Fall River County

Natural Hazard Mitigation and Community Wildfire Mitigation Plan

DRAFT

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I. INTRODUCTION

Changes/Revisions to Introduction: The plan format was redone and CCWP was incorporated in update.

WHAT IS HAZARD MITIGATION?

Fall River County is susceptible to natural hazards that threaten the health and welfare of its citizens. In the past natural hazards have inflicted costly damage throughout the county. While disasters cannot always be prevented, the cost of response and recovery from potential disasters can be substantially reduced when attention is turned to mitigating their impacts before they occur. This Plan serves as a multi-jurisdictional plan including Edgemont, Hot Springs, and Oelrichs.

Hazard mitigation is defined as any cost-effective action(s) that reduces or prevents vulnerability of people, property, and infrastructure regarding identified hazards and their associated risks. Hazard mitigation measures must be practical, cost-effective, and environmentally and politically acceptable. Actions taken to limit the vulnerability of society to hazards must not in themselves be more costly than the value of anticipated damage.

This Plan evaluates hazards, risks, and vulnerabilities within the jurisdictional area of the entire county. The Plan supports, aids, identifies, and describes mitigation projects for each of the local jurisdictions participating in the update. The suggested actions and implementation strategies for local governments could reduce the impact of future natural hazard occurrences. Reducing the impact of natural hazards can prevent such occurrences from becoming disastrous but will only be accomplished through a coordinated partnership with emergency managers, political entities, public works officials, planning departments, planning commissions, and other dedicated individuals working to implement the strategies outlined in this plan.

AUTHORITY

FEMA Multi-Jurisdictional Hazard Mitigation

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

1. Identify hazards and their associated risks and vulnerabilities
2. Develop and prioritize mitigation actions; and
3. Encourage cooperation and communication between all levels of government and the public.

To be eligible for FEMA's Hazard Mitigation Assistance (HMA) grant programs, the Disaster Mitigation Act of 2000 (DMA 2000) requires local governments to have a FEMA-approved mitigation plan in place. In the mitigation plan, local jurisdictions must demonstrate proposed mitigation projects have a basis in a solid planning process where the unique risks and capabilities of each community are assessed. Mitigation plans must be updated every five years to demonstrate progress has been made toward meeting the community's mitigation goals and ensure the plan continues to be an effective mitigation tool to meet the needs of the county and the communities located within.

Community Wildfire Protection Plan

The Healthy Forest Restoration Act of 2003 was created to help reduce the wildfire threat and protect at-risk communities. The Community Wildfire Protection Plan as defined in Subchapter 1 §6511 (3): The term "community wildfire protection plan" means a plan for an at-risk community that:

1. Is developed within the context of the collaborative agreements and the guidance established by the Wildland Fire Leadership Council and agreed to by the applicable local government, local fire department, and state agency responsible for forest management, in consultation with interested parties and the Federal land management agencies managing land in the vicinity of the at-risk community.
2. Identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment on Federal and non-Federal land that will protect one (1) or more at-risk communities and essential infrastructure.
3. Recommends measures to reduce structural ignitability throughout the at-risk community.

PURPOSE

The purpose of the *Fall River County Natural Hazard Mitigation and Community Wildfire Protection Plan* is to fulfill federal, state, and local hazard mitigation planning responsibilities consistent with the Federal Emergency Management Agency and Healthy Forest Restoration Act's guidelines. This Plan will promote mitigation measures; implement short/long range strategies to minimize suffering, loss of life, damage to infrastructure, and property damage; eliminate or minimize conditions that would have an undesirable impact on the citizens, economy, environment, and the well-being of the county. This Plan will educate and facilitate communication with the public, build public and political support for mitigation activities, and develop implementation and planning requirements for hazard mitigation projects.

PLAN USE

This *Fall River County Natural Hazard Mitigation and Community Wildfire Protection Plan* should be used to help local elected and appointed officials plan, design, and implement policies, programs, and projects to help reduce their community's vulnerability to natural hazards. The plan should also be used to facilitate inter-jurisdictional coordination and collaboration related to natural hazard mitigation planning and implementation. Formal adoption of the updates to the plan will keep the County and its communities in compliance with the Disaster Mitigation Act of 2000 and the Healthy Forest Act of 2003.

Scope

- Provide opportunities for public input and encourage participation and involvement regarding the mitigation plan.
- Identify hazards and vulnerabilities within the county and local jurisdictions.
- Combine risk assessments with public and emergency management ideas.
- Develop goals based on the identified hazards and risks.
- Review existing mitigation measures for gaps and establish projects to sufficiently fulfill the goals.
- Prioritize and evaluate each strategy/objective.
- Review other technical documents and planning processes for cohesion and incorporation with mitigation planning.
- Establish guidelines for updating and monitoring the Plan.
- Present the Plan to Lawrence County and the participating jurisdictions for adoption.

Local Goals

- Protection of life to the extent possible through mitigation planning efforts.
- Protection of critical facilities and public infrastructure to the extent possible through mitigation planning efforts.
- Protection of private property to the extent possible through mitigation planning efforts.
- Promote continuity among all levels of government (federal, state, county, city) by connecting mitigation planning efforts to existing local planning activities.
- Protection of the economy, businesses, industry, education opportunities, and the cultural fabric of a community to the extent possible through mitigation planning efforts.
- Protection of natural resources and the environment, to the extent possible through mitigation planning efforts.

Goals of Mitigation

- Eliminate or reduce the long-term risk to human life and property from identified natural and man-made hazards.
- Aid both the private and public sectors in understanding the risks they may be exposed to and exploring mitigation strategies to reduce those risks.
- Avoid risk of exposure to identified hazards.
- Minimize the impacts of those risks when they cannot be avoided.
- Mitigate the impacts of damage as a result of identified hazards.
- Accomplish mitigation strategies in such a way that negative environmental impacts are minimized.
- Provide a basis for funding projects outlined as hazard mitigation strategies.
- Establish a regional platform to enable the community to take advantage of shared goals, resources, and the availability of outside resources.

MULTI-JURSIDICTIONAL ADOPTION *(Requirement F2-a)*

This multi-jurisdictional plan serves the entire geographical area within the boundaries of Fall River County, South Dakota. All municipalities in the county elected to participate in the planning process and the update of the Plan. The participating local jurisdictions include the following: Fall River County, Edgemont, Hot Springs, Oelrichs.

The *Fall River County Natural Hazard Mitigation and Community Wildfire Protection Plan* (*2025)* was adopted by resolution by the participating incorporated municipalities and the Fall River County Commission. The Resolutions of Adoption are included as supporting documentation for the Plan.

Dates of Plan Adoption by Jurisdiction	
Jurisdiction	**Date of Adoption**
Fall River County	xx/xx/xx
Edgemont	xx/xx/xx
Hot Springs	xx/xx/xx
Oelrichs	Xx/xx/xx

Table 1.1. Participating jurisdictions' date of Fall River County Hazard Mitigation and Community Wildfire Protection Plan adoption dates.

The local governing body that oversees the update of the *Fall River County Natural Hazard Mitigation and Community Wildfire Protection Plan* is the Fall River County Commission. The Commission has tasked the Fall River County Emergency Manager with the responsibility of ensuring the Plan is compliant with Federal Emergency Management Agency (FEMA) Guidelines and the Healthy Forest Act of 2003 requirements.

II. PLANNING PROCESS

Changes/Revisions to Planning Process: The planning process for this update focused on ensuring participation and involvement from all adopting jurisdictions, state, and federal agencies. BHCLG and County Emergency Manager met with all adopting bodies commissions/boards and councils.

Participation of Local Jurisdictions				
Nature of Participation	**Fall River**	**Edgemont**	**Hot Springs**	**Oelrichs**
Attended Meetings or work sessions (a minimum of 2 meetings will be considered satisfactory).	Yes	Yes	Yes	Yes
Provided inventory and summary of reports and plans relevant to hazard mitigation.	Yes	Yes	Yes	Yes
Provided Risk Assessment	Yes	Yes	Yes	Yes
Provided descriptions of what is at risk (including local critical facilities and infrastructure at risk from specific Hazards)	Yes	Yes	Yes	Yes
Submitted a description or map of local land-use patterns (current and proposed/expected).	NA	No	Yes	NA
Developed goals for the community.	Yes	Yes	Yes	Yes
Developed mitigation actions with an analysis/explanation of why those actions were selected.	Yes	Yes	Yes	Yes
Prioritized actions emphasizing relative cost-effectiveness.	Yes	Yes	Yes	Yes
Reviewed and commented on draft Plan.	Yes	Yes	Yes	Yes
Hosted opportunities for public involvement (allowed time for public comment at a city council meeting during public comment period)	Yes	Yes	Yes	Yes

Table 2.1. Local jurisdictions' participation requirements met. At least seven of the participation requirements must be met for the jurisdiction to have participated in the adoption of Plan. (***Requirement A1-b).***

DOCUMENTATION OF THE PLANNING PROCESS *(Requirement A1-a; A1-b)*

Meeting Summaries		
Date	**Location**	**Summary**
11/21/2024	Fall River County Court House, Hot Springs, SD	The initial information meeting was held during the regularly scheduled **Fall River County** Commission meeting. The content of this meeting was to inform the public and county commissioners about the required update and planning process. At this time, the county commissioners also approved the contract for Black Hills Council of Local Governments (BHCLG) to complete the update of this Plan. The Fall River County Emergency Manager and Deputy Emergency Manager will serve as the points of contact for BHCLG to assist in the Plan update.
1/06/2025	Mueller Civic Center Hot Springs, SD	BHCLG met with **Hot Springs City Council** during their regularly scheduled city council meeting. BHCLG informed the public and city council members about the required update and planning process.
01/08/2025	South Annex Hot Springs, SD	BHCLG and the Fall River County EM met with **Fall River County LEPC** and the content of this meeting was to inform local, state and federal entities about the required update and planning process.
01/14/2025	Community Center, Oelrichs, SD	Oelrichs Town Board Meeting BHCLG met with **Oelrichs City Council** during their regularly scheduled town board meeting. BHCLG informed the public and town board members about the required update and planning process.
01/21/2025	City Hall Edgemont, SD	Edgemont City Council Meeting BHCLG met with **Edgemont City Council** during their regularly scheduled city council meeting. BHCLG informed the public and city council members about the required update and planning process.
2/20/2025	South Annex Hot Springs, SD	**Fall River County** EM and BHCLG hosted a planning team meeting to discuss the plan update, review the 2020 plan, survey draft and discuss community meetings. Adopting members in attendance: **Fall River County, Edgemont, Hot Springs.**
3/21/2025	Edgemont SD City Hall	**Edgemont** met with BHCLG for a one-on-one meeting to discuss the unique risks and vulnerabilities in Edgemont. During the discussions Edgemont updated mitigation actions for the 2020 plan and created new strategies for this updated version of the plan.
3/24/2025	Hot Springs, SD City Hall	**Hot Springs** met with BHCLG for a one-on-one meeting to discuss the unique risks and vulnerabilities in Hot Springs. During the discussions Hot Springs updated mitigation actions for the 2020 plan and created new strategies for this updated version of the plan.
04/09/2025	South Annex, Hot Springs, SD	**Fall River County** met with BHCLG for a one-on-one meeting to discuss the unique risks and vulnerabilities in the county. During the discussions Fall River updated mitigation actions for the 2020 plan and created new strategies for this updated version of the plan.
04/09/2025	South Annex, Hot Springs, SD	**Fall River County** and BHCLG met with local fire chiefs to discuss wildfire risk in the county. Chiefs were asked to help identity project areas, high risk areas, and discussed local VFD needs.
04/18/2025	Community Center, Oelrichs, SD	**Oelrichs** met with BHCLG met with BHCLG for a one-on-one meeting to discuss the unique risks and vulnerabilities in Oelrichs. During the discussions Oelrichs updated mitigation actions for the 2020 plan and created new strategies for this updated version of the plan.
05/22/2025	South Annex, Hot Springs, SD	**Fall River County and BHCLG** held a community meeting open to the public to discuss mitigation risks, vulnerabilities, and mitigation actions in Fall River County.
08/01/2025	Teleconference	BHCLG spoke with the Bureau of Land Management to discuss wildfire in Fall River County.

Table 2.2 Mitigation Meeting dates, location, and summary.

Commissioners, board members, and public officials involved in the Plan *(Requirement A1-b)*.

**Note: commissioners and council members as well as other elected and non-elected officials of the towns and counties change often. The names listed below are the most recent office/position holders.

Fall River County

- Day Coy: Emergency Manager
- Gary Baker: Assistant Emergency Management
- Joe Falkenburg: Commission Chair
- Deb Russell: County Commissioner Vice Chair
- Joe Allen: County Commissioner
- Les Cope: County Commissioner
- Sandra Wahlert: County Commissioner

Edgemont

- Rheta Reagan: Mayor
- W. Brent White: Alderman
- Jason Shook: Alderman
- Dennis Tubb: Alderman
- Jarrell Rola: Alderman
- Aaron Eberle: Finance Officer
- Joe Koller: Public Works Forman

Hot Springs

- Bob Nelson: Mayor
- Larry Pratt: Alderman
- Hal Glanville: Alderman
- William Lukens: Alderman
- Johnny Huddleston: Alderman
- Linda Varvel: Alderman
- Debra Johnston: Alderman
- Gary Tellkamp: Alderman
- Travis Orback: Alderman
- Misty Summers-Walton: Finance Officer
- Jaclyn Kelsey: City Administrator
- Tracey Bastian: City Engineer
- Ross Norton: Chief of Police

Oelrichs

- James Willmus: Board President
- William O'Connell: Board Vice President
- Ellen White: Town Clerk
- Brea Seger: Treasurer
- Roy E Merdianian III: Water Superintendent Public Works
- Koby Carson: Water Assistant

PLANNING TEAM

Fall River County's Emergency Manager and Assistant Emergency Manager invited representatives from at least one category of FEMA's Lifelines to serve as a planning team member. The planning team also included at least one representative from each adopting body. Table 2.3 shows the list of each participating planning team member. Responsibilities included attending planning team meetings, assisting in drafting the community survey, reviewing the 2020 Plan, assisting in the collection of planning documents, list of critical facilities, and acting as a liaison for

their entity/community. Local, state, and federal organizations that helped by providing information are listed in Tables 2.4.

Planning Team Members	
Dar Coy	Fall River County Emergency Manager
Gary Baker	Fall River County Assistant Emergency Manager
Frank Maynard	Emergency Manager Associate – Subject Matter Expert
Doug Huntrods	VA of the Black Hills Emergency Manager
William Lukens	City of Hot Springs Council Member
William Brent White	City of Edgemont Council Member, Edgemont VFD Fire Chief
James Willmus	Town of Oelrichs, Board President
Riley Steven	Hot Springs VFD
John Haskuitz	SD Wildland Fire FMO
Kyley Cumbow	School District Superintendent
John Putnam	Argentine TWP Supervisor
Laree Haskvitz	Fall River Health Services Nurse Manager
Jason Haug	USFS Buffalo Gap

Table 2.3 Planning Team members involved in the Fall River County Natural Hazard Mitigation Plan Update.

Local, State, and Federal Agencies Involved in the Plan
United States Forest Service
South Dakota Wildland Fire
Bureau of Land Management
SD DANR Resource Conservation and Forestry Division
Bureau of Reclamation
Edgemont Ambulance Service
Edgemont VFD
Cascade VFD
Oelrichs VFD
Angostura VFD
Ardmore VFD
Hot Springs VFD
Red Cross
VA Black Hills Health Care
Hot Springs Amateur Radio Club

Table 2.4 Local, State, and Federal Agencies involved in the Fall River County Natural Hazard Mitigation Plan Update. These agencies were able to provide some information/data for this update. (***Requirement A2-a)***

PUBLIC INVOLVEMENT (*Requirement A2-a; A3-a)*

The public was provided with several opportunities at county commission, town board, and city council meetings to comment during the drafting stage of the Plan update. State law requires that public meetings allow for public comment during the meetings as described in SDCL 1-25-1.

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

It was during this legally required public comment period that the public was allowed to provide comments. Mitigation Planning was listed on the required notices for the town board, city council, and county commission meetings. Notices for public meetings require a minimum of time, date, and location, and were posted in accordance with SDCL 1-25.1.1:

…Each political subdivision shall provide public notice, with proposed agenda, that is visible, readable, and accessible for at least an entire, continuous twenty-four hours immediately preceding any official meeting, by posting a copy of the notice, visible to the public, at the principal office of the political subdivision holding the meeting. The proposed agenda shall include the date, time, and location of the meeting. The notice shall also be posted on the political subdivision's website upon dissemination of the notice if a website exists. For any special or rescheduled meeting, the information in the notice shall be delivered in person, by mail, by email, or by telephone, to members of the local news media who have requested notice. For any special or rescheduled meeting, each political subdivision shall also comply with the public notice provisions of this section for a regular meeting to the extent that circumstances permit.

No public comments were made during the Plan update meetings; however, discussion took place among the council members, finance officers, city engineers and/or attorneys (when relevant), fire specialists and city staff. Meeting minutes were collected for each local jurisdiction and published in the paper of record for each entity as required by law.

From May 7, 2025, to June 4, 2025, the Fall River County Natural Hazard Mitigation Plan Survey was made available to the public. A link to the survey was provided to the planning team to help spread the word through social media. The survey link was also posted on the Emergency Management Facebook page. Paper copies of the survey were also provided to the county and cities to post at the city offices. A total of 28 surveys were received and the information gathered was implemented into the plan. A summary of the survey results can be found in Appendix C.

The stakeholders meeting was held on May 22, 2024, and was open to the public. Planning team members were also provided with a digital flyer to print or post on social media and email invites were sent to various community lifelines. A total of 10 people participated in the stakeholders meeting. BHCLG worked with the Fall River County Emergency Manager and guidance from FEMA's *Local Mitigation Planning Policy Guide* to create a stakeholders list. The list including agency and contact method can be found in Appendix A. Many invited members serve in multiple capacities in the community such lifelines, education, non-profit, health care, press, and local officials. Federal and state agencies were also invited, as well as the surrounding county's emergency managers. A list of participants, as well as meeting minutes, sign-in, and notices/agendas (when applicable) from each meeting are included in Appendix A.

After the draft of the Plan was complete, it was posted on the Fall River County website. A copy of the draft was sent to the planning team representatives, fire chiefs, USFS – Hell Canyon District, USFS – Buffalo Gap, Bureau of Reclamation, Bureau of Land Management, Game, Fish & Parks, South Dakota Wildland Fire, South Dakota DARN Resource Conservation and Forestry, and all adopting jurisdictions. (Notes on comments).

Notice was emailed to the emergency managers in the neighboring counties. A copy of the email along with any comments is included in Appendix C.

Neighboring Emergency Managers			
Neighboring County	**Emergency Manager**	**Response Received**	**Comments**
Custer County, SD	Steve Esser		
Oglala Lakota County, SD	Dar Coy		
Dawes & Sioux County, NE	Nan Gould		
Niobrara County, WY	James Santistevan		

Table 2.5 Listing of all neighboring county emergency managers.

TECHNICAL REVIEW OF EXISTING DOCUMENTS [§201.6(b)(3)] (*Requirement A4-a)*

A review and incorporation of existing plans, studies, reports, and technical information was completed. Each community was asked to provide a list of existing documents they had available. Documents incorporated into the Plan are cited throughout the document, including the notes section of the Mitigation Action. In addition to the *Fall River County Hazard Mitigation Plan* (2020), the author reviewed several other existing documents including but not limited to:

- *South Dakota State Enhanced Hazard Mitigation Plan* (2024)
- *South Dakota Drought Mitigation Plan* (2015)
- *South Dakota Forest Action Plan (2020 revision)*

- *USGS Karst Map and Expansive Soils Map*
- *Custer County Natural Hazard Mitigation Plan (2023)*
- *Not available for review: Niobrara County, WY, Sioux County and Dawes County, NE Mitigation Plans*

Note: Documents that were reviewed but not incorporated into this document are marked with an asterisk"*".

Record of Review – Fall River County	
Existing program/policy/technical documents	**Year**
Community Wildfire Protection Plan	2009
Flood Damage Prevention Ordinance	2007
Code of the West	2023

Table 2.6 Review of Existing Documents for Fall River County

Record of Review – Edgemont	
Existing program/policy/technical documents	**Year**
Comprehensive Plan (not available for review)	NA
Ordinance Chapter 7: Parks	2012
Ordinance Chapter 28: Building Code	2012
Ordinance Chapter 29: Zoning	2012
Ordinance Chapter 31: Mobile Homes	2012
Ordinance Chapter 32: Flooding	2012

Table 2.7 Review of Existing Documents for Edgemont.

Record of Review – Hot Springs	
Existing program/policy/technical documents	**Year**
Comprehensive Plan	2018
Hot Springs City Ordinances	Various

Table 2.8 Review of Existing Documents for Hot Springs.

Record of Review – Oelrich	
Existing program/policy/technical documents	**Year**
No documents were available for review.	NA

Table 2.9 Review of Existing Documents for Oelrichs

REVIEW OF THE 2020 PLAN

Each section of the *Fall River County Hazard Plan 2020* was reviewed. Much of the information taken from the 2020 version of the Plan was relevant. Specific areas needing improvement or changes include the planning process, mitigation strategy, risk assessment, and vulnerabilities. Each of the jurisdictions and Fall River County provided information on previous risks, concerns, and projects from the 2020 Plan. They were asked to review the information, to provide updates of completed projects and to identify new risks/concerns within their jurisdiction.

INTEGRATING MITIGATION INTO PLANNING (Requirement E2-c)

Unless otherwise noted below, the plan author cannot specify which elements from the 2020 Fall River Mitigation Plan were included in the updated documents listed below, or if any were included at all.

Fall River County:

The ability to integrate mitigation into planning is limited by the lack of tools such as zoning regulations, subdivision ordinances, and building codes. While these tools are commonly used to implement mitigation strategies, residents of Fall River County tend to prefer minimal government involvement. Mitigation projects will be considered and prioritized in conjunction with non-mitigation projects, such as parks, roads, etc. The county has decided to update and incorporate the Community Wildfire Protection Plan into this Mitigation Plan. Similarly, the county is currently working to update its Flood Damage Prevention Ordinance. In 2023, the 'Code of the West' was developed to help guide new residents on what to expect when moving to Fall River County.

Edgemont:
Edgemont works to implement mitigation requirements, goals, actions, and projects in updates of various planning mechanisms such as comprehensive plan, zoning or other city ordinances and policies. Edgemont's has adopted the Uniform Building Code 2012.

Hot Springs:
The City of Hot Springs is the largest city in the county. The city utilizes various planning mechanisms including flood damage prevention ordinance, comprehensive planning, zoning, subdivision ordinance, and several other ordinances that help to mitigate impacts from natural hazards. Hot Springs continues to work to implement mitigation requirements, goals, actions, and projects in updates of various planning mechanisms such as comprehensive plan, zoning or other city ordinances and policies. It is noted that in 2021 the city updated its Comprehensive Plan, and in 2020 updated its Stormwater Management Plan. The City of Hot Springs utilizes the International Building Code 2018, and International Residential Code 2018, both with some exceptions outline in the city's ordinance.

Oelrichs:
The Town is limited in its ability to incorporate mitigation actions due to funding and limited planning mechanisms. Oelrichs does not have an adopted building code.

III. HAZARDS RISK AND MITIGATION STRATEGIES

Change/Revisions to Risk Assessment: The risk assessment was completely reformatted. The following hazards were **added**: Dam Failure, and Extreme Temperatures. The hazard of high/severe wind and tornados were separated into separate hazards.

IDENTIFYING HAZARDS [§201.6(c)(2)(i)] *(Requirement B1-a)*

A comprehensive list of hazards was evaluated, and disasters were placed in three separate columns depending on the likelihood of the disaster occurring in the planning jurisdiction. The planning group eliminated secondary risks because the purpose of this Plan is to specifically evaluate mitigation activities for *natural hazards*. While transportation incident, hazardous material incidents, utility/communication disruption, aviation accident, epidemic, mass casualty Incident, terrorism, special event – civil disturbance *can be* a result of a *natural hazards,* that makes them a secondary risk.

Natural Hazards Categorized by Likelihood of Occurrence			
High Probability	**Medium Probability**	**Low Probability**	**Unlikely to Occur**
Drought	Rapid Snow Melt	Dam Failure	Avalanche
Extreme Cold	Tornado	Earthquake	Coastal Storm
Extreme Heat		Expansive Soils	Hurricane
Flood		Landslide	Volcanic Ash
Freezing Rain/Ice		Subsidence	Volcanic
Hail			Tsunami
Heavy Rain			
Heavy Snow			
Lightening			
Strong Winds			
Thunderstorm			
Wildfire			
Winter Storm			

High Probability	Hazards expected to occur annually or more frequently
Medium Probability	Hazards likely to occur at least once every 1 to 5 years.
Low Probability	Hazards likely to occur less frequently than once every 5 years.
Unlikely to Occur	Hazards which has never occurred or are extremely unlikely to occur in the area

Table 3.1 FEMA Assessing Risks list of hazards.

Only the natural hazards from the High, Medium and Low Probability columns will be further evaluated throughout this Plan. All secondary hazards and hazards in the Unlikely to Occur column will not be further evaluated in the Plan. Table 3.2 identifies the hazards addressed in the Plan throughout the planning process. Hazards were identified for this Plan in several ways including: observing development patterns, receiving input from jurisdictions, holding public meetings, public survey, historical occurrences, planning work sessions, evaluating previous disaster declarations and consulting the *State Enhanced Hazard Mitigation Plan* 2024 and *South Dakota Hazard Identification and Risk Assessment 2022*.

Jurisdiction Identified Hazards				
Natural Hazards Identified	Fall River County	Edgemont	Hot Springs	Oelrichs
Dam Failure	L	NA	L	NA
Drought	H	H	H	H
Earthquake	L	L	L	L
Expansive Soils	L	L	L	L
Extreme Cold	H	H	H	H
Extreme Heat	H	H	H	H
Flood	M	M	H	L
Hail	H	H	H	H
Heavy Rain	M	H	H	H
Landslides	L	L	M	L
Lightning	H	M	M	H
Heavy Snow	M	M	H	M
Strong Winds	H	H	H	H
Subsidence	L	L	L	L
Tornados	H	H	H	H
Wildfire	H	H	H	H
Winter Storms	H	H	H	H

NA	Not applicable; not a hazard to the jurisdiction
L	Low risk; little damage potential (minor damage to less than 5% often jurisdiction)
M	Medium risk; moderate damage potential (causing partial damage 5-10% of the jurisdiction, and irregular occurrence)
H	High risk; signification risk/major damage potential (ex. destructive, damage to more than 10% of the jurisdiction and/or regular occurrence)
O	Jurisdiction did not report hazards

Table 3.2 Natural Hazards identified by each jurisdiction. *Near proximity to city limits but not within city limits.

NATURAL HAZARDS IN THE PLAN JURISDICTION

Most of the hazard events listed were obtained using the NOAA website. The data provided spans between 1950 to 2023, as reported by the National Weather Service. Some hazards records are more recent. Data collection and processing procedures have changed over time, creating incomplete data. The information provided helps illustrate the hazards Fall River County faces. For a more comprehensive collection of the hazards in the county, other sources in the communities and the state were consulted.

The NOAA documented hazard events are believed to be incomplete. To get an accurate picture of Fall River County, additional sources were referenced when appropriate. With such a high number of occurrences it is reasonable to expect at least some property or crop damage was sustained in the communities during some of the occurrences, even though the damage may not have been reported or recorded. It is possible such damage was not reported because it was thought to be insignificant at the time, or because those responsible for reporting such information did not report to the proper agencies. Unfortunately, the total damage for each event is not available, but hopefully soon a method for collecting this data will evolve so it can be made available to local governments for mitigation planning.

The Stafford Act has two types of disaster declarations: emergency declarations and major disaster declarations. These two types allow the President to provide supplemental federal disaster assistance. While there have been

several emergency and major disaster declarations made statewide, Table 3.3 shows all recorded events that impacted Fall River County.

Federal Disaster Declarations	
Incident Period	**Types of Disasters**
01/03/1997 – 01/31/1997	Severe Winter Storms and Blizzard Conditions
02/03/1997 – 05/24/1997	Severe Flooding, Severe Winter Storm, Heavy Rain, High Wind
04/18/2000 – 04/20/2000	Severe Winter Storm, Flooding, Landslides and Mudslides
08/11/2000 – 08/20/2000	Flagpole Fire Complex
09/06/2005 – 10/01/2005	Hurricane Katrina Evacuation
07/07/2007 – 07/20/2007	Alabaugh Canyon Fire
07/21/2010 – 07/30/2010	Severe Storms and Flooding
10/03/2013 – 10/16/2013	Severe Winter Storm, Snowstorm, and Flooding
06/17/2015 – 06/24/2015	Severe Storms, Tornados, Straight-line Winds, and Flooding
12/24/2016 – 12/26/2016	Severe Winter Storm
08/11/2018 – 08/14/2018	Vineyard Fire
03/13/2019 – 04/26/2019	Winter Storm, Snowstorm, and Flooding
05/26/2019 – 06/07/2019	Severe Storms and Flooding
01/20/2020 – 05/11/2023	Covid-19 Pandemic

Table 3.3 Listing of federal disaster declarations. FEMA Declared Disasters.

MITIGATION OVERVIEW

The *State of South Dakota Hazard Mitigation Plan* addresses several mitigation categories including warning and forecasting, community planning, and infrastructure reinforcement. [1] After meeting with the local jurisdictions, stakeholders and public input, mitigation goals were established to best aid the county and jurisdictions in reducing the impact of hazards. Projects previously identified in the Plan were discussed to determine which of the projects had enough merit to be included in the updated Plan and to determine if the projects met the hazard mitigation needs of the County and jurisdictions. These projects were evaluated based on a preliminary evaluation of cost/benefit and priority based on either historical damage or anticipated damage. A *high* priority classification means the project should be implemented as soon as possible and would minimize losses at a very efficient rate. A *moderate* classification means the project should be carefully considered and completed after the high priority projects have been completed. A *low* priority means the project should not be considered in the near future. However, it is a potential solution and should not be eliminated until further evaluation can be completed. Such projects may be completed considering the failures of all other projects striving toward the same goal.

PRIORITIZATION OF MITIGATION ACTIVITIES *(Requirement C5-a)*

Fall River County and its jurisdictions had specific goals in mind which they were trying to achieve to mitigate risks. Those communities prioritized projects based on the number of people who would benefit from the project, future weather patterns, underserved and vulnerable populations, and the estimated or approximate total project cost. Some projects may be too large of an undertaking and therefore those projects were moved down the priority list. The Plan participants discussed projects in regard to benefit-cost analysis that would be required at the time of application and the Plan author advised specific details of each project that could be analyzed in closer detail during the application period. Consideration was also given to projects that could either impact or provide benefit to vulnerable or underserved populations.

A timeframe for completion, oversight, funding sources, and any other relevant issues were addressed. These implementation strategies are geared toward the specific goal and area. Notes were added to some projects for further clarification. Often, these projects will not encounter any resistance from environmental agencies, legal authorities, and political entities. Where these are a concern, address is made. Fall River County has areas owned by both federal and state entities. Projects listed may require collaboration with these entities.

[1] *State of South Dakota Enhance Hazard Mitigation Plan*. 2024

HARZARD PROFILE [§201.6(c)(2)(i)]

Geographic location of each natural hazard is addressed in this Plan. Most hazards identified have the potential of occurring anywhere in the county with the exception of flooding, geological, and dam failure which are more localized hazards. Wildfire can also occur anywhere in the county, but some locations may be more susceptible to risk. Table 3.4 identifies the latitude and longitude of the local jurisdictions along with the population, elevation, and number of occupied homes.

Communities within the County				
Towns	**Population**	**Location**	**Elevation**	**Occupied Units**
Edgemont	725	43° 17’ 54” N, 103° 50’ 42” W	3,715 ft.	349
Hot Springs	3,395	43° 24’ 17” N, 103° 26’ 42” W	3,409 ft.	1609
Oelrichs	117	43° 10’ 55” N, 103° 14’ 00” W	3,363 ft.	59

Table 3.4. Population, location, elevation, and occupied units for each of the adopting jurisdictions in Fall River County. Fall River County. *Google Earth Pro*), U.S. Census Bureau American Community Survey 2023, and U.S Decennial Census 2020). Requirement **B1-b.**

Additionally, the extent (i.e., magnitude or severity) of each hazard, information on previous occurrences of each hazard, and the probability of future events (i.e., chance or occurrence) for each hazard are addressed below. Due to the long listing of all hazard occurrences in the last 72 years, complete history can be found in Appendix B. Future Probability was created using historical data when applicable and consideration for future climate change considerations.

Future Probability Ratings	
High	More than 50% change of occurring in a given year.
Med	More than 10% but less than 50%
Low	Less than or equal to a 10% chance of occurring in a given year

Table 3.5. Future Probability Rating.

DAM FAILURE (High-Risk Dams)

Future Hazard Probability		
Event Type	**Dam Failure**	**Levee Failure**
Probability	**Low**	**Low**

Table 3.6 Probability of future high-risk dam and/or levee failure occurrence.

Dam failure is usually associated with intense rainfall or prolonged flooding conditions, but it can also occur in any weather condition. The future risk for high-risk dam failure in Fall River County is low, with no known historical high-risk dam failure events in the county. Dam failure can be caused by a variety of sources including faulty design, construction and operational inadequacies, intentional breaches, aging, seismic events, or a flood event that exceeds the design. Flooding caused by heavy rain could create situations such as overtopping. In addition, structure stability can also be at risk due to geological events such as earthquakes or flood-induced damage. Structure can also be affected by wet-dry periods. Embankment dams are susceptible to seepage due to cracks and erosion created by drought conditions, creating weakened stability. [2] It’s estimated that a third of dam failures occur from overtopping. [3] All of Fall River’s High-Risk Dams are classified as ER (earthen dams):

> Embankment dams are made mainly of rock and soil and have lower construction costs than concrete dams, but they are more likely to fail by overtopping. As the dam overtops, the material erodes until there is complete failure. These dams are also prone to seepage, piping, and internal erosion, all of which involve complete mechanisms. Insufficient drainage, corrosion of outlet pipes, deformation and settlement of the materials, surface erosion, loss of strength due to improper

[2] Concha Larrauru, Paulina & Upmanu Lall. 2020.
[3] Concha Larrauru, Paulina & Upmanu Lall. 2020.

compacted fill or cycles of wetting and drying/freezing and thawing, vegetation, and animal activity can lead to structural failure. Internal erosion is the most common aging scenario of the foundation of earth and rockfill dams. [4]

South Dakota's Department of Agriculture and Natural Resources Water Rights Program provided an inventory of the dams which are large enough to fall under South Dakota's Safety of Dams Rules. Fall River County has a total of 72 dams identified by the Water Rights Program Dam Inventory.

Extent (*Requirement B1-c):*

The National Inventory of Dams uses five classifications of hazard potential for dams: low, significant, high, undetermined, and not available (Table 4.8). State and privately owned dams with a classification of high-risk are required to have inspections every five years. While federally owned dams may require annual inspections. However, for this Plan only those dams classified as High Hazard or High-Risk Dams will be discussed.

National Inventory of Dams Classification Table			
Dam Hazard Potential Classification	**Low Hazard**	**Significant Hazard**	**High Hazard**
Loss of human life	None expected	None expected	Probable
Economic losses	Low and generally limited to owner	Yes	Yes (but not necessary for this classification
Environmental damages	Low and generally limited to owner	Yes	Yes (but not necessary for this classification
Lifeline interests impacted	No	Yes	Yes (but not necessary for this classification

Table 3.7. Dam Hazard Potential Classifications. The table was taken from the National Inventory of Dams. (National Inventory of Dams. 2022. *Managing Dams*)

High-Risk Dams in Fall River County						
	Rating	**Date of Inspection**	**Date Complete**	**Maximum Storage**	**Owner**	**Nearest City and Distance (Miles)**
Angostura	N/A	08/26/2020	1949	197,100 acre-ft	Federal	Wasta (50Mi)
Cold Brook Dam	N/A	07/29/2020	1953	7,200 acre-ft	Federal	Hot Springs (1Mi)
Cottonwood Springs Lake	N/A	07/29/2020	1969	11,635 acre-ft	Federal	Hot Springs (4Mi)
Classification Definitions						
Satisfactory	No existing or potential deficiencies are recognized					
Fair	No existing dam safety deficiencies are recognized for normal loading conditions. Rare or extreme hydraulic and/or seismic events may result in a dam safety deficiency					
Poor	A dam safety deficiency is recognized for loading conditions which may realistically occur. Remedial action is necessary					
Unsatisfactory	A dam safety deficiency is recognized that requires immediate or emergency remedial action					
Not Rated	This dam has not been inspected or have been inspected but not rated					

Table 3.8. High-Risk Dam in Fall River County. (National Inventory of Dams).

The three high-risk dams in Fall River County are federally owned. Due to this limited information was available for these dams, including downstream hazard maps. Similarly, the Fall River does not have zoning and has very limited planning mechanisms, thus it is limited in the ability to utilize mitigation strategies that would entail land uses. Due to jurisdictional ownership, the county and cities are unable to mitigate the dam directly. Mitigation efforts tend to fall heavily on education. The emergency plans for high-risks dams were not available to the author of this plan for review. Information provided about the following dams was retrieved from the National Inventory of Dams and was publicly available information. High-risk dams located outside of the county were reviewed for any potential impact in Fall River County in the event of failure. During the review it is believed there are no identified high-risk dams that would have had an impact on Fall River County.

[4] Ibid. Concha Larrauru.

Location *(Requirement B1-b):*

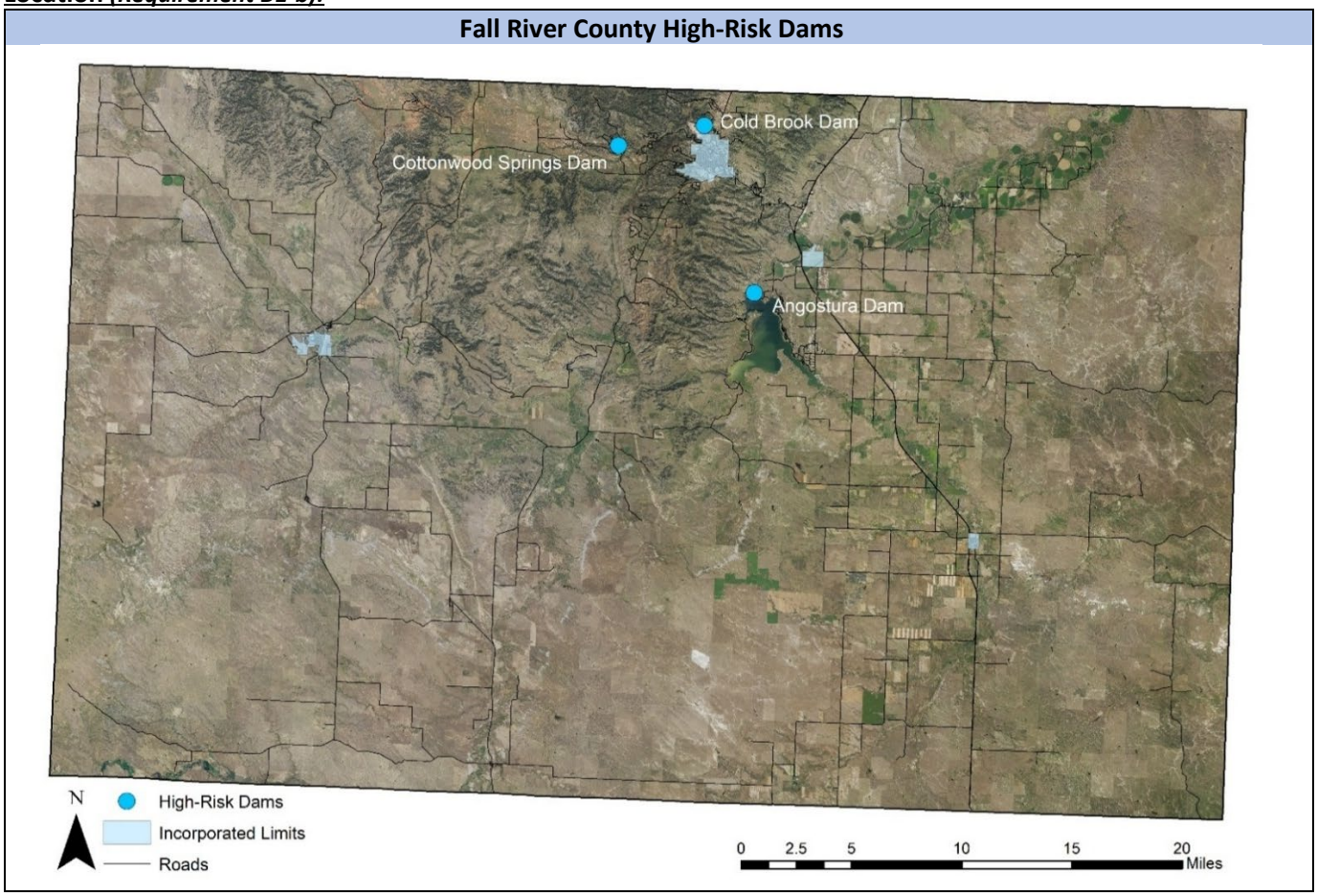

Figure 3.1 Fall River County High-Risk Dam Locations ***(Requirement:B1-b)***

The national levee database shows a total of two levees in the city of Hot Springs, and one levee in Fall River County near Edgemont. The Fall River County Levee is located west of Hot Springs and north of Edgemont in an undeveloped area. There is little to no data provided on this levee aside from the potential risk to 0.2 acres of agricultural land. The other two levees are owned and maintained by the City of Hot Springs, with oversight from USACE – Omaha District. These two levees were developed as part of the Hot Springs channel improvements in conjunction with the Cold Brook and Cottonwood Dam project to help reduce flood risk in Hot Springs.

Unique and Varied Risk *(Requirement B1-f)*:
It is not believed that neither of the incorporated communities of Edgemont or Oelrichs would have direct impacts from dam failure or levee failure.

Vulnerabilities *(Requirement B2-a,* B2-b.*):*
Dam and Levee Failure can be caused by overtopping, foundation defects, cracking, inadequate maintenance and upkeep, and piping. High-risk dams have the risk of not only property damage, but more importantly loss of life. The classification is based on the potential of downstream consequences of the dam failing, not the condition of the dam. It is due to this reason that these dams are required to have an emergency action plan in the event of a failure. In addition, there is a requirement by the state of South Dakota that all high-risk dams are inspected every five years. Vulnerable populations would be those with potential to be impacted by the downstream hazard, such as homeowners, business owners, travelers, and the overall county economy.

Angostura Dam is owned by the Bureau of Reclamation. The dam uses are primarily for irrigation and recreation. It is a popular tourist destination with the South Dakota State Angostura Recreational Area which includes camping, boating, fishing, and swimming. The surrounding area around the dam is also experiencing increased growth and development. Fall River County is limited to its ability to regulate development any new development in the downstream hazard. In the event of failure, it is likely the unincorporated community of Oral would be impacted.

According to the National Inventory of Dams, the nearest incorporated community is Wasta, located in Pennington County, roughly 50 miles away.

Cold Brook and Cottonwood Dams are owned by the United States Army Corp of Engineers – Omaha District. Both the Cold Brook Dam and Cottonwood Springs dam were designed to help reduce flooding in the Fall River basin. When needed to help reduce flood risk, USACE can release up to 1,500 cfs at Cold Brook. The largest release as of 2017 was in 1999 with approximately 19cfs of water released to help reduce flooding.[5] The following information was provided in the 2017 risk summary for the Cold Brook Dam:

> Although Cold Brook Dam continues to reliably reduce floods, it alone cannot eliminate the risk of flooding (nor can Cottonwood Springs Dam). While unlikely, non-breach releases when the reservoir is full are critical to reducing the chance of dam overtopping, even if streams and rivers below the dam have reached or exceeded their capacity. Impacts on downstream populations and structures would be devastating, but overtopping could erode the embankment, leading to a breach, and allowing water stored behind the dam to flow uncontrolled downstream and further intensify downstream flooding.
>
> When USACE last assessed the dam's ability to meet flood risk management goals, it was determined that the primary threat that could lead to a dam breach during an extreme flood is overtopping of the embankment. Although this scenario is very unlikely, overtopping would cause catastrophic flooding with swift, deep, and life-threatening floodwaters in many parts of Hot Springs and communities along Fall River. This would substantially impact property, the economy, and critical infrastructure (such as power and water utilities, transportation systems, and commercial facilities).

Cold Brook Dam: Consequences Estimate					
Type	**Pool Elevations**	**Daytime People at Risk**	**Nighttime People at Risk**	**Buildings at Risk**	**Economic Cost**
MH - Breach	3,679.2	1,363	1,636	0	$141,440,902
MH- non-Breach	3,679.2	1,014	1,152	0	$102,084,241
TAS – Breach	3,648.1	826	969	0	$75,422,669
TAS – non-Breach	3,648.1	240	327	0	$12,264,397
SS –Breach	3,603.7	N/A	N/A	N/A	N/A
SS – non-Breach	3,603.7	N/A	N/A	N/A	N/A
NH – Breach	3,590.2	382	564	0	$24,797,527
NH – non-Breach	3,590.2	196	259	0	$9,709,775
NL - Breach	3,587.4	379	559	0	$24,772,092
NL – non-Breach	3,587.4	194	253	0	$9,410,077

Table 3.9. Cold Brook Dam Consequence Estimates. Source National Inventory of Levees (USACE) *Maximum High (MH), Top Active Storage (TAS), Normal Height (NH), Normal Low (NL), Security Scenario (SS) – intermediate pool levels between NH and MH.

Cottonwood Dam: Consequences Estimate					
Type	**Pool Elevations**	**Daytime People at Risk**	**Nighttime People at Risk**	**Buildings at Risk**	**Economic Cost**
MH - Breach	3,957.9	1,050	1,636	N/A	$109,892,128
MH- non-Breach	3,957.9	515	1,152	N/A	$45,696,215
TAS – Breach	3,937.8	901	969	N/A	$81,836,960
TAS – non-Breach	3,937.8	235	327	N/A	$14,625,233
SS –Breach	3,893.9	N/A	N/A	N/A	N/A
SS – non-Breach	3,893.9	N/A	N/A	N/A	N/A
NH – Breach	3,879.3	328	564	N/A	$20,478,115
NH – non-Breach	3,879.3	235	259	N/A	$14,625,689
NL - Breach	3,877	294	559	N/A	$18,930,324
NL – non-Breach	3,877	235	318	N/A	$14,625,045

Table 3.10. Cottonwood Dam Consequence Estimates. Source National Inventory of Levees (USACE) *Maximum High (MH), Top Active Storage (TAS), Normal Height (NH), Normal Low (NL), Security Scenario (SS) – intermediate pool levels between NH and MH.

[5] National Inventory of Dams

It is noted from USACE that the USACE Dam Safety Program is proactive in both normal and flooding conditions in working towards the reduction of risks to life, property, and the environment. In conjunction with state and local emergency management agencies, these dams are regularly inspected, monitored, and receive regular maintenance and repairs.

Levees:

Hot Springs – Fall River Channel West System				
Location	Hot Springs, SD	**Last Assessment Date**	12/19/2016	**Behind the Levee**
Operation and Maintenance	City of Hot Springs	**Data Last Updated**	09/27/2024	28 Buildings 41 People $17 Million (Property Value) 0.4 Acres of Farmland 4 Critical Structures 1 Community (Hot Springs)
Floodplain Management	FEMA Region 8	**Levee Length**	1.0555 Mi	
Oversight Org.	USACE – Omaha District	**Average Levee Height**	4 Ft	

Table 3.11. Hot Springs, SD Levee Data. (USACE. National Levee Database).

Hot Springs – Fall River Channel West System				
Location	Hot Springs, SD	**Last Assessment Date**	12/19/2016	**Behind the Levee**
Operation and Maintenance	City of Hot Springs	**Data Last Updated**	09/27/2024	39 Buildings 125 People $17 Million (Property Value) 0 Acres of Farmland 0 Critical Structures 1 Community (Hot Springs)
Floodplain Management	FEMA Region 8	**Levee Length**	0.825 Mi	
Oversight Org.	USACE – Omaha District	**Average Levee Height**	4 Ft	

Table 3.12. Hot Springs, SD Levee Data. (USACE. National Levee Database).

Fall River County Levee 1				
Location	Fall River County, SD	**Last Assessment Date**	NA	**Behind the Levee**
Operation and Maintenance	NA	**Data Last Updated**	NA	0.2 Acres of Farmland 1 Community (Fall River County)
Floodplain Management	FEMA Region 8	**Levee Length**	MA	
Oversight Org.	NA	**Average Levee Height**	NA	

Table 3.13. Fall River, SD Levee Data. (USACE. National Levee Database).

Historical Events ***(Requirement B1-d):***

No known incidents for either high-risk dam failure or levees.

HIGH-RISK DAMS MITIGATION STRATAGIES *(Requirement C3-a, C4-a, C4-b, C4-b):*

Goal 1: Reduce impact of dam high-risk failure in Fall River County.

Project 1.1	Appropriately regulate downstream hazards risk from high-risk dams when updating land uses.
Responsible Jurisdiction	Hot Springs
Priority	High
Funding Source	NA – No cost aside from staff time
Timeframe	1-5 years
Oversight	Hot Springs Building/Development Director
Notes	This can be considered during zoning or land use updates.

Project 1.2	Educate the community about dam failure risks and evacuation routes through workshops and informational campaigns.
Responsible Jurisdiction	Fall River County, Hot Springs
Priority	Med
Funding Source	NA – No cost aside from staff time
Timeframe	1-5 years
Oversight	Fall River County Emergency Manager, Hot Springs City Administrator
Notes	From Cold Brook USACE Risk Assessment (National Inventory of Dams): Building Risk Awareness: Hot Springs and other downstream communities are encouraged to monitor National Weather Service flood forecasts during periods of heavy rain and snowmelt and learn about potential flood impacts to family, home, and community. It is important to understand community notification plans, including safe, efficient evacuation routes, and consider preparedness and emergency actions to reduce individual risks.

Project 1.3	Continue maintenance of the levee system in Hot Springs.
Responsible Jurisdiction	Hot Springs
Priority	High
Funding Source	FEMA-HMGP
Timeframe	Ongoing
Oversight	Hot Springs City Engineer

DROUGHT

Future Hazard Probability					
Event Type	**Abnormally Dry**	**Moderate Drought**	**Severe Drought**	**Extreme Drought**	**Exceptional Drought**
Probability	**High**	**High**	**High**	**Med**	**Med**

Table 3.14. Future probability of drought future occurrence based on National Integrated Drought Information System (National Integrated Drought Information System. *Drought Conditions for Fall River County: Historical Conditions for Fall River County)*

FEMA National Risk Index	
Drought	Very Low
*Based on Agricultural (crop only) impacts	

Drought is an extended period of months or years when a region notes a deficiency in its water supply. Generally, this occurs when a region receives consistently below average precipitation. It can have a substantial impact on the ecosystem and agriculture of the affected region. Fall River County has experienced many droughts throughout history, lasting for months or several years, which can occur anywhere in the county.

Extent (*Requirement B1-c):*

Drought Category System
DO – Abnormally Dry
• Grain and pasture growth is stunted
D1 – Moderate Drought
• Topsoil is dry; grain crop yields decline • Pasture and water supplies decline; cattle industry under stress
D2 – Severe Drought
• Planting begins early, irrigation use increases • Hay is short; cattle sales are early
D3 – Extreme Drought
• Row crop loss is significant • Producers haul water for cattle and provide supplemental feeding; cattle sales increase
D4 – Exceptional Drought
• Row crop loss is significant; producers are selling livestock herds; market price fall • Epizootic hemorrhagic disease spreads: wildlife populations decline; recreational fishing and hunting are affected • Extremely low flow and river debris impair navigation of major rivers; commercial barge traffic slows; water use restrictions are implemented

Table 3.15 U.S. Drought Monitor – Drought 5-Category System. (National Integrate Drought Information System. 2023.)

Location *(Requirement B1-b):*

Droughts can occur anywhere in the County. These events often span the entire region but can have areas with different degrees of drought ranging from abnormally dry to exceptionally dry.

Unique and Varied Risk *(Requirement B1-f)*:

Droughts are often a regional challenge, so it is anticipated that the incorporated communities would be at similar risk and vulnerabilities. The only difference is unlike Counties; municipalities often manage their own water systems. Having a municipal water system allows the city to set water restrictions if needed. Similarly, the municipalities would need to ensure that the water infrastructure is adequate to keep up with development. When considering new development and annexation, infrastructure capacity should always be considered, including capacity during pro-longed drought conditions.

Edgemont:

Edgemont has its own water system. The city is currently experiencing water loss and exploring options to correct deficiencies in the system, which will most likely require an engineering study to identify the issue and provide possible solutions.

The city also has designated water restrictions in their *Chapter 12* of the City Ordinances. There are automatically restrictions placed between the months of June and September, primarily for outdoor water schedules. The mayor has the authority to declare further restrictions in the event of an emergency.

Hot Springs:

The city currently has two Madison Aquifer wells. Due to challenges with the aquifer, the city is working on the installation of extra water storage. In 2025, the community is currently seeking funding options for backup power to the Hot Springs Hot Brook Pump. This is one of the primary sources of distributing water throughout the city and is currently without backup power. This pump can pump water to the highest set water tank, which in the event of power outage the tank would be gravity fed to allow water distribution to a majority of the city.

Hot Springs also does have an ordinance in place in the event of water level concerns. *City Ordinance 51.11* notes that during critical water conditions or shortages the city has the authority to place water restrictions.

Oelrichs:

The town of Oelrichs does not currently have backup water storage nor do they utilize any type of water restrictions.

Vulnerabilities *(Requirement B2-a,* B2-b.*):*

High temperatures, high winds, and low relative humidity all impact drought conditions. A decrease in the amount of precipitation can adversely affect stream flows and reservoirs, lakes, and groundwater levels. Long periods of drought often create soil conditions that reduce the ability of water to be absorbed, which can often lead to flash flooding. Droughts conditions also can contribute to dry vegetation which creates natural fuels which can increase the risks of wildfire ignitions, intensity, and size.

Drought can also impact many factors, both directly and indirectly. These factors include higher water and food prices, water restrictions, air and water quality, and restricted access to recreational areas.[6] Water shortages can affect supplies for domestic, municipal, industrial, agricultural, and recreational uses. Crops and other vegetation are harmed when moisture is not present within the soil. South Dakota's economy is closely tied to agriculture and only magnifies the potential loss, which could be suffered by the state's economy during drought conditions. The agriculture sector is severely affected by the lack of vegetation and water for livestock. Crop and pasture yields can be greatly diminished during periods of drought.

Drought conditions can also be harmful for vulnerable populations such as the elderly, young children, and those with medical conditions such as respiratory conditions, which are often exacerbated by increased dust. Long-term health problems can occur due to poor quality drinking water and the impacts from poor air quality, sanitation hygiene, and food and nutrition. [7]

Pro-longed and more frequent drought conditions in the region, could likely be an increased demand for water and energy resources. As a result, the region may see the constraint of development, stress on natural resources, and increased competition for water. [8] The degree of impact depends on the length of a drought period. The longer the drought period, the higher degree of impact the land will experience. This can lead to the depletion of reservoirs and the decline of groundwater basin water levels. [9] Drought conditions lower the recharge of the aquifers. [10]

Historical Events *(Requirement B1-d):*

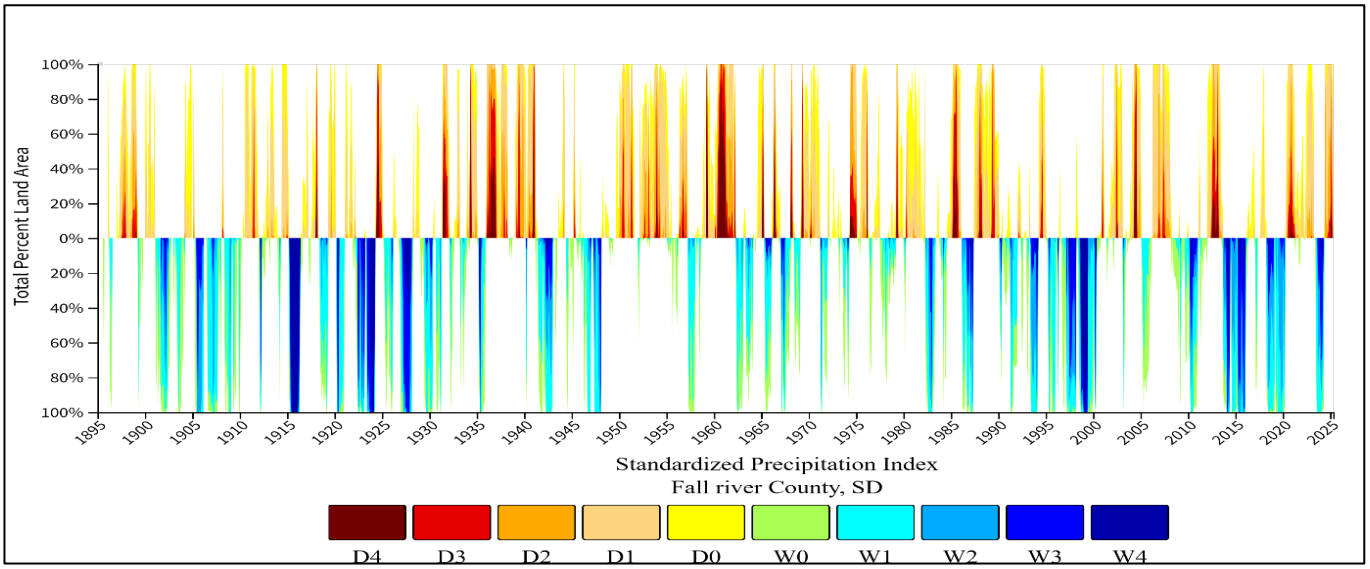

Figure 3.2. Fall River County's drought conditions from 1895 to 05/2025. Accessed 07/01/2025. (National Integrated Drought Information System. (2025). *Drought Conditions for Fall River County: Historical Conditions for Fall River County).*

[6] *State of South Dakota Drought Mitigation Plan.* 2015

[7] Center for Disease Control and Prevention. *Health implications of drought*. 2020

[8] USGCRP, *Climate Science Special Report: Fourth National Climate Assessment, Volume 1*

[9] *State of South Dakota Drought Mitigation Plan*. 2015

[10] Driscoll et. al. *Hydrology of the Black Hills area, South Dakota*

DROUGHT MITIGATION STRATAGIES *(Requirement C3-a, C4-a, C4-b, C4-b):*

Goal 2: Reduce impact of drought in Fall River County.

Project 2.1	Continue monitoring drought conditions throughout Fall River County.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	NA – No cost aside from staff time
Timeframe	Ongoing
Oversight	County Emergency Manager, Edgemont Mayor, Hot Springs Public Works Director, Oelrichs Board President.
Notes	Monitoring conditions can keep County/Towns informed should they need to inform the public of water usage, as well as higher risk for wildfire.

Project 2.2	Prepare a public information packet or share information to increase awareness of drought hazards and measures that may be taken to reduce health and safety risks.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	NA – No cost aside from staff time
Timeframe	1-5 years
Oversight	County Emergency Manager, Edgemont Mayor, Hot Springs Public Works Director, Oelrichs Board President.
Notes	Monitoring conditions can keep county/municipalities informed should they need to inform the public of water usage and best practices. Encourage the public to take water-saving measures when extra water is needed for irrigation, livestock, and firefighting purposes.

Project 2.3	Seeking funding for the Hot Brooks Pump backup generator
Responsible Jurisdiction	Hot Springs
Priority	High
Funding Source	FEMA-HMGP, City General Funds
Timeframe	1-2 years
Oversight	Hot Springs Public Work Director

Project 2.4	Conduct an engineering study to address deficiencies in the city's drinking water system.
Responsible Jurisdiction	Edgemont
Priority	High
Funding Source	FEMA-HMGP, DANR SRF, CDBG, City General Funds
Timeframe	1-2 years
Oversight	Mayor

EXTREME TEMPERATURES

Future Hazard Probability		
Event Type	**Cold Wave**	**Heat Wave**
Probability	**Med**	**Low**

Table 3.16. Probability of future extreme temperatures occurrence. Calculations based on NOAA weather data can be found in Appendix B. (NOAA: National Centers for Environmental Information. 2025. *Storm Events Database).*

Extreme temperatures encompass extreme cold, extreme heat, and cold wind chills. Defining extreme temperatures is somewhat subjective, as people in the area may have adapted to extreme temperatures which results in these weather events not being reported as often as they occur. Ahat constitutes extreme cold, and its effects can vary across different areas of the country. In regions relatively unaccustomed to winter weather, near freezing temperatures are considered "extreme cold." However, South Dakota can often experience long spans of time in negative temperatures. Similarly, extreme heat also known as a heat wave, is a prolonged period of excessively hot weather, which may be accompanied by high humidity. There is no universal definition of a heat wave; the term is relative to the usual weather in the area.

Location ***(Requirement B1-b):***

Extreme temperatures can occur anywhere in the County. These events often span the entire region but can have areas with different degrees. Areas with high elevations tend to experience cooler temperatures. Most of the county falls in the Köppen climate type of BSk (cold semi-arid climate). [11] Fall River County is classified as a semi-arid climate, which tends to have warm-hot summers and cool/cold winters. Semi-arid climates often receive between 10-20 inches of precipitation annually. [12] The mountainous areas north of Hot Springs have classification of Dfa, Dwa, Dwb, and Dfb, as continental climates which generally have a wide variation of hot and cold temperatures.

FEMA National Risk Index	
Cold Wave	Relatively Moderate
Head Wave	No Rating

Extent (*Requirement B1-c):*

Figures below show the impacts of cold wind chills can have based on temperatures and time, while the heat index shows the likelihood of experience an impact from heat based on temperatures and relative humidity.

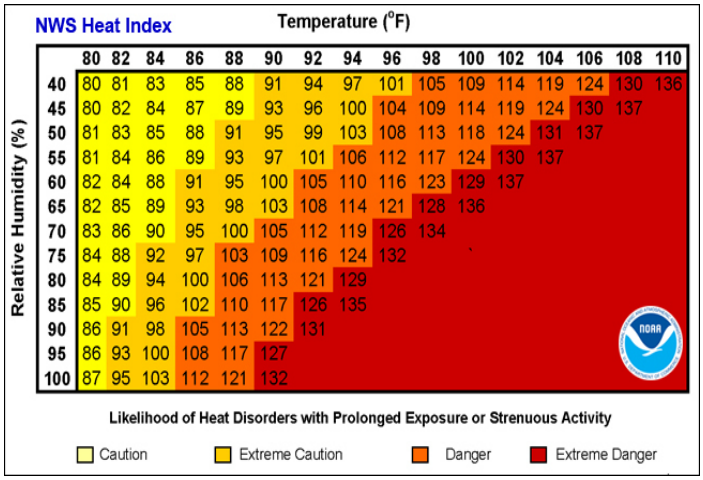

Figure 3.3. Heat Index Chart. NOAA

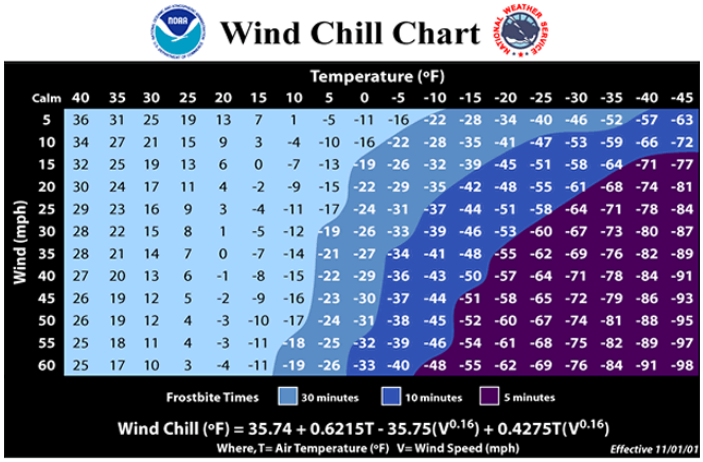

Figure 3.4. Wind Chill Chart. NOAA

[11] Peel, MC, Koppen-Geiger climate classification – 2007.

[12] National Park Service. *Arid and Semi-arid Region Landforms.*

Unique and Varied Risk *(Requirement B1-f)*:
Extreme temperatures are often a regional challenge, so it is anticipated that the incorporated communities would be at similar risk and vulnerabilities.

Vulnerabilities *(Requirement B2-a,* B2-b.*):*
Extreme Cold:
When temperatures drop below normal and wind speed increases, heat can leave your body more rapidly. These weather-related conditions may lead to serious health problems. Extreme cold is a dangerous situation that can bring on health emergencies for susceptible people, such as those without shelter or who are stranded, or who live in a home that is poorly insulated or without heat. Exposure is the biggest threat/vulnerability to human life; however, incidences of exposure are isolated and thus unlikely to happen. Frostbite, an injury caused by freezing, can create a loss of feeling and color to the body. Injuries can be extreme enough to permanently damage body tissues and amputations may be required in severe cases. [1]

Extreme Heat
Extreme heat has caused worldwide catastrophic crop damage, thousands of deaths from hyperthermia, and widespread power failures due to increased use of air conditioning. Loss of power and crop and livestock damage are the largest vulnerability to the county during times of extreme heat. Extreme heat can also greatly affect those individuals who work primarily outdoors. [13]

Significant Weather Events *(Requirement B1-d):*
Historic event narratives and events are taken from the NOAA Storm Events Database.

Historic:
- **07/15/2006:** High pressure brought record heat to western South Dakota, with many locations setting record high temperatures. The National Weather Service cooperative observer 8 miles north-northwest of Usta in Perkins County recorded a maximum temperature of 120 degrees on July 15th, which tied the previous all-time record high in South Dakota, first set on July 5th, 1936, in Gann Valley. A woman died of heat exhaustion while hiking in the Badlands National Park on July 16th.
- **12/16/2016:** Arctic air pushed into the area behind an existing storm system. High temperatures were below zero on the 17th, with temperatures dropping to 15 below to 35 below zero on the morning of the 18th. An official NWS cooperative observer in Hoover recorded a low temperature of 39 below zero on the morning of the 18th. Wind chill values were as low as 45 below zero across the area.

Since 2020:
- **12/20/2022:** An Arctic airmass settled over the region, bringing bitter cold temperatures and gusty winds that produced wind chills of 30 below to 55 below zero at times from late day on the 20th through the 23rd. A period of light snow developed across much of the area on the 21st, bringing light accumulations and blowing snow, greatly reducing visibility at times through the 22nd.
- **1/12/2024:** An arctic air mass settled over the region for several days, producing extreme and dangerous wind chills across western and south-central South Dakota. Temperatures remained below zero for 3 days, as low as 20 below to 40 below zero across much of the area on the mornings of the 13th and 14th. Gusty north to northwest winds at times helped to produce wind chills in the 30 below to 70 below range from the morning of the 13th to the morning of the 15th.

[13] Headwater Economics. 2025. *Populations at Risk*.

EXTREME TEMPERATURES MITIGATION STRATAGIES *(Requirement C3-a, C4-a, C4-b, C4-b):*

Goal 3: Reduce impact of Extreme Temperatures in Fall River County

Project 3.1	Educate the community about heat-related health risks and promote strategies for staying cool, hydrated, and safe during high temperatures.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	Med
Funding Source	NA – No cost aside from staff time
Timeframe	1-5 years
Oversight	County Emergency Manager, Edgemont Finance Officer, Hot Springs City Administrator, Oelrichs Board President
Notes	The county could expand on efforts by collaborating with municipalities on a countywide education campaign strategy. Posting information on websites, mailers through utilities, brochures, booths at community events, providing information as part of the building permit process. Collaborate with state and federal agencies on education materials. Special consideration should be given to outreach to vulnerable populations. Including different methods of providing information to these populations, such as churches, social media, senior centers, schools, daycares.

FLOODING

Future Hazard Probability		
Event Type	**Flash Flood**	**Flood**
Probability	**High**	**Med**

Table 3.17. Probability of future flooding occurrence including future climate variations. Calculations based partially on NOAA weather data can be found in Appendix B. (NOAA: National Centers for Environmental Information. 2025. *Storm Events Database).*

FEMA National Risk Index	
Riverine Flooding	Relatively Low

Flooding/flash flooding is a temporary overflow of water onto lands not normally covered by water, producing measurable property damage, or forcing the evacuation of people and resources. Many factors can affect flooding including deforestation, urbanization, dams, rapid snow melt, floodwater management activities, and different agricultural practices.

Extent (*Requirement B1-c):*

Flood Recurrence Intervals	
Intervals	**Percentage in any given year**
10 year	10% probability
25 year	4% probability
50 year	2% probability
100 year	1% probability
500 year	0.2% probability

Table 3.18. Flood recurrence intervals: statistical expectation of inundation frequency. (SD Enhanced Mitigation Plan 2024)

Flash Flooding tends to be primarily localized, though enough rain can be produced to cause inundation flooding in areas along rivers, streams, and floodplains. Heavy, slow-moving thunderstorms often produce large amounts of rain. Flash flooding is more likely to occur when dryer soil is inundated with heavy amounts of water. Precipitation amounts vary from season to season. Higher temperatures will also have an impact on the evaporation rates effect on soil moisture, streamflow, and snowpack.[14] The *South Dakota State Hazard Mitigation Plan 2019* notes that the special flood hazard areas are expected to increase nationwide by as much as 40%-50% over the next 100

[14] USGCRP, 2017. *Climate Science Special Report: Fourth National Climate Assessment, Volume I.*

years. This is attributed not only to the increase in precipitation but also to the increased urbanization of areas. [15]

The use of *Risk Factor* can assist in projecting the future flooding risk of the county. The First Street Foundation Modeling method shows specific locations at risk of flooding from rain, rivers, tides, and storm surge. The model is comprised of decades of peer reviews, climatology models, hydrology, and statistics. [16] Risk scores have five categories: minor, moderate, major, severe, and extreme. The scores are reflective of the weighted percentages of properties, facilities, and roads with operational risk at a given depth. The model also considers climate variations over time, such as altered frequency and severity of weather events. [17]

Flood Factor: Flooding Risk	
Category Type	Risk
Overall, Fall River County	Major
Residential	Moderate
Commercial	Major
Infrastructure	Severe
Social	Major
Roads	Moderate

Table 3.19. Flood Factor Summary. Fall River, SD. (Risk Factor, 2025, Flood Factor).

Location ***(Requirement B1-b):***

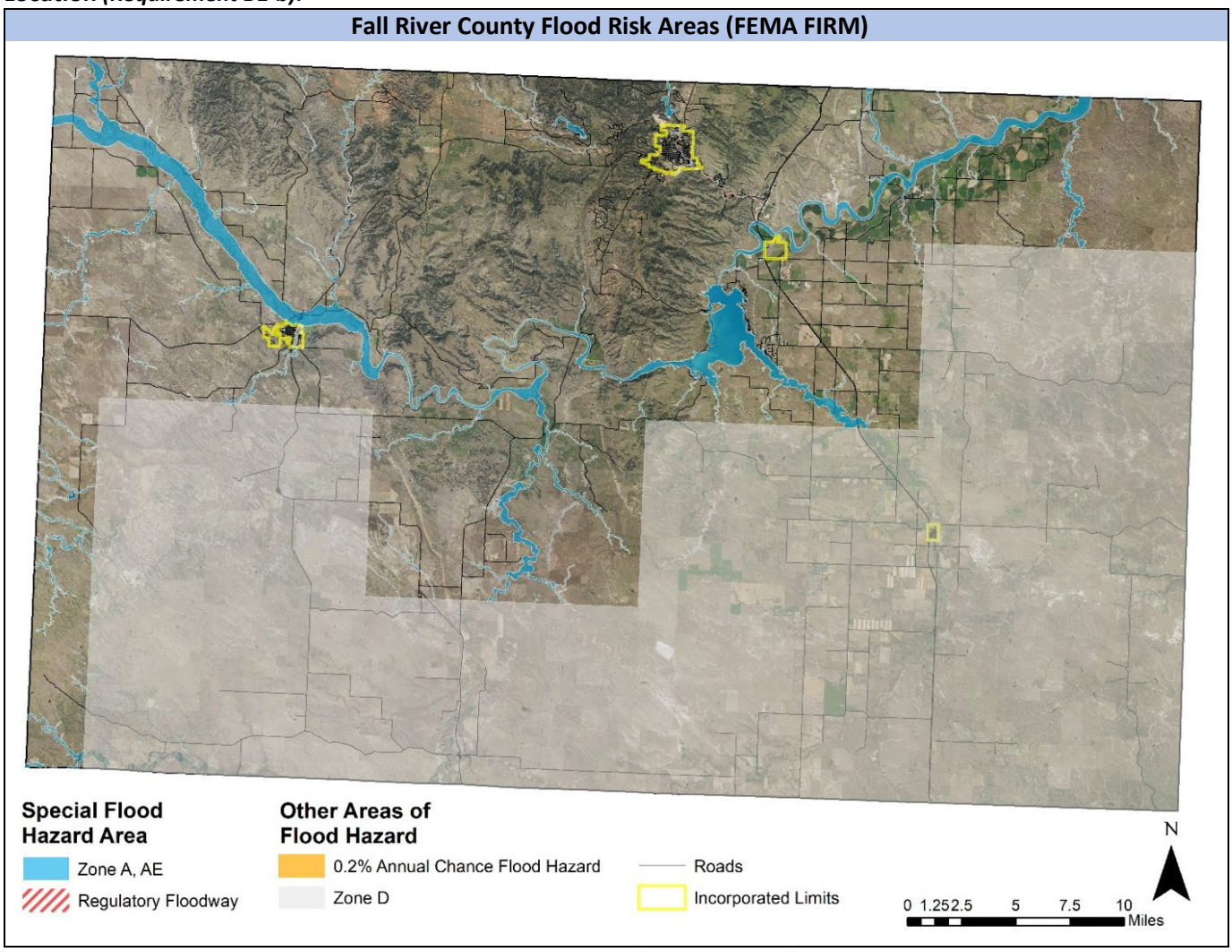

Figure 3.5 Fall River County FEMA FIRM Locations. Data Source: Fall River County ***(Requirement: B1-b)***

In addition to the designed floodplain, an area of note with challenges of high standing water and drainage issues is south of Smithwick. This area is beginning to see some development.

[15] *State of South Dakota Hazard Mitigation Plan*. 2024
[16] First Street Foundation. *First Street Foundation Flood Model 2020 Methodology Overview*
[17] Risk Factor. *Community methodology – Is your community at risk of flooding? 2022.*

In early 2025, the US Army Corp of Engineers in collaboration with the South Dakota Silver Jackets, City of Hot Springs, and Fall River County completed a hydraulic analyses and inundation mapping for the Cold Brook, Hot Brook, and Fall River systems in and just outside of the City of Hot Springs.[18]

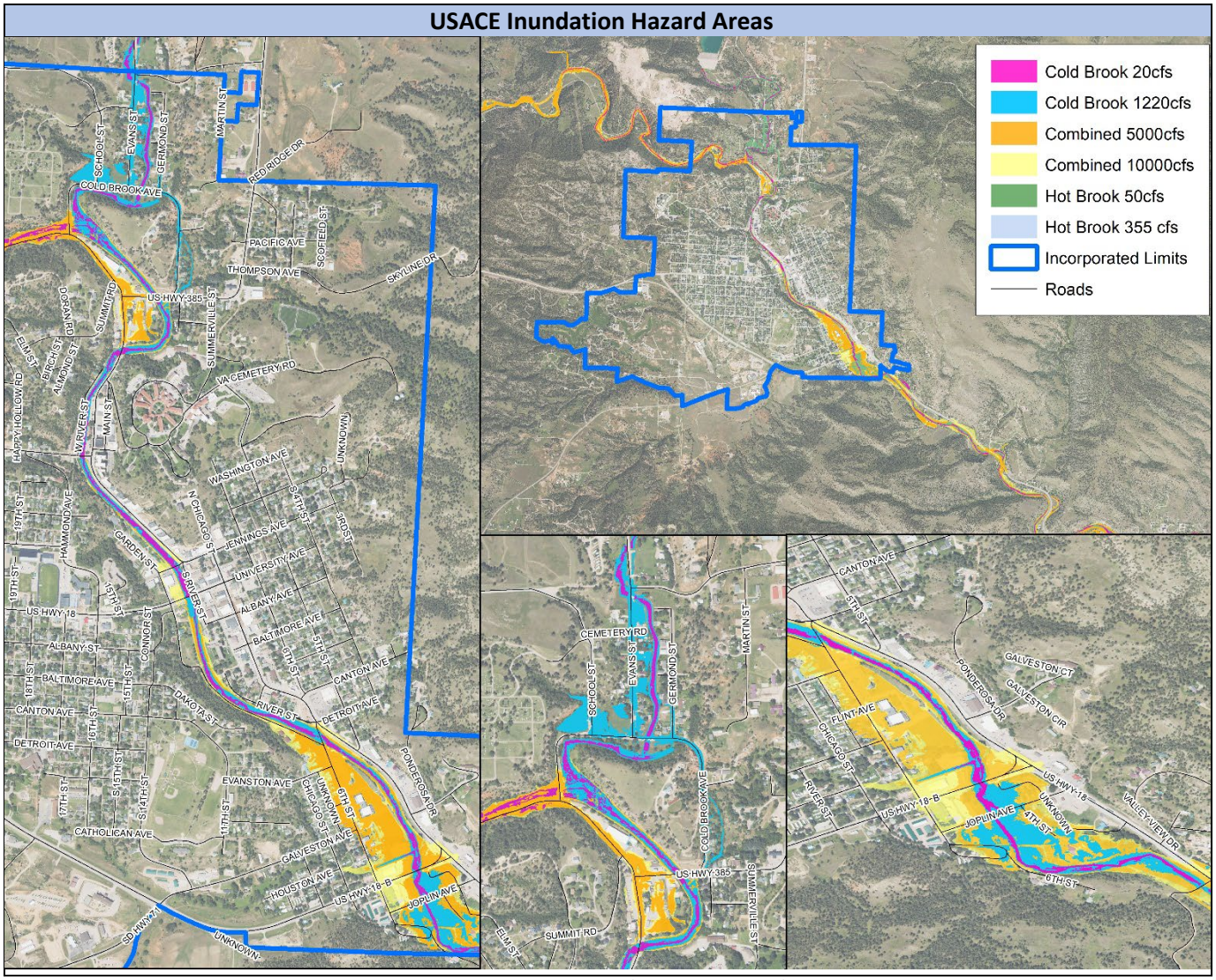

Figure 3.6 Fall River County FEMA FIRM Locations. Data Source: Fall River County ***(Requirement: B1-b)***

Location	Hazards noted by USACE
Hot Brook	The greatest flood hazard along the stream is along the roads, particularly Hot Brook Canyon Road downstream from the Hot Springs water plant. Depths along the road could cause vehicles to float and be pushed into the channel. Most buildings along the stream are outside the computed inundation areas…The principle critical infrastructure at risk along Hot Brook was the Hot Springs water plant.
Cold Brook	Flows at and above 20 cfs could inundate portions of the Evans Loop and several private driveways located along the unimproved reach of Cold Brook outside the city limits. As the flows on Cold Brook increase to 360cfs there would be increasing inundation along Evans Loop, but the downstream of the city limits, flow would be within the improved channel. As the flow in Cold Brook increases to 470 cfs, flow would begin spilling into Evans Street at the culvert crossing located adjacent to the intersection of Evans Street and Badger Clark Road. At flows of 770cfs, there would be shallow flooding on Evans Street affecting the properties located along the east side of that street. There would also be an overflow at the culvert crossing on Cold Brook Avenue, east of Evans Street. That overflow would go to the east and south along Cold Brook Avenue and eventually flow into the Fall River through the culvert located under the intersection of Cold Brook Avenue and Battle Mountain Avenue. There would also be shallow flooding on Cold Brook Avenue between Evans Avenue and School Street. Flows of 1,220

[18] USACE. 2025. Hydraulic Analyses and Inundation Mapping Cold Brook, Hot Brook and Fall River

	cfs out of Cold Brook would result in increasing flood depths along Evans Avenue and Cold Brook Avenue. Floodwaters may begin to impact residences along the east side of Evans Avenue and along the Evans Loop. At the 1,220 cfs flow, backwater up Hot Brook may inundate Cold Brook Avenue immediately north of Hot Brook Canyon Road.
Fall River	At the Hot Brook – Cold Brook confluence area, high flows from Hot Brook can and backwater from Cold Brook can overflow the right (south bank) of Hot Brook upstream of Cold Brook Avenue and flow along Hot Brook Canyon Road. The overflow would accumulate in the area on the right bank of the Fall River where Hot Brook Canyon Road, Battle Mountain Avenue and River Street intersect. This flooding would occur for the 5,000 cfs and 10,000 cfs combined flows from Hot Brook and Cold Brook. Depths in that area would be shallow, about 0.5- to 1.5-feet for the 10,000 cfs combined flow. The 5,000 cfs combined flow would be contained within the improved Fall River channel to the downstream limit of channel improvements at Albany Avenue. In the vicinity Jennings and University Avenue, the 10,000 cfs combined flow appears to slightly exceed the top the right (west) channel bank, resulting in a limited area of shallow flooding. Downstream of Waterfront Street, the capacity of the Fall River channel becomes significantly less than farther upstream. At the 6th Street Crossing at the 1,250 cfs flow, an overflow to the right bank will occur with inundation along and east of 6th Street north of Indianapolis Avenue. Downstream of Indianapolis Avenue, the channel capacity appears to further decrease, with the 390 cfs flow beginning to overtop the left (east) bank in the vicinity of the wastewater treatment plant (WWTP). The 5,000 cfs and 10,000 cfs combined flows result in significant flooding along 6th Street on the west bank and on the east bank from Indianapolis Avenue to the WWTP. Flood depths will be a maximum of 3- to 4-feet.

Table 3.20. USACE narrative on hazard risk. Source: USACE. 2025. Hydraulic Analyses and Inundation Mapping Cold Brook, Hot Brook and Fall River

NATIONAL FLOOD INSURANCE PROGRAM PARTICIPATION (Requirement C2-a):

The National Flood Insurance Program (NFIP) is a FEMA managed program designed to help reduce the socio-economic impacts from flooding. Communities that choose to participate in the program are required to adopt a flood prevention ordinance to enforce floodplain management regulations. Property owners, renters, and business owners benefit from the FEMA managed program to get flood insurance coverage.[19]

Fall River County, Edgemont, and Hot Springs participate in the National Flood Insurance Program. The most current FIRM Map for the county was completed December 18, 2007. It is estimated roughly 2% of the county has identified floodplain. The County's Zoning Ordinance: Flood Plain District, serves as the county's floodplain ordinance and meets the minimum requirements for the National Floodplain Insurance Program. The county is currently working with South Dakota Office of Emergency Management and FEMA to update this ordinance.

The Fall River County Emergency Manager serves as the county's floodplain administrator. The County requires a flood development permit for construction of existing and new developments within the Special Flood Hazard Area (SFHA). This ordinance was last updated in 2007; however, the County is currently working on updating this ordinance.

Fall Ricer County and Municipalities NFIP Status Information				
Community	**Initial Flood Hazard Boundary Map**	**Initial FEMA Insurance Rate Map**	**Current Effective Map Date**	**Reg. Program/Emergency Program Date**
Fall River Co.	11/01/1977	12/18/2007	12/18/2007	12/27/2007
Edgemont	08/02/1974	12/16/1980	12/18/2007	12/16/1980
Hot Springs	NA	03/17/2002	12/18/2007	06/30/1976
Oelrichs	NA	NA	NA	NA

Table 3.21. Fall River County NFIP Communities Status. *Regular Program: The final phase of a community's participation in the NFIP. Emergency Program: The initial phase of the community's participation in the NFIP. Source: State NFIP Coordinator and South Dakota Office of Emergency Management.

Floodplain management includes any new construction, or substantial improvements should be constructed to minimize flood damage and shall comply with all applicable provisions listed in the ordinance. This includes the use of flood resistant materials and utilities. Additionally, structures should be designed or modified and anchored to

[19] FEMA. Flood Insurance

prevent flotation, collapse or lateral movement. All new construction and substantial improvement of any residential structure must have the lowest floor elevated at least one foot above the FIRM Base Flood Elevation (BFE).

Fall River County's current ordinance does not specify the process for determining substantial damage to a structure. However, the county considers a structure to be substantially damaged when the cost to repair it exceeds 50% of its market value. The County utilized the system Crisis Trac to help assess damage after a flooding event. As new FEMA Flood Insurance Rate Maps (FIRMs) become available, the county will need to update its floodplain ordinance to align with the revised maps. Given the potential for FEMA to update these maps in the future, it will be important for the county to stay proactive in ensuring its ordinance remains consistent with any changes to floodplain designations.

NFIP Participants Policy Information					
	Policy in Force	**Insurance in Force**	**Paid Losses**	**Total Paid Losses**	**Sub Damage**
Fall River County	3	$396,000	0	0	0
Edgemont	0	0	0	0	0
Hot Spring	3	$325,000	1	$25	0

Table 3.22 Fall River County NFIP Policy Information. Source: State NFIP Coordinator and South Dakota Office of Emergency Management.

ADDRESSING VULNERABILTY: REPETITIVE LOSS PROPERTIES (Requirement B2-c)

Repetitive loss properties are those for which two or more losses of at least $1,000 each have been paid under the National Flood Insurance Program (NFIP) within any 10-year period since 1978. Neither Fall River County nor any of the municipalities have had any severe repetitive loss properties.

Repetitive Losses As of 2024			
	Number of Buildings	**Losses**	**Payment Total**
Fall River County	0	0	0
Edgemont	0	0	0
Hot Springs	0	0	0
Oelrichs	0	0	0

Table 3.23. Fall River County Repetitive Loss Information. Source: State NFIP Coordinator and South Dakota Office of Emergency Management. (**Requirement: B2-c)**

Unique and Varied Risk *(Requirement B1-f)*:

Edgemont:

The FEMA identified floodplain in Edgemont sits north of town along the Cheyenne River and east along Cottonwood Creek. Most developed areas sit outside of the identified floodplain, however there is potential that structures in the eastern portion of the city would be at risk from flooding. There is also limited access to Cottonwood subdivision due to the floodway and the railway tracks that would block residents.

(Requirement C2-a):

The city of Edgemont currently participates and plans to continue participation in the National Flood Insurance Program (NFIP). The city has adopted a Flood Damage Prevention Ordinance which meets the minimum floodplain management criteria, last updated in 2012. The Finance Officer serves as the floodplain administrator. While the community does not currently have a certified floodplain administrator, there has been some interested in looking into certification. Hot Springs does not currently participate in the Community Rating System (CRS).

Edgemont considers a structure substantially damaged if the cost of restoring the structure damages equals or exceeds 50% of the market value before damage. Hot Springs's current ordinance (2012) does not outline

the process for determining substantial damages. There is potential in the future for FEMA to remap this area. At that time Hot Springs would need to update its Flood Damage Prevention Ordinance for NFIP compliance.

Edgemont Flood Risk Areas (FEMA FIRM)

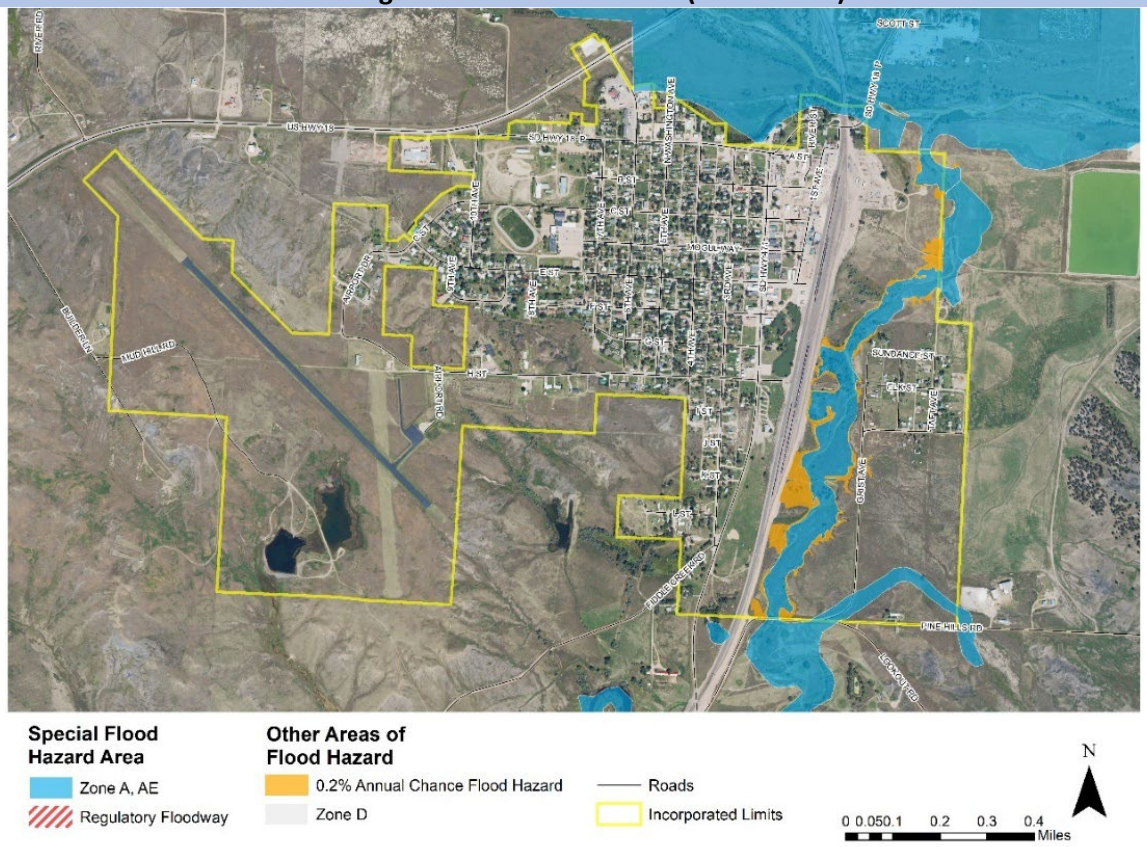

Figure 3.7 Fall River County – Edgemont FEMA FIRM Locations. Data Source: Fall River County ***(Requirement: B1-b)***

Hot Springs:

As noted in the High-Dam Risk section of this plan, there are two dams and levees outside of city limits which were designed to help mitigate against flooding in Hot Springs. The floodplains in Hot Springs are located in the areas around the waterbodies of Fall River and Hot Brook.

Hot Springs Flood Mitigation Projects since 2019:

- 2021: Replacement of Jenning Bridge
- 2023/2024: Cleared the flood and some of the walls of woody growth and cattails in the flood channel from Minnekahta Bridge to Jennings Bridge. Clearing of woody growth behind Evans Plunge Mineral Springs
- 2024: Repaired the east concrete wall of flood channel from Minnekahta to Jennings.
- 2025: ~~Anticipated project –~~ Boring culverts that are 75% full under the South 6th Street Bridge (Dip Bridge).

The community has some areas that experience flooding and/or drainage challenges including Albany Avenue, 16th Street, and the Hickory Street area. Some of these challenges may be addressed through the upsizing of culverts, drainage studies, erosion control, or diversion dykes.

The City currently has Use Agreements to utilize the facility in the event of a regional emergency. While the facility does not sit in a floodplain, it is adjacent to Fall River. During the plan update, several locals expressed concern of the potential for the facility to be impacted in the event of flooding in the area. Alternative locations, outside of flood prone areas, should be explored. A location that has potential would be partnered with the local school district to utilize the Tays Center, which sits on higher ground. Like the Mueller Center, it currently lacks backup power.

(Requirement C2-a):
The city of Hot Springs currently participates and plans to continue participation in the National Flood Insurance Program (NFIP). The city has adopted a Flood Damage Prevention Ordinance which meets the minimum floodplain management criteria, last updated on 05/03/2010. The City Administrator serves as the floodplain administrator. While the community does not currently have a certified floodplain administrator, there has been some interested in looking into certification. Hot Springs does not currently participate in the Community Rating System (CRS) but is willing to explore the feasibility of participating in the program.

Hot Springs considers a structure substantially damaged if the cost of restoring the structure damages equals or exceeds 50% of the market value before damage. Hot Springs's current ordinance (2010) does not outline the process for determining substantial damages. There is potential in the future for FEMA to remap this area. At that time Hot Springs would need to update its Flood Damage Prevention Ordinance for NFIP compliance.

Hot Springs Flood Risk Areas (FEMA FIRM)

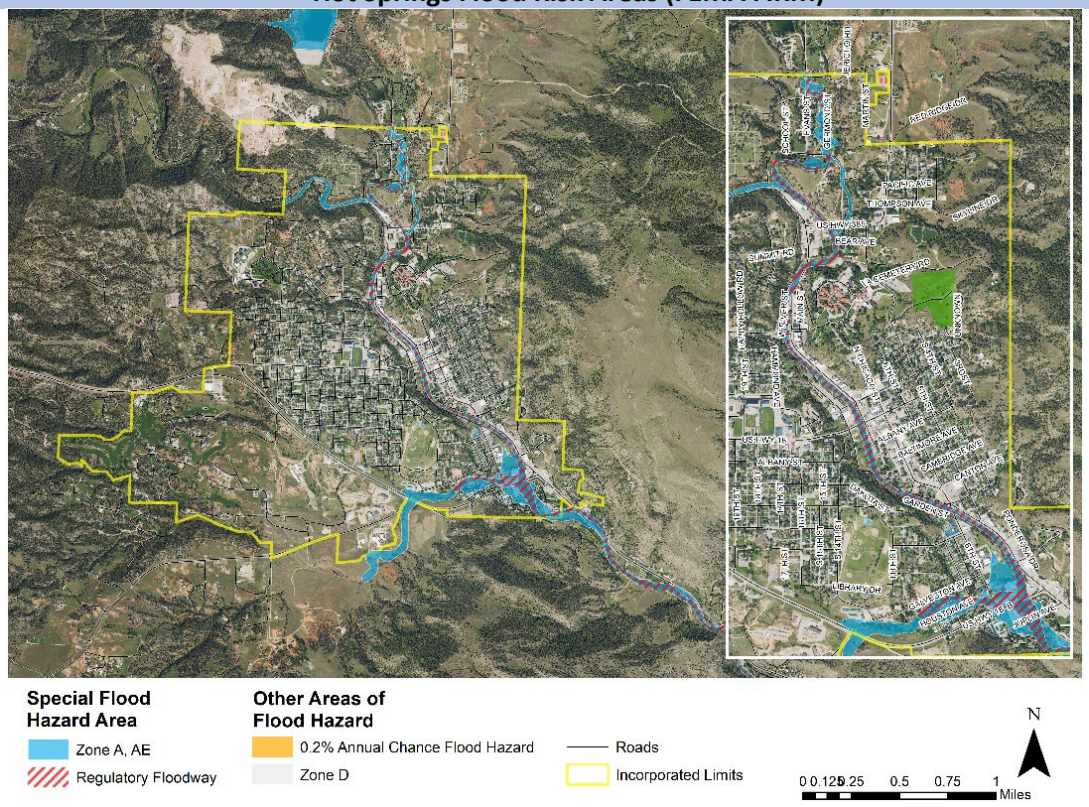

Figure 3.8 Fall River County – Hot Springs FEMA FIRM Locations. Data Source: Fall River County. ***(Requirement: B1-b)***

Oelrich:
Speaking with a town representative, Oelrichs has not experienced issues with flooding inside city limits.

Oelrichs (Requirement C2-a):
Oelrichs does not currently participate in the NFIP program. The town of Oelrichs map has a status of 'Not Printed' listed under Zone D. It is noted that in 2013, FEMA added Zone D for areas that could be impacted by a levee system that do not meet FEMA standards.[1] Upon reviewing the area, the author of this plan could not determine the location of any levee in the area and a levee in that area was not listed on the National Inventory of Levees. It is possible that due to the effect date of these maps, 12/18/2007; pre-dating the 2013 update, that Zone D may have an inaccuracy with its designation in this area. Oelrichs could re-consider participation in the NFIP program in the future if/when FEMA to remaps the area and finds floodplain risk.

Vulnerabilities ***(Requirement B2-a,*** **B2-b.*****):***

Flooding can result in injuries and even loss of life when fast flowing water is involved. Six inches of moving water is enough to sweep a vehicle off a road. Disruption of communication, transportation, electric service, and community services, along with contamination of water supplies and transportation accidents are very possible. Flooding can also have an impact on low-income families or those below the poverty level. Flooding damage can be extremely costly, not only for homeowners but renters could find themselves greatly affected financially or even displaced. Damage to property and infrastructure can also be extremely costly. Public infrastructure that is impacted can also be a burden on the taxpayers. Roadways that experience annual or repeated flooding issues can be costly to the county/city to continue to repair without utilizing mitigation efforts.

Historical Events ***(Requirement B1-d):***

The NOAA storm database does not have occurrences before 1996 documented. This is likely due to the lack of reporting that occurred prior to that time. However, this does run the risk of overstating the probability of flood and flash flood occurrence each year. A full list of recorded events can be found in Appendix B.

Historic:

- **06/01/2008:** Between two and a half and three inches of rain fell over Shep's and Alabaugh Canyons southwest of Hot Springs. A section of Shep's Canyon Road was washed out, several culverts were damaged, and trees fell across roads near Angostura Reservoir. Significant flooding was reported near Cascade Springs.
- **06/11/2011:** A severe thunderstorm moved across southern Fall River and southwestern Shannon Counties. The storm produced hail to quarter size and wind gusts near 60 mph. Runoff from heavy rain caused flash flooding in southeastern Fall River County. At least six inches of water flowed over Chadron Road and washed gravel off it.
- **07/08/2013:** An early morning severe thunderstorm produced hail and strong wind gusts across portions of southern Custer and northern Fall River Counties. Two to five inches of rainfall in about two hours caused flash flooding and debris flows over portions of the area. Heavy rain caused flooding along Cold Brook Creek above Cold Brook Reservoir and Cottonwood Springs Creek above Cottonwood Reservoir. Debris flowing down Cold Brook Creek piled up in the channel along Argyle Road, causing water to flow over the road. Along Cottonwood Springs Creek, water created a channel 12 feet wide into Cottonwood Reservoir and washed gravel off rural roads.
- **08/07/2013**: Heavy rain caused flooding in Hot Springs, around Cold Brook Reservoir, and in the Minnekahta Valley area. Six inches of water was flowing down the Highway 18 bypass and water was over street curbs in Hot Springs. Minor flooding occurred in Hot Brook Canyon along Hot Brook Creek. Cold Brook Reservoir reached its second highest pool level at 3585.42 feet.

June 2015: Widespread flooding was reported along Hat Creek from the South Dakota-Nebraska border to Angostura Reservoir, with the river gauge on Highway 71 measuring a record flow. Several other streams in Fall River County flooded. Indian Creek west of Ardmore was a quarter mile wide with water over the approach on the County Road 5 bridge. Washouts were reported on Hay Canyon Road, North Butte Road, Edgemont Road, and Maitland Road. Horsehead Creek was 200 yards wide north of Oelrichs and covered the northbound lane of US Highway 385 with a foot of water for several hours. Due to the high inflows into Angostura Reservoir, the Bureau of Reclamation increased releases to 18,000 cubic feet per second.

Figures 3.9 and 3.10: June 2015 flooding. Left image: Hay Canyon Rd. Right Image: Oral Rd. Images provided by Fall River County.

- **05/17/2018:** Two to four inches of rain in two hours caused minor flooding. Runoff washed gravel off a couple of county roads and water ran over at least one county road when the culvert became plugged with debris. The Cheyenne River at Edgemont quickly rose about 5 feet and peaked around 1700cfs.

Since 2020:

NA

MITIGATION STRATAGIES FLOODING ***(Requirement C3-a, C4-a, C4-b, C4-b):***

Goal 4: Reduce impact of flooding in Fall River County.

Project 4.1	Continue compliance and participation in the National Floodplain Insurance Program (NFIP).
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs
Priority	High
Funding Source	NA – No cost aside from staff time
Timeframe	Ongoing
Oversight	Local Jurisdiction's Floodplain Administrator
Notes	All participating jurisdictions participate in NFIP. Fall River County is currently working to update their flood prevention ordinance.

Project 4.2	Explore the feasibility of participating in the Community Rate System (CRS).
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs
Priority	Med
Funding Source	NA – No cost aside from staff time
Timeframe	1-5 years
Oversight	Local Jurisdiction's Floodplain Administrator
Notes	Currently the communities may lack capacity and/or the benefit-cost would be prohibitive for such an undertaking. However, this action was included in the event the communities see more of a benefit in participating.

Project 4.3	Review and consider the need for updating the current floodplain ordinance.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs
Priority	Med
Funding Source	NA – No cost aside from staff time
Timeframe	1-5 years
Oversight	Local Jurisdiction's Floodplain Administrator
Notes	All participants have older ordinances and may consider a review and update of this ordinance. Fall River County is currently in the process of an update, but it has not been approved as of this Mitigation Plan update.

Project 4.4	Have two certified floodplain administrators.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs
Priority	High
Funding Source	FEMA – Floodplain Administrator Training
Timeframe	1-5 years
Oversight	Local Jurisdiction's Floodplain Administrator
Notes	FEMA has funding available for floodplain administrator training. Some communities may still have capability or staff time limitations for sending staff to training.

Project 4.5	Explore options for working with property owners to mitigate flood risk for existing structures located in special flood hazard areas.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs
Priority	High
Funding Source	FEMA-HMGP
Timeframe	1-5 years
Oversight	Local Jurisdiction's Floodplain Administrator

Notes	Mitigation actions may include acquisition, elevation, or relocation of properties. This project would require collaboration with homeowners located in the floodway.

Project 4.6	Continue to provide education on flooding mitigation and preparedness and explore ways to expand on education outreach.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	FEMA-HMGP
Timeframe	1-5 years
Oversight	Local Jurisdiction's Floodplain Administrator, Oelrichs Board President
Notes	The County could expand on efforts by collaborating with municipalities on a countywide education campaign strategy. Posting information on websites, mailers through utilities, brochures, booths at community events, providing information as part of the building permit process. Collaborate with state and federal agencies on education materials. Special consideration should be given to outreach to vulnerable populations.

Project 4.7	Explore alternative options for an emergency center located outside of potential flood risk area.
Responsible Jurisdiction	Hot Springs
Priority	High
Funding Source	City General Funds, FEMA-HMGP
Timeframe	1-5 years
Oversight	City Administrator
Notes	The city should work with the County EM to identify an alternative emergency shelter location, located away from potential flood risk areas. Potential location may be partnering with the school district to utilize the Tays Center.

Project 4.8	Conduct a Hydrology and Hydraulic (H&H) study to further assess location of flooding concern.
Responsible Jurisdiction	Fall River County, Hot Springs
Priority	Med
Funding Source	FEMA – HMGP
Timeframe	5-10 years
Oversight	Local Jurisdiction's Floodplain Administrator
Notes	A H&H study would provide current and potentially more accurate flood maps of certain locations. It is currently unknown if/when FEMA will re-map the county/city. One specific area not limited to: south of Southwick.

Project 4.9	Encourage the development of open/green space within floodplain to protect riparian areas.
Responsible Jurisdiction	Hot Springs
Priority	High
Funding Source	City general funds, Staff time
Timeframe	5-10 years
Oversight	Planning Commission Chair
Notes	These considerations can be given during future land use maps or zoning map updates.

Project 4.10	Continue to replace undersized culvers in areas with known historical flooding issues
Responsible Jurisdiction	Fall River County
Priority	High
Funding Source	County General Funds
Timeframe	Ongoing
Oversight	Highway Director
Notes	Many culverts were upsized after the 2015, however there may still be areas that need address to mitigate flooding impacts like those seen in 2015.

Project 4.11	Ensure secondary egress at residential subdivisions
Responsible Jurisdiction	Edgemont
Priority	High
Funding Source	City general funds
Timeframe	5-10 years
Oversight	Edgemont Mayor
Notes	Specific area includes the Cottonwood Subdivision. Secondary access would also be beneficial of other hazards such as wildfire too.

GEOLOGICAL

Future Hazard Probability				
Event Type	**Earthquake**	**Expansive/Erosive Soils**	**Landslide**	**Subsidence**
Probability	**Low**	**Low**	**Low**	**Low**

Table 3.24. Probability of geological occurrence. Calculations are based on data provided from South Dakota Geological Survey. Appendix B has no data for many of these hazards.

FEMA National Risk Index	
Earthquake	Very Low
Landslide	Relatively Low

Geological hazards can include events such as earthquakes, landslides, subsidence, and expansive soils. While data on earthquakes can be easily found, while records on landslides, subsidence, and expansive soils incidents and specific locations are limited.

Earthquakes:

Earthquakes are a sudden rapid shaking of the earth caused by the shifting of rock beneath the earth's surface. Earthquakes can cause buildings and bridges to collapse, disrupt gas, electric and phone lines, and often cause landslides, flash floods, fires, avalanches, and tsunamis. Larger earthquakes usually begin with slight tremors but rapidly take the form of one or more violent shocks and are followed by vibrations of gradually diminishing force called aftershocks. The underground point of origin of an earthquake is called its focus; the point on the surface directly above the focus is the epicenter.

The area east of the Rocky Mountains experiences infrequent earthquakes. Earthquakes that do occur are often of a low magnitude and rarely result in major damages, like those seen on the western coast of the United States. [20] The South Dakota Geological Survey explained that earthquakes happen every few years in South Dakota but are not large enough to be considered threatening to life or property. Since 1872, there have been nearly 100 recorded earthquakes in South Dakota. Since South Dakota doesn't have any major faults, the South Dakota Geological Survey states: *The likely cause of these earthquakes are adjustments deep in the basement rocks underlying the state or ongoing rebound of the earth's crust from compression by ice sheets during the last ice age.*

[20] USGS. *East vs West Coast Earthquakes*.

Extent (*Requirement B1-c):*

Earthquake Magnitude Scale	
Magnitude	**Description**
2.5 or less	Usually not felt, but can be recorded by seismograph
2.5 to 5.4	Often felt, but only causes minor damage
5.5 to 6.0	Slight damage to buildings and other structures
6.1 to 6.9	May cause a lot of damage in very populated areas
7.0 to 7.9	Major earthquake, serious damage
8.0 or greater	Great earthquakes can totally destroy communities near the epicenter

Table 3.25. Earthquake Magnitude Scale. Source: Michigan Tech.

Earthquake Magnitude Scale		
Intensity	**Shaking**	**Damage**
Intensity 1	Not felt	None
Intensity 2	Weak	None
Intensity 3	Weak	None
Intensity 4	Light	None
Intensity 5	Moderate	Very Light
Intensity 6	Strong	Light
Intensity 7	Very Strong	Moderate
Intensity 8	Severe	Moderate/Heavy
Intensity 9	Violent	Heavy
Intensity 10	Extreme	Very Heavy

Table 3.26. Modified Mercalli Intensity Scale. Source: Michigan Tech.

Location (*Requirement B1-b)*:
Earthquakes have the potential to occur anywhere in Fall River County.

Unique and Varied Risk *(Requirement B1-f)*:
This hazard has the same risk and vulnerabilities for the county and all incorporated communities.

Vulnerabilities *(Requirement B2-a,* B2-b.*):*
Earthquakes are not a common occurrence; a large earthquake would impact Fall River County in comparable ways to anywhere else. Populations residing in substandard structures are affected by the damage to homes or structures. Earthquakes could also impact the economy, especially if critical or commercial businesses were damaged due to earthquakes.

Historical Events *(Requirement B1-d):*
From 1872 to 2025, there have been a total of eight recorded earthquakes in Fall River County.

Fall River County Earthquakes (1872 – 2025)

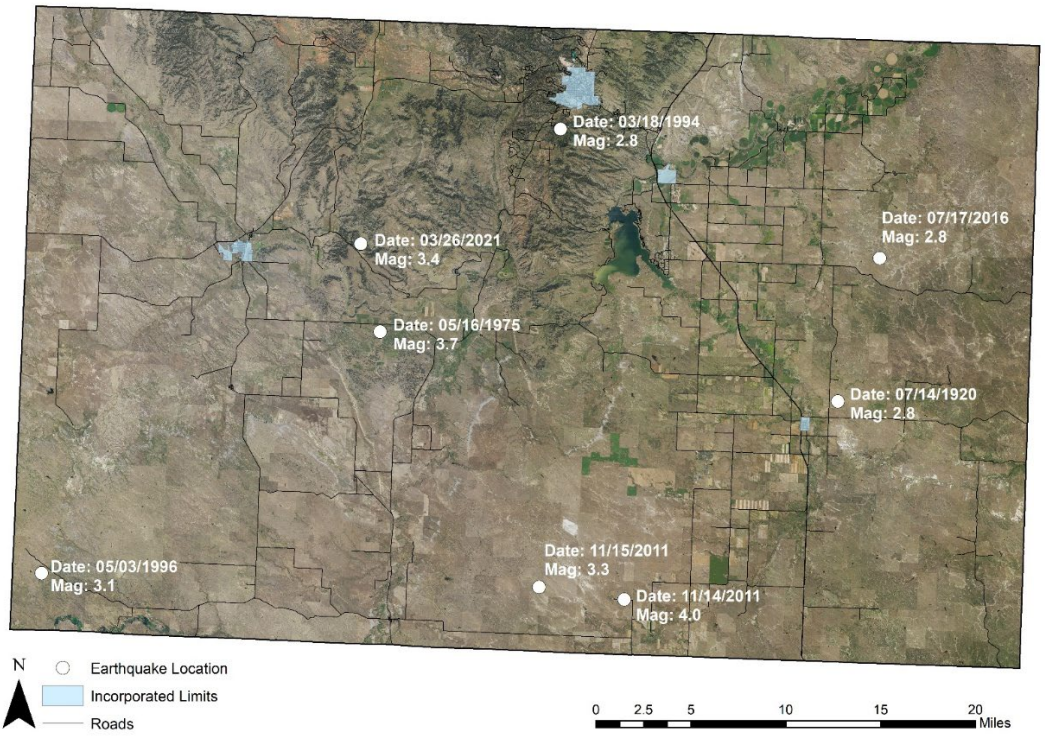

Figure 3.11. Fall River County Earthquake locations 1872 – 2025. Source: SD DANR and USGS. **(*Requirement B1-b)***

Expansive Soils:

Expansive Soils are soil types that swell and shrink depending on the moisture content. Structures built on these soils can experience damage such as shifting, cracking, and breaking due to the swelling and sinking of the soils, potentially causing troublesome, dangerous situations. [21] These types of soils are present in all states in the United States and can cause billions of dollars in damage each year. [22] Clay's expansive nature can cause permanent damage to structures and infrastructure over time, potentially causing troublesome, dangerous situations. [23]

Extent (*Requirement B1-c):*

There are numerous testing methods that focus on gauging expansive soils. Generally, 10% swelling behavior is considered expansive. Soils classified as 'clayey' can also be considered expensive.

Location (*Requirement B1-b)*:

Limited data was available for locations exact involving expansive soils. State geologists explain, there is potential for expansive soils in the Pierre Shale which contains some bentonite. However, to know specific locations an area specific geotechnical testing would need to be done. To fully know the risk geotechnical engineering would need to be conducted, the countywide task of this type of study would be extremely cost prohibitive and unlikely to occur. Such testing is most likely to be done on site specific locations.

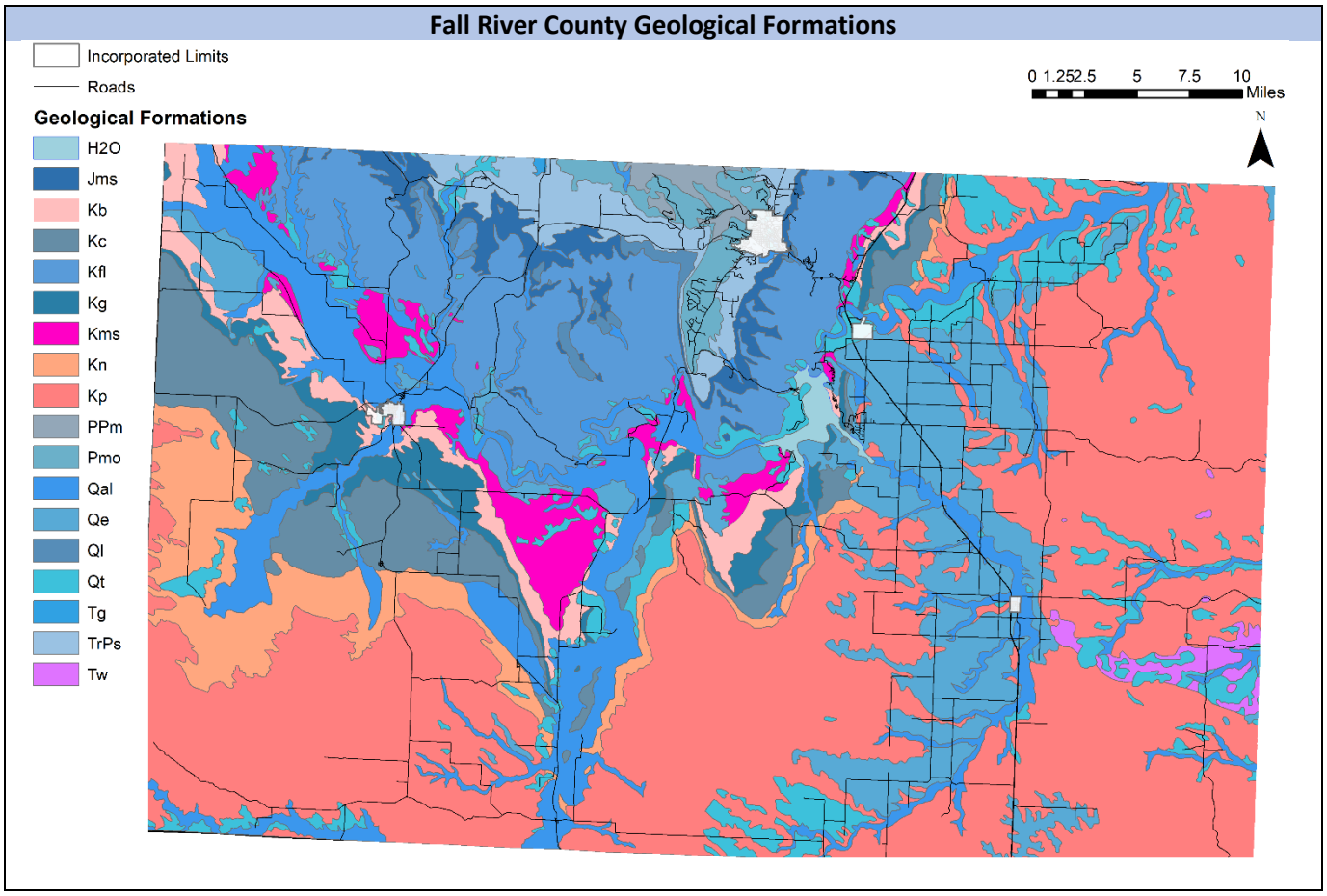

Figure 3.12. Fall River County Geological Formations. Source: South Dakota Geological Survey. ***(Requirement B1-b)***

[21] State of South Dakota Enhanced Hazard Mitigation Plan. 2024
[22] Ibid. State of South Dakota Hazard Mitigation Plan.
[23] Cuelho, Eil, & Michelle Akin. 2020.

Units noted to contain bentonite as per the Geological Map of South Dakota, 2004:

- **Kb: Belle Fourche Shale (Upper Cretaceous)** - Dark-gray to black bentonitic shale containing minor limestone lenses, bentonite layers, fossiliferous calcarenite, and large, ferruginous, carbonate concretions. Thickness 150-350 ft (46-107 m).
- **Kp: Pierre Shale (Upper Cretaceous)** - Blue-gray to dark-gray, fissile to blocky shale with persistent beds of bentonite, black organic shale, and light-brown chalky shale. Contains minor sandstone, conglomerate, and abundant carbonate and ferruginous concretions. Thickness up to 2,700 ft (823 m).
- **Kn: Niobrara Formation (Upper Cretaceous)** - White to dark-gray argillaceous chalk, marl, and shale. Weathers yellow to orange. Contains thin, laterally continuous bentonite beds, chalky carbonaceous shale, minor sand, and small concretions. Thickness 160-225 ft (49-69 m).
- **Kms: Mowry Shale (Lower Cretaceous)** - Black to gray, siliceous, fissile shale and siltstone containing bentonite layers and sparse sandstone dikes. Thickness 125-250 ft (38-76 m).
- **Tw: Chadron Formation (Eocene)** -Upper beds are gray to light-brown to maroon bentonite, claystone, siltstone, and tuffaceous fine-grained sandstone, with local silicified carbonate lenses. Basal portion consists of poorly cemented, white, coarse-grained arkose and conglomerate. Thickness up to 160 ft (49 m).

Vulnerabilities ***(Requirement B2-a,*** **B2-b.*****):***
The expanding and shrinking of soils can cause damage to structures. Often foundations, floors, and basements are damaged, but all areas of a structure can be affected. This hazard often occurs over long periods of time as soil expands and shrinks repeatedly. Damage from expansive soils can often be mistaken as natural aging damage of structures. Populations of lower income or below poverty level may have difficulty in costly repairs to homes harmed by this hazard. Additionally, renters may find themselves displaced due to damage to rental properties or during repairs.

Unique and Varied Risk ***(Requirement B1-f)***:

Edgemont:
While it is acknowledged that expansive soils would require soil testing, there are geological formations in Edgemont that may contain expansive soils located in the south-southwestern part of the city.

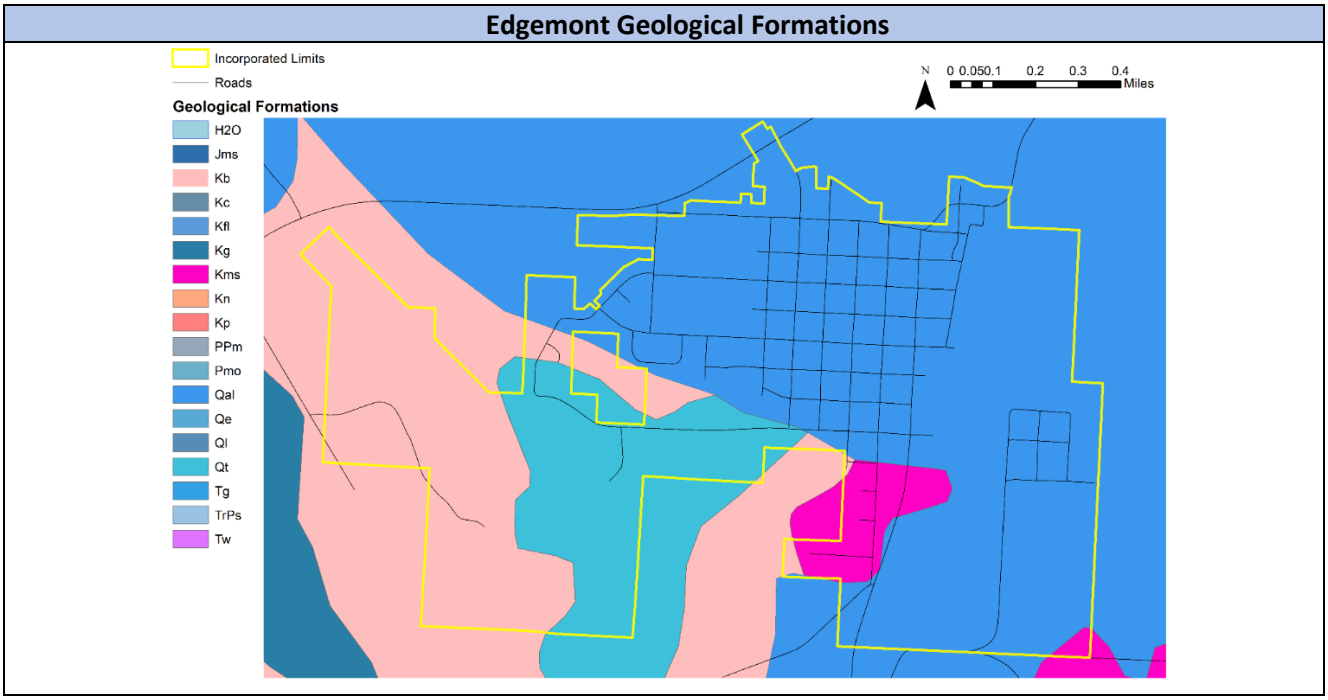

Figure 3.13. Fall River County Geological Formations. Source: South Dakota Geological Survey. ***(Requirement B1-b)***

Hot Springs:

The City of Hot Springs does not show any geological formations that may contain expansive soils.

Oelrichs:

While it is acknowledged that expansive soils would require soil testing, there are geological formations in Oelrichs that may contain expansive soils located in the western part of the town.

Edgemont Geological Formations

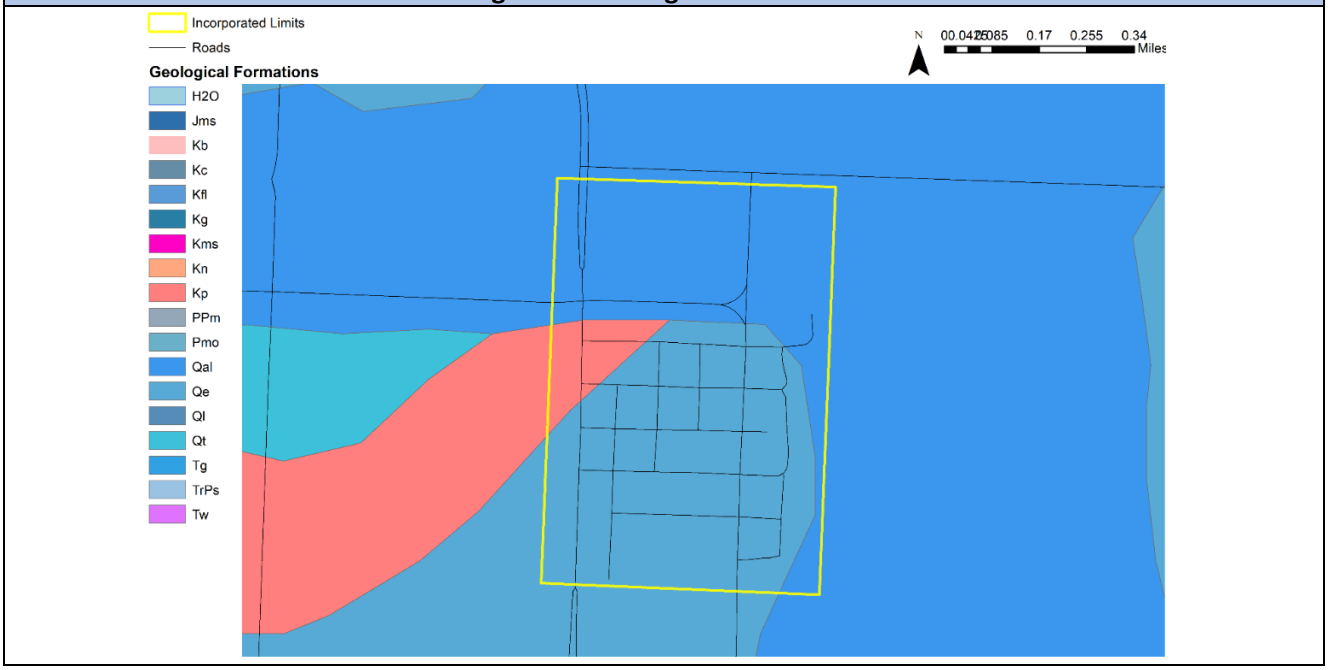

Figure 3.14. Fall River County Geological Formations. Source: South Dakota Geological Survey. ***(Requirement B1-b)***

Historical Events *(Requirement B1-d):*

There is no documented record of this hazard type. However, it is possible that structures have been impacted.

Landslides:

Landslide is a geological phenomenon which includes a wide range of ground movement, such as rock falls, deep failure of slopes and shallow debris flows, which can occur in offshore, coastal, and onshore environments. Although the action of gravity is the primary driving force for a landslide to occur, there are other contributing factors that build up specific sub-surface conditions that make the area/slope prone to failure, whereas the actual landslide often requires a trigger before being released. Landslides tend to occur after bouts of heavy rainfall or rapid snowmelt. Areas that have been impacted by wildfires have a higher probability of landslides due to the lack of vegetation to take in precipitation.

Extent (*Requirement B1-c):*

Types of Landslides				
Type of Movement		**Type of Material**		
		Bedrock	**Engineering Soils**	
			Predominantly coarse	Predominantly fine
FALLS		Rock fall	Debris fall	Earth fall
TOPPLES		Rock topple	Debris topple	Earth topple
Slides	ROTATIONAL	Rock slide	Debris slide	Earth slide
	TRANSLATIONAL			
LATERAL SPREADS		Rock spread	Debris spread	Earth spread
FLOWS		Rock flow (deep creep)	Debris flow (soil creep)	Earth flow
Complex – combination of two or more principal types of movement				

Table 3.27. Types of Landslides. 2004 chart created from USGS. Landslide Types and Processes. Abbreviated version of Varnes' classification of slope movements 1978.

Location (*Requirement B1-b)*:
Areas most prone to landslides are places where previous landslides have occurred, bases of steep slopes, bases of drainage channels, and developed hillsides using leach-field systems. [24]

Fall River County Landslides

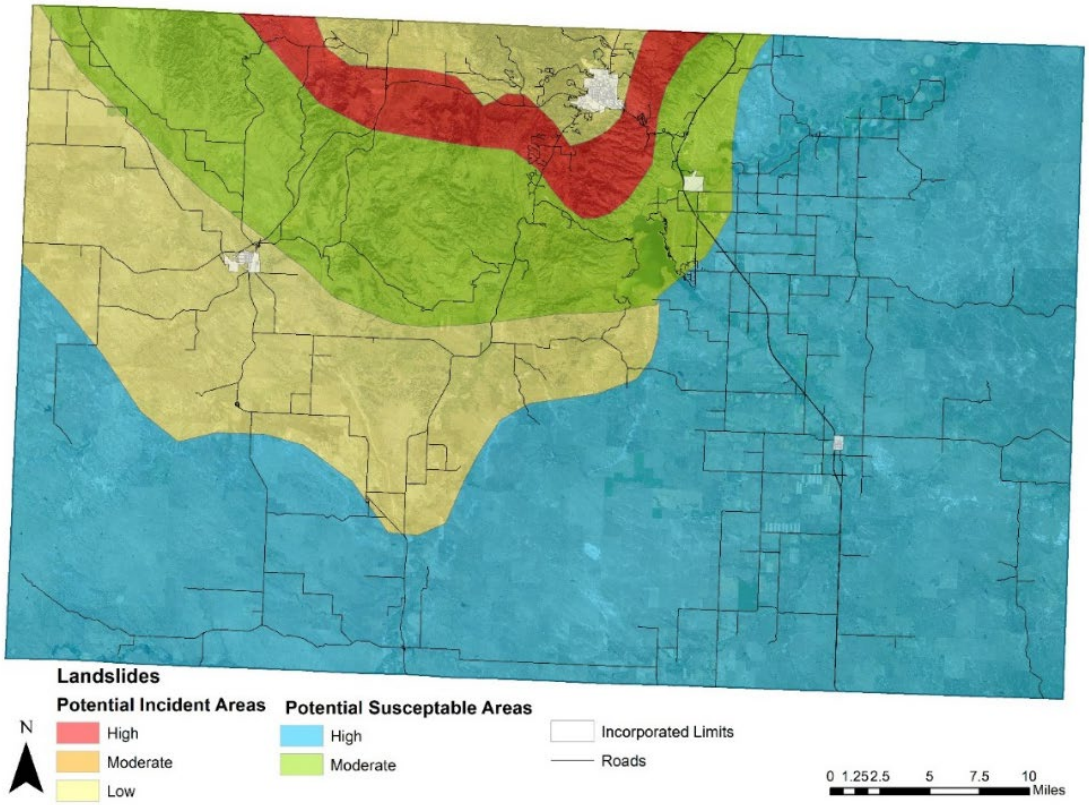

Figure 3.15. Fall River County Landslide Susceptibility. Data Source: Radburch, Dorothy H, et al. 1982. *Landslide overview map of the conterminous United States.* ***(Requirement B1-b)***

Vulnerabilities *(Requirement B2-a,* B2-b.*):*
Landslides may happen in undeveloped areas primarily used for ranching can often go unnoticed or have little impact if they occur. However, landslides that occur in developed areas can cause damage to property and infrastructure, and injury or loss of life. The development of structures in areas prone to landslides can significantly increase the risk of damage and safety hazards, particularly with the trend of less frequent but more intense rainfall events.

Unique and Varied Risk *(Requirement B1-f)*:

Edgemont:
The town of Edgemont is located in a low potential incident area, the city is mostly flat with a hill to the southwest of town with a 100-150ft levitation.

Hot Springs:
The city of Hot Springs is located in a low potential incident area. The city's greatest concern is with potential rockslides. It was noted that there are numerous large boulders which sit on cliff sides. There is risk that if a large enough boulder were to fall public infrastructure, structures, or potential hazard sites could be impacted. Many, if not most of these boulders reside on private property.

There would also be potential for landslides in the area, due to the topography, if a fire removed vegetation on steep slopes and heavy rain occurs prior to regrowth in areas like Garden Street.

[24] State of South Dakota Enhanced Hazard Mitigation Plan. 2024

Oelrichs:

The town is located in an area of high potential susceptible areas, however most all of the city is primarily flat.

Historical Events *(Requirement B1-d):*

There is no documented record of this hazard type.

Subsidence:

Subsidence is defined as the motion of a surface as it shifts downward relative to a specific data point. The opposite of subsidence is uplift, which results in an increase in elevation. There are several types of subsidence such as dissolution of limestone, mining-induced, faulting induced, isostatic rebound, extraction of natural gas, groundwater related, and seasonal effects. Depressions, cracks, and sinkholes in the earth's surface can threaten people and property. Subsidence depressions, which normally occur over many days to a few years, may damage structures with low strain tolerances such as dams, factories, nuclear reactors, and utility lines.

Extent (*Requirement B1-c):*

Nationally, it is estimated that 17,000 square miles in 45 states have been affected by subsidence events. [1] Due to the unique nature and circumstances, such as geology, soil types, or human activity, the threshold makes it difficult to define a standard measurement.

Location (*Requirement B1-b)*:

Subsidence is more likely to occur in areas with karst formations (carbonate and evaporites). Fall River's identified karst include; Niobrara Formation, Belle Fourche Shale, Greenhorn Formation, and Minnelusa Formation.

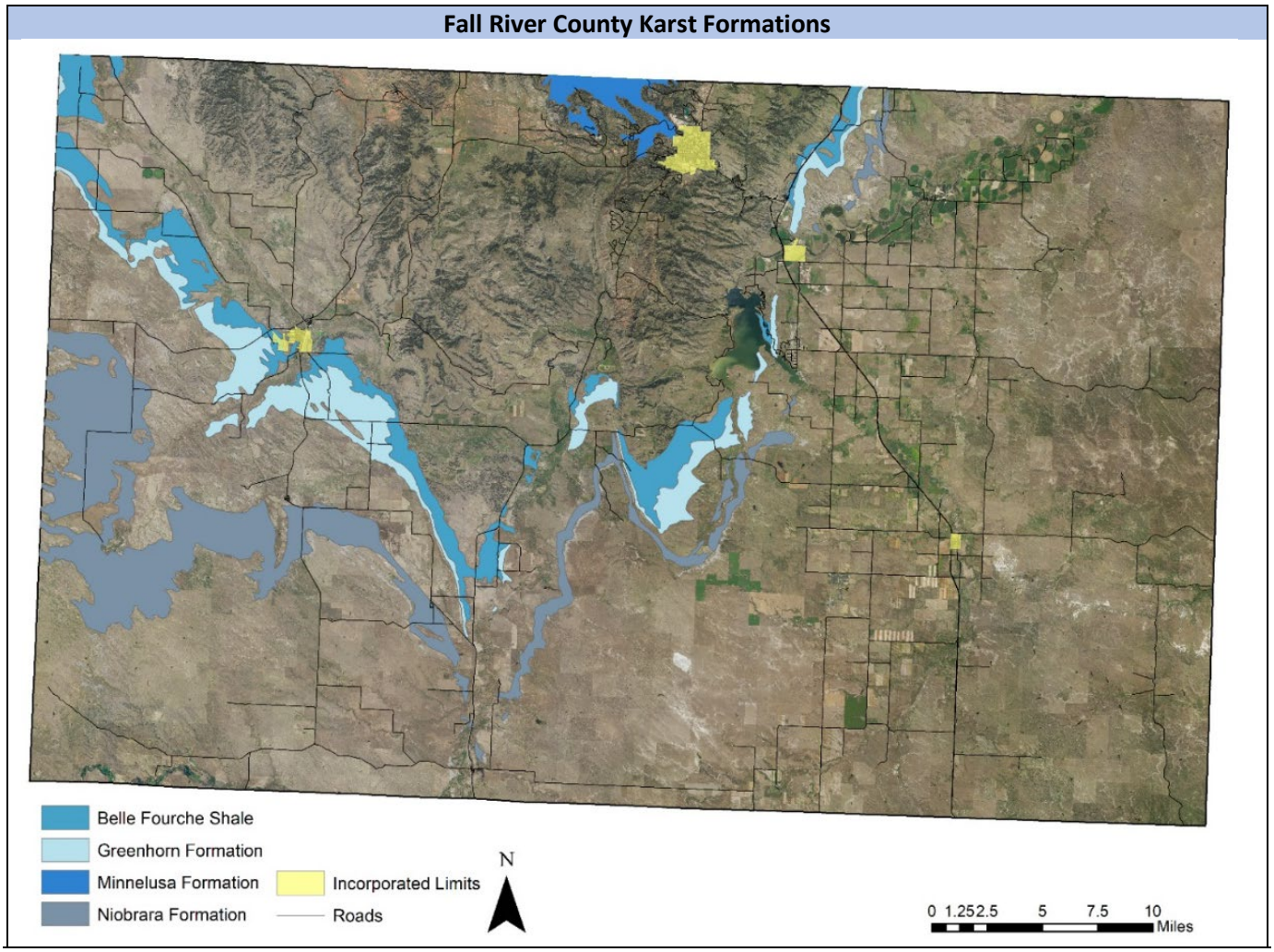

Figure 3.16. Fall River County Karst Formations. Source: USGS. ***(Requirement B1-b)***

Unique and Varied Risk ***(Requirement B1-f)***:

Edgemont

There are karst formations located in the southwestern part of town. However, there have been no known historical issues.

Hot Springs

The Minnesula Formation touches into the northwestern part of the Hot Springs, however, there is no known historical concerns from subsidence.

Oelrichs

The town has no karst formations and no known historical challenges with this hazard.

Vulnerabilities ***(Requirement B2-a,*** **B2-b.*****):***

Subsidence is a hazard that has a high probability of occurring in localized areas, but overall, a low probability of occurring in a majority of a county. Subsidence can cause damage to property, structures, infrastructures, and loss of life.

Historical Events ***(Requirement B1-d):***

There is no documented record of this hazard type.

MITIGATION STRATAGIES GEOLOGICAL *(Requirement C3-a, C4-a, C4-b, C4-b):*

Goal 5: Reduce impact of Geological Hazards in Fall River County.

Project 5.1	Monitor and record locations with geologic hazards such as expansive soils and landslides.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs
Priority	High
Funding Source	County/City general funds, Staff time
Timeframe	1-5 years
Oversight	County GIS Coordinator, Edgemont Mayor, Hot Springs City Administrator

Project 5.2	Review and update land uses and zoning to discourage development in known geological risk areas.
Responsible Jurisdiction	Edgemont, Hot Springs
Priority	High
Funding Source	City general funds, Staff time
Timeframe	1-5 years
Oversight	Edgemont Mayor, Hot Springs City Administrator

Project 5.3	Conduct a survey to analyze areas and infrastructure at risk from rock falls within Hot Springs
Responsible Jurisdiction	Hot Springs
Priority	High
Funding Source	City general funds, Staff time
Timeframe	1-5 years
Oversight	Public Work Director

Project 5.4	Work with local property owners, geologist/engineers, and the State to find feasible solutions to remove rock fall hazards.
Responsible Jurisdiction	Hot Springs
Priority	High
Funding Source	City general funds, Staff time
Timeframe	1-5 years
Oversight	Public Works Director

HIGH/SEVERE WIND

Future Hazard Probability	
Event Type	**High/Severe Wind**
Probability	**High**

Table 3.28. Probability of high wind occurrences. Calculations based on NOAA weather data. (NOAA: National Centers for Environmental Information. 2025. *Storm Events Database)*.

FEMA National Risk Index	
Strong Wind	Relatively Low

High/Severe wind events are common in western South Dakota. High winds can occur anywhere in the county, but the foothills and plains tend to see higher winds. Strong winds are usually defined as winds over 40 mph. Several times a year, the residents of Fall River County can expect to experience strong winds of more than 40 mph. Gusts of wind, more than 80 mph have also been recorded for the area.

Extent (*Requirement B1-c):*

Beaufort Wind Chart – Estimating Wind Speeds				
Beaufort Number	**MPH Range**	**MPH Average**	**Terminology**	**Description**
0	0	0	Calm	Calm. Smoke rises vertically.
1	1-3	2	Light Air	Wind motion visible in smoke.
2	4-7	6	Light breeze	Wind felt on exposed skin. Leaves rustle.
3	8-12	11	Gentle breeze	Leaves and smaller twigs in constant motion.
4	13-18	15	Moderate breeze	Dust and loose paper is raised. Small branches begin to move.
5	19-24	22	Fresh breeze	Smaller trees sway.
6	25-31	27	Strong breeze	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult.
7	32-38	35	Near gale	Whole trees in motion. Some difficulty when walking into the wind.
8	39-46	42	Gale	Twigs broken from trees. Cars veer on road.
9	47-54	50	Severe gale	Light structure damage.
10	55-63	60	Storm	Trees uprooted. Considerable structural damage.
11	64-73	70	Violent Storm	Widespread structural damage.
12	74-95	90	Hurricane	Considerable and widespread damage to structures.

Table 3.29. Beauford Wind Scale. NOAA. *Beauford Wind Scale.*

Location *(Requirement B1-b):*

High/severe winds can occur anywhere in the county. These events often span the entire region but areas in the foothills and plains tend to see higher winds.

Unique and Varied Risk *(Requirement B1-f)*:
This hazard has similar risks and vulnerabilities for the county and all incorporated communities.

Vulnerabilities *(Requirement B2-a):*
High/Severe Wind can cause damage to property, injury, or death. High winds can cause downing of trees and powerlines, buildings to collapse, and flying debris. Destruction of property and create a safety hazard resulting from flying debris. Western South Dakota is susceptible to high wind events. High wind warning is issued for sustained winds reaching 40mph or greater, or if gusts of 58 mph or greater are predicted. The most mentioned impacts from high winds by survey takers and stakeholders were damage to structures and trees. Some structures, such as mobile homes, are also susceptible to high/severe winds.

Historical Events *(Requirement B1-d):*
Historic event narratives and events are taken from the NOAA Storm Events Database.

Historic:

- **07/01/1997:** Winds were sustained over 40 mph much of the day across western and south-central South Dakota, and higher gusts were frequent. Damage included downed trees, power outages, and structural damage. Most damage occurred in the central Black Hills where numerous large trees were blown down, localized major structural damage occurred, and numerous small wildfires were sparked.
- **02/18/2016:** A strong cold front crossed the region, bringing gusty northwest winds to much of western and south-central South Dakota. Wind gusts from 60 to 80 mph accompanied the front late on the 18th into the nighttime hours. Wind gusts around 65 mph redeveloped on the 19th across portions of northwestern South Dakota and the Black Hills as a tight pressure gradient remained in place over the Northern Plains.

Since 2020:

- **12/20/2022:** An intense low-pressure system moved slowly across the Northern Plains, producing a prolonged period of strong northwesterly winds across the area. The strongest winds developed during the early morning of the 6th and continued into the daytime hours of the 7th. Sustained winds of 30 to 50 mph and gusts of 60 to 80 mph were recorded at times, especially across the northwestern and west central South Dakota plains. Several tractor-trailers were blown over on Interstate 90 east of Rapid City.
- **05/06/2024:** A strong low-pressure system passed over the northern Plains, bringing strong west to northwest winds over a good portion of western South Dakota from the evening of the 6th to the afternoon hours on the 7th. Wind gusts of 60 to 70 mph were common over the windiest areas, with localized higher gusts over far southwest South Dakota.

MITIGATION STRATAGIES HIGH/SEVERE WIND *(Requirement C3-a, C4-a, C4-b, C4-b):*

Goal 6: Reduce impact of High/Severe Wind in Fall River County

Project 6.1	Continue to review, update and enforce building codes to ensure new construction is designed to withstand local hazards.
Responsible Jurisdiction	Edgemont, Hot Springs
Priority	Med
Funding Source	City general funds, Staff time, FEMA HMGP
Timeframe	1-5 years
Oversight	Edgemont Mayor, Hot Springs Planner
Notes	This action can help mitigate numerous natural hazards. Edgemont should consider updating *Chapter 28: Building Codes*, for more recent version of the code.

Project 6.2	Continued training and certification for code enforcement for building codes.
Responsible Jurisdiction	Edgemont, Hot Springs
Priority	Med
Funding Source	City general funds, Staff time, FEMA HMGP
Timeframe	1-5 years
Oversight	Edgemont Mayor, Hot Springs Planner
Notes	This action can help mitigate numerous natural hazards.

Project 6.3	Encourage the removal of dilapidated structures.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	County/City general funds, Staff time
Timeframe	1-5 years
Oversight	County Emergency Manager, Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President.
Notes	This might be accomplished by exploring feasibility of creating cost-share program.

SUMMER STORMS

Future Hazard Probability				
Event Type	**Hail**	**Lightning***	**Heavy Rain**	**Thunderstorm Winds**
Probability	**High**	**High**	**Med**	**High**

Table 3.30. Probability of future summer storm occurrence. Calculations based on NOAA weather data. *It is likely that lightning was unreported. Fire data shows that several fires were caused by lightning strikes, and based on this information the probability is most likely 100%. (NOAA: National Centers for Environmental Information. 2025. *Storm Events Database*.

FEMA National Risk Index	
Hail	Relatively Moderate
Lightning	Very Low

Summer Storms are generally defined as atmospheric hazards resulting from changes in temperature and air pressure which cause thunderstorms that may cause hail, lightning, strong winds, and heavy rain events. Summer storm occurrences in Fall River County are common and can occur anywhere in the county. Thunderstorms in the county usually occur in the summer months but have occurred as early as April. Summer storms are considered a weather event rather than a natural hazard; therefore, summer storms include hazards: hail, thunderstorm winds, heavy rain, and lightning.

Extent (*Requirement B1-c):*

Hail: Hail is formed through rising currents of air in a storm. These currents carry water droplets to a height at which they freeze and subsequently fall to earth as round ice particles. Hailstones usually consist mostly of water ice and

Hail Size	
Diameter	**Size Comparison**
$1/4$ inch	Pea
$1/2$ inch	Mothball, peanut, USB plug
$3/4$ inch	Penny
$7/8$ inch	Nichel
1 inch	Quarter
$1\ 1/4$ inches	Half dollar
$1\ 1/2$ inches	Ping pong ball
$1\ 3/4$ inches	Gold ball
2 inches	Lime or medium sized hen egg
$2\ 1/2$ inches	Tennis ball
$2\ 3/4$ inches	Baseball
3 inches	Large apple
4 inches	Softball
$4\ 1/2$ inches	Grapefruit

Table 3.31. NOAA. *Estimating hail size.*

measure between 5 and 150 millimeters in diameter, with the larger stones coming from severe and dangerous thunderstorms.

Heavy Rain is defined as precipitation falling with intensity more than 0.30 inches (0.762 cm) per hour. Short periods of intense rainfall can cause flash flooding while longer periods of widespread heavy rain can cause rivers to overflow.

Lightning Activity Level	
Activity Level Scale	**Description**
LAL 1	No thunderstorms
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a five-minutes period.
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a five-minute period
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud to ground strikes in a five-minute period.
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a five-minute period.
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag warning.

Table 3.32. NOAA. LALs (L)ightning (A)ctivity (L)evels numbered 1 - 6.

Lightning results from a buildup of electrical charges that happens during the formation of a thunderstorm. The rapidly rising air within the cloud, combined with precipitation movement within the cloud, results in these charges. Giant sparks of electricity occur between the positive and negative changes both within the atmosphere and between the clouds and the ground. When the potential between the positive and negative charges becomes too great, there is a discharge of electricity, known as lightning. Lightning bolts reach temperatures near 50,000˚ F in a split second. The rapid heating and expansion and cooling of air near the lightning bolt causes thunder.

Thunderstorms are formed when moisture, rapidly rising warm air, and a lifting mechanism such as clashing warm and cold air masses combine. The three most dangerous items associated with thunderstorms are hail, lightning, and strong winds. Thunderstorm winds are classified with a severe storm with strong winds of at least 58mph.

Location ***(Requirement B1-b):***
This hazard has similar risks and vulnerabilities for the county and all incorporated communities.

Unique and Varied Risk ***(Requirement B1-f)***:
This hazard has similar risks and vulnerabilities for the county and all incorporated communities.

Vulnerabilities ***(Requirement B2-a,*** **B2-b.*****):***
Summer storms cause lightning, hail, high winds, and large amounts of rain in a small timeframe. The entire county experiences storms on a regular basis and is only vulnerable when weather events outside the norm occur. Hail is perhaps one of the largest concerns by the public associated with these storms. It causes damage to property such as crops, vehicles, windows, roofs, and structures. Fall River County and its local jurisdictions are vulnerable to hail, like most other areas in South Dakota, due to the nature of the hazard. Mitigating hail is difficult and is usually found in the form of insurance policies for structures, vehicles, and crops. Hail damage can have a large impact on lower income families and those below poverty levels, who may have limited insurance policies for such damage or are unable to afford building structures that are more hail resistant. Renters may also find themselves temporarily displaced during times of repair or permanent damage.

Heavy Rain can cause damage to property such as homes and roads. Heavy rain in Fall River County can cause road inundations in low-laying areas. Roads and bridges can be washed out, thus causing traffic hazards for travelers and commuters. All areas of the county are vulnerable when heavy rain occurs. Storm sewers are built for the typical storm and therefore do not accommodate excessive or heavy rains.

Lightning often strikes the tallest objects within the area. Most injuries from lightning occur near the end of thunderstorms. Individuals who sought shelter leave those areas prior to the entire completion of the thunderstorm. Believing it is safe to freely move around, lightning strikes catch them off guard. In towns, trees and poles often receive the most strikes. In rural areas, shorter objects are more vulnerable to being struck. Electrical lines and poles are also vulnerable because of their height and charge. In addition, many streetlights function with sensors. Since thunderstorms occur primarily during hours of darkness, lightning strikes close to censored lights cause the lights to go out, causing a potential hazard for drivers. Flickering lights and short blackouts are not at all uncommon in the county. One of lightning's dangerous attributes includes the ability to cause fires. The entire county is vulnerable to lightning strikes and subsequent fires. Lightning, including dry lightning, has been known to also be the cause of wildfire in the county.

Historical Events *(Requirement B1-d):*

Historic event narratives and events are taken from the NOAA Storm Events Database.

Historic:

- **07/23/1997:** Edgemont Lightning Event - $5,000 worth of damages[25]
- **07/29/2010:** Strong winds damaged fences, signs, and buildings in Hot Springs and blew down trees and power poles. Buildings and automobiles were damaged by fallen trees. A mobile home was lifted off the ground and destroyed. A large portion of Hot Springs lost power for several hours.
- **06/14/2014:** Two large center pivot irrigation systems were mangled by thunderstorm winds. The concrete base of one was pulled from the ground.
- **07/25/2016:** Large hail and gusty winds on the north side of Hot Springs damaged vehicles and broke house windows.

Since 2020:

- **07/04/2020:** A thunderstorm briefly became severe over Fall River County, producing quarter sized hail over southern portions of the county.
- **06/13/2022:** A lot of baseball sized hail fell, with a few stones almost four inches in diameter.
- **07/17/2024:** A supercell thunderstorm developed over the southern Black Hills and tracked south-southeast into Fall River County before dissipating over the plains.

MITIGATION STRATAGIES SUMMER STORMS *(Requirement C3-a, C4-a, C4-b, C4-b):*

Goal 7: Mitigate the effects of Summer Storms in Fall River County.

Project 7.1	Continue to support the burial of powerlines throughout the county.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	FEMA-HMGP,
Timeframe	Ongoing (continue 1-5 years)
Oversight	County Emergency Manager, Local Electrical Companies
Notes	Backup power to critical facilities can ensure services are still available to those that need them. While powerline burial is a more effective mitigation action, it can be very costly and is often an action taken by private companies. Neither the county nor the municipalities own or operate power. The burial of powerlines would need to be a joint effort with the community and the local electric company.

Project 7.2	Explore the feasibility of using impact-resistant materials for roofs, windows, and siding for new, updated, or repeatedly damaged public facilities.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	Med
Funding Source	FEMA-HMGP,
Timeframe	1-5 years
Oversight	County Commission Chair, Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President.

[25] South Dakota Enhanced State Mitigation Plan. 2024

Project 7.3	Continue to equip critical facilities with backup generators to lessen impacts due to power loss.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	FEMA-HMGP,
Timeframe	1-5 years
Oversight	County Commission Chair, Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President.

Project 7.4	Develop and distribute educational materials and public awareness campaigns to inform residents about summer storm risks.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	Med
Funding Source	FEMA-HMGP,
Timeframe	1-5 years
Oversight	County Commission Chair, Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President.
Notes	Explore feasibility of providing information of risk communication through development/building permitting and land use designation. Distribution can be through social media, county/city's website, or community events. The county and cities may work to collaborate efforts for a county with an educational campaign.

TORNADOS

Future Hazard Probability	
Event Type	**Tornado**
Probability	**High**

Table 3.33. Probability of tornado occurrences. Calculations based on NOAA weather data. (NOAA: National Centers for Environmental Information. 2025. *Storm Events Database)*.

All of Fall River County is susceptible to summer storms which have the potential to form tornados. Warning time for summer storms is normally several hours, sufficient for relocation and evacuation if necessary. However, tornados may occur with little or no warning.

FEMA National Risk Index	
Tornado	Very Low

Extent (*Requirement B1-c):*

Fujita Damage Scale	
Prior to 2010	**2010 - current**
F0=winds less than 73 mph	EFU=unknown
F1=winds 73-112 mph	EF0=winds 65-85 mph
F2=winds 113-157 mph	EF1=winds 85-110 mph
F3=winds 158-206 mph	EF2=winds 111-135 mph
F4=winds 207-260 mph	EF3=winds 136-165 mph
F5=winds 261-318 mph	EF4=winds 166-200 mph
F6=winds greater than 318 mph	EF5=winds greater than

Table 3.34. Fujita Damage Scale.

Location *(Requirement B1-b):*
Tornados can occur anywhere in the county. It is often misunderstood that tornadoes occurring in Fall River County are predominantly an open grassland or prairie phenomenon.

Unique and Varied Risk *(Requirement B1-f)*:
This hazard has similar risks and vulnerabilities for the county and all incorporated communities. Areas that are more developed, such as incorporated areas,

would be more impacted by this hazard than open spaces.

Edgemont:
The city has two warning sirens, near the park and school. Both sirens cover a majority of the town. However, some have reported issues hearing the siren out of the south on the hill.

Hot Springs:
The city of Hot Springs has one siren located in the more central area of town. The siren is managed by the county.

Oelrichs:
The town has only one siren that provides full coverage of the town. The siren is managed by the county.

Vulnerabilities ***(Requirement B2-a,*** **B2-b.*****):***
Tornados present significant danger and occur most often in South Dakota during the months of May, June, and July. The greatest period of tornado activity, about 82% of occurrence, is from 11 am to midnight. Within this time frame, most tornados occur between 4 pm and 6 pm. Often associated with summer storms there are utility problems. Electric services have historically buried powerlines in the county. When evaluating new methods of warning systems, the county and towns should evaluate that warning systems consider different vulnerable populations, such as those without access to technology, language barriers, and cognitive disabilities.

Historical Events ***(Requirement B1-d):***

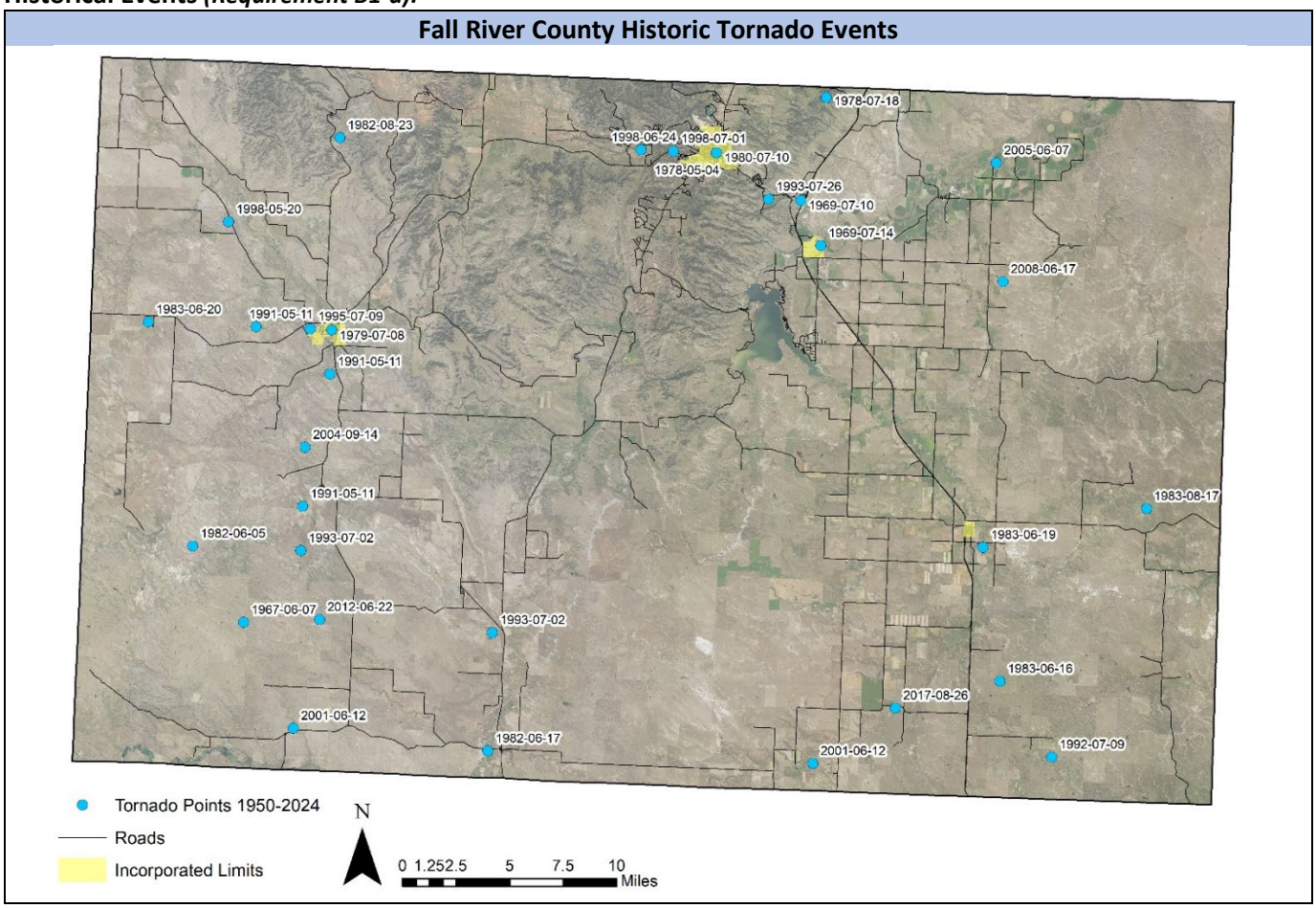

Figure 3.17. Fall River County Tornado Points 1950-024. Data Source: NOAA. ***(Requirement B1-d)***

Historic event narratives and events are taken from the NOAA Storm Events Database. A complete list of hazards can be found in Appendix B.

Historic:

- **06/24/1998:** A roof was blown off a house, and two campers and a boat trailer were damaged. A mobile home was also destroyed with a young man on the porch of the house thrown.
- **06/07/2005:** A non-supercell tornado quickly developed and moved across a field, where it destroyed 3 177-foot sections of a new center pivot irrigation system and the roof of a game bird barn. The tornado was followed by wind gusts of 70 mph and golf ball to almost softball sized hail.
- **06/22/2012:** A tornado touched down just west of Edgemont Road. It moved eastward and caused damage at a ranch just east of Highway 71 north of Ardmore. A large wooden barn was destroyed; its walls and roof were blown more than 100 yards away. Two large sheds lost roofs and walls, and smaller sheds were blown apart. The modular house sustained minor damage.

Since 2020:

- **NA**

MITIGATION STRATAGIES TORNADOS *(Requirement C3-a, C4-a, C4-b, C4-b):*

Goal 8: Reduce the impact of Tornados in Fall River County.

Project 8.1	Retrofit existing buildings or construct a saferoom to be used as shelter against tornados.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	FEMA-HMGP,
Timeframe	1-5 years
Oversight	County Commission Chair, Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President.
Notes	There is no designated tornado shelter in Fall River County. It was a concern brought up by residents, especially for vulnerable populations with no means of shelter. The community is encouraged to think of other ways to create a shelter such as a building with dual purpose or retrofitting an existing building.

Project 8.2	Continue to identify locations and secure funding for warning sirens
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	Med
Funding Source	County/City General Funds
Timeframe	1-5 years
Oversight	County Commission Chair, Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President.
Notes	SD OEM no longer funds siren project. Grant funding sources are extremely limited, funding source may be a county/city cost

Project 8.3	Develop and distribute educational materials and public awareness campaigns to inform residents about tornado risks.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	Med
Funding Source	Staff time
Timeframe	1-5 years
Oversight	County Commission Chair, Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President.
Notes	Explore feasibility of providing information of risk communication through development/building permitting and land use designation. Distribution can be through social media, county/city's website, or community events. The county and cities may work to collaborate efforts for a county with an educational campaign.

Future Hazard Probability	
Event Type	**Wildfire**
Probability	**High**

Table 3.35. Probability wildfire occurrences. Calculations based on Wildfire Interagency Fire Center data. (NOAA: National Centers for Environmental Information. 2025. *Storm Events Database)*.

FEMA National Risk Index	
Wildfire	Relatively Moderate

Wildfires are uncontrolled conflagrations that spread freely through the environment. Other names such as brush fire, bushfire, forest fire, grass fire, hill fire, peat fire, vegetation fire, and wildland fire may be used to describe the same phenomenon. Wildfire differs from the other fires by its extensive size; the speed at which it can spread out from its original source; its ability to change direction unexpectedly; and to jump gaps, such as roads, rivers, and fire breaks. Fires start when an ignition source is brought into contact with a combustible material that is subjected to sufficient heat and has an adequate supply of oxygen from the ambient air. Ignition may be triggered by natural sources such as a lightning strike or may be attributed to a human source such as discarded cigarettes, campfires, sparks from equipment, and arched power lines. Structures can be threatened by direct flames, radiant heat, and flying embers. Embers are notably a high risk as they can create a home ignition from up to a mile away.

Several factors can contribute to the frequency and intensity of wildfire including temperature, soil moisture, humidity, wind, and fuel types. Hazards such as drought and extreme heat attribute to the increase of wildfire in the United States. The change in the risk over time is caused by several environmental factors, rising air temperatures, precipitation changes, and a decrease in humidity. Rising temperatures cause a higher rate of evaporation that leads to vegetation and soil drying more quickly, creating fuel for fires. Similarly, decreasing humidity can help increase the speed at which vegetation dries.[26]

Using the First Street Foundation Wildfire Model can help to determine the probability of a facility and community being directly or indirectly impacted by embers. The community risk also incorporates the impacts wildfire can have on infrastructure, emergency services, transportation, businesses, and finances of homeowners. The risk is determined by using a relative ranking ranging from 1-minimal to 10-extreme. Minimal risk would indicate no wildfire risk. The risk represents the weighted number of facilities/properties with direct or indirect exposure to wildfires. Fire Factor from notes in 2024, 99% of properties in Fall River County are at risk from wildfire,

Fall River County has a high risk of wildfire—higher than 89% of counties in the US.

Wildfirerisk.org

Fall River County Fire Factor: Wildfire Risk	
Overall County	Severe
Residential	Severe
Commercial	Severe
Critical Infrastructure	Severe
Social Facilities	Severe
Minimal Risk	Properties with a Fire Factor 1 (no risk)
Minor Risk	Properties with a Fire Factor 2 (less than a 1% chance of burning over 30 years)
Moderate Risk	Properties with a Fire Factor 3 or 4 (1%-6% chance of burning over 30 years)
Major Risk	Properties with a Fire Factor 5 or 6 (6%-14% chance of burning over 30 years)
Severe Risk	Properties with a Fire Factor 7 or 8 (14%-26% chance of burning over 30 years)
Extreme Risk	Properties with a Fire Factor 9 or 10 (more than 26% chance of burning over 30 years).

Table 3.36. Fall River County Wildfire Risk over the next 30 years. (Risk Factor. 2023. Fire Factor).

[26] Risk Factor. 2024. Fire Factor

estimating a total of 11,258 properties at some risk of being impacted by wildfire.

Assessing wildfire risk can be done through different metrics: likelihood, intensity, exposure, and susceptibility.[27]

- **Likelihood:** represents the annual probability of wildfire burning in a specific location. This is primarily derived from the number of housing units. When factoring the likelihood various wildfire behavioral modeling was done including weather conditions, topography, and ignitions.

- **Intensity:** represents the measure of energy expected from wildfire. This primarily is based on the fuel available to burn and the overall landscape. Examples of ways to reduce intensity include modifying the home ignition zone, land use planning, wildfire response, and fuel treatments.

- **Exposure:** represents the combination of both wildfire likelihood and intensity with the county. Exposure occurs in any community with any chance of wildfire. A community's exposure can be reduced through modifying home ignition zones, home hardening, land use planning tools, and wildfire preparedness.

- **Susceptibility:** represents the natural tendency of damage to a home or community if wildfire occurs. The modeling assumes any home encountering a wildfire will be damaged and is closely linked with wildfire intensity. Ways to help reduce a community's susceptibility include home hardening, modifying the home ignition zone, applying land use planning tools, wildfire preparedness, community health strategies, and planning for post-fire recovery.

Wildfires that occur on prairie lands can spread quickly, especially during periods of drought and high winds. Forested areas can see slower but longer lasting wildfire due to fuel types. Most fires occur in the summer months, but wildfires can occur at any time of the year. Major fire events are more likely to occur during or after conditions of prolonged drought, high winds, and widespread tree damage often caused by severe storms, and insect infestations. The magnitude of wildfires depends upon several different factors such as base fuel, terrain, and weather conditions.

Fall River County's primary fuel types include Ponderosa Pine, Cedar, Rocky Mountain Juniper, cured grasses, and Great Plains Grasses.[28] Topography also influences fire behavior and management. Slopes facing south and west receive more sunlight and tend to lead to drier conditions and increased vegetation growth.

There is potential for severe losses from wildfire with several factors come into play simultaneously, reduction of timber harvest, increased development of homes and subdivisions in forested areas, lack of water for firefighting, and lack of funds and volunteers to support local fire departments. In terms of wildfire mitigation in the Black Hills, there has been some disagreement on fire mitigation in the national forest as it relates to timber harvest. As of the update of this mitigation plan, the forest service is currently in the process of updating the Black Hills National Forest *Land and Resource Management Plan*. The USFS provided the following comments regarding changes to timber harvest for fuels mitigation:

> *Many factors from the past have contributed to the current conditions of the Black Hills National Forest. Harvesting of timber in the past was geared toward mitigating impacts of wildfire and preventative thinning associated with mountain pine beetle infestations. These efforts along with natural disturbance have left the forest in a changed condition, with many areas having had the upper canopy trees aggressively thinned. The goal now is to continue harvesting in a fashion to maintain the forest in a healthy and fire adapted condition, where wildfire intensity can be mitigated, and containment can be more easily achieved. The previously mentioned disturbance agents of the forest have led to the proliferation of small diameter trees in the Black Hills on a large scale. The need for expanding management of small diameter understory trees is considered*

[27] *USDA Forest Service. Wildfire Risk to Communities.*

[28] Fall River County CWPP 2009.

of the utmost importance to the Black Hills National Forest as they create hazardous conditions if not thinned. Emphasis will remain in wildland urban interfaces for thinning of small trees and management of surface fuels. Staffing and budgets can be limiting factors in these types of projects, but we pursue every opportunity we can for funding of this work.

Mountain Pine Beetle (Dendroctonous ponderosa) can be found throughout the Black Hills; commonly impacting the ponderosa pine. A Black Hills native species, this beetle goes through 10-year cycles of increases and decreases in numbers. Years of high population increases tend to last about ten years. These beetles lead to the death of trees through two factors: tunneling beneath the bark and being carriers of a blue-stain fungus, which prohibits water movement from the roots to the needles of the tree. These beetles often colonize areas, creating a decline in forest health, a major contributor to wildfire risk. [29]

Extent (*Requirement B1-c):*

Wildfires are categorized by size using a classification system that ranges from Class A to Class G, based on the number of acres burned. This system helps emergency responders quickly understand the scale of a fire and determine the appropriate response.

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

Table 3.37. Wildfire Classes. South Dakota Enhanced Mitigation Plan 2024.

As wildfires encroach into developed areas and become wildland urban interface fires, the extent of the fire can include number of structures lost and/or number of residents evacuated. Wildfires and wildfires with an urban interface component are also usually categorized into one of the following: [30]

- **Ground Fire:** A fire that burns surface organic materials such as peat or deep duff layers. Ground fires typically undergo a large amount of smoldering combustion and less active flaming than other types of fires. They may kill roots of overstory species because of prolonged high temperatures in the rooting zone.
- **Surface Fire:** Fires that burn only the lowest vegetation layer, which may be composed of grasses, herbs, low shrubs, mosses, or lichens. In forests, woodlands, or savannas surface fires are generally low to moderate severity and do not cause extensive mortality in the overstory vegetation.
- **Understory Fire:** A fire that burns trees or tail shrubs under the main canopy. Depending on the structure, this type of fire may also be called a surface fire.
- **Crown Fire:** A fire that burns through the upper tree or shrub canopy. In most cases the understory vegetation is also burned. Depending on species, a crown fire may or may not be lethal to all dominant vegetation. An example of this would be many shrub and broadleaf tree species that sprout from roots, root crowns or stem bases after their tops are killed. A crown fire may be continuous or may occur in patches within a lower severity burn.
- **Stand Replacement Fire:** A fire that is lethal in most of the dominate above ground vegetation and substantially changes the vegetation structure. Stand replacement fires may occur in forests, woodlands and savannas, annual grasslands, and shrublands. They may be crown fires or high-severity surface fires or ground fires.

[29] South Dakota Department of Agriculture and Natural Resources. *Mountain Pine Beetle.*

[30] Pennington County Natural Hazard Mitigation Plan. 2024.

- **Mixed-Severity Fire:** A severity of fire varies between nonlethal understory and lethal stand replacement fire with the variation occurring in space or time. In some vegetation types the stage of succession, the understory vegetation structure, the fuel condition and/or the weather may determine whether a low or high severity (or surface or crown) fire occurs. In this case individual fires vary over time between low intensity surface fires and longer interval stand replacement fires. In others, the severity may vary spatially as a function of landscape complexity or vegetation pattern. The result may be mosaic of young, old, and multiple-aged vegetation patches.

Location *(Requirement B1-b):*

Wildfires have the potential to occur anywhere in Fall River County. Almost all of the landmass in Fall River County are covered in some type of combustive vegetation with the noted exceptions of some developed/urbanized areas. The fuel models and topography vary significantly from one side of the county to the other.

The county's topography can influence the intensity and spread of wildland fires. South- and west-facing slopes tend to dry out more quickly, which can lead to earlier ignition of fuels. These slopes influence heat transfer and alter weather patterns, generating localized conditions that affect how wildfires behave. [31] The topography of an area also plays an important role when mitigating the risk of wildfire. Slope, aspect, and features in an area will slow down or contribute to the spread of fire. Slope will determine how a fire moves up or down hills. If a fire were to start at the bottom of a slope, it would quickly spread upwards because of the contributing rising hot air. [32]

In 2023, the United State Forest Services published the Wildfire Hazard Potential 5-classifications data to help identify areas of risk. The classifications are broken up into 5 categories, very low, low, moderate, high, and very high. This data was developed to highlight areas with a higher potential for intense, hard-to-control wildfires and to help identify where wildfire treatments should be prioritized. It should also be noted throughout the update of this plan the northwest area of the county which resides in the Black Hills National Forest was noted as a high-risk area.

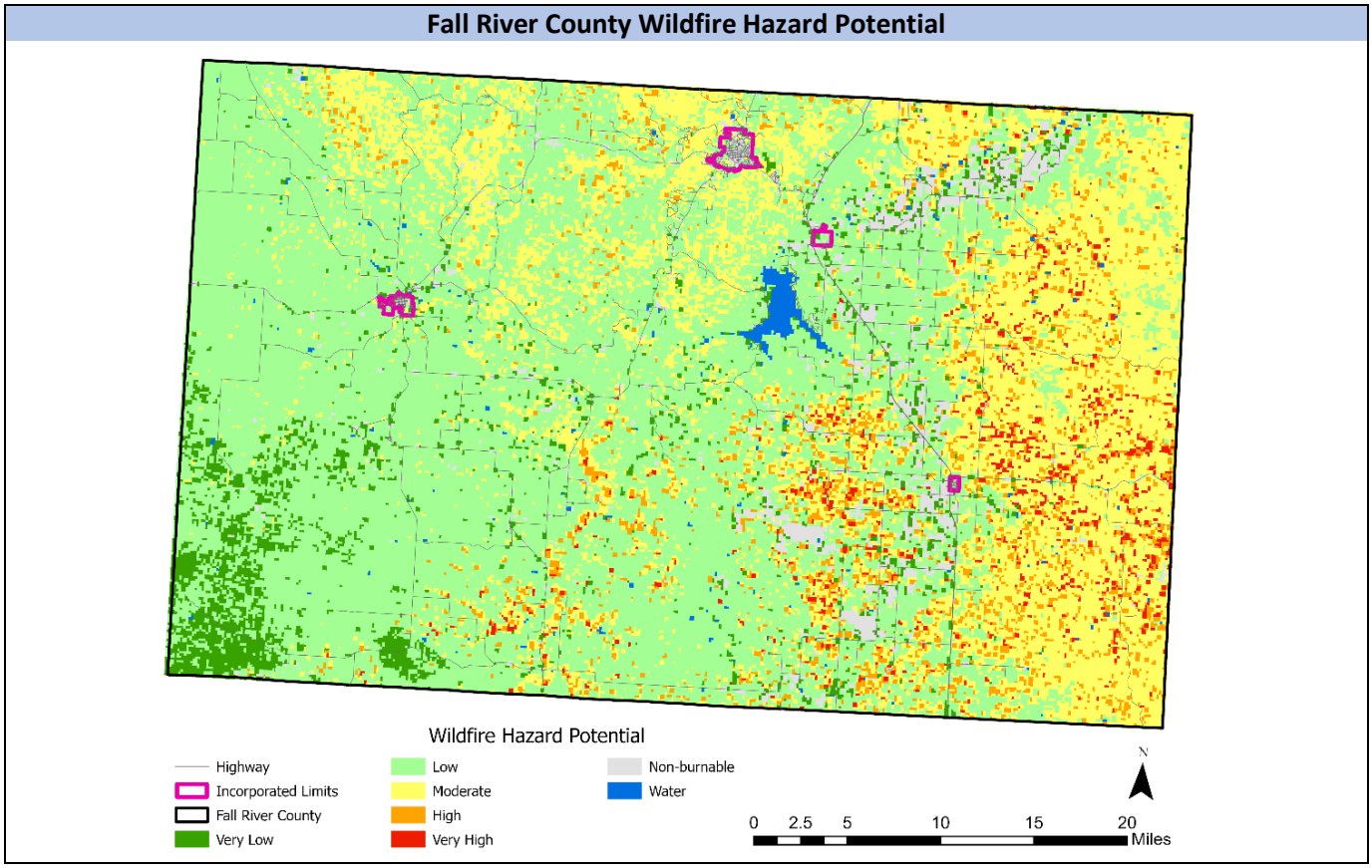

Figure 3.18. Fall River County Wildfire Hazard Potential. Data Source: USDA Wildfire Hazard Potential 5-Classificaions. 2023. ***(Requirement B1-d)***

[31] Lawrence County Pre-Disaster Mitigation. 2019

[32] National Park Service. 2023. *Wildland Fire Behavior.*

Wildland Urban Interface

Nationwide it is estimated the wildland-urban interface (WUI) has been growing by approximately 2 million acres annually. South Dakota ranges from 15%-30% of homes located within the WUI.[33] The wildland-urban interface poses several challenges for land management, firefighting, and overall community safety. Acknowledging that conditions are constantly evolving, the Wildland-Urban Interface (WUI) expands alongside development, while the number of wildfires nationwide continues to rise. It's essential for us to adjust and adapt to the ongoing threat of wildfire. As development continues to encroach into these areas, WUI becomes increasingly vulnerable to fire events, leading to increased risk to the loss of life, property, infrastructure, and natural ecosystems. Safety challenges also arise for firefighters which may face issues with steep terrain, dense vegetation, and lack of readily accessible water supplies. As urban populations continue to expand into these areas, the potential for devastating wildfire incidents increases, necessitating effective planning and mitigation strategies to protect both lives and property. It is recommended through the International Urban Interface Code that the WUI is reevaluated and updated on a 3-year basis.

Wildland-urban interface area: That geographical area where structures and other human development meets or intermingles with wildland or vegetative fuels

International Code Council: International WUI Code, 2021

The Wildland Urban Interface 1/2-mile zone are crucial in helping reduce wildfire risk to communities. These treatments should include vegetation management, the creation of defensible spaces, establishing firebreaks, and maintaining access routes. Treatments require collaboration between federal, state, and local governments and other agencies to ensure prioritization of hazardous fuels reduction projects on federal and non-federal property are effective.

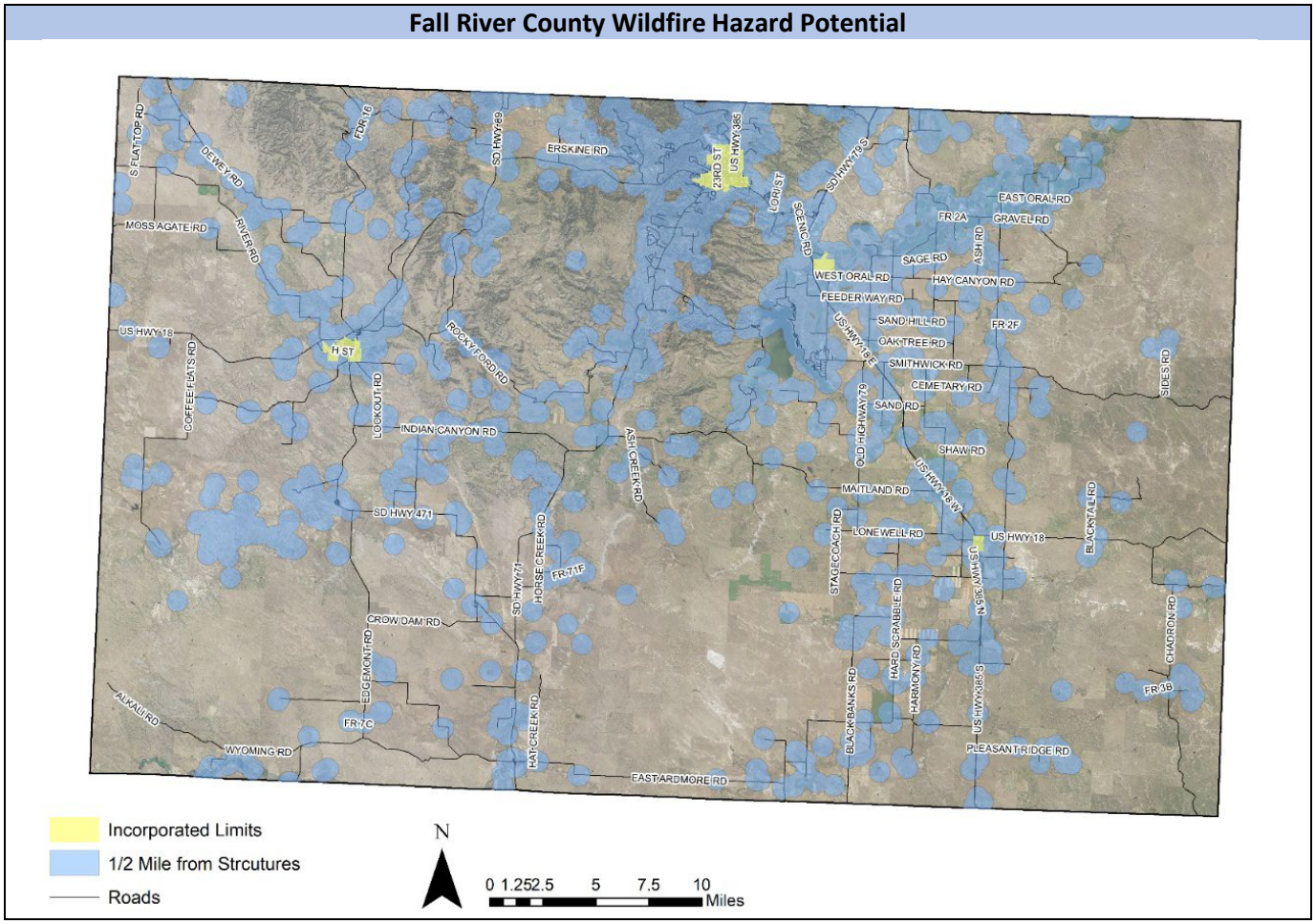

Figure 3.19. Fall River ½ Mile Structures Buffer. Structure Source: Microsoft Building Footprints 2018 South Dakota. ***(Requirement B1-d)***

[33] FEMA. What is the WUI?

To help address concerns associated with the WUI, communities must work on implementing a combination of strategies such as creating defensible space, assessing building codes, and enhancing emergency response plans. Utilizing and enforcement of existing ordinances and policies is an important step in mitigation. Municipalities with the ability to regulate development may also need to consider exploring additional measures such as developing specific wildfire mitigation codes tailored to the unique challenges of the wildland-urban interface (WUI). These codes could include stricter regulations on vegetation management, requirements for fire-resistant building materials, and guidelines for defensible space around structures.

Property owners can use methods such as maintaining fuel loads and when feasible, using fire-resistant materials. This may also include encouraging buildings with or replacing existing features with fire-resistant materials, such as the replacement of wood roofs or fire-resistant vents and screens.

"At-Risk Communities" Eligibility and Percentiles		
Community	**"At-Risk" Eligible**	**Wildfire Risk to Homes** (State Rank)
Fall River County	Yes	95.4%
Edgemont	Yes	90.1%
Hot Springs	Yes	91.0%
Oelrichs	Yes	96.6%

Table 3.38. Community Wildfire Defense Grant "At-Risk Communities" (Wildfire Risk to Communities)

Wildfire Communities at Risk:

The Community Wildfire Defense Grant Risk Dataset considers two variables for eligibility as an "at-risk community" based off the *Wildfire Risk to Communities*, created by the U.S. Forest Service. To be eligible for a community "risk to homes" percentile must be rated at least in the 40th percentile, with a priority to those communities in the 70th percentile or higher.

Fire Protection:

All of the fire departments within the county that are not state of federally managed operate on a volunteer basis. The county has a total of nine fire departments, with a total of eight fire stations countywide. In addition to these local services state and federal entities also have the capability to assist in wildfire events such as South Dakota Wildland Fire, United State Forest Service, and Bureau of Land Management.

Volunteer Fire Departments in Fall River County	
Ardmore VFD	Minnikahta VFD
Cascade VFD	Oelrichs VFD
Edgemont VFD	Oral VFD
Hot Springs VFD	Smithwick VFD

Table 3.39. Fall River County VFD

Due to the volunteer nature of these departments, it leads to varying response times. Similarly, volunteers often face limitations in how long they can remain on scene, as many have other personal or professional obligations. One of the challenges facing the departments is the difficulty in both getting and retaining volunteers.

Volunteer fire departments face challenges related to the various equipment and apparatuses and equipment. Many operate with aging vehicles which may not be to modern safety and/or operational standards. Limited funding and high costs for new equipment, often lead to less effective or reliable tools and equipment during critical situations. These challenges can impact the efficiency of emergency response and also place a strain on volunteers who must work with equipment limitations or lack of appropriate equipment.

Local fire groups also stressed that access and egress have posed challenges throughout the county. These challenges include large subdivisions lacking secondary access routes, difficult approach conditions for emergency vehicles, and inconsistent road widths that can hinder evacuation and response efforts. While fire groups make best attempts to respond, there may be areas which may prove challenging or require expensive or timely alternatives.

Around 355 sq. miles of the Black Hill Forest Protection District (BHFPD) is located in the northwestern part of Fall River County. This district was established in 1941 in an effort to protect timbered areas from unusual fire danger.

Any location within the county that falls in the BHFPD must have a burn permit issued by South Dakota Wildland Fire; however, this rule excludes any municipalities within the jurisdiction. [34]

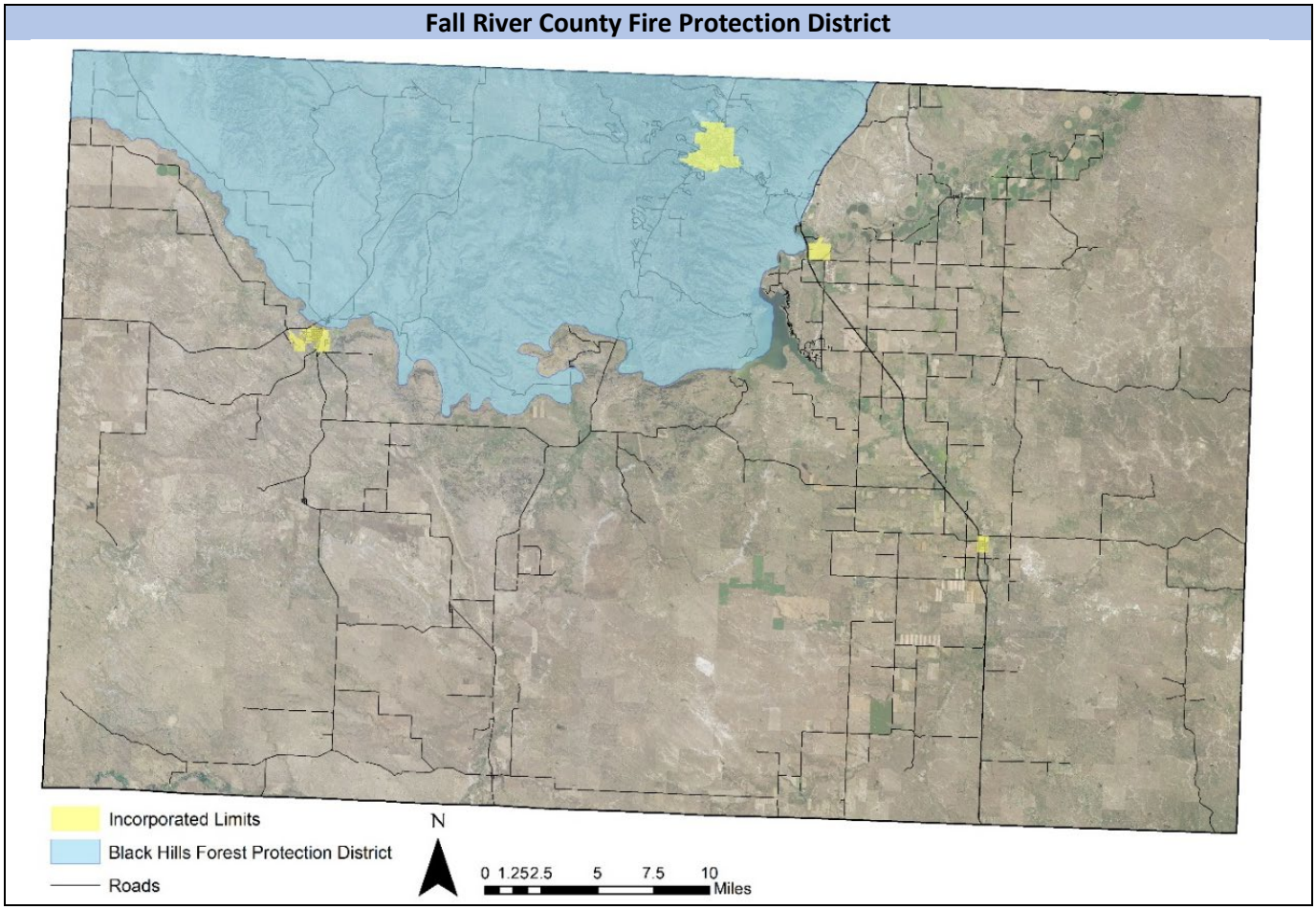

Figure 3.20. Fall River County Fire Protection District. Data Source: South Dakota Wildland Fire.

Watersheds:

Wildfires can dramatically alter the health and function of watersheds. Fall River County has the Angostura and Middle Cheyenne-Springs Watershed in the central and northern part of the county, Beaver Watershed which covers the northwest corner of the county. The Upper White Watershed covers the southwest corner and Hat Watershed covers the southwest part of the county. The recharge of these bedrock aquifers is highly reliant on healthy and reliable watersheds, which allow water to seep into the ground for recharge. The aftermath of wildfires, especially large fires, creates a loss of vegetation and changes in soil properties. This in turn can lead to changes in the natural flow of water, erosion, and eventually lead to post-fire

USGS lists the potential effects from wildfire on water supplies:

- Changes in magnitude and timing of snowmelt runoff, which influence filling of water-supply reservoirs.
- Increased sediment loading of water-supply reservoirs, shortened reservoir lifetime, and increased maintenance costs.
- Increased load of streams with nutrients, dissolved organic carbon.
- Post-fire erosion and transportation of sediment and debris to downstream water-treatment plants, water-supply reservoirs, and aquatic ecosystems.
- Increased turbidity (cloudiness caused by suspended material), or heightened iron and manganese concentrations, which may increase chemical treatment requirements and produce larger volumes of sludge, both of which would raise operating costs.
- Changes in source-water chemistry that can alter drinking-water treatment.

USGS. *Water Quality After Wildfire*. 2018

[34] South Dakota Wildland Fire.

pollutants reaching water bodies.[35] Overall, the impacts to a watershed depend on the wildfire behavior and hydrological features of the watershed.[36] Healthy forests are heavily reliant on maintaining healthy watersheds. As such it is important to ensure watersheds are protected from wildfire.

Riparian Areas

The *South Dakota Forest Action Plan* notes the importance of protecting riparian areas.[37] Wildfires can impact riparian areas either directly or indirectly. Riparian areas serve as critical habitats for plant and animal species. Wildfire can destroy or alter these important habits. Wildfire can also directly impact an area from the burning of vegetation, water temperatures, water quality from erosion and sedimentation entering the system. Wildfire can also create impact indirectly by altering the hydrology of the surrounding area.[38]

Water Sources

When water sources are unknown or unreliable, developing and protecting structures becomes a significant challenge. Many locations in Fall River County lack readily available water sources and even less have information for emergency services. Improving or developing firefighting water sources should be further assessed, to help ensure firefighting groups not only have water source but also have access and ability to located water sources.

Shelterbelt Fuel Breaks

Shelter belts play an important role in wildfire management, especially in the prairie. Rows of trees or shrubs are planted to act as barriers against wind and flames. In some instances, shelter belts can act as natural firebreaks, creating gaps in vegetation that can help to slow or stop fire progression. Shelter belts should be encouraged to help create fuel breaks in a strategic place to help protect structures and critical infrastructure.

Defensible space

Defensible space refers to the area around a structure designed to help decrease the impacts of wildfire. Creating defensible space involves clearing flammable vegetation and debris within a designated distance from buildings (ranging from 30-200ft.). These efforts can help to prevent fires from spreading to structures, while also creating a safer environment for firefighters. New development, especially in the WUI, may consider appropriate setbacks, home-to-home proximity, access/egress, and road and driveway length and width.[39] The type of defensible space is going to be reliant on the area of treatment. As an example, dense neighborhoods with homes in close proximity to each other have a higher risk of structure-to-structure ignitions. While structures on larger lots may be more susceptible to vegetation or other combustible items igniting the homes, or homes which sit on steep slopes may require defensible space below towards the bottom of the sloped area.[40]

Existing development can also work towards creating defensible space. *FEMA* provides guidance on how to better protect property from wildfire, Appendix D. Individuals and communities can work closely with Fall River County Emergency Management and South Dakota Wildland Fire on information and guidance on potential funding assistance on fuel reductions. By promoting community-wide survivable space strategies, homeowners and local authorities can significantly reduce wildfire risks and improve overall safety.

Home Hardening

Home hardening is an important part of wildfire mitigation, with the overall aim of making residential structures more resilient to the impact of wildfire. This process involves implementing various measures to reduce the vulnerability of homes to embers, radiant heat, and/or direct flames. Sealing vents and openings, along with installing spark arresters on chimneys, further enhance protection against embers. By prioritizing home hardening, residents can significantly lower the risk of ignition, ultimately safeguard their homes and improve overall community resilience in the face of increasing wildfire threats.

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[35] USGS. *Water Quality After Wildfire*. 2018

[36] Hohner, Amanda. Wildfires Alter Forest Watersheds and Threaten Drinking Water. 2019.

[37] South Dakota Forest Action Plan. 2020

[38] DeBano, Leonard F. et al. 1996. *Effects of Fire on Riparian Systems.*

[39] National Firewise Protection Agency. *Safer from the Start*: Guide to Firewise-Friendly Developments.

[40] Restaino, Christina et. al. *Wildfire Home Retrofit Guide.*

Priority Treatment Areas:

Until specific project areas are identified which are dependent on funding availability and often agreements with private landowners, treatment zones in ½-mile, 1½-mile, and 3-mile regions should follow the prescribed parameters, which will later be refined for each specific site. More mountainous and forested areas in the county are located in or around the Fire Protection District. Aside from the area surrounding Angostura, this is also the area of the country that is experiencing the most growth and development.

Site specific locations should be encouraged as part of collaboration with local, state, and federal agencies when possible. In the event of pest and disease outbreak, such as mountain pine beetles, impacted areas within the ½-mile, 1½-mile, and 3-mile may need to take priority based on the degree of outbreak. In addition to these areas, other high-priority projects should focus on evacuation routes. Mitigation efforts should also be considered for canyons and valleys, which can funnel winds and intensify wildfire behavior.

Treatments may include such methods as prescribed burning and logging (including cleaning of vegetation with no commercial value). These treatments should encourage forest management which help reduce the risk of crown fire from threatening structures in these boundaries.[41]

<u>The ½-mile should give higher priority to treatments based on structure density. Suggested treatment types for up to ½-mile:</u>

- Removal of ladder fuels
- Conifer canopy separation
- Reduction of conifer stands
- 30-feet separation between conifer canopies
- Create defensible space around structures
- Encourage creation and maintenance of fuel breaks

<u>Suggested 1½-mile treatment types:</u>

- Target treatments 10-feet between conifer canopies
- Fuels reduction projects

<u>Suggested 3-mile treatment types:</u>

- Design projects at a landscaping level
- Evaluate need and placement of larger fuel breaks

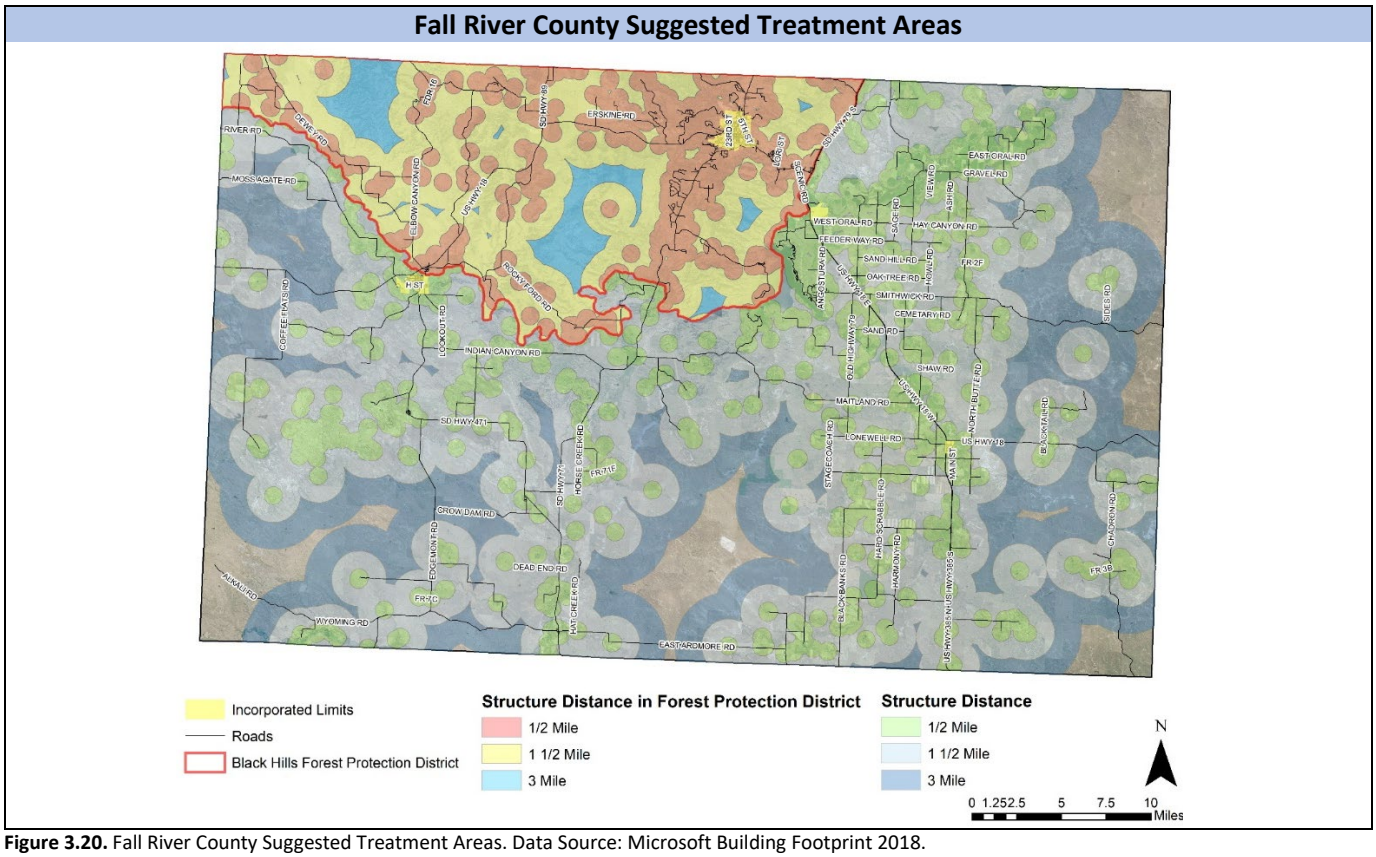

Figure 3.20. Fall River County Suggested Treatment Areas. Data Source: Microsoft Building Footprint 2018.

[41] Pennington County CWPP 2009.

Collaboration Efforts

Wildfires do not differentiate between political boundaries which means effective fire mitigation efforts require earnest and continuous collaboration amongst various governments and agencies. Fall River County has fragmented land ownership throughout the county. This fragmentation means a fire that starts on public land can spread to private land vice versa. Fall River County has a strong relationship with various fire agencies on the federal, state, county, and local levels. All agencies are making efforts to work together to identify areas of fuel reduction treatments. South Dakota Wildland Fire works with all agencies in tracking different projects that take place in the region. All fire departments in Fall River County have mutual aid agreements with local, state, and federal fire agencies.

Fall River County Land Ownership	
Private Land	70.9%
Forest Service	24.8%
BLM	0.6%
Other Federal	0.2%
State Lands	3.4%

Table 3.40. Fall River Land Ownership. Source: Headwaters Economics.

While Fall River County and other agencies have strong relationships for response and recovery efforts. One of the greatest challenges for wildfire mitigation projects is cross-boundary cooperation. Oftentimes entities are limited in their ability to treat areas outside their boundaries. For example, a wildfire mitigation project on federal lands may not be effectively integrated with similar projects on private lands. This fragmentation of projects can create gaps where untreated areas may become hotspots for wildfire spread. Furthermore, funding between federal, state, and private encounter different ties to specific regulations, restrictions, and timeframes can limit collaborative cross-boundary projects. A new program being implemented by the USFS called the Potential Operational Delineations (PODs), will help mitigate wildfire risk in a collaborative effort between jurisdictions. The program seeks to work with adjacent landowners and jurisdictions for cross-boundary planning. The program is designed to engage local wildfire experts, stakeholders, and scientists, to help identify risk areas and develop mitigation strategies and projects.[42]

The U.S. Fire Administration provides a list of planning for roadway safety for wildfire evacuation:

- Reduce fuel loading along and above roadways
- Widen roads
- Ensure there are two ways out of a community
- Make sure everyone knows how to open a gated exit route
- Identify load limits and make sure they are posted on bridges for responding emergency vehicles
- Install culverts constructed of materials that will not melt

U.S. Fire Administration. *Wildfire Evacuation*

Evacuation Routes

Another issue facing these areas with dense development is evacuation during an emergency could overwhelm the available routes. In the event of evacuation, the routes may not be able to handle the volume of traffic needed to utilize the routes, making it difficult for residents to evacuate efficiently. Conducting an evacuation analysis to help identify potential evacuation routes and assess their capacity during an emergency. This analysis would work to ensure that evacuation plans are realistic, safe, and able to minimize risks to residents in the event of a wildfire.[43] Considerations should also be given to vulnerable populations. The ability for evacuation during emergencies can also affect populations such as the elderly and those with certain pre-existing medical conditions, compromised mobility, and compromised language and cultural barriers. These conditions make it harder to interact with agencies and create the potential for miscommunication, inability to follow directions.[44]

Unique and Varied Risk *(Requirement B1-f)*:

[42] USDA. PODs at a glance.

[43] FEMA. *Marshall Fire Mitigation Assessment Team: Best Practices for Wildfire-Resilient Subdivision Planning. 2023*

[44] Headwaters Economics. 2023. Populations at Risk.

Edgemont:

Edgemont identified a few wildfire mitigation areas. Much of the community has some challenges with defensible space. Which educational campaigns and a review of some ordinance may help address. Edgemont also has its own burn ban ordinance for restrictions on open burning and fireworks during fire index of moderate, high, very high, or extreme.

The city is surrounded by grasslands. A higher risk would be a grassfire west of the city getting into city limits. This would primarily encompass risk from grassfires, so mitigation would include vegetation management, such as mowing and maintaining grass in and around the city and critical infrastructure and creating and maintaining fuel breaks. The Cottonwood subdivision was noted as an area with potential challenges due to access and egress, and its proximity to the railyard. While the city maintains its owned properties, there is an opportunity to expand efforts by implementing more FireWise defensible space strategies to better protect communities from wildfire risks. Similarly, priority areas for the community should include locations near critical infrastructure and facilities that pose elevated risk in the event of a wildfire, one such location would be the city rubble site, which sits outside of town. Additional treatment areas would include southwest of town near the water tower.

Hot Springs:

The steep slope topography present in and around the city of Hot Springs, can create a high-risk for wildfire. There are locations around the community with dense vegetation in the wildland urban interface. The city does utilize *Chapter 93: Fire Prevention and Protection* ordinance to regulate burning within city limits.

In 2025, the city of Hot Springs updated its subdivision ordinance to address secondary ingress and egress for subdivisions of a certain size, to help alleviate any challenges in emergency service access or evacuations. The ordinance also allows the city council the ability to require additional ingress/egress based on public safety, projected traffic, or other technical factors.

All of Hot Springs resides in the ½ miles priority treatment area. The city helped to identify a few areas within city limits where wildfire mitigation should be encouraged. While most of the land in the area is privately owned and falls outside the city's jurisdiction, the city can implement wildfire mitigation on its own properties and rights-of-way.

Hot Springs Wildfire Suggested Treatment Areas

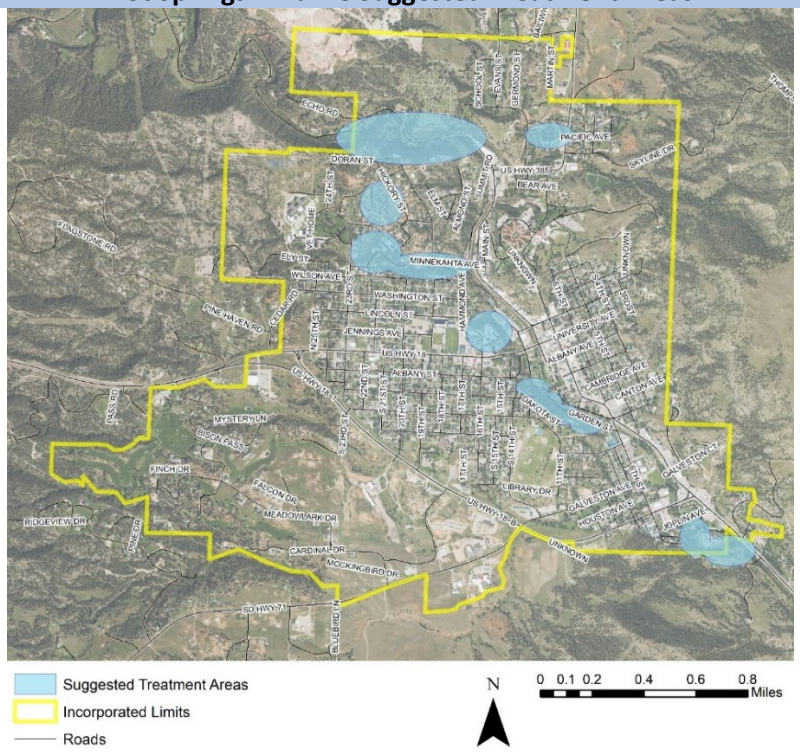

Figure 3.22. Fall River County Fire Protection District. Data Source: South Dakota Wildland Fire.

Oelrichs:

The town of Oelrichs would be primarily at threat from grassland fires. One of the challenges facing the community is many abandoned and/or dilapidated homes that could serve as fuel in the event of wildfire reaching the town. would primarily encompass risk from grassfires, so mitigation would include vegetation management, such as mowing and maintaining grass in and around the city and critical infrastructure and creating and maintaining fuel breaks.

Vulnerabilities *(Requirement B2-a,* B2-b.*):*

Wildfires occur primarily during drought conditions but can occur with as little as one to two weeks with hot, dry, and windy weather conditions any time of year. Wildfires can cause extensive damage, both to property and human life, and can occur anywhere in the county. There can be large losses to standing timber, with the threat of erosion and debris buildup from rapid run-off in areas burned. There is potential for loss of life, structures, and utility infrastructure, as well as impacts upon economic factors such as ranching. Even though wildfires can have various beneficial effects on wilderness areas for plant species that are dependent on the effects of fire for growth and reproduction, large wildfires often have detrimental atmospheric consequences, and too frequently wildfires may cause other negative ecological impacts. Moisture amounts have the biggest impact on fire situations. During wet years, fire danger is generally lower. More controlled burns are conducted and less mishaps occur.

The *South Dakota Forest Action Plan Priority Areas* show high priority rankings for the riparian areas in Fall River County.[45] Wildfires can impact riparian areas either directly or indirectly. Riparian areas serve as critical habitats for plant and animal species. Wildfire can destroy or alter these important habits. Wildfire can directly impact an area from the burning of vegetation, water temperatures, water quality from erosion and sedimentation entering the system. Wildfire can also create impact indirectly by altering the hydrology of the surrounding area. [46]

Wildfire smoke, which is a combination of gases and particles from burned materials, can affect anyone, but those at an increased risk are those with asthma, chronic obstructive pulmonary disease, heart disease, children, pregnant woman, and responders. [47] During younger children's development stages, they are more sensitive to health problems and environmental stress. Those with poor health during childhood are more likely to see continued issues into adulthood. As an example, children have faster breathing rates than adults and tend to spend more time outdoors, causing a higher sensitivity to wildfire smoke. Older adults, those 65 and older, are also at a high risk from air pollutants, such as dust and particle matter. The poor air quality that is present during wildfire events creates a vulnerability to these individuals. [48]

The ability for evacuation during emergencies can affect populations such as the elderly and those with certain pre-existing medical conditions, compromised mobility, and compromised language and cultural barriers. These conditions make it harder to interact with agencies. There is the potential for miscommunication, inability to follow directions. [49]

Headwater Economics Wildfire Report provides an estimate of buildings exposure from wildfire. Wildfire Exposure is the risk to people and property when wildfire is likely to happen and could burn strongly in the same area where homes, buildings, or communities are located.

Fall River Wildfire Exposure	
Buildings Directly Exposed	63.3%
Buildings Indirectly Exposed	36.5%
Buildings Minimally Exposed	0.2%

Table 3.41. Headwaters Economics Wildfire Risk Report. 2025.

Historical Events *(Requirement B1-d):*

NOAA reports only three wildfires in Fall River County since 2000, which is grossly underreported. To get a more complete picture of the wildfire impact in Lawrence County, data was compiled from the National Interagency Fire

[45] *South Dakota Forest Action Plan*. 2020. South Dakota.
[46] DeBano, Leonard F. et al. 1996. *Effects on Fire on Riparian Systems.*
[47] National Center for Environmental Health. 2022. *Protect yourself from wildfire smoke.*
[48] Headwaters Economics. 2025. *Populations at Risk.*
[49] Headwaters Economics. 2025. *Populations at Risk.*

Center Historical Fires Open Data. This group produces data under the interagency Wildland Fire Data Program, hosted in the National Interagency Fire Center ArcGIS Online Organization. [50]

Large historical fire events summary was taken from the 2009 CWPP for events prior to 2007.

Historic:

- **1949:** Battle Mountain (1,169 acres)
- **1959:** Flint Hill (154 acres)
- **1959:** Synder (33 acres)
- **1960:** Green Canyon (6,389 acres)
- **1960:** Wildcat Canyon (10,454 acres)
- **1972:** Gull Hill (599 acres)
- **1974:** Argyl #2 (4,356)
- **1974:** Flagpole (26 acres)
- **1975:** Gull Hill #2 (774 acres)
- **1985:** Flint Hill (21,746 acres)
- **1985:** Seven Sisters (8,587 acres)
- **1987:** Coffee (4,858 acres)
- **1988:** Sides (1,606 acres)
- **1991:** Cascade (253 acres)
- **1992:** Edgemont Cemetery (86 acres)
- **1994:** Chilson Canyon (625 acres)
- **1996:** Chilson (203 acres)
- **1996:** Gravel Pit (2,266 acres)
- **1996:** Hay Bail (1,500 acres)
- **1997:** Burdock (165 acres)
- **2000:** Flagpole Mt. (7,386 acres)
- **2001:** West Hell (10,547 acres)
- **2003:** Cottonwood Creek (1,115 acres)
- **2006:** Hells Acre Complex (288 acres)
- **2007:** Alabaugh (10,324 acres)

- **08/11/2000:** Flagpole Fire Complex (FEMA-2319-FSA) and Jasper Fire (FEMA-2324-FSA) The Flagpole Fire Complex started on August 11, 2000, in Fall River County in southwestern South Dakota. The wildfire was three different starts, the Flagpole Mountain, Green Canyon, and Chilson II fires in the southern hills area. The fires were attributed to lightning. The Flagpole Mountain fire burned in Ponderosa Pine; the Green Canyon fire burned in grass, scrub, and juniper. The terrain was extremely rocky and steep, making access and firefighting difficult. Pushed by shifting winds, the Flagpole fire immediately threatened structures, including two homes, and destroyed one outbuilding. The Flagpole and Chilson II fires burned more than 6,000 acres by the evening of August 12. The Flagpole fire threatened 30 homes on the north, south, and east sides of the fire and prompted officials to call for voluntary evacuations in the Shep's Canyon area, where there was only one access road. One residence was lost on the north side of the fire. The fires eventually burned 7,386 acres.[51]
- **08/24/2000:** The Jasper Fire was located in Custer County in the Southwest Black Hills. It was the largest fire to occur in the Black Hills in at least a century. The fire started at about 2:30 p.m. on August 24, 2000 and was contained on September 8, 2000. The cause of the fire was arson. The weather was very hot and dry, vegetation moisture was at record low levels, and atmospheric conditions were very unstable. The conditions caused extreme fire behavior and the fire spread rapidly, doubling in size every hour on the day it started. Almost immediately spot fires ahead of the main fire. The fire created its own weather pattern as it burned. Lightning from the storm created by the fire was a big concern. The fire completely blackened some areas, leaving scorched, dead trees and ash-covered ground in its wake. Other areas experienced only a light ground burn. Large areas within the fire perimeter remained green, either lightly burned or completely undamaged. Firefighting efforts continued for a month, and firefighters declared the fire controlled on the evening of September 25, 2000. The Jasper Fire burned 83,500 acres and was the largest fire in Black Hills history. It destroyed one summer cabin and three outbuildings, burned acreage at the Jewel Cave National Monument, and threatened more than 100 other structures and the communities of Custer and Hill City. Fire losses included approximately 244 million board feet of timber, 150 miles of range fence, 65 livestock water tanks, 20 miles

National Interagency Fire Center Wildfires July 2014 - December 2024	
Total Wildfires	219
Acres Burned	**Total Wildfires**
0-0.99	97
1-9.9	60
10-99.9	38
100-299.9	10
300-999.9	5
1,000-4,999.9	0
5,000-9,999.9	0
10,000-49,999.9	1
50,000+	0
Fire Size Not Reported	8

Table 3.42. National Interagency Fire Center Historic Data. Acres Burned: A measure of acres reported for the fire. More specifically, the number of acres within the current perimeter of a specific, individual incident, including unburned and unburnable islands. Minimum size must be 0.1. Accessed 08/01/2025 (Appendix B)

[50] Wildland Fire Interagency Geospatial Services. 2025. *Wildland Fire Locations.*
[51] South Dakota Enhance State Mitigation Plan, 2024

of range water lines, 17 wildlife water developments, 59 wooden power line structures, and 2,738 feet of above ground telephone line. Total outlay for both fires: $4.25 million.[52]


Figure 3.23. Images from the 2007 Alabaugh Fire, provided by Fall River Office of Emergency Management.

- **07/2007:** Alabaugh Fire (FEMA-2710-FSA) This fire near Hot Springs in Fall River County was started by lightning on July 7 and was contained on July 12. It burned 10,324 acres. The fire killed one man and destroyed 33 homes. It also forced the evacuation of about 600 residents in about 300 homes. Fire suppression costs were estimated at $2.7 million. A state official said the blaze was the most intense wildfire ever recorded in the Black Hills. Sources: InciWeb, Rapid City Journal, National Public Radio State Enhanced Mitigation Plan.[53]
- **08/11/2018:** Vineyard Fire burned 560 acres south of Hot Springs. The fire caused evacuations on the east side of Hot Springs. [54]

Since 2020 (100+ acres):

- **07/01/2020 :** Medicine Creek. 137.4 acres burned. Fire cause – human - equiptment.
- **09/014/2020:** Rumford CA. 110 acres burned. Fire cause – human - utilities.
- **08/15/2024:** Bennett. 367 acres burned. Fire cause – natural.
- **08/21/2024:** Red Canyon Fire. 100 acres burned. Fire cause – natural.
- **03/01/2025:** Green Acres. 340 acres burned. Fire cause – undetermined.
- **04/29/2025:** Angosture RX. 220 acres burned. Fire cause – undetermined.

MITIGATION STRATAGIES WILDFIRE *(Requirement C3-a, C4-a, C4-b, C4-b):*

Goal 9: Reduce the impact of Wildfire in Fall River County.

Project 9.1	Continue to regularly update the Community Wildfire Protection Plan as part of the county's 5-Year Mitigation Plan Updates.
Responsible Jurisdiction	Fall River County
Priority	High
Funding Source	FEMA-HMGP
Timeframe	Ongoing (every 5-years)
Oversight	County Emergency Manager
Notes	As part of the update of the Mitigation Plan, this will ensure the CWPP is updated regularly.

[52] South Dakota Enhance State Mitigation Plan, 2024
[53] South Dakota Enhance State Mitigation Plan, 2024
[54] Wildfire Today. Vineyard Fire.

Project 9.2	Explore different methods and media to provide public information on FireWise practices.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	County or City General Funds
Timeframe	Ongoing (continue 1-5 years)
Oversight	County Emergency Manager, Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President
Notes	Work to get Firewise information to homeowners. Communities should consider different methods to share this information with the community. With special consideration to vulnerable populations, and different places and ways to reach out. Firewise materials can be obtained from the State OEM or BLM. The County and municipalities can create a collaborate education campaign.

Project 9.3	Evaluate and update as needed any survivable space requirements in planning and zoning ordinances.
Responsible Jurisdiction	Edgemont, Hot Springs
Priority	High
Funding Source	City General Funds, Staff time
Timeframe	1-5 years
Oversight	Edgemont Mayor, Hot Springs City Administrator
Notes	

Project 9.4	Consider the adoption of fire restrictions during period of elevated wildfire risk.
Responsible Jurisdiction	Fall River County
Priority	High
Funding Source	NA
Timeframe	1-2 years
Oversight	County Commission Chair
Notes	Since the last update of this plan, Fall River County's ordinance on fire bans was redacted. With new development occurring in areas with high fire risk, the County should explore the need to re-adopt an ordinance to address burn bans.

Project 9.5	Continue collaboration efforts between departments and agencies with SD OEM, BLM, USFS, Local Fire Departments, SD Wildland Fire, SD Forestry and Conservation District, and private landowners for fuels reduction.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	County General Funds, Staff time, FEMA-HMGP
Timeframe	1-5 years
Oversight	Emergency Manager
Notes	Noteable areas include but not limited to: Garden Street, Battle Mountain, Country Club Estates, Hot Brook Canyon, Sheps Canyon

Project 9.6	Reduce fuel loading along and above roadways, with special attention to identified evacuation routes.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	County General Funds, Staff time, FEMA-HMGP
Timeframe	1-5 years
Oversight	Emergency Manager, Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President

Project 9.7	Reduce fuel loading around residences and critical facilities.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	County General Funds, Staff time, FEMA-HMGP
Timeframe	1-5 years
Oversight	Emergency Manager, Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President

Project 9.8	Continue to ensure new development has appropriate access and capacity for emergency services and critical infrastructure.
Responsible Jurisdiction	Hot Springs
Priority	High
Funding Source	County General Funds, Staff time
Timeframe	1-5 years
Oversight	Hot Springs City Administrator

Project 9.9	Ensure secondary ingress/egress for subdivisions of a certain size.
Responsible Jurisdiction	Fall River County
Priority	High
Funding Source	County General Funds, Staff time
Timeframe	1-5 years
Oversight	Fall River Commission Chair
Notes	The County currently does not have planning mechanisms for this item. It is likely such planning mechanisms would be unfavorable to the residents of Fall River County. This action was included in the event the County later decides to adopt planning mechanisms. Notable areas that would benefit from this would include but not limited to: Country Club Estates, Cascade Subdivision, Hot Brook Subdivision, Eagle Valley Subdivision, and all future subdivisions.

Project 9.10	Explore funding options to assist VFDs in updating equipment and apparatus.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	FEMA: Assistance to Firefighter Grant
Timeframe	1-2 years
Oversight	Emergency Manager*, Fire Chiefs
Notes	VFD can apply for the FEMA Assistance to Firefighter Grant. A countywide comprehensive approach may also be advisable for highly competitive grant funding. *primary oversight

Project 9.11	Encourage the use, maintenance, and strategic placement of shelter belts to help create fuel breaks to help protect structures and critical infrastructures.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	County/City General Funds, Staff time
Timeframe	1-2 years
Oversight	Emergency Manager, Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President

Project 9.12	Improve and develop water sources to guarantee that firefighting groups have both access to water and the ability to quickly locate these sources.
Responsible Jurisdiction	Fall River County
Priority	High
Funding Source	County/City General Funds, Staff time

Timeframe	1-5 years
Oversight	County Commission Chair

Project 9.13	Continue to encourage and provide training for volunteer firefighters
Responsible Jurisdiction	Fall River County
Priority	High
Funding Source	Various Fire Agency Funding
Timeframe	Ongoing
Oversight	County Emergency Manager*, VFD Chiefs
Notes	*Primary oversight

Project 9.14	Continue maintain county road ditches (mow and rake)
Responsible Jurisdiction	Fall River County
Priority	High
Funding Source	County Funds
Timeframe	Ongoing
Oversight	County Highway Superintendent

Project 9.15	Perform fuels reductions within municipalities
Responsible Jurisdiction	Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	City General Funds
Timeframe	Ongoing
Oversight	Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President
Notes	Include but not limited to: cure grass, lumber, trash, tires, ladder fuels, etc…

WINTER STORMS

Future Hazard Probability				
Event Type	**Blizzard**	**Heavy Snow**	**Winter Storm**	**Winter Weather**
Probability	**Med**	**Med**	**High**	**High**

Table 3.43. Probability of future winter storm occurrence. Calculations based on NOAA weather data. (NOAA: National Centers for Environmental Information. 2025. *Storm Events Database).*

FEMA National Risk Index	
Winter Weather	Relatively High

Winter storms typically deposit four or more inches of snow in a 12-hour period or six inches of snow during a 24-hour period. Such storms are generally classified into four categories with some possessing characteristics of several categories during distinct phases of the storm. Due to the multiple categories NOAA has for winter storm events, the probability of winter storms combines several hazard events including blizzards, winter weather, winter storm, and heavy snow. Winter storms can range from moderate snow to blizzard conditions and can occur between October and May. Below is a list of natural hazards associated with winter storms.[55]

Winter Storm is a storm with the potential of heavy snow or ice accumulation. Winter Weather occurs when a low-pressure system produces a combination of snow, freezing rain, sleet, etc.. Heavy Snow is typically classified as

[55] NOAA National Centers for Environmental Information. *National Weather Service Glossary*.

accumulation of 4 inches or more in 12 hours or less; or accumulation of 6 inches or more in 24 hours or less. Blizzards are the more extreme of the winter weather. Blizzards are a snowstorm lasting at least 3 hours with sustained wind speeds of 35 mph or greater, visibility of less than a quarter mile, temperatures lower than 20°F and whiteout conditions. Snow accumulations vary, but another contributing factor is loose snow accumulating on the ground which can get whipped up and aggravate the white out conditions. When such conditions occur blizzard warnings or severe blizzard warnings are issued. Severe blizzard conditions exist when winds obtain speeds of at least 45 mph plus a great density of falling or blowing snow and a temperature of 10°F or lower.

Extent (*Requirement B1-c):*

Regional Snowfall Index		
Category	**RSI Value**	**Description**
1	1-2.9	Notable
2	3-5.9	Significant
3	6-9.9	Major
4	10-17.9	Crippling
5	18.0+	Extreme

Table 3.44. Based on Regional Snowfall Index. Source NOAA.

Location *(Requirement B1-b):*

Winter storms in South Dakota are known to cover large geographical areas. Often an entire county or multiple counties can be affected by a single storm. It isn't unusual for areas at high elevations to see higher amounts of snow than those at lower elevations, but that isn't always the case.

Unique and Varied Risk *(Requirement B1-f)*:

This hazard has similar risks and vulnerabilities for the county and all incorporated communities.

Vulnerabilities *(Requirement B2-a,* B2-b.*):*

Winter storms create conditions such as icy roads, closed roads, downed power lines and trees. Fall River County's population is especially vulnerable to these conditions because people tend to leave their homes to get places such as work, school, and stores rather than staying inside. Traffic is one of the biggest hazards in Fall River County during a winter storm because people often get stuck, stranded, and lost when driving their vehicles, which usually prompts others such as family and or emergency responders to go out in the conditions to rescue them. Significant loss of livestock (predominantly cattle) is a reoccurring theme in western South Dakota winters events.

Freezing Rain/Ice Storms, also occur as part of winter storms. These conditions may cause build up on power lines, poles, trees, and structures. The additional weight can often cause weak structures to cave in and cause tree branches and power lines to break and fall. Fall River County and the local jurisdictions within are susceptible to these conditions due to the types of structures and surfaces that exist in the county that cannot be protected from freezing rain. Traffic on the roads and highways tend to be the biggest hazard during freezing rain conditions because vehicles often slide off the road, which prompts emergency responders and others to go out on rescue missions in adverse conditions. Ice Jams can also cause damage to bridges, roads, and culverts due to water currents pushing large chunks of ice under or through small openings.

The overall impacts to Fall River County would be highly dependent on the level of intensity. Western South Dakota is accustomed to winter weather but can see many issues when hit with blizzard conditions. Vulnerable populations such as those with disabilities, the young or elderly, can be negatively impacted by factors such as loss of power related to heating or powering medical devices. These populations may also have difficulty reaching or receiving medical assistance due to limited travel abilities during storms.

As urban areas expand, the concentration of residents and infrastructure can lead to greater challenges during severe winter weather, such as snow accumulation, ice, and freezing temperatures. Effective planning and infrastructure development are essential to mitigate these risks. Ensuring that buildings are designed to handle heavy snow loads, maintaining clear roadways, and establishing reliable emergency response systems can help protect residents and reduce the overall impact of winter storms in densely populated areas.

Historical Events *(Requirement B1-d):*

All the winter storm hazards, identified in Appendix B, were considered to have occurred countywide. Due to the multiple categories NOAA has for winter weather, the probability of winter storms combines several hazard events including blizzards, winter weather, winter storm, and heavy snow.

Historic:

- **03/23/2009:** A powerful spring storm brought rain, snow, and very strong winds to western South Dakota. Precipitation started as rain, then changed to snow, and blizzard conditions developed. The heaviest snow fell over the northern Black Hills, where 18 to 48 inches of snow was measured. Ten to 20 inches of snow fell across far northwestern South Dakota, with drifts as high as ten feet. Most other locations received at least six inches of snow. Sustained winds of 30 to 55 mph, with gusts over 80 mph, were reported. Interstate 90 and other highways were closed for more than 24 hours. Some power outages were reported, mainly across the northern Black Hills and northwestern South Dakota. Tens of thousands of livestock perished
- **10/04/2013:** A historic blizzard pounded western South Dakota with record-setting snowfall and strong winds for almost 48 hours from the evening of October 3 through the afternoon of October 5. One to two feet of snow was reported over the plains of western South Dakota, with three to five feet of snow falling over the northern and central Black Hills. Wind gusts to 70 mph across the plains produced significant blowing and drifting snow, with visibilities near zero for much of the day on October 4. The heavy wet snow and strong winds downed trees and power lines, causing prolonged outages and impassible highways. The roofs of several businesses, a middle school, and community center collapsed from the heavy snow. Thousands of livestock were killed from hypothermia, suffocation, or drowning. The South Dakota Animal Industry Board received reports of over 21,000 cattle; over 1300 sheep; 400 horses; and 40 bison deaths from the storm. Tree and debris removal costs were several million dollars.
- **07/25/2016:** Large hail and gusty winds on the north side of Hot Springs damaged vehicles and broke house windows.

Since 2020:

- **12/16/2022:** A powerful winter storm moved slowly across the central and northern Plains to the upper Midwest; bringing heavy snow, some mixed precipitation, strong winds, and periods of blizzard or near blizzard conditions across the plains for a multi-day period. Snowfall was heaviest from northwestern to south central South Dakota and across the northern Black Hills. Precipitation started as a mix in the form of rain, freezing rain, and freezing drizzle across much of the plains, then changed to snow in most areas by the daytime hours on the 13th. Bands of snow were moderate to heavy at times in many areas, with a very prolonged period of upslope enhanced snowfall across the northern Black Hills. Amounts across the area ranged from one foot to over two feet across much of the plains, with the highest amounts generally from Oglala Lakota County into parts of south-central South Dakota. Lesser amounts were noted over portions of southwestern South Dakota, from Rapid City and the central Black Hills to Fall River County, due to predominant downslope winds. The highest amounts were noted across the northern Black Hills area, where 18 to 36 inches were recorded in many areas, with favored locations across the higher elevations received three to four feet or more over several days. Wind gusts of 40 to over 60 mph caused considerable blowing and drifting snow, with drifts to ten feet noted on the plains. Interstate 90 was closed from the Wyoming/South Dakota state line to the Missouri River for more than three days, with travel on many secondary roads becoming very difficult to impossible on the plains and the northern Black Hills area. Six deaths were reported in Todd and Mellette counties, mostly due to medical emergencies in which emergency services were unable to reach these people in time. However, two people died due to hypothermia from exposure to the cold.
- **04/03/2023:** A strong spring storm tracked across the region, producing heavy snow and blizzard conditions at times across portions of western South Dakota. The heaviest snow developed across southwestern South Dakota, where a foot to over two feet of snow was reported; the highest amounts were over the eastern slopes of the central and southern Black Hills. Elsewhere to the north and east, amounts tapered off, with six to 12 inches in many other areas and only a few inches across far northwestern and far south-central South Dakota. Some freezing rain and mixed precipitation developed across south central South Dakota as well. Winds gusting around 40 mph on the South Dakota plains produced blizzard or near blizzard conditions at times, along with significant drifting snow.

MITIGATION STRATAGIES WINTER STORMS *(Requirement C3-a, C4-a, C4-b, C4-b):*

Goal 10: Reduce the impact of Winter Storms throughout Fall River County.

Project 10.1	Equip critical facilities with backup generators to ensure services can continue during power outages.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	County/City General Funds, FEMA HMGP
Timeframe	1-5 years
Oversight	County Emergency Manager, Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President

Project 10.2	Continue to review, update, and enforce building codes to the appropriate snow loads and ice loads for the region.
Responsible Jurisdiction	Edgemont, Hot Springs
Priority	High
Funding Source	County/City General Funds, FEMA HMGP
Timeframe	Ongoing
Oversight	Edgemont Mayor, Hot Springs Planner

Project 10.3	Continue to provide education on winter storm mitigation and preparedness and explore ways to expand on education outreach.
Responsible Jurisdiction	Fall River County, Edgemont, Hot Springs, Oelrichs
Priority	High
Funding Source	County/City General Funds, FEMA HMGP
Timeframe	1-5 years
Oversight	County Emergency Manager, Edgemont Mayor, Hot Springs City Administrator, Oelrichs Board President

ASSESSING VULNERABILITY

ASSESSING VULNERABILITY: IDENTIFYING STRUCTURES (Requirement B2-a)

One of the purposes of this Plan is identifying community assets and determining to what extent these structures are vulnerable to natural hazards. In the event of a disaster, Fall River County and participating entities want to ensure they could prevent further loss/damages to property, infrastructure and life. Tables 3.44-3.47 inventory a list of assets for each community including critical facilities, structures utilized by vulnerable populations, economic, and historic assets that would cause the greatest distress if destruction occurred. The Plan author acknowledges that determining what is "critical" can mean something different to every community and that the information provided in the table is not comprehensive. Fall River County's bridges and culverts were mentioned as critical infrastructure but are not listed in their entirety. These records are kept with the South Dakota Department of Transportation. Additionally, bridge inspections take place once a year and are reported to the South Dakota Department of Transportation. In most cases many of the listed critical facilities are vulnerable to most natural hazards. In the event a facility would be more susceptible than others it is noted.

Fall River County:

Fall River Assets Inventory								
Name of Asset	**Critical Facility**	**Vulnerable Pop.**	**Economic**	**Historic**	**Size (sq ft)**	**Replacement Value**	**Content Value**	**Notes**
Fall River Hospital	☒	☒	☒					
Courthouse	☒		☒	☒				
Elderly Housing	☒	☒	☒	☒				Evans, Pine Hills, Brook Side High Rise
Schools (in municipalities	☒	☒	☒					
Highway Shops	☒		☒					
County Jail	☒	☒	☒	☒				
Battle Mountain Communications	☒		☒					
Ball Ranch Communications	☒		☒					
Feed Lot			☒					Oral
Micheal J Morse State Vet Home		☒	☒					

VA Hospital	☒	☒		☒				
Hot Springs Dispatch	☒							
Eckhard Well	☒							
BHE Substations	☒							
Golden West Telecommunication	☒							
Angostura Camping/Housing			☒					

Table 3.45 Fall River Assets

Edgemont:

Edgemont is the second largest community in Fall River County.

Edgemont Assets Inventory								
Name of Asset	**Critical Facility**	**Vulnerable Pop.**	**Economic**	**Historic**	**Size (sq ft)**	**Replacement Value**	**Content Value**	**Notes**
City Hall/Library	☒				6,364	$1,049,260	$500	Also houses Library
City Shop	☒				3,322	$389,709	$500	
(2) Wells	☒					$200,000		
Lift Station	☒					$2,000		
Water Tower	☒					$931,927		
Volunteer Fire Department	☒				26,552	$1,475,357	$500	
Water Treatment Facility	☒					$2,149,524	$338,172	
Storage Building	☒				1,792	$72,014	$899	
School	☒							
Edgemont Airport	☒		☒					

Table 3.46. Edgemont Assets

Hot Springs:

Hot Springs has the highest concentration of critical services and infrastructure in the county. The city houses all of Fall River County's law enforcement agencies and offices. The community is served by two law enforcement agencies, an emergency medical service, four medical facilities, and a fire department. The city is also home to three schools, and three nursing homes.

Hot Springs Assets Inventory								
Name of Asset	**Critical Facility**	**Vulnerable Pop.**	**Economic**	**Historic**	**Size (sq ft)**	**Replacement Value**	**Content Value**	**Notes**
City Hall	☒	☒	☒	☒	8,142	$1,654,542	$107,105	Built in 1890, potentially adjacent to flood channel on River St.
Visitor Center/Depot		☒	☒	☒	1,408	$300,038	$6,504	Built in 1891, adjacent to flood channel.
Evans Pump Station	☒	☒	☒		960	$167,566	$50,511	Primary City water pump station. Adjacent to flood channel. No backup power.
Hot Brook Pump House	☒	☒	☒		470	$92,450	$50,511	City working on backup power. Can fill the highest storage tank. In Hot Brook Canyon floodplain.

Police Station	☒	☒			1,851	$308,727	$66,983	Non-hardened building, adjacent to floodplain on N. River St.
Wastewater Treatment Facility (All Components	☒	☒	☒		10,178	~$10,000,000	$7,000	Facility is 40 years old. Replacement would be with a different tech. Adjacent to Fall River.
Mueller Civic Center	☒	☒	☒		26,820	$4,757,878	$220,988	Adjacent to Fall River. City has multiple Use Agreements in case of regional emergence. No backup power. Needs sandbagging emergency plan in case of flooding event.
1.1-million-gallon water tank	☒	☒	☒		NA	$1,271,188	$500	Some wildfire vulnerability.
2-million-gallon water tank	☒	☒	☒		NA	$1,791,219	$500	Some wildfire vulnerability.
City Shop	☒	☒	☒		NA	$1,653,557	$390,200	Minimal wildfire vulnerability.
Water Booster Station – Happy Hollow St.	☒	☒			NA	$30,550	$18,942	Some wildfire vulnerability.
Emergency Warning Siren	☒	☒			NA	$25,147	$0	Undetermined vulnerability
Evans Plunge Mineral Springs – All assets		☒	☒	☒	33,548	$5,589,440	$468,890	Adjacent to flood channel.
Well Fill Station	☒		☒		NA	$17,083	$31,571	Primary source of potable water by many county residents not on rural water system.
Mammoth Site				☒	NA			Private owned, important tourist destination.
Hot Springs Public Library	☒				NA	NA	NA	Adjacent to Butler Park, Emergency Coord. Center
Lynn's Dakota Mart		☒	☒		NA	NA	NA	Privately owned, grocery and only pharmacy
Sonny's Super Foods		☒	☒		NA	NA	NA	Privately owned, grocery store
Nelson's Oil and Gas			☒		NA	NA	NA	Local propane and fuel supplier
McGas			☒		NA	NA	NA	Local propane supplier
CBH CO-OP Propane			☒		NA	NA	NA	Local propane supplier
VA Health Center	☒	☒			NA	NA	NA	
Hot Springs Airport	☒		☒					
Hot Springs High School	☒			☒				No backup power
Tays Center	☒			☒				No backup power
Hot Springs Elementary	☒			☒				No backup power
Hot Springs Middle School	☒			☒				No backup power

Table 3.47. Hot Springs Assets

Oelrichs:

Oelrichs Assets Inventory								
Name of Asset	**Critical Facility**	**Vulnerable Pop.**	**Economic**	**Historic**	**Size (sq ft)**	**Replacement Value**	**Content Value**	**Notes**
Community Center	☒							
School (k-12)	☒							
Water Tower	☒							
Pump House	☒							
Black Hills Saloon Company			☒					
Gas Station	☒							Only gas station (located outside city limits)
Post Office								

Table 3.48. Oelrichs Assets

ASSESSING VULNERABILITY: ESTIMATING POTENTIAL LOSSES

The following information shows the county and jurisdiction's structure vulnerabilities. Inconsistencies and missing information may result from a lack of existing mechanisms, plans, and technical documents available to the communities. Each of the communities provided the best available data considering the lack of resources in which to access the information.

Fall River County Estimated Potential Dollar Losses to Vulnerable Structures			
Type of Structure	**Number of Parcels**		**Value of Structures**
Residential	3900 (Dwellings) 2400 (Outbuildings)		$701,000,000
Commercial	570		$95,000,000
Agriculture	3500		$18,000,000
Religious*	57		$15,000,000
Government*	112		$16,000,000
Education	31		NA
Other Exempt	41		$31,900,000
Utilities	Unknown		$114,822,000
Total	**10,611**		**$991,722,000**
Hazard	**Number of Structures**		**Value of Structures**
Flood Hazard	Residential	126	$10,088,000
	Commercial	10	$2,753,000
	Agricultural	10	$141,000
	Gov.	4	$109,000
	Angostura Campsites	55	NA
	Cold Brook Campsites	13	NA
Landslide	Residential	400	$39,573,000
	Commercial	25	$11,368,000
	Exempt/Government	42	$5,477,000
Wildfire Minimal Egress	Residential	340	$80,160,000

Table 3.49. Estimated dollar losses to vulnerable structures in Fall River County. **values have not been assigned to all religious and government buildings so these categories are undervalued.

Edgemont Estimated Potential Dollar Losses to Vulnerable Structures		
Type of Structure	**Number of Parcels**	**Value of Structures**
Residential	436 (Dwellings)	$31,470,000

	90 (Outbuildings)	
Commercial	70	$6,015,000
Religious	10	$1,550,000
Government	15	$163,000
Education	8 (buildings)	NA
Utilities	0	NA
Other Exempt	13	$350,000
Total	**642**	**$39,548,00**
Hazard	**Number of Structures**	**Value of Structures**
Floodway	Unknown	NA
SFHA	Unknown	NA

Table 3.50. Estimated dollar losses to vulnerable structures in Edgemont.

Hot Springs Estimated Potential Dollar Losses to Vulnerable Structures		
Type of Structure	**Number of Parcels**	**Value of Structures**
Residential	1550 (Dwellings) 1190 (Outbuildings)	$230,350,000
Commercial	290	$69,850,000
Religious	31	$10,900,000
Government	19	$2,000,000
Education	3	NA
Utilities	3	NA
Total	**3,086**	**$344,100,000**
Hazard	**Number of Structures**	**Value of Structures**
Floodway	Unknown	NA
SFHA	Unknown	NA

Table 3.51. Estimated dollar losses to vulnerable structures in Hot Springs.

Oelrichs Estimated Potential Dollar Losses to Vulnerable Structures		
Type of Structure	**Number of Parcels**	**Value of Structures**
Residential	76 (Dwellings) 93 (Outbuildings)	$4,741,000
Commercial	8	$901,000
Agricultural	47	$59,000
Religious	1	NA
Government	2	NA
Education	11	NA
Utilities	1	NA
Total	**238**	**$5,701,000**
Hazard	**Number of Structures**	**Value of Structures**
Floodway	Unknown	NA
SFHA	Unknown	NA

Table 3.52. Estimated dollar losses to vulnerable structures in Oelrichs.

DEVELOPMENT TRENDS (Requirement E1-a)

New development inherently increases the risk of natural hazards, whether directly or indirectly. While most hazards have the potential to affect any part of the community, areas such as floodplains or wildland urban interface pose a heightened risk.

Fall River County:

Source	Population	Population Change
2010 DC	7,094	(-)4.8%
2020 DC	6,973	(-)1.7%
2023 ACS	7,179	-

Table 3.53. Edgemont Population Changes. *DC – Decennial Census, ACS – American Community Survey

New development inherently increases the risk of natural hazards, whether directly or indirectly. Areas seeing the most development include Sheps Canyon, along Highway 385/18 South, Angostura Dam, Red Canyon Area, and High 71 Corridor. It is noted that Sheps Canyon, Red Canyon, and other forested areas are at higher risk of wildfire. The county is mostly experiencing residential development.

Edgemont:

It is not believed, despite the overall increased risk with any development, that there has been any major increase of risk from natural hazards. The community has seen very little growth and development since the last update of this mitigation plan.

Source	Population	Population Change
2010 DC	774	(-)10.7%
2020 DC	725	(-)6.3%
2023 ACS	845	-

Table 3.54. Edgemont Population Changes. *DC – Decennial Census, ACS – American Community Survey

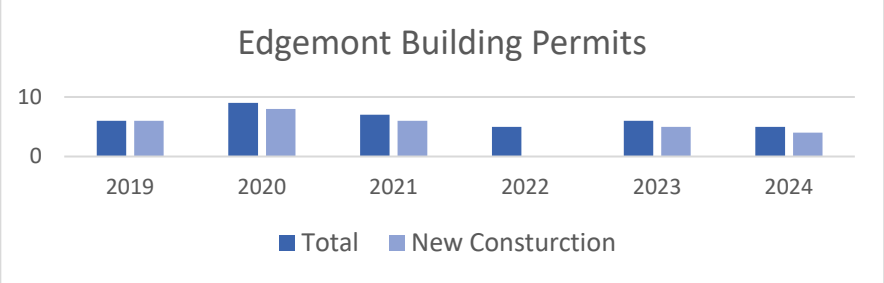

Figure 3.24. Edgemont building permits

Hot Springs:

Source	Population	Population Change
2010 DC	3,711	(-)10.1%
2020 DC	3,395	(-)8.5%
2023 ACS	845	-

Table 3.55. Hot Springs Population Changes. *DC – Decennial Census, ACS – American Community Survey

The majority of new development within the city is occurring in forested regions, primarily consisting of residential building types. Development in the wildland urban interface increases the risk for wildfire. Development type is mostly residential.

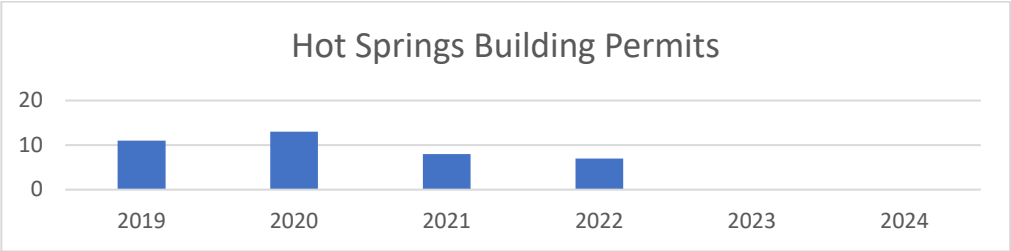

Figure 3.25. Hot Springs Building Permits. No Data Available for years 2023-2024

Oelrichs:

Source	Population	Population Change
2010 DC	126	(-)13.1%
2020 DC	117	(-)7.1%
2023 ACS	187	-

Table 3.56. Oelrichs Population Changes. *DC – Decennial Census, ACS – American Community Survey

Oelrichs has experienced little to no new development since the last update of this Mitigation Plan. A challenge facing Oelrichs is the community has numerous abandoned and/or dilapidated structures throughout the town. Unmaintained structures in ill repair have the potential to increase risk for some hazards such as high/severe wind or wildfire.

IV. PLAN MAINTENANCE PROCESS

MONITORING, EVALUATING, AND UPDATING THE PLAN

Fall River County and all the participating local jurisdictions thereof will incorporate the findings and projects of the Plan in all planning areas as appropriate. Periodic monitoring and reporting of the Plan are required to ensure the goals and objectives for the *Fall River County Natural Hazard Mitigation and Community Wildfire Protection Plan* are kept current and local mitigation efforts are being carried out.

During the process of implementing mitigation strategies, Fall River County, or communities within, may experience lack of funding, budget cuts, staff turnover, and/or a general failure to implement projects. These scenarios are not in themselves a reason to discontinue and fail to update the Natural Hazard Mitigation Plan. A good plan needs to provide for periodic monitoring and evaluation of its successes and failures and allow for appropriate changes to be made.

Annual Reporting Procedures (Requirement D2-a, D2-b)

The Plan shall be reviewed annually, as required by the County's Emergency Manager, or as the situation dictates, such as following a disaster declaration. The Fall River County Emergency Manager will review the Plan annually in March and ensure the following:

- The County and adopting communities elected bodies will receive an annual report and/or presentation on the implementation status of the Plan;
- The report will include an evaluation of the effectiveness and appropriateness of the mitigation actions proposed in the Plan based on the number of mitigation actions completed; and
- The report will recommend, as appropriate, any required changes or amendments to the Plan.
- The report will include budget needs for any upcoming projects that require local match.

Five Year Plan Review (Requirement D2-a, D2-c)

Every five years the Plan will be reviewed, and a complete update will be initiated. All information in the Plan will be evaluated for completeness and accuracy based on new information or data sources. New property development activities will be added to the Plan and evaluated for impacts. New or improved sources of hazard related data will also be included.

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

The goals, objectives, and mitigation strategies will be readdressed and amended as necessary based on new information, additional experience, and the implementation progress of the Plan. The approach to this Plan update effort will be essentially the same as the one used for the original Plan development.

Fall River County's Emergency Manager will meet with the Fall River County Commission and Plan participants for review and approval prior to final submission of the updated Plan.

Plan Amendments (Requirement D2-a)

Plan amendments will be considered by Fall River County's Emergency Manager, during the Plan's annual review, to take place in March. All affected local jurisdictions (towns and county) will be required to hold a public hearing and adopt the recommended amendment by resolution prior to considerations by the steering committee.

INCORPORATION INTO EXISTING PLANNING MECHANISMS (Requirement D3-a, D3-b, D3-c)

Due to limited planning tools and framework, Fall River County and the town of Oelrichs are limited on their current ability to integrate mitigation projects. The cities of Hot Springs and Edgemont will consider the mitigation

requirements, goals, actions, and projects when it considers and reviews the other existing planning documents such as the comprehensive plans or ordinance updates. For all communities, mitigation projects will be considered and prioritized in conjunction with non-mitigation projects, such as water and wastewater infrastructure improvements, and new constructions of schools, libraries, parks, roads, etc.

Additionally, municipalities are required by State law to prepare budgets for the upcoming year and typically consider any expenditure for the upcoming year during that time. South Dakota Codified Law 9-21-2 provides that:

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

IMPLEMENTATION OF MITIGATION ACTIONS

Upon adoption of the updated Plan, each jurisdiction will become responsible for implementing its own mitigation actions. Those who do not participate or adopt the Plan will be required to coordinate all mitigation actions with the County. The planning required for implementation is the sole responsibility of the local jurisdictions that have participated in the Plan update. Some municipalities indicated that they do not have the financial capability to move forward with projects identified in the Plan at this time, however, they will consider applying for funds through the State and federal agencies once such funds become available. When the municipalities are able to secure funding for the mitigation projects, they will move forward with the projects identified.

CAPABILITIES *(Requirement C1-a, C1-b)*

A list of capabilities is listed below. Fall River County and the town of Oelrichs are unable to improve their planning capabilities due to the lack of such mechanisms. The exception is the County's Floodplain Ordinance, which is in the process of an update, and the Community Wildfire Protection Plan, incorporated into this Mitigation Plan. County utilizes what it refers to as "The Code of the West". This document is in-part designed to help those looking to purchase rural land make an educated and informed decision. In the spirit of integrity and self-reliance, much of the mitigation efforts are put on the property owner.

The cities of Edgemont and Hot Springs have room to expand and improve on their capabilities through various planning mechanisms such as updating zoning, zoning map revisions, updating ordinances, and either updating or annually reviewing their comprehensive plan. In many cases funding or personnel capacity to update planning mechanisms may be somewhat limited. Proper planning can help to reduce the impact of natural hazards on people, structures, and infrastructure. When updating any of these documents the mitigation goals and actions provided in this Plan should be reviewed to see how they can be incorporated into those plans and policies.

Fall River County Mitigation Capabilities:
Planning Tools: Flood Protection Ordinance
Administrative: Emergency Manager, Floodplain Administrator, GIS Coordinator, Member Black Hills Council of Local Government
Funding: State-Federal Grants, PILT Grant, County General Funds
Education/Outreach: Local News, Social Media, County Website, CodeRed

Edgemont Mitigation Capabilities:
Planning Tools: Comprehensive Plan, Building Codes, Subdivision Ordinance, Zoning Ordinance
Administrative: Planning Commission, Floodplain Administrator, Member Black Hills Council of Local Government
Funding: FEMA, Water Fees, State Funding Programs, CDBG

Hot Springs Mitigation Capabilities:
Planning Tools: Comprehensive Plan, Building Codes, Subdivision Ordinance, Zoning Ordinance

Administrative: City Administrator, Public Works Director, Community Planner, Planning Commission, Floodplain Administrator, Member of South Dakota Municipal League, Member Black Hills Council of Local Government
Funding: FEMA, Water Fees, Sewer Fees, State Funding Programs, CDBG
Education/Outreach: Local News, Social Media, City Website, Utility Billings, Recorded Council Meetings (Youtube)

Oelrichs Mitigation Capabilities:
Planning Tools: NA
Administrative: Finance Officer, Public Works, Member Black Hills Council of Local Government
Funding: State-Federal Grants, Town General Funds, CDBG, FEMA, Water Fees
Education/Outreach: Town Board Meeting

POTENTIAL FUNDING SOURCES

Although all mitigation techniques will likely save money by avoiding losses, many projects are costly to implement. The Potential Funding Sources section was included so the local jurisdictions can work towards securing funding for the projects. Inevitably, due to the small tax base and small population for some of the participating jurisdictions, they may not have the ability to generate enough revenue to support anything beyond the basic needs of the community. This is why many of the mitigation actions are focused on planning mechanisms, such as enforcing ordinances, that do not cost anything.

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

Local governments depend upon local property taxes as their primary source of revenue. These taxes are typically used to finance services that must be available and delivered on a routine and regular basis to the general public. If local budgets allow, these funds are used to match Federal or State grant programs when required for large-scale projects. Another potential source of revenue for implementing local mitigation projects are monetary contributions from non-governmental organizations, such as private sector companies, churches, charities, community relief funds, the Red Cross, hospitals, Land Trusts, and other non-profit organizations.

- **Flood Mitigation Assistance Program (Agency: Federal Emergency Management Agency)**

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

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

- **Hazard Mitigation Grant Program (Agency: Federal Emergency Management Agency)**

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

  To meet these objectives, FEMA can fund up to 75% of the eligible costs of each project. The state or local cost-share match does not need to be cash; in-kind services or materials may also be used. With

the passage of the Hazard Mitigation and Relocation Assistance Act of 1993, federal funding under the HMGP is now based on 15% of the federal funds spent on the Public and Individual Assistance programs (minus administrative expenses) for each disaster.

The HMGP can be used to fund projects to protect either public or private property, so long as the projects in question fit within the state and local government's overall mitigation strategy for the disaster area and comply with program guidelines. Examples of projects that may be funded include the acquisition or relocation of structures from hazard-prone areas, the retrofitting of existing structures to protect them from future damages, and the development of state or local standards designed to protect buildings from future damages.

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

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

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

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

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

Roads, Bridges & Culverts	Water, Power & Sanitary
Draining & Irrigation Channels	Airports & Parks
Schools, City Halls & Other Buildings	

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

Universities and Other Schools	Power Cooperatives & Utilities
Custodial Care & Retirement Facilities	Hospitals & Clinics
Volunteer Fire & Ambulance	Museums & Community Centers

- **SBA Disaster Assistance Program (Agency: US Small Business Administration)**

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

- **<u>Community Development Block Grants</u> (Agency: US Department of Housing and Urban Development)**

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

- **Consolidated Water Facilities Construction Program (Agency: Department of Agriculture and Natural Resources (DANR)**

  The CWFCP program provides grants to local governments for drinking water and wastewater infrastructure projects that provide safe drinking water and sanitary sewer service to residents. Grants up to $2,000,000 are awarded to eligible applicants. Cities, Counties, Water Districts, Sanitary Districts, and Rural Water Districts are eligible to apply. CWFCP funds are typically awarded at a percentage of total project cost and are often paired with loans from DANR's SRF Loan program.

- **State Revolving Loan Fund (DWSRF and CWSRF) (Agency: Department of Agriculture and Natural Resources (DANR)**

  The SRF program provides low interest loans with extended terms to local governments for drinking water and wastewater infrastructure projects that include rehabilitation or replacement of existing infrastructure. Loans are awarded on the ability to debt service and are sometimes given in the form of principle forgiveness. Cities, Counties, Water Districts, Sanitary Districts, and Rural Water Districts are eligible to apply. SRF funds are awarded quarterly.

<u>CONTINUED PUBLIC PARTICIPATION/INVOLVEMENT (Requirement D1-a)</u>

During interim periods between the five-year update, efforts will be continued to encourage and facilitate public involvement and input. The Plan will be available for public view and comment at the Fall River County Emergency Manage Office or online and the Black Hills Council of Local Governments office. Comments will be received in writing, by letter or by e-mail.

All ongoing workshops and training courses will be open to the public and appropriately advertised. Ongoing press releases and interviews will help disseminate information to the public and encourage participation. As implementation of the mitigation strategies continues in each local jurisdiction, the primary means of public involvement will be the jurisdiction's own public comment and hearing process. State law, as it applies to municipalities and counties, requires this as a minimum for many of the proposed implementation measures. Effort will be made to encourage cities, towns, and counties to go beyond the minimum required to receive public input and engage stakeholders such as social media.

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