

# **Fall River County Pre Disaster Mitigation Plan**



**Adopted in 2003 by:**

Fall River County

**Approved in 2003 by:**

The South Dakota Office of Emergency Management and FEMA

**Updated in 2014 by:**

Black Hills Land Analysis LLC.



**Approved in 2014 by:**

Fall River County, Edgemont, Hot Springs and Oelrichs.

**Updated for:**

Fall River County Emergency Management



**Last modified:**

**10/13/2014**

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## **I. Summary**

Fall River County is not a stranger to natural and man-made disasters. In order to prevent and/or reduce the cost that is incurred by businesses, citizens and property owners from disasters, the Fall River County Pre-Disaster Mitigation Plan was developed in 2003 and updated in 2014. This plan identifies hazards that occur throughout the area and mitigation projects that will aid in preventing and/or reducing the effects of those disasters on the property and lives within.

Participants from the County of Fall River developed this multi-jurisdictional plan in 2003 and updated it in 2014; they will continue public participation in the future maintenance process. This plan was revised due to growth through development and infrastructure improvement within the County and its jurisdictions. Priorities change over time and by updating this plan the current identified needs can be recognized and planning can be completed. Local governments may integrate identified mitigation efforts set forth in this plan into any future planning disaster mechanisms. Previous mitigation efforts have been ongoing, completed or replaced with newly identified projects. The plan is considered a work in progress and will be updated every 5 years and within one year after a disaster.

Numerous hazards, both natural and man-made are addressed in the plan and are listed below.

1. Fire: Wildland or Urban
2. Weather Related
  - a) Winter Storm
  - b) Severe Thunderstorm (lightning, hail or high winds)
  - c) Flooding
  - d) Drought/water shortage
  - e) Tornado
3. Transportation Incident
4. Utility/Communication Disruption
5. Hazardous Material Incident
6. Aviation Accident
7. Epidemic
8. Landslide
9. Earthquake
10. Special Events—annual Black Hills Motorcycle (Classic-civil disturbance)
11. Terrorism
12. Mass Casualty Incident
13. Nuclear Incident

<b>Hazard Type</b>	<b>Planning Consideration Based on Hazard Level</b>
Weather Related	Significant
Wildfires	Significant
Landslide	Moderate
Transportation Incident	Moderate
Utility/Communication Disruption	Moderate
Hazardous Material Incident	Moderate
Epidemic	Limited
Earthquake	Limited
Aviation Accident	Limited
Nuclear Incident	Limited
Special Events	Limited
Terrorism	Limited
Mass Casualty Incident	Limited

**Areas of concern:**

- Known flooding locations
- Highway systems, air traffic, and rail lines are of concern throughout the entire area.
- Steep slope development areas
- Areas susceptible to wildfire and lightning strikes
- Cropland susceptible to hail damage, drought and windstorms
- Residential areas susceptible to urban fire, tornado and wind storms, power outages, civil disorder, terrorism, hazardous material spills, etc..
- Habitat preservation in developing areas along the Cheyenne River and its' tributaries.
- Water supply
- Septic tank limitations
- Rural development that causes strains on fire, police, and rescue availability
- Non-mapped or unmarked pipelines
- Utility outages
- Black Hills Army Depot (closed)

Copies of this plan have been distributed to all participating municipal departments, including the Fall River County Emergency Management Department. A copy will remain at the Hot Springs and Edgemont Public Library and with the City of Hot Springs Engineer, Fall River County Auditor as well as each municipality within Fall River County that participated in the plan's development.

## **II. Plan Development**

In 2003, the following entities assisted in the development process of this Pre Disaster Mitigation Plan and provided data (including web sites):

- Cities within Fall River County
- Fall River County Emergency Management
- Fall River County Office of Equalization & Planning
- National Weather Service
- Rapid City Journal
- Fall River County Community Wildfire Protection Plan
- SD Department of Environment and Natural Resources
- SD Department of Agriculture
- SD Office of Emergency Management
- SD Governor's Office of Economic Development
- US Army Corps of Engineers
- US Census Bureau
- US Forest Service
- US Geological Survey

### **Introduction**

The planning requirements of this Pre Disaster Mitigation Plan, (PDM), are set by the Disaster Mitigation Act of 2000, under section 322 (a-d) and the Federal Register 44 CFR, Part 201.

The Disaster Mitigation Act of 2000, Section 322 requires local governments to have a mitigation plan in place as a condition for receiving federal disaster mitigation funds. It has 2 requirements for receipt of Federal share for hazard mitigation measures:

1. Describe actions to mitigate hazards, risks and vulnerabilities identified under the plan;
2. Establish a strategy to implement the above actions.

The Federal Register 44 CFR, Part 201 states the following:

1. The purpose of mitigation planning is for State, local, and Indian tribal governments to identify the natural hazards that impact them, to identify action and activities to reduce any losses from those hazards and to establish a coordinated process to implement the plan, taking advantage of a wide range of resources.
2. Hazard mitigation means any sustained action taken to reduce or eliminate the long-term risk to human life, property and resources from hazards.
3. The key responsibilities of local governments are to:

- a. Prepare and adopt a jurisdiction-wide natural hazard mitigation plan as a condition of receiving project grant funds under the HMGP, in accordance with Section 201.6.
- b. At a minimum, review and update the local mitigation plan every 5 years from date of plan approval of the previous plan in order to continue program eligibility.

The Fall River County Pre-Disaster Mitigation Plan was prepared by the participants from the pre-disaster mitigation planning team. This plan will serve as a tool for use by the County of Fall River in aiding efforts to identify and mitigate against the inevitable future impacts of both natural and/or man-made hazard events.

### **Purpose**

The purpose of the Fall River County Pre Disaster Mitigation Plan (PDM) is to:

1. Meet the disaster planning federal requirements for the cities of Hot Springs and Edgemont, the township of Oelrichs and Fall River County;
2. Protect the citizens and visitors to Fall River County and it's municipalities;
3. Provide strategies to mitigate or reduce the loss of lives and property in the event of an emergency or disaster within Fall River County and its municipalities.

### **Objectives**

The objectives of the PMD is to develop a working plan to provide organization for emergency planning, preparedness, response, recovery and mitigation for the present and future of Fall River County that will include:

1. Identifying hazards that pose the greatest threat and are most likely to affect the residents and economy;
2. Identify persons and property at risk;
3. Develop improved mitigation strategies against identified hazards and help reduce the risk to people and property by identifying the needs of the citizens for emergency preparedness education;
4. Mitigate hazards through education, local funding and planning;
5. Identify hazards that will require expenditures of funds not currently available through local government.

### **Maintenance Process**

The maintenance process of this plan will include monitoring, evaluating and updating the mitigation plan within a 5-year cycle. The update will also include updating



the GIS data that corresponds with this plan. The maintenance process will also include the local entities providing updated pertinent information needed to update this plan. The maintenance process will also include local governments incorporating their comprehensive or capital improvements plans, when appropriate. Fall River County or its municipalities do not currently have any of these plans.

The community will continue public participation in the plan maintenance process. Open public involvement in the maintenance process is essential to the development of an effective plan. An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests will be involved in the maintenance process.

This process will be directed by the Fall River County Emergency Manager. Coordination efforts will include; meeting semi-annually with the municipalities, meet with the County Commissioners on a bi-weekly basis. Meetings with the Fall River Firefighters Association are held quarterly with regular attendance from the emergency medical responders in Fall River County. Special meetings may be scheduled when a specific topic comes up with any of these entities. The Local Emergency Planning Committee also meets quarterly. The Corp of Engineers and Bureau of Reclamation meets annually to update contact information and the plan to manage the inflow/outflow for the dams in Fall River County.

Public meeting records are published in the Hot Springs and Edgemont newspapers and are also available on the internet. The public is welcome and encouraged to attend these meetings and provide feedback. Any public input at any of the meetings would be noted and reviewed throughout the planning cycle. Public meetings are also held at the municipal level and County level. Open houses are held at the local fire departments in October usually during fire prevention week. In the spring, Fall River agencies participate in the state-wide weather preparedness activities by activating weather warning sirens. The National Oceanic Atmospheric Administration also distributes weather preparedness information in April. "Be Ready" pamphlets are provided to residents of Fall River County in the fall in preparation for potential winter storms. These pamphlets are distributed to the local newspapers, cities, schools and senior citizen centers.

## **Planning Process**

### **Original Process in 2003:**

The following entities assisted in the planning process of this Pre Disaster Mitigation Plan and provided data (including web sites):

- Franklin W. Maynard, Fall River County Emergency Manager
- Robert Engebretson, City of Hot Springs Fire Chief

- Richard Ball, Minnekahta Fire Chief
- Wayne Childers, Edgemont Fire Chief
- Jeff Tarrell, Fall River County Sheriff
- Marc Lamphere, Cascade Fire Chief
- Mick Jenniges, Oral Fire Chief
- Larry Osmotherly, Oelrichs Fire Chief
- Craig Hunter, Ardmore Fire Chief
- Robert Evans, Hot Springs Police Captain
- Carl Oberlitner, Mayor of Hot Springs
- Norm Pudwill, Assistant Emergency Manager for Fall River County
- John Sheltons, Engineer for City of Hot Springs
- Mark Hollenbeck, Mayor of Edgemont
- Phil Knapp, Hot Springs Ambulance Service

In June of 2003 letters were sent to potential planning team members explaining why the plan was being developed, what is was and how they could participate. The PDM Planning Meeting paragraph below gives more information regarding the original meetings. Fall River County Emergency Management developed the plan with the assistance of volunteer planning team members. The list of planning team members can be located below in the Acknowledgements Section. The public was asked to participate in the planning process through the development of public meetings that were held in the Cities of Hot Springs and Edgemont. Members of the development team reviewed materials presented at a FEMA sponsored training session in March of 2003. A member also attended a HAZUS software training session sponsored by FEMA in August of 2003. The group used the *Town of Merrimack, NH Hazard Mitigation Plan* and the *City of Nome Alaska Hazard Mitigation Plan* as templates for a general outline and format.

#### **PDM Planning Meetings:**

In 2003, the following meetings were held to discuss the planning process of this Pre Disaster Mitigation Plan:

- July 2, 2003 from 7-9pm at the Fall River County Courthouse Building with 12 people attending
- July 9, 2003 from 7-9pm at the Fall River County Courthouse Building with 12 people attending
- July 17, 2003 from 5-7pm at the Hot Springs City Hall with 12 people attending
- August 6, 2003 from 7-9pm at the Edgemont City Hall with 12 people attending
- September 8, 2003 from 7-9pm at the Oelrichs Fire Department Building

#### **Updated Process in 2013-2014:**

- B. The Fall River County Board of Commissioners initiated the process to update the Pre-Disaster Mitigation Plan for the County. Frank Maynard with the Fall River

County Emergency Management office was to be responsible to start and monitor the plan updating process.

- C. Rob Mattox was contracted on April 24th, 2013 to update the PDM, to be completed by August 22, 2014.
- D. April 23, 2014 – Fall River Emergency Manager mailed out a letter to all participating entities regarding the update of the PDM. This letter was sent to the following entities: Custer County Commission, Dawes County Commission, Sioux County Commission, Niobrara County Commission, Black Hills National Forest, Buffalo Gap National Grasslands, US Army Corp of Engineers, Bureau of Reclamation, SD Department of Agriculture Wildland Fire, SD Department of Agriculture, VA Black Hills Heath Care and Shannon County Commission.
- E. Throughout the planning process other county and municipal planning tools were reviewed such as; National Flood Insurance Program information, the Fall River Community Wildland Protection Plan, Local Emergency Operation Plan and the county Hazmat Plan. Fall River County does not have a Comprehensive Plan nor do any of the municipalities in the county. Data for Fall River County was also collected from the National Weather Service, the Soil Survey of Fall River County, the Department of Environment and Natural Resources (Geologic Survey), the Atlas of Water Resources in the Black Hills Area and the US Geologic Survey. These plans, studies and reports were reviewed and any relating information was incorporated into the updated PDM for Fall River County.

**PDM Update Meetings:**

- November 1, 2013 from 10-1:30pm at the Fall River County Courthouse with 4 people attending. (Preliminary)
- April 30, 2014 at 2pm PDM Public works meeting. Hot Springs City Hall with 15 people present.
- April 30, 2014 at 7 pm Public meeting. (Notice of the meeting was published in the Hot Springs Star as well as posted on local bulletin boards.) 7 people were present.
- May 14, 2014 at 7 pm, at the Edgemont Fire Station. (Notice of this meeting was published in the local newspaper, (Edgemont Tribune), as well as posted on local bulletin boards.) 6 people were present.
- May 15, 2014 at 7pm, at the Oelrichs Community Center. (Notice of this meeting was published in the Hot Springs Star as well as posted on local bulletin boards.) 2 people were present. There was a local incident at the time of this meeting and 4 other people were contacted later and provided input to the plan.

For the original plan, after the meeting process with the cities and County concluded, the official agreement of the jurisdictions to participate in the Pre-Disaster Mitigation Planning effort was put into place. In the official action of the original plan it was agreed to approve the Pre-Disaster Mitigation Plan, upon approval by FEMA. The

final draft was submitted to the SD Office of Emergency Management for review and approval.

The PDM updating process was available to the public and neighboring communities through the public meeting process. The Fall River County Commission Meetings are open to the public with the agenda available before the meeting to the public at <http://fallriver.sdcounties.org/commission-2/meeting/>.

In 2014, each section throughout the entire document of the Fall River County Pre-disaster Mitigation plan was reviewed and updated based on the most current conditions and infrastructure for all entities involved. Each entity that participated in the original 2003 Pre Disaster mitigation plan provided updated information regarding their jurisdiction in 2014. The 2014 updated plan will be approved by Fall River County, the cities of Hot Springs and Edgemont and the township of Oelrichs along with the South Dakota Office of Emergency Management and FEMA.

Once the 2014 Fall River County PDM Draft was completed it was made available to local governments, the municipalities, Fall River county staff, the National Weather Service, local fire departments, multiple state/federal departments and neighboring counties and states. Also, a notice was published in the local newspaper notifying locals that the draft plan was available on the internet and hard copies were also available at the Fall River County Courthouse. All entities were encouraged to provide feedback with reference to the draft plan. Comments were provided back to the Fall River County Emergency Manager and the contractor. All comments were reviewed and the document was modified accordingly.

### **III. Jurisdictional Information**

#### **Location**

Fall River County is located at the southwest corner of South Dakota. Custer County is to the north, Shannon County is to the east, Dawes and Sioux County (Nebraska) are to the south and Niobrara County (Wyoming) is to the west. The county seat is the city of Hot Springs.



**Location Map**

#### **History**

Prior to the late 1800's, Native Americans hunted and lived in western South Dakota. In 1874, General Armstrong Custer headed an expedition, which discovered gold in the Black Hills of Dakota Territory. The year 1876 saw a gold rush to the

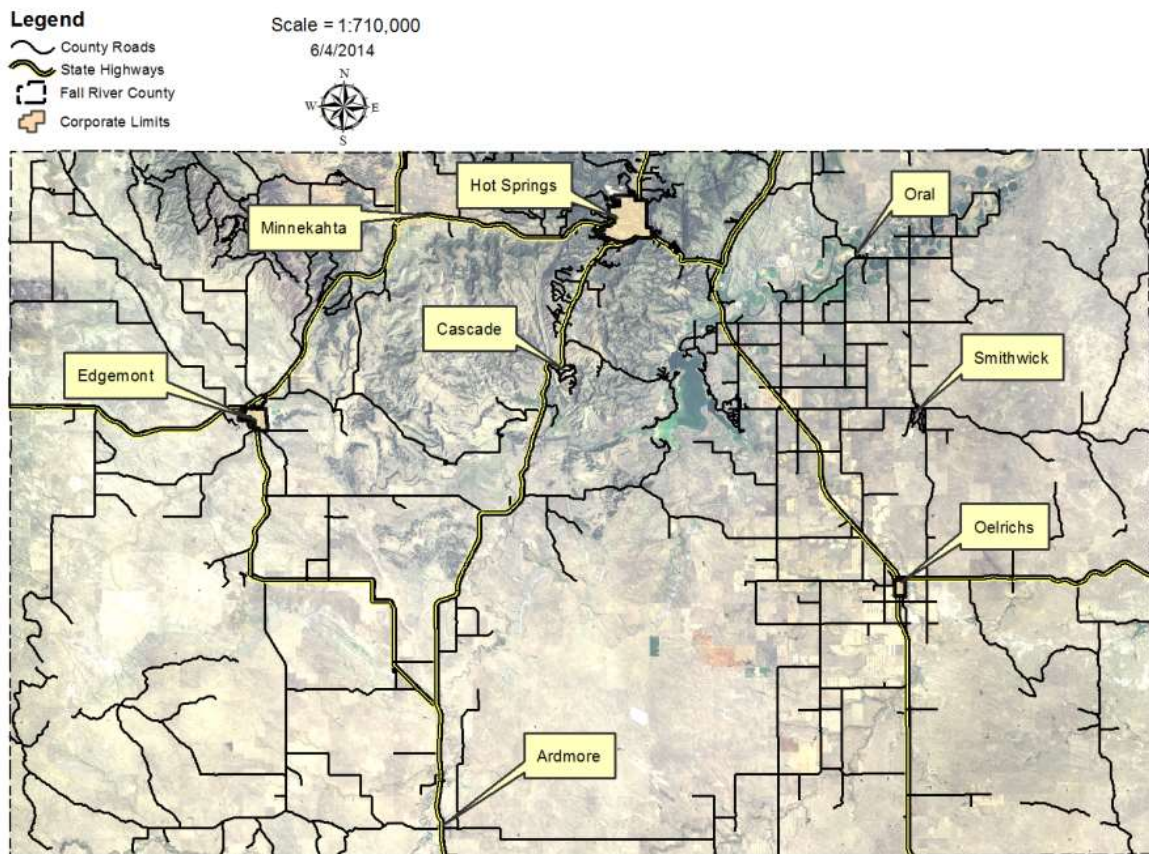
Black Hills and surrounding area. The Sioux and Cheyenne people frequented the area, appreciating its warm springs.

European settlers arrived in the second half of the 19<sup>th</sup> century. The city, first known as Minnekahta, was renamed in 1882 and a variety of health resorts were built on the basis of the springs. The County was established in 1883 and Hot Springs was designated as the county seat. The assessed valuation for Fall River County for 2013 was nearly 486 million dollars. The total county population for Fall River County was estimated at the 2012 census at 6,971. According to the 2010 Census data, the population of Hot Springs was 3,711, Edgemont was 774 and Oelrichs was 126.

### Geography and Topography

The total geographic area of Fall River County is approximately 1,749 square miles or 1,119,090 acres. The majority of the land in the county is used for rangeland with some agricultural land also presents. The north central portion of Fall River County is forestland with a small portion in the south west corner of the county being barren land. There are no natural lakes within the county. There is one large reservoir called Angostura and two smaller reservoirs; Cold Brook Reservoir and Cottonwood Reservoir. There is one major river running through the county which is the Cheyenne River.

### Fall River County Geography

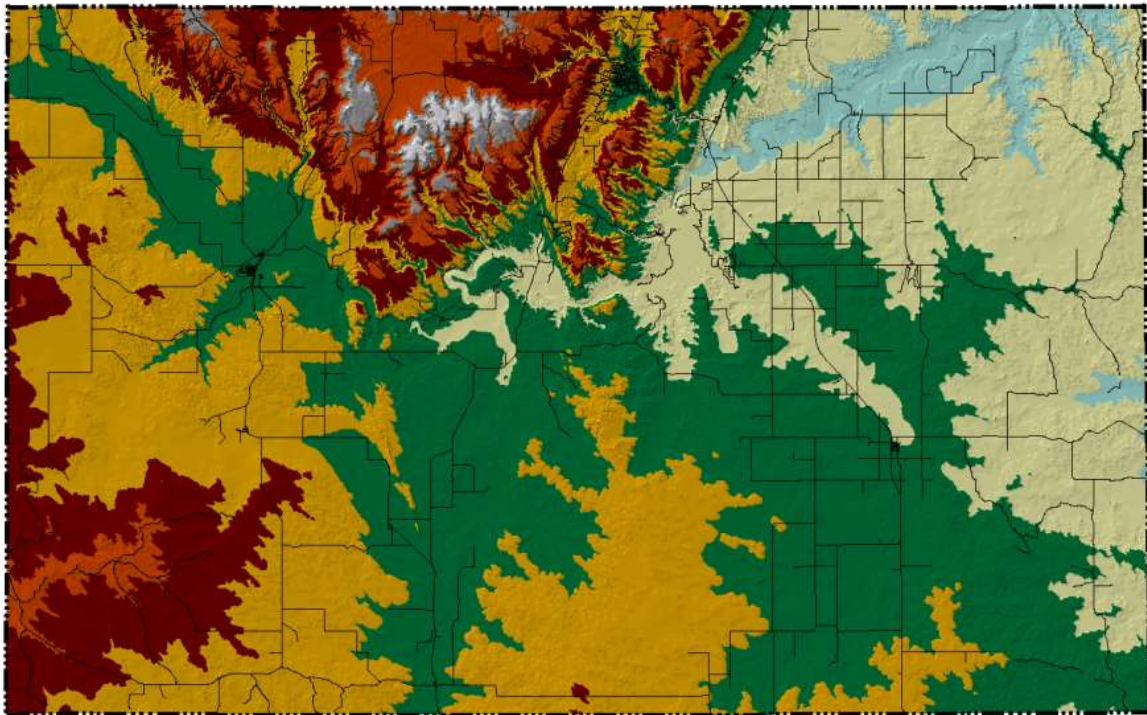
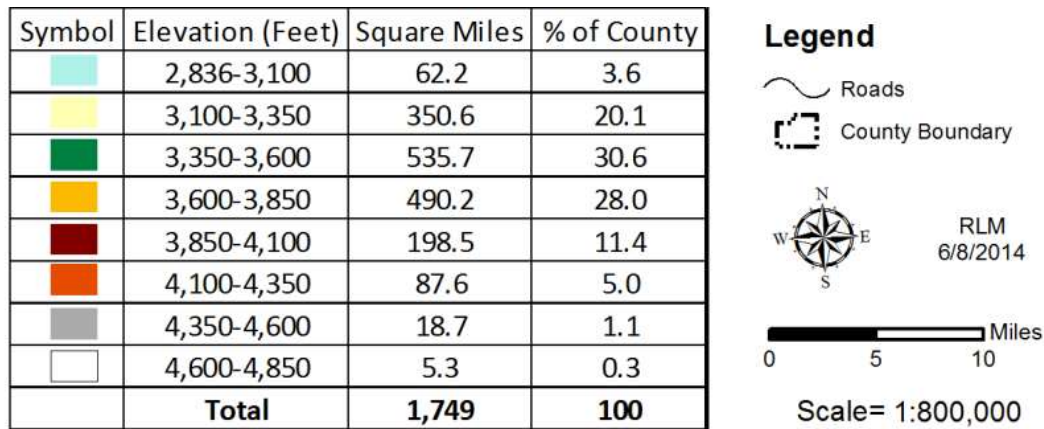


Geography of Fall River County



Fall River County elevation data shows a wide range of elevation throughout the County, with mountainous forest land at the north and dry waste land with lower elevation in the south. 949 acres of the County are less than 3600 feet and 800 acres of the County are more than 3600 feet in elevation. Topography is a factor in the varying weather patterns of the county. The higher elevations are typically cooler and receive more precipitation and the lower elevations usually have warmer temperatures and less precipitation.

The topography of Fall River County is an important factor when considering wildland fire behavior. The shape of the country can influence the intensity and spread of wildland fire. Slopes with south or west aspects will become drier and the fuels will



**Topography of Fall River County**

cure earlier in the season. There are 54,868 acres in Fall River County on a slope of more than 20% with a south or west aspect. Topography alters the normal heat transfer process and modifies the general weather patterns, producing localized weather conditions that influence wildland fire behavior.

### **Geology and Soils**

Formations from the Paleozoic Era form the outer ring of the Black Hills; these were created between roughly 540 and 250 million years ago. This area features rocks such as limestone which were deposited here when the area formed the shoreline of an ancient inland sea. Outside of the Black Hills, much of western South Dakota features rock formed during the Mesozoic Era, from 250 million to 65 million years ago. At the time, much of western and central South Dakota was again covered by a shallow inland sea. Marine skeletons from this ocean settled to the seafloor and were compacted to form the sedimentary rocks in the area today. During this period, the Black Hills, which had been pushed up to an elevation of around 15,000 feet lost approximately 6,000 feet of elevation due to erosion. Many of these sediments ended up in the same area as the marine deposits from the inland sea, and both contribute to western South Dakota's present-day geological makeup.

The geologic package within the county is comprised of Pre-Cambrian age pink biotite granite at depth, to Quaternary alluvium gravel, eolian sands and soils on the surface. The basement Pre-Cambrian granite varies in structural elevation from 2,500 feet above sea level in the north central part of the county to 1,325 feet below sea level in the southwestern portion of the county. The granite never outcrops in the county. The majority of the county has Cretaceous age Pierre Shale at the surface, with the north-central part of the county yielding outcrops of the Lower Cretaceous and upper Jurassic age rocks.

Structurally, the county is influenced by the Black Hills Uplift to the north. Keene (1973) has mapped three major anticlines across the county; the Cottonwood Anticline in the west, the Chilson Anticline in the south-central portion of the county and the Cascade Anticline in the eastern portion of the county.

According to the Soil Survey of Fall River County South Dakota, published in 1980:

- 48% of the county soil is in the Pierre-Samsil association. This is a moderately deep and shallow, well drained, gently sloping to steep, clayey soils on uplands. Most of this association is range. Winter wheat is the main crop. The main management concern is controlling erosion. This association is well suited or fairly well suited to range and rangeland wildlife habitat. It is poorly suited to cultivated crops and to open land wildlife habitat.

- 17% of the county is in the Mennequa-Grummit association. This is a moderately deep and shallow, well drained gently sloping to steep, silty and clayey soils on uplands. Most of this association is range. Some areas of the Minnequa soils are cultivated. Winter wheat and alfalfa are the main crops. The main management concerns are conserving moisture and controlling erosion. This association is fairly well suited to range and to rangeland wildlife habitat. It is poorly suited to open land wildlife habitat.
- 13% of the county is in the Mathias-Butche-Rockoa association. This is a deep and shallow, well drained, gently sloping to very steep, stony and loamy soils on mountains and uplands. This association is characterized by rocky ridges, narrow, rolling plateaus, deeply entrenched drainages, almost vertical canyon walls and narrow mountain valleys. Slopes generally are steep and very steep but are gently sloping to strongly sloping on narrow plateaus and in mountain valleys. Many stones and boulders are on the surface. This association is well suited to woodland wildlife habitat and poorly suited to rangeland and open land wildlife habitat. The major soils are fairly well suited to range and woodland. They generally are unsuited to cultivated crops and to tame pasture and hay.
- 3% of the county is in the floodplain. 2% is located in the flood plain along the Cheyenne River and 1% is located on flood plains along the smaller drainage ways in the county.
- The majority of the rest of the county is gently sloping to steep, clayey and silty soils on uplands.

Fall River has 4 main rock formation associations of concern. Mathias-Butche-Rockoa is poorly suited to building site development and septic tank absorption fields because of the stoniness and the slope. The Tilford-Spearfish association is a major concern due to erosion; the Pierre-Samsil association is a major concern of wind erosion. The Glenberg-Bankard association is a major concern for flooding.

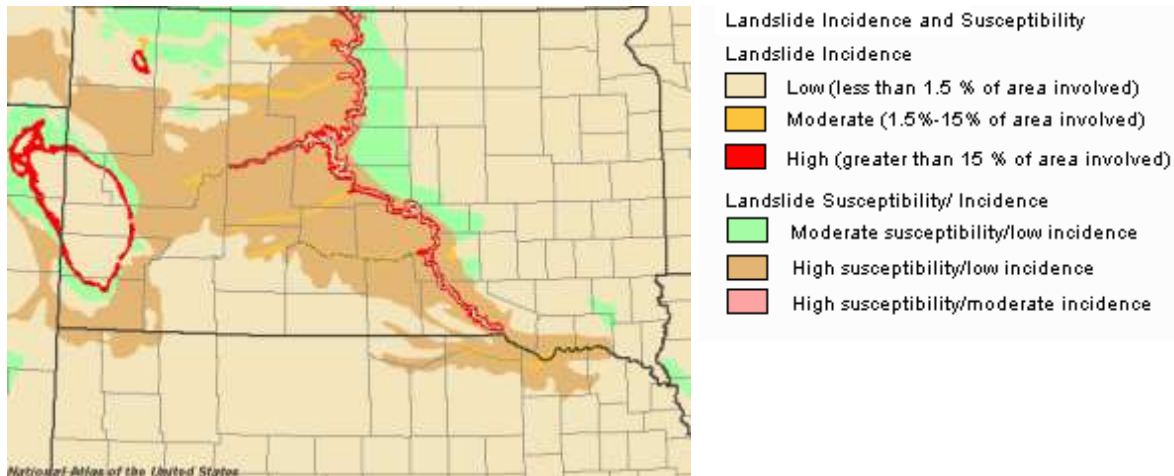
Fall River County has historically experienced numerous landslide events, as shown by historic landslide deposits around the County. Areas that are generally prone to landslide hazards include existing old landslides, the bases of steep slopes, the bases of drainage channels and developed hillsides where leach-field septic systems are used. Although historical landslide/mud flow soil occurrence data is limited it can be assumed that landslides will occur occasionally in the future, typically during wet climate cycles or following heavy rains.

For example, behind the Fall River Courthouse in Hot Springs, the soil is unstable due to a very steep slope. The land is slipping down behind the buildings. A planning meeting was held in 2010 regarding this hillside and work started immediately with screening and rock bolting. A retaining wall was completed in 2012 and shotcreting was completed in 2013. The southern portion of the project has been completed



but another 125 feet of work needs to be completed toward the north. Survey bench marks have been identified and ground movement is monitored regularly.

There is an area of unstable outcrop along old Highway 18 that historically slides down and impacts the roadway. Rocks and debris are removed after the event occurs by the Fall River County highway department. This has been occurring on this road since it was constructed. The State Highway 18 has since been relocated to detour the major traffic onto a different route but the road is still there and needs to be maintained for local access.



**South Dakota Landslide Incident and Susceptibility**

### **Climate**

The climate in Fall River County is not uniform due to the rapid changes of topography and elevation. Several ridges and peaks are 4,850 feet above sea level. The southern part of the County is about 2,836 feet in elevation at the lowest point. Cold winters and hot summers characterize the climate. The coldest month is December. The higher elevations that make up most of the County have far cooler temperatures year around.

Hot Springs has the highest average annual temperature (64 degrees F) in South Dakota. The average annual median temperature is 48.5 degrees F.

### **Precipitation**

Fall River County is more mountainous in the northern portion than in the arid southern section that receives less moisture. Hot Springs is one of the warmest places in South Dakota with an annual mean temperature of 48.6 degrees Fahrenheit. The average yearly high temperature is 63.5 degrees Fahrenheit and the average yearly low temperature is 33.9 degrees Fahrenheit. The average yearly precipitation is 17.56 inches and the average yearly snowfall is 31 inches.

Ardmore had a maximum temperature of 114 on 7/12/1954 and the minimum temperature was -43 of 12/22/1989. The largest 24-hour precipitation recorded was 5.81" on 5/30/1943 and the most 24-hour snowfall was 16" on 12/11/1909. The largest storm total snowfall was 13.1" on 4/10/1927-4/16/1927. This data is from November of 1908 through September of 2013.

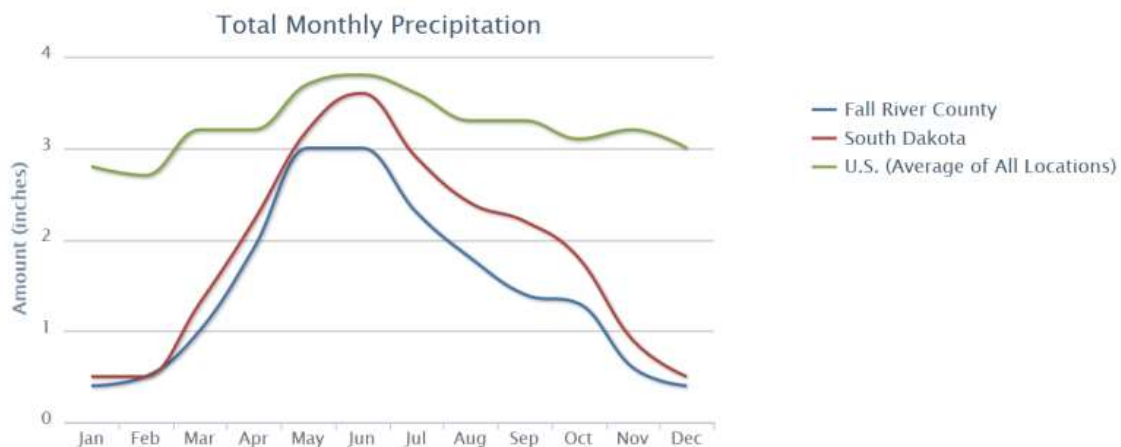
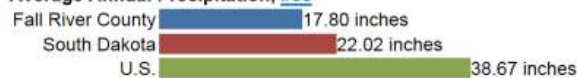
In Oelrichs, from January of 1893 thru present, the maximum temperature was 114 if 7/6/1973 and the minimum temperature was -41 of 2/10/1899. The largest 24-hour precipitation was 4.88" on 9/26/1915 and the most 24-hour snowfall was 28" on 10/5/2013. The largest storm total snowfall was 48" on 4/11/1927-4/17/1927.

For Oral the maximum temperature is 112 on 7/7/1973 and the minimum temperature was -43 on 12/24/1983. The largest 4-hour precipitation was 3.75" on 6/10/1972 and the most 24-hour snowfall was 15" on 12/31/1975. The largest storm total snowfall was 17" on 3/19/2006-3/21/2006.

For Edgemont, the maximum temperature recorded in Edgemont was 108 on 6/27/2012 and the minimum temperature was -40 on 12/22/1989. The largest 24-hour precipitation received was 3.35" on 6/13/2005. The most 24-hour snowfall was 12" on 12/17/1993. The storm total snowfall was 13.1" on 11/9/1985-11/13/1985.

#### Precipitation

##### Average Annual Precipitation, #58



### Hot Springs, SD Yearly Top 10 Precipitation Data

Yearly Rainfall					Yearly Snowfall			
Wettest		Driest			Most Snow		Least Snow	
Amount	Year	Amount	Year	Rank	Amount	Year	Amount	Year
32.01	1915	6.15	1960	<b>1</b>	72.3	1975-76	12.3	2002-03
28.55	1927	8.60	1898	<b>2</b>	67.5	1919-20	16.4	1913-14
27.78	1922	10.05	1917	<b>3</b>	64.8	1956-57	17.2	1982-83
26.79	1998	10.12	1936	<b>4</b>	63.5	1923-24	17.4	1987-88
25.86	1993	11.36	1939	<b>5</b>	57.0	1935-36	18.0	1980-81
25.57	2010	11.45	1934	<b>6</b>	55.6	1936-37	18.7	2004-05
25.54	2013	11.53	1985	<b>7</b>	55.3	1954-55	20.0	1940-41
25.22	1918	11.57	1956	<b>8</b>	54.5	2012-13	20.3	2006-07
23.70	1997	11.78	1969	<b>9</b>	52.1	2008-09	20.5	1984-85
23.57	1923	11.81	2012	<b>10</b>	51.5	1926-27	20.9	1979-80

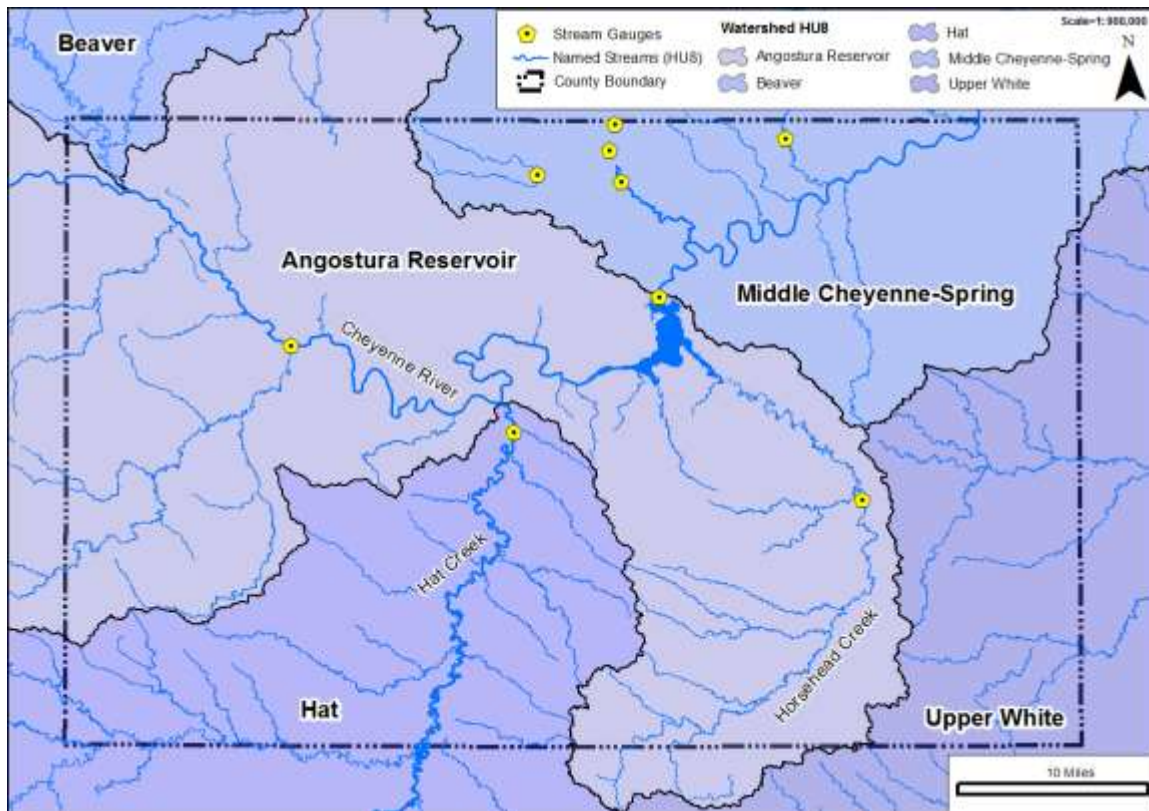
Like most of the state, Fall River County as a whole is vulnerable to drought and wind erosion. Flash flooding is problematic because the soil often being too dry to soak up moisture when it finally comes. Bridges and culverts designed for the normally arid conditions, cannot handle above average precipitation.

### Watersheds

A watershed is defined as the area of land where all of the water that is under it or drains off of it, converges in the same drainage. In Fall River County that boundary is determined topographically by ridges, or high elevation points. Water flows downhill, so ridge tops and drainages define watershed boundaries. There are several levels of watershed and sub-watersheds.

The water in Fall River County drains into 5 main (HU8 class) watersheds, the Angostura and Middle Cheyenne-Spring Watersheds cover the most of Fall River County mostly the central and northern portion. The Beaver Watershed covers just the northwest corner of the County, the Upper White covers the south east corner of the County and the Hat Watershed covers the south west corner.

Streams flowing from the Black Hills provide water for a multitude of uses in these 5 primary watersheds. In addition, much of western South Dakota and parts of eastern Wyoming are underlain by bedrock aquifers that are recharged from water production in the Black Hills area.



**Fall River County Watersheds**

Maintaining healthy watersheds is critical to supporting a healthy forest and also provides water sources to communities by transferring water into aquifers. Watershed management will enhance watersheds by implementing practices to retain soil stability and improve or maintain water production. Securing favorable conditions of water flow and preserving or enhancing aquatic values should be a major concern. Increased flow rates after a catastrophic fire event may include severe ash and mud slides that may be very detrimental to areas down-stream.

### **Water**

The Madison, Minnelusa and Inyan Kara Group aquifers have an important influence on the surface-water hydrology of the Black Hills area. In South Dakota and Wyoming, artesian spring flow accounts for 46% of the total discharge from these aquifers. Farther down gradient from the hills, ground water is discharged by artesian springs, providing a reliable source base flow in some streams. The Madison and Minnelusa aquifers, which have large secondary porosity, probably are the primary source for most of the artesian springs. Most of the artesian springs have very stable daily and monthly flow characteristics.

The flow of the Fall River originates almost entirely from artesian spring flow, including flows from Hot Brook Spring, Evans Plunge Springs and various other springs. Variability in annual flow of the Fall River is very small.

Artesian spring flow, such as that at Evans Plunge in Fall River County, is common around the periphery of the Black Hills. The Madison aquifer is the primary source of warm water (approximately 87 degrees Fahrenheit) to Evans Plunge, which was built in 1890 over numerous artesian springs. Originally, the warm, mineralized water at Evans Plunge was promoted as a cure-all for a multitude of illnesses.

Cascade Springs, is a group of artesian springs originating primarily from the Madison aquifer. Cascade Springs, like many artesian springs in the Black Hills, provides a consistent source of flow to streams. Cascade Springs flows about 20 cubic feet per second and originates primarily from the Madison aquifer. Water from Cascade Springs normally is quite clear however, periodic discharges of red, suspended sediment have occurred. Such reddening events at Cascade Spring were documented in 1906-07, 1969 and 1992. The red suspended sediment discharged at Cascade Springs probably results from episodic collapse brecciation in the upper Minnelusa Formation. This collapse brecciation is caused by the subsurface dissolution of anhydrite beds and cements in the Minnelusa Formation.

Artesian springs have migrated outward over geologic time in response to declining water levels in the Madison and Minnelusa aquifers. The water level in the Madison aquifer has declined more than 300 feet during the last 350,000 years. Several breccia pipes are located up gradient from Cascade Springs and were hypothesized by Hayes (1999) to be throats of abandoned spring vents. The Mammoth Site at Hot Springs provides an example of an abandoned artesian spring location.

Fall River County has 9 stream flow gauges that were installed and are monitored by the United States Geological Survey. They are located at Angostura Reservoir, Cold Brook Creek at Argyle Road, Beaver Creek at Buffalo Gap, Cold Brook Reservoir, Cottonwood Springs Reservoir, Cheyenne River at Edgemont, Hat Creek near Edgemont, Horsehead Creek near Oelrichs and Fall River at Hot Springs. All of these stations have data recorded every 15 minutes that is routinely transmitted every hour, but can be sent every 15 minutes when conditions warrant, except for the gauge at Fall River at Hot Springs, those reports can be sent every 5 minutes if conditions warrant. Stream flow gauges are monitored regularly by the Fall River Office of Emergency Management during times when elevated water levels are present or during major precipitation events.

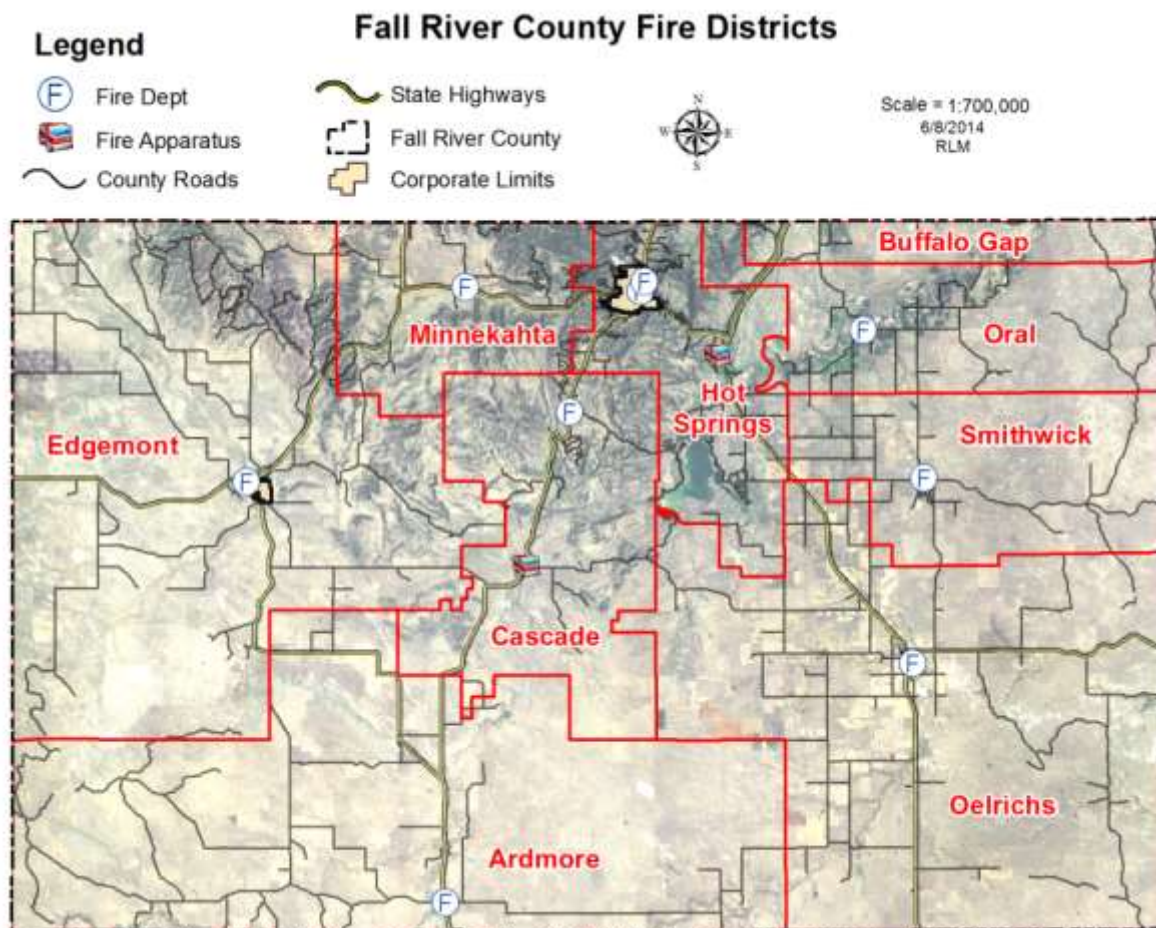
### **Fire Departments**

Wildland fire suppression in Fall River County is provided by volunteer fire fighters, the State of South Dakota and the U.S. Forest Service. Response capability may vary dramatically depending on the day and time of the incident. Most departments can respond and be effective until the incident severity exceeds the capability of the



responding agency. As the severity of an incident increases the capability and effectiveness of suppression crews may be dramatically reduced. All of the departments in Fall River County have increased their wildland response capability in recent years. Considering the downward trend of volunteer fire department memberships, most departments would be unable to man all of their apparatus 24 hours a day, 7 days a week. Most volunteers cannot stay out on a fire for extended periods of time because they have employment and other obligations. Many of the fire departments are operating on limited annual income. The cost of refurbishing or replacing fire apparatus makes it prohibitive for many of the departments to upgrade older apparatus. Many of the older apparatus are still in use but the serviceability of this older equipment may be a concern.

There are 9 volunteer fire department response areas in Fall River County; Ardmore, Buffalo Gap, Cascade, Edgemont, Hot Springs, Minnekahta, Oelrichs, Oral and Smithwick. There are only 8 fire departments in Fall River County due to Buffalo Gap's fire station being located in Custer County, but they are under contract to provide fire suppression for a portion of Fall River County. Because the fire departments are staffed by volunteers, the status and response capability may vary. Fall River County has one



Fire Districts of Fall River County

5,000 gallon water tender and 4 road graders on contract for suppression operations in the event of a uncontrolled wildland fire. The South Dakota Wildland Fire Division is responsible for fire suppression on private land that is within the Black Hills Forest Fire Protection District in Fall River County. There are approximately 56 square miles in Fall River County that are within the Black Hills Forest Fire Protection District. 11.5 square miles are managed by the US Forest Service. The U.S. Forest Service is responsible for fire suppression on lands managed by the Department of Agriculture including the Black Hills National Forest and the Buffalo Gap National Grasslands. Fire suppression on lands managed by the Bureau of Land Management is provided by state or local volunteer fire departments depending on location and existing conditions. All of these entities have cooperative agreements in place that allow the closest resource to respond to an incident regardless of jurisdiction. Once an incident becomes established, the agency having jurisdiction will assume control and manage the incident.

The potential impact of a wildland fire or urban fire event in Fall River County can be substantial. Historic fire history events have caused significant loss of property value, life and resources. The Alabaugh fire in 2007 caused one civilian casualty, mass evacuations, loss of summer tourism income, loss of structures and a major overall disruption to the Fall River community. Fire events typically cross jurisdictional boundaries and losses occur regardless of jurisdiction having authority.

### Demographics

People Quickfacts	
Population, 2013 (estimate)	6,839
Population, percent change, 2010 to 2013	-3.6%
Population, 2010	7,094
Persons under 5, 2012	3.4%
Persons under 18, 2012	17.0%
Persons 65 and older, 2012	24.5%
Female persons, 2012	49.0%
White persons, 2012	88.8%
Black persons, 2012	1.1%
American Indian and Alaska Native persons, 2012	6.7%
Asian persons, 2012	0.6%
Native Hawaiian and Other Pacific Islander, 2012	0.00%
Persons reporting two or more races, 2012	2.7%
Persons of Hispanic or Latino origin, 2012	2.90%
White persons not Hispanic, 2012	86.6%
Living in same house 1 year and over, 2008-2012	82.1%

Foreign born persons, 2008-2012	1.7%
Language other than English spoken at home, 2008-2012	2.8%
High school graduates, over 25, 2008-2012	90.1%
Bachelor's degree or higher, over 25, 2008-2012	21.6%
Veterans, 2008-2012	1,198
Mean travel time to work, over 16, in minutes	16.5
Housing units, 2012	4,181
Homeownership rate, 2008-2012	69.0%
Housing units in multi-unit structures, 2008-2012	15.8%
Median value of owner-occupied housing, 2008-2012	\$88,000
Households, 2008-2012	3,110
Person per household, 2008-2012	2.12
Per capita money income in past 12 months (2012 \$\$), 2008-2012	\$24,073
Median household income, 2008-2012	\$33,703
Person below poverty level, 2008-2012	18.2%
<b>Business Quickfacts</b>	
Private nonfarm establishments, 2011	224
Private nonfarm employment, 2011	2,188
Private nonfarm employment, percent change 2010-2011	2.1%
Nonemployer establishments, 2011	586
Total number of firms, 2007	824
Black-owned firms, 2007	0
American Indian and Alaskan Native owned firms, 2007	0
Asian-owned firms, 2007	0
Native Hawaiian and Other Pacific Islander owned firms, 2007	0
Hispanic-owned firms, 2007	0
Women-owned firms, 2007	0
Manufacturers' shipments, 2007	n/a
Merchant wholesaler sales, 2007 \$\$	3,625
Retail sales, 2007 (in \$1000)	68,727
Retail sales per capita, 2007	\$9,531
Accommodation and food services sales, 2007 (in \$1000)	9,964
Building permits, 2012	0
Federal spending, 2012	unknown
<b>Geography Quickfacts</b>	
Land area in square mile, 2010	1,739.92
Persons per square mile, 2010	4.1
FIPS Code	047
Metropolitan Statistical Area	None



## **Labor Force**

The leading employers of Fall River County include:

1. County and Municipal Governments
2. Black Hills Health Care System (VA)
3. South Dakota State Veterans Home
4. Fall River Health Services (local private hospital)
5. Fall River Schools

Labor force statistics for Fall River County show that for 2013 there were 3,635 people on the labor force in Fall River, 3,475 on average were employed and 160 on average were unemployed, with a 4.4% rate of unemployment.

## **County Government**

Ten elected officials, including 5 part-time commissioners, an auditor, a treasurer, a state's attorney, a register of deeds and a sheriff govern Fall River County. There are several department heads that also manage the County's daily operations. Fall River County employs approximately 46 full-time and 6 part-time employees and provides such services as: law enforcement, jail administration, highway construction and maintenance, property valuation, weed and pest control, emergency management, poor relief, juvenile detention services, election administration, official recording of deeds and documents, vehicle tax and licensing and property tax collection and administration. In conjunction with the City of Hot Springs, the County dispatches police, fire and medical personnel through the Fall River County 911 Center. The Fall River County dispatch center has redundant reciprocating dispatch capacity with the Custer County dispatch center. This allows either county to assume dispatch capability for the other county if there is a problem with any of the critical infrastructure or any other issue that would prohibit either dispatch center from conducting normal operations.

## **Incident Management/Training**

Fall River County actively participates in emergency response exercises on a local and state level to provide training and technical assistance to local entities which will help prepare them for situations that may arise during real events. The scenarios vary to provide exposure to a diversified audience such as: emergency managers, firefighters, law enforcement, emergency medical personnel, administrative support staff, volunteer agencies, other state agencies, local and state government and the general public. These exercises often span multiple counties or jurisdictions. All fire departments and ambulance services work with the Local Emergency Planning Committee in mitigating and preparing for hazardous materials threats.

Another aspect of training is the National Incident Management System (NIMS). This multi-level management program provides all responders the tools needed to manage any type or size of incident. The basic courses are ICS-100, ICS-200, IS-700. Managers and folks who will be in the decision making role are expected to also complete the ICS-300, ICS-400 and the IS-800. Fall River County uses the NIMS system on all events to manage the incident and resources needed to stabilize the situation.

### **Population Variations**

Tourism is a major industry for Fall River County and the surrounding area. Hot Springs is home to soothing natural springs, great year round weather, fantastic outdoor activities, world-class golfing and beautiful sandstone architecture and is a major tourist attraction. The Black Hills Wild Horse Sanctuary, Evans Plunge, the Mammoth Site and Wind Cave National Park also attract many tourists and well as local people. Also, the Sturgis Motorcycle Rally draws thousands of people each August.

### **Transportation**

US Highway 385 traverses the county coming into Hot Springs from the north, passes through Oelrichs and continues south to Chadron Nebraska. US Highway 18 comes into Fall River County on the west side from Mule Creek Junction, passes through Edgemont, Hot Springs, Oelrichs and continues east into Shannon County. State Highway 471 connects US Highway 18 at Edgemont with State Highway 71 south of Cascade.

The highway network accessible in Fall River County contributes to the number of commuters traveling to places of employment and entertainment throughout the County and especially in Hot Springs. The Hot Springs labor market consists of four counties commuting to work on Highway 79, Highway 385 and Highway 18. Numerous other transportation routes throughout the County receive substantial usage as well due to the number of rural County residents commuting to and from Hot Springs for both work and recreational purposes. Transportation other than the highway network connects Fall River County and especially Hot Springs to other metropolitan areas outside the County. Commuters travel to Rapid City for medical, shopping and entertainment.

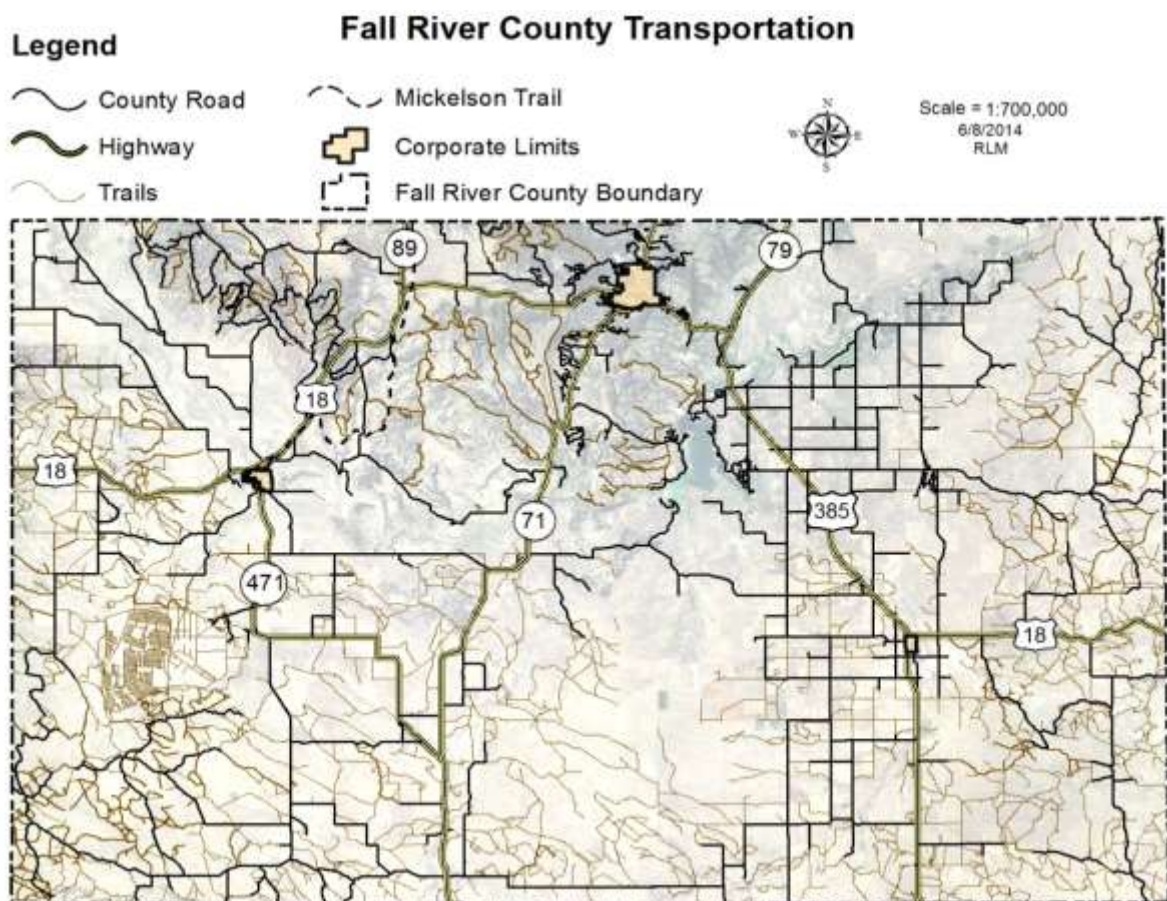
The following road statistics were compiled from the Fall River County road GIS data. There are 243.9 miles of state highways, 62.6 miles of city streets, 6.1 miles of road districts, 1.1 miles of non-maintained roads, 4.6 miles of county primary roads, 7.4 miles of county secondary roads and 3.2 miles of township roads. There are other roads such as forest service, subdivision, Buffalo Gap National Grasslands and private 2-track that are not included in the above totals.

Transportation incidents are managed by the jurisdiction having authority to resolve the problem. The State Highway Patrol, Fall River County Sheriff department or local municipal law enforcement would respond and resolve the incident. Hazardous material incidents are also managed by local jurisdictions unless the incident overwhelms local resources, then additional resources would be ordered from Rapid City or Ellsworth Air Force Base. Impacts on the Fall River community would vary according to each incident. Common concerns may be personal injury, temporary road closures, or a major hazmat incident.

Fall River County maintains a network of County roads. Many of the roads are subject to erosion and other damage from flash floods and heavy precipitation. There are multiple Forest Service Roads throughout Fall River County that are subject to erosion and damage from weather events.

The Burlington Northern Santa Fe railroad and the Dakota Minnesota and Eastern railroad provide rail services through the area.

The Hot Springs Municipal Airport is a city-owned public-use airport located five nautical miles southeast of the central business district of Hot Springs. This airport provides no commercial services, but handles numerous private landings for visitors to



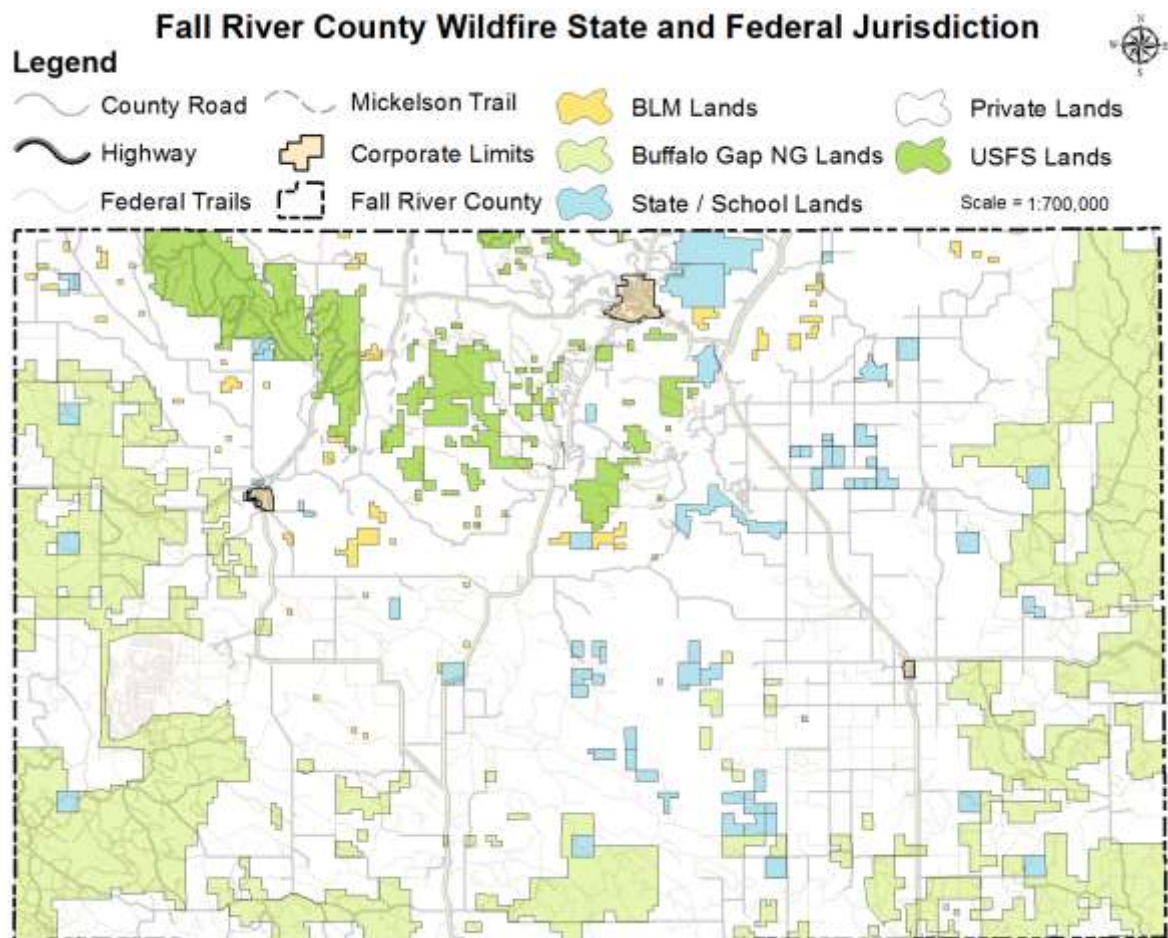
#### Transportation of Fall River County

this area. It has 2 runways and is used 97% of the time for general aviation and 3% for military operations including wildland fire suppression operations.

### Land Ownership

The Buffalo Gap National Grasslands manage 231,954 acres within Fall River County. The USDA Forest Service manages 46,465 acres, the State of South Dakota combined with local school districts manages 19,300 acres, the SD Game Fish and Parks manages 11,233 acres, the USDI Bureau of Land Management manages 7,125 acres and private lands comprise the other approximate 800,013 Acres.

The municipality of Hot Springs consists of approximately 2,296 acres, the municipality of Edgemont is comprised of approximately 618 acres and the unincorporated township of Oelrichs contains approximately 244 acres.



**Landownership of Fall River County**



## **Utilities**

### **Petroleum Pipeline**

The Kanab Pipeline transports petroleum products and runs across Fall River County from Wyoming on the west then North into Custer County. This pipeline supplies petroleum products to a main distribution plant in Rapid City. Fall River County monitors this pipeline by aircraft regularly for leaks or any other problem. If a problem occurs the pipeline owner would be responsible to mitigate the spill. The spill would be monitored by the local LEPC.

### **Electrical**

Electrical services in Fall River County are provided by Black Hills Power and Light and Black Hills Electric Cooperative. Black Hills Power and Light provides services to Edgemont, Hot Springs, Oral and Ardmore. Black Hills Electric Cooperative provides services to Oelrichs and Smithwick. There are approximately 1,121 miles of power lines throughout Fall River County.

Major weather events pose a threat to power lines which provide critical service to Fall River County. During the major snowstorm in October of 2013, the electrical service was interrupted for several days and the community was without electrical until the companies could get the services restored. Another concern to Fall River County is the possibility of the major supply power grid failing due to uncontrolled events such as solar flares, terrorism event or other cause of infrastructure failure. Loss of electrical utility would require the availability of emergency power generation.

### **Propane**

There are 2 companies that provide propane in Fall River County; Nelson's Oil and Gas in Hot Springs and PJ Propane in Edgemont. These are both private companies that fill local propane vessels that supply propane to homes and also other propane needs.

### **Telephone**

The telecommunication provider for Fall River County is Golden West. AT&T and Verizon Wireless are the major cell phone providers in Fall River County. Viaero is the only microwave company in Fall River County. The potential impact of telephone interruption to Fall River County is mainly with weather related events, in which case telephone services may be interrupted for days until local companies can restore service.

### **Water Systems**

The primary water sources for Fall River County are as follows: The city of Edgemont maintains municipal wells and storage facilities and provides water for the town of Edgemont. This infrastructure is within the boundary of Edgemont. Ardmore is supplied with water by private wells. The Hot Brook artesian well is the source of water

for the municipality of Hot Springs. This water supply is an excellent source with more capacity than the city requires. The Fall River Water Users District purchases water from Hot Springs (Hot Brook well). The district has an extensive storage and distribution system which provides water to rural users. The system covers the eastern half of the county including Angostura Reservoir area, Oral, Smithwick, Oelrichs and surrounding areas. The Southern Black Hills Water System supplies water to the north and east of Hot Springs, and eventually plans to provide water as far north as Pennington County. South eastern Fall River County is still dependent on shallow wells and or hauling water.

In the event of a disruption of a water source the local jurisdiction having authority would mitigate the problem using local resources and/or contractors. Resources are available to supply potable water to jurisdictions within the County in the event of a water emergency.

### **Land Use**

Approximately 67,013 acres are forestland in Fall River County. 6,260 acres are open water. 1,670 acres are considered barren land and the rest of the county is mostly cultivated crops, developed lands and herbaceous areas.

The Black Hills Army Depot was an ordnance handling facility developed as a result of munitions from World War II. The facility was also utilized for storage and testing of chemical weapons. Certain areas of the facility still have munitions and other hazardous components and are restricted from the general public. The residential community of Igloo was a result of the civilian work force who worked at the depot.



**Black Hills Army Depot - Igloo**

The Black Hills Army Depot was closed in 1967 and is comprised of approximately 22,000 acres of land, located in the west central portion of the County. Approximately 11,000 acres have been sold to private citizens and the Department of Interior and National Grasslands retain ownership of the remaining 11,000 acres. The old concrete bunkers are still in place.

### **Agriculture**

According to the National Agriculture Statistics Service, for 2012, Fall River County reported 268,162 acres that are classified as farm owner agricultural land and Fall River County reported \$844,000 in commodity sales. The reported harvested acres for hay were 23,700 and 6,800 for winter wheat for Fall River County.

### **National Register of Historic Places**

The National Register of Historic Places is the official list of the Nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate and protect America's historic and archeological resources.

According to the National Register of Historic Places for Fall River County, South Dakota there are 72 properties or districts located on the list. 19 of which are located in Hot Springs, 26 in Edgemont, 1 in Oelrichs and 26 in restricted locations. Some of the places on the list are: Allen Bank Building and Cascade Springs Bath House Sanitarium, the Battle Mountain Sanitarium, the Hot Springs High School, the Hot Springs Historic District, the Governor Leslie Jensen house, the Log Cabin Tourist Camp, the Petty House, the State Soldiers Home Barn and the Philip Wesch House, all in or around Hot Springs. Edgemont's historic places are the Barlett-Myers Building, the Chilson Bridge, the Flint Hill Aboriginal Quartzite Quarry and the Lord's Ranch Rockshelter.

## **IV. Hazard Assessment**

### **Overview**

Hazard assessment is the process of identifying and prioritizing those hazards that directly affect or have the potential to affect a jurisdiction. Risk is the type and kind of disruption that could occur including injury, death and levels of disruption of life in a community.

Fall River County is susceptible to all forms of natural and technological hazards. The hazards listed below have occurred in recent history or a high probability of occurrence has been determined. They are listed in order of probability based on historical information of Fall River County.

1. Fire: Wildland or Urban
2. Weather Related
  - a) Winter Storm
  - b) Severe Thunderstorm (lightning, hail or high winds)
  - c) Flooding
  - d) Drought/water shortage
  - e) Tornado
3. Transportation Incident
4. Utility/Communication Disruption
5. Hazardous Material Incident
6. Aviation Accident
7. Epidemic
8. Landslide
9. Earthquake
10. Special Events—annual Black Hills Motorcycle (Classic-civil disturbance)

11. Terrorism
12. Mass Casualty Incident
13. Nuclear Incident

Resulting emergency/disasters from the above hazards may put the following at risk:

- Life safety
- Utility/transportation or communication systems
- Food and medical supplies
- Homes and critical facilities; i.e. hospitals and schools—damaged or destroyed
- The business and overall economic health of the community, County and State

### **Weather Specific Data**

The National Weather Service, Rapid City South Dakota, compiled the following weather data from Fall River County.

### **Tornadoes**

#### EF-Scale Descriptions

EF0 Gale tornado (40-72 mph): Light damage

EF1 Moderate tornado (73-112 mph): Moderate damage

EF2 Significant tornado (113-157mph): Considerable damage

EF3 Severe tornado (158-206 mph): Severe damage

EF4 Devastating tornado (207-260mph) Devastating damage

EF5 Incredible tornado (261-318mph): Incredible damage

Although tornadoes are not as frequent or violent in western South Dakota as other regions, they do occur. 32 tornadoes have been recorded in Fall River County; 5 EF2 tornadoes, 5 EF1 tornadoes and the rest EF0.

1. July 14, 1969 2:00pm EF2 just south east of Hot Springs.
2. June 5, 1982 9:15pm EF2 in the south west part of the County. 1 injury reported.
3. August 17, 1983 6:15pm in the eastern portion of Fall River County.
4. June 19, 1983 6:10 pm intersection of Highway 385 and 18.
5. June 22, 2012 7:58pm Southwest part of the County.
6. September 14, 2004 Small tornado was on the ground for about 1 minute. No damage.
7. June 7, 2005 Severe thunderstorms moved across Fall River County into western Shannon County. These storms produced large hail across much of the northern Fall River County. 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 farm. The tornado was followed by wind gusts of 70 mph and golf ball to almost softball sized hail.

8. June 17, 2008 A supercell thunderstorm developed across eastern Fall River County and produced a brief tornado and very large hail from Smithwick to east of Oilrichs. A small tornado briefly touched down north of Smithwick.
9. June 22, 2012: A severe thunderstorm tracked eastward from Wyoming across southern Fall River County. The storm produced enormous hail near Edgemont and a tornado between Edgemont and Ardmore. The tornado damaged buildings on a ranch north of Ardmore and blew down power poles and tress. Hail from golf ball to softball size fell in the area. A tornado touched down just west of the Edgemont road. It moved eastward and caused damage at a ranch just east of Highway 71 north of Ardmore. A large wooden barn was completely destroyed; its walls and roof were blown more than 100 years away. Two large shed lost roofs and walls and smaller sheds were blown apart. The modular house sustained minor damage. Property damage from this storm was over \$500,000.

### **Severe Thunderstorms (Hail, Wind and Lightning)**

The National Weather Service defines a severe thunderstorm as one with 1" or larger diameter hail and/or 58 mph or stronger wind gusts. Thunderstorms with damaging hail are common in Fall River County. See the Historical Data section for a list of all severe thunderstorms.

Lightning accompanies most thunderstorms. According to fire history data for Fall River County from the state of South Dakota, 406 fires were caused by lightning between 1959 and 2012.

### **Winter Storms and Blizzards**

A winter storm with heavy snow is 7 inches or more of snow in 24 hours. A blizzard is a winter storm with wind gusts 35 mph or higher and visibility less than ¼ mile. Winter storms with heavy snow or high winds are most likely during late February through April. Winter storms are a major concern for Fall River County residents. See the Historical Data section for a list of all winter storms and blizzards.

### **High Velocity Horizontal Winds**

High velocity horizontal wind is defined as high winds sustained at 40 mph or stronger and/or gusts of 58 mph or stronger. High winds usually occur in the fall, winter, and spring, when an intense low-pressure system and cold fronts move across the northern plains, followed by a strong high-pressure center.

High winds also occur during the spring, summer and fall when severe thunderstorms produce downdrafts and/or straight line winds. These winds are very

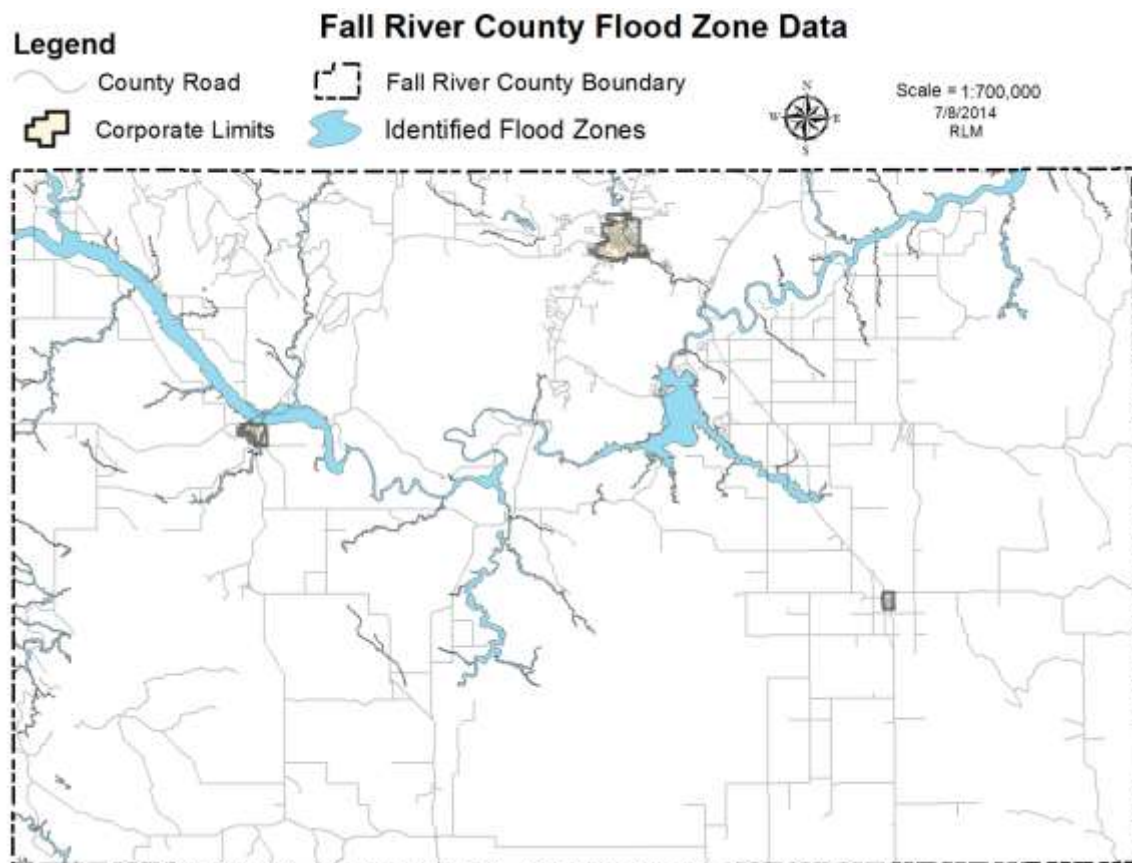
dangerous and often very destructive. See the Historical Data section for a list of all significant wind events.

### Drought

Drought is a frequent occurrence causing a negative economic impact on Fall River County and communities within the County. Some areas of Fall River County do not have adequate drinking water for people or livestock under normal conditions, drought conditions further exacerbates the situation. Drought conditions also increase the risk of both wildland fire and wildland urban interface fire. Repetitive drought results in a severe economic loss to the County.

### Flood Zone Data

Flash floods have plagued the Black Hills and killed more people than all other kinds of storms combined. The steep rock canyons and sudden cloudbursts can turn a normally placid creek into a raging wall of water. The cause of flash flooding in Fall River County is by intense rainfall in a short period of time. A single thunderstorm can produce enough rain to cause localized flooding along just one stream. Sometimes, a stationary thunderstorm or a series of thunderstorms over the same area causes flash



Current FIRM data for Fall River County

flooding in several streams in the County. Flash flooding from thunderstorms happens most often in the months of May, June and July. Steady rain over the southern Black Hills for a few days causes more widespread flooding. The creeks originating in the Hills flood, then the water flows into the Cheyenne River, which floods a few days later. May and early June is the most common time for this type of flooding. Rapid snowmelt caused by temperatures warming quickly after a heavy snowstorm or rain falling on the snow also causes flooding in the spring. This has occurred in Fall River County. See the Historical Data section for a list of all significant flood events.

A major flood occurred late on the evening of June 13, 2003 when 2-4 inches of rain fell within 4 hours. A stationary thunderstorm southwest of Hot Springs caused major damage to homes, cars and trees.

Another flood occurred August 12, 2005 when a severe thunderstorm moved from Weston County, Wyoming and across western Custer County and north central Fall River County. This storm produced large hail, gusty winds, and very heavy rain across the area. Several trees were downed by the wind in Hot Springs with minor property damage. Heavy rain in a short period of time around Hot Springs caused flash flooding in Hot Springs. Many roads in downtown Hot Springs were covered with up to a foot of water and the Fall River at Hot Springs rose near bankfull for a brief time, with debris in the stream bed clogging the river. 1.75 inch hail was reported with \$100,000 in damage.

On June 1, 2008 between 2 ½ and 3 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. \$100,000 worth of damage was reported.

On May 25, 2010 a strong upper level wave combined with abundant moisture to produce strong thunderstorms over western South Dakota. Torrential rain of two to four inches fell across the eastern and southern slopes of the Black Hills in a brief period, causing flooding from Piedmont southward to the Nebraska border. Flood waters continued downstream on the Cheyenne River to the Missouri River. Heavy rain caused flooding along the Fall River, Horsehead Creek, Hat Creek, Beaver Creek, and other smaller creeks and streams in Fall River County. The low water crossings in Hot Springs at South Sixth Street and at Joplin Avenue were flooded as well as several county roads. The creeks and streams were so high that Angostura Reservoir filled up and over 5900 cfs was being released. This was the first time in 10 years that Angostura Reservoir was full. The saturated soil and gusty winds also helped to bring down several large trees in Hot Springs. \$75,000 worth of damage was reported.

Also on June 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. \$5,000 worth of damage was reported.

On July 8, 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. \$10,000 worth of damage was reported.

Also on August 7, 2013 a severe thunderstorm tracked southeastward across Fall River County and produced strong wind gusts and heavy rain across much of the area. Runoff caused flash flooding around Hot Springs. 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. \$5,000 worth of damage was reported.

Major flooding issues within Fall River County are: City of Hot Springs, the floodplain of Fall River has the potential to affect rural and urban homes, county and state highways and businesses located along the river. South of Angostura Dam, the floodplain of the Cheyenne River has the potential to affect a limited number of rural homes and some north-south transportation corridors as well as Oral and Fall River Water lines and storage tanks that are located in the town of Oral, where businesses and homes could suffer flooding damage. An important site of the potential impact is the Oral Fire Hall which, if damaged, could impact emergency response capability from the facility. The Cold Brook dam, flooding could cause potential damage to residential homes, parks, Hot Springs Fire Station, a motel, Mueller Civic Center, Youth Center, UBC Lumber and Allen Ranch Campground.

Fall River County Emergency Manager actively manages existing and new development within identified flood plain areas. Fall River County requires engineering to be completed so that changes in the floodplain will not cause more than 1 foot of water rise in the vicinity of the alteration. Development is not permitted in the floodway. Fall River County also requires flood plain development permits to be submitted and approved to help manage flood plain changes. Proactive management will help reduce the impact of flood related damage in these areas.

Fall River County, Hot Springs and Edgemont all participate in the National Flood Insurance Program (NFIP) and are in compliance with NFIP requirements. Data acquired from the NFIP Coordinator at the SD Office of Emergency Management, indicates Fall River County and associated municipalities, have zero repetitive losses due to flooding or other disasters. However, areas within the floodplain may be prone to repetitive flash flooding as well as low water crossings and possibly all bridges within Fall River County and associated municipalities. Low lying areas in the County may also flood, as well as roads within the County.

The municipalities within Fall River County manage flood plain zones in their areas of jurisdiction, except Oelrichs, which is managed by Fall River County. Fall River

County updated their flood plain management ordinance in 2010. They have participated in NFIP since 12/18/2007. The City of Hot Springs' flood plain ordinance is up to date and they have participated in the NFIP since 3/17/2002. The City of Edgemont's flood plain ordinance is up to date and they have participated in the NFIP since 12/18/2007. All of these entities require permitting and their ordinances are enforced to reduce potential damage from flooding.

### **Historical Weather Data**

11/12/1993: Heavy snow fell in a swath from southwest through central to northeast South Dakota with generally four to eight inches reported. The snow was preceded by freezing rain. The storm closed numerous schools and offices and the heavy snow covered roads causing vehicles to get stuck and resulting in numerous accidents. Several buildings were damaged in central and eastern South Dakota. Strong winds and dangerous wind chills created a dangerous situation for travelers and livestock.

12/15/1993: A prolonged period of snow occurred over slightly more than the western third of South Dakota with some freezing rain proceeding the snow over the southwest corner. Several injury accidents occurred due to ice and many vehicles slid into ditches. Snowfall amounts were generally 4.0 to 10.0 inches with 26.0 inches locally in the northern Black Hills at Lead.

1/17/1994: A strong winter storm developed over the area, bringing heavy wet snow to the area. Depths of snow ranged from 8" to 17.5". There was significant tree damage, downed power lines, and many vehicle accidents. Temperatures dropped to -25 during this storm. Strong winds created deadly wind chills.

4/25/1994: A late winter storm, accompanied by strong winds created blizzard conditions. Snowfall totals in Fall River County ranged from 8-12", with greater amounts in the Northern Hills.

2/13/1995: A winter storm dropped several inches of snow over the Black Hills. The snow was preceded by freezing rain that resulted in many traffic accidents.

3/3/1995: A four day winter storm produced record setting snowfall totals for parts of South Dakota. Travel was at a standstill, and many accidents were reported, but no injuries.

7/9/1995: A tornado was sighted on the ground 1 mile west of Edgemont. No major damage was reported.

7/15/1995: A severe thunderstorm produced 1-2" of rain, causing flash flooding over much of the Black Hills. The township of Oelrichs had significant flooding of streets.

1/17/1996: A winter storm dumped 3-6" of snow over the area, and 35-45 mph winds created blizzard conditions with 3-6' drifts reported.

3/23/1996: A winter storm, combined with freezing rain, brought 6-9" of snow, with 20-40 mph winds created whiteout conditions. Several accidents were reported.

10/26/1996: A winter storm, with strong northwesterly winds created blizzard conditions for the Black Hills area. Frequent wind gusts of 45 mph created drifts several feet high. Electric service to rural areas was out for 5 days due to poles broken and power lines down. Damage estimates for the utility companies were in excess of \$600,000.

12/25/1996: Six to twelve inches of snow fell on Christmas Day, causing roads to become almost impassable.

1/9/1997: Artic air lowered the overnight temperatures to 10-30 below zero, with daytime highs below zero. A persistent northwest wind produced wind chills indices from 30 to 70 below zero. The cold contributed to damage and loss of livestock.

3/12/1997: A winter storm of freezing rain, fog and light snow turned the roads into ice rinks. Area police and SD Highway Patrol investigated 80 accidents between 7a and noon. There were some minor injuries.

4/9/1997: A late winter storm produced heavy snow along I-90, and into South Central South Dakota. 3-6" fell in the perimeter areas, with 9-12" in the center of the storm.

6/15/1997: A severe thunderstorm produced a tornado along Argyle Road, just to the north of Hot Springs. Minimal damage and no injuries were reported.

7/1/1997: Wind of 40 mph blew during the daytime hours, with higher gusts. Damage included downed trees, power outages, and structural damage. Some major structural damage was reported, and numerous wild fires were reported.

7/12/1997: Wind gusts of 60 mph were reported over the Angostura Dam area. Several tents, campers, and boats were damaged.

7/18/1997: A severe thunderstorm downed many power lines throughout the county.

7/23/1997: Lightning struck an Edgemont business, damaging the computer system, phone lines and electrical lines.

10/24/1997: A winter storm dumped 6-10" of snow over the southern one third of Fall River County. Wind gusts to 40 mph created blizzard like conditions.

12/27/1997: A strong low pressure system moved through the area, bringing 1-10" of snow and wind gusts of over 50 mph reduced visibility to near zero.

3/4/1998: A heavy snow event produced 5-8" of snow over the southern Black Hills. Numerous accidents were reported, some with minor injuries.

3/6/1998: A late winter storm brought 5-12" of snow to the southwest corner of South Dakota. Over 40 accidents were reported, some with minor injuries.

3/28/1998: A weekend snow storm brought six to eighteen inches of snow to Fall River County.

6/24/1998: A roof was blown off a house; two campers and a boat trailer were damaged. A mobile home and porch were completely destroyed. A man was standing on the porch, and he was injured. Wind gusts of 55 to 70 mph were reported. Property damage was estimated in excess of \$160,000.

7/1/1998: House destroyed and the roof of a nearby house was blown off. Estimated damage was in excess of \$150,000.

11/8/1998: Snowfall amounts of 5-9" were reported, with wind gusts of 30 to 50 mph. Schools were closed for two days. Numerous accidents were reported.

5/5/1999: A slow moving low pressure system moved across South Dakota. Strong northwesterly winds blew down large signs, billboards, and trees. Numerous power outages were reported.

6/4/1999: Strong winds from a severe thunderstorm blew over trees and fences in the Edgemont and Oelrichs area. Damage estimates were in excess of \$5,000.

7/17/1999: Wind gusts of 80 mph were reported over the Angostura Dam and camping area. Wind gusts of 60 mph were reported in Hot Springs.

1/27/2000: A heavy band of snow fell across southwest South Dakota. Six inches of wet snow was reported in the Hot Springs area. School was closed.

2/25/2000: A strong storm, with winds of 30-50 mph produced blizzard like conditions over western South Dakota. Wind gusts reached 75 mph, and 3-10" of snow fell. Numerous accidents were reported, some with injuries. Roads were closed, and schools were closed due to the storm.

7/14/2000: A lightning strike started a fire that burned 150 acres five miles east of Edgemont.



8/11/2000: Approximately 7,800 acres were burned after lightning caused the fire. One home and two outbuildings were lost. 600 firefighters battled the blaze, located 6 miles southwest of Hot Springs. The fire was contained on 8/20/2000.

9/9/2000: A fire, started by sparks from a train and fueled by 50 mph winds destroyed one house and four outbuildings in the town of Ardmore.

3/14/2001: A strong storm system produced 7-10 inches of snow in a 12 hour period. Winds of 20 to 35 mph created near blizzard conditions.

4/22/2001: A closed upper level disturbance produced 12-24 inches of snow over southwestern South Dakota. Schools and roads were closed.

6/12/2001: A tornado was spotted southwest of Provo. Quarter sized hail was also reported. This same storm produced a tornado 15 miles southeast of Ardmore.

7/6/2001: A severe thunderstorm produced large hail, blew off a barn roof, four miles south east of Burdock.

7/30/2001: A severe thunderstorm produced large hail, blew down trees and power poles, south east of Hot Springs in the Oral/Smithwick area.

11/26/2001: A winter storm produced 6 to 12 inches of snow over Fall River County. Schools, businesses and roads were closed.

3/13/2002: A winter storm produced 6 to 10 inches of snow over southwestern South Dakota. Some areas in Fall River County reported 12 to 18 inches of snow. Strong winds reduced visibility to near zero.

3/18/2002: A winter storm produced 6 to 8 inches of snow in Fall River County, and Oelrichs reported 11 inches.

6/2/2002: A severe thunderstorm produced high winds and golf ball sized hail six miles south of Hot Springs. The storm hit Hot Springs, Minnekahta, Cascade, Oral, Oelrichs and Ardmore. Minor damage was reported.

8/16/2002: A cold front produced winds of 40 mph, and gusts in excess of 75 mph. Trees and roofs were damaged.

6/13/2003: A slow moving storm cell produced 4 to 5 inches of rain in the Oelrichs area, causing Black Banks Creek of overflow. County highways 4 and 5 were flooded.



6/20/2003: Strong winds of 60 to 70 mph caused damage to trees, homes, and power lines in Hot Springs, Edgemont and Oelrichs. Approximately \$100,000 in damages was reported.

7/17/2003: Severe thunderstorms, along with a few supercell thunderstorms, continually developed across the eastern slopes of the Black Hills and moved slowly southeastward onto the southwest South Dakota plains. Very large hail fell across parts of central Pennington County, eastern Custer County, northeastern Fall River County, and Shannon County. Large tree limbs were blown down. Large hail also broke windows and damaged the roof of a house. 3 inch hail was reported with \$10,000 worth of damage.

11/3/2003: An upper level system moved across the Northern Rockies and into the Northern Plains, bringing accumulating snows to much of western South Dakota. Most of the area received 2-5 inches with Oelrichs to Winner, receiving 6-10 inches of snow.

2/29/2004: A powerful upper level storm system moved slowly bringing an abundance of precipitation and heavy snow. The storm began on the 28<sup>th</sup> as rain and then turned to snow. A rain/snow mix continued for days and eventually ended on March 1<sup>st</sup>. The winds caused significant blowing and drifting of the snow and created new blizzard conditions at times. Travel became nearly impossible across the area. 6-12 inches were common across the area, 10-12 inches fell across the foothills. Snow drifts up to 6 feet high developed across parts of the plains due to the strong winds.

9/14/2004: Small tornado was on the ground for about 1 minute. No damage.

11/27/2004: A narrow band of heavy snow fell across Fall River County during the overnight and morning hours. A spotter 15 miles west of Ardmore measured 10 inches of snow.

1/5/2005: A storm system developed across the central Rockies and moved across the central Plains, bringing heavy snow to parts of southern South Dakota. Snowfall amount of 6-12 inches were common from the Black Hills area eastward.

6/7/2005: Severe thunderstorms moved across Fall River County into western Shannon County. These storms produced large hail across much of the northern Fall River County. 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 farm. The tornado was followed by wind gusts of 70 mph and golf ball to almost softball sized hail.

8/12/2005: A severe thunderstorm moved from Weston County, Wyoming and across western Custer County and north central Fall River County. This storm produced large

hail, gusty winds, and very heavy rain across the area. Several trees were downed by the wind in Hot Springs with minor property damage. Heavy rain in a short period of time around Hot Springs caused flash flooding in Hot Springs. Many roads in downtown Hot Springs were covered with up to a foot of water and the Fall River at Hot Springs rose near bankfull for a brief time, with debris in the stream bed clogging the river. 1.75 inch hail was reported with \$100,000 in damage.

3/12/2006: A storm system moved across the Central Plains, bringing heavy snow to southern South Dakota. Snowfall of 6-12 inches was common across this area. The most significant snow fell across southwest South Dakota, where a heavy band developed early in the morning and persisted through much of the day. Snowfall across much of Fall River County and neighboring counties totaled 1-2 feet.

3/20/2006: A strong winter storm developed across the Rockies and moved slowly across the Plains, bringing a prolonged period of snow and wind to western and south central South Dakota. Snow started late on the 18<sup>th</sup> and continued through the afternoon and evening hours of the 20<sup>th</sup>. A period of freezing drizzle preceded the snow across parts of the plains. Snowfall of 6-14 inches was common across the area. Amounts of 14-22 inches were reported. Gusty winds caused considerable blowing and drifting snow across the plains, with visibilities reduced to less than a quarter mile. Interstate 90 from Rapid City to Chamberlain was closed for more than 24 hours.

3/30/2007: A powerful storm system moved across the region, bringing significant precipitation to western South Dakota. Rain changed to snow and widespread amounts of 5-12 inches of snow fell in the Black Hills. Strong northwest winds produced considerable blowing and drifting snow, occasionally reducing visibilities below a quarter of a mile.

12/8/2007: A storm system moved across the central Plains, bringing heavy snow to southwestern South Dakota. A band of overrunning snow developed across the area during the midday and persisted through the night. 5-10 inches of snow were common across Fall River County.

6/1/2008: Between 2 ½ and 3 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. \$100,000 worth of damage was reported.

6/17/2008: A supercell thunderstorm developed across eastern Fall River County and produced a brief tornado and very large hail from Smithwick to east of Oelrichs. A small tornado briefly touched down north of Smithwick.

12/13/2008: An Arctic cold front crossed the region, producing snow and strong winds. Snowfall was generally in the 1-5 inch range with as much as 8 inches in the northern

Black Hills. The combination of snow and gusty winds occasionally reduced visibility to around a quarter of a mile.

3/23/2009: A powerful spring storms brought rain, snow and very strong winds to the area; 18-48 inches of snow fell in and around the Black Hills, with drifts as high as ten feet. Sustained winds of 30-55 mph, with gusts over 80 mph, were reported. Interstate 90 and other major highways were closed for more than 24 hours. Some power outages were reported. Tens of thousands of livestock perished and \$100,000 of damage was reported.

3/31/2009: The second strong spring storm in a week brought heavy snow and gusty winds to the Black Hills. Snowfall across the plains and southern Hills was 6-12 inches. Strong winds produced blowing and drifting snow, with visibilities below a quarter of a mile. Many highways were closed for a prolonged time.

12/25/2009: A powerful winter storm moved across the region, bringing heavy snow to the area. Snowfall amounts across the region were generally 2-4 feet. The plains of Fall River County received 6-12 inches of snow. Gusty winds produced blowing and drifting snow, reducing visibilities below a quarter mile at times.

2/5/2010: An upper level storm system crossed the region, bringing accumulating snow to much of the area. 5-10 inches of snow were reported across portions of Fall River County.

5/24/2010: A supercell thunderstorm developed over extreme southern Fall River County and produced very large hail over eastern Fall River and Custer Counties. Hail as large as softballs damaged many automobiles from southwest of Oelrichs to east of Hot Springs and near Buffalo Gap. Baseball sized hail smashed vehicle windows. Hail of 2.75 inches was reported with \$4,000 worth of damage. Golf ball to softball sized hail fell from Angostura Reservoir to Maverick Junction and damaged vehicles. 4.25 inch hail was reported with \$40,000 worth of damage.

5/25/2010: A strong upper level wave combined with abundant moisture to produce strong thunderstorms over western South Dakota. Torrential rain of two to four inches fell across the eastern and southern slopes of the Black Hills in a brief period, causing flooding from Piedmont southward to the Nebraska border. Flood waters continued downstream on the Cheyenne River to the Missouri River. Heavy rain caused flooding along the Fall River, Horsehead Creek, Hat Creek, Beaver Creek, and other smaller creeks and streams in Fall River County. The low water crossings in Hot Springs at South Sixth Street and at Joplin Avenue were flooded as well as several county roads. The creeks and streams were so high that Angostura Reservoir filled up and over 5900 cfs was being released. This was the first time in 10 years that Angostura Reservoir was full.

The saturated soil and gusty winds also helped to bring down several large trees in Hot Springs. \$75,000 worth of damage was reported.

6/16/2010: Severe thunderstorms moved from Wyoming across Fall River and eastern Custer Counties. Large hail between one and 2.5 inches in diameter fell from the Edgemont area to Hot Springs to east of Fairburn. Large hail to tennis ball size damaged a home and automobiles. 2.5 inch hail was reported with \$75,000 worth of damage.

6/19/2010: A supercell thunderstorm produced large hail across northern Fall River County and caused damage around Hot Springs. Two inch diameter hail caused extensive damage to automobiles and some buildings in Hot Springs. One million dollars of damage was reported.

6/20/2010: Hail to the size of golf balls fell overnight across Fall River and southern Shannon Counties. Golf ball sized hail damaged automobiles. 1.75 inch hail was reported with \$10,000 worth of damage.

12/31/2010: A powerful winter storm brought heavy snow and gusty winds to the region. Snowfall ranged from 6-12 inches, northwest winds gusting to 50 mpg produced blizzard conditions with visibilities near zero at times. Interstate 90 was closed for nearly 24 hours from Rapid City to Sioux Falls. With temperatures near zero, wind chill readings were 20-35 below zero.

2/20/2011: A strong storm system moved across the Rockies, bringing heavy snow to western South Dakota. Snowfall amounts were 6-12 inches. Northwest winds of 15-30 mph produced areas of blowing snow and greatly reduced visibilities at times. Interstate 90 east of Rapid City was closed during the overnight hours.

6/11/2011: 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. \$5,000 worth of damage was reported.

6/22/2012: A severe thunderstorm tracked eastward from Wyoming across southern Fall River County. The storm produced enormous hail near Edgemont and a tornado between Edgemont and Ardmore. The tornado damaged buildings on a ranch north of Ardmore and blew down power poles and tress. Hail from golf ball to softball size fell in the area. A tornado touched down just west of the Edgemont road. It moved eastward and caused damage at a ranch just east of Highway 71 north of Ardmore. A large wooden barn was completely destroyed; its walls and roof were blown more than 100 years away. Two large shed lost roofs and walls and smaller sheds were blown apart. The modular house sustained minor damage. Property damage from this storm was over \$500,000.

4/17/2013: A strong spring storm moved across central portions of the Rockies and Great Plains, bringing snow to much of the area. The heaviest snow fell across southwestern South Dakota, where 5-9 inches of accumulation was reported. Brisk northwesterly winds produced some blowing and drifting snow on the plains.

5/27/2013: A supercell thunderstorm developed over the southern Black Hills and moved southeastward onto the plains of southwestern South Dakota. Hail to the size of golf balls fell from Pringle to the Hot Springs area to Angostura Reservoir.

6/11/2013: A severe thunderstorm developed just northwest of Hot Springs and moved southeast, producing hail to ping pong ball size and strong winds. 1.25 inch hail damaged vehicles in town. \$300,000 worth of damage was reported.

6/16/2013: A severe thunderstorm developed over southeastern Custer County and moved southeastward across eastern Fall River and western Shannon Counties. The storm produced large hail that caused damage across the area. Baseball and 2.75 inch hail was reported with \$25,000 worth of damage.

7/8/2013: 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. \$10,000 worth of damage was reported.

7/22/2013: A severe thunderstorm moved from Wyoming across the central and southern Black Hills and into the southwestern South Dakota plains before weakening. Large hail was reported from Deerfield Reservoir to Oglala, with some hail being as large as 1.75 inches.

8/7/2013: A severe thunderstorm tracked southeastward across Fall River County and produced strong wind gusts and heavy rain across much of the area. Runoff caused flash flooding around Hot Springs. 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. \$5,000 worth of damage was reported.

8/11/2013: A severe thunderstorm developed over the central Black Hills and slowly moved south through the southern Black Hills. The storm produced large hail from Silver City to near Hot Springs and a small tornado south of Hill City, which downed many trees and produced minor damage. Two inch diameter hail damaged property. \$10,000 worth of damage was reported.

8/28/2013: A severe thunderstorm developed near Hot Springs and merged with another storm over Custer County. Large hail and strong wind gusts were reported from Hot Springs to Fairburn. Golf ball size hail broke a pickup truck window at the Cold Brook Reservoir campground. \$2,000 worth of damage was reported.

10/5/2013: A historic blizzard pounded western South Dakota with record-setting snowfall and string winds for almost 48 hours from October 3-5. 1-2 feet of snow was reported in the foothills with 3-5 feet of snow falling over the Black Hills. Wind gusts to 70 mph across the plains produced significant blowing and drifting snow and strong winds downed trees and power lines, causing prolonged outages and impassable highways. The roofs of several businesses, a middle school and community center collapsed from 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.

### **Repetitive Blizzards**

Blizzards damage the political subdivisions economy through increased snow removal costs and loss of crops and animals to the local agriculture. Some storms damage structures due to falling trees and heavy snow accumulation. During blizzards many local businesses may be affected by road closures due to heavy snowfall and travel restrictions.

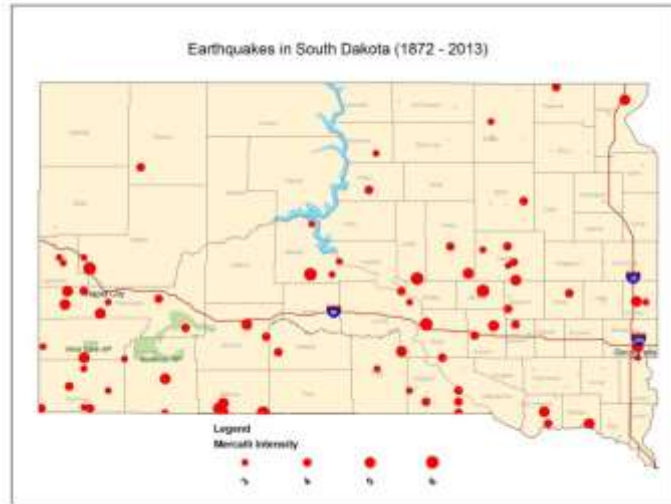
Fall River County is highly vulnerable to blizzards based on historical events. Heavy snowfall due to the higher elevations generating more snowfall than lower elevations is of major concern future blizzards are a major hazard for Fall River County.

On October 5, 2013 a significant blizzard occurred in the Black Hills with several days of power outages, high winds and historical snowfall amounts. Tens of thousands of cattle were killed in South Dakota with ranchers reporting loss of 20-50% of their herds. Substantial damage occurred across the County to utilities, property, trees and livestock.



## Earthquakes

Earthquakes have occurred in Fall River County but have caused only minor damage. There may be repetitive earthquakes, about every 20 years, causing only minor structural damage. Earthquake events do not occur often and will be managed by local authority having jurisdiction unless additional resources are needed.



Earthquakes for Fall River County, SD

## Hazardous Material Incidents

Fall River County and the City of Hot Springs are home to multiple major highways as well as two different railroads. Due to coast to coast traffic, the area is becoming increasingly susceptible to HAZMAT events. Fall River County has a mutual aid agreement with the Rapid City HAZMAT team for response to any incident. Traffic accidents occur often with some spillage of gas, diesel, motor oils and anti-freeze cleanup is provided by the local fire departments.

The Kanab Pipeline is a concern; even though it is inspected and maintained, leaks could potentially impact county wells, the source of water aquifers and the Cheyenne River.

Trucks carrying hazardous materials travel through Fall River County on a regular basis and pose a potential risk due to an accident in the County or within the city limits of any individual municipality or State roadway.

Edgemont, Oelrichs and Ardmore serve host to a railroad line. This poses a potential risk as the types of products carried on the rail lines are not typically known and could be of serious danger if a spill or release occurred.

Gas storage tank explosions, propane, diesel and gasoline, could impact the development potential of affected lands and have an impact on the arrangement of land uses within the County.

A large agricultural fertilizer plant is located near the town of Oral and daily shipments are made in and out of this area.

The development of oil wells in Fall River County will bring additional Hazardous Materials issues associated with the transportation of hazardous materials to the sites and transporting crude oil through the county. In addition there will be concerns

associated with natural gas and Hydrogen Sulfide gases. Additional planning and permitting processes may need to be developed if a significant number of petroleum production wells are development in western Fall River County.

### **Wildland Fire**

Fall River County is covered with numerous grassland areas as well as heavily forested areas. Fire and emergency response teams may have difficulty in reaching residential homes due to lack of sufficient roadway. Steep slopes and mountainous terrain may pose risk, especially when mixed within housing developments. Planning and zoning regulations that include Firewise building construction and Firewise landscaping practices would be most beneficial. Homeowners should also be encouraged to be educated about the potential dangers of living in the Wildland Urban Interface.

According to fire history, maintained by Fall River GIS and the USFS GIS, there have been at least 58 total large fires in Fall River County from 1949-2013. 115,264 total acres were burned with 28 (or 48%) of these fires being larger than 100 acres.

The 2012 SD Fire point fire history shows that between 1959 and 2012 there have been 614 total fires for a total of 130,313 acres. 406 of these fires were lightning caused, 35 were undetermined and the rest were human caused, such as, railroads, equipment, power lines and debris burning.

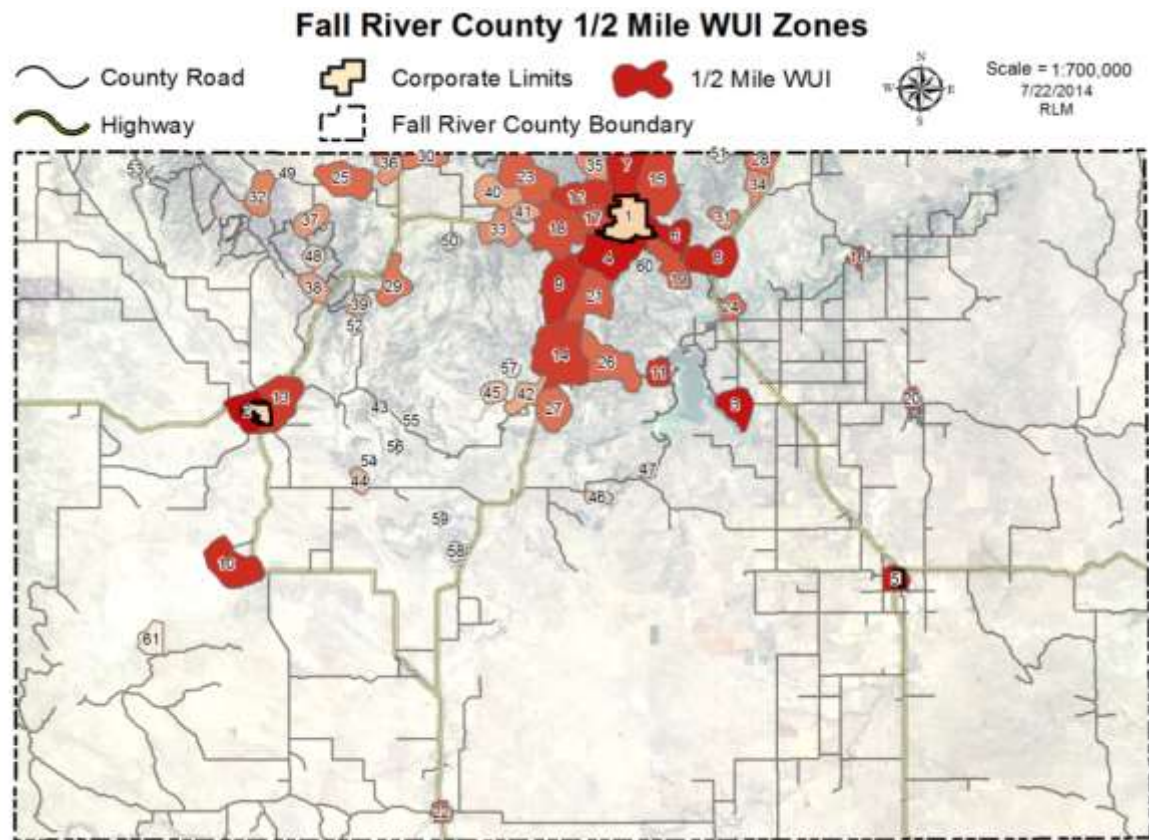
Due to the dryer climate conditions and heavy fuel loads in Fall River County and the fire history, the probability of future fire events is significant.

The Alabaugh fire in July 2007 was a particularly difficult incident that burned 10,324 acres. There was a civilian fatality and fire fighters deployed shelters and were burned over. Large areas south of Hot Springs were evacuated and many homes were destroyed during this incident lasted nine days.

The Wildland Urban Interface, (WUI), is a set of conditions that exist when structures and other human development meet or intermingle with wildland or vegetative fuels. As structure density increases in an area, consideration must be given not only to the natural vegetation but also to urban fuels. For example, homes are urban fuels and would contribute to fire intensity if ignited. Firewise practices and procedures can greatly reduce structural ignitability by interrupting fire spread and reducing receptive fuel beds in and around structures. The new cohesive strategy suggests that land manager's focus on 3 major items; landscape restoration, fire adaptive communities and response to wildfire.

Structure data, aerial photography, and topographic maps of Fall River County contributed to the development of 61 ½-mile WUI zones that consist of approximately 78,600 acres. These ½-mile buffers have been identified around structures, values, and defined communities at risk. The ½ mile WUI's have been prioritized by structure density and the priority areas are targets for fuels reduction activities. The intent of

these buffer zones is to reduce hazardous fuels to the point where the average worst condition during a wildfire would not support a high intensity crown fire in the vicinity of values in the WUI. This should be done by providing conifer canopy separation, removal of ladder fuels and reducing dead and down timber litter. Conifer stands need aggressive treatment to reduce the chance of high intensity fire or lofted embers from endangering communities ahead of severe wildfire. When a wildfire approaches a



**½ Mile WUI's for Fall River County**

structure through these ½-mile buffers, it should decrease in intensity and be forced to burn on the ground. This would give suppression crews a safer environment and better opportunities for protecting life, property and resources. The ½-mile buffer zones will have a target prescription of an average of 20 feet of separation between conifer canopies. This may be increased to an average of 30 feet of separation between conifer canopy where slope and aspect “Hot slopes” may influence fire behavior. This can reduce the chance of active crown fire in the general vicinity of structures and other improvements. The ½ mile WUI zones will be the basis for prioritizing hazardous fuels reduction projects and the criteria will be founded on structure density, hazardous topography and conifer canopy condition.

The 1½-mile buffer zones will have a target prescription of an average of 10-feet between conifer canopies. Stands may be stocked at higher levels if they do not threaten WUI values during a fire event from radiant, convective heat or lofted

firebrands. Nineteen 1½-mile buffer zones have been identified that are comprised of approximately 274,330 acres.

The 3-mile WUI buffer zones will be treated to reduce uncontrolled high intensity wildfire such as the Flint Hill Fire, the Alabaugh Fire, the Wildcat Canyon Fire or the West Hell Fire. The identified 3-mile buffer zones consist of approximately 525,378 acres and help enable land managers to design projects at a landscape level. Large areas of slash may require the creation of fuel breaks where slash will be piled and burned or chipped. The homogeneity of the forest will be diversified at a landscape level to provide strategic protections emphasizing safety and survivability for homeowners and landowners to escape a fire event. Additionally, they will reduce the hazardous fuels and increase the survivability of the forest environment surrounding private property. Firefighters will then have opportunities to engage in firefighting activities in an environment where their life safety is not compromised and the success of tactical operations is greatly increased.

Slopes with south or west aspect, “hot slopes”, that are situated with a southerly orientation from communities or that are below communities on a slope may need more aggressive treatments. South and west slope areas may require thinning to provide greater open spaces, which would significantly lower fuel loads that would influence fire behavior in these critical topographic areas from fast moving fires spreading from dry southerly winds. Under story and ladder fuels should be managed to reduce the risk of crowning and torching.

Active hazardous fuels reduction projects will reduce fire affects and allow protection of values in Fall River County. The goal of fuels reduction projects will be to reduce the risk from wildland fire by lowering fire intensities and reducing crowning and torching activities that threaten values in the WUI. Main considerations for these projects should encourage canopy separation that would reduce sustained crown fire activity, and hazardous fuels reduction projects that would reduce surface fire intensity. Restoration of original species in stands where Ponderosa Pine have encroached in the last century will help maintain a mosaic of vegetation and species viability of these stands. Land managers should consider the use of free thinning practices to maintain uneven aged or multi-storied stand structure to obtain stand diversity. These stands may need to be retained in a somewhat more open condition if they are to be managed for multistoried structure classes to achieve ladder fuel reduction objectives. Canopy base height, or the distance from the ground to where the canopy begins, should be considered to reduce torching and crowning during a fire event. This is achieved by interrupting the vertical continuity of the fuels also known as ladder fuels. Site-specific spatial data including structure density, hazardous topography, conifer canopy condition and proximity to state and federal treatment areas will be analyzed to identify hazards and help develop and prioritize projects that reduce risk and decrease the potential of structural ignition from wildfire.

Structure assessments in the WUI areas should be conducted to help assess conditions in the county and determine future mitigation planning strategies. This information in conjunction with GIS will display information more efficiently to help

show relationships that may not be apparent otherwise. This data is also important to fire managers during suppression activities and structure protection during a wildfire. Contact with homeowners during assessment activities allows one-on-one discussion of mitigation efforts landowners can do to reduce the threat from wildfire. People are more aware and interested in wildfire mitigation when it is their own property being discussed. Heightened interest by landowners in wildfire issues will help generate more support in the area of wildfire mitigation and promote higher levels of participation in the future. Encouraging people to live Firewise lives is crucial to protecting life and property. This cannot be achieved easily but will require the shared responsibility of everyone that has a stake in its success.

### **Urban Fire**

Fire hazards exist in every community; the magnitude of fire varies, ranging from small vehicle fires to large residential or business fires. There are many reasons why fires have started in Fall River County but one of the major causes is human triggered. Fires have occurred involving dumpsters, automobiles, mobile homes, houses and commercial property. The city's strict enforcement of fire, life safety and building codes attributes to the relatively small number of major fire events that have occurred within the municipalities in Fall River County.

Fire mitigation is a major concern to all in Fall River County but especially to emergency management officials because fires affect the lives of those persons with it comes into contact with. Fire may destroy property and critical resources needed for the survival of all area residents.

### **Terrorism and Criminal Incidents**

Terrorism may occur anywhere at any time, based on historical data. The Black Hills Motorcycle Rally is considered a possible terrorism target. Many of the attendees travel the scenic highways in Fall River County in addition to visiting the communities of the area; a biological agent could be spread very easily with high numbers of people infected. Mount Rushmore could also be a target for criminal activities. Some events at the national monument draw thousands of participants. Currently there is not a history of terrorist attacks within the County.

### **Mountain Pine Beetle**

The forested area of Fall River County is experiencing higher than normal Mountain Pine Beetle activity. The Mountain Pine Beetle activity which is reaching epidemic levels in some areas of the County is causing high Ponderosa Pine stand mortality. Overstocked stand conditions has resulted in an unhealthy forest prone to insect infestation and more severe wildland fire.

Counties within the Black Hills are coordinating to reduce the risk posed from the mountain pine beetle epidemic. The mountain pine beetle is creating tremendous amounts of hazardous fuels.

Long-term effects to watersheds due to mountain pine beetle activity are undetermined. The risk of landslides and flooding are increased as more of the trees die. There is also a concern about the watershed production due to the deforestation from the mountain pine beetle. The infestation could have a detrimental effect to the tourist industry. The tourist's visit the area in part because of the beautiful pine tree covered hills.

#### **IV. At Risk**

Based on the data provide in this document, the following risk assumptions have been made:

1. Heavy snows with rapid melt or heavy rains may cause rapid onset or flash flooding of streams, rivers and tributaries in Fall River County.
2. Severe weather during the winter will regularly cause winter storms and blizzards. These can result in livestock deaths, negatively affecting the agricultural industry and Fall River County infrastructure. Further loss of electricity is possible and closing of roads for several days. The loss of human life is also possible.
3. Severe weather during the spring, summer and fall regularly results in high straight-line winds, down drafts, large hail, lightning and tornadoes, again damaging crops and livestock, causing property damage and possibly death.
4. Urban and wildland urban interface fires will occur in Fall River County, possibly damaging life, property and resources.
5. Flash flooding especially after a wildland fire, may pose a high risk for mudslides or landslides.
6. Because of the number of communities many special events occur in Fall River County annually, the potential for a mass casualty incident is a possibility.
7. Earthquakes while weak are likely to occur every 20 years or so, possibly causing minor damage to foundations and infrastructure.
8. Hazardous Material incidents related to transportation may occur.
9. Terrorism or criminal activities are a possible occurrence.
10. The potential for ammunition to be found by the Igloo Army Depot is also a possibility.

**Other disasters may occur in Fall River County.**

#### **Fall River County**

Each municipality and the County itself have a list of critical infrastructure and the value of the County itself is just under 486 million dollars. There are many



structures located on the National Register of Historic Places and replacement costs for those are not known as they are made of locally mined sandstone and many of the features of the buildings are unique to the turn of the century construction.

Each municipality and the County currently have mitigation projects that have been identified and prioritized. These were ranked by current need and previous incidence in Fall River County. If reoccurrence occurs or new issues arise, the entities that have jurisdiction will expand and improve their current programs to meet new challenges. The primary goal of this plan is to identify and prepare for potential disasters that could affect lives, property and infrastructure in Fall River County.

Fall River County does not have a comprehensive plan or capital improvement plan. The Fall River Community Wildfire Protection Plan, Pre Disaster Mitigation Plan, Hazmat Plan, Local Emergency Operation Plan and National Floodplain Insurance Program will be updated periodically. All plans pertaining to Fall River County and it's municipalities will coordinate all resources and mitigation planning based on current information.

During times of crisis, Fall River County and local municipalities would provide help to the general public as needed, including welfare checks, managing and providing local shelters and basic public assistance. Vulnerable populations such as elderly, handicapped and infants may be more at risk during a hazardous incident in Fall River County.

During a significant weather event, each jurisdiction having authority in the County is responsible for mitigating the effects of the event on the community. Such as the Fall River County Highway shop removing snow on the County road system during a blizzard event. Hot Springs and Edgemont would also preform snow removal activities within their jurisdiction areas. Oelrichs falls under the County jurisdiction.

After a major weather event local jurisdiction having authority would clean debris that was deposited during the event. This may be along roadways, in culvert drainages, at low water crossing or other areas that may be affected.

Fall River County has a limited possibility of experiencing the following hazards: epidemic, aviation accident, nuclear incident, special event hazard, terrorism or mass casualty incident. The local jurisdiction having authority would manage any incident until its capability was overwhelmed and additional resources would be requested through local, state or federal governmental entities.

The City of Hot Springs has a dedicated building inspector who manages building codes, land use and flood plain development. They have a highway department and equipment needed to maintain the roadways of the municipality. The City also manages their municipal water and sewer systems.

The City of Edgemont has minimal staffing with 1 city employee and 1 part time employee. The city officers and the maintenance person manage the flood plain. They

do not have building codes or a Planning & Zoning committee to manage land use. They also do not have a comprehensive plan. Due to the lack of economic growth, these conditions probably will not improve which limits their ability to expand on or improve policies and programs. If a situation arises that is beyond the means of the municipality, they will contract with private vendors to mitigate the problem.

The Township of Oelrichs is under the jurisdiction of the County because they have very limited capabilities. They do not manage land use or have building codes, they follow the County regulations. They do not have staff for developing programs or enforcing policies. There are no flood plains located in the township of Oelrichs. The Fall River County highway shop is responsible for snow removal and road maintenance in Oelrichs. Oelrichs does have 1 snow plow pickup truck that can perform minimal snow removal.

### Property at Risk

The following table shows the valuation of property at risk for each entity in the County.

<b>Jurisdiction</b>	<b>Value</b>
Fall River County	\$485,987,008
Hot Springs	\$5,587,860
Edgemont	\$4,926,948
Oelrichs	\$350,000

### Fall River County

The following data provides information concerning the assessment data of Fall River County and also the property at risk in the County.

### Property of Fall River County:

<b>Property Name</b>	<b>Location- Fall River County</b>	<b>Size/ Dimensions</b>	<b>Building Value</b>	<b>Contents Value</b>
Fall River County Courthouse	906 N River, Hot Springs	18,792	\$2,520,717,	\$238,810
Sheriff Office/Jail	914 N River, Hot Springs	5,056	\$665,039	\$59,702
County Extension/Weed Office	913 N River, Hot Springs	1,056	\$117,713	\$24,477
Museum	300 N Chicago, Hot Springs	16,800	\$1,618,498	\$0
Shop	Lots 7-12, Block 7, Ardmore	988	\$37,319	\$5,971
Auto Shop	Lots 1-4, Block 3, Smithwick	1,008	\$37,319	\$5,971
Auto Shop	Fairgrounds, Edgemont	1,120	\$37,319	\$5,971
Highway Building	SE ½, NW ¼, NE ¼, SW ¼,	5,600	\$322,443	\$239,547

	Sec 26-7-5, County			
Storage Trailer	SE ¼, NW ¼, NE ¼, SW ¼, Sec 26-7-5 County		\$0	\$59,702
Three Fuel Storage Tanks	SE ¼, NW ¼, NE ¼, SW ¼, Sec 26-7-5 County		\$104,496	\$0
Equipment/Materials Storage Building	SE ¼, NW ¼, NE ¼, SW ¼, Sec 26-7-5 County	1,120	\$28,875	\$0
Storage Building	Industrial Park, Hot Springs	2,400	\$74,787	\$59,702
<b>Total Value</b>			<b>\$5,587,860</b>	<b>\$669,853</b>

#### **Previous Fall River County Mitigation Projects (Prior to 2003):**

- In the 1950's, the Army Corp of Engineers completed a flood control project for the City of Hot Springs. The projects consisted of the construction of Cold Brook Dam, a diversion channel, and a concrete diversion chute through Hot Springs. This diversion project directs the majority of floodwaters through the City of Hot Springs, and prevents the flooding of Fall River.
- Fall River County has a proactive weather program that works in affiliation with the National Weather Service located in Rapid City. Warning and evacuation procedures are under continual evaluation.
- Legislative actions should be established to require shelters for mobile home parks, campgrounds, and apartment buildings. As well as requiring tie downs and enforcing Uniform Building Code standards that target vulnerable urban and rural areas.
- City and county officials continually encourage the use of National Weather Service radios.
- Fall River County conducts educational meetings for residents living in the wildland urban interface.
- A county burn ban ordinance is in place and when conditions exist, the ban is enforced.
- All county fire departments have continuous training in regards to hazardous materials incidents. The Rapid City HAZMAT Team responds to spills. All fire departments and ambulance services work with the (LEPC) Local Emergency Planning Committee in mitigating and preparing for the hazardous materials threat.
- The Fall River County Sheriff's department is currently training several deputies in handling the drug, methamphetamine as well as weapons of mass destruction. Fall River County has obtained a drug dog, and is now in the process of training a deputy and the dog.

- The CERT (Community Emergency Response Team) was developed by Sioux Falls Fire Rescue; it provides short-term survival skill training to members of the community enabling citizens to help themselves and their neighbors in an emergency until professional help is able to arrive.
- The Fall River County Sheriff is a participant on the State Weapons of Mass Destruction Task Force and there is currently a deputy assigned to the Local FBI Terrorism Task Force.
- Fall River County restricts the placement of new homes within the base flood plain area. Any existing residence, which is rebuilt or remodeled at greater than 60% of the total value, must be elevated above the base flood Plain level.
- Project Impact – Fall River County needs to become a participant in Project Impact, which has been involved with developing many mitigation projects aiding the County and its residents. Those projects include: Weather Radios for the Hearing Impaired, Outdoor Warning Sirens, “Storm Ready” Designation, Public Awareness and Education, Community Shelters and the CERT Program.

**Fall River County Mitigation Projects (2003-2013):**

- Regulation and maintenance of hazardous fuels in developments (WUI) throughout Fall River County. The Community Wildfire Protection Plan was completed on 6/24/2009 and will be updated in 2014-2015.
- Develop communications plan between the county and the rail companies to ensure that emergency managers have the appropriate knowledge of what and when hazardous materials are being transported by rail. This project is completed.
- Identify and map all pipelines and storage tanks throughout the county. This includes contents of product and vessel or pipe material. A communications plan will also be developed between the county, cities and the transportation and storage vendors. This project is complete.
- Backup power supplies for critical infrastructure and communications. This project has made progress but is ongoing.
- Soft bank stabilization projects that will stop slope failure along creeks/roads in critical areas along streams and roads. This project is ongoing.
- Feature compilation of 2004 aerial photography and building foot print in which the city and county will provide additional GIS work necessary to join attribute information between the image and the building foot print. This project is complete.

- Develop and implement evacuation plans for residents. This has been completed but needs updated and will be ongoing.
- Additional staff to provide training for the Community Emergency Response Team program. (CERT) There is no support for this project, no action.
- Stricter building codes for tornado shelters throughout the city. There is no support for this project, no action.

#### **Fall River County Mitigation Projects (2014):**

<b>Project Name</b>	<b>Location</b>	<b>Priority</b>
Uncontrolled Wildland Fire	Fall River County	1
Back up Generator (Law Enforcement)	Battle Mountain Communication Site	2
Back up Generator	Cascade Communication Site	3
Cold Brook Channel Restoration	Cold Brook channel from CORP Prj to City Boundary	4
Fall River Drainage Clean Up	Fall River, east of Hidden Nook Trl to North of Garden Dr	5
Raise Road Grade and increase culvert capacity	County Road 20S & Black Banks Creek (3 Locations)	6
Raise Road Grade and increase culvert capacity	County Road 5I & Beef Creek	7
Ground Stabilization (Cap Rocks above Road)	Old Hwy 18 (T8S R3E SW 1/4 Section 34)	8
Raise Road Grade and increase culvert capacity	County Road 79E & Horse Head Creek	9
Raise Road Grade and increase culvert capacity	County Road 5A & Alkali Creek	10
Low Water Crossings	Red Canyon Road & Red Canyon Creek	11
Raise Road Grade and increase culvert capacity	County Road 4S & Black Banks Creek	12
Bridge Replacement	Argentine Township & Beaver Creek	13
Bridge Replacement	Fort Igloo Road & Coal Creek	14
Improve Culvert capacity	County Road 471 & Plains Creek	15
Bridge Replacement	County Road 14C & Irrigation Ditch	16
Bridge Replacement	Old Hwy 18 & Mickelson Trail	17
Cheyenne River Crossing Access	Rocky Ford (T9S R4E NW 1/4 section 12)	18

Fall River County prioritized their mitigation projects by severity, frequency and financial ramifications with meetings held with county departments.

#### **Goal #1:**

**Lead Agency:** Fall River County

**Objective:** Reduce the risk from uncontrolled wildland fire.

**Time line:** Education and Hazardous Fuels Reduction must be an ongoing project.

**Activities:** Continue collaboration with all entities that provide fire protection in Fall River County. Collaborate with landowners to help develop survivable space and promote fire resistive building materials and practices. Continue participation in the Firewise Program. Implement hazardous fuels reduction projects throughout Fall River County to help reduce the risk of uncontrolled wildland fire.

**Resources:** Fall River County

All Fall River Volunteer Fire Departments

U.S. Department of the Interior, Bureau of Land Management

U.S. Department of Agriculture, Forest Service

National Firewise Program

South Dakota Department of Agriculture Wildland Fire Division

**Goal Cost Efficiency:** Wildfire mitigation efforts to reduce fuels and develop healthy forests are cost effective. Lack of mitigation, education and fuels reduction has resulted in forest fires costing millions of dollars in loss of life, property, timber, wildlife, recreational value, environmental damage and cost of fire suppression.

Fall River County has developed a Community Wildfire Protection Plan as part of a federal grant and will update this plan in the near future.

South Dakota Wildland Fire Division has implemented a cost-share program to help land owners reduce hazardous fuels.

The Firewise Program is a national program that provides public education information which will reduce the risk of initial ignition of structures in the wildland urban interface.

**Goal #2:**

**Lead Agency:** Fall River County

**Objective:** Install a backup generator for law enforcement communications at the Battle Mountain Communication site.

**Time Line:** 5 Years.

**Activities:** Install a backup generator to prevent communication interruption during a power outage.

**Resources:** Fall River County

**Goal Cost efficiency:** This project is cost effective. It will help prevent communication interruption during times of vital emergency operations.



**Goal #3:**

**Lead agency:** Fall River County

**Objective:** Install a backup generator at the Cascade Communication site.

**Time Line:** 5 Years.

**Activities:** Install a backup generator to prevent communication interruption during a power outage.

**Resources:** Fall River County.

**Goal Cost efficiency:** This project is cost effective. It will help prevent communication interruption during times of vital emergency operations.

**Goal #4:**

**Lead agency:** Fall River County.

**Objective:** Restoration of Cold Brook Channel from CORP Project to city boundary.

**Time Line:** Work will be on-going.

**Activities:** Finish channel improvement on portion of streambed upstream from the city boundary to area previously completed.

**Resources:** Fall River County

SD Department of Energy and Natural Resources

Bureau of Reclamation

US Army Corps of Engineers

**Goal Cost efficiency:** This project is cost effective by reducing the risk of flooding within the identified area. This project will reduce the risk to life safety for people within this area. Goal is dependent on federal grants.

**Goal #5:**

**Lead Agency:** Fall River County

**Objective:** Fall River drainage clean up from east of Hidden Nook Trail to North of Garden Drive.

**Time Line:** Work will be on-going

**Activities:** Remove debris from stream channel to improve flow and reduce damage from debris during periods of high water.

**Resources:** Fall River County

**Goal Cost efficiency:** Minimizing damage from debris during times of elevated water will reduce costs to people downstream.

**Goal #6:**

**Lead agency:** Fall River County

**Objective:** Raise road grade and add increase culvert capacity at County Road 205 and Black Banks Creek in 3 locations.

**Time Line:** Work is on-going

**Activities:** Replace existing culverts with larger capacity structures. Raise roadbed to keep stream flow from overtopping the road and damaging the roadbed.

**Resources:** Fall River County

**Goal Cost efficiency:** Increasing flow capacity to alleviate damage during high water will reduce future damage and needed repairs.

**Goal #7:**

**Lead Agency:** Fall River County

**Objective:** Raise road grade and increase culvert capacity at County Road 51 and Beef Creek

**Time Line:** Work is on-going

**Activities:** Replace existing culverts with larger capacity structures. Raise roadbed to keep stream flow from overtopping the road and damaging the roadbed.

**Resources:** Fall River County

**Goal Cost efficiency:** Increasing flow capacity to alleviate damage during high water will reduce future damage and needed repairs.

**Goal #8:**

**Lead agency:** Fall River County

**Objective:** Ground stabilization (cap rocks above road) on Old Highway 18

**Time Line:** 5 Years

**Activities:** Stabilize ground above the highway to prevent debris from impacting the roadway

**Resources:** Fall River County

**Goal Cost efficiency:** Ground stabilization will reduce future damage to roadbed and possible damage or injury to public using the right-of-way.

**Goal #9:**

**Lead Agency:** Fall River County

**Objective:** Raise road grade and add increase culvert capacity at County Road 79E and Horse Head Creek

**Time Line:** Work is on-going

**Activities:** Replace existing culverts with larger capacity structures. Raise roadbed to keep stream flow from overtopping the road and damaging the roadbed.

**Resources:** Fall River County

**Goal Cost efficiency:** Increasing flow capacity to alleviate damage during high water will reduce future damage and needed repairs.

**Goal #10:**

**Lead agency:** Fall River County

**Objective:** Raise road grade and increase culvert capacity at County Road 5A and Alkali Creek.

**Time Line:** Work is on-going

**Activities:** Replace existing culverts with larger capacity structures. Raise roadbed to keep stream flow from overtopping the road and damaging the roadbed.

**Resources:** Fall River County

**Goal Cost efficiency:** Increasing flow capacity to alleviate damage during high water will reduce future damage and needed repairs.

**Goal #11:**

**Lead Agency:** Fall River County

**Objective:** Improve low water crossing at Red Canyon Road and Red Canyon Creek

**Time Line:** 5 Years

**Activities:** Develop better roadbed surface through the low water crossing area and stabilize banks near creek crossing.

**Resources:** Fall River County

**Goal Cost efficiency:** Eliminating repetitive repairs to keep this low water crossing in usable condition

**Goal #12:**

**Lead agencies:** Fall River County

**Objective:** Raise road grade and add increase culvert capacity at County Road 4S and Black Banks Creek

**Time Line:** Work is on-going

**Activities:** Replace existing culverts with larger capacity structures. Raise roadbed to keep stream flow from overtopping the road and damaging the roadbed.

**Resources:** Fall River County

**Goal Cost efficiency:** Increasing flow capacity to alleviate damage during high water will reduce future damage and needed repairs.

**Goal #13:**

**Lead Agency:** Fall River County

**Objective:** Bridge replacement at Argentine Township and Beaver Creek.

**Time Line:** Project is dependent on obtaining funding.

**Activities:** Replace bridge over Beaver Creek on Argentine Road.

**Resources:** Fall River County

SD Department of Transportation

Rural Development Loan Program

Community Development Block Grant

**Goal Cost efficiency:** Providing safe transportation routes is imperative to public safety.

**Goal #14:**

**Lead agency:** Fall River County

**Objective:** Bridge replacement at Fort Igloo Road and Coal Creek

**Time Line:** Project is dependent on obtaining funding.

**Activities:** Replace bridge over Coal Creek at Fort Igloo Road

**Resources:** Fall River County

SD Department of Transportation

Rural Development Loan Program

Community Development Block Grant

SD Department of Transportation

Rural Development Loan Program

Community Development Block Grant

**Goal Cost efficiency:** Providing safe transportation routes is imperative to public safety.

**Goal #15:**

**Lead Agency:** Fall River County

**Objective:** Improve culvert capacity at County Road 471 and Plains Creek

**Time Line:** Dependent on funding

**Activities:** Increase culvert capacity where Plains Creek crosses County Road 471

**Resources:** Fall River County

**Goal Cost efficiency:** Providing safe transportation routes is imperative to public safety.

**Goal #16:**

**Lead agency:** Fall River County

**Objective:** Bridge replacement at County Road 14C and Irrigation Ditch

**Time Line:** Project is dependent on obtaining funding.

**Activities:** Replace bridge over irrigation ditch at County Road 14C

**Resources:** Fall River County

SD Department of Transportation

Rural Development Loan Program

Community Development Block Grant

**Goal Cost efficiency:** Providing safe transportation routes is imperative to public safety.

**Goal #17:**

**Lead Agency:** Fall River County

**Objective:** Bridge replacement at Old Highway 18 and Mickelson Trail.

**Time Line:** Project is dependent on obtaining funding.

**Activities:** Replace bridge over Mickelson Trail on Old Highway 18.

**Resources:** Fall River County

SD Department of Transportation

Rural Development Loan Program

Community Development Block Grant

SD Department of Transportation

Rural Development Loan Program

Community Development Block Grant

**Goal Cost efficiency:** Providing safe transportation routes is imperative to public safety.

**Goal #18:**

**Lead Agency:** Fall River County

**Objective:** Improve Cheyenne River Crossing access at Rocky Ford

**Time Line:** Project is dependent on obtaining funding.

**Activities:** Improve river crossing at Rocky Ford on the Cheyenne River.

**Resources:** Fall River County

**Goal Cost efficiency:** Improving this river crossing will provide a serviceable route between Old Highway 18 and Cascade Road.

### City of Hot Springs

#### City of Hot Springs Property List:

Property Name	Location- Fall River County	Size/ Dimensions	Building Value
City Hall	305 N. River	8,142	\$1,232,373
Visitors Center	630 N. River	1,408	\$212,594
Evans Pump House	630 N. River	960	\$71,625
Hot Brook Pump House	Loc 6-6	470	\$44,378
Airport Office Building	560 W Airport	1,456	\$137,068
Airport Hanger w/ animal control fence	810 W Airport	4,800	\$177,120
Equipment Storage Building	960 W Airport	960	\$18,989
Police Station	201 N River	1,851	\$246,307
Golf Course Maintenance Shop	197 W Golf Course	2,500	\$68,150
Storage Building (Old Pump House)	150 W Golf Course	448	\$9,242
Golf Cart Storage Building	270 W Golf Course	7,680	\$200,448
Golf Superintendent's Office and Storage	222 W Golf Course	816	\$37,305
Storage Shed	313 W Golf Course	120	\$1,966
Gazebo at Hole #9	250 W Golf Course	166	\$10,732
Restroom at Hole #4	443 W Golf Course	60	\$9,337
Material Storage Building	94 W Golf Course	240	\$11,666
Restroom at Hole #12	572 W Golf Course	124	\$27,679
Material Storage Building	302 W 21st & Canton	2,112	\$55,123
Headworks Building and Office	774 W Sewer Treatment Plant Rd	6,126	\$771,754
Digester Building	900 W Sewer Treatment Plant Rd	852	\$82,635
Equipment Storage Garage	500 W Sewer Treatment Plant Rd	336	\$19,615
Shop and Equipment Storage Building	880 W Sewer Treatment Plant Rd	3,200	\$150,624
Mueller Civic Center	801 S 6th St	13,140	\$3,976,060
Concession and Restroom Building	649 W Butler Park	840	\$70,560
Golf Cart Storage Building	290 W Golf Course	5,280	\$120,096
Equipment Storage Building	313 W Highway 18 Bypass	24,000	\$372,048
Equipment Storage Parks Department	368 W Highway 18 Bypass	2,400	\$34,176
Maintenance Shop Street	298 W Highway 18 Bypass	11,480	\$1,266,667



Department			
Golf Club House	1130 Club House Dr	3,240	\$587,933
Public Library	2005 Library Dr	10,087	\$2,447,595
Library Storage Building	2005 Library Dr	1,500	\$37,995
Water Filling Station	302 W 21st & Canton	49	\$2,729
Water Booster Station	175 W Happy Hollow St	256	\$24,443
2 Dugouts on Norman Jenniges Field	626 W Butler Park	120	\$3,259
Crows Nest on Norman Jenniges Field	628 W Butler Park	96	\$4,864
2 Dugouts on Molitor Field	615 W Butler Park	160	\$4,460
2 Dugouts on Northwest Field	543 W Butler Park	136	\$3,616
West Picnic Shelter	593 W Butler Park	750	\$26,648
Restroom Building	640 W Butler Park	64	\$7,786
North Restroom Building	499 W Butler Park	130	\$15,959
Storage Shed in Butler Park	499 W Butler Park	96	\$1,758
4 Storage Sheds at Batting Cage	571 W Butler Park	64	\$1,303
Picnic Shelter	211 W Chautauqua Park	1,440	\$40,392
2 Restroom Buildings	268 W Chautauqua Park	30	\$3,649
Storage Building	227 W Chautauqua Park	144	\$7,198
Gazebo at Hole #9	900 W Kidney Springs Park	121	\$13,597
West Picnic Shelter	726 W Centennial Park	800	\$28,424
East Picnic Shelter	690 W Centennial Park	800	\$28,424
Restroom Building	719 W Centennial Park	297	\$36,808
Airport Hanger	563 W Airport	11,040	\$507,018
<b>Total Value</b>			<b>\$5,587,860</b>

#### **Hot Springs Mitigation Projects (Prior to 2003):**

- The City of Hot Springs employs a Building Inspector, who issued building permits, inspects projects, and enforces the appropriate building codes.
- The Hot Springs Fire Department and the Department of Veterans Affairs Medical Center Fire Department conducts a fire prevention week providing area school children with information on fires.
- The City of Hot Springs and Edgemont have a long tradition of mitigation and preparedness. Past mitigation projects include participation in the National Flood Insurance Program, adoption of engineering design standards for public improvements, erosion control standards and a master drainage plan, updating of building codes. Both cities need to plan to replace their existing warning sirens.
- The City of Hot Springs jets the sewer mains in town on an annual basis. The City has signed a contract with Wind Cave National Park to provide sewer services to the Park.

A ten mile long transmission line will be constructed with pumping stations, along Highway 385 to Hot Springs.

- The City of Hot Springs has equipped the Butler Park playground with new and safer playground equipment in the summer of 2004.
- The City of Hot Springs sponsors an annually held Clean Up Day.

#### **Hot Springs Mitigation Projects (2003-2013):**

- Design and construct facilities to improve storm water discharge in the city of Hot Springs. This project is ongoing.
- Soft bank stabilization projects that will stop slope failure along creeks/roads in critical areas along streams and roads. This project is ongoing.
- Feature compilation of 2004 aerial photography and building foot print in which the city and county will provide additional GIS work necessary to join attribute information between the image and the building foot print. This project is complete.
- Develop and implement evacuation plans for residents. This has been completed but needs updated and will be ongoing.
- Stricter building codes for tornado shelters throughout the city. There is no support for this project, no action.

#### **Hot Springs Mitigation Projects (2014):**

<b>Project Name</b>	<b>Location</b>	<b>Priority</b>
Uncontrolled Wildland Fire	Hot Springs	1
Hazardous Fuels Reduction	Even's Heights Area	2
Hazardous Fuels Reduction	South Garden Street	3
Back Up Generator	Mueller Civic Center	4
Back Up Generator	Sewage Treatment Plant	5
Back Up Generator	Hot Brook Pump Station	6
Back Up Generator	Hot Springs Municipal Airport	7
Warning Siren	Hwy 18 Bypass (North of Golf Course)	8
Ground Stabilization	Behind County Court House	9
Ground Stabilization	West River Street	10
New Well for City Water Supply	West of Golf Course	11
Bridge Replacement	Jennings Ave	12

Bridge Replacement	South 6th Street	13
Improve Drainage & Street Surface	Hickory Street	14
Improve Drainage & Street Surface	Valley View Area	15
Improve Drainage & Street Surface	VA Road (Incline up to hospital)	16
Municipal Water Line Exposed	Hwy 385 & Red Ridge (Check location is correct)	17
Sewer Line Exposed to Fall River	West River & Garden Street	18
Ground Stabilization	University Avenue	19
Rip/Rap Stream Stabilization	Freedom Trail (Behind Mueller Civic Center)	20

All goals listed are prioritized by which projects had the highest potential to threaten Hot Springs and secondly, which projects would give the city the biggest protection for the dollars spent while funding within their current budget.

**Goal #1:**

**Lead Agency:** Hot Springs

**Objective:** Reduce the risk from uncontrolled wildland fire.

**Time line:** Education and hazardous fuels reduction must be an ongoing project.

**Activities:** Collaborate with landowners to help develop survivable space and promote fire resistive building materials and practices. Continue participation in the Firewise Program. Implement hazardous fuels reduction projects throughout Hot Springs to help reduce the risk of uncontrolled wildland fire.

**Resources:** Hot Springs Volunteer Fire Department

Mutual aid Volunteer Fire Departments

U.S. Department of the Interior, Bureau of Land Management

U.S. Department of Agriculture, Forest Service

National Firewise Program

South Dakota Department of Agriculture Wildland Fire Division

**Goal Cost Efficiency:** Wildfire mitigation efforts to reduce fuels and develop healthy forests are cost effective. Lack of mitigation, education and fuels reduction has resulted in wildland fires costing millions of dollars in loss of life, property, timber, wildlife, recreational value, environmental damage and cost of fire suppression.

South Dakota Wildland Fire Division has implemented a cost-share program to help land owners reduce hazardous fuels.

The Firewise Program is a national program that provides public education information which will reduce the risk of initial ignition of structures in the wildland urban interface.

**Goal #2:**

**Lead Agency:** Hot Springs

**Objective:** Hazardous fuels reduction in the Evan's Heights Area

**Time Line:** Work will be ongoing.

**Activities:** Perform a hazardous fuels reduction program in the Evan's Heights area to reduce fuel loads and minimize the risk of uncontrolled wildland fire in this residential area.

**Resources:** Hot Springs Volunteer Fire Department

U.S. Department of the Interior, Bureau of Land Management

U.S. Department of Agriculture, Forest Service

National Firewise Program

South Dakota Department of Agriculture Wildland Fire Division

**Goal Cost efficiency:** Fire reduction mitigation efforts to reduce fuels are cost effective. Lack of mitigation, education and fuels reduction has resulted in wildland fires costing millions of dollars in loss of life, property, timber, wildlife, recreational value, environmental damage and cost of fire suppression.

South Dakota Wildland Fire Division has implemented a cost-share program to help land owners reduce hazardous fuels.

The Firewise Program is a national program that provides public education information which will reduce the risk of initial ignition of structures in the wildland urban interface.

**Goal #3:**

**Lead agency:** Hot Springs

**Objective:** Hazardous fuels reduction at South Garden Street

**Time Line:** Work will be ongoing.

**Activities:** Perform a hazardous fuels reduction program in the South Garden Street area to reduce fuel loads and minimize the risk of uncontrolled wildland fire in this residential area.

**Resources:** Hot Springs volunteer Fire Department

U.S. Department of the Interior, Bureau of Land Management

U.S. Department of Agriculture, Forest Service

National Firewise Program

South Dakota Department of Agriculture Wildland Fire Division

**Goal Cost efficiency:** Fire reduction mitigation efforts to reduce fuels are cost effective. Lack of mitigation, education and fuels reduction has resulted in wildland fires costing

millions of dollars in loss of life, property, timber, wildlife, recreational value, environmental damage and cost of fire suppression.

South Dakota Wildland Fire Division has implemented a cost-share program to help land owners reduce hazardous fuels.

The Firewise Program is a national program that provides public education information which will reduce the risk of initial ignition of structures in the wildland urban interface.

**Goal #4:**

**Lead Agency:** Hot Springs

**Objective:** Update backup generator at Mueller Civic Center.

**Time Line:** 5 Years

**Activities:** Install backup generator at Mueller Civic Center to enhance the facilities capability as a shelter in the event of a community emergency.

**Resources:** Hot Springs

**Goal Cost efficiency:** This project is cost effective. It will help provide a better emergency shelter for the community during emergencies.

**Goal #5:**

**Lead Agency:** Hot Springs

**Objective:** Install backup generator at Hot Springs sewage treatment plant.

**Time Line:** Dependent on funding sources.

**Activities:** Install a backup power system capable of operating the plant in the event of a utility outage.

**Resources:** Hot Springs

**Goal Cost efficiency:** This project is cost efficient by reducing the downtime of the sewage treatment plant and associated possible releases.

**Goal #6:**

**Lead Agency:** Hot Springs

**Objective:** Install backup generator at Hot Brook Pump Station

**Time Line:** 5 Years.

**Activities:** Install backup power generation for the Hot Brook Pump Station which supplies water for municipal and other water distribution systems.

**Resources:** Hot Springs

Fall River County

**Goal Cost efficiency:** This project is cost effective as it will provide water for public use in the event of a utility outage.

**Goal #7:**

**Lead Agency:** Hot Springs

**Objective:** Install a backup generator at Hot Springs Municipal Airport

**Time Line:** 5 Years

**Activities:** Install backup generator for runway lighting for use in the event of a utility outage.

**Resources:** Hot Springs

**Goal Cost efficiency:** This project provides life safety in the event of an outage when the facility is needed.

**Goal #8:**

**Lead Agency:** Hot Springs

**Objective:** Install warning siren at Highway 18 Bypass (north of golf course)

**Time Line:** 5 Years.

**Activities:** Install a new warning siren at Highway 18 bypass north of the golf course.

**Resources:** Hot Springs

Fall River County

**Goal Cost efficiency:** The NOAA early warning system is freely provided for use to warn people of approaching imminent severe weather.

**Goal #9:**

**Lead Agency:** Hot Springs

**Objective:** Ground stabilization behind County Courthouse

**Time Line:** As funding and resources are available.

**Activities:** Stabilize ground on slope behind the Fall River County court house.

**Resources:** Hot Springs

Fall River County

**Goal Cost efficiency:** Ground stabilization will reduce future damage to infrastructure and possible damage or injury to the public.

**Goal #10:**

**Lead Agency:** Hot Springs

**Objective:** Ground stabilization on West River Street



**Time Line:** As funding and resources are available.

**Activities:** Stabilize ground on West River Street.

**Resources:** Hot Springs

**Goal Cost efficiency:** Ground stabilization will reduce future damage to infrastructure and possible damage or injury to the public.

**Goal #11:**

**Lead Agency:** Hot Springs

**Objective:** New well for City Water Supply west of Golf Course

**Time Line:** As funding and resources are available.

**Activities:** Develop a new well for the municipal water system to supplement existing water production resources.

**Resources:** Hot Springs

**Goal Cost efficiency:** This will improve water production and redundancy for providing water to the municipal system.

**Goal #12:**

**Lead Agency:** Hot Springs

**Objective:** Replace bridge at Jennings Avenue

**Time Line:** As funding and resources are available.

**Activities:** Replace the bridge on Jennings Avenue that spans Fall River.

**Resources:** hot Springs

Fall River County

SD Department of Transportation

Rural Development Loan Program

Community Development Block Grant

**Goal Cost efficiency:** Providing safe transportation routes is imperative to public safety.

**Goal #13:**

**Lead Agency:**

**Objective:** Replace bridge at South 6<sup>th</sup> Street

**Time Line:** As funding and resources are available.

**Activities:** Replace the bridge on South 6<sup>th</sup> Street that spans Fall River.

**Resources:** Hot Springs

Fall River County

SD Department of Transportation

Rural Development Loan Program

Community Development Block Grant

**Goal Cost efficiency:** Providing safe transportation routes is imperative to public safety.

**Goal #14:**

**Lead Agency:** Hot Springs

**Objective:** Improve drainage and street surface on Hickory Street

**Time Line:** Work will be ongoing.

**Activities:** Remove debris from stream channel to improve flow and reduce damage from debris during periods of high water.

**Resources:** Hot Springs

**Goal Cost efficiency:** Minimizing damage from debris during times of elevated water will reduce costs to people downstream.

**Goal #15:**

**Lead Agency:**

**Objective:** Improve drainage and street surface at Valley View Area

**Time Line:** Project is dependent on obtaining funding.

**Activities:** Improve drainage that causes deterioration to road surface. Resurface damaged road surface.

**Resources:** Hot Springs

**Goal Cost efficiency:** Improve safety for public transportation.

**Goal #16:**

**Lead Agency:** Hot Springs

**Objective:** Improve drainage and street surface at VA road on the incline to the hospital

**Time Line:** Project is dependent on obtaining funding.

**Activities:** Improve drainage that causes deterioration to road surface. Resurface damaged road surface.

**Resources:** Hot Springs

**Goal Cost efficiency:** Improve safety for public transportation.

**Goal #17:**

**Lead Agency:** Hot Springs

**Objective:** Relocate exposed municipal water line at intersection of Highway 385 and Red Ridge

**Time Line:** Project is dependent on obtaining funding.

**Activities:** Relocate exposed municipal water line to reduce exposure to infrastructure.

**Resources:** Hot Springs

**Goal Cost efficiency:** Reduce exposure to damage and or reoccurring damage to the municipal liter supply line.

**Goal #18:**

**Lead Agency:** Hot Springs

**Objective:** Protect or relocate exposed sewer line from Fall River at West River and Garden Street.

**Time Line:** Project is dependent on obtaining funding.

**Activities:** Develop Protection or relocate exposed sewer line from Fall River at West River and Garden Street.

**Resources:** Hot Springs

**Goal Cost efficiency:** This line if damaged could result in a sewage release into Fall River.

**Goal #19:**

**Lead Agency:** Hot Springs

**Objective:** Stabilize ground at University Avenue.

**Time Line:** Project is dependent on obtaining funding.

**Activities:** Stabilize ground on north side of University Avenue west of Fall River.

**Resources:** Hot Springs

Fall River County

SD Department of Transportation

**Goal Cost efficiency:** Providing safe transportation routes is imperative to public safety.

**Goal #20:**

**Lead Agency:** Hot Springs

**Objective:** Stream stabilization and rip/rap near Freedom Trail behind Mueller Civic Center.

**Time Line:** Project is dependent on funding and resources.

**Activities:** Perform stream stabilization and rip/rap near Freedom Trail behind Mueller Civic Center.

**Resources:** Hot Springs

**Goal Cost efficiency:** Protect developed resources of the Freedom Trail.

### City Of Edgemont

#### City of Edgemont Property List:

Property Name	Location- Fall River County	Size/ Dimensions	Building Value	Contents Value
Out Patient Clinic and Retirement Home	906 H Street, Edgemont	10,662	\$1,294,926	\$0
Storage Building/Museum	Lots 2-4, Block 12 OT, Edgemont	5,236	\$447,771	\$93,469
Lower Shop Equipment Storage Building	Lots 10-12, Edgemont	2,400	\$63,066	\$18,448
Airplane Hanger	Sec 2-9-2, Edgemont	3,450	\$126,218	\$0
North Reservoir Roof	NE ¼, SE ½, Sec 2-9S-2E, County	3,276	\$106,217	\$0
Flight Pump and Lift Station	NE ¼, of NE 1/s of Sec S1-9S, Edgemont	100	\$76,879	\$0
Pool Pump House	Mason Hesel Addn, Blk 1 W ½, Lots 2-4, Edgemont	128	\$11,288	\$6,150
Pool Bath House	Mason Hesel Addn, Blk 1 W ½, Lots 2-4, Edgemont	153	\$11,955	\$1,231
Gazebo/Equipment Storage	Block 12, OT, Edgemont	179	\$16,771	\$0
City Shop	201 2 <sup>nd</sup> Ave, Edgemont	3,322	\$266,211	\$92,241
Library and City Hall	412 2 <sup>nd</sup> Ave, Edgemont	6,364	\$716,752	\$216,459
Storage Bldg Fire Hall	Outlot 2 less Lot H-1, Lot 2 of outlot 3, NE ¼, 2-9S-2E, Edgemont	26,552	\$1,007,817	\$63,954
Campground Building/Theater	Lots 3-16, Block 32 First Addn, Edmnt	2,880	\$183,549	\$6,150
South Reservoir Roof	NE ¼, SE ½, Sec 2-9S-2E, Edgemont	3,402	\$83,562	\$0
Storage Building at Fire Station	Outlot 2, Edgemont	1,792	\$49,192	\$614
Storage of Relays	Sec 2-9-2, Airport, Edgemont	48	\$4,740	\$6,150
250,000 Gal Water Tank	Water Tank Site, Edgemont		\$171,938	\$0
Dry Lift Station	NE ¼ of NE 1/s of Sec S1-9S, Edgemont		\$140,491	\$0
Trailerhead Picnic Shelter	City Park, Edgemont	432	\$13,705	\$0
Walking Bridge	City Park, Edgemont		\$103,000	\$0
Standby Generator	NE ¼ of NE 1/s of Sec S1-9S, Edgemont		\$30,900	\$0
<b>Total Value</b>			<b>\$4,926,948</b>	<b>\$504,866</b>

**The City of Edgemont did not participate in the original 2003 planning process. They did not have any projects prior to 2014.**

### Edgemont Mitigation Projects (2014):

Project Name	Location	Priority
Uncontrolled Wildland Fire	Edgemont	1
Warning Siren	2nd Street & E Street	2
Back Up Generator	Municipal Well Pump	3
Back Up Generator	Edgemont School	4
Repair Well Casing	Municipal Well	5
Municipal Water Storage Tank	Edgemont Municipal Water Storage	6
Back Up Generator	Edgemont Fire Department	7
Back Up Generator	Hill Crest Independant Living	8
Back Up Generator	Edgemont Municipal Airopport runway lights	9

All goals listed are prioritized by protection of life or property, provide early emergency warnings, protecting public infrastructure and minimizing public damage.

#### **Goal #1:**

**Lead Agency:** Edgemont Volunteer Fire Department

**Objective:** Reduce the risk from uncontrolled wildland fire.

**Time line:** Education and Hazardous Fuels Reduction must be an ongoing project.

**Activities:** Continue collaboration with all entities that provide fire protection in the Edgemont Fire District. Cooperate with landowners to help develop survivable space and promote fire resistive building materials and practices. Continue participation in the Firewise Program. Implement hazardous fuels reduction projects throughout the fire district to help reduce the risk of uncontrolled wildland fire.

**Resources:** Edgemont Volunteer Fire Department

Mutual Aid Volunteer Fire Departments

U.S. Department of the Interior, Bureau of Land Management

U.S. Department of Agriculture, Forest Service

National Firewise Program

South Dakota Department of Agriculture Wildland Fire Division

**Goal Cost Efficiency:** Wildland fire mitigation efforts to reduce fuels and develop healthy forests are cost effective. Lack of mitigation, education and fuels reduction has resulted in wildland fires costing millions of dollars in loss of life, property, timber, wildlife, recreational value, environmental damage and cost of fire suppression.

South Dakota Wildland Fire Division has implemented a cost-share program to help land owners reduce hazardous fuels.

The Firewise Program is a national program that provides public education information which will reduce the risk of initial ignition of structures in the wildland urban interface.

**Goal #2:**

**Lead Agency:** Edgemont

**Objective:** Install a warning siren at 2<sup>nd</sup> Street and E Street.

**Time Line:** 5 Years.

**Activities:** Install a new warning siren at 2<sup>nd</sup> Street and E Street.

**Resources:** Edgemont

Fall River County

**Goal Cost efficiency:** The NOAA early warning system is freely provided for use to warn people of approaching imminent severe weather.

**Goal #3:**

**Lead Agency:** Edgemont

**Objective:** Install a backup generator for Edgemont municipal well pump

**Time Line:** 5 Years.

**Activities:** Install backup power generation for the Edgemont municipal well pump which supplies water for municipal water distribution systems.

**Resources:** Edgemont

**Goal Cost Efficiency:** This project is cost effective as it will provide water for public use in the event of a utility outage.

**Goal #4:**

**Lead Agency:** Edgemont School District.

**Objective:** Install a backup generator at the Edgemont School.

**Time Line:** 5 Years.

**Activities:** Install a backup generator at the Edgemont School.

**Resources:** Edgemont

Edgemont School District

**Goal Cost Efficiency:** This project is cost effective. It will help improve capability by providing an additional emergency shelter for the community.

**Goal #5:**



**Lead Agency:** Edgemont

**Objective:** Repair well casing at the municipal well

**Time Line:** 5 Years.

**Activities:** Repair well casing on municipal well.

**Resources:** Edgemont

**Goal Cost Efficiency:** This project is cost effective by improving efficiency of water production at the municipal well in Edgemont.

**Goal #6:**

**Lead Agency:** Edgemont

**Objective:** Repair leaks in municipal water storage tank at Edgemont municipal water storage facility.

**Time Lines:** Project is dependent on funding.

**Activities:** Repair leaks in municipal water storage tank at Edgemont municipal water storage facility.

**Resources:** Edgemont

**Goal Cost Efficiency:** This project is cost effective by improving efficiency of water storage in Edgemont.

**Goal #7:**

**Lead Agency:** Edgemont Volunteer Fire Department.

**Objective:** Install backup generator at Edgemont Fire Department

**Time Lines:** 5 Years.

**Activities:** Install a backup generator at the Edgemont Volunteer Fire Department.

**Resources:** Edgemont Volunteer Fire Department.

**Goal Cost Efficiency:** This project is cost effective as it will provide additional capability for emergency services in the event of a utility outage.

**Goal #8:**

**Lead Agency:** Edgemont

**Objective:** Install a backup generator at Hill Crest Independent Living.

**Time Lines:** 5 Years.

**Activities:** Install a backup generator at Hill Crest Independent Living.

**Resources:** Edgemont.

**Goal Cost Efficiency:** This project is cost effective as it will provide improve the facilities ability to operate during a utility outage.

**Goal #9:**

**Lead Agency:** Edgemont.

**Objective:** Install a backup generator for the Edgemont Municipal Airport runway lights.

**Time Lines:** 5 Years.

**Activities:** Install a backup generator for the Edgemont Municipal Airport runway lights.

**Resources:** Edgemont

**Goal Cost Efficiency:** This project provides life safety in the event of an outage when the facility is needed.

### **Township Of Oelrichs**

**Township of Oelrichs Property List:**

<b>Property Name</b>	<b>Location-Oelrichs</b>	<b>Building Value</b>	<b>Contents Value</b>
Fire Dept. / Community Center	Lot 5&6 Block 34	\$125,000	\$225,000

**Oelrichs Mitigation Projects (2003-2013):**

- Design and construct facilities to improve storm water discharge in the city of Oelrichs. This project has been removed as it is not needed.

**Oelrichs Mitigation Projects (2014):**

<b>Project Name</b>	<b>Location</b>	<b>Priority</b>
Uncontrolled Wildland Fire	Oelrichs Township	1
Generator Backup	Fire Department / Community Hall	2
Generator Backup	Oelrichs School	3

Oelrichs uses sound economic principles, community planning and effectiveness as the criteria to prioritize the goals. All goals are part of the townships budget, information systems and organization.

**Goal #1:**

**Lead Agency:** Oelrichs Volunteer Fire Department

**Objective:** Reduce the risk from uncontrolled wildland fire.

**Time line:** Education and Hazardous Fuels Reduction must be an ongoing project.

**Activities:** Continue collaboration with all entities that provide fire protection in the Oelrichs Fire District. Cooperate with landowners to help develop survivable space and promote fire resistive building materials and practices. Continue participation in the Firewise Program. Implement hazardous fuels reduction projects throughout the fire district to help reduce the risk of uncontrolled wildland fire.

**Resources:** Oelrichs Volunteer Fire Department

Mutual Aid Volunteer Fire Departments

U.S. Department of the Interior, Bureau of Land Management

U.S. Department of Agriculture, Forest Service

National Firewise Program

South Dakota Department of Agriculture Wildland Fire Division

**Goal Cost Efficiency:** Wildland fire mitigation efforts to reduce fuels and develop healthy forests are cost effective. Lack of mitigation, education and fuels reduction has resulted in wildland fires costing millions of dollars in loss of life, property, timber, wildlife, recreational value, environmental damage and cost of fire suppression.

South Dakota Wildland Fire Division has implemented a cost-share program to help land owners reduce hazardous fuels.

The Firewise Program is a national program that provides public education information which will reduce the risk of initial ignition of structures in the wildland urban interface.

**Goal #2:**

**Lead Agency:** Oelrichs

**Objective:** Install backup generator at the Oelrichs Fire Volunteer Department/Community Hall.

**Time Line:** 5 Years.

**Activities:** Install backup generator at the Oelrichs Volunteer Fire Department/Community Hall.

**Resources:** Oelrichs

**Cost efficiency:** This project is cost effective as it will provide additional capability for emergency services in the event of a utility outage.

**Goal #3:**

**Lead Agency:** Oelrichs School District

**Objective:** Install generator back up at the Oelrichs School.

**Time Line:** 5 Years.

**Activities:** Install generator back up at the Oelrichs School.

**Resources:** Oelrichs School District

**Cost efficiency:** This project is cost effective as it will provide additional shelter capability for the community in the event of a utility outage.

## VI. Bibliography

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- Department of Environment and Natural Resources; Geologic Survey; Geologic Map of South Dakota; 2004.
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- US Geological Survey. <http://www.usgs.gov/>; 7/22/2014.
- State of South Dakota Hazard Mitigation Plan, Standard Plan. April 2014.

## VII. Appendix

**FALL RIVER COUNTY RESOLUTION #2014-13**  
**A RESOLUTION TO AMEND THE FALL RIVER COUNTY PRE-DISASTER MITIGATION PLAN**

WHEREAS, the Fall River County Commission adopted a Pre-Disaster Mitigation Plan (the Plan) in 2004.

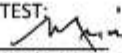
WHEREAS, from time to time it is necessary to review and update the Plan as circumstances and conditions change; and

WHEREAS, the Fall River County Office of Emergency Management ("Emergency Management") has undertaken such a review of the Plan; and

THEREFORE, BE IT RESOLVED that the Fall River County Commission does hereby approve the Office of Emergency Management to hire a contractor to update and modify the Plan as necessary.

Dated at Fall River County, South Dakota this 15<sup>th</sup> day of May, 2014.

  
Michael P. Ortner, Chairman  
Fall River County Board of Commissioners

ATTEST:  
  
Sue Ganje, Fall River County Auditor



## **Approval to Hire Contractor to Update PDM Plan**

See below exert from Page 4 of the Fall River County Minutes of December 20, 2012:

“Frank Maynard, Emergency Management, provided the Board with a report on a recent inspection of the courthouse boiler, their recommendations and the development of a maintenance schedule. Maynard also noted that the county has been awarded an \$18,749.00 grant to update the Pre-Disaster Mitigation Plan, requesting approval to contract with Black Hills Land Analysis to begin the process. Motion by Russell, seconded by Falkenburg, to approve signing a contract to hire Rob Mattox for an update of the PDM plan. With no further discussion and all voting yes, the motion carried.”

**FALL RIVER COUNTY RESOLUTION #2014-37  
A RESOLUTION ADOPTING THE FALL RIVER COUNTY  
PRE-DISASTER MITIGATION PLAN**

**WHEREAS**, the Fall River County Board of Commission adopted a Pre-Disaster Mitigation Plan (the Plan) in 2004.

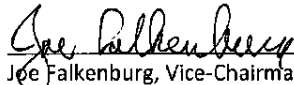
**WHEREAS**, from time to time it is necessary to review and update the Plan as circumstances and conditions change; and


**WHEREAS**, the Fall River County Office of Emergency Management ("Emergency Management") has undertaken such a review of the Plan; and

**WHEREAS**, based upon its review, Emergency Management has recommended certain revisions to the Plan as necessary and appropriate; and

**THEREFORE BE IT RESOLVED**, that the Fall River County Board of Commissioners does hereby adopt the 2014 Fall River County Pre-Disaster Mitigation Plan, which shall supersede and replace any prior versions of the Plan.

Dated this 4<sup>th</sup> day of December, 2014

  
\_\_\_\_\_  
Joe Falkenburg, Vice-Chairman  
Fall River County Board of Commissioners

ATTEST:   
\_\_\_\_\_  
Sue Ganje, Fall River County Auditor


RESOLUTION 2014-25


PRE-DISASTER MITIGATION PLAN UPDATE FOR FALL RIVER COUNTY

BE IT RESOLVED by the Common Council of the City of Hot Springs, South Dakota, The City of Hot Springs deems it advisable and in the best interest of the community and Fall River County to approve said Pre-Disaster Mitigation Plan update.

PASSED AND APPROVED THIS 10<sup>th</sup> DAY OF DECEMBER, 2014.

Approved:

  
Cindy Donnell, Mayor

ATTEST:   
Misty Summers-Walton, Finance Officer

**RESOLUTION 2014-12-5**

**PRE-DISASTER MITIGATION PLAN UPDATE FOR FALL RIVER COUNTY**

RESOLVED: The City of Edgemont deems it advisable and in the best interest of the community and Fall River County to approve said Pre-Disaster Mitigation Plan update.


PASSED AND APPROVED THIS 5<sup>TH</sup> DAY OF DECEMBER, 2014.

CITY OF EDMONT

  
\_\_\_\_\_

Carl A Shaw, Mayor

ATTEST:

  
\_\_\_\_\_

Karen S Cain, Finance Officer

(SEAL)

RESOLUTION # 2015-01

PRE-DISASTER MITIGATION PLAN UPDATE FOR FALL RIVER COUNTY

RESOLVED: The Town of Oelrichs deems it advisable and in the best interest of the community and Fall River County to approve said Pre-Disaster Mitigation Plan update.

PASSED AND APPROVED THIS 13 DAY OF JANUARY 2015.

  
Board President, Town of Oelrichs

ATTEST:   
City Finance Officer/Clerk



## Fall River County

Office of Emergency Management  
906 N. River Street  
Hot Springs SD 57747

Franklin W. Maynard

[frem@gwtc.net](mailto:frem@gwtc.net)

Andy Timmins

Assistant EM

[fallriverem@gmail.com](mailto:fallriverem@gmail.com)

605-745-7562

cell 890-7245

fax 605-745-6835



Date: April 23, 2014

Subj: Fall River County Pre Disaster Mitigation Plan

To Whom It May Concern:

This letter is being sent to inform your jurisdiction of a planning effort underway by Fall River County to create a Hazard Mitigation Plan. A hazard mitigation plan is a publicly-guided document which identifies vulnerability to natural disasters such as flood, drought, earthquake, wildfire, winter storm, tornado/high wind storm, dam failure, etc. The plan sets goals, establishes mitigation alternatives, and prioritizes projects which may alleviate potential damages to property and provide protection when future disasters occur.

Hazard mitigation plans are a requirement of the Disaster Mitigation Act of 2000, administered by the Federal Emergency Management Agency (FEMA), and once a community is part of a plan they become eligible to apply for FEMA hazard mitigation grants. These grants can be used for up to 75% cost share for a wide variety of projects listed in the plan. Other funding opportunities will also be explored. FEMA requires that your jurisdiction, a neighboring community, be notified of this planning effort.

This planning effort will be guided by the Fall River County Emergency Management Office, Fall River County and neighboring jurisdictions. Public input will be gathered throughout the duration of the plan development through online tools and public meetings. All jurisdictions within the planning area are eligible to participate.

If you are interested in providing feedback to this planning process, or in attending future meetings, please contact Frank Maynard at 605 745-7562 or email at [frem@gwtc.net](mailto:frem@gwtc.net).

Franklin W. Maynard, CFM & CEM  
Fall River/Shannon County Emergency Manager  
Past President of the SDEMA



**Custer County Commission**  
420 Mount Rushmore Road  
Custer, SD 57730

**Dawes County Commission**  
451 Main Street  
Chadron, NE 69337

**Sioux County Commission**  
PO Box 158  
Harrison, NE 69346

**Niobrara County Commission**  
PO Box 420  
Lusk, WY 82225

**Black Hills National Forest**  
1019 N. 5<sup>th</sup> Street  
Custer, SD 57730

**Buffalo Gap National Grasslands**  
1801 Hwy. 18  
Hot Springs, SD 57747

**US Army Corp of Engineers**  
PO Box 664  
Hot Springs, SD 57747

**Bureau of Reclamation**  
515 9<sup>th</sup> Street # 101  
Rapid City, SD 57701

**SD Dept. of Agriculture**  
Wildland Fire  
4250 Fire Station Road  
Rapid City, SD 57703

**SD Dept. of Agriculture**  
523 East Capitol Ave.  
Joe Foss Bldg. 3<sup>rd</sup> Floor  
Pierre, SD 57501

**VA Black Hills Health Care**  
500 N 5<sup>th</sup> Street  
Hot Springs, SD 57747

**Shannon County Commissioners**  
906 N River Street  
Hot Springs, SD 57747

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***List of Recipients who received the Fall River  
County PDM update planning solicitation.***

#### **Public Meeting Notice**

Fall River County Emergency Management will be conducting a planning effort meeting to create a Hazard Mitigation Plan for the county. Hazard Mitigation Plans are a requirement of the Disaster Mitigation Act of 2000 and administered by the Federal Emergency Management Agency (FEMA). A hazard mitigation plan is a publicly-guided document which identifies vulnerability to natural and manmade disasters. Comments and information for the plan is encouraged and the public is welcome to attend the meeting, starting at 7pm on Wednesday, April 30<sup>th</sup>, 2014 at the Mueller Center. For further information or comments, please contact Frank Maynard, Fall River Emergency Manager at 745-7562.

***Published in the Hot Springs Star  
4/22/2014 and 4/29 2014***

#### **Public Meeting Notice**

Fall River County Emergency Management will be conducting a planning effort meeting to create a Hazard Mitigation Plan for the County. Hazard Mitigation Plans are a requirement of the Disaster Mitigation Act of 2000 and administered by the Federal Emergency Management Agency (FEMA). A hazard mitigation plan is a publicly-guided document which identifies vulnerability to natural and manmade disasters. Comments and information for the plan is encouraged and the public is welcome to attend the meeting, starting at 7pm on Wednesday, May 14<sup>th</sup>, 2014 at the Edgemont Fire Station. For further information or comments, please contact Frank Maynard, Fall River Emergency Manager at 745-7562, 890-7245 for email at [frem@gwtc.net](mailto:frem@gwtc.net).

*Published in the Legal Section of Edgemont Tribune  
5/8/2014*

#### **Public Meeting Notice**

**Fall River County Emergency Management will be conducting a planning effort meeting to create a Hazard Mitigation Plan for the county. Hazard Mitigation Plans are a requirement of the Disaster Mitigation Act of 2000 and administered by the Federal Emergency Management Agency (FEMA). A hazard mitigation plan is a publicly-guided document which identifies vulnerability to natural and manmade disasters. Comments and information for the plan is encouraged and the public is welcome to attend the meeting, starting at 7pm on Wednesday, May 15th, 2014 at the Oelrichs Community Center. For further information or comments, please contact Frank Maynard, Fall River Emergency Manager at 745-7562.**

***Published in the Legal Section of Hot Springs Star  
5/13/2014***

11/1 / 2013

PDM preliminary FR County

name	position
Rob Matter	Contractor
Amy Timmins	ASST EM FR
Stacey Martin	GIS Coordinator
Frank Maynard	FR EM

4/30/14

PDM Public Works Meeting

2pm

- |    |                             |                             |
|----|-----------------------------|-----------------------------|
| 1  | Frank Maynard               | Fall River EM               |
| 2  | Craig Romey                 | Hot Springs Councilman      |
| 3  | Wes Carlines                | Hot Springs Councilman      |
| 4  | Ed <del>Smith</del>         | Hot Springs Airport         |
| 5  | Chad <del>Osborn</del>      | Golden West Phone Co.       |
| 6  | Bill <del>Martin</del>      | Hot Springs Water & Streets |
| 7  | Bob <del>Smith</del>        | Hot Springs Parks           |
| 8  | Jeff <del>Winters</del>     | Fall River Water Users      |
| 9  | Chris Kothke                | Mueller Center              |
| 10 | Kathy <del>Jensen</del>     | Hot Springs Golf Course     |
| 11 | Cam <del>Atterley, CP</del> | Hot Springs Councilman      |
| 12 | Dan De Vries                | Mayor of Hot Springs        |
| 13 | Randy Seiler                | Co. Hwy. Supt.              |
| 14 | Tracy Bastran               | City Engineer               |
| 15 | Bob Evans                   | HSRD & HSVFD                |

Hot Springs - Mueller Center

4/30/14		PDM Public Mtg	7pm
1.	Frank Maynard	- Fall River EM	
2	ANDY THOMAS	- Fall River EM	
3	Mike Ortner	" " Co. Commissioner	
4	Kyle Jensen	" " Court House	
5	Tom Hammer	MVPD Chief	
6	BILL GABBERT	HS Resident	
7	Paul Nuberg	Fall River Resident	



5-14-2014

Fall River County Pre-disaster Mitigation Plan Update (Edgemont Public Meeting)



Name	Position
1 Frank Maynard	Fall River Emergency Manager
2 Susan R. Henderson	Banker - Box 431 Edgemont SD 57135
3 Eric Ostenson	EVFD Chief 890-2095 cell
4 Nathan Trotter	EVFD - Ass. Chief
5 Mike Cooper	EVFD Ass. Chief
6 Carl Shaw	Mayor - Edgemont
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Fall River County Pre-disaster Mitigation Plan Update (~~Delrichs~~ Delrichs Public Meeting)



Name	Position
1 Frank Maynard	Fall River Emergency Manager
2 Larry Dennotherly	Delrichs Fire Chief
3 Rachelle Christman	Delrichs Town Clerk
4 Vince Logue	Resident of Delrichs
5 Rob Davis	Superintendent of School
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# Fall River County

Office of Emergency Management  
906 N. River Street  
Hot Springs SD 57747

Franklin W. Maynard  
frem@gwtc.net

605-745-7562  
745-6835

cell 890-7245

fax 605-



**Date:** July 24, 2014

**Subject:** PDM Review List

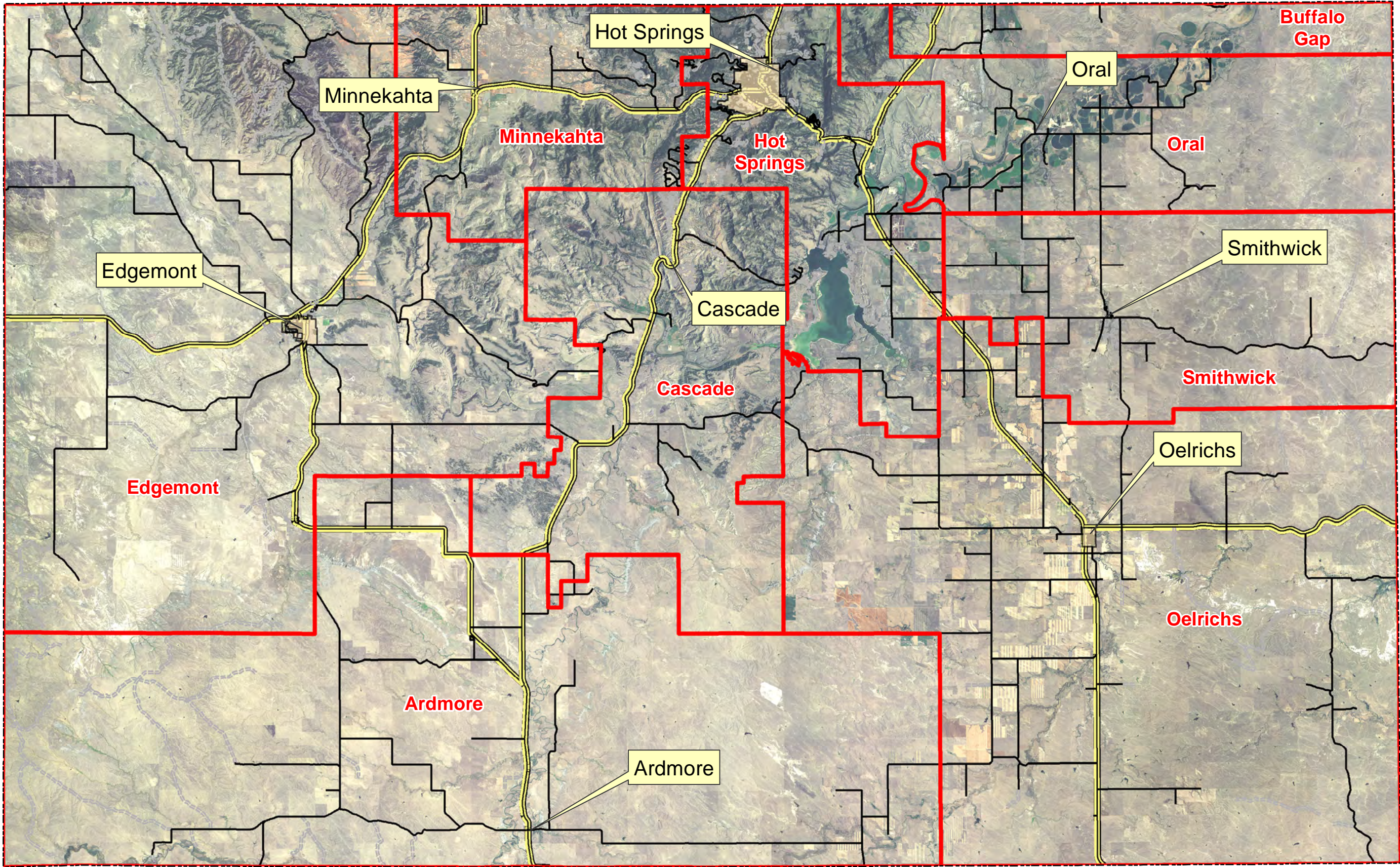
1. The Fall River Draft PDM Plan was sent to the following for review:
  - a. Mike Carter, Custer County Director of Emergency Services
  - b. Monica Terkildsen, OST Interim Emergency Manager
  - c. Alexa White, Pennington County Assistant Emergency Manager
  - d. Angela Sutton, Meade County Emergency Manager
  - e. Bob Evans, Hot Springs Police Chief
  - f. Brent Kolstad, OEM Region 4 Coordinator
  - g. Brian Twombly, Corp of Engineers, Omaha District
  - h. Karen Cain, City of Edgemont
  - i. Dave Cortney, Edgemont School Superintendent
  - j. Danielle Root, Hot Springs School Superintendent
  - k. Denny Gorton, Pennington County Fire Coordinator
  - l. Sue Ganje, Fall River/Shannon County Auditor
  - m. Jacki Conlon, Hot Springs Ambulance
  - n. Jeff Siscoe, Bennett County Emergency Manager
  - o. Jeff Symstad, Cascade Fire Dept. Chief
  - p. Jim Strain, SD Wildland Fire FMO
  - q. Joe Falkenberg, Fall River County Commissioner
  - r. Joel Behlings, Custer Fire Chief
  - s. John Henderson, BHHCS (VA) Facilities Manager
  - t. Ken Hawki, Deadwood Fire Chief
  - u. Kim McIntosh, SD DENR
  - v. Lane Ostenson, Edgemont Fire Chief
  - w. Matt Tschacher, USFS Grassland Fire
  - x. Mike Ortner, Fall River County Commission Chair
  - y. Melissa Smith, NOAA, Rapid City NWS
  - z. Paul Nelsen, Edgemont Ambulance
  - aa. Rich Mraz, Fall River County Sheriff

**bb. Rob Davis, Oelrichs School Superintendent**  
**cc. Rob Lehmann, SD Wildland Fire**  
**dd. Scott Simianer, City of Hot Springs Building Inspector**  
**ee. Susan Sanders, NOAA, Rapid City NWS**  
**ff. Tim Hammel, Minnekahta Fire Chief**  
**gg. Tracy Bastian, City of Hot Springs Engineer**  
**hh. Tim Lamont, Ardmore Fire Chief**  
**ii. Travis Lipp, Bureau of Land Management**  
**jj. Trish Kindt, SD DENR**  
**kk. Larry Osmotherly, Oelrichs Fire Chief & Ambulance Service**  
**ll. John Sides, Smithwick Fire Chief**  
**mm. Mick Jenniges, Bureau of Reclamation, Angustura Irrigation**  
**nn. Dawes County Commission, Chadron, NE**  
**oo. Sious County Commission, Harrison NE**  
**pp. Niobrara County Commission, Lusk WY**  
**qq. Black Hills National Forest, Custer, SD**  
**rr. Buffalo Gap National Grasslands, Hot Springs, SD**  
**ss. US Army Corp of Engineers, Hot Springs, SD**  
**tt. Bureau of Reclamation, Rapid City, SD**  
**uu. SD Dept of Agriculture (WFS) Rapid City, SD**  
**vv. SD Dept. of Agriculture, Pierre, SD**  
**ww. Shannon County Commission**  
**xx. National Park Service, Wind Cave, Hot Springs, SD**  
**yy. Brian Daunt, USFS Grasslands, FMO Hot Springs, SD**  
**zz. Rachelle Christman, Oelrichs Town Board Member**

**Franklin W. Maynard CEM, CFM**  
**Fall River County Emergency Manager**



# Fall River County Geography



**Legend**

- County Roads
- State Highways
- Fall River County
- Corporate Limits
- Fire Districts

Scale = 1:235,000  
7/24/2014

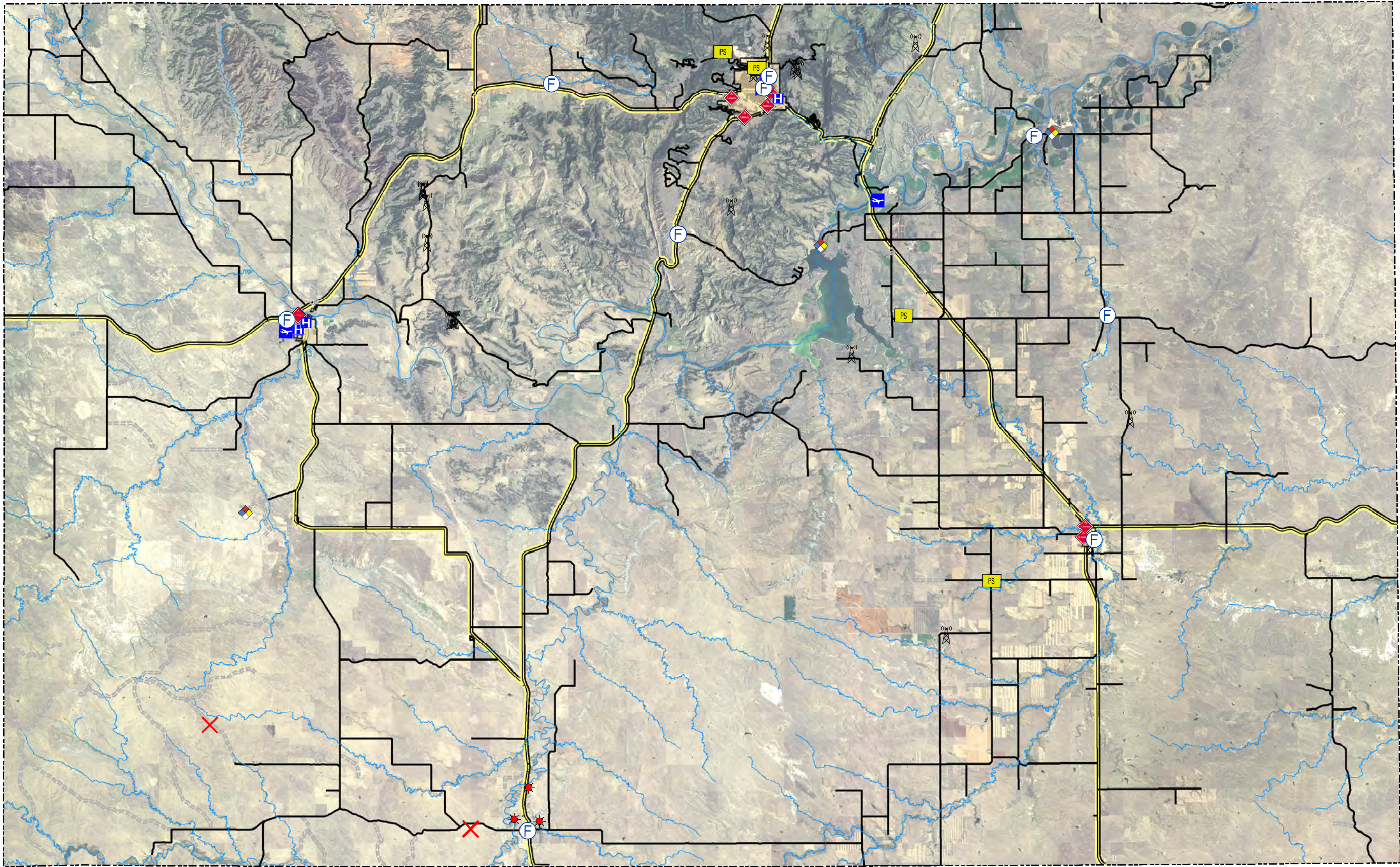


4 Miles





# Fall River County Critical Infrastructure



## Legend

- Airport
- Clinic
- CommsSite
- Substation
- Fire Apparatus
- Fire Dept
- Gas Well
- Hazmat
- Heliport
- Medical
- Open Hole
- Petroleum Storage
- PumpStation
- Streams
- County Roads
- State Highways
- Fall River County
- Corporate Limits

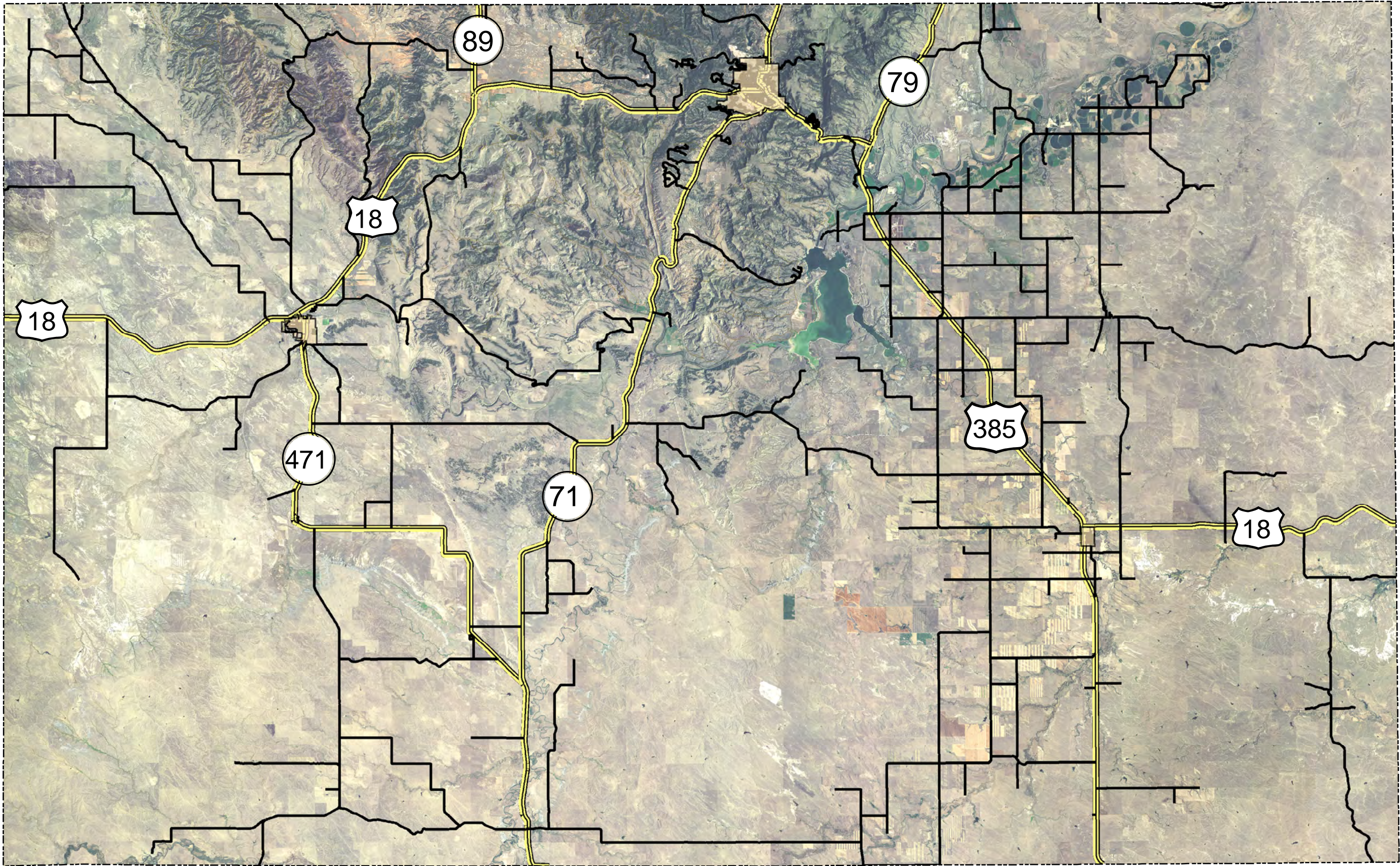
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7/24/2014

4  
Miles





# Fall River County Transportation



## Legend

- Trails
- County Roads
- State Highways
- Fall River County
- Corporate Limits

Scale = 1:235,000  
7/24/2014

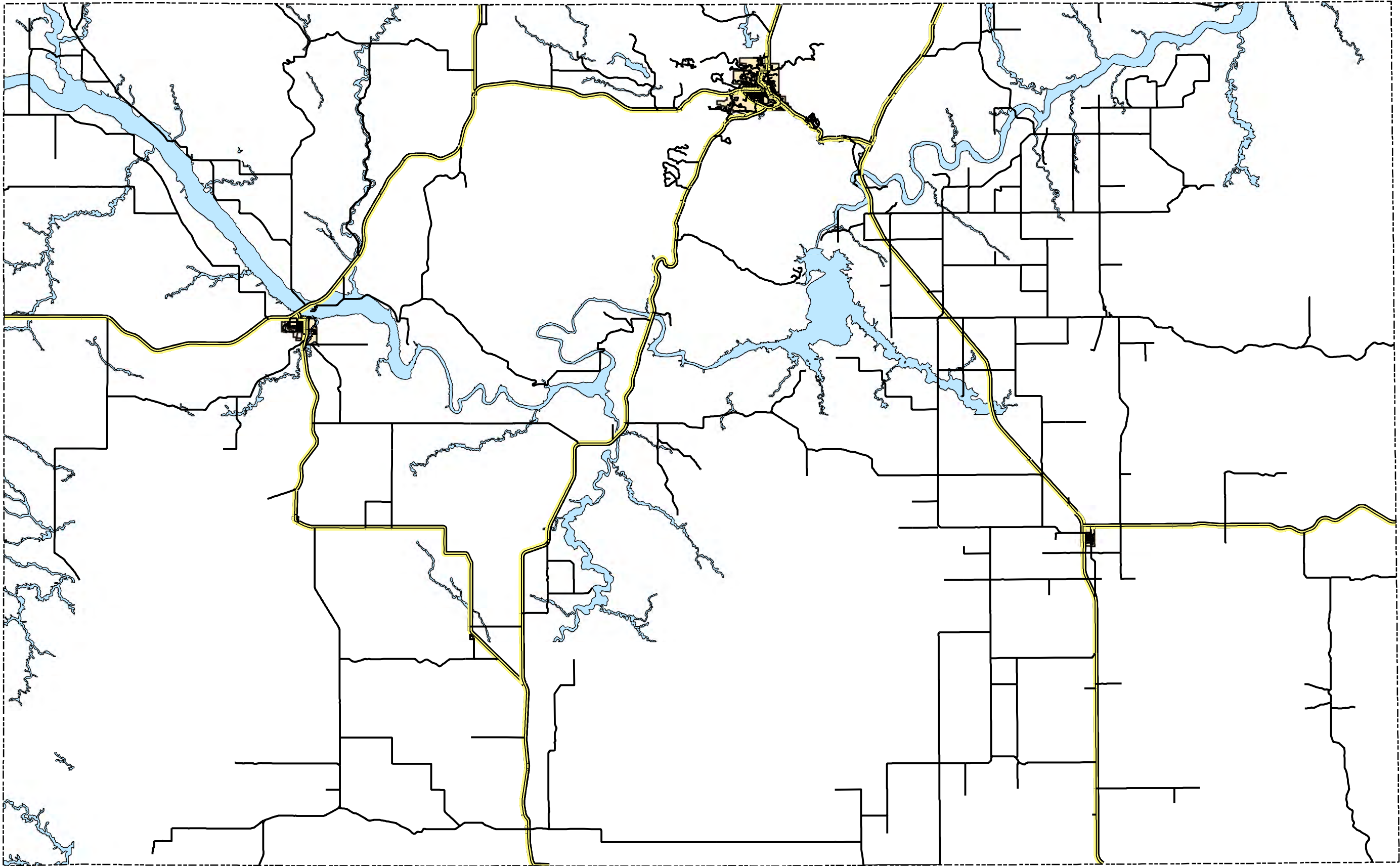


4 Miles





# Fall River County Flood Zones



## Legend

- County Roads
- State Highways
- Fall River County
- Corporate Limits

## FIRM Data 2013

- .2% CHANCE HAZARD
- A ZONE
- AE ZONE

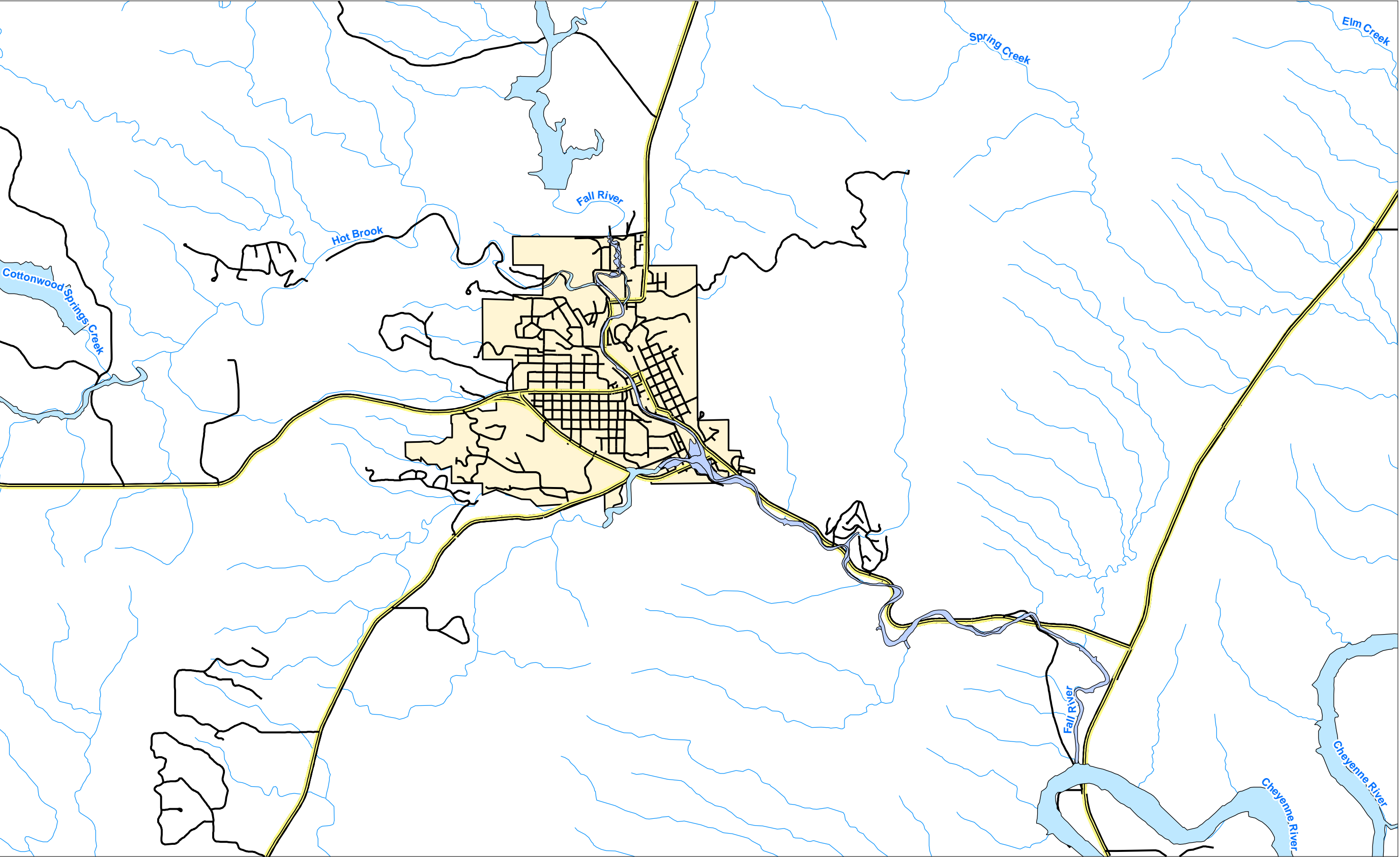
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7/24/2014



4  
Miles



# Hot Springs Flood Zones



## Legend

- Stream
- County Roads
- State Highways
- Fall River County
- Corporate Limits

## FIRM Data 2013

- .2% CHANCE HAZARD
- A ZONE
- AE ZONE

Scale = 1:50,000  
7/24/2014

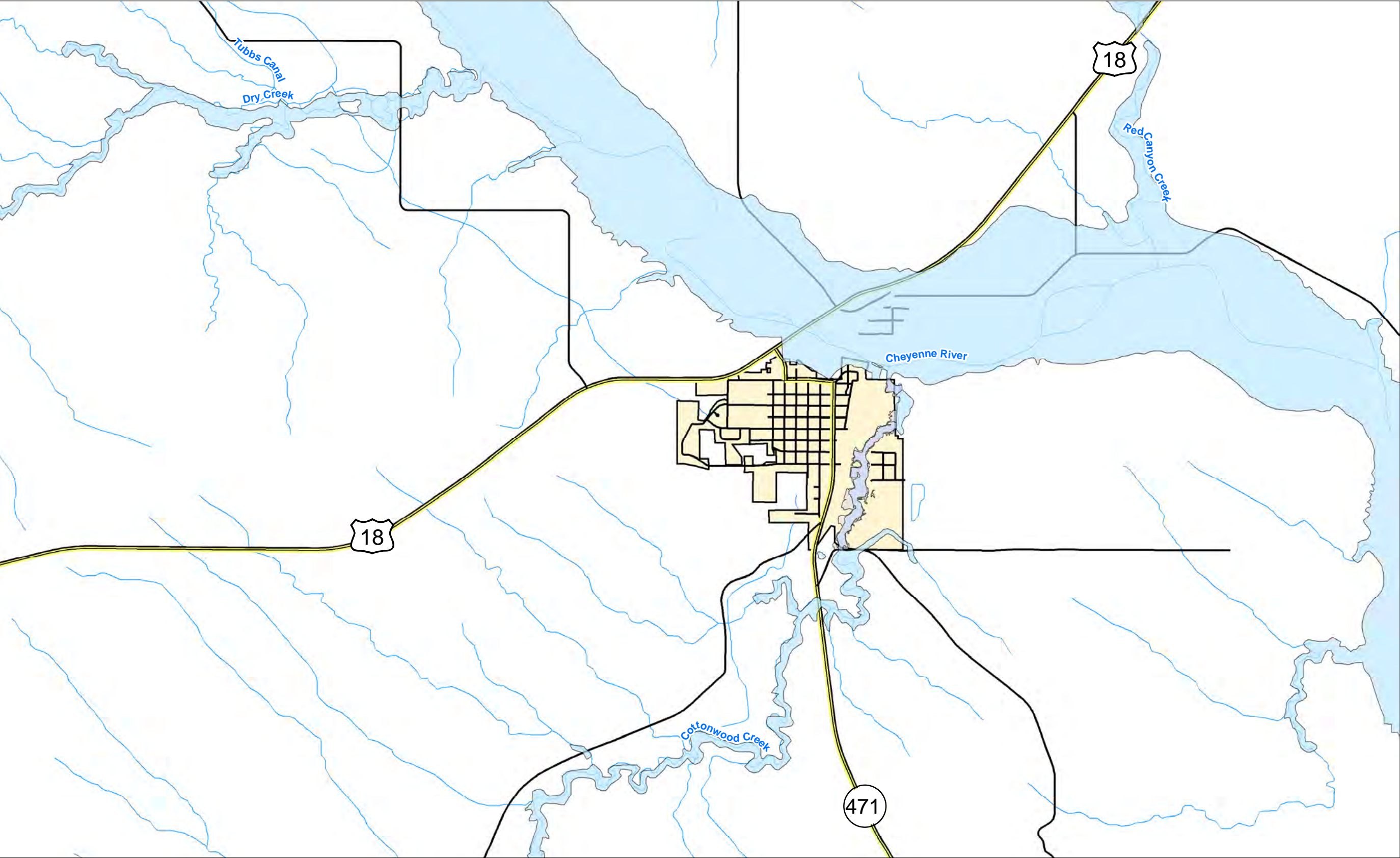


1 Miles





# Edgemont Flood Zones



## Legend

- Stream
- County Roads
- State Highways
- Fall River County
- Corporate Limits

## FIRM Data 2013

- .2% CHANCE HAZARD
- A ZONE
- AE ZONE

Scale = 1:36,634  
7/24/2014

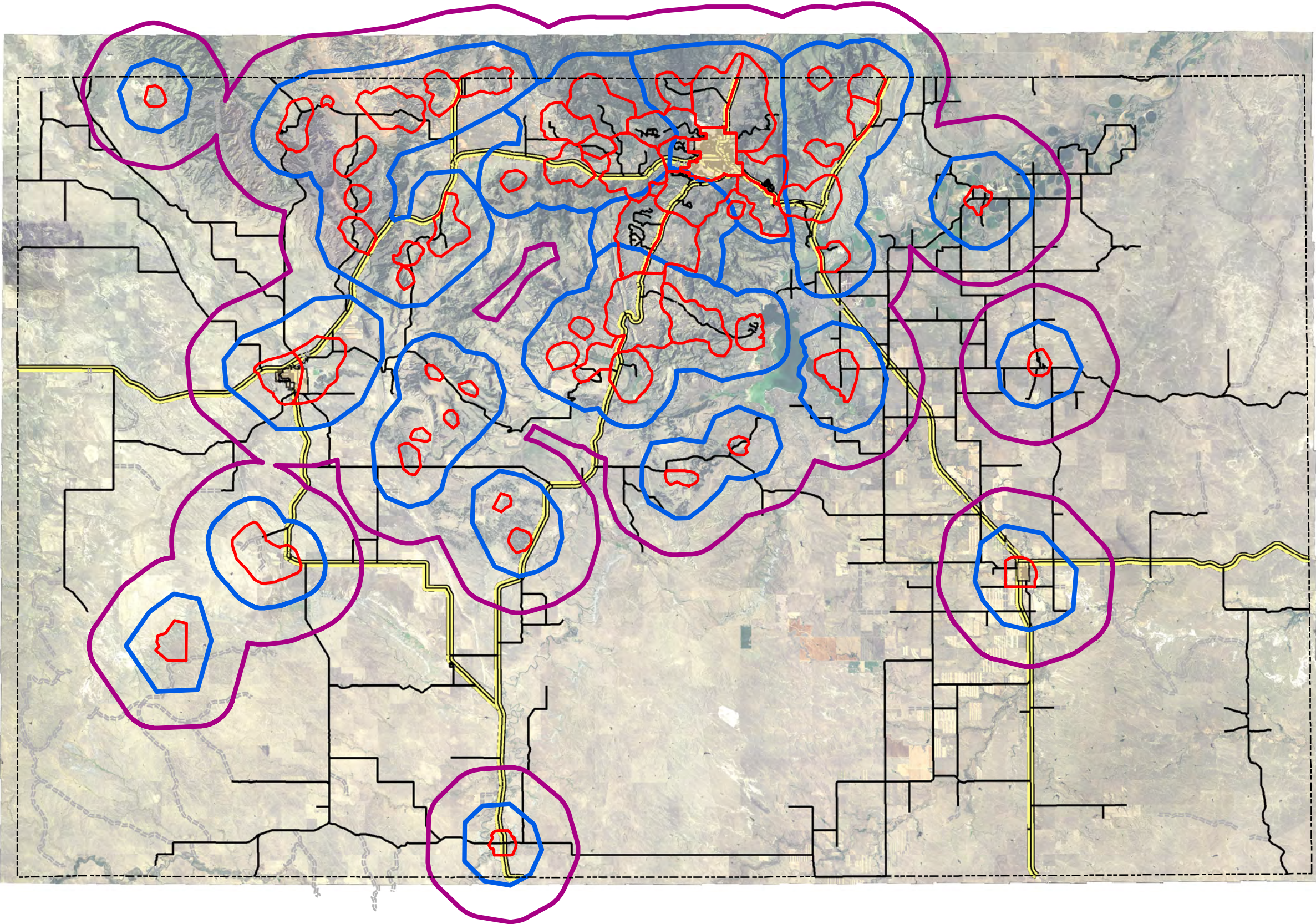


0.5  
Miles





# Fall River County Wildland Urban Interface Zones



**Legend**

- County Roads
- State Highways
- Fall River County
- Corporate Limits

**Wildland Urban Interface Zones**

- 1/2 Mile WUI
- 1 1/2 Mile WUI
- 3 Mile WUI

Scale = 1:277,793  
7/24/2014



5 Miles

