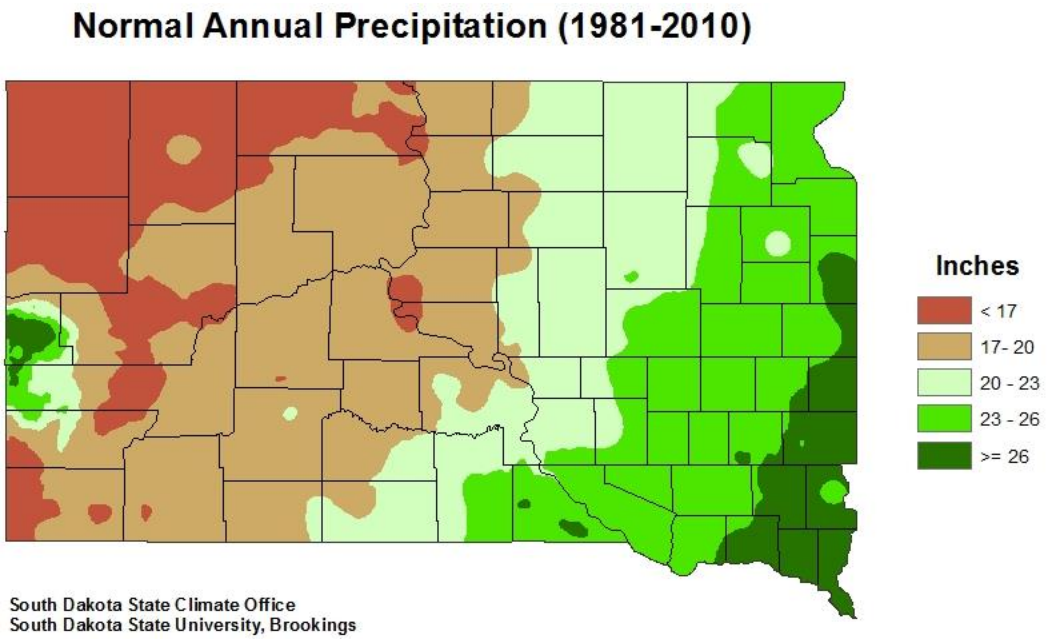


Figure 3-6: Normal Annual Precipitation

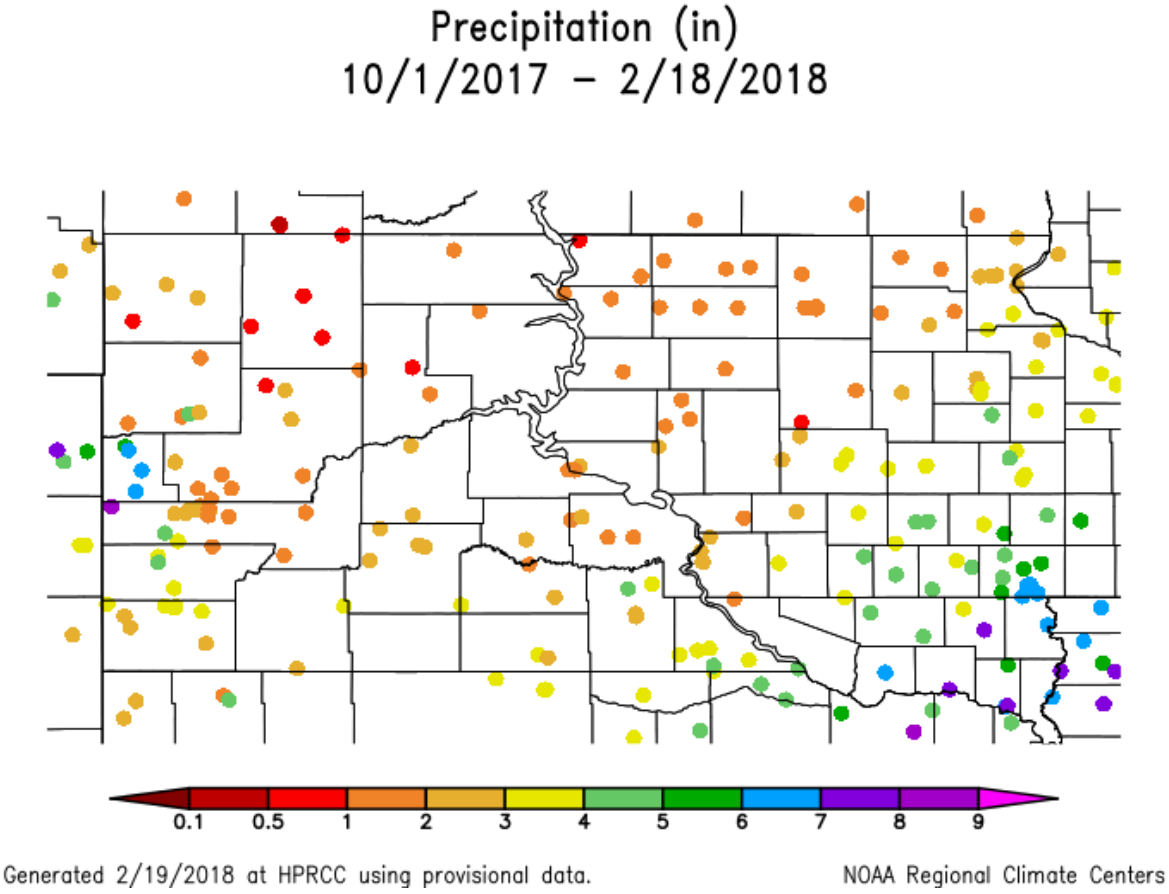


Figure 3-7: Annual Precipitation by Location in State

The other primary impact of drought conditions is lower water levels. While this is a potential threat to the area, jurisdictions have already implemented policies that mitigate against the impacts of this threat, including restrictive water usage policies during drought and non-drought periods. These restrictions relate primarily to limits on lawn watering and other heavy uses of water.

Earthquakes were also excluded as an imminent hazard even though this hazard is included in the State's Multi-Hazard Pre-Disaster Mitigation Plan. As illustrated below, the vulnerability of Turner County to earthquakes is considered minimal. According to the State's Plan, no major earthquakes have been reported in South Dakota since 1967, and South Dakota is geologically stable. The U.S. Geological Survey estimates only a ten-percent chance of an earthquake occurring exceeding a 5.1 magnitude in any one 50-year period. Minor earthquakes that have been observed in the state have resulted in very limited damage such as displaced foundations, stuck doors and windows, etc.

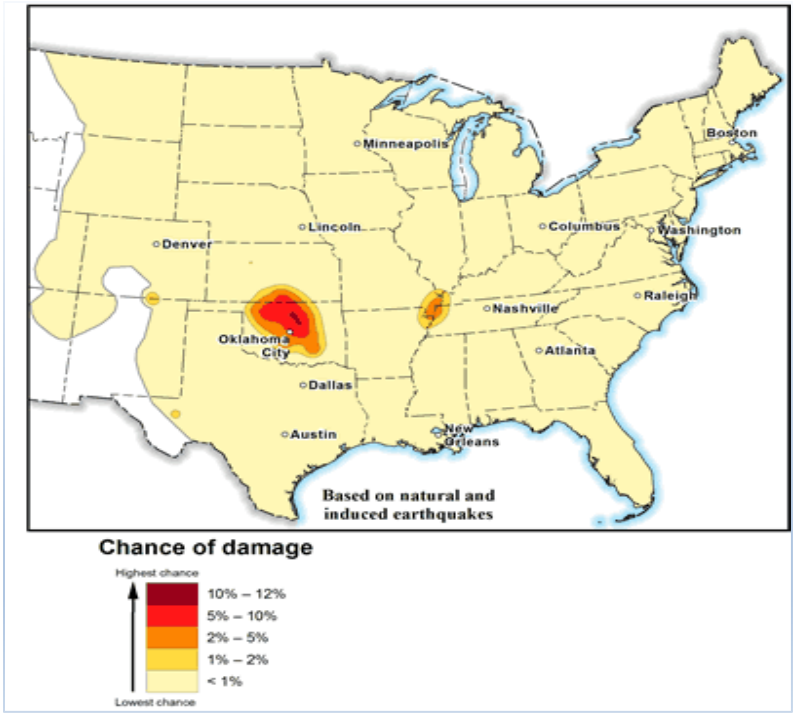


Figure 3-8: US Geological Survey

The Mitigation Planning Team considered other types of geological hazards including **landslides**. However, after further consideration, these hazards were identified as having a low probability of occurrence and low vulnerability factor. While landslides and land subsidence are discussed in the State of South Dakota's Plan, Turner County has level topography, and based on the United States Geological Survey's Landslide Incidence and Susceptibility Map, the area's vulnerability to landslides is low to moderate. As a result of these assessments, both of these hazards were rated low in consideration by the Team.

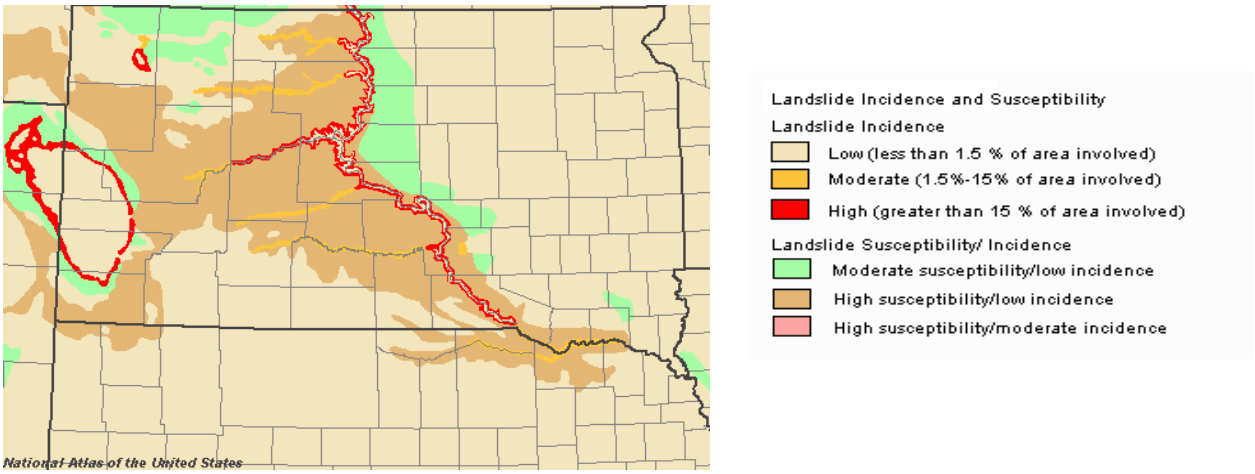


Figure 3-9: US Geological Survey

After reviewing a broad list of hazards and excluding those hazards where the area has limited or no vulnerability, 4 hazards rose to the top of the list in terms of high probability and high vulnerability.

Hazards such as hail, excess precipitation, lightning, freezing, and extreme cold were all considered as hazards, but are incorporated under the broader headings of either severe summer storms or severe winter storms.

Floods

Severe Winter Storms

Tornadoes

Severe Summer Storms

HAZARD PROFILES

Each of the hazards selected by the mitigation planning team for the Plan's focus is described in terms of the hazard's *location* within Turner County, the *extent* of the hazard, the *history* of the hazard's occurrence in the county, and the *probability* of future events.

Location is the geographic area within Turner County that is affected by the hazard. All 4 of the focus hazards occur in all areas of the County with similar degrees of frequency. In the case of flooding, some areas are more susceptible than others.

Extent is the strength or magnitude of the hazard. It is measured in different ways. For example, tornado strength is measured on the Fujita Scale, wind is measured by speed, flooding is measured by duration.

A *history* of each hazard's occurrence in Turner County is provided, including major events that proved impactful on the region.

Probability of occurrence is the likelihood that a disaster event will take place within a defined period. For purposes of this analysis, the probability of a hazard is considered "high" if it were to occur 5 times in a ten-year period, "medium" if it were to occur one to two times in a ten-year period, and "low" if it were likely to occur less than one time in a ten-year period.

Floods



Turner County flooding September 20, 2018

Description

Flooding and excess precipitation can significantly impact local communities, residents, and the economy in general. Unlike the other hazards discussed in this Plan, flooding is more geographically predictable. While flooding, particularly flash flooding, can potentially occur anywhere during periods of excess precipitation, predictive modeling is done to determine areas that are most at risk for flooding, by designating those areas as flood hazard areas.

In South Dakota, flooding is typically a result of runoff from excess rainfall during the spring, summer, and fall seasons and runoff from melting snow during the spring. Flooding can occur as a result of localized precipitation, due to excess precipitation occurring outside the region which results in elevated river levels flowing downstream from areas where the excess precipitation occurred.

There are generally 4 types of flooding affecting the region:

Flash Flooding results when several inches of rain and precipitation occur within a short period of time. This type of excess precipitation generally occurs as part of a severe summer storm and may be compounded by other hazards such as high winds, hail, and tornadoes.

Long-Range Flooding occurs when there is a significant amount of precipitation or rainfall over an extended period. Often, the intensity of the rainfall is low, but cumulatively that amount of precipitation is larger and exceeds the capacity of the ground to absorb the precipitation. The ground becomes "water logged" and the rainfall can no longer infiltrate. Water that is unable to infiltrate the soil runs off into low lying areas, can enter homes and commercial facilities through windows and doors, and results in devastating impacts for property owners. Stagnant water that cannot infiltrate the ground can also lead to health issues and a higher incidence of mosquitoes. Excess moisture in the ground can seep into basements of homes and businesses, creating additional damage. Water seepage can exceed the capacity of sump pumps and storm sewer systems to transfer the water out of homes, businesses, and developed areas in general.

Flooding as a result of Snow Melt typically occurs in the spring and has characteristics similar to flash floods and long-range floods. The impacted area is typically larger than that of flash floods, but smaller than long-rain floods. Generally, flooding can last for several days to several weeks. The flooding is compounded if the ground is frozen, resulting in more runoff of precipitation to the lower lying areas and streams/rivers. Recently, flooding from snow melt has become a major challenge for the region due to the large amounts of snow received locally and in surrounding areas.

Dam or Levee Failure could result in could result in flooding and economic loss if physical damage were to occur to the structure. According to the National Inventory of Dams, Turner County has 2 dams.

Location

Flash flooding usually occurs in a smaller geographic area and results in excessive runoff which can exceed the capacity of the community's storm sewer system. This type of flooding is less predictable geographically. Development resulting in an increase of parking areas and rooftops, can have a significant impact on the increased probability of flash floods by reducing permeability and putting an additional strain on storm sewer systems.

Long-range flooding typically occurs over a widespread geographic area due to the extended period in which the precipitation occurs. Turner County is within the Vermillion River Basin Watershed. A small portion of Turner County is within the Lower Big Sioux Watershed, which occupies the southeastern portion of South Dakota.

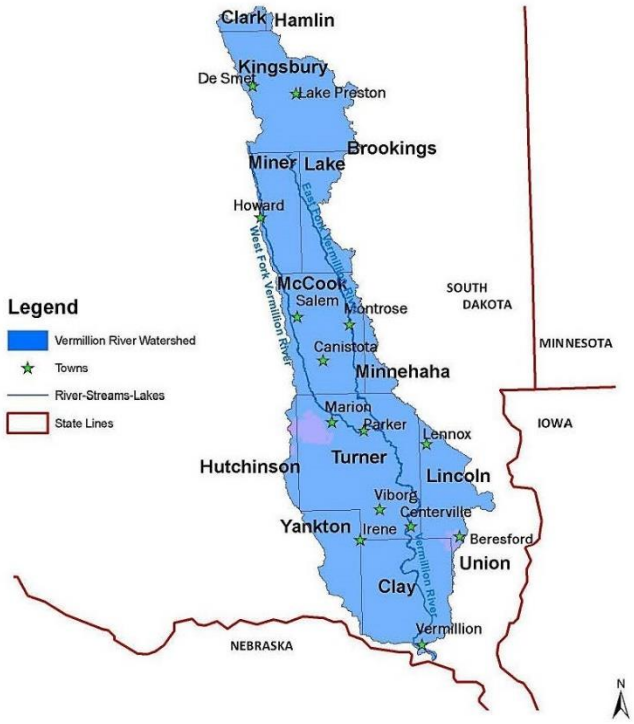


Figure 3-11: US EPA

The Vermillion River is a tributary of the Missouri River. The Vermillion River is formed by the confluence of the East and West Forks of the Vermillion River near Parker, South Dakota. The East Fork, approximately 103 miles long, rises in Lake Whitewood in Kingsbury County. The West Fork, approximately 108 miles long, rises in Miner County. The combined river flows southward for 96 more miles and joins the Missouri River 5 miles south of Vermillion, South Dakota. The meandering nature of the river creates a diversity of aquatic habitats. Agriculture, specifically row crops and livestock feeding operations with mostly open feedlots is the main land use in the watershed. The Vermillion River drains approximately 1.43 million acres (2,233 Sq. Miles) covering portions of fourteen eastern South Dakota counties. The basin is about 150 miles north to south, and varies in width from 12 miles in the north to 36 in the south. Much of the lower 22 miles of the river is channelized. An estimated 96 percent of the total surface area is devoted to agriculture.

Extent

Changes in land use associated with development throughout Turner County affect flooding in many ways. Removing vegetation and soil, grading the land surface, and constructing drainage networks increase runoff to streams from rainfall and snowmelt. As a result, the peak discharge, volume, and frequency of floods increase in nearby streams. Changes to stream channels during development can limit their capacity to convey floodwaters.

History

Based on information in the National Climatic Data Center's Storm Events Database, there were 17 incidents of flooding in Turner County during the 18-year period from 1993 to 2010. Physical damage from flooding in Turner County over the 18-year period was $200,000. Appendix B lists historical records of flooding that occurred from January 2012 through 2017.

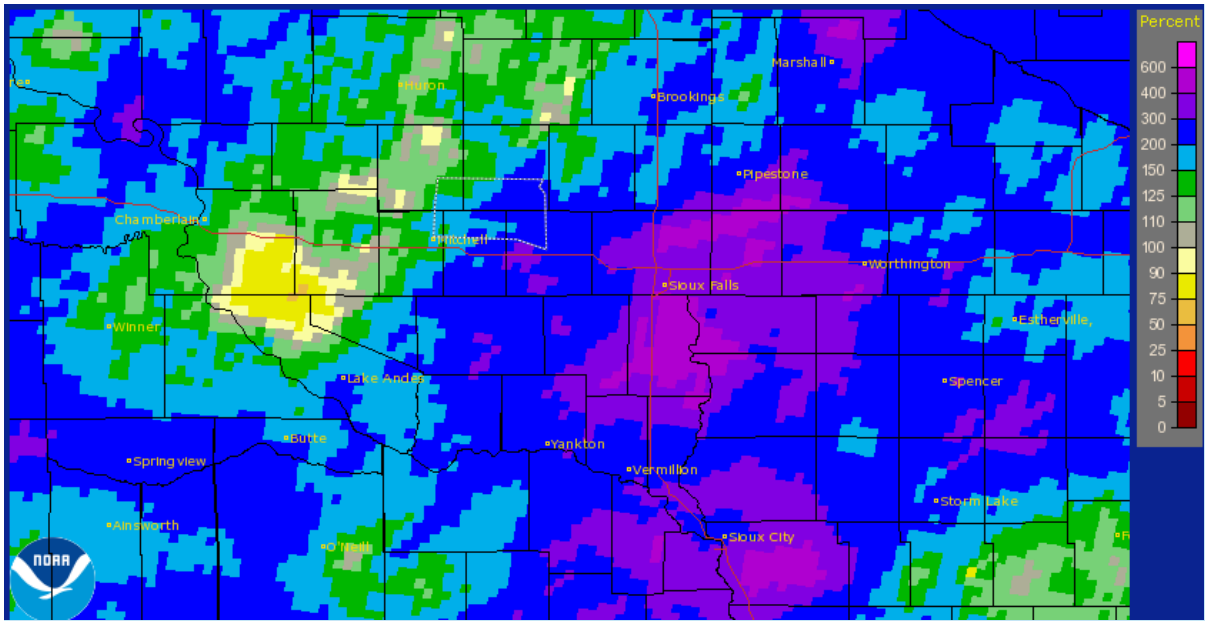
Turner County has experienced large rain events recently, as described below:

Periodic heavy rainfall from September 18, 2018 to September 20, 2018 resulted in a widespread accumulation of 3 to 7 inches. This caused moderate flooding with U.S. Highway 18 west of

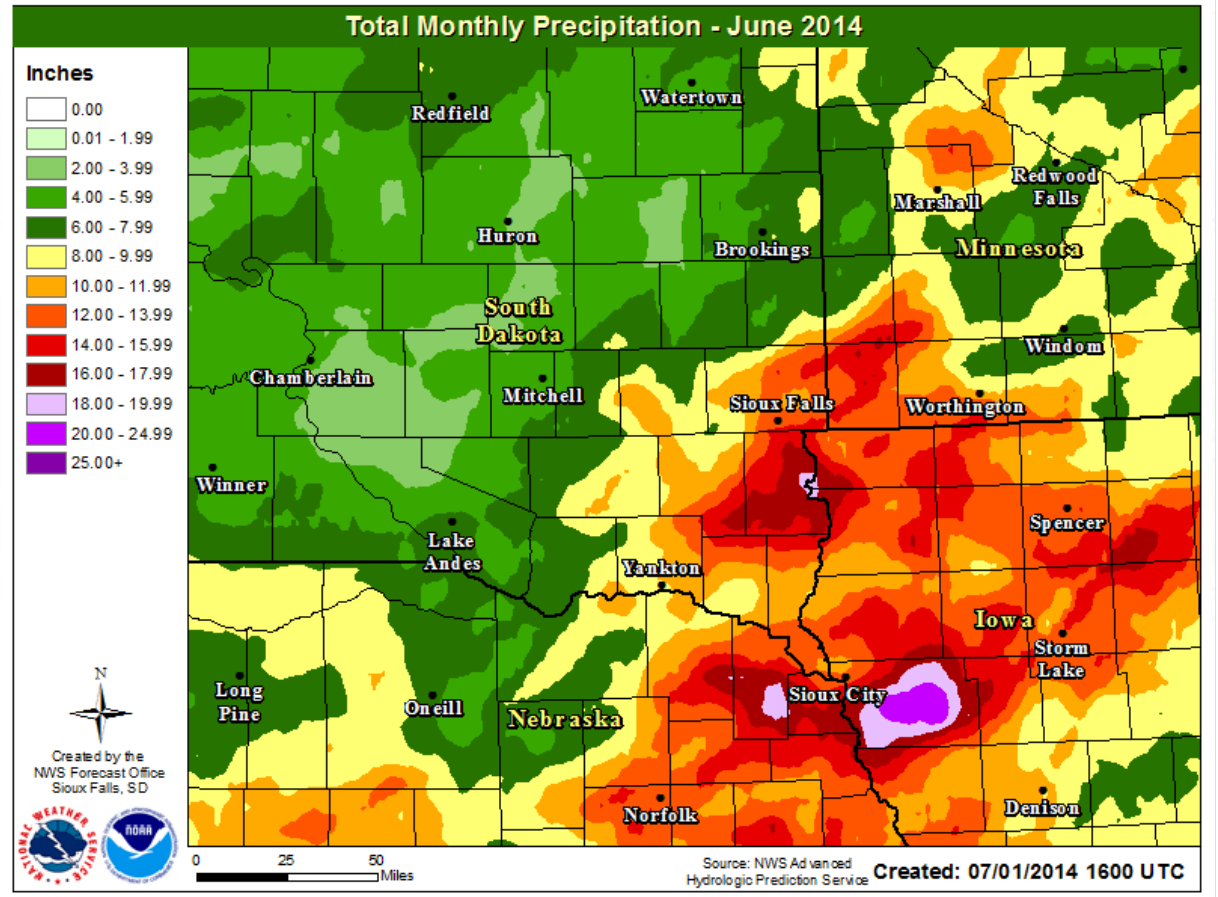
Davis inundated for a few days along with significant amounts of crop and pasture land, as the Vermillion River near Davis crested 3.1 feet above flood stage on September 22. The river dropped below flood stage on September 25, 2018.

A slow-moving storm system from June 20-25, 2018 brought heavy rainfall, which caused widespread flooding in Turner County. The storm brought 5 to 9 inches of rainfall, much of which occurred on June 20th and June 25th. Specific weekly totals included 6.08 inches in Montrose, 7.59 inches near Hurley, and 8.57 inches in Marion. Major flooding occurred with significant amounts of crop land, pasture land, and county roads inundated as the Vermillion River crested near Parker 2.5 feet above flood stage on June 21.

June 2014 brought heavy rainfall and widespread flooding across portions of South Dakota, Minnesota, Iowa, and Nebraska. Regional rainfall totals greater than 8" were common, with a few locations receiving monthly rainfall amounts as great as 15 to even 18 inches. These totals were more than 600% the average rainfall for the month of June. Severe flooding in Turner County during this period contributed to the Presidential Disaster Declaration FEMA-4186-DR. The countywide impact for Turner County was $24.52 per capita. Here is a graphic depicting the rainfall totals for the month along with the percent from normal precipitation for this month:



Turner County percent from normal rainfall, June 2014



Turner County rainfall totals, June 2014

Probability

The probability of spring floods and flash flooding occurring in any given year is high. According to the National Center for Environmental Information Storm Events Database, there were 13 flooding events that occurred between 2013 and 2018 with total property damage reaching $100,000. These events are detailed in Appendix B. The flooding events, many times, occurred in conjunction with severe summer storms. Although the occurrence of storms was common, the damage resulting from flooding was less significant, much of the flooding occurred in rural parts of the county and did not significantly impact cropland. It is a certainty that flooding will continue in the area. The goal of mitigation actions should be to reduce the loss of property and crops.

National Flood Insurance Program

The National Flood Insurance Program (NFIP) aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on new and improved structures. Through the NFIP,

flood insurance is made available to those communities that agree to regulate development in their mapped floodplains. If the community ensures that future floodplain development meets certain criteria, the Federal Emergency Management Agency (FEMA) will provide flood insurance for properties in the community.

There are three components of the NFIP: mapping, insurance, and regulations.

Mapping: FEMA has prepared floodplain maps for most areas of the Country. The maps are used for several purposes. Communities use them as the basis for construction management in flood prone areas, insurance agents use floodplain maps when rating flood insurance policies, and the maps are used by lenders to determine when flood insurance must be purchased by a borrower. Most communities have a Flood Insurance Rate Map (FIRM). FIRMs are based on a Flood Insurance Study and include information such as flood elevations to better protect new construction from flood damage. Flood Zones for the communities and rural areas in Turner County are found in Appendix C.

Insurance: Buildings in a participating community may be covered by a flood insurance policy, even if a particular structure is not located in a mapped floodplain. Coverage includes lake, river, stream, and other inland water overflows, and the unusual or rapid accumulation of runoff of surface waters as found in flash flooding.

Regulations: Communities have responsibilities to participate in NFIP. These include:

- *Adopt and enforce a flood damage prevention ordinance*
- *Require permits for all types of development in the floodplain*
- *Assure that building sites are reasonably safe from flooding*
- *Estimate flood elevations where not determined by FEMA*
- *Require new or substantially improved homes and manufactured homes to be elevated above the Bases Flood Elevation*
- *Require non-residential buildings to be elevated or flood-proofed*
- *Determine if damaged buildings are substantially damaged*
- *Conduct field inspections and city violations*
- *Require Elevation Certificates to document compliance*
- *Carefully consider requests for variances*
- *Resolve non-compliance and violations*
- *Advise FEMA when updates to flood maps are needed.*

The South Dakota Office of Emergency Management administers the NFIP for South Dakota under a cooperative agreement with FEMA.

The following chart depicts community participation in the National Flood Insurance Program. The towns of Hurley and Viborg do not participate.

COMMUNITY	COUNTY	INITIAL FHBM* IDENTIFIED	INITIAL FIRM* IDENTIFIED	CURRENT EFFECTIVE MAP DATE
Centerville	Turner	08/13/76	n/a	(NSFHA)
Chancellor	Turner	n/a	n/a	(NSFHA)
Davis	Turner	05/02/75	03/18/86	07/02/08(M)
Hurley	Turner	n/a	n/a	n/a
Marion	Turner	07/02/76	n/a	(NSFHA)
Viborg	Turner	n/a	n/a	n/a

Table 3.9: Federal Emergency Management Agency

*FHBM: Flood Hazard Boundary Map
*FIRM: Flood Insurance Rate Map
M – No Elevation Determined – All zone A, C and X
NSFHA – No Special Flood Hazard Area – All Zone C
*The initial FIRM date for the City of Hartford is 09/05/1979. A request has been made to the MSC to update the initial FIRM date field.

Community Participation in NFIP

The following chart provides specific FIRM information for each jurisdiction participating in the NFIP. It should be noted that if indicated in the affirmative, a community has passed a Flood Damage Prevention Ordinance and meets all the criteria noted in Table 3-8.

Jurisdiction	County	Adoption and Enforcement of Floodplain Management Ordinance*	Zone SFHA or NSFHA	Description of Community Assistance
Centerville	Turner	No	No SFHAs	Did not participate in Discovery Process.
Chancellor	Turner	No	No SFHAs	Did not participate in Discovery Process.
Davis	Turner	Yes	Zone A	Did not participate in Discovery Process. A Letters of Map Change (LOMC) has been completed in Davis.
Hurley	Turner	No	No SFHAs	Did not participate in Discovery Process.
Marion	Turner	No	No SFHAs	Did not participate in Discovery Process. In Discovery Report it is noted that Marion requested an update to the LSAE map to reflect new development.
Viborg	Turner	No	No SFHAs	Did not participate in Discovery Process.

Figure 3-13

Discovery Report

Officials from Turner County and several of the communities, participated in the Discovery planning process, which identified areas of concern and helped to establish the communities' highest priorities regarding natural hazards. The Discovery process was a large-scale effort conducted to assess areas in the state with outdated maps.

During Discovery, FEMA and the State of South Dakota reached out to local communities with the following goals:

- Identify opportunities to support mitigation action through technical assistance, guidance, and grants;
- Gather information about local hazards and risks;
- Document needs related to all hazards identified in the Discovery Meetings and the National Flood Insurance Program (NFIP);
- Review current and historic mitigation plans to understand local mitigation capabilities and priorities, hazard risk assessments, and current or future mitigation activities; and
- Involve multi-disciplinary community staff in evaluating risks and participating in the identification and mitigation of risk.

The purpose of the Discovery Report is to provide a summary of the Risk Mapping, Assessment, and Planning (Risk MAP) Discovery process and to provide a foundation for FEMA hazard mitigation projects moving forward.

According to FEMA, Discovery is the first phase of the overall Risk MAP program that provides the State of South Dakota, local communities, and Tribes with flood risk information along with tools to increase resilience to flooding and better protect people and property through collaboration with state and local entities.

Repetitive Losses

Periodic flooding affects numerous areas in both incorporated and unincorporated areas of Turner County. Property adjacent to the Vermillion River and its tributaries are most prone to flooding. Residential development occurred in these areas long before the initial flood hazard boundaries being identified in 1974. As a result, numerous structures already existed at the time of adoption of the first map and continue to be lived in today. Many structures located within the area have experienced flooding or are required to be insured against flooding due to their proximity to special flood hazard areas.

NFIP Policy Information

Jurisdiction	Policies in Force	Insurance in Force
Davis	8	$551,000
Turner County	2	$630,000

Figure 3-14: Federal Emergency Management Agency (FEMA) NFIP Policy Statistics

An issue of primary concern is the number of times specific properties and structures on those properties flood. 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 ten-year period. A goal of the mitigation planning team is to protect specific areas in the county from flooding.

Jurisdiction	Building Payments	Contents Payments	Total Payments	Average Payment	Losses	Properties
Town of Davis	$28,259.07	0	$28,259.07	$14,129.54	2	1

Figure 3-12

Severe Winter Storms



Description

Severe Winter Storms, as defined for purposes of this report, are a combination of heavy snow, blowing snow, and/or dangerous wind chills. Blizzards are severe winter storms that are a combination of blowing snow and wind that result in very low visibilities. The combination of snow and wind can cause drifting on roadways. These storms tend to occur in the late fall, winter, and early spring seasons.

Location

Similar to severe summer storms, severe winter storms are typically associated with unstable weather conditions and are not geographically predictable. All areas within Turner County are equally susceptible to the impacts of these events, including hazardous driving conditions, loss of life or injury for individuals without proper shelter, damage to agricultural crops, and budgetary issues for local governments to clear snow from roadways.

Extent

Compared with other hazards discussed in this Plan, winter storms are far more likely to result in the loss of life or injuries. Since one of the primary impacts of winter storms is hazardous driving conditions, it is likely that most of the deaths and injuries resulting from winter storms were a result of traffic accidents on icy or snow-covered roadways or poor driving conditions resulting from blowing snow.

History

Appendix B lists historical records of severe winter storms that occurred from January 2013 through 2018.

There is one recent occurrence worth noting:

In 2018, one of the year's most intense winter storms occurred after the official end of the winter season. On April 13th, the storm brought a mix of wintry precipitation and numerous thunderstorms across the area. Life threatening conditions developed on the morning of April 14th as an influx of colder air changed the precipitation to snow, and a record-breaking 8 to 16 inches of snow fell, and brought fierce winds gusting 50 to 60 mph in southeast South Dakota, southwest Minnesota, northwest Iowa and extreme northeast Nebraska. In many locations, snow drifts of over 6 feet were reported. The brutal winds contributed to extremely low visibility, which made travel very difficult, if not impossible, for almost a full day. State offices and schools were closed on April 13th. A storm total snowfall of 12.4 inches was measured at Marion.

Probability

The probability of Severe Winter Storms occurring in any given year is high. According to the National Center for Environmental Information Storm Events Database, 49 winter storm and storm-related events occurred between January 2013 and December 2018. Thus, severe winter storms have a "high" probability of occurrence. These events caused just over $15 million in damages. These events are detailed in Appendix B.

Tornadoes



Tornado damage to home near Davis, SD on June 24, 2003

Description

Similar to the other natural hazards identified in this Plan, tornadoes and high winds have the potential to significantly impact the region. A tornado is a rotating column of air that extends from the base of a thunderstorm to the ground. A funnel cloud is a rotating column of air that does not reach the ground. The funnel cloud's violently rotating column of air may reach the ground rather quickly, becoming a tornado. A tornado may happen any time of year, although they are most commonly associated with severe summer storms.

Location

As indicated in Figure 3-10, *Wind Zones in the United States*, part of Turner County is located in Wind Zone 4 (250 mph).

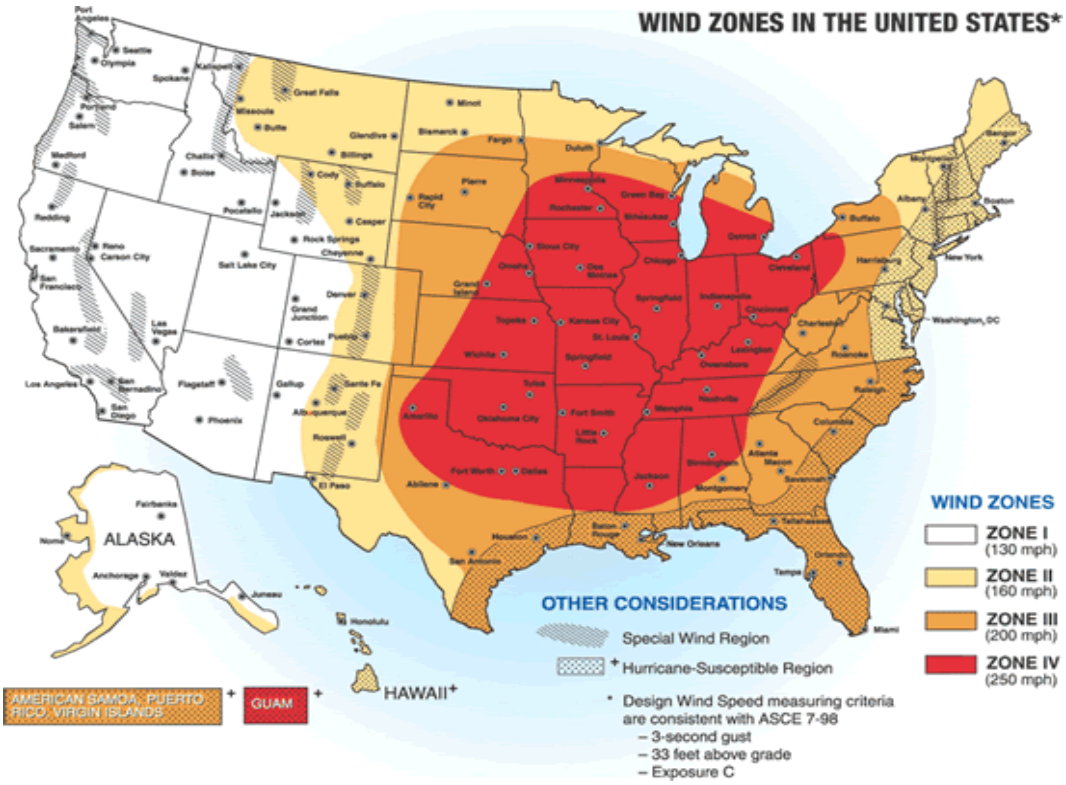


Figure 3-10: National Oceanic and Atmospheric Administration

Similar to severe summer and winter storms, tornadoes and high wind events are associated with unstable weather patterns and are geographically unpredictable. As a result, all areas within the region are equally susceptible to the potential of tornadoes and high wind events.

Extent

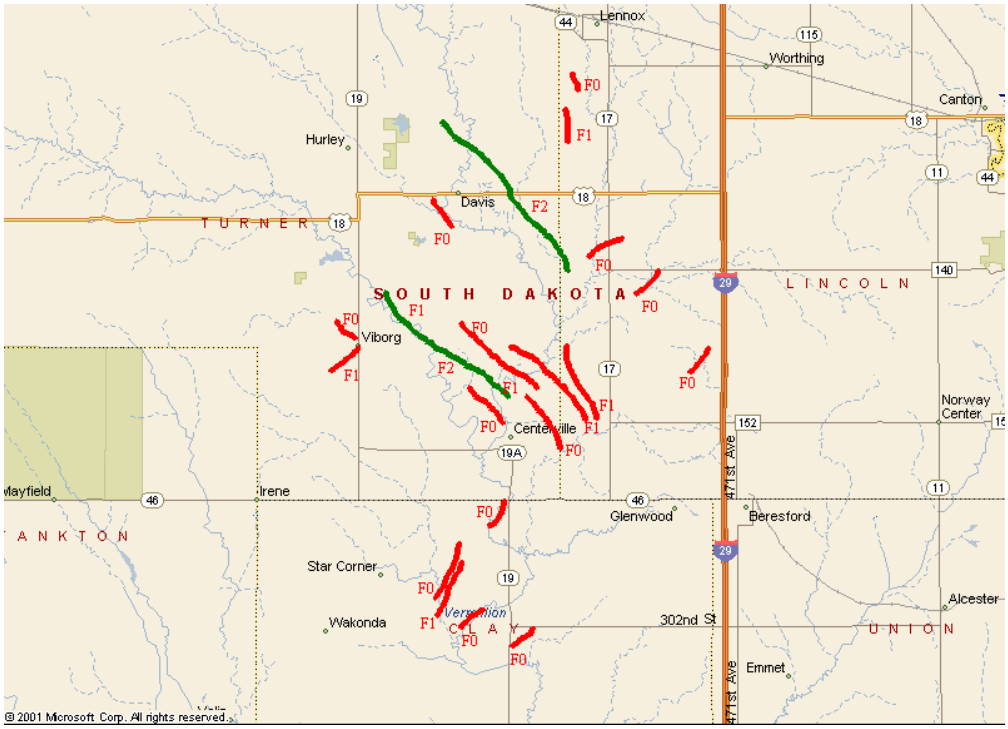
The most common way to determine the strength of a tornado is to look at the damage it caused. From the damage, wind speeds can be estimated. An Enhanced Fujita Scale was implemented by the National Weather Service in 2007 to rate tornadoes in a more consistent and accurate manner. The EF-Scale considers more variables than the original Fujita Scale when assigning a wind speed rating to a tornado. These variables include 28 damage indicators such as building type, structures, and trees. For each damage indicator, there are 8 degrees of damage ranging from the beginning of visible damage to complete destruction of the damage indicator.

Appendix B shows the extent of tornadoes and funnel clouds in Turner County.

History

Appendix B lists historical records of tornadoes and funnel clouds that occurred from January 2013 through 2018. There is an occurrence from the recent past that is important to note:

Although Turner County has only experienced one tornado event since 2013, the county has experienced 31 tornado, funnel cloud, and high wind events since the year 2000. Worth noting is the tornado event that occurred on June 24, 2003, which later became known in South Dakota as “Tornado Tuesday.” On this day, 67 tornadoes touched down in the state of South Dakota. The rare occurrence equaled the U.S. record for the most tornadoes within a state in a 24 hour time period. The image below shows the tracks of multiple tornadoes occurring near Centerville and Davis during this event. Two tornadoes also touched down near Parker.



Probability

The probability of Tornadoes and High Wind occurring in any given year is medium but comes with a high vulnerability factor. According to the National Center for Environmental Information Storm Events Database, only 1 tornado occurred in Turner County between 2013 and 2018. This event caused just over $100,000 in damages. These events are detailed in Appendix B. However, while Turner County has largely been spared of tornado activity in the past five years, the county has experienced 21 tornado events since 2000.

Severe Summer Storms



Barn damaged near Centerville June 24, 2003

Description

Severe Summer Storms, as defined for purposes of this report, include all storms occurring during spring, summer, and fall with damages that may result from excess rain or thunderstorms, lightning, and hail. The impact of tornadoes and high winds, which usually occur in conjunction with summer storms or winter storms (high winds), are considered separately. According to the National Severe Storms Laboratory, a storm is considered "severe" when it contains one or more of the following: hail one-inch or greater, winds gusting in excess of 57.5 miles per hour, or a tornado.

Location

Severe Summer Storms are typically associated with unstable weather conditions and are not geographically predictable. All portions Turner County are equally susceptible to these types of events, although the type and amount of damages will vary depending on the location. For example, hail can result in significant agricultural damage in the rural parts of the counties, while it may result in property damage to cars and buildings in the urban areas.

Extent

Rainstorms are most common in the early summer months with hailstorm frequency increasing in midsummer. Appendix B shows many of the summer storms that produced high winds and hail. Multiple events as recent as 2017 produced hail larger than 1 inch in diameter.

History

Appendix B lists historical records of severe summer storms that occurred from January 2013 through 2018.

There are several occurrences to note:

On June 12-13, 2017, thunderstorms developed each day and quickly became severe. Large hail and damaging winds were reported in Hurley, Parker, Marion, Pearsons Corner, and Chancellor.

On July 5, 2015, thunderstorms produced damaging winds and flash flooding as they moved east across southeast South Dakota during the evening of July 5th into the early hours of July 6th. There was also one tornado that caused crop damage. The storms affected an area near and south of Interstate 90, with flash flooding occurring along and east of the James River. Thunderstorm winds toppled several gravestones near Dolton, causing $2,000 in property damage. Near Marion, thunderstorm winds caused tree damage.

Probability

The probability of severe summer storms occurring in any given year is high. According to the National Center for Environmental Information Storm Events Database, 35 summer storm and storm-related events occurred between January 2013 and September 2018. Thus, severe summer storms have a “high” probability of occurrence. These events are detailed in Appendix B.

SECTION FOUR: MITIGATION STRATEGIES



Problem Statements sum up the impact of the hazard at the local level and help to identify goals and objectives. The Team broke into 4 small groups to develop problem statements associated with the identified hazards: Severe Summer Storms, Severe Winter Storms, Tornadoes, and Flooding. The problem statements were used to identify and zero down to the hazard at a narrow level.

Severe Summer Storms
Problem Statements

The Mitigation Planning Team identified several problem statements associated with severe summer storms.

- Loss of property and lives due to flooding
- Damage to infrastructure due to flooding
- Inadequate warning systems for summer storms
- Clean up costs
- Inadequate shelters for people affected by summer storms (i.e., power outages)
- Downed power lines

Severe Winter Storms
Problem Statements

The Team identified several problem statements associated with severe winter storms.

- Loss of power and the ability to fix the problem
- Snow removal is problematic during large snow events
- Extreme cold temperatures cause water line freezing, build-up of ice
- High cost of snow removal
- Inability of residents to heat their homes due to loss of power
- Inability to access roads due to snow and ice – economic and safety impact

Tornadoes
Problem Statements

The Team identified several problem statements associated with tornadoes.

- Property damage, including damage to hospitals and fire stations
- Loss of life and injury
- Loss of Electricity
- Damage to infrastructure and utilities
- Scared citizens – chaos

Flooding
Problem Statements

The Team identified several problem statements relating to all types of flooding in the region.

- Infrastructure damage or failure
- Transportation is impacted
- Damage to residences and businesses
- Detrimental effect on the economy and jobs
- Negative effects on the life and safety of residents.
- Debris management
- Flood fight costs

The Team began the process of developing mitigation goals and objectives by reviewing the mitigation goals and objectives included in the State of South Dakota Hazard Mitigation Plan – Standard Plan (April 2014). The committee wanted to ensure that the goals and objectives identified in this updated Plan would complement the goals and objectives identified in the statewide plan, while focusing on the impact of hazards locally. The Mitigation Planning Team adopted the goals and objectives of the State of South Dakota plan.

PRE-DISASTER HAZARD MITIGATION PLAN
GOALS AND OBJECTIVES

Goal 1	**Reduce injuries and loss of life from hazards**
Objective 1.1	Reduce the number of injuries/fatalities due to all hazards
Objective 1.2	Maintain and improve public health and safety outreach activities/programs
Goal 2	**Reduce damage to existing and future structures within hazard areas**
Objective 2.1	Reduce the number of repetitive loss structures
Objective 2.2	Reduce the number of structures lost by wildfires
Objective 2.3	Reduce the number of structures within the Special Flood Hazard Area and other identified local flood risk areas
Objective 2.4	Reduce the number of structures/infrastructure at risk to geologic hazards
Goal 3	**Reduce the losses to critical facilities, utilities, and infrastructure from hazards**
Objective 3.1	Reduce the number of power outages
Objective 3.2	Reduce negative impacts to water supply and sewage treatment systems
Objective 3.3	Improve reliability of communications during/following hazard events
Goal 4	**Reduce impacts to the economy, the environment, and cultural resources from hazards**
Objective 4.1	Reduce loss to natural resources (i.e. forest and watershed health)
Objective 4.2	Reduce impacts to cultural resources (i.e. historical/tribal)
Objective 4.3	Reduce agricultural losses
Objective 4.4	Reduce economic losses to recreation and tourism
Goal 5	**Support and assist local/tribal mitigation capabilities and efforts**
Objective 5.1	Encourage locals to participate in risk reduction measures.

Table 4-1: State of South Dakota Hazard Mitigation Plan 2014

The Team then began the process of identifying specific mitigation projects that reflect the goals, objectives, and problem statements identified in this chapter; and that if implemented, would mitigate the impact of future hazard events. The Team first took a look at progress made since the previous update in 2013.

Mitigation Progress – 2013 Plan Projects

The *2013 Turner County Pre-Disaster Hazard Mitigation Plan* identified 5 broad goals:

1) Reduce injuries and loss of life from natural hazards;

2) Reduce damage to existing and future structures within hazard areas;

3) Reduce the losses to critical facilities, utilities, and infrastructure from natural hazards;

4) Reduce impacts to the economy, the environment, and cultural resources from hazards; and,

5) Better coordinate efforts to mitigate, prepare, manage, and respond to all hazard events across jurisdictions in Lincoln County and Minnehaha County.

The 2013 plan also established related mitigation actions to help meet the identified goals. Following is a summary of the accomplishments:

Mitigation Action	Hazard	Current Status
CENTERVILLE		
Procurement of a front-end loader	All Hazards	Complete. Have been leasing since 2014.
Build a dam/dike diversion to reduce flood waters in Centerville	All Hazards	No Progress due to high cost.
Initiate Phase II portion of the sewer relining project	Flooding	In Progress – Nearly 80% of Centerville's sanitary and storm sewer has been relined.
DAVIS		
Mitigation of existing overhead power lines to underground lines.	Winter/Ice Storms	Complete
Procurement of snow removal equipment adequate to maintain current roads.	Flooding	Complete
New roads and storm drainage need to ensure responders and citizens can travel.	Flooding	In Progress – Ongoing
Removal of flood prone residences to impact 4 to 7 residences.	Flooding	Complete
Encourage all structures to have minimum detection and protection devices.	Wildfire	No Progress
HURLEY		
Identify at-risk population in community	All Hazards	Ongoing
Promote the use of NOAA weather radios	All Hazards	Ongoing Handed out free weather radio to all residents and had people available to program them.
Continue to participate in the National Flood Insurance Program	Flooding	Ongoing
Establish a drainage district	Flooding	Ongoing
Continued use of city fire bans	Wildfire	Ongoing
Public cleanup of potential mosquito habitats	Biological	Ongoing progress
MARION		
Replacement of storm sewer system and drainage structures on Broadway Avenue from State Street to 2nd Street	All Hazards	In Progress
VIBORG		
Mitigation of existing overhead power line to underground lines	Winter/Ice Storms	Ongoing - Southeastern Electric is in the process of burying the power lines. A large portion is complete, but the whole town will not be completed until 2019.
TURNER COUNTY		
Review Mutual Aid Agreements at the County and jurisdictional level	All Hazards	Complete – A Region 1 Emergency Management Mutual Aid Agreement was created and signed.
Ensure Turner County and jurisdictional Emergency Operation Plans are current	All Hazards	Ongoing - Review yearly or as needed in LEOP

Training of Emergency Services for severe weather, tornado spotting, hazardous materials, vehicle safety training, school and assisted living emergency planning	All Hazards	Training is up to each department or employer
Exercise sever weather drills and simulated hazardous materials spills	All Hazards	Ongoing - Full scale exercises are held yearly and usually include one or multiple topics.
Purchase of portable gas generator to replace obsolete tractor system currently in place	All Hazards	n/a
Purchase of portable barricades	All Hazards	n/a, Highway Department
Assess short term shelter use	Severe Weather	Ongoing – Open as needed
Identify new and secondary shelters in County and jurisdictions as needed	Severe Weather	Ongoing – Reviewed yearly
Develop a comprehensive Mass Shelter and Care Plan for the Entire County	Severe Weather	Ongoing – Review yearly or as needed in LEOP.
Identify at risk populations in County	Severe Weather	No Progress Indicated
Develop Protocols to purchase food during sheltering events	All Hazards	n/a - Utilize Red Cross assistance if needed
Replacement of overhead lines affected by ice, water and trees with underground lines to help reduce power outages	Winter/Ice Storms	n/a – Responsibility of Utility Companies
Continue severe Weather Awareness Programs	All Hazards	Ongoing – Provide yearly education via Facebook
Support the continued use of NOAA Weather Radios for all hazard events	All Hazards	Ongoing
Continue warning and evacuation procedures	All Hazards	Ongoing – As needed
Maintain the National Flood Insurance program in Turner County	Flooding	n/a
Identify roads that need to be elevated and culverts that need to be replaced	Flooding	n/a – Responsibility of Townships, Highway Department, DOT

Develop watershed planning to reduce degradation from repetitive flooding	Flooding	n/a – Responsibility of Townships, Highway Department, DOT
Develop a listing of roads, bridges, cattle guards, culverts, and other limiting conditions and incorporate improvements into existing plans	All Hazards	n/a, Responsibility of Townships, Highway Department, DOT
Continued use of county and city fire bans	Wildfire/Grassland	Complete – County ordinance #51-15 signed in 2015
Maintain an active West Nile education program	Biological	Ongoing – As needed
Reduce mosquito populations	Biological	n/a, Responsibility of towns and cities
Conduct a hazardous materials flow study for US Highways 18, SD 44 and SD 19 and local rail service servicing the ethanol facilities	Hazardous Materials	No Progress – May be a future project
Assess hazardous materials training in the County	Hazardous Materials	No Progress – May be a future project
Assess utilities and pipelines in the County	Hazardous Materials	Ongoing

Table 4-2

During the fourth Team meeting, discussions revolved around specific mitigation projects, how to determine cost, established a timeframe for completion, resources to assist in project completion, and project prioritization. The Team also discussed the effect of the proposed mitigation projects on hazards and how each project would meet the Plan's goals and objectives. Participants at that meeting ranked and prioritized the projects using the following:

- Time Frame
- Priority
- Funding Resources

A table listing the proposed mitigation actions/projects for Turner County and its communities can be found in Appendix D. The team identified some projects that are more preparedness in nature. Mitigation are those actions that minimize the amount of harm or damage to property and life. Mitigation projects could include such things as constructing safe rooms, land use zoning that prevents development in flood-prone areas, or burying power lines to reduce the likelihood of power outages. Preparedness are actions that help with effective response. Preparedness

activities could include preparing a fire department for response, developing a disaster response plan, and conducting disaster training.

Hazard Mitigation projects that are being submitted to the State will be reviewed for their cost effectiveness and must have a benefit cost analysis ratio of 1.0 or greater to be considered for submission. The South Eastern Council of Governments will work with Turner County and its communities to help them determine whether a project is cost effective.

SECTION 5: PLAN UPDATE, EVALUATION, AND IMPLEMENTATION



After the Plan is reviewed and accepted by the Team and the local governing bodies, the Turner County Emergency Management Director is responsible for submitting the plan to the State of South Dakota Hazard Mitigation Management Officer at the South Dakota Department of Public Safety. The State Hazard Mitigation Officer will then submit the plan to the Federal Emergency Management Agency (FEMA) for review. This review will address the criteria outlined in the FEMA Interim Final Rule 44 CFR Part 201. Upon acceptance by FEMA, Turner County and the Communities will formally adopt the plan and will be eligible for Hazard Mitigation Grant Programs and other federal mitigation grants.

In order to be an effective hazard mitigation tool, the Turner County Pre-Disaster Hazard Mitigation Plan should be updated on an annual basis or after the occurrence of a hazard event. It must also be flexible enough so that it can be used with existing planning and emergency management documents at both the city and county level. Local officials within Turner County and its communities intend to ensure the following:

- The plan's goals and objectives address current and expected conditions
- The plan has addressed the nature, magnitude, and/or type of risks that have changed
- The current resources available are appropriate for implementing the plan

- The plan has addressed implementation issues such as technical, political, legal or coordination issues with other agencies
- The plan has measured the outcomes that have occurred and the progress that has been made regarding meeting hazard mitigation goals and objectives

The Turner County Pre-Disaster Mitigation Plan 2019 Update is an open document that will be evaluated and updated as needed. The Turner County Emergency Management Director is responsible for ensuring the plan is maintained. The Director will work with the Team throughout the Plan's maintenance process.

Each year, the Team will assemble as a group at an annual review meeting to evaluate the overall effectiveness of the Hazard Mitigation Plan. These meetings will be open to the public and the date, time, and location will be published in newspapers with circulation throughout the county. The group will scrutinize each chapter and individually discuss hazard mitigation actions that have been undertaken to indicate what has worked and not worked for their communities. At each annual review meeting, the group shall acknowledge the occurrence of a significant event, funding availability, changes in local priorities, and technological advancements. The public will be encouraged to provide input and insight about the plan and the progress in achieving the goals set forth.

When the review meeting concludes, the group will make changes to the current mitigation strategy, goals, and objectives as needed. If no changes are proposed, it is anticipated that the Plan would not be updated until required (within 5 years). The emergency manager will be responsible for ensuring that the Plan updates are incorporated into the Plan document. Each Team member will then be tasked with reporting their findings back to their local government officials. All city council meetings are open to the public and agendas are posted in advance. It is the responsibility of each mitigation planning team member to inform the residents of their particular jurisdiction the details of the Plan updates and mitigation activities, both planned and completed.

Each year the emergency manager for Turner County will be tasked with annually reporting the Turner County Pre-Disaster Mitigation Plan 2019 Update's effectiveness to the County Commission. These meetings are open to the public and agendas are posted in advance. At each annual review meeting, an update on the progress of current and ongoing hazard mitigation projects and priorities will be discussed. Each participating community represented in the Plan will be invited to send a representative to the County's review meeting by the County Commission. This will help ensure local jurisdiction input is a part of the annual plan review process.

To ensure the Turner County Pre-Disaster Mitigation Plan 2019 Update's usefulness, local policy makers need to be familiar with the goals and actions that are identified in this plan and incorporate these into local priorities. This can be accomplished by aligning local capital

improvements with mitigation improvements during each community's annual budgeting process. This will allow local jurisdictions to better plan for future hazard mitigation projects and activities.

It is also imperative that County Officials and City Officials within Turner County and its communities work together as a region when confronting the flooding hazard and other hazards. As Sioux Falls and the surrounding area continues to grow, cooperation at all levels must occur.

SECTION 6: PLAN ADOPTION

City of Centerville, South Dakota
Resolution # 2019-21

A resolution of the City of Centerville Declaring Support and Adoption of the Turner County Disaster Hazard Mitigation Plan Update, dated 2019.

WHEREAS, the Centerville City Council supports the contents of the Turner County Pre-Disaster Hazard Mitigation Plan Update; and

WHEREAS, the Turner County Pre-Disaster Hazard Mitigation Plan Update will be utilized as a guide for planning related to FEMA Hazard Mitigation and other purposes as deemed appropriate by the City of Centerville.

NOW THEREFORE BE IT RESOLVED, that the City of Centerville City Council hereby adopts, supports and will facilitate the implementation of the Turner County Pre-Disaster Hazard Mitigation Plan.

Adopted this 5th day of August, 2019

Mayor

ATTEST:

Town of Chancellor, South Dakota
Resolution #2019-8-1

A resolution of the Town of Chancellor Declaring Support and Adoption of the Turner County Disaster Hazard Mitigation Plan Update, dated 2019.

WHEREAS, the Town of Chancellor Board of Trustees supports the contents of the Turner County Pre-Disaster Hazard Mitigation Plan Update; and

WHEREAS, the Turner County Pre-Disaster Hazard Mitigation Plan Update will be utilized as a guide for planning related to FEMA Hazard Mitigation and other purposes as deemed appropriate by the Town of Chancellor.

NOW THEREFORE BE IT RESOLVED, that the Town of Chancellor Board of Trustees hereby adopts, supports and will facilitate the implementation of the Turner County Pre-Disaster Hazard Mitigation Plan.

Adopted this 12th day of August, 2019

Dan Severson
President

ATTEST:
Heath McManaman
Finance Officer

TOWN OF CHANCELLOR
CORPORATE
SEAL
TURNER COUNTY, SOUTH DAKOTA

Town of Davis, South Dakota
Resolution # 2019-04

A resolution of the Town of Davis Declaring Support and Adoption of the Turner County Disaster Hazard Mitigation Plan Update, dated 10-10-2019.

WHEREAS, the Davis City Council supports the contents of the Turner County Pre-Disaster Hazard Mitigation Plan Update; and

WHEREAS, the Turner County Pre-Disaster Hazard Mitigation Plan Update will be utilized as a guide for planning related to FEMA Hazard Mitigation and other purposes as deemed appropriate by the Town of Davis.

NOW THEREFORE BE IT RESOLVED, that the Town of Davis City Council hereby adopts, supports and will facilitate the implementation of the Turner County Pre-Disaster Hazard Mitigation Plan.

Adopted this 10th day of October, 2019

Mayor

ATTEST: Finance Officer

City of Hurley, South Dakota
Resolution # 19-03

A resolution of the City of Hurley Declaring Support and Adoption of the Turner County Disaster Hazard Mitigation Plan Update, dated 7-25-19

WHEREAS, the Hurley City Council supports the contents of the Turner County Pre-Disaster Hazard Mitigation Plan Update; and

WHEREAS, the Turner County Pre-Disaster Hazard Mitigation Plan Update will be utilized as a guide for planning related to FEMA Hazard Mitigation and other purposes as deemed appropriate by the City of Hurley.

NOW THEREFORE BE IT RESOLVED, that the City of Hurley City Council hereby adopts, supports and will facilitate the implementation of the Turner County Pre-Disaster Hazard Mitigation Plan.

Adopted this 25th day of July, 2019

Linda Nunn
Mayor

Nancy Hillman
ATTEST:

City of Marion, South Dakota
Resolution # 139

A resolution of the City of Marion Declaring Support and Adoption of the Turner County Disaster Hazard Mitigation Plan Update, dated ____.

WHEREAS, the Marion City Council supports the contents of the Turner County Pre-Disaster Hazard Mitigation Plan Update; and

WHEREAS, the Turner County Pre-Disaster Hazard Mitigation Plan Update will be utilized as a guide for planning related to FEMA Hazard Mitigation and other purposes as deemed appropriate by the City of Marion.

NOW THEREFORE BE IT RESOLVED, that the City of Marion City Council hereby adopts, supports and will facilitate the implementation of the Turner County Pre-Disaster Hazard Mitigation Plan.

Adopted this 5th day of August, 2019

Jeff Jeno, Mayor

ATTEST: Alicia Petersen, Finance Officer

Turner County, South Dakota
Resolution #11-19

A resolution of the Turner County Commission Declaring Support and Adoption of the Turner County Pre-Disaster Hazard Mitigation Plan Update, dated July 31, 2019.

WHEREAS, the Turner County Board of Commissioners supports the contents of the Turner County Pre-Disaster Hazard Mitigation Plan Update; and

WHEREAS, the Turner County Pre-Disaster Hazard Mitigation Plan Update will be utilized as a guide for planning related to FEMA Hazard Mitigation and other purposes as deemed appropriate by the Turner County Board of Commissioners.

NOW THEREFORE BE IT RESOLVED, that the Turner County Board of Commissioners hereby adopts, supports and will facilitate the implementation of the Turner County Pre-Disaster Hazard Mitigation Plan.

Adopted this 30th day of July, 2019

Lee Van Zee
Chairman

Sheila Hegemann
ATTEST:

City of Viborg, South Dakota
Resolution # 2019-09

A resolution of the City of Viborg Declaring Support and Adoption of the Turner County Disaster Hazard Mitigation Plan Update, dated 07-30-2019.

WHEREAS, the Viborg City Council supports the contents of the Turner County Pre-Disaster Hazard Mitigation Plan Update; and

WHEREAS, the Turner County Pre-Disaster Hazard Mitigation Plan Update will be utilized as a guide for planning related to FEMA Hazard Mitigation and other purposes as deemed appropriate by the City of Viborg.

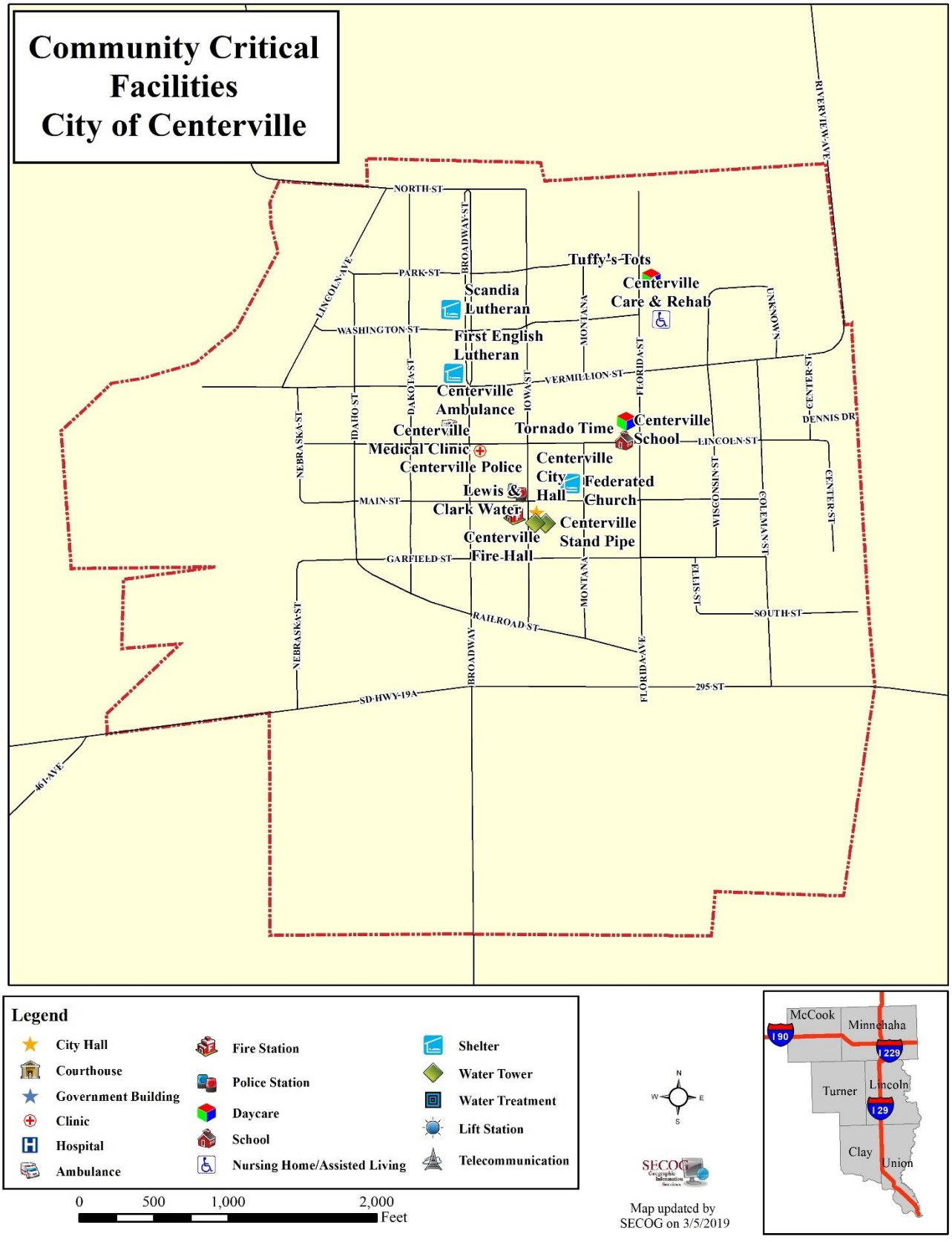
NOW THEREFORE BE IT RESOLVED, that the City of Viborg City Council hereby adopts, supports and will facilitate the implementation of the Turner County Pre-Disaster Hazard Mitigation Plan.

Adopted this 30th day of July, 2019

Steven A Bendt
Mayor

Lori L. Jorgensen
ATTEST:

APPENDIX A: CRITICAL FACILITIES


Community Critical Facilities
City of Centerville
NORTH ST
PARK ST
WASHINGTON ST
VERMILLION ST
LINCOLN ST
MAIN ST
GARFIELD ST
RAILROAD ST
SOUTH ST
295 ST
SD HWY 19A
461 AVE
RIVERVIEW AVE
BROADWAY ST
LINCOLN AVE
IDAHO ST
DAKOTA ST
IOWA ST
MONTANA
FLORIDA ST
UNKNOWN
CENTER ST
DENNIS DR
NEBRASKA ST
WISCONSIN ST
COLEMAN ST
FELLS ST
BROADWAY
FLORIDA AVE
Tuffy's Tots
Centerville Care & Rehab
Scandia Lutheran
First English Lutheran
Centerville Ambulance
Centerville Medical Clinic
Tornado Time
Centerville School
Centerville Police
Centerville City Hall
Federated Church
Lewis & Clark Water
Centerville Stand Pipe
Centerville Fire Hall
Legend
City Hall
Courthouse
Government Building
Clinic
Hospital
Ambulance
Fire Station
Police Station
Daycare
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Nursing Home/Assisted Living
Shelter
Water Tower
Water Treatment
Lift Station
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Map updated by SECOG on 3/5/2019
McCook
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Lincoln
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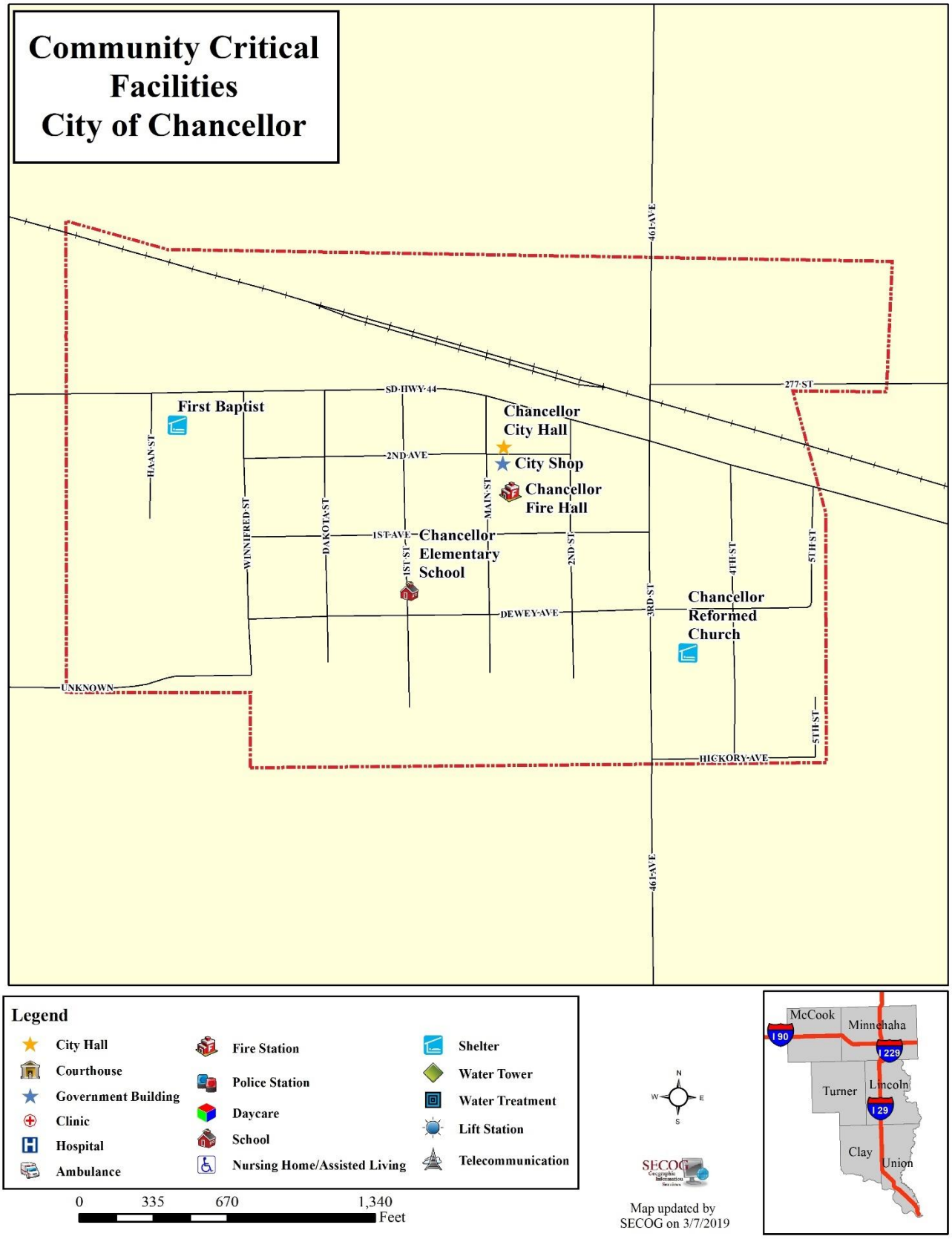
Community Critical Facilities
City of Chancellor
461-AVE
SD-HWY-44
277-ST
First Baptist
Chancellor City Hall
City Shop
Chancellor Fire Hall
2ND-AVE
HAAN-ST
WINNIFRED-ST
DAKOTA-ST
MAIN-ST
1ST-AVE
1ST-ST
Chancellor Elementary School
2ND-ST
3RD-ST
4TH-ST
5TH-ST
DEWEY-AVE
Chancellor Reformed Church
UNKNOWN
HICKORY-AVE
Legend
City Hall
Courthouse
Government Building
Clinic
Hospital
Ambulance
Fire Station
Police Station
Daycare
School
Nursing Home/Assisted Living
Shelter
Water Tower
Water Treatment
Lift Station
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Map updated by SECOG on 3/7/2019
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Clay
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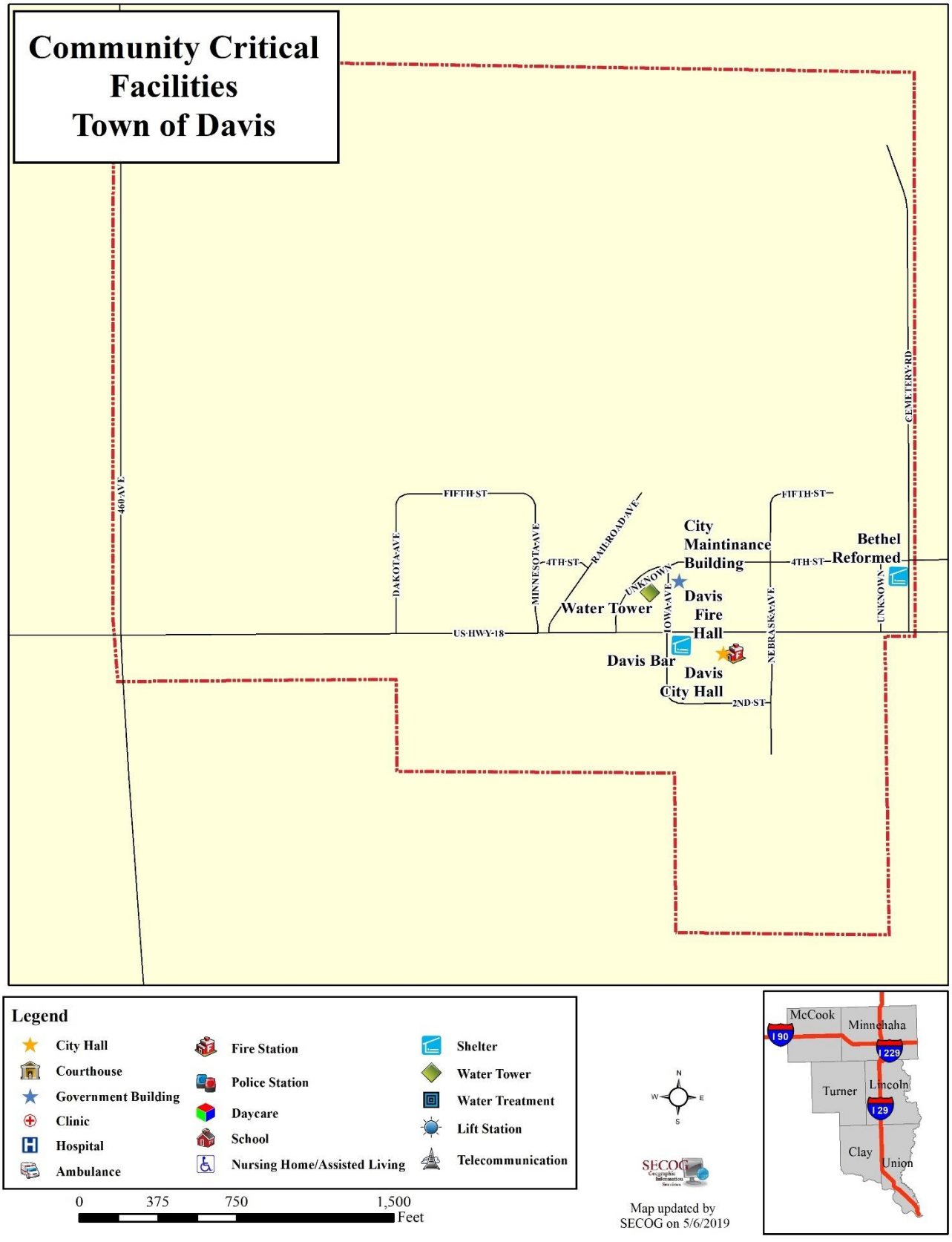
Community Critical Facilities
Town of Davis
460-AVE
FIFTH-ST
DAKOTA-AVE
MINNESOTA-AVE
4TH-ST
RAILROAD-AVE
UNKNOWN
IOWA-AVE
City Maintinance Building
Water Tower
Davis Fire Hall
Davis Bar
Davis City Hall
US-HWY-18
NEBRASKA-AVE
2ND-ST
Bethel Reformed
CEMETERY-RD
Legend
City Hall
Courthouse
Government Building
Clinic
Hospital
Ambulance
Fire Station
Police Station
Daycare
School
Nursing Home/Assisted Living
Shelter
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Lift Station
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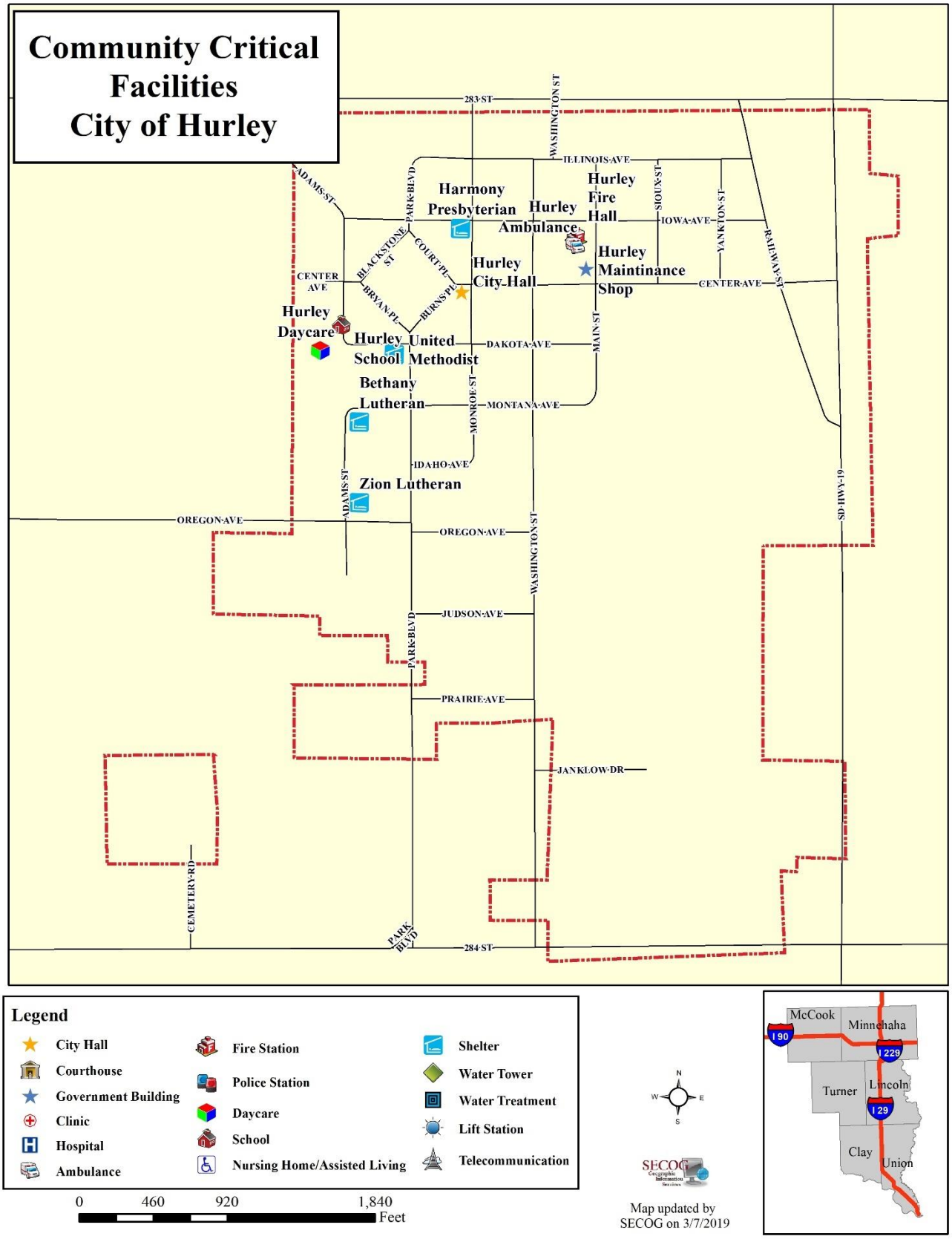
Community Critical Facilities
City of Hurley
283 ST
WASHINGTON ST
ILLINOIS AVE
ADAMS ST
PARK BLVD
Harmony Presbyterian
Hurley Ambulance
Hurley Fire Hall
SIOUX ST
IOWA AVE
YANKTON ST
RAILWAY ST
BLACKSTONE ST
COURT PL
BRYAN PL
BURNS PL
CENTER AVE
Hurley City Hall
Hurley Maintinance Shop
CENTER AVE
Hurley Daycare
Hurley United Methodist School
DAKOTA AVE
MAIN ST
Bethany Lutheran
MONTANA AVE
MONROE ST
IDAHO AVE
Zion Lutheran
ADAMS ST
OREGON AVE
OREGON AVE
WASHINGTON ST
SD HWY 19
JUDSON AVE
PARK BLVD
PRAIRIE AVE
JANKLOW DR
CEMETERY RD
PARK BLVD
284 ST
Legend
City Hall
Courthouse
Government Building
Clinic
Hospital
Ambulance
Fire Station
Police Station
Daycare
School
Nursing Home/Assisted Living
Shelter
Water Tower
Water Treatment
Lift Station
Telecommunication
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Map updated by SECOG on 3/7/2019
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Lincoln
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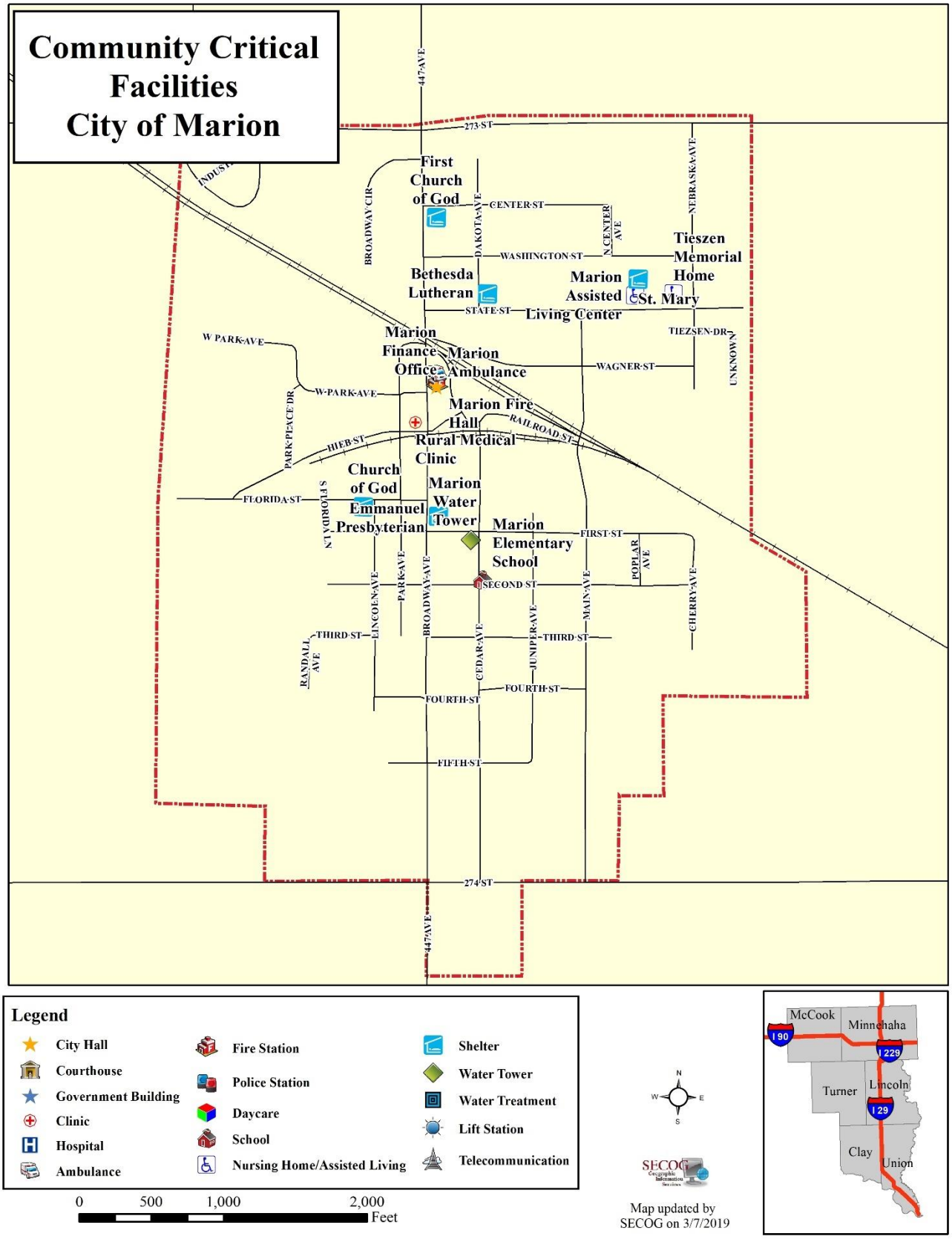
Clay
Union


Community Critical Facilities City of Marion
First Church of God
Bethesda Lutheran
Marion Assisted Living Center
Tieszen Memorial Home
St. Mary
Marion Finance Office
Marion Ambulance
Marion Fire Hall
Rural Medical Clinic
Church of God
Emmanuel Presbyterian
Marion Water Tower
Marion Elementary School
447 AVE
273 ST
274 ST
CENTER ST
WASHINGTON ST
STATE ST
WAGNER ST
TIEZSEN DR
UNKNOWN
NEBRASKA AVE
N CENTER AVE
DAKOTA AVE
BROADWAY CIR
W PARK AVE
PARK PLACE DR
HIEB ST
RAILROAD ST
FLORIDA ST
S FLORIDA LN
FIRST ST
SECOND ST
THIRD ST
FOURTH ST
FIFTH ST
LINCOLN AVE
PARK AVE
BROADWAY AVE
CEDAR AVE
JUNIPER AVE
MAIN AVE
POPLAR AVE
CHERRY AVE
RANDALL AVE
Legend
City Hall
Courthouse
Government Building
Clinic
Hospital
Ambulance
Fire Station
Police Station
Daycare
School
Nursing Home/Assisted Living
Shelter
Water Tower
Water Treatment
Lift Station
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Map updated by SECOG on 3/7/2019
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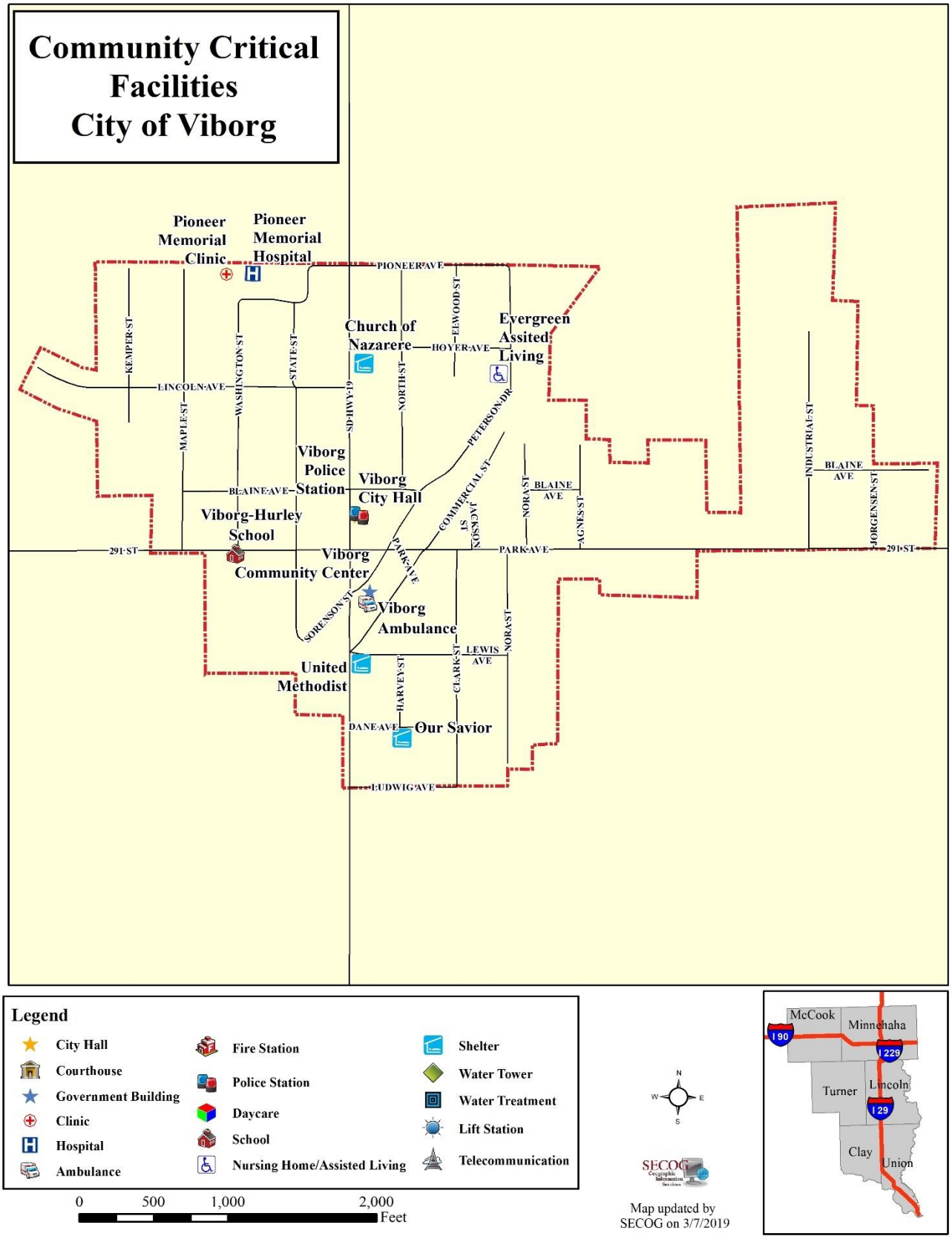
Community Critical Facilities
City of Viborg
Pioneer Memorial Clinic
Pioneer Memorial Hospital
PIONEER AVE
KEMPER ST
MAPLE ST
WASHINGTON ST
STATE ST
SD HWY 19
NORTH ST
ELWOOD ST
Church of Nazarene
HOYER AVE
Evergreen Assited Living
LINCOLN AVE
PETERSON DR
Viborg Police Station
Viborg City Hall
BLAINE AVE
Viborg-Hurley School
COMMERCIAL ST
JACKSON ST
NORA ST
BLAINE AVE
AGNES ST
INDUSTRIAL ST
BLAINE AVE
JORGENSEN ST
291 ST
Viborg Community Center
PARK AVE
PARK AVE
291 ST
SORENSON ST
Viborg Ambulance
NORA ST
LEWIS AVE
CLARK ST
United Methodist
HARVEY ST
DANE AVE
Our Savior
LUDWIG AVE
Legend
City Hall
Courthouse
Government Building
Clinic
Hospital
Ambulance
Fire Station
Police Station
Daycare
School
Nursing Home/Assisted Living
Shelter
Water Tower
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Map updated by SECOG on 3/7/2019
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Lincoln
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Clay
Union

APPENDIX B: SIGNIFICANT HAZARD EVENTS IN TURNER COUNTY

JANUARY 1, 2012 – DECEMBER 31, 2019

LOCATION	COUNTY	DATE	TYPE
Turner County	Turner	01/20/2012	Winter Weather
Turner County	Turner	02/13/2012	Winter Weather
Dolton	Turner	05/08/2012	Flood
Turner County	Turner	06/01/2012	Drought
Turner County	Turner	06/27/2012	Excessive Heat
Turner County	Turner	07/01/2012	Drought
Turner County	Turner	07/02/2012	Excessive Heat
Irene	Turner	07/05/2012	Thunderstorm Wind
Turner County	Turner	07/15/2012	Excessive Heat
Turner County	Turner	07/18/2012	Excessive Heat
Turner County	Turner	08/01/2012	Drought
Turner County	Turner	08/01/2012	Excessive Heat
Turner County	Turner	09/01/2012	Drought
Hooker	Turner	09/04/2012	Hail
Hooker	Turner	09/04/2012	Hail
Turner County	Turner	10/01/2012	Drought
Turner County	Turner	11/01/2012	Drought
Turner County	Turner	12/01/2012	Drought
Turner County	Turner	12/27/2012	Winter Weather
Turner County	Turner	01/01/2013	Drought
Turner County	Turner	02/01/2013	Drought
Turner County	Turner	02/10/2013	Winter Weather
Turner County	Turner	02/21/2013	Heavy Snow
Turner County	Turner	03/01/2013	Drought
Turner County	Turner	04/01/2013	Drought
Turner County	Turner	04/09/2013	Winter Storm
Marion	Turner	05/25/2013	Hail
Parker	Turner	05/25/2013	Hail
Davis	Turner	05/27/2013	Flood
Monroe	Turner	06/21/2013	Hail
Hooker	Turner	08/10/2013	Hail
Viborg	Turner	08/10/2013	Hail
Turner County	Turner	12/03/2013	Winter Storm
Turner County	Turner	01/16/2014	High Wind
Turner County	Turner	01/26/2014	High Wind
Davis	Turner	06/15/2014	Flood
Dolton	Turner	06/16/2014	Flood
Turner County	Turner	11/15/2014	Winter Weather
Turner County	Turner	12/15/2014	Winter Weather
Turner County	Turner	12/26/2014	Winter Weather

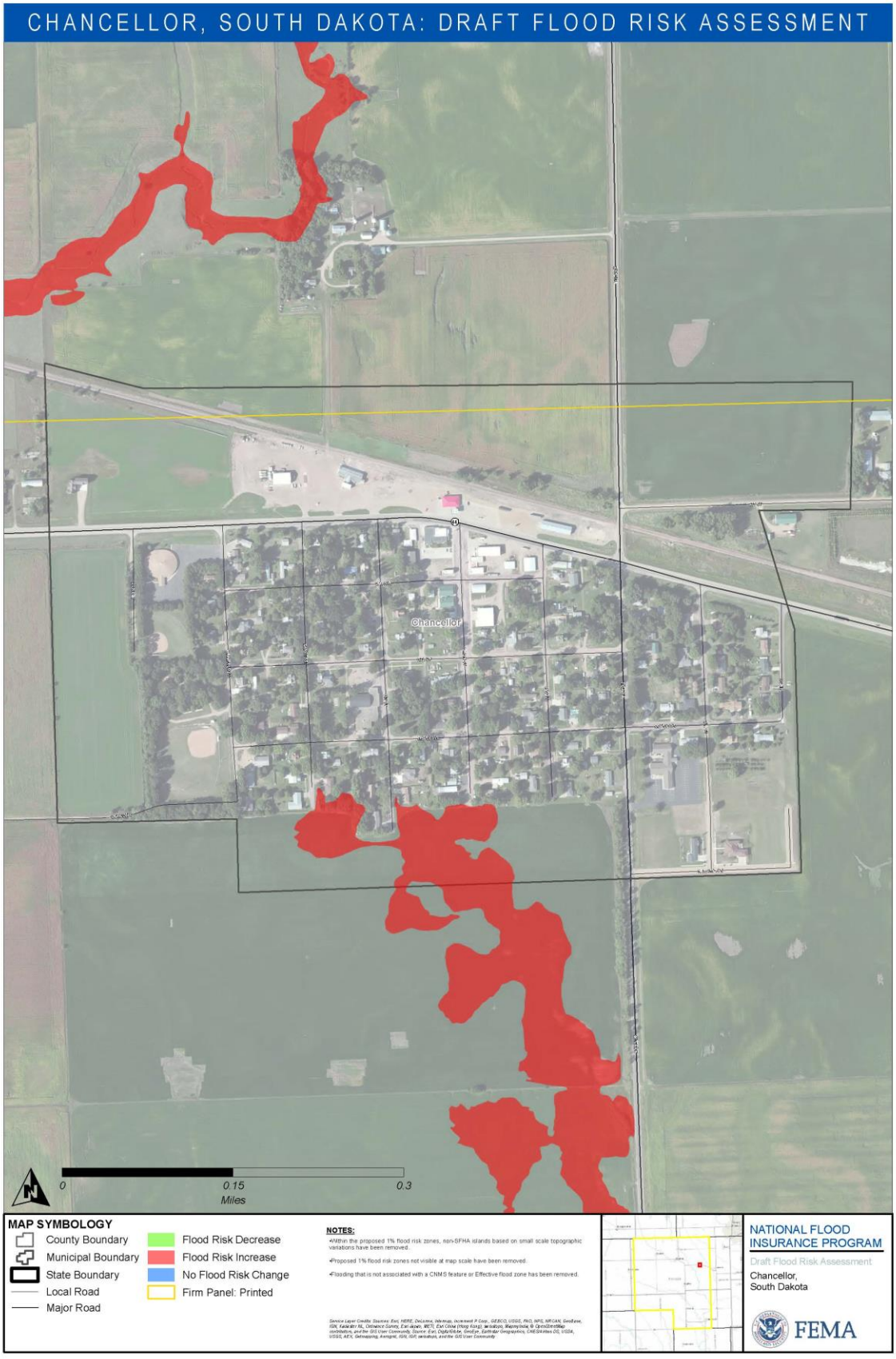
Turner County	Turner	01/08/2015	Winter Weather
Turner County	Turner	01/31/2015	Winter Storm
Turner County	Turner	02/01/2015	Winter Storm
Chancellor	Turner	04/07/2015	Hail
Center Pt	Turner	05/25/2015	Hail
Viborg	Turner	05/25/2015	Hail
Dolton	Turner	07/05/2015	Tornado
Dolton	Turner	07/05/2015	Thunderstorm Wind
Marion	Turner	07/05/2015	Thunderstorm Wind
Viborg	Turner	07/17/2015	Thunderstorm Wind
Pearsons Corner	Turner	08/09/2015	Thunderstorm Wind
Turner County	Turner	11/20/2015	Heavy Snow
Turner County	Turner	11/30/2015	Winter Storm
Turner County	Turner	12/01/2015	Winter Storm
Turner County	Turner	12/25/2015	Winter Storm
Turner County	Turner	12/28/2015	Winter Weather
Turner County	Turner	01/16/2016	Extreme Cold/Wind Chill
Turner County	Turner	02/02/2016	Blizzard
Turner County	Turner	02/19/2016	High Wind
Turner County	Turner	02/29/2016	Winter Weather
Turner County	Turner	03/01/2016	Winter Weather
Turner County	Turner	03/23/2016	Winter Storm
Turner County	Turner	03/26/2016	Heavy Snow
Turner County	Turner	06/10/2016	Excessive Heat
Parker	Turner	06/17/2016	Hail
Hurley	Turner	06/17/2016	Thunderstorm Wind
Parker	Turner	06/17/2016	Hail
Parker	Turner	07/16/2016	Thunderstorm Wind
Viborg	Turner	07/16/2016	Thunderstorm Wind
Centerville	Turner	07/16/2016	Thunderstorm Wind
Turner County	Turner	07/20/2016	Excessive Heat
Centerville	Turner	08/16/2016	Hail
Irene	Turner	09/04/2016	Thunderstorm Wind
Turner County	Turner	11/18/2016	Winter Storm
Turner County	Turner	12/10/2016	Winter Weather
Turner County	Turner	12/16/2016	Winter Weather
Turner County	Turner	12/17/2016	Cold/Wind Chill
Turner County	Turner	12/24/2016	Winter Weather
Turner County	Turner	12/25/2016	High Wind
Turner County	Turner	01/17/2017	Winter Weather
Turner County	Turner	01/24/2017	Winter Storm
Turner County	Turner	02/23/2017	Winter Storm

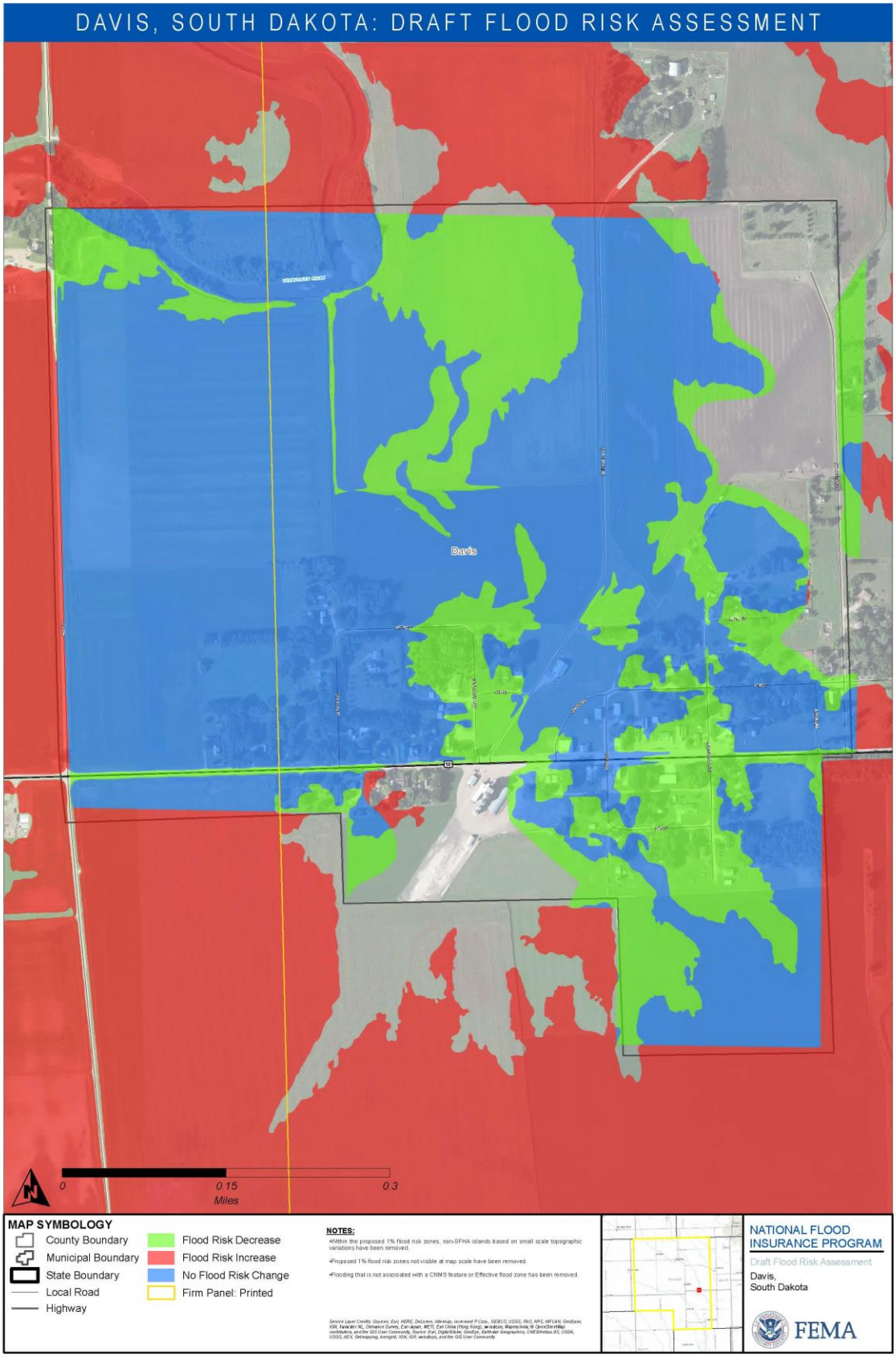
Turner County	Turner	03/12/2017	Winter Weather
Pearsons Corner	Turner	06/12/2017	Hail
Pearsons Corner	Turner	06/12/2017	Hail
Pearsons Corner	Turner	06/12/2017	Hail
Dolton	Turner	06/13/2017	Thunderstorm Wind
Parker	Turner	06/13/2017	Hail
Hurley	Turner	06/13/2017	Hail
Hurley	Turner	06/13/2017	Hail
Marion	Turner	06/13/2017	Hail
Parker	Turner	06/13/2017	Hail
Parker	Turner	06/13/2017	Hail
Chancellor	Turner	06/13/2017	Hail
Chancellor	Turner	06/13/2017	Thunderstorm Wind
Pearsons Corner	Turner	06/27/2017	Hail
Viborg	Turner	06/27/2017	Thunderstorm Wind
Davis	Turner	06/28/2017	Hail
Monroe	Turner	08/21/2017	Hail
Parker	Turner	08/21/2017	Hail
Marion	Turner	09/19/2017	Thunderstorm Wind
Turner County	Turner	12/21/2017	Winter Weather
Turner County	Turner	12/26/2017	Cold/Wind Chill
Turner County	Turner	12/31/2017	Extreme Cold/Wind Chill
Turner County	Turner	01/01/2018	Extreme Cold/Wind Chill
Turner County	Turner	01/10/2018	Winter Weather
Turner County	Turner	01/11/2018	Cold/Wind Chill
Turner County	Turner	01/15/2018	Cold/Wind Chill
Turner County	Turner	01/22/2018	Winter Storm
Turner County	Turner	02/05/2018	Winter Weather
Turner County	Turner	02/08/2018	Winter Weather
Turner County	Turner	02/19/2018	Winter Weather
Turner County	Turner	02/22/2018	Winter Weather
Turner County	Turner	02/24/2018	Winter Weather
Turner County	Turner	03/05/2018	Blizzard
Turner County	Turner	03/10/2018	Winter Weather
Turner County	Turner	03/16/2018	Winter Weather
Parker	Turner	03/24/2018	Flood
Centerville	Turner	03/27/2018	Flood
Turner County	Turner	04/03/2018	Winter Storm
Turner County	Turner	04/08/2018	Winter Weather
Turner County	Turner	04/14/2018	Blizzard
Turner County	Turner	04/18/2018	Winter Storm
Parker	Turner	06/01/2018	Thunderstorm Wind

Dolton	Turner	06/21/2018	Flood
Hooker	Turner	06/21/2018	Flood
Parker	Turner	06/21/2018	Flood
Centerville	Turner	06/21/2018	Flood
Turner County	Turner	07/11/2018	Heat
Pearsons Corner	Turner	08/28/2018	Hail
Hooker	Turner	09/20/2018	Flash Flood
Davis	Turner	09/20/2018	Flash Flood
Parker	Turner	09/20/2018	Flood
Centerville	Turner	09/22/2018	Flood
Parker	Turner	10/11/2018	Flood
Turner County	Turner	10/14/2018	High Wind

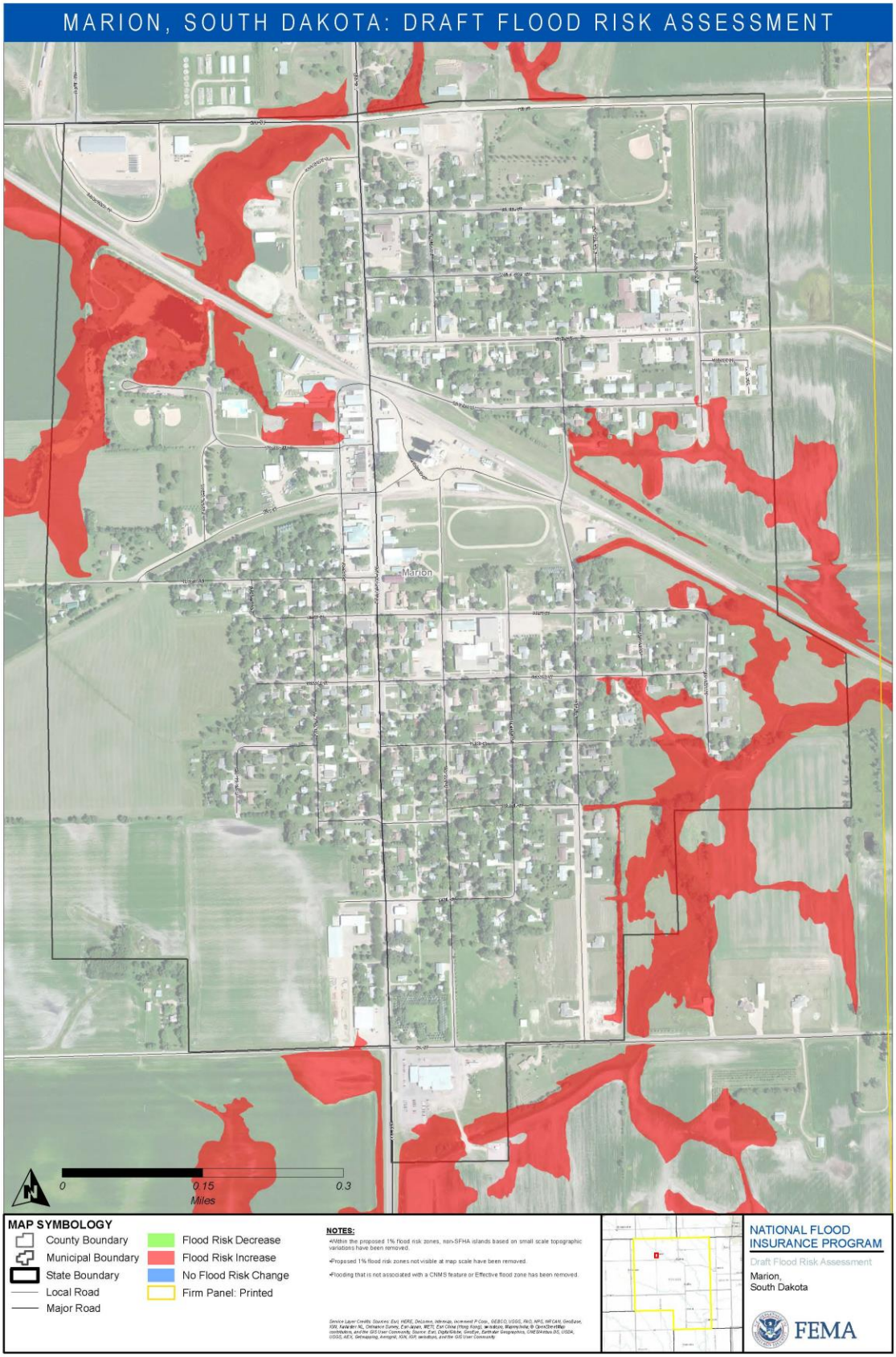
APPENDIX C: FLOOD ZONES


CENTERVILLE, SOUTH DAKOTA: DRAFT FLOOD RISK ASSESSMENT
Centerville
0
0.2
0.4
Miles
MAP SYMBOLOGY
County Boundary
Municipal Boundary
State Boundary
Local Road
Major Road
Flood Risk Decrease
Flood Risk Increase
No Flood Risk Change
Firm Panel: Printed
NOTES:
•Within the proposed 1% flood risk zones, non-SFHA islands based on small scale topographic variations have been removed.
•Proposed 1% flood risk zones not visible at map scale have been removed.
•Flooding that is not associated with a CNMS feature or Effective flood zone has been removed.
NATIONAL FLOOD INSURANCE PROGRAM
Draft Flood Risk Assessment
Centerville,
South Dakota
FEMA


CHANCELLOR, SOUTH DAKOTA: DRAFT FLOOD RISK ASSESSMENT
Chancellor
0
0.15
0.3
Miles
MAP SYMBOLOGY
County Boundary
Municipal Boundary
State Boundary
Local Road
Major Road
Flood Risk Decrease
Flood Risk Increase
No Flood Risk Change
Firm Panel: Printed
NOTES:
•Within the proposed 1% flood risk zones, non-SFHA islands based on small scale topographic variations have been removed.
•Proposed 1% flood risk zones not visible at map scale have been removed.
•Flooding that is not associated with a CNMS feature or Effective flood zone has been removed.
NATIONAL FLOOD INSURANCE PROGRAM
Draft Flood Risk Assessment
Chancellor,
South Dakota
FEMA


DAVIS, SOUTH DAKOTA: DRAFT FLOOD RISK ASSESSMENT
Davis
0
0.15
0.3
Miles
MAP SYMBOLOGY
County Boundary
Municipal Boundary
State Boundary
Local Road
Highway
Flood Risk Decrease
Flood Risk Increase
No Flood Risk Change
Firm Panel: Printed
NOTES:
NATIONAL FLOOD INSURANCE PROGRAM
Draft Flood Risk Assessment
Davis,
South Dakota
FEMA


HURLEY, SOUTH DAKOTA: DRAFT FLOOD RISK ASSESSMENT
Hurley
0
0.2
0.4
Miles
MAP SYMBOLOGY
County Boundary
Municipal Boundary
State Boundary
Local Road
Major Road
Flood Risk Decrease
Flood Risk Increase
No Flood Risk Change
NOTES:
•Within the proposed 1% flood risk zones, non-SFHA islands based on small scale topographic variations have been removed.
•Proposed 1% flood risk zones not visible at map scale have been removed.
•Flooding that is not associated with a CNMS feature or Effective flood zone has been removed.
NATIONAL FLOOD INSURANCE PROGRAM
Draft Flood Risk Assessment
Hurley,
South Dakota
FEMA


MARION, SOUTH DAKOTA: DRAFT FLOOD RISK ASSESSMENT
Marion
0
0.15
0.3
Miles
MAP SYMBOLOGY
County Boundary
Municipal Boundary
State Boundary
Local Road
Major Road
Flood Risk Decrease
Flood Risk Increase
No Flood Risk Change
Firm Panel: Printed
NOTES:
•Within the proposed 1% flood risk zones, non-SFHA islands based on small scale topographic variations have been removed.
•Proposed 1% flood risk zones not visible at map scale have been removed.
•Flooding that is not associated with a CNMS feature or Effective flood zone has been removed.
NATIONAL FLOOD INSURANCE PROGRAM
Draft Flood Risk Assessment
Marion,
South Dakota
FEMA


VIBORG, SOUTH DAKOTA: DRAFT FLOOD RISK ASSESSMENT
Viborg
0
0.25
0.5
Miles
MAP SYMBOLOGY
County Boundary
Municipal Boundary
State Boundary
Local Road
Major Road
Flood Risk Decrease
Flood Risk Increase
No Flood Risk Change
NOTES:
NATIONAL FLOOD INSURANCE PROGRAM
Draft Flood Risk Assessment
Viborg, South Dakota
FEMA

APPENDIX D: Hazard Mitigation Projects

JURISDICTION	HAZARD	MITIGATION ACTION	PRIORITY	TIME FRAME	COST	POTENTIAL FUNDING
Centerville	Flood	Continue to add rip rap along the riverbank at Gunderson Park in order to decrease and prevent erosion to the land and flooding in the Park.	Medium	Long	TBD	SD DENR
	Flood/Tornado	Acquire a back up generator for the City's lift station.	High	Long	Costs TBD	HMGP
	Multi-Hazard	Consider construction of a public storm shelter or safe room.	Medium	Long	Varies with scope	HMGP
Chancellor	Multi-Hazard	Work with the local church to establish a shelter in the church basement. Acquire a generator to keep at the church for an emergency situation.	High	Short	Cost TBD	HMGP
	Flood	Build up the road and water diversion channel to protect Cell #2 from flooding.	Medium	Short	Cost TBD	SD DENR - HMGP
Davis	Flood	Fix roads and storm drainage to ensure responders and citizens have access.	High	Long – Ongoing	Cost TBD	SD DENR
	Biological	Prevent West Nile by spraying for mosquitos annually.	High	Long – Ongoing	Ongoing	LOCAL
Hurley	Winter Storms	Designate emergency shelters; work with SE Electric	Medium	Long	No Cost	LOCAL
	Floods	Review and address drainage issues	Medium	Short	Varies	SD DENR
	Multi-Hazard	Identify at-risk population in community	High	Long – Ongoing	No Cost	LOCAL
	Multi-Hazard	Promote the use of NOAA weather radios	Medium	Long – Ongoing	No Cost	LOCAL
	Flooding	Continue to participate in the National Flood Insurance Program	High	Long – Ongoing	Ongoing	LOCAL
	Wildfire	Continued use of city fire bans	Medium	Long – Ongoing	No Cost	LOCAL
	Biological	Public cleanup of potential mosquito habitats	Medium	Long – Ongoing	Ongoing	LOCAL
Marion	Flood/Summer Storm	Replace storm sewer in total of 2,300 feet	High	Long	Cost TBD	SD DENR
	Multi-Hazard	Develop a new website and Facebook alerts	Medium	Short	Cost TBD	LOCAL

Viborg	Multi-Hazard	Set up a Facebook account to post alerts	Medium	Short	No Cost	LOCAL
	Flood	Work with engineers to develop plan to drain retention pond quickly when heavy rainfall occurs	High	Short	Cost TBD	SD DENR
	Wind/Ice Storm	Complete project to bury all overhead power lines	Medium	Short	Cost TBD	HMGP
Turner County	Multi-Hazard	Determine areas that may benefit from more culverts	Medium	Long	No Cost	LOCAL – SD DENR
	Multi-Hazard	Determine existing and potential areas of erosion to improve	Low	Long	No Cost	LOCAL – SD DENR
	Multi-Hazard	Ensure Turner County and jurisdictional Emergency Operation Plans are current	Medium	Long – Ongoing	No Cost	LOCAL
	Multi-Hazard	Exercise severe weather drills and simulated hazardous materials spills	Low	Long – Ongoing	Cost TBD	LOCAL
	Multi-Hazard	Assess short term shelter use	Medium	Long – Ongoing	No Cost	LOCAL
	Multi-Hazard	Identify new and secondary shelters in County and jurisdictions as needed	High	Long – Ongoing	No Cost	LOCAL
	Multi-Hazard	Develop a comprehensive Mass Shelter and Care Plan for the Entire County	High	Long – Ongoing	Cost TBD	LOCAL
	Multi-Hazard	Continue severe Weather Awareness Programs	Medium	Long – Ongoing	Ongoing	LOCAL
	Multi-Hazard	Support the continued use of NOAA Weather Radios for all hazard events	Low	Long – Ongoing	No Cost	LOCAL
	Multi-Hazard	Continue warning and evacuation procedures	High	Long – Ongoing	No Cost	LOCAL
	Hazardous Materials	Assess utilities and pipelines in the County	Low	Long – Ongoing	Cost TBD	LOCAL

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APPENDIX F: Committee Meeting Documentation

AGENDA

September 13, 2018

4:00 pm Turner County Courthouse, Parker, SD

I. Welcome – Jim Poppen, State Hazard Mitigation Officer

II. Introductions – 5 minutes

III. Team Member's Roles and Responsibilities – 5 minutes

IV. Review Participant Packet – 10 minutes

V. Activity: Refer to the list of hazards. Place the hazards in order of how they affect your community. Of the top three, how do they affect you and give examples – 20 minutes.

VI. Wrap-Up – 5 minutes

Next Meeting: October 11, 2018, Turner County Courthouse at 4:00 pm

Homework: List your community's critical facilities with their street addresses

SIGN-IN

SEPTEMBER 13, 2018 – 4:00 PM – TURNER COUNTY COURTHOUSE

TURNER COUNTY PRE-DISASTER MITIGATION MEETING ONE

NAME	REPRESENTING	EMAIL	PHONE	TRAVELED FROM...
Jay Jorgensen	TM Rural Water District	Jay.Jorgensen@tmruralwater.com	605-297-3334	Parker
Jim Poppen	SDOEM	jim.poppen@state.sd.us	773-3231	Pierre
Brad Georgeson	Turner Co EM	turnercoem@iw.net	661-5900	
Darol Hostetler	Chancellor	darolHostetler@gmail.com	605-3701109	Chancellor
Heath McManaman	Chancellor	chancellorsd@iw.net	647-8696	Chancellor
Jay Love	Davis	CityOFDavis@yahoo.com	605-258-CITY or 605-321-9062	Davis
Daniel Severson	Chancellor	dan@bencoparts.com	366-9621	Chancellor
Jared Hybertson	Centerville	jhybertson@hotmail	605-940-5501	Centerville
Jeff Jeno	Marion	thejenos@gwtc.net	605 421 0496	Marion
TRACY HUMMEL	HURLEY	CITYOFHURLEY@HOTMAIL.COM	238-5840	HURLEY
Lori Jorgensen	Viborg	cityofviborg@hcinet.net	326-5103	Viborg

AGENDA

Thursday, October 11, 2018

4:00 pm Turner County Courthouse

VII. Welcome and Introductions – 5 minutes

VIII. Summary of Hazard Ranking – 5 minutes

IX. Identify Community Assets – 10 minutes

X. Activity: Probability and Vulnerability – 20 minutes

XI. Wrap-Up – 5 minutes

Next Meeting: November 8, 2018 – 4:00 pm – Turner County Courthouse

Homework: Complete Capability Assessment Worksheet

Also, if you haven't already, please provide the following ASAP:

- **Critical Facilities**
- **Community Questionnaire**

SIGN-IN

October 11, 2018 – 4:00 PM – TURNER COUNTY COURTHOUSE

TURNER COUNTY PRE-DISASTER MITIGATION MEETING TWO

NAME	REPRESENTING	EMAIL	PHONE	TRAVELED FROM...
Jay Jorgensen	TM Rural Water District	Jay.Jorgensen@tmruralwater.com	605 297-3334	Parker
Jeff Jeno	Marion	thejenos@gwtc.net	605 421 8033	Marion
Dustin Sulzle	City of Marion	Sulzle_sd@hotmail.com	605-321-2645	Marion

SIGN-IN

October 11, 2018 – 4:00 PM – TURNER COUNTY COURTHOUSE

TURNER COUNTY PRE-DISASTER MITIGATION MEETING TWO

NAME	REPRESENTING	EMAIL	PHONE	TRAVELED FROM...
Brad Georgeson	Turner Co EM	turnercoem@iw.net	661-5900	
Heath McManaman	Town of Chancellor	Chancellorsd@iw.net	647-8696	Chancellor
Lori Jorgensen	Viborg	cityofviborg@hcinet.net	326-5103	Viborg
Jared Hybertson	Centerville	jhybertson@hotmail	563-2302	Centerville

AGENDA

November 8, 2018

4:00 pm Turner County Courthouse

XII. Welcome and Introductions – 5 minutes

XIII. Recap of risk assessment – 10 minutes

XIV. Activity: Problem Statements – 30 minutes

XV. Wrap-Up – 5 minutes

Next Meeting: December 13, 2018 4:00 pm Turner County Courthouse – Date TBD

Homework:

Complete Problem Statement Worksheet and bring back with you at next meeting!

Also, if you haven't already, please provide the following ASAP:

- **Critical Facilities**
- **Community Questionnaire**
- **Capability Assessment Worksheet**

SIGN-IN

NOVEMBER 8, 2018 – 4:00 PM – TURNER COUNTY COURTHOUSE

TURNER COUNTY PRE-DISASTER MITIGATION MEETING #3

NAME	REPRESENTING	EMAIL	PHONE	TRAVELED FROM...
Jeff Jeno	Marion	the Jenos@gwtc.net	605 421 8033	Marion
Jared Hybertson	Centerville	jhybertson@hotmail.com	605-940-5501	Centerville
Heath McManaman	Chancellor	Chancellorsd@iw.net	605-647-8696	Chancellor
Brad Georgeson	Turner Co	turnercoem@iw.net	661-5900	
Adam Frericks	SD office of Emergency Mgmt.	adam.frericks@state.sd.us	941-3894	Mitchell
Jay Jorgensen	TM Rural Water District	Jay.Jorgensen@tmruralwater.com	605-297-3334	Parker
Lori Jorgensen	Viborg	cityofviborg@hcinet.net	326-5103	Viborg
TRAM HUMMEL	HURLEY	CITYOFHURLEY@HOTMAIL.COM	239-0680	HURLEY

AGENDA

December 13, 2018

4:00 pm Turner County Courthouse

XVI. Welcome and Introductions – 5 minutes

XVII. Activity: Finalizing Mitigation Actions – 40 minutes

XVIII. Wrap-Up – 5 minutes

Next Meeting: TBD

Also, if you haven't already, please provide the following ASAP:

- **Critical Facilities**
- **Community Questionnaire**
- **Capability Assessment Worksheet**

SIGN-IN

DECEMBER 13, 2018 – 4:00 PM – TURNER COUNTY COURTHOUSE

TURNER COUNTY PRE-DISASTER MITIGATION MEETING #4

NAME	REPRESENTING	EMAIL	PHONE	TRAVELED FROM...
Leslie Mastroianni	Secog	leslie@secog.org	367-5390	Sioux Falls
Julie Anderson	ICAP	janderson@interlakescap.com	605-940-1909	Parker
Jeff Jend	Marion	the Jenos@gwtc.net	605 421 8023	marion
Brad Georgeson	Turner CoEm	turnercoem@iw.net	605-661-5900	
TRACY HUMMEL	HURLEY	CITYOFHURLEY@HOTMAIL	238-0680	HURLEY
Jared Hybertson	Centerville	jhybertson@hotmail	563-2302	Centerville

Press Release

FOR IMMEDIATE RELEASE

Release Date: Wednesday, April 17, 2019

Contact: Brad Georgeson, Turner County Emergency Manager, 605-297-6000

Turner County Multi-Hazard Pre-Disaster Mitigation Planning Meeting to be held on April 23th at 4:00pm

Over the course of the last several months, a planning committee consisting of representatives from Turner County and the municipalities within the county have been meeting to facilitate the update of the Turner County Multi-Hazard Pre-Disaster Mitigation Plan. The updated Plan is required for Turner County and the municipalities within the county to remain eligible for the Federal Emergency Management Agency's Hazard Mitigation Grant Program Funding.

The Planning Committee is scheduled to hold a meeting to review and ask for public input on the current draft update of the 2019 Turner County Multi-Hazard Pre-Disaster Mitigation plan on **Tuesday, April 23rd from 4:00 PM to 6:00 PM** at the Turner County Courthouse, 400 S Main Ave., Parker, SD 57053. At this meeting, the committee will be reviewing the current draft update of the 2019 Turner County Multi-Hazard Pre-Disaster Mitigation plan and voicing any final concerns or changes. They will also ask for any final concerns or changes from the public.

This meeting is one of several public meetings to be held during the development of the updated Plan. Individuals with specific knowledge or interest regarding the topics being discussed are encouraged to attend to provide feedback on potential pre-disaster hazard mitigation projects.

For more information, please contact Brad Georgeson at 605-297-6000 or visit www.secog.org.

AGENDA

April 23, 2019

4:00 pm Turner County Courthouse, Parker, SD

2019 Pre-Disaster Mitigation Plan Draft Review and Public Forum

I. Review of Committee's Prior Work

II. Comments Prior to Draft Review

III. Review of Draft PDM Report

IV. Discussion / Next Steps
   a. Submission to State and FEMA for Review
   b. Adoption by Participating Jurisdictions

V. Public Comment and Review of Draft PDM Report

SIGN-IN

APRIL 23, 2019 – 4:00 PM – TURNER COUNTY COURTHOUSE

TURNER COUNTY PRE-DISASTER MITIGATION MEETING #5 – DRAFT REVIEW AND PUBLIC FORUM

NAME	REPRESENTING	EMAIL	PHONE	TRAVELED FROM...
Sara Lum	SECOG	sara@secog.org	605-681-8188	Sioux Falls
Lou Jorgensen	Viborg	cityofviborg@hcinet.net	326-5103	Viborg
Brad Jorgeson	Turner Co EM	turnercoem@iw.net	297-6000	
Jeff Jeno	Marion		605 421 8033	Marion
Jay Lee	Davis	CITYOF Davis@yahoo.com	605-321-9062	Davis

APPENDIX G: References

Print References

Local Mitigation Planning Handbook. FEMA. March 2013.

Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards. FEMA. January 2013.

South Dakota Hazard Mitigation Plan. April 2014. South Dakota Office of Emergency Management/Dewberry. 2014.

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Community Status Book Report – South Dakota. FEMA. February 26, 2018.

Big Sioux River Watershed Strategic Plan. South Dakota Department of Environment and Natural Resources. June 2016.

Turner County Comprehensive Plan 2007-2027. Turner County.

Centerville Comprehensive Plan 2035. City of Centerville.

Davis Comprehensive Plan 2017-2035. City of Davis.

Hurley Comprehensive Plan 2030. City of Hurley.

Monroe Comprehensive Plan 2035. City of Monroe.

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NFIP Policy Statistics. https://bsa.nfipstat.fema.gov/.

FEMA Flood Map Service Center. https://msc.fema.gov/portal.

Disaster Federal Registry Notice. www.fema.gov.

National Weather Service. www.weather.gov.

National Centers for Environmental Information. www.ncdc.noaa.gov/stormevents.

National Climatic Data Center. www.ncdc.noaa.gov.

Federal Emergency Management Agency. www.fema.gov.

United States Drought Monitor. http://drought.unl.edu/MonitoringTools/USDroughtMonitor.aspx.

National Weather Service – Storm Ready. https://www.weather.gov/stormready/.

Sioux Falls Area Climate Summary. http://w2.weather.gov/climate/local_data.php?wfo=fsd.

United States Census Bureau. https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

South Dakota Dashboard. https://www.southdakotadashboard.org/.

National Severe Storms Laboratories. https://www.nssl.noaa.gov/.

United States Geological Survey. https://www.usgs.gov/.

United States Environmental Protection Agency. https://www.epa.gov/.

National Oceanic and Atmospheric Administration. http://www.noaa.gov/.