CLAY COUNTY PRE-DISASTER HAZARD MITIGATION PLAN UPDATE 2019

December 31, 2019

PREPARED BY:
Clay County Emergency Management

Technical Assistance Provided By:
South Eastern Council of Governments

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

FEMA

RS-MT

December 31, 2019

Clay County Board of Commissioners
211 W. Main St., Suite 200
Vermillion, South Dakota 57069

Dear Board of County Commissioners:

We are pleased to announce the approval of the Clay 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 Clay County, and the Cities oflrene and Vermillion.

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 December 30, 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 fundin g. We have provided recommendations for the next plan update on the enclosed Plan Review Tool.

We wish to thank the jurisdictions 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.p oppen@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

CONTENTS

Executive Summary

The Hazard Mitigation Plan for Clay County, South Dakota is an update of the 2013 *Clay County Pre-Disaster Mitigation Plan*. The purpose of this Mitigation Plan update is to ensure that Clay 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, Clay 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 Clay County is a multi-jurisdictional plan that includes all unincorporated areas of the counties as well as the cities of Irene and Vermillion. The purpose of the plan is to help Clay 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. All 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, public events were 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 Clay 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 Clay County and the participating jurisdictions.

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

Section One: Introduction

Clay 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 Clay 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 Clay 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 Clay County Pre-Disaster Hazard Mitigation Plan Update is a multi-jurisdictional plan that includes the unincorporated areas of Clay County and the cities of Irene and Vermillion. 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 August 2018, the Emergency Management Director of Clay 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:

- Clay County (commissioners, planning/zoning staff, floodplain administrator, etc.)
- Municipalities within Clay County (Mayors, city council members, finance officers, public works staff, etc.)
- Utility providers, including Clay-Union Electric Co-op, Clay Rural Water System, Vermillion Basin Water Development District, and the City of Vermillion.
- Other entities, including the Vermillion School District, Irene-Wakonda School District, Vermillion Area Chamber and Development, Sanford Vermillion Medical Center, and neighboring county Emergency Managers.

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**				
			10-24-18	**11-28-18**	**1-16-19**	**2-13-19**	**6-20-19**
Leslie Mastroianni	SECOG	Planner	X	X	X	X	X
Layne Stewart	Clay County	Emergency Management	X	X		X	X
Sarah Chadima	Vermillion Basin Water Development District		X	X		X	
Cynthia Aden	Clay County	Planning & Zoning	X		X	X	X
Phyllis Packard	Clay County	County Commissioner	X	X	X		X
Steve Mohr	Town of Wakonda	Mayor	X				
John Prescott	City of Vermillion	City Manager	X	X			X
Jack Powell	City of Vermillion	Mayor	X				
Matt Callahan	Vermillion Fire/EMS	Fire Chief	X				
Julie Girard	Sanford Vermillion Health		X	X	X	X	X
Richard Hammond	Clay County	County Commissioner	X	X			
Jim Poppen	South Dakota Emergency Management	Manager	X				
Greg Merrigan	Clay Rural Water	Manager			X	X	
Bryce Johnke	City of Irene	Mayor			X		
Sara Lum	SECOG	Planner				X	
Shane Waterman	Clark Engineering					X	
Paul Clinton	Clark Engineering					X	

The City of Vermillion, the City of Irene, and Clay County had representation in the planning process. In addition, there was representation from the Sanford Vermillion Health System, Vermillion Basin Water Development District, and Clay Rural Water. The Cities of Vermillion and Irene, as well as Clay County, participated and are seeking plan approval. All other participants provided valuable input as stakeholders with an interest in preparing Clay County and its residents.

Public notices of the initial and subsequent planning sessions were published in the following newspapers:

- *Vermillion Plain Talk*
- *Tri-County News*

Meeting 1

The initial Mitigation Planning Team (Team) meeting was held October 24, 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 impact hazards have on their assets and to begin thinking of possible actions to mitigate against future loss. The Team reviewed hazards prevalent in Clay County. Team members ranked the disasters from the most common to those rarely found in Clay County. Team members were tasked with going to their respective jurisdictions and initiating 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 from Clay County.

Meeting 2

The second Team meeting was held November 28, 2018. At this meeting, discussions focused on the locations and values of critical infrastructure. Discussion was held about the definition and types of community assets, ranging from people to the natural environment. The Team, as a group, identified the probability of hazards occurring in the area and the vulnerability of assets in Clay County. 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 return to their jurisdictions and have conversations about critical facilities and the potential impact in the event of disaster.

Meeting 3

The third Team meeting was held January 16, 2019. 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. For each problem statement, a mitigation action was identified. The January 2013 publication *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* was used as a resource to assist in mitigation action identification. Team members were encouraged to look at innovative mitigation actions for use in the jurisdiction.

Meeting 4

The fourth meeting was held February 13, 2019. 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. Each Team member was encouraged to facilitate discussions with their respective boards and councils regarding mitigation actions to include in the Plan.

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. Engineers from Clark Engineering presented some best practices in stormwater management and flood mitigation.

Meeting 5

The final team meeting was held June 20, 2019. The Team reviewed the final draft of the 2019 Clay County Pre-Disaster Hazard Mitigation Update.

Public Forums

The final draft was presented to the residents of Clay County at a public forum held in conjunction with the final Team meeting. The Public Form was held June 20, 2019, at the Fire EMS Training Facility in Vermillion. No comments were received.

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 Clay County. Each jurisdiction's Comprehensive Plan was reviewed and evaluated to ensure the Comprehensive Plan's goals and objectives were comparative with the Clay County Pre-Disaster Mitigation Plan Update. The current State of *South Dakota Hazard Mitigation Plan* provided a foundation to assess hazard vulnerability for Clay County.

Jurisdiction Plans	
Clay County	*Clay County Comprehensive Plan 2001-2021*
Clay County	*Discovery Report*
City of Irene	*Irene Comprehensive Plan 2035*
City of Vermillion	*Vermillion 2035 Comprehensive Plan*
City of Vermillion	*Vermillion Area Multimodal Transportation Study*
Town of Wakonda	*Wakonda Comprehensive Plan 2003-2025*

SECTION THREE: RISK ASSESSMENT

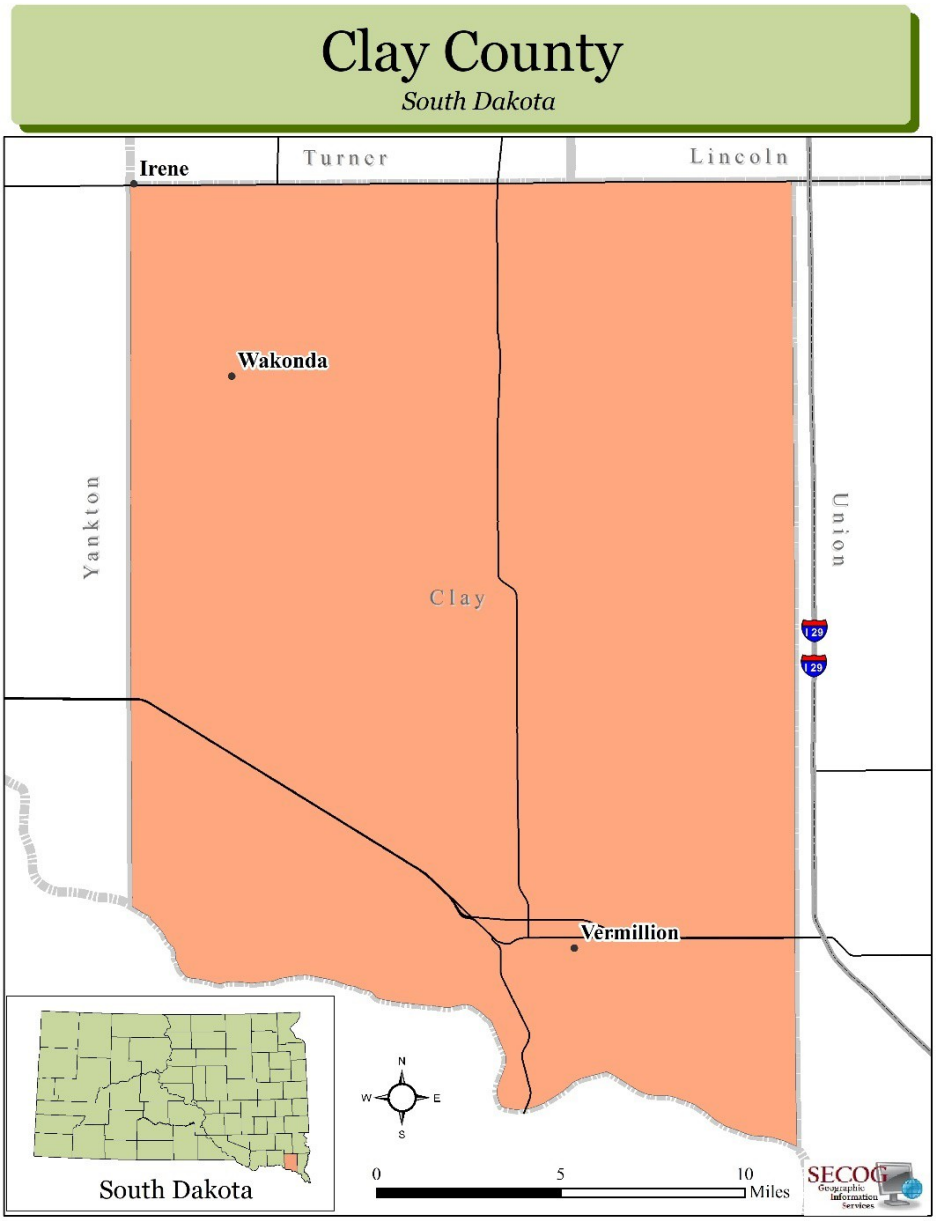
A step-by-step approach was utilized to identify the potential hazard risks for Clay County. Hazard risk is influenced by a community's assets – things like population and development characteristics, public facilities and infrastructure, the natural environment, and the local economy – and how those 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 Clay 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 was instrumental in identifying assets and the risk posed by locally prevalent hazards.

The Mitigation Planning Team reviewed a variety of potential hazards and assessed their potential impacts on Clay 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

Clay County



People

Clay County, with a 2017 estimated population of 13,907, ranks as the 15th most populous of South Dakota's 66 counties. The American Community Survey further states that in 2010, the population density per square mile in Clay County was 33.8 persons per square mile.

2000 Population	Percentage Change	2010 Population	Percentage Change	2017 Estimated Population
13,537	2%	13,864	Negligible	13,907

Clay County has seen a slight increase in population over the last several years. The 2010 US Census indicated a population of 13,864 residents. The 2013-2017 American Community Survey 5-year estimates a slight increase in population to13,907. There are 5,894 housing units in Clay County. Population in Clay County is influenced by the presence of the University of South Dakota in Vermillion.

Median household income in Clay County of $41,773 trended lower 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 24.7 percent of Clay County individuals live below the poverty level.

The median age in Clay County was 25 years in 2017. The relatively young median age can be directly attributed to the University of South Dakota student population.

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%
Clay County	8.3%	5.2%	11.1%

Table 3-1: US Census Bureau, 2013-20157American Community Survey 5-year estimates

The South Dakota Department of Social Services lists eight child care providers in Clay County, all within the City of Vermillion. This count does not include many of the in-home child care providers. The City of Vermillion requires daycare registration, thus giving emergency responders

the location of this vulnerable population. Nursing homes, assisted living facilities, and housing reserved for senior citizens are easily identified during disaster response. SESDAC, a nonprofit facility providing support for persons with disabilities, is located in Vermillion. Whether residing in a SESDAC facility or receiving services through home visits, this vulnerable sector of the population is easily identified to emergency responders in the event of a disaster. 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 916 companies in Clay County. This figure includes business enterprises located in the communities that make up the county. As of 2013, over 97 percent of county land is used for agriculture. Farming and agriculture-related businesses are the economic driver in Clay County. According to the 2012 Census of Agriculture, there are 461 farms in Clay County. The average farm size is 561 acres and over 258,692 acres of land in Clay County are dedicated to farming. The average farm has a market value of crop and livestock sales of $210,037.

Built Environment

Clay County has approximately 250 miles of hard surface and gravel county roads. There are 75 bridges over 20 feet and 155 small structures under 20 feet. The county road system complements the three state highways that pass through Clay County. South Dakota Highway 19 is an 87-mile stretch of highway that travels north and south and passes through Vermillion. South Dakota Highway 46 is an east-west highway that travels along the northern border of the county. South Dakota Highway 50 is also an east-west highway that bisects the county. There are no Interstates or other federal transportation routes within Clay County.

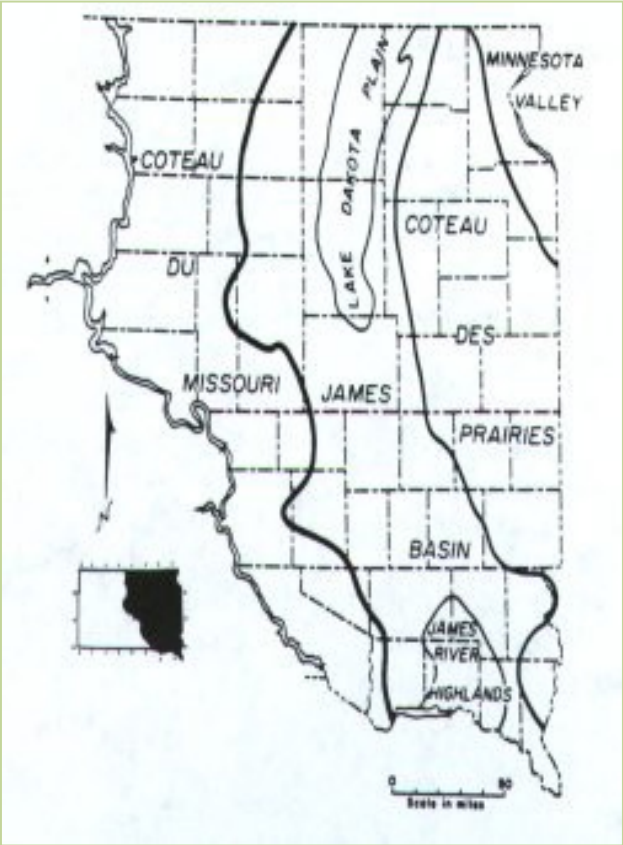
There is a Burlington Northern Santa Fe rail line that runs east to west, through Vermillion, on the southern edge of the county.

Clay Rural Water System has several assets in rural Clay County. The System has a primary water treatment plant located outside Wakonda in rural Clay County and several water towers and booster stations located throughout the county. Clay Rural Water System is the only rural water system serving rural Clay County. Service is provided to Wakonda as well as the unincorporated communities of Burbank and Meckling.

Lewis and Clark’s Regional Water System’s treatment plant and well fields are located in Clay County.

Natural Environment

Clay County is made up of four physiographic regions. These are the James River Lowland, James River Highland, Coteau des Prairies division of the Central Lowlands physiographic province, and the Missouri River Trench division of the Great Plains province. About one-third of Clay County is in the James River Highland, about one-third is in the Missouri River Trench, and about one-third is in the James River Lowland. The extreme northeast corner is on the Coteau des Prairie, a high land plateau.



The James River Highland is characterized by nearly level to rolling terrain. The nearly-level and gently undulating areas are characterized by many small drainageways and depressions. In these areas, the drainage area is poorly defined where small drainageways terminate in the depressions and basins and is well defined along the larger drainageways. The steeper, more rolling areas are in the extreme northwest corner of the county.

The Coteau des Prairies are characterized by nearly level to undulating relief. The drainage pattern is fairly well defined long the larger drainageways. The dissected uplands in the northeast corner of the county are part of the Coteau des Prairies.

The Vermillion River flood plain and the relatively flat uplands adjacent to the floodplain are part of the James River Lowland. The relief is predominately level to gently sloping. Steeper areas are along the well-defined drainageways and bluffs adjacent to the flood plain.

The Missouri River flood plain is part of the Missouri River Trench. The terrain is predominately level, but steeper areas occur along terrace escarpments and old abandoned channels. Drainage is a problem in some areas.

The principal drainageways and their tributaries in the western part of the county are Frog Creek and Spring Creek. They flow east to the Vermillion River. Ash Creek and Baptist Creek and their tributaries provide the principal drainage in the eastern part of the county. They flow west to the Vermillion River. Clay Creek Ditch, an artificial drainageway on the flood plain along the Missouri River also flows in an easterly direction to the Vermillion River.

Elevation ranges from about 1,130 feet above sea level in the southeastern part of the county, on the flood plain along the Missouri River to about 1,500 feet in the northeast corner on the Coteau des Prairies.

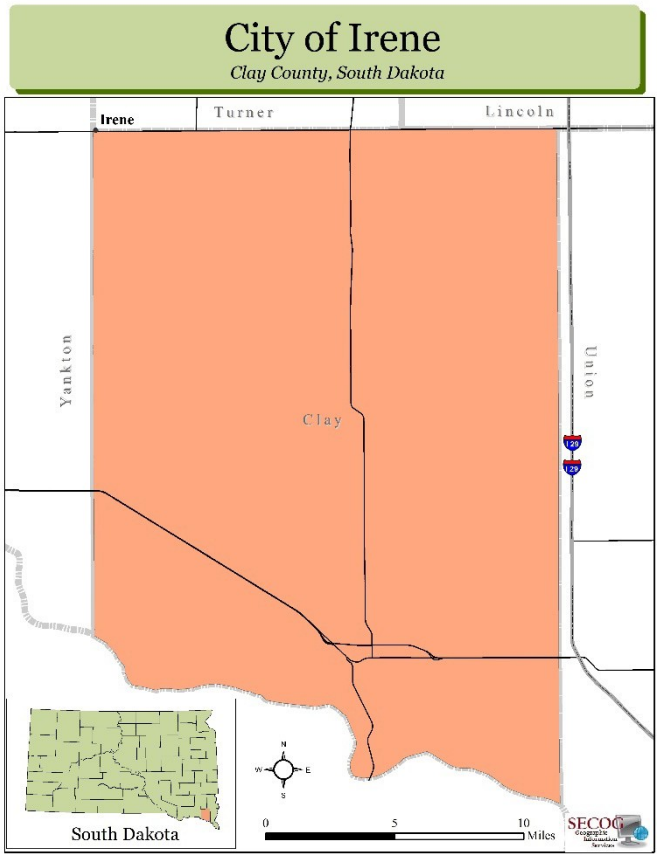
Clay County is home to the Spirit Mound Historic Prairie, located approximately five miles north of Vermillion. The 320-acre site is an effort to return the acreage to its natural prairie state. There is a comfort station and approximately one mile of trails on the state owned and managed grounds.

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

Area in Square Miles	417.24
Water Area in Square Miles	5.05
Land Area in Square Miles	412.19
Population Density per Square Mile of Land Area	33.6

Irene

People



Irene is located in the northwest corner of the county and is physically located in three counties – Clay, Turner, and Yankton. According to the 2013-2017 American Community Survey, Irene's population was estimated at 543. This is an increase from the 420 residents counted during the 2010 US Census. In 2010, there were 194 housing units in Irene with an owner-occupied housing rate of 76.2 percent.

Median household income in Irene was an estimated $45,573 according to the 2013-2017 American Community Survey 5-year estimates. The median household income in Irene is slightly higher than the $41,773 median household income of Clay County. The estimated 9.7 percent of residents living in poverty is sharply lower than the 24.7 percent rate of Clay County.

Economy

The greatest economic driver in the city is health care. Sunset Manor is a 50-bed skilled nursing facility. Sunset Manor is a nonprofit owned facility that provides skilled nursing and therapy services, assisted living, specialty units for traumatic brain injury clients and challenging behaviors. With 52 employees, Sunset Manor is Irene's largest employer.

The Irene-Wakonda school is the city's second largest employer with 20 staff and faculty. The Irene community has several ag-related enterprises, from agronomy services to trucking. The local economy also has a mix of small business such as car repair, insurance, and small retail establishments.

Built Environment

Irene's Main Street is also South Dakota State Highway 46. South Dakota Highway 46 is a 107-mile stretch of roadway that passes through Irene as it spans the area between Pickstown, South Dakota east to the Iowa state border. Clay County Road 373 bisects the western edge of Irene as it travels north and south.

The City's water provider is B-Y Water District based in Tabor, South Dakota. Irene does not maintain wells or treatment.

Irene has a city-owned and operated wastewater system. There are wastewater lagoons approximately one mile southwest of the city accessed by Clay County Highway 373.

Fire protection and rescue services are provided by the Irene Volunteer Fire Department. The fire department has over 20 volunteer fire fighters.

Sunset Manor is a medical facility that focuses on assisted living and long-term care. The facility also provides specialized treatment for individuals who have sustained a brain injury.

The Irene-Wakonda High School is located north of Main Street. There are approximately 100 students enrolled in grades 9-12 at the school.

Natural Environment

Irene covers slightly less than one square mile of land and has no water area. An unnamed tributary to Turkey Creek borders the western edge of the city. The topography of Irene includes rapid changes in elevation consistent with the rolling hills of the area. Ground elevations are higher in the northeastern and eastern portions of the city with elevations over 1,400 feet. The western portion of Irene abuts the alluvial plains of the unnamed creek at elevations near 1,360 feet. The topsoil is generally considered to be well draining. Deeper soil formations vary from glacial till on the higher eastern portions of the City, to silty-sand alluvial material in the western lower portions of the city.

Some small wetlands and potholes are found in Irene's growth area. Wetlands and water bodies are designated from base maps developed through the National Wetlands Inventory and other data sources. These natural resources provide a number of functions that are important to the health and welfare of the community. They provide storage of storm water, help to control flooding, provide wildlife habitat, improve water quality, and they provide recreational opportunities.

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 effect on the impact of hazard mitigation activities and the cost-benefit relationship of mitigation activities. In Irene–

Area in Square Miles	0.09
Water Area in Square Miles	0.00
Land Area in Square Miles	0.09
Population Density per Square Mile of Land Area	1,610

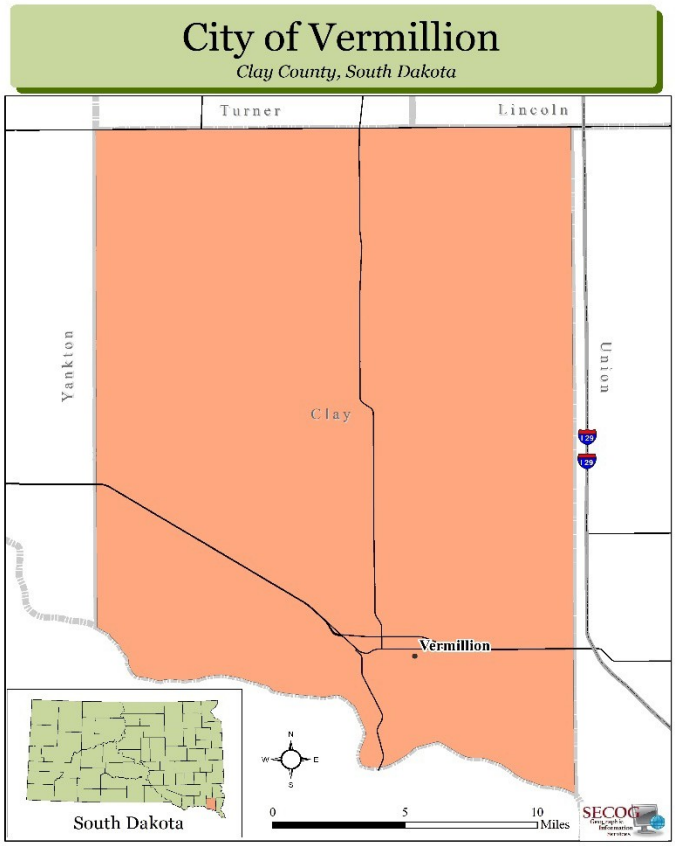
Vermillion

People

Vermillion, the Clay County Seat, is located as the southern edge of the county. According to the 2013-2017 American Community Survey, Vermillion's population was 10,687. This is an increase from the 10,571 residents counted during the 2010 US Census. There are 4,374 housing units in Vermillion with an owner-occupied housing rate of 42.5 percent.

Median household income in Vermillion was an estimated $34,972 according to the 2013-2017 American Community Survey 5-year estimates. The median household income in Vermillion is lower than the $41,773 median household income of Clay County. This trend continues with the number of residents living in poverty. The estimated 32 percent of residents living in poverty is significantly higher than the 24.7 percent rate of Clay County.

Economy



Atypical for rural South Dakota cities, Vermillion's economic driver is not agriculture based. Vermillion is home to the University of South Dakota. The University has an enrollment of approximately 10,000 students and is the city's largest employer with over 1,300 staff. The University of South Dakota has had a substantial influence on the development of Vermillion and the surrounding area. As the state's flagship University with South Dakota's only medical and law school, a role as the leading public liberal arts university in the state, and a sizable institution of employees, students and resources the University has been a consistent, major player in the development of Vermillion.

Vermillion's second largest employer is the Sanford Vermillion Medical Center with nearly 250 employees. Sanford Health Vermillion provides access to a 25-bed hospital, inpatient and outpatient care, a full rehabilitation department, a clinic, longer term care facility, assisted

living, local and outreach specialty services, and home medical equipment. Sanford Health is also the University of South Dakota student health services partner.

Vermillion has a vibrant and diverse retail base. The city hosts a Wal-Mart Supercenter, Hy-Vee, and small retail specialty shops in the downtown district. Vermillion is also the county seat for Clay County, resulting in a great deal of foot traffic around the downtown district. According to the 2012 Economic Census, there are 539 non-farm businesses with receipts of $1,000 or more.

The Vermillion School District employs approximately 90 teachers and administrators. Current enrollment incudes 407 high school students, 292 middle school students and 570 elementary school students. Enrollment is spread out over one high school, one middle school and two elementary schools.

Manufacturing makes up 5.8 percent of Vermillion's economy. Polaris Industries contributes by employing over 150 people. Masaba Inc. employs 155 people at its Vermillion facility. There are several industrial parks located throughout the city and are at or near capacity. A substantial labor pool and enticing tax rates contribute to the vibrant manufacturing climate in Vermillion.

Built Environment

Vermillion is located approximately seven miles west of Interstate 29. The city may be accessed by South Dakota Highway 19, a route that runs north and south, and South Dakota Highway 50 that runs east and west through the city. BNSF Railway Company provides rail service to the city. The City of Vermillion operates Harold Davidson Field, which provides general aviation.

Vermillion Public Transit serves the community of Vermillion and the surrounding area. The system has seven buses providing nearly 5,000 rides per month. Vermillion Public Transit provides door-to-door service.

The City pulls its water from the Lower Missouri River Out-Wash Aquifer. The water is pumped to the Melvin D. Stiegelmeyer Water Treatment Plant. There are 463 fire hydrants and over 52 miles of water main in the City. Three water storage facilities store 2.5 million gallons of water.

The City of Vermillion Wastewater treatment Plant is a secondary activated sludge facility and is designed to accommodate flows of two million gallons per day, with peak flows of up to four million gallons a day. Wastewater is pumped to the treatment facility from the City by two pumping station.

The Vermillion Fire EMS Department responds to fires, accidents, rescues, medical emergencies, mutual aid calls, and other threats to public safety and property. The Vermillion Fire EMS Department has three engine companies, one ladder company, one heavy rescue company, and

three ambulances in service. The Department operates out of two stations consisting of 36 volunteer firefighters, three full-time EMT/Paramedics, 25 part-time EMT/Paramedics, one full-time Fire Marshall, 1 part-time administrative assistant, and one career Chief Officer.

Public protection is provided by the Vermillion Police Department. The Department operates out of the Clay County Public Safety building that also houses the Clay County Jail, Clay County Sheriff's Department, and the Clay County Emergency Management Office. The Vermillion Police Department is comprised of 20 sworn and three non-sworn personnel.

The City of Vermillion's health care services are all-encompassing. The Sanford Vermillion Medical Center offers complete facilities for medical, surgical, obstetric, and pediatric care, as well as 24-hour emergency care. Sanford also offers an immediate care nursing home, assisted living, and a congregate senior housing center. The Vermillion Medical Clinic shares resources with the Yankton Medical Clinic allowing the Vermillion facility to offer a wide range of medical services and comprehensive care. Vermillion is also home to the Olson Clinic. The Olson Clinic offers onsite comprehensive diagnostic services and outpatient care.

Historic downtown Vermillion is home to over 90 locations offering retail and specialty stores, restaurants, art, movie theatres, bars, and services. The downtown is host to the Clay County Courthouse, built in 1913 and is listed on the National Register of Historic Places.

Natural Environment

Vermillion covers approximately 4.03 square miles of land and has no water area. Vermillion is on generally level ground, with a rapid decrease in elevations to the south and west (the "Bluffs") to the Vermillion River. Vermillion is approximately one and a half miles from the Missouri River and the Nebraska State border.

A few areas within the City of Vermillion and the immediate vicinity are designated as floodplains by the Federal Emergency Management Agency. Generally, the floodplain areas within and surrounding the City follow the path of the Vermillion River.

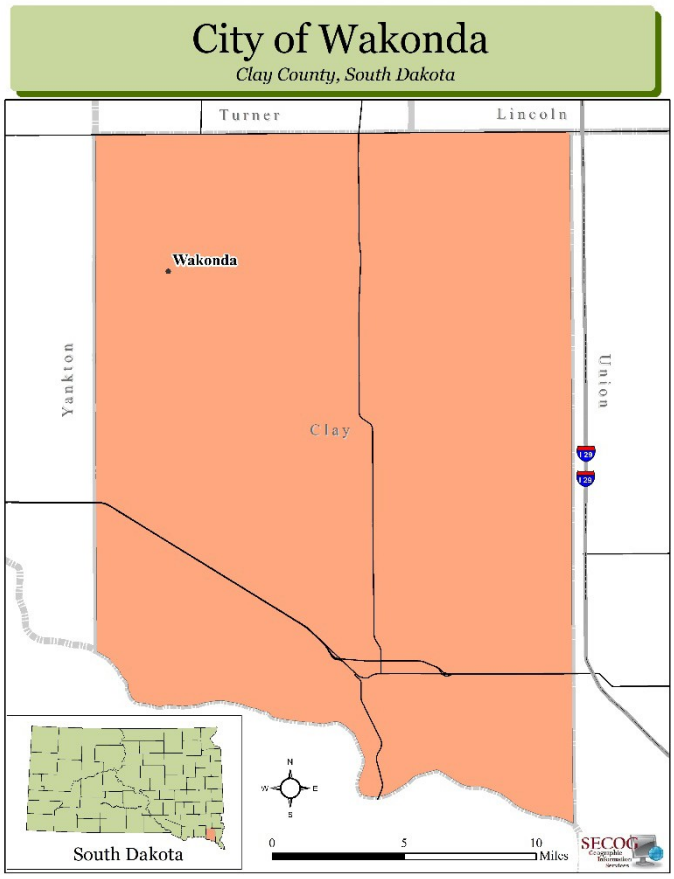
Vermillion has developed a park and recreational system that includes quality recreational facilities, neighborhood, and community parks and trails. Vermillion has nine parks of diverse sizes, amenities, and opportunities for recreation. Trails are a component of the City's park system. There are paved and natural trails throughout the City. The unpaved trails are typically found in parks where natural surface trails complement the natural resources. The City is also home to the Bluffs, an 18-hole championship golf course.

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 effect on the impact of hazard mitigation activities and the cost-benefit relationship of mitigation activities.

In Vermillion –

Area in Square Miles	4.03
Water Area in Square Miles	0.00
Land Area in Square Miles	4.03
Population Density per Square Mile of Land Area	2,623.1

Wakonda



The Town of Wakonda is not a participating jurisdiction and will not be seeking Plan approval. The information provided for the community, is presented separately as it is not included in the data presented for Clay County.

People

Wakonda is located in the northwest quadrant of the county. According to the 2013-2017 American Community Survey, there were 266 residents of Wakonda. This is a decrease from the 321 residents counted during the 2010 US Census and an even greater decrease from the 374 residents in 2000. There are 166 housing units in Wakonda.

Median household income in Wakonda was an estimated $43,125 according to the 2013-2017 American Community Survey 5-year estimates. The median household income in Wakonda exceeds the $41,773 median household income of Clay County. This trend continues with the number of residents living in poverty. The estimated 14.4 percent of residents living in poverty is significantly lower than the 24.7 percent rate of Clay County.

Economy

Agriculture, education, and health care are the primary economic drivers in Wakonda. Girard Auction and Land Brokers has an agriculture-centric focus and is the largest service and retail establishment in the community. The Irene-Wakonda Elementary School employs approximately 15 educators, administrators, and staff at the Wakonda location. Wakonda Heritage Manor provides senior-based housing and nursing home services.

Built Environment

Wakonda is not directly accessed by a state or federal highway. South Dakota Highway 19/46 is approximately 6 miles to the north of the community and access is by county roads.

The Town's water provider is Clay Rural Water System. The Town of Wakonda has a 50,000-gallon elevated steel water tank. This elevated tank provides the water pressure and storage.

Natural Environment

Wakonda covers less than one-half square mile of land. 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 effect on the impact of hazard mitigation activities and the cost-benefit relationship of mitigation activities. In Wakonda –

Area in Square Miles	0..39
Water Area in Square Miles	0.00
Land Area in Square Miles	0..39
Population Density per Square Mile of Land Area	810.88

HAZARD PROFILES

The Clay County Pre-Disaster Mitigation Plan Update establishes a framework for identifying mitigation goals and prioritizing actions to help make the residents of Clay 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 Clay County Pre-Disaster Mitigation Plan Update 2019:

Agricultural Pests and Diseases	Drought	Floods
Summer Storm (Hail, Lightening)	Winter Storm	Wildfire
Tornado	Windstorm	Hazardous Materials
Geological Hazards		

The Mitigation Planning Team decided to focus on natural hazards in the Clay 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 prevalent in the area. Hazardous Materials threats are addressed in Clay County's Hazardous Materials Plan.

Probability

The likelihood of a hazard occurring in the future.

Vulnerability

A measure of the extent to which a community, structure, or geographical area is likely to be damaged or disrupted, on account of its nature or location, by the impact of a particular disaster hazard.

The following table illustrates the Team's analysis of the area's vulnerability to identified hazards and the probability of occurrence.

Probability of Occurrence	Vulnerability: Low	Vulnerability: Medium	Vulnerability: High
Low	Wildfire Geological Hazards	Drought	
Medium	Hazardous Materials	Ag Pests & Diseases	Tornado
High	Summer Storms	Winter Storms Floods Wind	

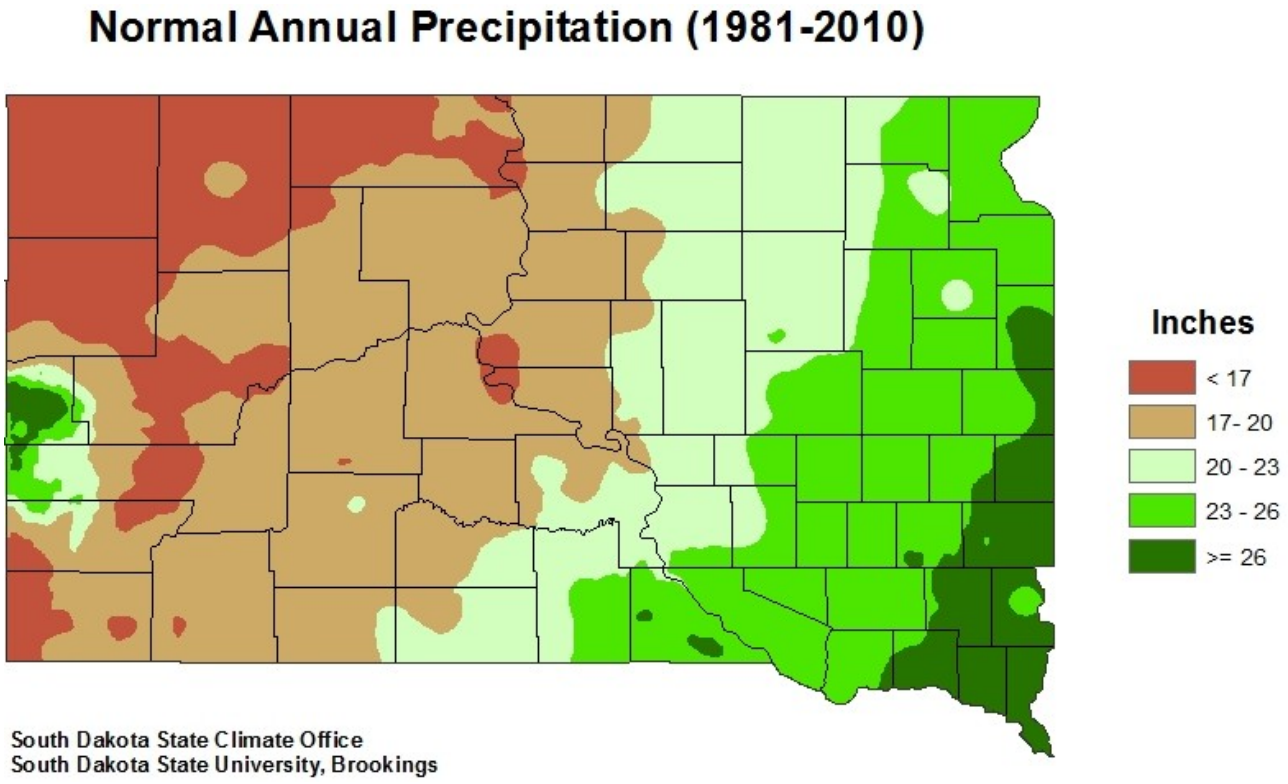
Agricultural Pests and Diseases were considered as a hazard in Clay County. Because agriculture is a large component of rural Clay County's economy, should a naturally occurring infection of crops or livestock render the crops or livestock unfit for consumption, sale or other use, the impact would be significant. According to the 2012 Census of Agriculture, there were 461 farms in Clay County with a market value of $96,827,000 of product sold. In Clay County, 82 percent of the market value was attributed to crop sales with 18 percent attributed to livestock sales.

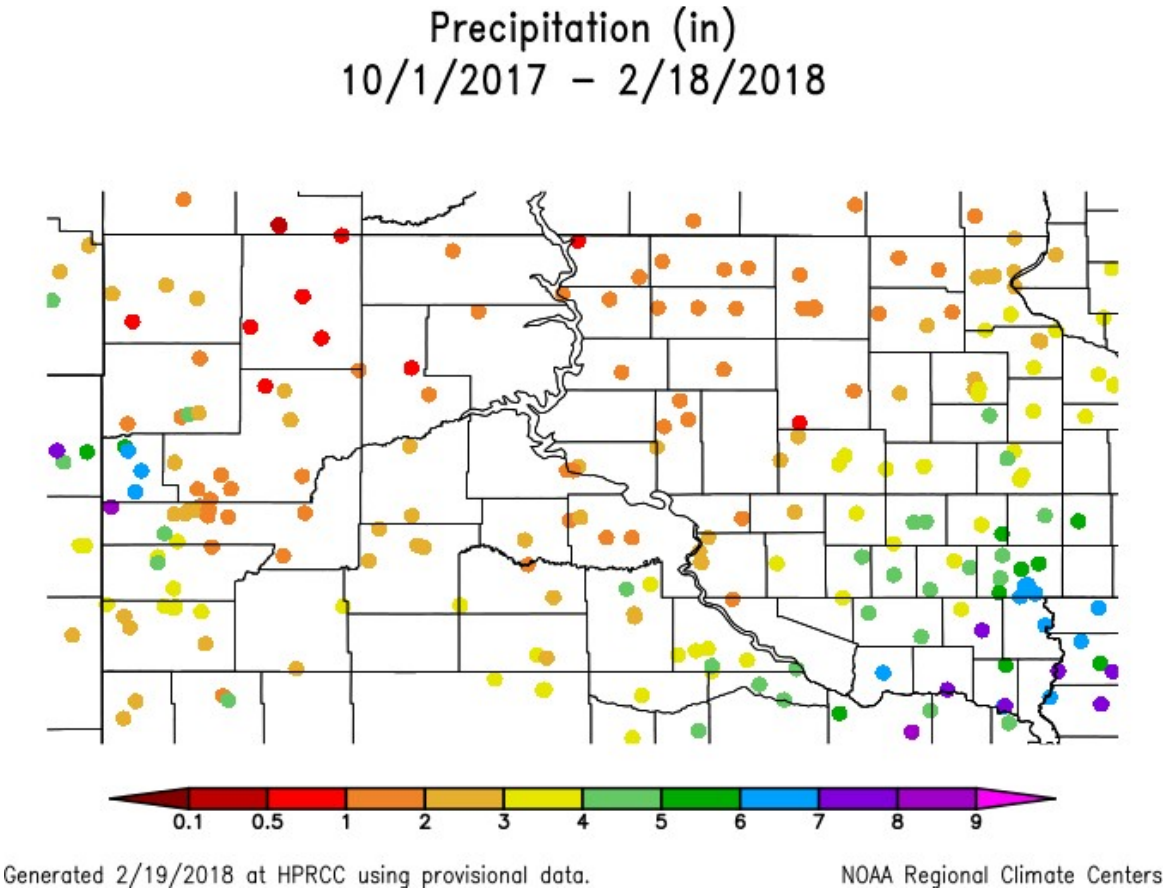
A small number of losses due to disease and pests are normal and expected. The hazard arises when the level of infestation or transmission escalates and overwhelms normal control methods. Loss of crops, death of livestock or transmission to humans is a concern. For Hazard Mitigation Planning purposes, agricultural pests and diseases are those that impact the population of domesticated livestock or crops, which in turn damage the economic return on the agricultural assets. The potential for this hazard is exacerbated by such factors as heavy rains and drought, feeding practices, cross contamination or exposure, or inadequate infection control measures. Of primary concern among the Planning Team members were the potential for West Nile Virus and Emerald Ash Borer infestations.

According to the Center for Disease Control, there were 73 reported cases of West Nile Virus in South Dakota in 2017 with four deaths reported. This number is down significantly from the 152 cases reported the previous year. Based on reported cases from 2013 through 2017, there are

on average 94 cases reported each year. West Nile Virus is most commonly spread through the bite of an infected mosquito.

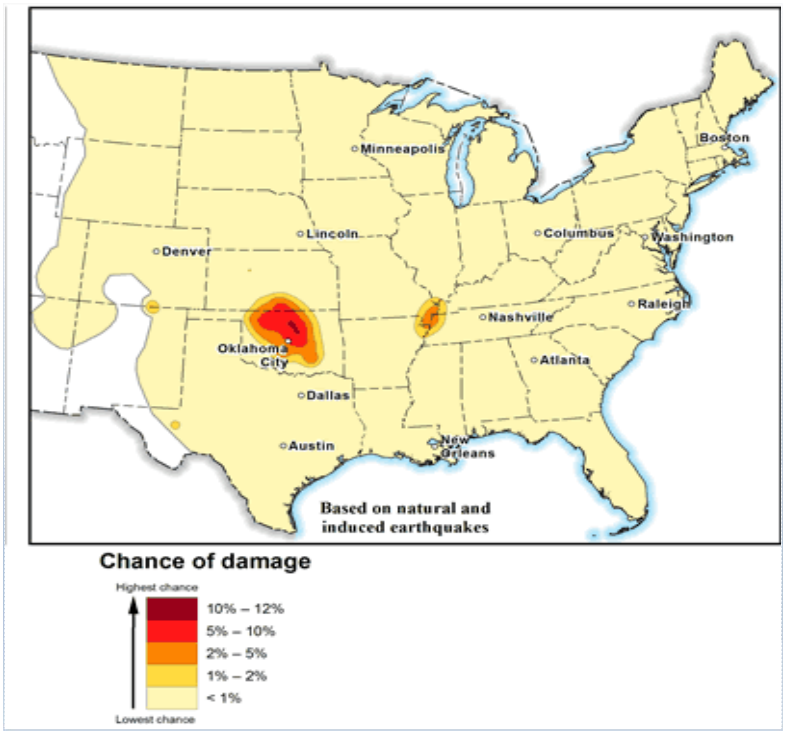
Drought was considered a minimal hazard for Clay County. Several droughts have been recorded in the area over the past 60 years; however, Clay County has not been subject to a Presidential Declaration related to drought. The most recent prolonged period of drought, according to the National Center for Environmental Information Storm Events Database, were the months between June 2012 and April 2013. 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 Clay 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. Clay County's normal annual precipitation exceeds 26 inches per year and is one of the wettest areas in the state.





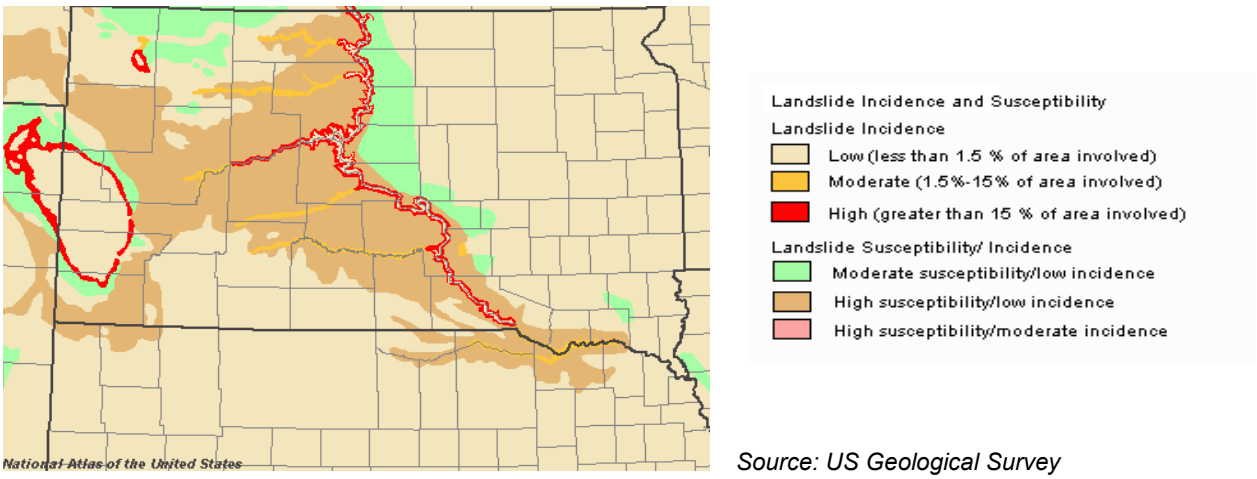
The other primary impact of drought conditions is lower water levels. While this is a potential threat to the area, jurisdictions have already implemented policies that mitigate against the impacts of this threat, including restrictive water usage policies during drought and non-drought periods. These 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 Clay 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.



Source: 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, Clay County's vulnerability to landslides is low, as evidenced on the United States Geological Survey's Landslide Incidence and Susceptibility Map. As a result of these assessments, both hazards were rated low in consideration by the Team.



Source: US Geological Survey

After reviewing a broad list of hazards and excluding those hazards where the area has limited or no vulnerability, four 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 hazards, but are incorporated under the broader headings of either severe summer storms or severe winter storms.

Severe Summer Storms

Severe Winter Storms

Tornadoes

Floods

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 Clay 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 Clay County that is affected by the hazard. All four 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, and flooding is measured by duration.

A *history* of each hazard's occurrence in Clay 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 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.

Severe Summer Storms

Vermillion July 2011

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 of Clay 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 county, 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. One event in 2014 produced two-inch diameter hail in rural Clay County, causing significant damage. This event was eventually declared a major disaster and damage estimates resulted in a county-wide per capita impact of $7.33.

History

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

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, 25 summer storm and storm-related events occurred between January 2013 and December 2018. Thus, severe summer storms have a “high” probability of occurrence. These events are detailed in Appendix B.

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 Clay 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. Appendix B shows the extent of severe winter storms in Clay County.

History

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

An occurrence to note:

A powerful storm made its way into the area February 2, 2016. By the time the snowstorm and blizzard left Clay County, over 17-inches of snow was recorded in Vermillion.

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, 54 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 are detailed in Appendix B.

Tornadoes

Rural Clay County

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 the figure below - Wind *Zones in the United States*, Clay County is located in Wind Zone 4 (250 mph).

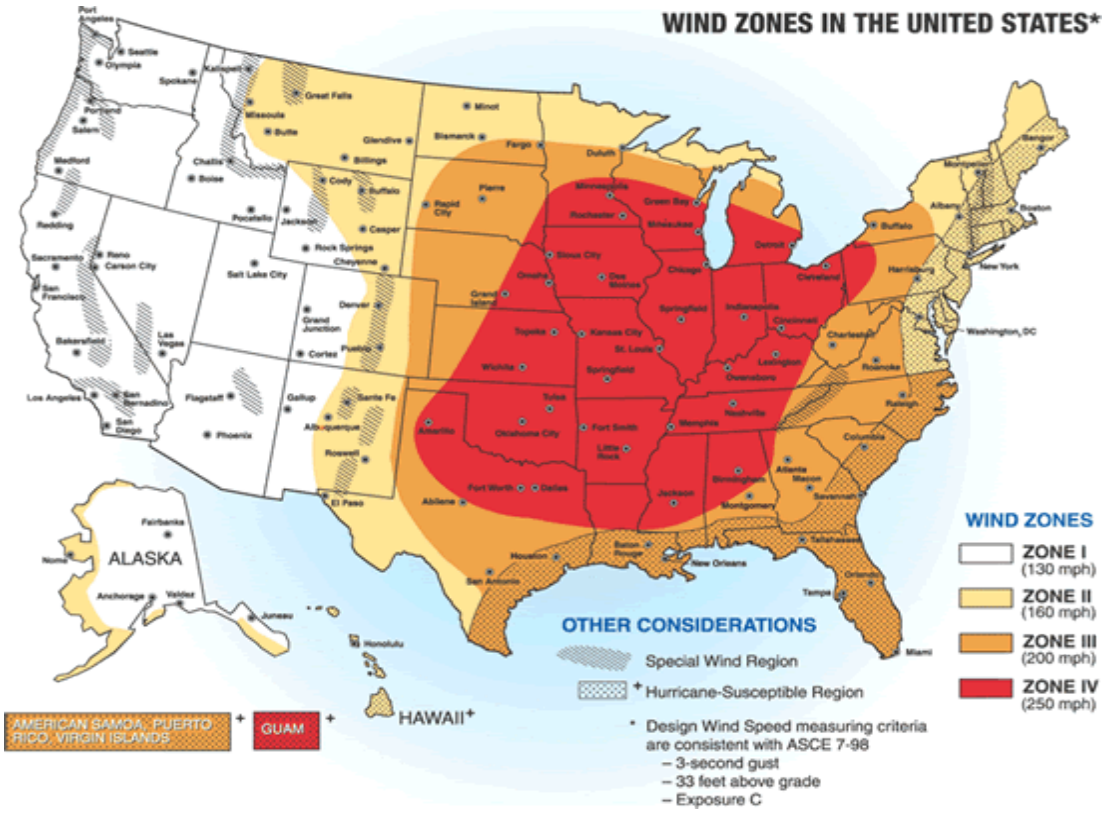


Figure 3-10: National Oceanic and Atmospheric Administration

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.

History

Appendix B lists historical records of tornadoes and funnel clouds that occurred from 2013 through 2018.

There has been one occurrence of a funnel cloud in the last five years. A small funnel cloud was sighted June 6, 2015 just south of Vermillion. There was no damage reported. This event is listed in Appendix B.

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, one funnel cloud formed between 2013 and 2018. This event occurred during the late spring and is detailed in Appendix B.

Flood

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; or 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 "waterlogged" 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, Clay County has four 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. Clay County is within the Vermillion River basin, which occupies the southeastern portion of South Dakota.

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, the East Fork and the West Fork of the Vermillion River. The forks converge as the Vermillion River near the City of Parker in Turner County, north of Clay County. The river continues south and empties into the Missouri River near the City of Vermillion. The river basin is approximately 150 miles in length and varies in width from 12 miles in the north to 36 miles in the south near Vermillion.

Extent

The Vermillion River watershed is largely rural in nature with the City of Vermillion having the largest population. Flooding on the Vermillion River has occurred almost every year since stream flow records were maintained in 1944. The duration of the floods typically last from one to three weeks. The duration of the flooding is impacted by a low stream gradient and the high storage potential.

History

Based on information in the National Climatic Data Center's Storm Events Database, there were ten incidents of flooding in Clay County between 2013 and 2018. Physical damage from flooding in Irene in 2014 resulted in approximately $50,000 in property damage. Appendix B lists historical records of flooding that occurred from 2013 to 2918.

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 ten flooding events that occurred between 2013 and 2018. These events are detailed in Appendix B. The flooding events, many times, occurred in conjunction with severe summer storms. Where the occurrence of storms was more common, damage resulting from flooding was more significant. It is a certainty that flooding will continue in the area. The goal of mitigation actions should be to reduce the amount of 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 Clay 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 Base 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.

COMMUNITY	INITIAL FHBM* IDENTIFIED	INITIAL FIRM* IDENTIFIED	CURRENT EFFECTIVE MAP DATE
Clay County	10/18/77	08/05/10	08/05/10 (L)
Irene	07/11/75	07/06/10	07/06/10 (M)
Vermillion	03/22/74	08/05/10	08/05/10
Wakonda	11/12/76	08/05/10	(NSFHA)

*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
L – Original FIRM by Letter – All Zone A, C, and X

Discovery Report

Officials from Clay County and the City of Vermillion 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, not limited to just Clay County, 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 Clay County. Property adjacent to the Vermillion and Missouri Rivers 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 flood due to their proximity to special flood hazard areas.

NFIP Policy Information

Jurisdiction	Policies in Force	Insurance in Force
Clay County	7	$2,142,000
Vermillion	1	280,000
Wakonda	1	280,000

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. Clay County has two properties with four losses totaling $4,880.98.

A goal of the mitigation planning team is to protect specific areas in the county from flooding.

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 Mitigation Planning Team developed problem statements associated with 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.

- Heavy rain can cause flash flooding and subsequent damage
- Downed power lines resulting in loss of power
- Downed trees causing damage and possible loss of power

Severe Winter Storms
Problem Statements

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

- Loss of power caused by downed power lines
- Livestock issues
- 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, both rural and urban
- Loss of life and injury
- Damage to infrastructure and utilities

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 – limited access to rural areas
- Damage to residences and businesses

The Team began the process of developing mitigation goals and objectives by reviewing the mitigation goals and objectives included in the draft 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, specifically 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 – 2012 Plan Projects

The *2012 Clay County Multi-Hazard Pre-Disaster Mitigation Plan Update* identified three 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;

The 2012 plan also established related mitigation actions to help meet the identified goals. Following is a summary of the accomplishments:

JURISDICTION	MITIGATION ACTION	HAZARD
Clay Rural Water System	Purchase generators for its critical facilities to ensure its facilities will continue to operate in the event of power failure	Multi-Hazard
STATUS: Ongoing		
Clay Rural Water System	Create berms to protect critical facilities	Flooding
STATUS: Ongoing		
Clay Union Electric Cooperative	Bury 3-phase power lines in ice prone areas	Winter Storms
STATUS: Ongoing		
Clay Union Electric Cooperative	Bury power lines in hard to get to areas (Private right-of-way)	Multi-Hazard
STATUS: Ongoing		
Clay Union Electric Cooperative	Bury power lines in heavily treed areas	Multi-Hazard
STATUS: Ongoing		

Vermillion	Replace generator at wastewater plant	Multi-Hazard
STATUS: Tested – Replacement not needed (2017)		
Vermillion	Five or more generators at lift stations to protect critical facilities	Multi-Hazard
STATUS: One generator added in 2018. Four of five lift stations and two main lifts have generators. One portable generator for remaining lift station. Complete		
Vermillion	Install CIPP pipe to sewer lines that run over hills and under railroad tracks	Flooding
STATUS: Not Complete – No longer relevant		
Vermillion	Improve storm water drainage in areas of town that are prone to flooding, especially high traffic areas near the University of South Dakota	Flooding
STATUS: Ongoing. Focus has shifted city-wide vs. focus around USD.		
Vermillion	Create Berms to Protect Critical Facilities	Flooding
STATUS: Not Complete, no longer relevant.		
Vermillion	Replace aging lift stations	Multi-Hazard
STATUS: Prentis Street Lift Station replaced 2018		
Vermillion	Manhole rehabilitation	Multi-Hazard
STATUS: Ongoing. Since 2014, 113 manholes have been lined.		
Vermillion	Purchase generators for its critical facilities to ensure its facilities will continue to operate in the event of power failure or other hazards	Multi-Hazard
STATUS: Complete		

Vermillion	Undertake Drainage Projects in areas prone to flooding throughout the City of Vermillion	Multi-Hazard
STATUS: Ongoing		
Vermillion	Retrofitting buildings and critical facilities to mitigate against the effects of Tornadoes and High Winds	Multi-Hazard
STATUS: Not Complete		
Vermillion	Build saferooms in densely populated areas that lack appropriate shelter from High Winds and Tornadoes	Multi-Hazard
STATUS: Not Complete		
Vermillion	Undertake property acquisition projects to homes and buildings that are prone to the flood hazard	Multi-Hazard
STATUS: Not Complete		
Clay County	Undertake actions to stabilize stream banks to improve drainage and prevent erosion	Multi-Hazard
STATUS: Ongoing		
Clay County	Baptist Creek Bank Stabilization Project - The project involves clearing out sections of bad vegetation/debris and installing rip-rap to stabilize the bank	Multi-Hazard
STATUS: Complete		
Clay County	Undertake Drainage Projects in areas prone to flooding throughout Clay County	Multi-Hazard
STATUS: Not Complete		

Clay County	Retrofitting buildings and critical facilities to mitigate against the effects of Tornadoes and High Winds	Multi-Hazard
STATUS: Not Complete, no longer relevant		
Clay County	Build saferooms in densely populated areas that lack appropriate shelter from High Winds and Tornadoes	Multi-Hazard
STATUS: Not Complete, no longer relevant		
Clay County	Undertake property acquisition projects to homes and buildings that are prone to the flood hazard	Multi-Hazard
STATUS: Not Complete		
Irene	Undertake Drainage Projects in areas prone to flooding throughout the City of Irene	Multi-Hazard
STATUS: Ongoing – project will begin 2020		
Irene	Retrofitting buildings and critical facilities to mitigate against the effects of Tornadoes and High Winds	Multi-Hazard
STATUS: Not Complete		
Irene	Build saferooms in densely populated areas that lack appropriate shelter from High Winds and Tornadoes	Multi-Hazard
STATUS: Not Complete		
Irene	Undertake property acquisition projects to homes and buildings that are prone to the flood hazard.	Multi-Hazard
STATUS: Not Complete		

Irene	Purchase generators for its critical facilities to ensure its facilities will continue to operate in the event of power failure or other hazards	Multi-Hazard
STATUS: Complete at Community Center, incomplete at City Hall.		
Wakonda	Undertake Drainage Projects in areas prone to flooding throughout the Town of Wakonda	Multi-Hazard
STATUS: Not Complete		
Wakonda	Retrofitting buildings and critical facilities to mitigate against the effects of Tornadoes and High Winds	Multi-Hazard
STATUS: Not Complete		
Wakonda	Build saferooms in densely populated areas that lack appropriate shelter from High Winds and Tornadoes	Multi-Hazard
STATUS: Not Complete		
Wakonda	Undertake property acquisition projects to homes and buildings that are prone to the flood hazard	Multi-Hazard
STATUS: Not Complete		
Wakonda	Purchase generators for its critical facilities to ensure its facilities will continue to operate in the event of power failure or other hazards	Multi-Hazard
STATUS: Not Complete		

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:

- Overall Benefit (High, Medium, Low)
- Cost Effective (Yes, No)
- Politically Feasible (Yes, No)
- Technically Feasible (Yes, No)
- Environmentally Feasible (Yes, No)
- Revised Rating (High, Medium, Low)
- Funding Resources

A table listing the proposed mitigation actions/projects for Clay 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 Clay County and the communities to help 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 Clay County Emergency Manager 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, Clay County, the City of Vermillion, and the City of Irene 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 Clay County Multi-Hazard Pre-Disaster Hazard Mitigation Plan must 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 Clay 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 Clay County Multi-Hazard Pre-Disaster Mitigation Plan Update is an open document that will be evaluated and updated as needed. The Clay County Emergency Management Director is both responsible for ensuring the plan is maintained with assistance from the Planning Team.

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 into 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.

Annually, the emergency manager for Clay County will be tasked with annually reporting the Clay County Multi-Hazard Pre-Disaster Mitigation Plan Update's effectiveness to its 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 Commission review meeting. This will help ensure local jurisdiction input is a part of the annual plan review process.

To ensure the Clay County Multi-Hazard Pre-Disaster Mitigation Plan 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 work together as a region when confronting the flooding hazard and other hazards.

SECTION 6: PLAN ADOPTION

RESOLUTION NO. 2019-10

A RESOLUTION OF THE IRENE CITY COUNCIL DECLARING SUPPORT AND ADOPTION OF THE CLAY COUNTY PRE-DISASTER MITIGATION PLAN UPDATE DATED 2019.

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

WHEREAS, the Clay 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 Irene City Council.

NOW THEREFORE BE IT RESOLVED, that the Irene City Council hereby adopts, supports and will facilitate the Clay County Pre-Disaster Mitigation Plan Update implementation.

Dated this 9th day of December, 2019.

Bryce Johnke, Mayor

ATTEST:

Casey Van Beek, Finance Officer

(SEAL)

RESOLUTION #2019-26

A resolution of the Clay County Commission Declaring Support and Adoption of the Clay County Pre-Disaster Hazard Mitigation Plan Update dated _dOl.7___ __

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

WEHREAS, the Clay 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 Clay County Board of Commissioners.

NOW THEREFORE BE IT RESOLVED, that the Clay County Board of Commissioners hereby adopts, suppo1is and will facilitate the Clay County Pre-Disaster Hazard Mitigation Plan Update implementation.

Adopted this 10th day ofDecember, 2019.

Travis Mockler, Chairman

Attest:

Carri R. Crum

Carri R. Crum; Clay County Auditor

CLAY COUNTY SEAL SOUTH DAKOTA

CLAY COUNTY AUDITOR SEAL SOUTH DAKOTA

RESOLUTION
DECLARING SUPPORT AND ADOPTION OF THE CLAY COUNTY
PRE-DISASTER HAZARD MITIGATION 2019 UPDATE

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

WHEREAS, the Clay 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 Vermillion.

NOW, THEREFORE, BE IT RESOLVED, that the Governing Body of the City ofVennillion adopts, supports, and will facilitate the Clay County Pre-Disaster Hazard Mitigation Plan Update implementation.

Dated at Vermillion, South Dakota this 16th day of December, 2019.

THE GOVERNING BODY OF THE
CITY OF VERMILLION, SOUTH DAKOTA

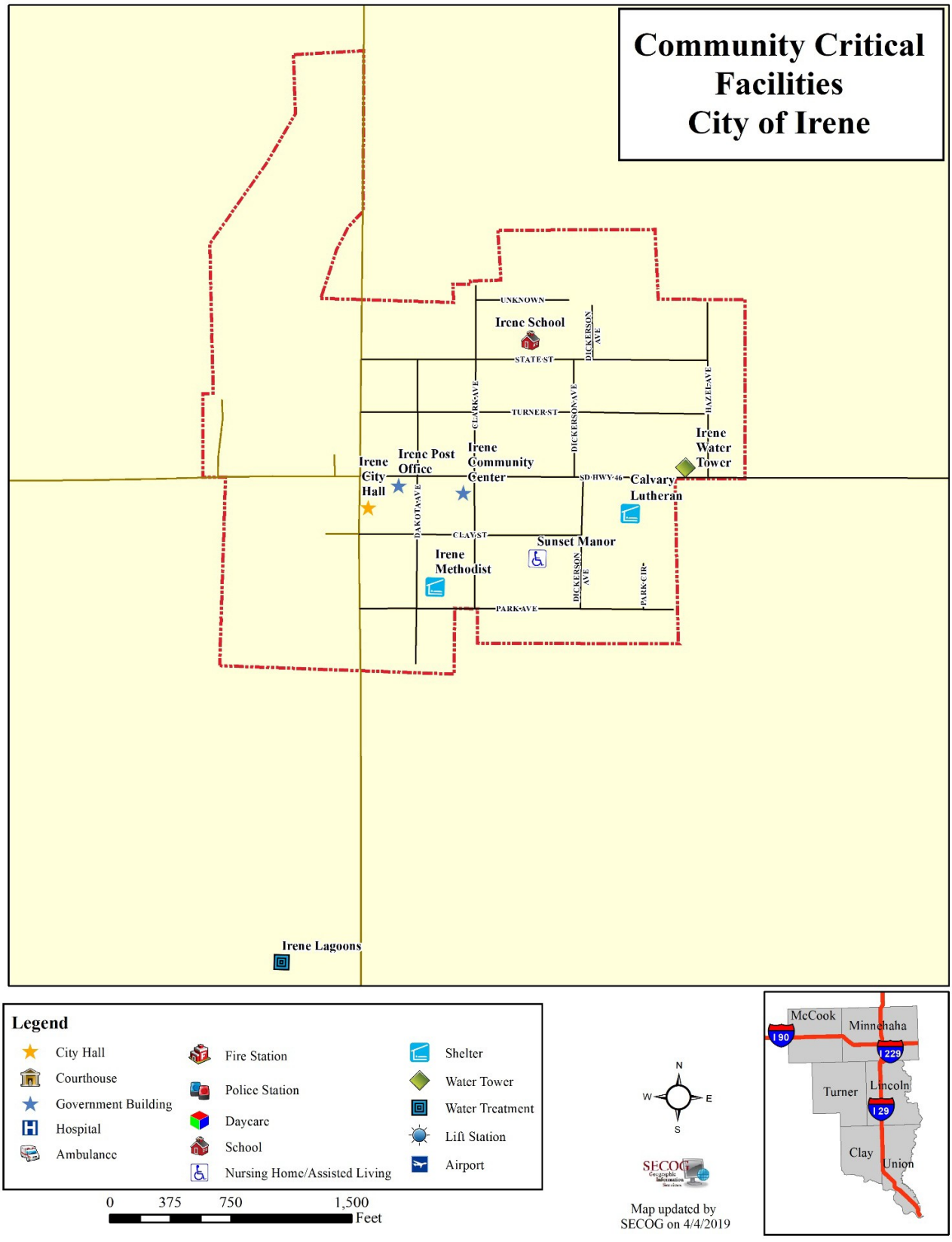
By _____

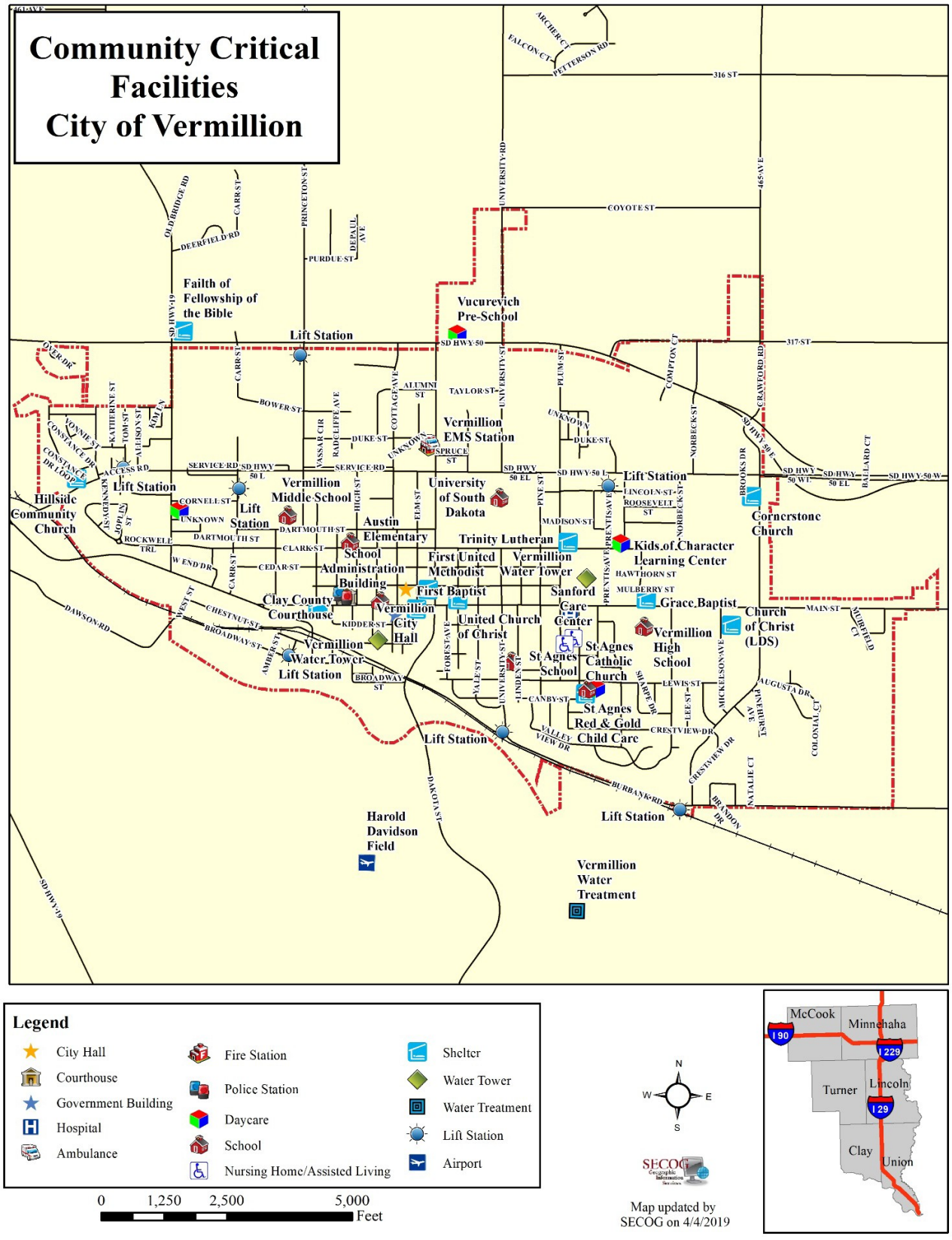
J· E. (Jack) Powell, Mayor

ATTEST:

By _____
Michael D. Carlson, Finance Officer

APPENDIX A: CRITICAL FACILITIES


Community Critical Facilities
City of Irene
UNKNOWN
Irene School
STATE ST
DICKERSON AVE
CLARK AVE
TURNER ST
DICKERSON AVE
HAZEL AVE
Irene Water Tower
Irene City Hall
Irene Post Office
Irene Community Center
SD HWY 46
Calvary Lutheran
DAKOTA AVE
CLAY ST
Sunset Manor
Irene Methodist
DICKERSON AVE
PARK CIR
PARK AVE
Irene Lagoons
Legend
City Hall
Courthouse
Government Building
Hospital
Ambulance
Fire Station
Police Station
Daycare
School
Nursing Home/Assisted Living
Shelter
Water Tower
Water Treatment
Lift Station
Airport
0 375 750 1,500
Feet
N
W
E
S
SECOG
Map updated by SECOG on 4/4/2019
McCook
Minnehaha
Turner
Lincoln
Clay
Union
I 90
I 229
I 29


Community Critical Facilities
City of Vermillion
Faith of Fellowship of the Bible
Lift Station
Vucurevich Pre-School
Vermillion EMS Station
Lift Station
Hillside Community Church
Lift Station
Lift Station
Vermillion Middle School
University of South Dakota
Austin Elementary
School Administration Building
Trinity Lutheran
First United Methodist
Vermillion Water Tower
Kids of Character Learning Center
Cornerstone Church
Clay County Courthouse
Vermillion City Hall
First Baptist
Sanford Care Center
Grace Baptist
Church of Christ (LDS)
United Church of Christ
Vermillion High School
Vermillion Water Tower
Lift Station
St Agnes Catholic Church
St Agnes School
St Agnes Red & Gold Child Care
Lift Station
Lift Station
Harold Davidson Field
Vermillion Water Treatment
Legend
City Hall
Courthouse
Government Building
Hospital
Ambulance
Fire Station
Police Station
Daycare
School
Nursing Home/Assisted Living
Shelter
Water Tower
Water Treatment
Lift Station
Airport
0 1,250 2,500 5,000
Feet
N
W
E
S
SECOG
Map updated by SECOG on 4/4/2019
McCook
Minnehaha
Turner
Lincoln
Clay
Union
I 90
I 229
I 29

APPENDIX B: SIGNIFICANT HAZARD EVENTS IN CLAY COUNTY

JANUARY 1, 2013– DECEMBER 31, 2018

Severe Summer Storms (Including lightning, hail, strong winds)

LOCATION	DATE	TYPE	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Rural Clay County	07/07/13	Thunderstorm/Wind	64 mph	-	-	$5,000	-
Irene	08/10/13	Hail	1.0 inch	-	-	-	-
Rural Clay County	08/10/13	Hail	1.25 inch	-	-	-	-
Rural Clay County	06/01/14	Thunderstorm/Wind	64 mph	-	-	-	-
Wakonda	06/16/14	Hail	1.0 inch	-	-	-	-
Rural Clay County	06/16/14	Hail	1.0 inch	-	-	-	
Vermillion	06/16/14	Hail	1.0 inch	-	-	-	-
Rural Clay County	06/20/14	Hail	1.0 inch	-	-	-	-
Rural Clay County	06/20/14	Hail	1.25 inch	-	-	-	-
Rural Clay County	06/20/14	Hail	2.0 inch	-	-	-	-
Rural Clay County	09/19/14	Hail	1.0 inch	-	-	-	-
Vermillion	060/6/15	Hail	.88 inch	-	-	-	-
Rural Clay County	06/22/15	High Wind	60 mph	-	-	-	-
Irene	08/09/15	Thunderstorm/Wind	70 mph	-	-	-	-
Rural Clay County	08/09/15	Thunderstorm/Wind	60 mph	-	-	-	-
Rural Clay County	08/09/15	Hail	.75 inch	-	-	-	-
Wakonda	05/25/16	Thunderstorm/Wind	70 mph	-	-	-	-
Rural Clay County	08/16/16	Hail	1.75 inch	-	-	-	-
Rural Clay County	04/15/17	Hail	1.25 inch	-	-	-	-
Vermillion	04/15/17	Hail	1.75 inch	-	-	-	-
Vermillion	06/07/17	Hail	1.0 inch	-	-	-	-
Rural Clay County	06/13/17	Thunderstorm/Wind	61 mph	-	-	-	-
Vermillion	06/29/17	Hail	1.75 inch	-	-	-	-
Wakonda	07/03/17	Hail	1.0 inch	-	-	-	-
Vermillion	08/05/18	Thunderstorm/Wind	64 mph	-	-	-	-

Severe Winter Storms (Including blizzard, high winds, cold)

LOCATION	DATE	TYPE	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Rural Clay County	02/21/13	Heavy Snow	-	-	-	-	-
Rural Clay County	04/09/13	Winter Storm	-	-	-	-	-
Rural Clay County	11/05/13	Winter Weather	-	-	-	-	-
Rural Clay County	12/03/13	Winter Weather	-	-	-	-	-
Rural Clay County	01/16/14	High Wind	57 mph	-	-	-	-
Rural Clay County	01/26/14	High Wind	57 mph	-	-	-	
Rural Clay County	11/15/14	Winter Weather	-	-	-	-	-
Rural Clay County	12/15/14	Winter Weather	-	-	-	-	-
Rural Clay County	12/26/14	Winter Weather	-	-	-	-	-
Rural Clay County	01/03/15	Blizzard	-	-	-	-	-
Rural Clay County	01/05/15	Winter Weather	-	-	-	-	-
Rural Clay County	01/31/15	Winter Storm	-	-	-	-	-
Rural Clay County	02/01/15	Winter Storm	-	-	-	-	-
Rural Clay County	11/30/15	Winter Storm	-	-	-	-	-
Rural Clay County	12/01/15	Winter Storm	-	-	-	-	-
Rural Clay County	12/26/15	Winter Storm	-	-	-	-	-
Rural Clay County	12/28/15	Winter Weather	-	-	-	-	-
Rural Clay County	01/07/16	Winter Weather	-	-	-	-	-
Rural Clay County	02/02/16	Blizzard	-	-	-	-	-
Rural Clay County	02/03/16	Winter Weather	-	-	-	-	-
Rural Clay County	02/19/16	High Wind	41 mph	-	-	-	-
Rural Clay County	03/23/16	Winter Storm	-	-	-	-	-

Rural Clay County	03/26/16	Winter Weather	-	-	-	-	-
Rural Clay County	11/18/16	Winter Weather	-	-	-	-	-
Rural Clay County	12/10/16	Winter Weather	-	-	-	-	-
Rural Clay County	12/16/16	Winter Weather	-	-	-	-	-
Rural Clay County	12/17/16	Cold/Wind Chill	-	-	-	-	-
Rural Clay County	12/25/16	High Wind	66 mph	-	-	-	-
Rural Clay County	01/17/17	Winter Weather	-	-	-	-	-
Rural Clay County	01/24/17	Winter Storm	-	-	-	-	-
Rural Clay County	02/23/17	Blizzard	-	-	-	-	-
Rural Clay County	12/21/17	Winter Weather	-	-	-	-	-
Rural Clay County	12/26/17	Cold/Wind Chill	-	-	-	-	-
Rural Clay County	12/31/17	Extreme Cold/Wind Chill	-	-	-	-	-
Rural Clay County	01/01/18	Extreme Cold/Wind Chill	-	-	-	-	-
Rural Clay County	01/10/18	Winter Weather	-	-	-	-	-
Rural Clay County	01/15/18	Cold/Wind Chill	-	-	-	-	-
Rural Clay County	01/22/18	Blizzard	-	-	-	-	-
Rural Clay County	02/05/18	Winter Weather	-	-	-	-	-
Rural Clay County	02/08/18	Winter Weather	-	-	-	-	-
Rural Clay County	02/19/18	Winter Weather	-	-	-	-	-
Rural Clay County	02/22/18	Winter Weather	-	-	-	-	-
Rural Clay County	02/24/18	Winter Weather	-	-	-	-	-
Rural Clay County	03/05/18	Blizzard	-	-	-	-	-
Rural Clay County	03/16/18	Winter Weather	-	-	-	-	-
Rural Clay County	04/03/18	Winter Storm	-	-	-	-	-
Rural Clay County	04/14/18	Blizzard	-	-	-	-	-

Rural Clay County	04/18/18	Winter Storm	-	-	-	-	-
Rural Clay County	10/14/18	Winter Weather	-	-	-	-	-
Rural Clay County	11/28/18	Winter Weather	-	-	-	-	-
Rural Clay County	12/01/18	Winter Storm	-	-	-	-	-
Rural Clay County	12/27/18	Winter Weather	-	-	-	-	-
Rural Clay County	12/31/18	Winter Weather	-	-	-	-	-
Rural Clay County	12/31/18	Cold/Wind Chill	-	-	-	-	-

Tornadoes (Including funnel clouds)

LOCATION	DATE	TYPE	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Vermillion	06/06/15	Funnel Cloud	N/A	-	-	-	-

Flood

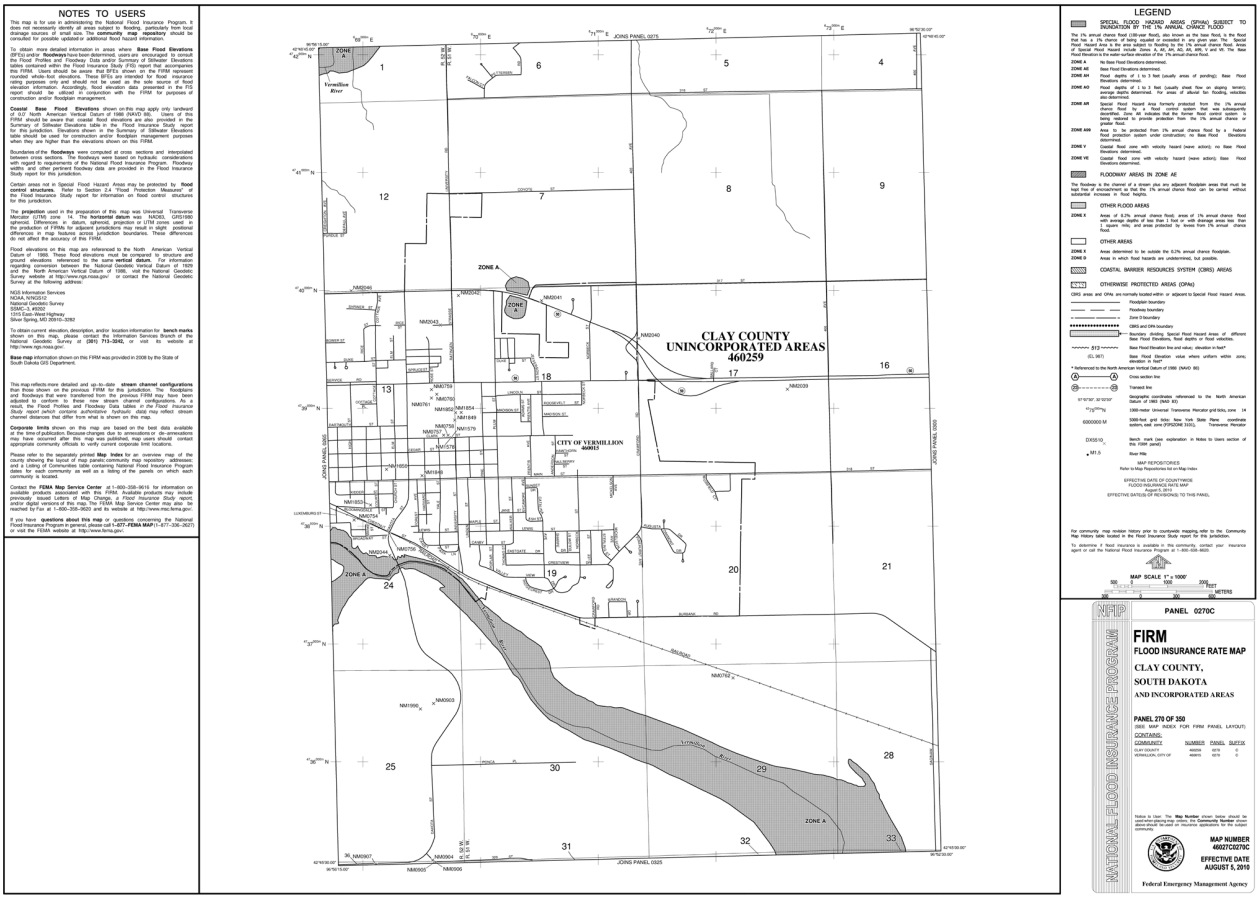
LOCATION	DATE	TYPE	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Wakonda	05/27/13	Flood	-	-	-	-	-
Rural Clay County	06/15/14	Flood	-	-	-	-	-
Irene	06/16/14	Flood	-	-	-	$50,000	-
Wakonda	06/17/14	Flood	-	-	-	-	-
Wakonda	04/28/16	Flood	-	-	-	-	-
Rural Clay County	09/07/16	Flood	-	-	-	-	-
Wakonda	03/27/18	Flood	-	-	-	-	-
Wakonda	06/21/18	Flood	-	-	-	-	-
Rural Clay County	06/26/18	Flood	-	-	-	-	-
Wakonda	09/22/18	Flood	-	-	-	-	-

National Centers for Environmental Information
Storm Events Database
www.ncdc.noaa.gov

APPENDIX C: FLOOD ZONES

Irene, South Dakota

Vermillion (East side), South Dakota



NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for insurance purposes; they may exceed the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 14. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910–3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713–3242**, or visit its website at http://www.ngs.noaa.gov/.

Base-map information shown on this FIRM was provided in 2008 by the State of South Dakota GIS Department.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de–annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1–800–358–9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study* report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1–800–358–9620 and its website at http://www.msc.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1–877–FEMA MAP** (1–877–336–2627) or visit the FEMA website at http://www.fema.gov/.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A — No Base Flood Elevations determined.
ZONE AE — Base Flood Elevations determined.
ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99 — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- Cross section line
- Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 1000-meter Universal Transverse Mercator grid ticks, zone 14
- 6000000 M — 5000-foot grid ticks: New York State Plane coordinate system, east zone (FIPSZONE 3101), Transverse Mercator
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
August 5, 2010
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1–800–638–6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0270C

FIRM
FLOOD INSURANCE RATE MAP
CLAY COUNTY, SOUTH DAKOTA
AND INCORPORATED AREAS

PANEL 270 OF 350
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

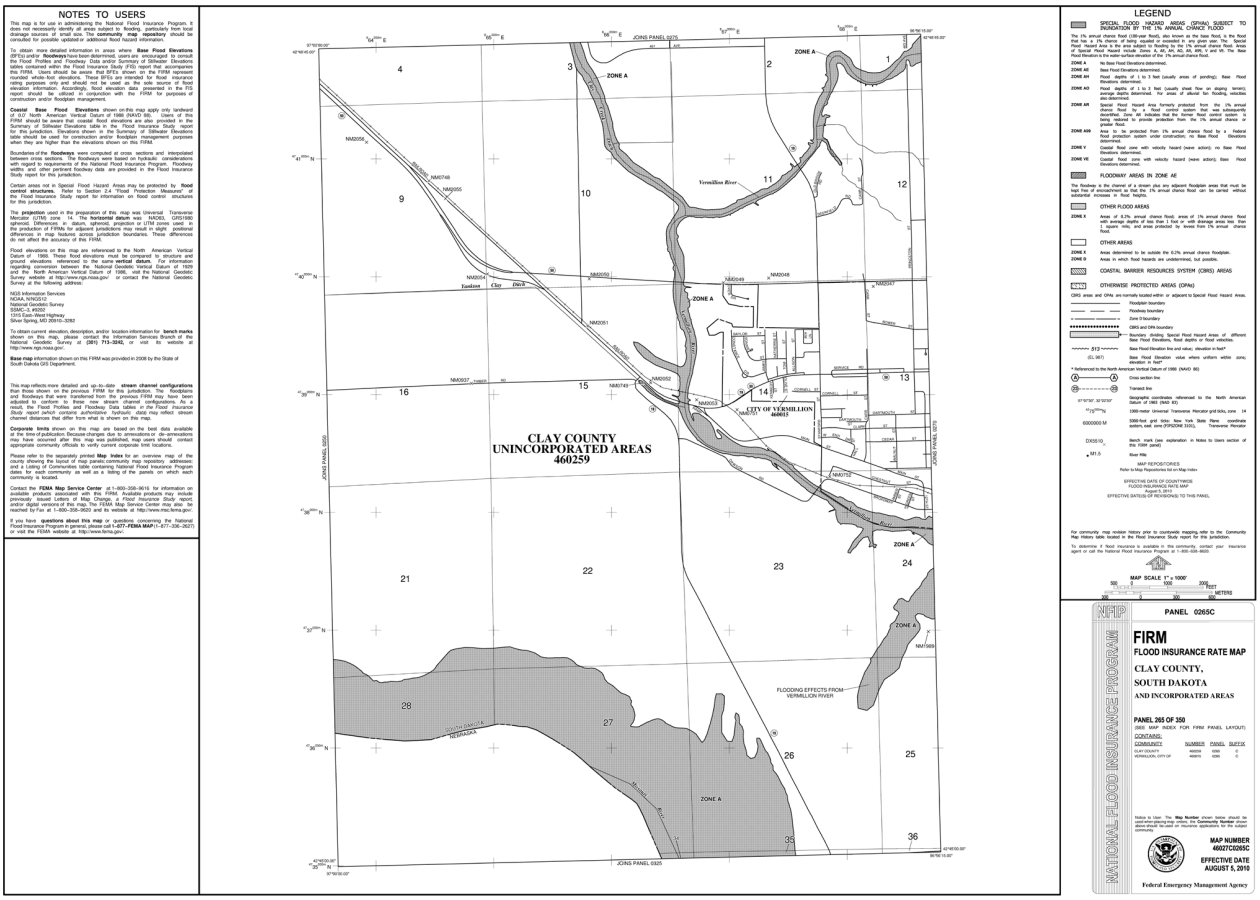
COMMUNITY	NUMBER	PANEL	SUFFIX
CLAY COUNTY	460059	0270	C
VERMILLION, CITY OF	460615	0270	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

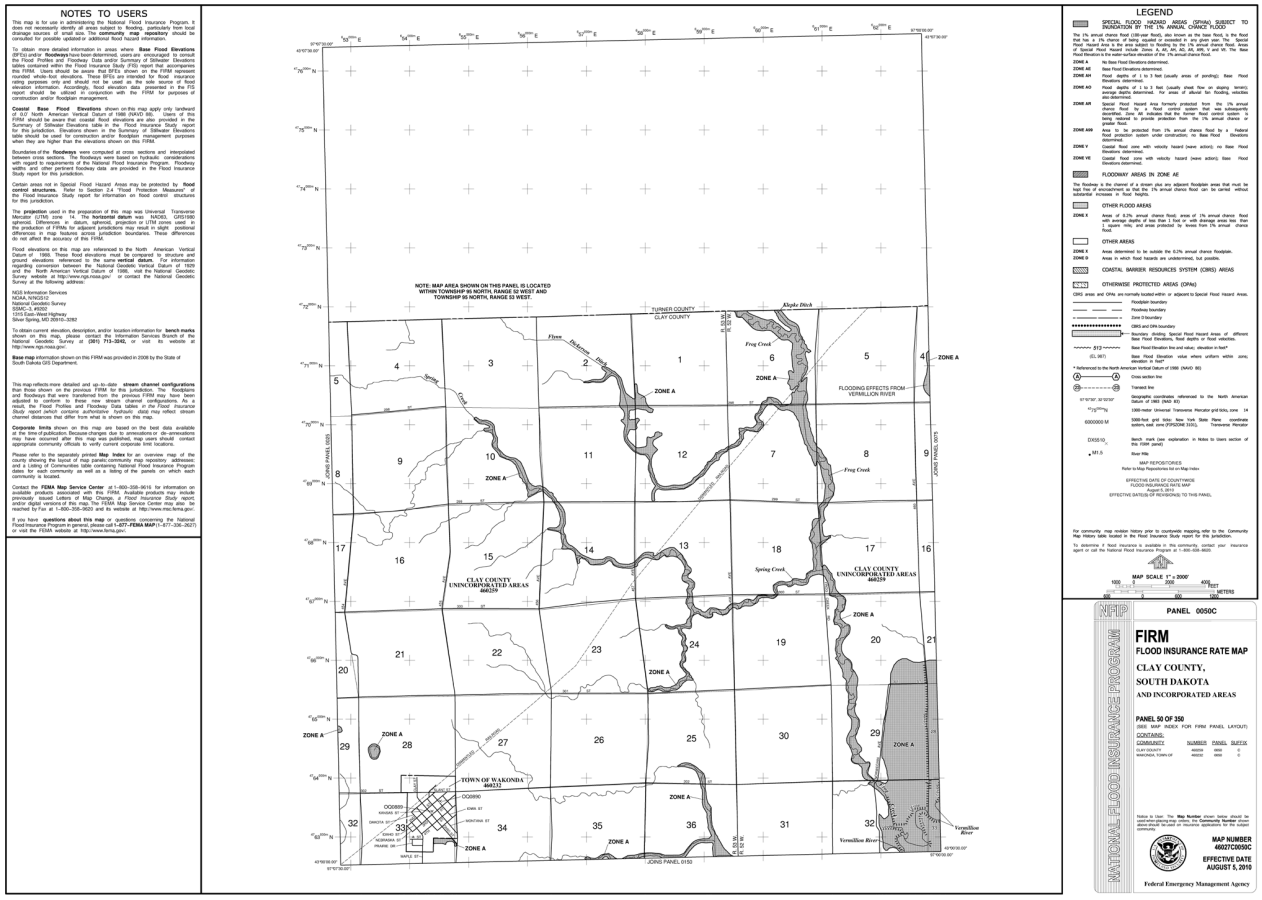
MAP NUMBER
46027C0270C
EFFECTIVE DATE
AUGUST 5, 2010

Federal Emergency Management Agency

Vermillion (West side), South Dakota



Wakonda, South Dakota



NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross- sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 14. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in 2008 by the State of South Dakota GIS Department.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report* for this jurisdiction may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de- annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a listing of communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 95 NORTH, RANGE 53 WEST AND TOWNSHIP 95 NORTH, RANGE 53 WEST.

TURNER COUNTY
CLAY COUNTY

Klopke Ditch
Frog Creek
Flowe
Dykstra
Ditch
Spruce Creek
Spring Creek
Vermillion River

ZONE A

FLOODING EFFECTS FROM VERMILLION RIVER

CLAY COUNTY UNINCORPORATED AREAS 460229

TOWN OF WAKONDA 460232

OD0890

JOINS PANEL 0050

JOINS PANEL 0075

JOINS PANEL 0150

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% or greater chance of being equaled or exceeded in any given year. Special Flood Hazard Areas are the areas subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** No Base Flood Elevations determined.
- **ZONE AE** Base Flood Elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 Base Flood Elevation line and value; elevation in feet*
- (EL 987) Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- A — A Cross section line
- B — B Transect line
- 97°07'30", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4779000m 1368-meter Universal Transverse Mercator grid ticks, zone 14
- 6000000 M 5000-foot grid ticks: New York State Plane coordinate system, east zone (FIPSZONE 3101), Transverse Mercator
- DX5510_0 Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
August 5, 2010
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'
1500 0 2000 4000 FEET
300 0 600 1200 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0050C

FIRM
FLOOD INSURANCE RATE MAP
CLAY COUNTY, SOUTH DAKOTA AND INCORPORATED AREAS

PANEL 50 OF 350
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLAY COUNTY	460229	0050	C
WAKONDA, TOWN OF	460232	0050	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
46027C0050C

EFFECTIVE DATE
AUGUST 5, 2010

Federal Emergency Management Agency

APPENDIX D: Hazard Mitigation Projects

JURISDICTION	HAZARD	MITIGATION ACTION	PRIORITY	TIME FRAME	ESTIMATED COST	POTENTIAL FUNDING SOURCE
Clay County	Flood	Update flood plain management regulation and enforce restrictions restricting or prohibiting development in the flood plain	Medium	Short-Term	N/A	Local
	Flood	Participate in NFIP	Medium	Long-Term	N/A	Local
	Multi-Hazard	Promote site and building design standards to minimize damage	Low	Long-Term	N/A	Local
	Multi-Hazard	Establish standards for regular upkeep and maintenance of utilities and infrastructure	Medium	Long-Term	N/A	Local
	Multi-Hazard	Incentivize hazard mitigation	Low	Short-Term	Unknown	Local
	Tornado	Provide shelter for displaced rural residents	High	Long-Term	Unknow	Local
Clay Rural Water System	Flood	Form partnerships with county government and rural utilities	Medium	Long-Term	N/A	Local
	Flood	Conduct regular maintenance for drainage systems and flood control structures	High	Long-Term	Unknown	Local
	Tornado	Provide standby generator for critical facilities	High	Short-Term	Unknown	HMGP funds
	Summer Storms	Review culvert sizing in flood prone areas	High	Short-Term	N/A	Local
	Multi-Hazard	Educate about dangers of driving through flooded roads and downed power lines	Medium	Long-Term	N/A	Local
	Multi-Hazard	Mutual aid agreement between utilities and local governments	Medium	Short-Term	N/A	Local
	Winter Storm	Education and awareness programs	Medium	Long-Term	N/A	Local
Irene	Multi-Hazard	Address storm water issues on north half of city	High	Short-Term	$3.0 million	SRF funds, CDBG funds
	Multi-Hazard	Raise awareness among local residents of shelter locations	High	Short-Term	N/A	Local

Vermillion	Multi-Hazard	Purchase a 6-inch trash pump	Medium	Short Term	$7,500	HMGP funds/Local
	Tornado	Tornado shelter for mobile home park residents or visitors without a place to shelter	High	Long-Term	$100,000	HMGP funds
	Flood	Implement improvements to the Hwy 50 drainage system as recommended in drainage study	High	Long-Term	Unknown	HMGP/DENR
	Multi-Hazard	Improve system of tracking people and assets utilized to respond to disasters	High	Short	N/A	Local
	Multi-Hazard	Complete upgrades to public safety radio system	High	Short	Unknown	Local
	Flood	Acquire additional trash pumps to remove water after heavy rains	Medium	Long	Unknown	Local
	Multi-Hazard	Ensure generator at backup emergency communication center/main fire station is adequate	Medium	Long	Unknow	Local/HMGP
	Multi-Hazard	Explore an ordinance requiring safe rooms at new developments	Medium	Long	N/A	Local

APPENDIX E: Committee Meeting Documentation

Initial Invitation: August 23, 2018

August 23, 2018

Clay County Pre-Disaster Mitigation Plan Update

The Clay County Emergency Management Department has contracted with the South Eastern Council of Governments (SECOG) to assist with the development of an updated Multi-Hazard Pre-Disaster Mitigation Plan (PDM plan). We are writing to invite you, or your designee, to join us on the PDM Planning Team. The only commitment is the time required to participate in the planning process. The cost to update the PDM plan is covered through a FEMA grant and in-kind contributions.

The Team will meet five times over the next several months. Participation and involvement from diverse sectors of the county are needed. The Team will identify primary hazards impacting the county and possible hazard mitigation projects that will have a positive impact on our communities, utilities, essential services, and residents. **Your community or organization will need to participate in the planning process in order to qualify for future FEMA hazard mitigation project funding.**

The initial meeting of the Clay County PDM Planning Team is scheduled for **3:00 p.m**. on **Wednesday, October 24** at the Vermillion Fire EMS Department Training Room located at 820 N. Dakota Street in Vermillion. This meeting will include a discussion of the PDM planning process, the timeline for completion of the updated Plan, future meeting logistics, and a summary of potential FEMA grants that could be accessed to assist with funding hazard mitigation projects.

Please RSVP your attendance, or the attendance of your designated representative, by contacting Leslie Mastroianni at leslie@secog.org or 605-681-8184 by **Friday, October 19.** If you have any questions regarding the PDM Plan or the planning process, do hesitate to ask.

Leslie Mastroianni
Planner
South Eastern Council of Governments

Layne Stewart
Emergency Management Director
Clay County

CLAY COUNTY PDM INVITE LIST

			All Meetings begin at 3:00 pm			
			24-Oct	28-Nov	16-Jan	13-Feb
County Commissioner	Travis Mockler	Tmockler63@gmail.com				
County Commissioner	Michael Manning	mlmanning6@hotmail.com				
County Commissioner	Phyllis Packard	pwpackard@gmail.com	X	X	X	
County Commissioner	Leo Powell	lfpowell@hotmail.com				
County Commissioner	Richard Hammond	rhhhei@gamil.com	X	X		
Director	Layne Stewart	lstewart@claycountyoem.org	X	X		X
County Sheriff	Andy Howe	ccso@claysheriff.org				
Vermillion Police Chief	Mike Betzen	mbetzen@vermillionpd.org				
Vermillion Fire Chief	Matthew Callahan	mattc@cityofvermillion.com	X			
USD Police, Director	Pete Jensen	peter.jensen@usd.edu				
P & Z Administrator	Cynthia Aden	cynthia.aden@claycountysd.org	X		X	X
P & Z Commission	Jay Bottolfson					
P & Z Commission	Joe Hubert					
P & Z Commission	Marty Gilbertson					
P & Z Commission	Jerry Prentice					
Director, Communication Ctr	Ryan Anderson	randerson@claycomm.org				
City Engineer	Jose Dominguez, PE	josed@cityofvermillion.com				
Vermillion Building Official	Farrel Christensen	farrelc@cityofvermillion.com				
Clay-Union Electric Co-op	Chris Larson					
Clay Rural Water System	Greg Merrigan				X	X
Vermillion Basin Water Dev. Dist.	Sarah Chadima	sarah.chadima@usd.edu	X	X		X
Yankton County EMA	Paul Scherschligt					
Turner County EMA	Brad Georgeson					
Union County EMA	Andy Minihan	ucemasd@unioncountysd.org				
Vermillion School District	Damon Alvey	damon.alvey@k12.sd.us				
Irene-Wakonda School Dist.	Dave Hutchison	dave.hutchison@k12.sd.us				
Wakonda Town President	Steve Mohr		X			
Wakonda Trustee	Terry Hackett					
Wakonda Trustee	Adam Nelson					
Wakonda Utility Manager	Chris Anderson					
Irene Mayor	Bryce Johnke				X	
Irene Councilman	Paul Erickson					
Irene Councilperson	Tammy Huether					
Irene Councilperson	Jeff McManus					
Irene Councilperson	Brent Mutchelknaus					
Irene Utility Manager	Rick Bak					
Irene Finance Officer	Casey Van Beek					
Wakonda Finance Officer	Nancy Andreson					
Vermillion City Manager	John Prescott	johnp@cityofvermillion.org	X	X		
Vermillion Mayor	Jack Powell		X			
Vermillion City Council	Kelsey Collier-Wise					

Vermillion City Council	Katherine Price					
Vermillion City Council	Tom Sorensen					
Vermillion City Council	Julia Helwege					
Vermillion City Council	Howard Willson					
Vermillion City Council	Brian Humphrey					
Vermillion City Council	Steve Ward					
Vermillion City Council	Rich Holland					
Vermillion P & Z	Bob Iverson					
Vermillion P & Z	Don Forseth					
Vermillion P & Z	Ted Muenster					
Vermillion P & Z	Matt Fairholm					
Vermillion P & Z	Jeff Kleeman					
Vermillion P & Z	Jim Wilson					
Vermillion P & Z	Mike Manning					
Vermillion P & Z	Doug Tuve					
Vermillion P & Z	Bob Oehler					
Vermillion Utilities Manager	Shane Griese	shaneg@cityofvermillion.com				
Vermillion Finance Officer	Mike Carlson	mikec@cityofvermillion.com				
Vermillion Area Chamber	Nate Welch					
Clay Co. Highway Dept	Rodney Polley	clayhwysupt@outlook.com				
South Dakota OEM	Jim Poppen					
Sanford Vermillion Med Ctr	Julie Girard		X	X	X	X
Banner Associates	Rich Uckert					
DGR Engineering	Gabe Laber					
SPN & Associates	Camden Hofer					

Meeting One: October 24, 2018

AGENDA

October 24, 2018

3:00 pm – Fire EMS Training Room, Vermillion

I. Welcome and Introductions – 5 minutes

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

III. Review Participant Packet – 10 minutes

IV. 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.

V. Wrap-Up – 5 minutes

Next Meeting: November 28, 2018 – 3:00 pm – Fire EMS Training Room, 820 N. Dakota St., Vermillion

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

SIGN-IN

October 24, 2018 – 3:00 PM – Vermillion Fire Training Room

CLAY COUNTY PRE-DISASTER MITIGATION MEETING ONE

NAME	REPRESENTING	EMAIL	PHONE	TRAVELED FROM...
Layne Stewart	Clay County	lstewart@claycountyoem.org		Vermillion
Leslie Mastroianni	SECOG	leslie@secog.org		Sioux Falls
Sarah Chadima	VBWDD	sarah.chadima@usd.edu		Vermillion
Cynthia Aden	Clay Cty Zoning	cynthia.aden@claycountysd.org		Vermillion
Phyllis Packard	Clay County	pwpackard@gmail.com		Vermillion
Steve Mohr	Wakonda	townofwakonda@gmail.com		Wakonda
John Prescott	Vermillion	johnp@cityofvermillion.com		Vermillion
Jack Powell	Vermillion	jack.powell@usd.edu		Vermillion
Matt Callahan	Vermillion Fire EMS	mattc@cityofvermillion.com		Vermillion
Julie Girard	Sanford Vermillion	Julie.gerarde@sanfordhealth.org		Vermillion
Richard Hammond	Clay County	rhhhei@gmail.com		Vermillion
Jim Poppen	South Dakota OEM	jim.poppen@State.sd.us		Pierre

CRITICAL FACILITIES

The FEMA definition of Critical Facilities is: Facilities/Infrastructure that are critical to the health and welfare of the population and that are especially important following hazard events. Critical facilities include, but are not limited to, shelters, police and fire stations, and hospitals.

Critical facilities may also include:

- Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic and/or water reactive materials.
- Hospitals, clinics, nursing homes, and housing likely to contain occupants who may not be sufficiently mobile to avoid death or injury during a hazard event.
- Police stations, fire station, vehicle and equipment storage facilities, and emergency operations centers that are needed for disaster response before, during and after hazard events.
- Public and private utilities and infrastructure that are vital to maintaining or restoring normal services to areas damaged by hazard events.
- City halls and community centers.
- Child care facilities and schools

Jurisdiction: _____

Facility	Use	Address

MINUTES OF THE PRE-DISASTER HAZARD MITIGATION PLANNING TEAM

The initial meeting of the Clay County Pre-Disaster Hazard Mitigation Planning Team convened at 3:00 pm October 24, 2018 in the Vermillion Fire EMS Training Room. Those in attendance included:

Leslie Mastroianni	SECOG
Layne Stewart	Clay County Emergency Management
Sarah Chadima	Vermillion Basin Water Development District
Cynthia Aden	Clay County Zoning
Phyllis Packard	Clay County
Steve Mohr	Town of Wakonda
John Prescott	City of Vermillion
Jack Powell	City of Vermillion
Matt Callahan	Vermillion Fire EMS
Julie Gerard	Sanford Health Vermillion
Richard Hammond	Clay County
Jim Poppen	South Dakota Emergency Management

Jim Poppen, State of South Dakota Hazard Mitigation Officer, gave a brief introduction to the Pre-Disaster Mitigation Plan and the need to update the plan every five years. Participants were given a packet of materials for their reference throughout the planning process. The materials included definitions of terms commonly used in the update process, Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards, a list of hazards inherent to South Dakota, a Capability Assessment Worksheet, and a schedule of future planning team meetings. The planning team was reminded to track hours spent working with their communities and organizations. Additionally, the importance of including discussion of hazard mitigation and the plan update process in the communities was emphasized.

Participants were asked to refer to the list of hazards identified in the State of South Dakota Plan and rank those hazards in the order of their effect on the participant's jurisdiction. Team members were asked to provide examples of how the top three disasters have impacted their jurisdiction.

Participating team members were asked to list their community's critical facilities along with the location and return those by the next meeting. The meeting adjourned at 4:00 pm.

Next Meeting: November 28, 2018 – 3:00 pm – Vermillion Fire EMS Training Room

Meeting Two: November 28, 2018

AGENDA

November 28, 2018

3:00 pm Vermillion Fire/EMS Training Room

VI. Welcome and Introductions – 5 minutes

VII. Recap of hazard ranking – 5 minutes

VIII. Identify Community Assets – 10 minutes

IX. Activity: Probability and Vulnerability – 20 minutes

X. Wrap-Up – 5 minutes

Next Meeting: January 16, 2019 – 3:00 pm – Vermillion Fire/EMS Training Room

Homework: Complete Community Assets sheet, if necessary.

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

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

COMMUNITY ASSETS

People	
Economy	
Built Environment	
Natural Environment	

COMMUNITY ASSETS

PEOPLE

People are the most important community asset. The risk assessment can identify areas of greater population density as well as populations that may have unique vulnerabilities or be less able to respond and recover during a disaster.

- Visiting populations
- Access and functional needs populations
    - Children
    - The elderly
    - Physically or mentally disabled
    - Non-English speakers
    - Medically or chemically dependent
- Students
- Second homeowners
- Migrant farm workers
- Visitors for special events

ECONOMY

After a disaster, economic resiliency drives recovery. Economic assets can be described in terms of direct or indirect losses; for example, building or inventory damage is direct, but functional downtime and loss of employment wages are indirect losses.

- Manufacturing
- Agricultural
- Service sector
- Major employers
- Commercial centers

BUILT ENVIRONMENT

The built environment includes existing structures, infrastructure systems, critical facilities, and cultural resources. Areas of future growth and development are also important when considering the built environment.

- Vulnerable structures
- Infrastructure
    - Water and wastewater
    - Power utilities
    - Transportation (roads, railways, waterways)
    - Communication systems/centers
    - Energy pipelines and storage
- Critical Facilities
    - Hospitals and medical facilities
    - Police and fire stations
    - Emergency operations centers
    - Evacuation shelters
    - Schools
    - Airports, heliports
- Cultural Resources
- Future development

NATURAL ENVIRONMENT

Environmental assets and natural resources are important to community identity and quality of life and support the economy through agriculture, tourism and recreation and a variety of other ecosystem services, such as clean air and water.

- Wetlands and riparian areas
- Functional landscaping
- Parks and trails

SIGN-IN

November 28, 2018 – 3:00 PM – Vermillion Fire/EMS

CLAY COUNTY PRE-DISASTER MITIGATION MEETING TWO

NAME	REPRESENTING	EMAIL	PHONE	TRAVELED FROM...
Leslie Mastroianni	SECOG	leslie@secog.org	367-5390	Sioux Falls
LAYNE STEWART	CLAY Co.	LSTEWART@CLAYCOUNTYOEM.ORG	677-7185	VERMILLION
Phyllis Packard	Clay Co	pwpackard@gmail.com	670-2588	Verm.
Sarah Chadima	VBWDD	schadima@usd.edu	677-6166	Verm.
Richard Hammond	Clay Co.	rhhhei e gmail.com	670-2321	Vermillion
John Prescott	CITY of Vm	johnp@cityofvermillion.com	677-7050	Vermillion
Julie Girard	Sanford Vermillion	julie.girard@sanfordhealth.org	677-3615	Vermillion

MINUTES OF THE PRE-DISASTER HAZARD MITIGATION PLANNING TEAM

The second meeting of the Clay County Pre-Disaster Hazard Mitigation Planning Team convened at 3:00 pm November 28, 2018 in the Vermillion Fire/EMS training room. Those in attendance included:

Leslie Mastroianni	SECOG
Layne Stewart	Clay County Emergency Management
Phyllis Packard	Clay County
Sarah Chadima	Vermillion Basin Water Development District
Richard Hammond	Clay County
John Prescott	City of Vermillion
Julie Gerard	Sanford Health Vermillion

The group received a handout with a list of community assets, definitions and examples. The community assets are people, the economy, built environment and natural environment.

Using the identified hazards from week one and the community assets just defined, the planning team conducted a probability/vulnerability exercise. The discussion began by evaluating the probability of each hazard occurring during specified time periods. The group then assessed how vulnerable each of the community assets would be if each disaster were to occur.

Participants were reminded to turn in the completed Critical Facilities form, the Community Questionnaire and the Capability Assessment Worksheet as soon as possible.

The meeting adjourned at 4:00 pm.

Next Meeting: January 16, 2019 – 3:00 pm – Vermillion Fire/EMS Training Room

PROBABILITY AND VULNERABILITY

Probability

The likelihood of a hazard occurring in the future

High Probability: Occurring every 1-10 years

Moderate Probability: Occurring every 10-25 years

Low Probability: Occurring at intervals greater than 25 years

Vulnerability

A measure of the extent to which a community, structure, or geographical area is likely to be damaged or disrupted, on account of its nature or location, by the impact of a particular disaster hazard

People:	Possibility of death or injury
Economy:	Physical losses and damages
	Interruption of services
Built Environment:	Physical losses and damages
	Interruption of services
Natural Environment:	Physical losses and damages

Meeting Three: January 16, 2019

AGENDA

January 16, 2019

3:00 pm Fire/EMS Training Room - Vermillion

XI. Welcome and Introductions – 5 minutes

XII. Recap of risk assessment – 10 minutes

XIII. Activity: Problem Statements – 30 minutes

XIV. Wrap-Up – 5 minutes

Next Meeting: February 13, 2019 – Fire/EMS Training Room, Vermillion

Homework: Complete Problem Statement Worksheet and bring back with you February 13, 2019.

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

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

HAZARD MITIGATION PLANNING PROCESS

Progress to Date

Task 1:Determine the Planning Area and Resources

Task 2:Build the Planning Team

Task 3:Create and Outreach Strategy

Task 4: Review Community Capabilities

This is the handout that was in your participant packet you received at the first planning meeting. If you haven't already done so, please turn this in as soon as possible.

Task 5: Conduct a Risk Assessment

The Planning Team identified the hazards most relevant to southeastern South Dakota and Clay County, in particular. The hazards are (in order of relevance):

- Floods
- Winter Storm
- Tornado
- Wind Storm
- Summer Storm
- Hazardous Materials
- Drought
- Agricultural Pests and Diseases
- Wildfire
- Geological Hazards

The Planning Team assessed the probability of a hazard occurring in Clay County and the vulnerability of the assets in the face of the hazard. Assets are considered people, the economy, the built environment and the natural environment. This process was done through a scenario analysis.

SIGN-IN

January 16, 2019 – 3:00 PM – Vermillion Fire/EMS

CLAY COUNTY PRE-DISASTER MITIGATION MEETING THREE

NAME	REPRESENTING	EMAIL	PHONE	TRAVELED FROM...
Greg Merrigan	Clay RWS	greg.merrigan@clayrwswater.com	267-2089	Work
Cynthia Aden	Clay County Zoning	cynthia.aden@claycountysd.org	677-7145	
Phyllis Packard	Clay County	pwpackard@gmail.com	670 2588	Home
Julie Girard	Sanford Vermillion Med. Ctr.	julie.girard@sanfordhealth.org	677-3615	work/verm.
Boyce Johnke	Irene City Fire dept	bjohnke@iw.net	551-5611	Home/work
Leslie Mastroianni	SECOG	leslie@secog.org	367-5390	Sioux Falls

MINUTES OF THE PRE-DISASTER HAZARD MITIGATION PLANNING TEAM

The third meeting of the Clay County Pre-Disaster Hazard Mitigation Planning Team convened at 3:00 pm January 16, 2019 in the Vermillion Fire/EMS Training Room. Those in attendance included:

Leslie Mastroianni	SECOG
Greg Merrigan	Clay Rural Water System
Cynthia Aden	Clay County Zoning
Phyllis Packard	Clay County Commissioner
Julie Girard	Sanford Vermillion Medical Center
Bryce Johnke	City of Irene

A recap of progress to date was distributed. A copy is attached. There will be a fourth meeting where the group will finish identifying mitigation actions for the plan update. There will be a fifth meeting, but it remains unscheduled. The group will review the draft at that meeting.

The group worked on an example problem statement and mitigation actions. Worksheets were distributed for the group members to complete with their boards/councils. Reminder: Keep track of your time outside the Planning Team Meetings. The completed forms should be brought back completed at the next meeting.

Participants were reminded to turn in the completed Critical Facilities form, the Community Questionnaire and the Capability Assessment Worksheet as soon as possible.

The meeting adjourned at 4:00 pm.

Next Meeting: February 13, 2019 – 3:00 pm – Vermillion Fire/EMS Training Room

Meeting Four: February 13, 2019

AGENDA

February 13, 2019

3:00 pm Vermillion Fire/EMS Training Room

XV. Welcome and Introductions – 5 minutes

XVI. Presentation: Paul Clinton, PLA – 10 minutes

XVII. Activity: Finalizing Mitigation Actions – 30 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

February 13, 2019 – 3:00 PM – Vermillion Fire/EMS

CLAY COUNTY PRE-DISASTER MITIGATION MEETING FOUR

NAME	REPRESENTING	EMAIL	PHONE	TRAVELED FROM...
Leslie Mastroianni	SECOG	leslie@secog.org	605-681-8184	Sioux Falls
Sara Lum	SECOG	sara@secog.org	605-681-8188	Sioux Falls
GREG MERRIGAN	CLAY RWS	greg.merrigan@clayruralwater.com	267-2098	WAKONDA
Sarah Chadima	VBWPD	schadima@usd.edu	605-677-5227	Vermillion
LAYNE STEWART	CLAY COUNTY	LSTEWART@CLAYCOUNTYDEM.OOK	677-7185	VERMILLION
Cynthia Aden	Clay County	Cynthia.aden@claycountysd.org	677-7145	Vermillion
Jullie Girard	SanfordVerm.	julie.girard@sanfordhealth.org	677-3165	Vermillion
Shane Waterman	Clark Eng.	swaterman@clark-eng.com	605-331-2505	Sioux Falls
Paul Clinton	CLARK ENG	PCLINTON@CLARK-ENG.COM	605 331 2505	SIOUX FALLS

MINUTES OF THE PRE-DISASTER HAZARD MITIGATION PLANNING TEAM

The fourth meeting of the Clay County Pre-Disaster Hazard Mitigation Planning Team convened at 3:00 pm February 13, 2019 in the Vermillion Fire/EMS Training Room. Those in attendance included:

Leslie Mastroianni	SECOG
Sara Lum	SECOG
Greg Merrigan	Clay Rural Water System
Sarah Chadima	VBWDD
Layne Stewart	Clay County Emergency Management
Cynthia Aden	Clay County Planning
Julie Girard	Sanford Vermillion Health System
Shane Waterman	Clark Engineering
Paul Clinton	Clark Engineering

The Planning Team finished up identifying mitigation actions for their particular jurisdiction. Team members then began the process of evaluating the mitigation actions. Team members:

- Determined if the mitigation action would be completed in the short term (within 3 years) or the long term.
- Set a priority for each action – High, Medium, or Low.
- Indicated which hazard(s) the action would apply.
-

Team members were reminded to submit any outstanding forms or information. A copy of all forms will be sent out with the minutes.

There will be one more regular meeting of the Planning Team once a draft is ready to review.

The meeting adjourned at 4:00 pm.

Next Meeting: TBD

Community/Organization:
Mitigation Action:
Time Frame: ST LT Ongoing project? Y N Priority: H M L Multi-Hazard or Hazard Specific If Hazard Specific, circle applicable hazards: WS FL WS SS TO DR HM WF AP GH Answer Yes or No ~ Will this action protect lives and prevent injuries? _____ ~ Will this action eliminate or reduce damage to structures and infrastructure? _____ ~ Does the community or public support this action? _____

Short Term (ST): Implemented within three years

Long Term (LT): Will be implemented at least three years or more into the future

Priority:

H – High

M – Medium

L – Low

WS – Winter Storm FL – Flood WS – Wind Storm

SS – Summer Storm TO – Tornado DR – Drought

HM – Hazardous Materials WF – Wildfire AP – Ag Pests and Diseases

GH – Geological Hazards

Meeting Five: June 20, 2019

Press Release

FOR IMMEDIATE RELEASE

Release Date: Thursday, June 6, 2019

Contact: Leslie Mastroianni, South Eastern Council of Governments, 605-681-8184

Clay County Multi-Hazard Pre-Disaster Mitigation Planning Meeting to be held on June 20, 2019 at 3:00pm

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

Clay County will be holding a meeting to ask for public input, **Thursday, June 20 at 3:00 PM** at the Vermillion Fire/EMS Training Room, 820 N Dakota Street, Vermillion, South Dakota 57069. At this meeting, the committee will be reviewing the current draft update of the 2019 Clay County Multi-Hazard Pre-Disaster Mitigation Plan update and asking for any final concerns or changes from the public.

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 Leslie Mastroianni at 605-681-8184, Layne Stewart, Clay County Emergency Manager at 605-677-7185, or visit www.secog.org.

Sent to Vermillion Plain Talk

Tri-County News

AGENDA

June 20, 2019

3:00 pm Vermillion Fire/EMS Training Room

PUBLIC MEETING – DRAFT REVIEW

I. Welcome and Introductions – 5 minutes

II. Review Draft Pre-Disaster Hazard Mitigation Plan Update – 20 minutes

III. Review Mitigation Actions – 20 minutes

IV. Next Steps – 5 minutes

V. Wrap-Up – 5 minutes

SIGN-IN

June 20, 2019 – 3:00 PM – Vermillion Fire/EMS

CLAY COUNTY PRE-DISASTER MITIGATION MEETING FIVE

NAME	REPRESENTING	EMAIL	PHONE	TRAVELED FROM...
LAYNE STEWART	CLAY Co.	LSTEWART@CLAYCOUNTYOEM.ORG	677 7185	VERM
Leslie Mastroianni	SECOG	leslie@secog.org	681-8184	Sioux Falls
Cynthia Aden	Clay Co	cynthia.aden@claycountysd.org	677-7145	Vermillion
Phyllis Packard	Clay Co	pwpackard@gmail.com	670 2588	"
John Prescott	City of Vm ~~Clay Co~~	johnp@cityofvermillion.com	677-7050	"
Julie Girard	Sanford Vermillion	julie.girard@sanfordhealth.org	677-3615	Vermillion

MINUTES OF THE PRE-DISASTER HAZARD MITIGATION PLANNING TEAM

The fifth and final meeting of the Clay County Pre-Disaster Hazard Mitigation Planning Team convened at 3:00 pm June 20, 2019 in the training room of the Vermillion Fire/EMS Facility. This meeting was also open to the public for review and comments. Those in attendance included:

Leslie Mastroianni	SECOG
Layne Stewart	Clay County Emergency Manager
Cynthia Aden	Clay County Planning and Zoning
Phyllis Packard	Clay County
John Prescott	City of Vermillion
Julie Gerard	Sanford Health Vermillion

The Planning Team and members of the public responding to the public notices reviewed the draft of the Pre-Disaster Mitigation Plan.

An overview of the plan development process was presented along with a summary of the risk assessment findings.

A handout of the proposed mitigation actions included in the draft was available for review.

Next steps in the process were discussed. SECOG will submit the draft to the State of South Dakota next week for review. Any additions or changes must be submitted by Friday, June 28, 2019.

The meeting adjourned at 4:00 pm.

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.

Discovery Report Clay County, South Dakota. FEMA/South Dakota Emergency Management Office. December 2016.

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

Clay County Comprehensive Plan 2001-2021. Clay County

Irene Comprehensive Plan 2035. City of Irene

Vermillion 2035 Comprehensive Plan. City of Vermillion.

Vermillion Area Multimodal Transportation Study. City of Vermillion.

Wakonda Comprehensive Plan 2003 – 2025. Town of Wakonda

Electronic References

Repetitive Loss County Summary. https://bsa.nfipstat.fema.gov/reports/1040.htm.

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/.

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/.

South Dakota Department of Environment and Natural Resources. https://denr.sd.gov/.