

South Dakota



South Dakota State Hazard Mitigation Plan

Summary of 2010 Updates for Public Comment*
September, 2010



*Please participate in the online survey at:
<http://www.surveymonkey.com/s/SDOEM>

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Mission Statement



The mission of the State Hazard Mitigation Plan is:

To reduce the impacts to life and property from hazards through a long term sustainable statewide mitigation strategy while maintaining economic vitality.



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Purpose Statement

The purpose of the State of South Dakota Multi-Hazard Mitigation Plan is:

- To guide South Dakota's mitigation program to reduce the impact of or eliminate destructive effects of significant hazards to the state e.g., threats to life and property.
- To serve as a public and private sector reference document and management tool for mitigation activities throughout South Dakota.
- To meet the state planning requirements of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended by Public Law 106-390, October 30, 2000 UNITED STATES CODE Title 42. THE PUBLIC HEALTH AND WELFARE CHAPTER 68. DISASTER RELIEF [As amended by Pub. L. 103-181, Pub. L. 103-337, and Pub. L. 106-390] (Pub. L. 106-390, October 30, 2000, 114 Stat. 15521575) hereafter referred to as the Disaster Mitigation Act of 2000 (DMA 2000).

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SHMP Goals



Goal 1: Reduce injuries and loss of life from natural hazards

- Objective 1.1: Reduce the number of injuries/fatalities by severe weather related hazards



Goal 2: Reduce damage to existing and future structures within hazard areas

- Objective 2.1: Reduce the number of repetitive and non-repetitive loss structures
- Objective 2.2: Reduce the number of structures lost by wildfires
- Objective 2.3: Reduce the number of structures within the Special Flood Hazard Area
- Objective 2.4: Reduce the number of structures/infrastructure at risk to geologic hazards



Goal 3: Reduce the losses to critical facilities, utilities, and infrastructure from natural hazards

- Objective 3.1: Reduce the number of power outages
- Objective 3.2: Reduce negative impacts to water supply and sewage treatment systems
- Objective 3.3: Improve reliability of communications during/following hazard events



Goal 4: Reduce impacts to the economy, the environment, and cultural resources from hazards

- Objective 4.1: Reduce loss to environment and cultural resources
- Objective 4.2: Reduce agricultural losses



Goal 5: Support and assist local/tribal mitigation capabilities and efforts

- Objective 5.1: Encourage locals to participate in reducing impacts of incidents



State Risk Assessment

- The Risk Assessment serves as a foundation for identifying mitigation actions to help South Dakota increase resiliency.
- Components of the Risk Assessment:
 - Hazard Identification
 - Hazard Profiles
 - Vulnerability Analyses



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Identified Hazards & Prioritization



Hazard Type and Ranking		Planning Consideration Based on Hazard Level
1	Flooding (flash, long-rain, snowmelt, and dam failure or levee failure floods)	Significant
1	Winter Storms	Significant
2	Wildfires	Significant
3	Drought	Significant
4	Tornadoes	Significant
5	Wind	Moderate
6	Agricultural Pests and Diseases	Moderate
7	Hazardous Materials	Moderate
8	Geological Hazards (Landslides, Mudflows, Expansive Soils, Subsidence, and Earthquakes)	Moderate





Flood Types



Flash flood is the result of several inches or more of rain falling in a very short period of time, often tens of minutes.



Long-rain flood results after several days or even weeks of fairly low-intensity rainfall over a widespread area, often hundreds of square miles.



Snow melt causes flooding in the spring which lasts for several days.



Levee or dam failures could cause flooding.



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Areas of Flood Concern

- The Black Hills are especially vulnerable to flash floods, where steep terrain and narrow canyons can funnel heavy rain into small creeks and dry ravines, turning them into raging walls of water.
- There are several levees along the James River in Spink and Brown counties that are not USACE certified and are frequently overtopped.





Probability of Flood Occurrence



Floods have a one percent chance of occurrence in any given year in identified special flood hazard areas. Smaller and more frequent damaging events occur in the state on an annual basis. Floods result in \$16.2 million per year in average annualized losses to the state.



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Vulnerability to Flood

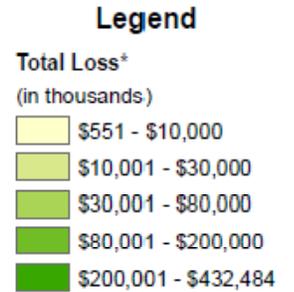
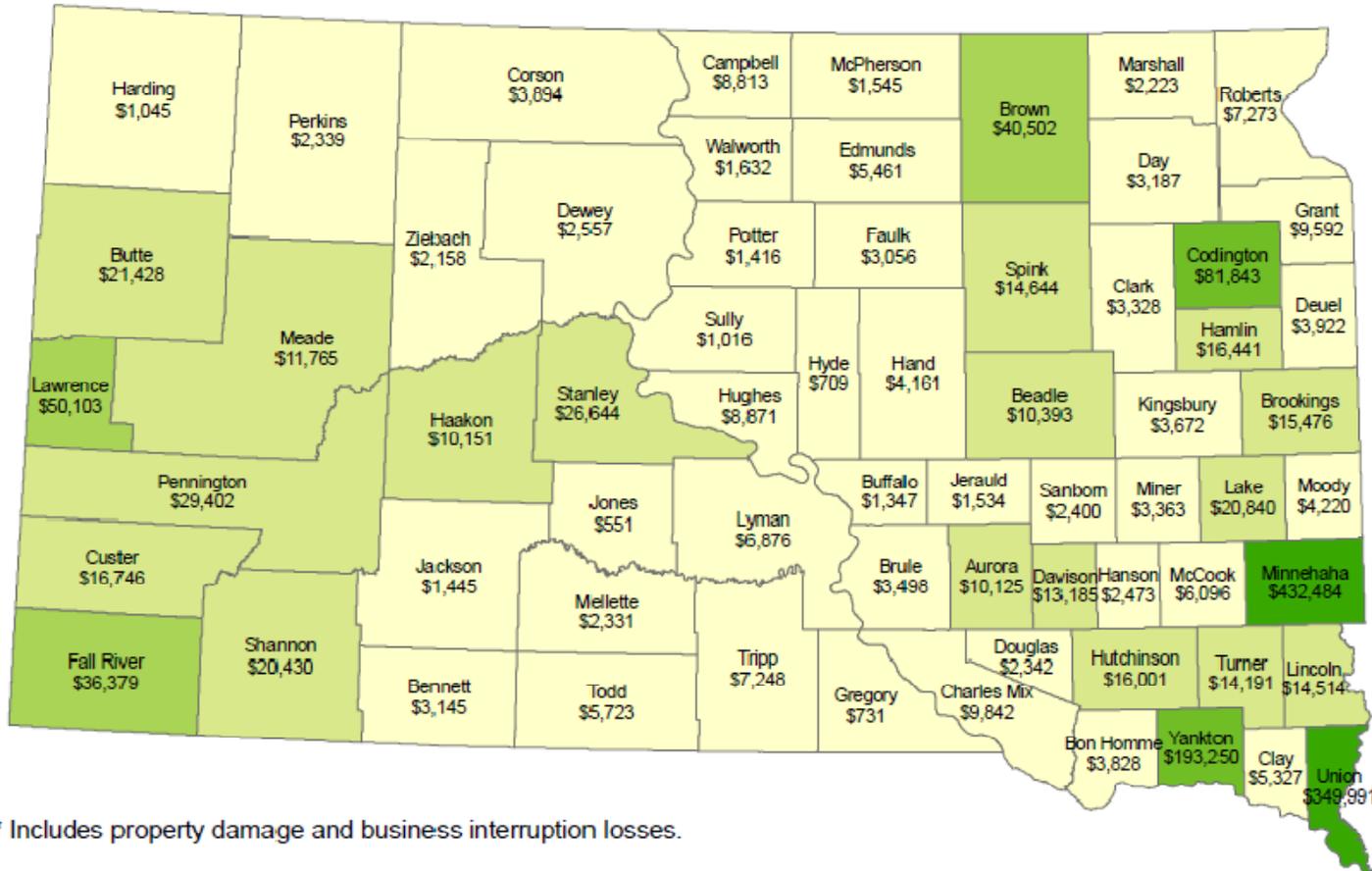


Potential losses are highest in Minnehaha, Union, Yankton, Pennington, Codington, Lawrence and Brown counties. Floods in these counties have the potential to displace at least a thousand persons in each county. Statewide there is the potential for \$1.7 Billion in flood losses from one occurrence of a 1% annual chance flood.



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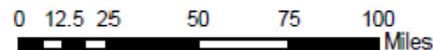
Vulnerability to Flood (continued)



HAZUS-MH
Base Flood
(1% chance)
Building and
Income Loss
Estimation
by County

* Includes property damage and business interruption losses.

Source: HAZUS-MH MR4
Map Compilation: AMEC 4/15/10



Repetitive Losses

- The NFIP defines a repetitive loss property as “any insurable building for which two or more claims of more than \$1,000 were paid by the NFIP within any rolling 10-year period...”
- These structures strain the National Flood Insurance Fund.
- Codington, Day, and Hamlin counties have the most repetitive loss properties.

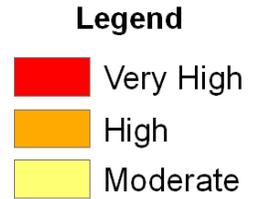
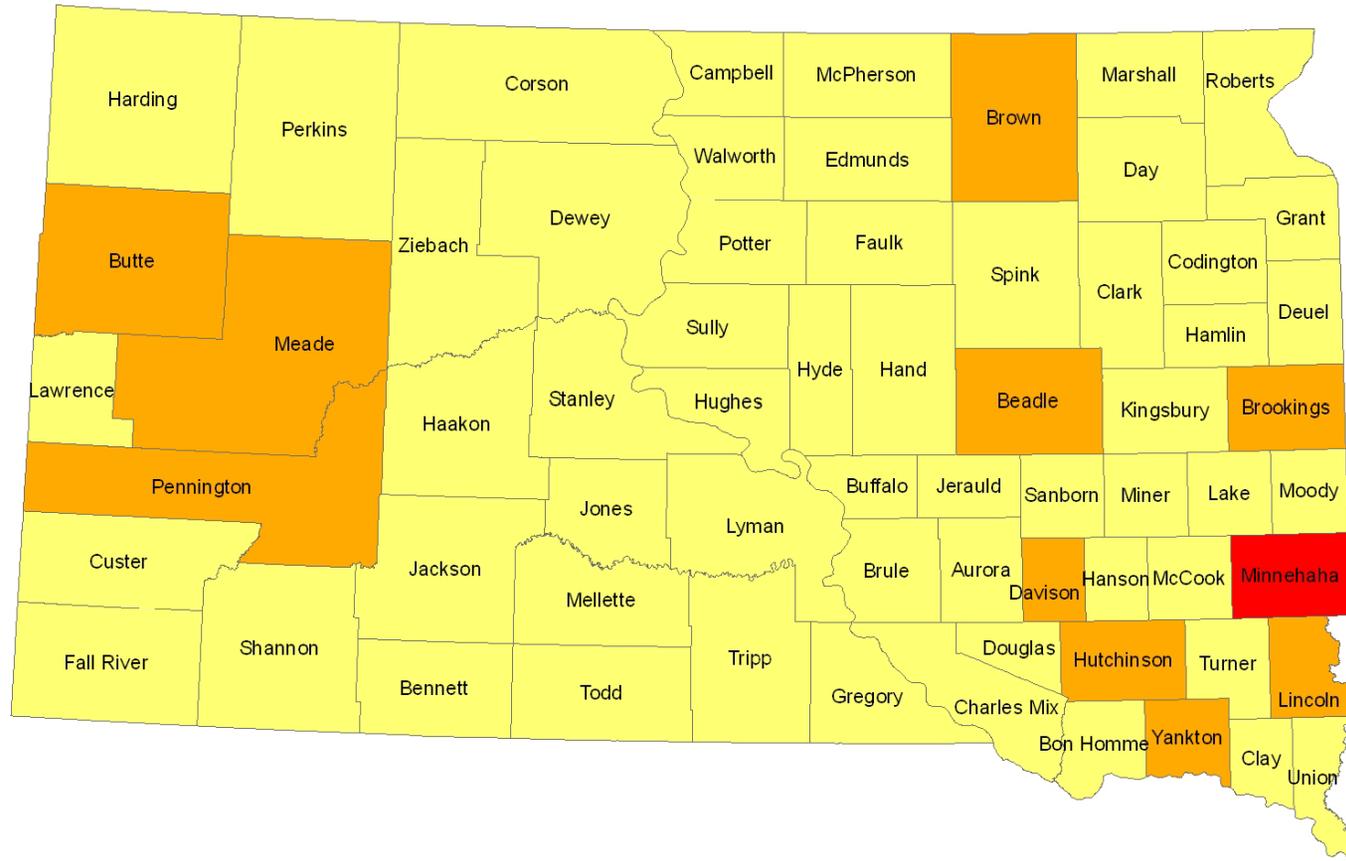
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Probability of Winter Storm Occurrence

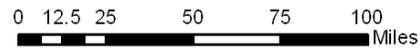
- According to the National Climatic Data Center, there were 867 winter storm events in South Dakota between 1993 and April 2010 (17 years).
- Total property damage for these events is estimated at \$212 million in 2009 dollars. Based on this information, the probability that at least one winter storm will occur in South Dakota in any given year is 100percent.
- South Dakota can expect approximately \$12.5 million in winter storm losses each year.

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Vulnerability to Winter



Source: NCDC
Map Compilation: AMEC 2/10/10



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Wildfire



- Recent years of drought along with extremely low percentages of normal snowpack in the Black Hills has created the potential for catastrophic wildfires in South Dakota. Compounding this situation is the impact of the mountain pine beetle on pine trees in South Dakota.
- South Dakota's semi-arid climate, highly flammable native vegetation, rugged terrain, and populated wildland-urban interface make up its wildfire hazard.

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Areas of Wildfire Concern



- Grass and forestland areas west of the Missouri River
- Black Hills



Black Hills Fire Occurrence for 24 years, 1977 – 2000

Total number of fires	3,971
Total acres burned	679,293
Average number of fires per year in the :	166
Average acres burned per year in the	28,304
Lightning-caused	398 fires (35 percent)
Human-caused	2,573 fires (65 percent)



Source: South Dakota Department of Agriculture Division of Resource Conservation and Forestry

Wildfires have a 100 percent chance of occurrence somewhere within the state from early spring to late fall every year.





Source: HAZUS-MH

Vulnerability to Wildfire



County	Total Building Count in High and Moderate Risk Zone	Total Building Value Exposure in High and Moderate Risk Zone (\$)
Pennington	25,087	3,702,856,000
Lawrence	5,628	872,710,000
Meade	6,609	825,389,000
Fall River	2,005	250,029,000
Butte	1,833	224,877,000
Custer	1,699	208,101,000
Shannon	1,130	92,465,000

Source: HAZUS-MH





Drought



According to the National Weather Service, “Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people. It is a normal, recurrent feature of climate that occurs in virtually all climate zones, from very wet to very dry. Human factors, such as water demand and water management, can exacerbate the impact that drought has on a region.”

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Areas of Drought Concern

- Drought in the eastern part of the state is largely an issue for row crops.
- Water availability in Sioux Falls, and other areas that get their water from the Big Sioux River, is becoming an issue as population grows.
- In the west, the concern is the need for water for people and rangeland.
- Rapid City, in the Black Hills, is experiencing water availability issues related to growth that is exacerbated by years of below average rain and snowfall.

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Probability of Drought Occurrence

- Based on the tree ring research, which spans a period of roughly 400 years, multi-year droughts as significant as the 1930's drought or worse occur on average every 57 years.
- Based on historical records (10 in the past 118 years, counting the 2003-2007 dry spell and other multi-year events as one event) notable droughts have occurred somewhere in the state on average about every 12 years.
- Inadequate data on past impacts exists to calculate average annual losses, but it is assumed to be in the millions of dollars.

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Vulnerability to Drought



Drought takes a particularly heavy toll on agriculture due to crop losses from lack of moisture. Farmers often protect themselves from the affects of drought by insuring all or a portion of their crop against drought losses. Many counties are also susceptible to social impacts related to recreational areas such as the “Great Lakes” Missouri River corridor and Black Hills Regions which could suffer from lowered lakes levels impacting boating and fishing activities and associated revenue.

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Tornado



The National Oceanic and Atmospheric Administration (NOAA) defines a tornado as a violently rotating column of air extending from a thunderstorm to the ground.



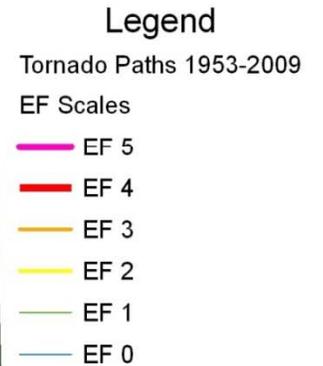
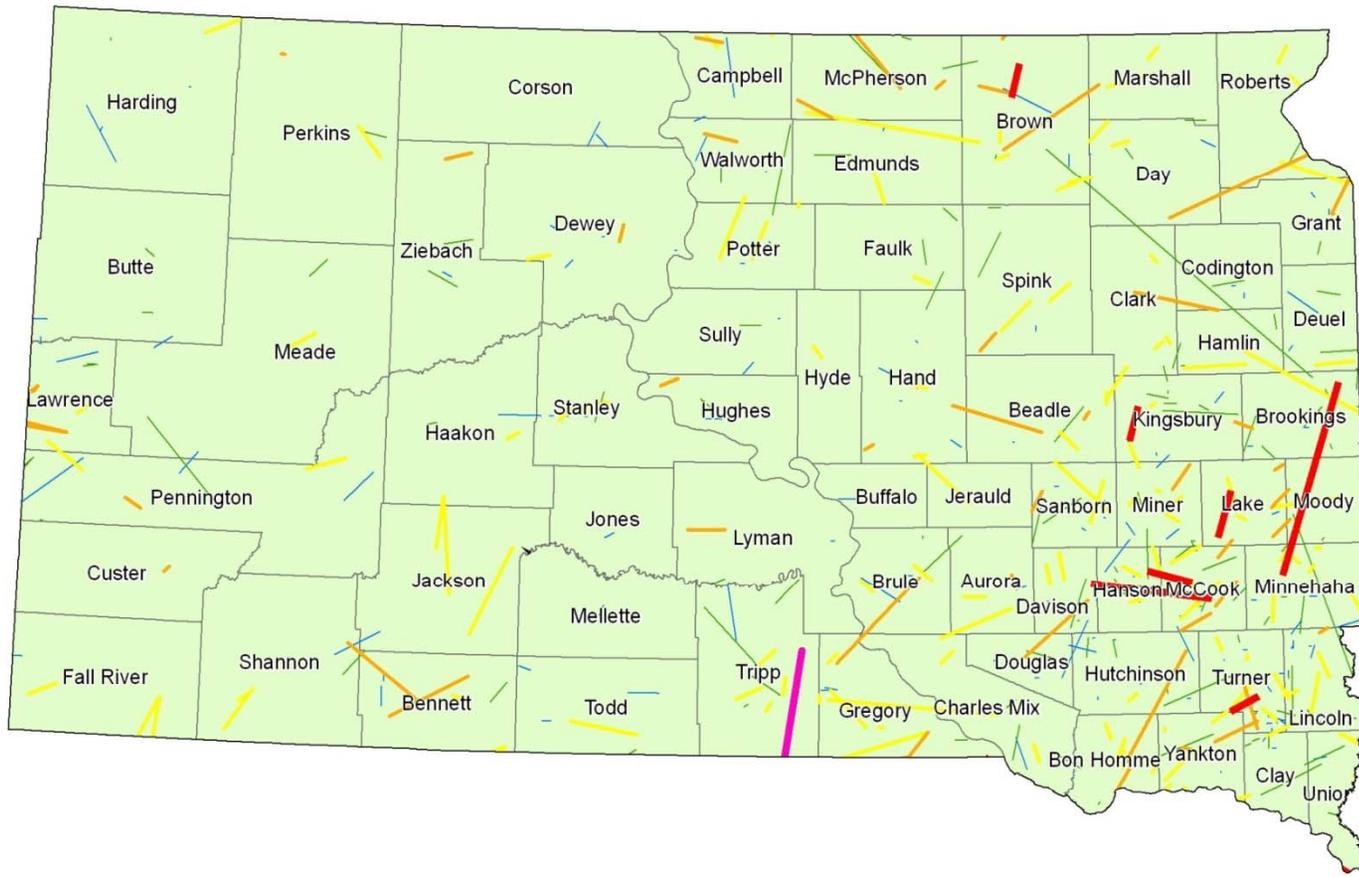
Enhanced Fujita (EF) Scale	Enhanced Fujita Scale Wind Estimate (mph)
EF0	65-85
EF1	86-110
EF2	111-135
EF3	136-165
EF4	166-200
EF5	Over 200



Source: National Oceanic and Atmospheric Administration Storm Prediction Center, www.spc.noaa.gov/faq/tornado/ef-scale.html



Tornado Paths 1953 - 2009



Source: NOAA's National Weather Center
Map Compilation: AMEC 7/1/10



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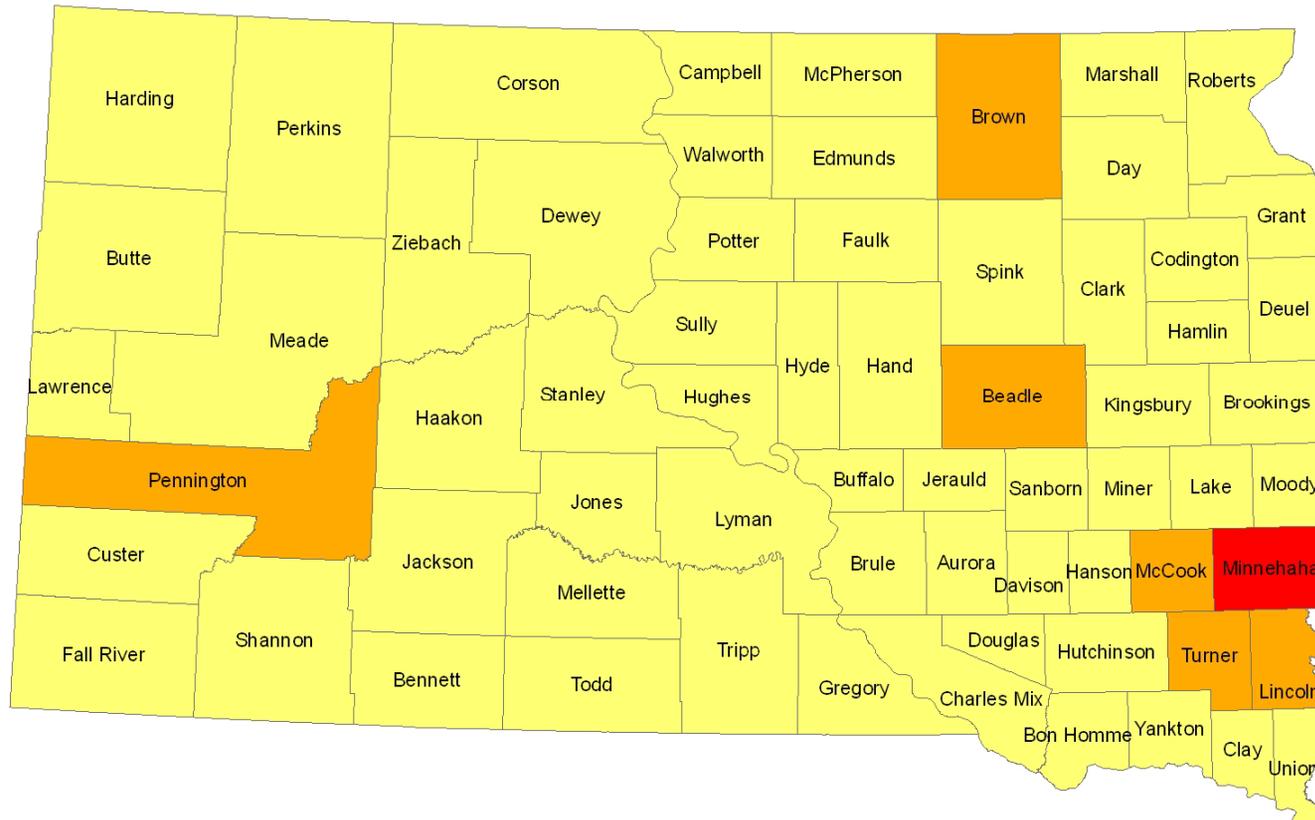
Probability of Tornado Occurrence

- According to the National Climatic Data Center, there were 1,592 tornadoes, of which 609 were F1 or higher, in South Dakota between 1950 and 2010 (61 years).
- Based on this information, the probability that at least one tornado will occur in South Dakota in any given year is 100 percent.
- Annualized losses are estimated at \$3.9 million.



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Vulnerability to Tornadoes



Legend

- Very High
- High
- Moderate

Source: NCDC
Map Compilation: AMEC 2/10/10

0 12.5 25 50 75 100 Miles



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Windstorm



- Straight-line winds are generally any thunderstorm wind that is not associated with rotation. One type of straight-line wind is the downburst, which can cause damage equivalent to a strong tornado and can be extremely dangerous to aviation.
- Thunderstorms over the Northern Plains typically happen between late April and early September, but, given the right conditions, they can develop as early as March. They are usually produced by supercell thunderstorms or a line of thunderstorms that typically develop on hot and humid days.

Wind Zones in the United States

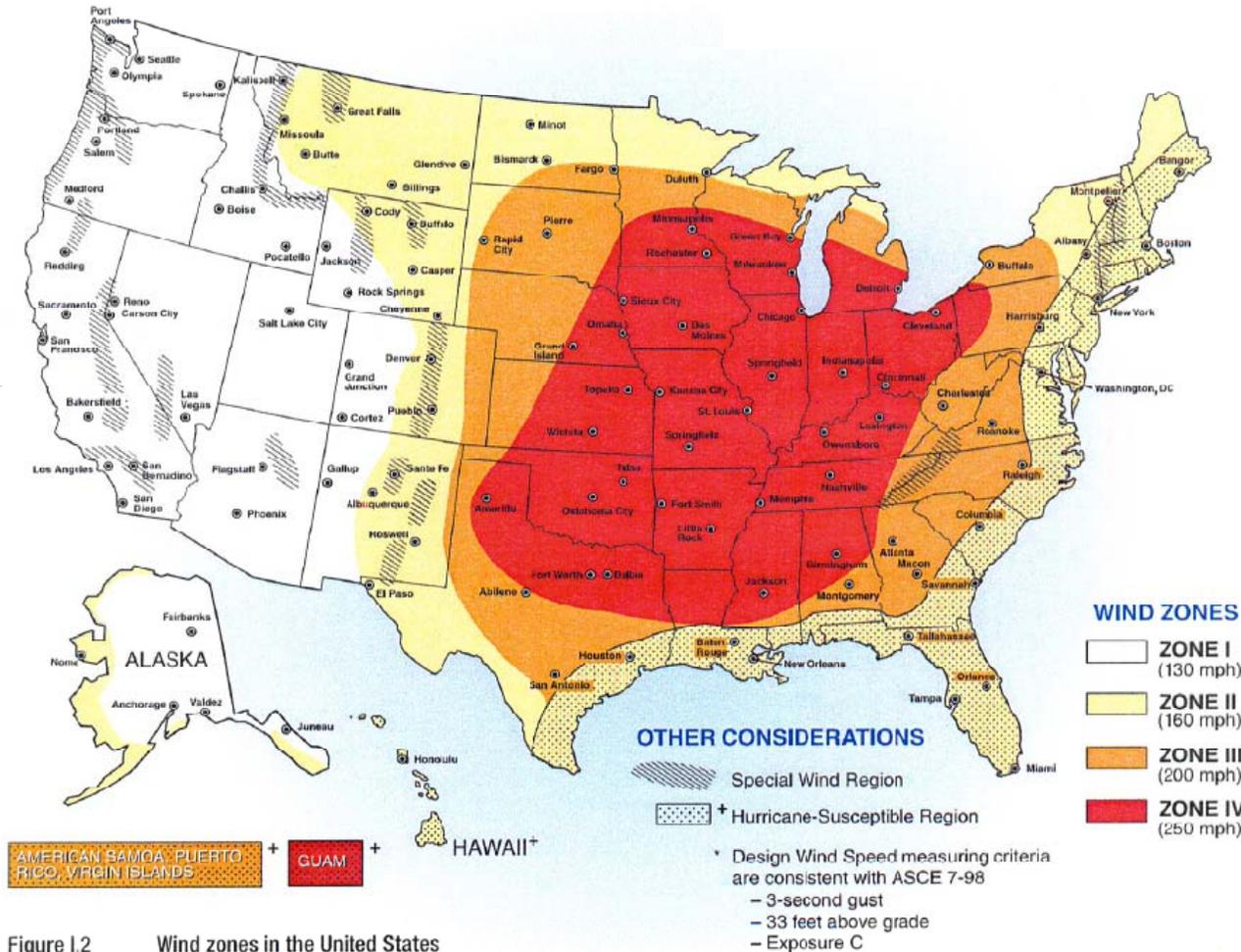


Figure I.2 Wind zones in the United States



Probability of Wind Storm Occurrence

- According to the National Climatic Data Center, there were 5,675 wind events (excluding events from October through March 31 and those associated with snow, see event description above) in South Dakota between 1950 and April 2010 (60 years).
- Based on this information, the probability that at least one wind event will occur in South Dakota in any given year is 100 percent.
- Annualized losses are estimated at \$5.8 million.

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Agricultural Pests & Diseases



Defined as the naturally occurring infection of crops or livestock with insects, vermin, or diseases that render the crops or livestock unfit for consumption, sale or other use.



Events of Concern:

- Weeds that infest fields
- Rodent infestations
- Insect plagues (grasshopper control practices in effect)



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Probability of Agricultural Pest & Disease Occurrence



To some extent, the probability of these events is guaranteed on an annual basis, particularly when evaluated on a statewide scale. The determination of probability becomes most valuable when areas of particular occurrence rates, or when events of unusual severity, are recorded.



Many times, extreme events are documented concurrently with other hazard event occurrences, such as the outbreak of high anthrax levels in 2005, which was attributed to drought, the grasshopper plagues of the 1930s, also attributed to drought, or the recurrence of certain crop molds which correspond to unusually wet growing periods.



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Hazardous Materials

- A hazardous materials incident can occur during production, storage, transportation, use, or disposal of material.
- South Dakota's Codified Law Chapter 33-15 Emergency Management defines "hazardous material" as "any material, including but not limited to, explosives, flammable liquids, flammable compressed gas, flammable solids, oxidizing materials, poisons, corrosive materials, and radiological materials, the loss of control or mishandling of which could cause personal injury or death to humans or damage to property or the environment."



Areas of Hazardous Materials Incident Concern

- Localities where hazardous materials are fabricated, processed, and stored.
- Localities where hazardous waste is treated, stored, and disposed of.
- Localities along transportation corridors that carry these materials to their final destinations



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Probability of Hazardous Materials Incident Occurrence

- According to the U.S. Department of Transportation's Hazardous Materials Information System, there were 709 transportation incidents involving hazardous materials in South Dakota between 1971 and 2010 (40 years).
- According to the U.S. Department of Transportation's Office of Pipeline Safety, there were 39 pipeline incidents in South Dakota between 1983 and 2010 (28 years).
- According to the U.S. Environmental Protection Agency's Toxic Resource Inventory, 7 million pounds of hazardous materials were disposed of or released in South Dakota in 2008.
- The probability of a hazardous materials incident occurring within the state in any given year is 100%

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Vulnerability to Hazardous Materials

- More than half of the historic transportation incidents occurred in Minnehaha and Pennington counties. These counties are trailed by Lincoln, Brown, and Codington in terms of numbers of incidents.
- The top ten counties with the most transmission lines (vulnerable to pipeline incidents) are Lincoln, Minnehaha, Brown, Spink, Butte, Union, Clark, Harding, Deuel, and Hutchinson.

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Geologic Hazards



- Landslides are typically associated with periods of heavy rainfall or rapid snow melt and tend to worsen the effects of flooding that often accompanies these events. In areas burned by forest and brush fires, a lower threshold of precipitation may initiate landslides.
- Mudflows (or debris flows) are rivers of rock, earth, and other debris saturated with water.
- Land subsidence is the sinking of the land over manmade or natural underground voids.

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Geologic Hazards (expansive soils)

- Expansive soils contain minerals such as smectite clays that are capable of absorbing water. Expansions of ten percent or more are not uncommon.
- Cracked foundations, floors and basement walls are typical types of damage done by swelling soils.
- Expansive soils will also shrink when they dry out. This shrinkage can remove support from buildings or other structures and result in damaging subsidence.



Areas of Geologic Concern

- Existing old landslides, the bases of steep slopes, the bases of drainage channels, and developed hillsides where leach-field septic systems are used are susceptible to future landslides.
- Most of the state is underlain with soils of high swelling potential.
- The Niobrara Formation in southeastern South Dakota presents risk to subsidence



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Probability of Geologic Hazard Occurrence



Although historical landslide / mudflow / subsidence / expansive 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, but in limited areas of the state.



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Earthquake



- A zone of higher earthquake frequency extends from the northeastern corner of the state and a generally higher frequency of earthquakes is recorded along the eastern flank of the Black Hills and in the southwestern corner of the state.
- No major earthquakes have been reported in South Dakota since 1967.
- The U.S. Geological Survey estimates only a 10 percent chance of exceeding a 5.1 magnitude in any one 50-year period.

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Vulnerability to Earthquake

- The results of an HAZUS-MH annualized earthquake loss scenario indicate annualized building losses (includes building structure, content and income losses) totaling \$440,000. The counties with the highest building losses are Pennington (\$110,000), Minnehaha (\$59,000), and Lawrence (\$26,000), with the remaining counties having \$18,000 or less in annualized loss. 420 households could be displaced by earthquakes according to this scenario.



Vulnerability Summary

In general, counties with growing populations and number of housing units have an increased vulnerability to hazards not defined by specific geographic areas. These hazards may include winter storms, tornadoes, wind, drought and earthquake. With the exception of Shannon and Todd, which do not have flood maps, the counties experiencing the most development pressures all participate in the National Flood Insurance Program. Rapid City, in Pennington County, is in the Community Rating System. This suggests that flood risk should not be increasing, assuming that county floodplain ordinances are being effectively implemented and wise use of floodplains encouraged. Union County is one of the fastest growing counties and also has potential for high flood losses as described in the flood vulnerability section.

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Vulnerability Summary (continued)

Growth and development trends and their impact on vulnerability were noted during stakeholder meetings held in conjunction with the 2007 update to the plan. In Charles Mix County, lodges are being built with potential risk to wildfire. New development amongst trees in Minnehaha County east of Sioux Falls are demanding city services for fire protection. New housing being built near Mitchell Lake and in North Lincoln County could also be at risk to wildfire. Costs of homes in forested areas in southwestern South Dakota are rising, thus the exposure analysis conducted for this plan is likely to underestimate the property values exposed to wildfire risk. New homes being built in Meade and other Counties increase the exposure to damage from tornados.

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Future Vulnerability



Pennington and Codington counties identified population growth and construction of new homes in their local plans. Lincoln experienced the greatest population gain from 2000 – 2008 of all the counties in South Dakota. Brookings, Butte, Davison, Hanson, Lake, Minnehaha, Custer, Meade, Shannon, Todd and Yankton Counties all experienced population growth between 2000 and 2008. Campbell experienced the greatest population loss from 2000 – 2008. These growth and development trends must be taken into consideration when reviewing the vulnerability results. As population and development growth continues, vulnerability to hazards increases.

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Rural Electric Cooperative Vulnerabilities



Rural Electric Cooperative	County	Winter Storm Vulnerability	Wind Storm Vulnerability	Tornado Vulnerability
Black Hills Electric Cooperative, Inc	Pennington	High	High	High
Black Hills Power & Light Co		High	-	-
Black Hills Power & Light Co	Meade	High	High	-
Black Hills Power & Light Co	Pennington	High	High	High
Bon Homme-Yankton Electric Association, Inc	Yankton	High	-	-
Butte Electric Cooperative, Inc.		High	-	-
Butte Electric Cooperative, Inc.	Meade	High	High	-
Central Electric Cooperative Inc.	Davison	High	-	-
Clay-Union Electric Corporation		High	-	High
Clay-Union Electric Corporation	Yankton	High	-	-
Clay-Union Electric Corporation	Turner	-	-	High
Dakota Energy Cooperative Inc.	Beadle	High	-	High
Grand Electric Cooperative, Inc.		High	-	-
Grand Electric Cooperative, Inc.	Meade	High	High	-
H-D Electric Cooperative, Inc	Brookings	High	-	-
Kingsbury Electric Cooperative, Inc	Brookings	High	-	-
Lake Region Electric Association, Inc.	Brown	High	High	High
MidAmerican Energy		High	-	High
Montana-Dakota Utilities Co	Brown	High	High	High
Northern Electric Cooperative Inc.	Brown	High	High	High
Northwestern Energy	Beadle	High	-	High



Rural Electric Cooperative Vulnerabilities

(continued from previous slide)

Rural Electric Cooperative	County	Winter Storm Vulnerability	Wind Storm Vulnerability	Tornado Vulnerability
Northwestern Energy	Brown	High	High	High
Northwestern Energy	Davison	High	-	-
Northwestern Energy		High	-	-
Northwestern Energy	Yankton	High	-	-
Otter Tail Power Co	Brookings	High	-	-
Municipal Electric and Xcel Energy	Minnehaha	Very High	Very High	Very High
Energy	Brookings	High	-	-
Energy	Minnehaha	Very High	Very High	Very High
Southeastern Electric Cooperative, Inc		High	-	-
Southeastern Electric Cooperative, Inc		High	-	High
Southeastern Electric Cooperative, Inc	Minnehaha	Very High	Very High	Very High
Southeastern Electric Cooperative, Inc	Yankton	High	-	-
Southeastern Electric Cooperative, Inc	McCook	-	-	High
Southeastern Electric Cooperative, Inc	Turner	-	-	High
West River Electric Association , Inc.	Meade	High	High	-
West River Electric Association , Inc.	Pennington	High	High	High
XCEL Energy		High	-	-
XCEL Energy		High	-	High
XCEL Energy	Minnehaha	Very High	Very High	Very High
XCEL Energy	McCook	-	-	High
XCEL Energy	Turner	-	-	High



Mitigation Actions



Problem Statement	There are an insufficient number of existing shelters in hazardous areas.
Description	Action 1.1A – Hardened Shelters – Support the construction of additional hardened shelters throughout the State through local project applications.
Potential Funding Sources	HMGP, CDBG, and local funding, private funding
Responsible Department	DPS, GF&P, local gov't., and private citizens
Target Completion Date	Next Plan Update – 2011 and On-going
January 2010 – Status Report	Submitted one project for funding under FFY 2010. Awaiting the status of funding.

Problem Statement	Many communities throughout the state have inadequate existing warning systems.
Description	Action 1.1B – Warning Sirens – Support the installation of warning sirens through local project applications.
Potential Funding Sources	HMGP, CDBG, EMPG, local funding, and SHSGP
Responsible Department	DPS, OEM, local gov't., and private businesses
Target Completion Date	Next Plan Update – 2011 and On-going
January 2010 – Status Report	Completed numerous outdoor warning projects through EMPG and SHSGP funds.



Mitigation Actions



Problem Statement	Many communities throughout the state have inadequate existing warning systems.
Description	Action 1.1C – Weather Radios – Support the installation of weather radios through local project applications.
Potential Funding Sources	HMGP, EMPG, local funding and private funding
Responsible Department	DPS, local gov't., and private citizens
Target Completion Date	Next Plan Update – 2011 and On-going
January 2010 – Status Report	Weather Service & TV Stations promote purchase of weather radios.

Problem Statement	Many communities do not mandate or enforce zoning requirements. As a result, tie downs for mobile homes are commonly installed improperly.
Description	Action 1.1D – Install tie downs on mobile homes – Support the proper installation of tie downs on mobile homes through local project applications.
Potential Funding Sources	CDBG, HMGP, FMA, FHA, private citizens
Responsible Department	HUD, DPS, GOED, and private citizens
Target Completion Date	Next Plan Update – 2011 and On-going
January 2010 – Status Report	South Dakota Housing Authority requires all mobile homes to be inspected for tie-downs. Implemented in 2009. (Insurance companies offer discount for tied-down homes, but is not a requirement). Tie-downs discussed in NFIP outreach material.



Mitigation Actions



Problem Statement	No requirements or zoning exists for safe rooms.
Description	Action 1.1E – Private safe room installations – Support and encourage installation of safe rooms in private homes through public outreach efforts.
Potential Funding Sources	CDBG, HMGP, PDM, FMA, private citizens and local gov't. funding
Responsible Department	DPS, HUD, local gov't. and private citizens
Target Completion Date	Next Plan Update – 2011 and On-going
January 2010 – Status Report	Outreach at State fair regarding preparedness. B Ready campaign by SDOEM, Dept of Health, Cooperative Extension
Problem Statement	The public may not understand where their community storm shelters are located. They may not understand what the warning systems siren sounds indicate and where to go for shelters. Many communities are tourist areas. The tourists/visitors need to be aware of what the different sirens mean and where to go for shelter, etc.
Description	Action 1.1F – Public education on shelters and warning systems – Coordinate public outreach/education regarding shelter locations and warning systems. Develop brochures, websites, news briefs, and other media to notify the public of shelter locations and what sounds to expect from the warning systems.
Potential Funding Sources	EMPG, PDM, HMGP, local gov't., and private businesses
Responsible Department	DPS
Target Completion Date	On-going
January 2010 – Status Report	Severe weather preparedness week funded through EMPG. This is a package of information that goes to schools, EM's, daycare, assisted living centers and nursing homes. Also, State fair outreach at SDOEM booth. Safe room information also disseminated from hazard mitigation office to EMs and FPAs.



Mitigation Actions



Problem Statement	A statewide floodplain regulation does not exist.
Description	Action 1.1I —Coordinate with <i>South Dakota Building Code Association</i> to integrate floodplain management ordinances into local building codes. <i>(details to be confirmed)</i>
Potential Funding Sources	No funding needed.
Responsible Department	DPS, DENR
Target Completion Date	2011 and On-going
January 2010 – Status Report	Considered to be a local responsibility for zoning in communities.

Problem Statement	Electrical safety is a concern after many disasters due to fallen power lines.
Description	Action 1.1J – Electrical safety outreach program – Support and encourage public education/outreach efforts on electric safety.
Potential Funding Sources	State Electric Commission, Rural Electric Ass’n., Rural Electric Cooperatives, Private electric companies, local funding
Responsible Department	PUC along with electric companies, and local communities
Target Completion Date	On-going
January 2010 – Status Report	Work with One Call, PUC. Individual COOPs have literature and outreach materials. Participate in state fair. Conduct school safety sessions. Safety classes through Extension.





Mitigation Actions



Problem Statement	Built structures exist in hazard prone areas.
Description	Action 2.1A – Acquisition projects – Support the purchase and relocation of structures within floodplains and other hazard prone areas through local project applications.
Potential Funding Sources	HMGP, PDM, FMA, local funding, USCOE funding
Responsible Department	DPS and local communities, USCOE, DOT
Target Completion Date	On-going
January 2010 – Status Report	Visited with communities in flood prone areas on submitting an FMA application for buyouts. Currently preparing FMA applications.



Mitigation Actions



Problem Statement	Built structures exist in flood prone areas.
Description	Action 2.1B – Flood control projects – Support and encourage flood control projects through local project applications.
Potential Funding Sources	HMGP, PDM, FMA, DENR funding, and local funding, USCOE funding
Responsible Department	<i>DENR, DPS, and local communities, USCOE</i>
Target Completion Date	On-going
January 2010 – Status Report	<ul style="list-style-type: none"> • HMGP funded a channel restoration project in . As that project was completed, the county has chosen to use local funds to restore the channel farther than the HMGP funds paid for. This greatly reduced the chances of flooding within the City of now that the water will flow properly in the channel. Also funded was a project to remove an existing flood prone building on the campus of in , City of . This building is not gone and the area has been turned in to parking area. FMA funds were used for this project. • City of Sioux Falls, flood control project extension (bridge & dike raise). • DENR has permitted 35 flood control projects over the last 20 years. • Drainage improvement projects: City Mobridge, Summerset, south of Mitchell, Aberdeen • Rapid City funded a study of paleo flood events.



Mitigation Actions



Problem Statement	Built structures exist in flood prone areas.
Description	Action 2.1C – Elevation projects – Support and encourage elevation of structures in flood prone areas through local project applications.
Potential Funding Sources	HMGP, PDM, FMA, DENR funding, local funding, USCOE funding
Responsible Department	DENR, DPS, local communities, USCOE
Target Completion Date	On-going
January 2010 – Status Report	Home elevations are occurring at the local level. Some funded by the local jurisdiction. CDBG is doing elevation work <i>(to be confirmed)</i> State released \$5 million to do roadwork. Road elevation in City of Waubay by USACE.
Problem Statement	Not all structures susceptible to high risk hazards throughout the state are identified.
Description	Action 2.1D – Identify structures that are susceptible to different hazards (i.e. flooding, tornadoes, drought) – Coordinate with all state departments and agencies through surveys and other mechanisms to identify structures in hazard areas and their replacement values.
Potential Funding Sources	Map Modernization funds
Responsible Department	SHMT members along with their agencies and local communities, FEMA
Target Completion Date	On-going
January 2010 – Status Report	Have run HAZUS on all counties within the state and have identified State buildings with in flood areas. Working with the Bureau of Administration to obtain \$\$ amount of building replacement. All agencies through TAG gathered data in preparation for flooding to update critical facilities information.



Mitigation Actions



Problem Statement	Wildfires cause losses to communities, private citizens, and the forest.
Description	Action 2.2A – Fire breaks – Support and encourage the installation of fire breaks through local project applications.
Potential Funding Sources	DOA funding, HMGP, PDM, USFS funds, GF&P funds
Responsible Department	DPS, DOA, USFS, GF&P
Target Completion Date	On-going
January 2010 – Status Report	No local projects submitted; however, the SD DOA works with local landowners to make a safe zone around their property. Also, they clean up wooded areas to act as fire breaks. (<i># of miles of fuel work / fire breaks completed in Black Hills to be obtained</i>)
Problem Statement	Communities are at risk of being threatened by wildfire outbreaks.
Description	Action 2.2B – Fire resistant communities – Support and encourage communities to participate in Firewise and other programs to minimize risk to wildfire.
Potential Funding Sources	DOA funding, USFS funding
Responsible Department	DOA, USFS
Target Completion Date	On-going
January 2010 – Status Report	This activity is On-going with local residents by the SD DOA. (<i>Details to be confirmed</i>)



Mitigation Actions



Problem Statement	Structures are threatened by wildfires because the forest is next to the structures at risk.
Description	Action 2.2C – Create a defensible space between structures – Support and encourage local policies to require a defensible space between structures and surrounding structures adjacent to forested areas.
Potential Funding Sources	DOA funding, private citizens
Responsible Department	DOA, USFS, GF&P, private citizens
Target Completion Date	On-going
January 2010 – Status Report	Activity is On-going by the SD DOA. <i>(details to be confirmed)</i>

Problem Statement	Local planning and zoning are not strict enough or are non-existent in communities.
Description	Action 2.3A – Encourage stricter zoning requirements – Support and encourage development of zoning ordinances in local communities.
Potential Funding Sources	No funding needed.
Responsible Department	SHMT members along with their agencies and local communities
Target Completion Date	On-going
January 2010 – Status Report	The NFIP coordinator has worked with numerous counties/cities to ensure they are doing proper zoning for new construction.



Mitigation Actions



Problem Statement	The public always need to be reminded of the hazards in their communities in order to be self-prepared.
Description	Action 3.1A – Educate public on reducing losses due to hazards – Support and continue public outreach efforts regarding methods to reduce losses due to natural hazards.
Potential Funding Sources	EMPG, bioterrorism funding
Responsible Department	DPS, DOH
Target Completion Date	On-going
January 2010 – Status Report	Outreach through the State fair and working with county emergency managers and local floodplain coordinators. B Ready campaign. Extension service.

Problem Statement	Many communities have adopted the International Building Codes (IBC) but have existing structures built prior to the enforcement of these standards.
Description	Action 3.1B – Retrofitting existing facilities to comply with IBC for all hazards – Support retrofitting of existing facilities to comply with IBC through local project applications.
Potential Funding Sources	HMGP, CDGB, local funding, PDM, FMA
Responsible Department	DPS, local communities, GOED
Target Completion Date	On-going
January 2010 – Status Report	A few communities have retrofitted buildings using funding outside of HMA. VFWs are exploring opportunities to retrofit facilities.



Mitigation Actions



Problem Statement	Some of the damage that occurs from natural hazards to utilities and infrastructure is from older lines that were not designed for long term use.
Description	Action 3.1C – Routine infrastructure inspections – Support and encourage routine inspections of existing utilities and infrastructure for damage and weaknesses.
Potential Funding Sources	Local utilities budgets, REC funding, local funding
Responsible Department	PUC, REC's, and local gov't.
Target Completion Date	On-going
January 2010 – Status Report	Local utilities as On-going maintenance do yearly inspections and replace problem areas with their existing budget. REA: completed on a regular bases. COOPs work with lineman and tree trimming contractors to ensure trees are at safe distance. RUS requires inspection of all electrical lines once per year. DOT bridge inspections every two years. High and Significant Dams inspected every three years by DENR.
Problem Statement	The State BOA does not have a database of all State owned and leased facilities. However, OEM created a database but it does not contain classifications or valuations. OEM can not determine value of damage to the buildings. This information will enhance the risk assessment portion of this plan in future updates.
Description	Action 3.1D – Improve the state facilities database by capturing classification and valuation information –
Potential Funding Sources	EMGP, State funding
Responsible Department	BOA, Risk Management, DPS
Target Completion Date	2011- next plan update
January 2010 – Status Report	Improvements to database have been made to the critical facilities and state-owned property database. Replacement costs are available for university buildings. OEM is continuing to work with the BOA on obtaining the replacement costs for some of the buildings.



Mitigation Actions



Problem Statement	The state experiences a lot of power outage due to storms. Burying power lines eliminates the risk of those power lines falling in a storm.
Description	Action 3.2A – Power line burial – Continue support of power line burial through local project applications.
Potential Funding Sources	HMGP, PDM, local utilities budgets, REC funds
Responsible Department	PUC, DPS, REC, local gov't.
Target Completion Date	On-going
January 2010 – Status Report	Many miles of power lines have been buried through HMGP and 404 mitigation with the FEMA public assistance program following Presidential disaster declarations. Rural Electric Cooperatives also bury lines with their own funding. <i>(pending receipt of number of projects)</i>

Problem Statement	The state experiences a lot of power outage due to storms.
Description	Action 3.2B – Spoilers – Support the installation of spoilers through local project applications. <i>(technical term to be verified)</i>
Potential Funding Sources	HMGP, PDM, local utilities budgets, REC funding
Responsible Department	PUC, REC, DPS, local gov't.
Target Completion Date	On-going
January 2010 – Status Report	HMGP funds have been used for spoilers to protect powerline infrastructure.



Mitigation Actions



Problem Statement	The state experiences a lot of power outage due to storms.
Description	Action 3.2C – Upgrade power lines – Support the improvement to existing power lines through local project applications.
Potential Funding Sources	HMGP, PDM, local utilities budget, REC fundings
Responsible Department	PUC, REC, DPS, local gov't.
Target Completion Date	On-going
January 2010 – Status Report	PDM and HMGP projects have supported such projects. Also Public Assistance funds have also upgraded many miles of lines through heavier conductors and burying lines. REC's have also used their funds for such mentioned projects. Through recent disaster declaration, reconductoring of lines with heavier wire. Putting in additional poles.

Problem Statement	The state experiences a lot of power outage due to storms.
Description	Action 3.2D – Encourage the purchase of generators for backup power and regular testing for preparedness –
Potential Funding Sources	HMGP, PDM, local utilities budgets, EMPG, SHSGP
Responsible Department	PUC, REC's, DPS, local gov't.
Target Completion Date	On-going
January 2010 – Status Report	EMPG and SHSGP funds have purchased numerous generators within counties to enhance local capabilities when there are power outages. Telephone cooperatives and rural water systems have also used their own funds to purchase generators.



Mitigation Actions



Problem Statement	Many agencies forget to contact other agencies before beginning a project to ensure it will comply with their regulations.
Description	Action 4.1A – Encourage communities to comply with existing Federal, State, and Local regulations regarding development – Develop outreach material for communities highlighting federal, state, and local regulations regarding development.
Potential Funding Sources	No funding needed
Responsible Department	All state agencies and local gov't.
Target Completion Date	On-going
January 2010 – Status Report	The NFIP program reaches out to counties and communities to ensure local enforcement of floodplains is occurring.
Problem Statement	The State has been in a drought for many years so soil nutrients are limited.
Description	Action 4.1B – Encourage crop rotation and drought resistant crops – Work with extension and SDSU researchers on developing decision-making tools for producers to use
Potential Funding Sources	Private citizens, DOA
Responsible Department	DOA and private citizens
Target Completion Date	On-going
January 2010 – Status Report	This is an On-going effort through the local FSA extension offices. There is a center funded at SDSU for seed technology. <i>(verification required)</i>



Mitigation Actions



Problem Statement	Many communities and property owners do not have insurance on their property.
Description	Action 4.1C – Promote insurance –
Potential Funding Sources	No funding needed
Responsible Department	DORR, DPS
Target Completion Date	On-going
January 2010 – Status Report	The NFIP program campaigns to promote people to purchase flood insurance. Numerous meetings are held throughout the year to promote this. Ad campaigns are also On-going throughout the year, especially when we near spring when flooding is prominent. South Dakota has highest adoption of crop insurance in the country.

Problem Statement	Local agencies need to be encouraged to monitor the bridges and culverts on a regular basis to stay abreast of any blockages.
Description	Action 4.1D – Encourage removal of debris near bridges and culverts –
Potential Funding Sources	Local gov't. funding
Responsible Department	Local gov't.
Target Completion Date	On-going
January 2010 – Status Report	Ongoing efforts to remind counties to take such actions to ensure flooding does not occur. DOT does debris removal on state highways.



Mitigation Actions



Problem Statement	Local/tribal governments have been discouraged with regard to hazard mitigation projects due to participation requirements and changing rules/regulations.
Description	Action 5.1A – Promote state and local/tribal relationships for projects that will reduce losses within their communities – Continue working with local/tribal governments to develop eligible mitigation project grant applications.
Potential Funding Sources	PDM, HMGP
Responsible Department	DPS, SDOEM
Target Completion Date	On-going
January 2010 – Status Report	Ongoing efforts through phone calls with tribal representatives to encourage them to develop a PDM plan. One tribe has submitted a PDM application for a PDM plan. Did not receive the funding. Hosted North and South Dakota tribal mitigation planning workshop. One tribe is currently working on a PDM plan.
Problem Statement	Local/Tribal governments lack the personnel and experience to meet hazard mitigation plan requirements.
Description	Action 5.1B – Continue working with and supporting local and tribal mitigation plan development –
Potential Funding Sources	HMGP, PDM
Responsible Department	DPS, SDOEM
Target Completion Date	On-going
January 2010 – Status Report	See above

South Dakota