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Community Wildfire Protection Plan

Prepared For:
Meade County

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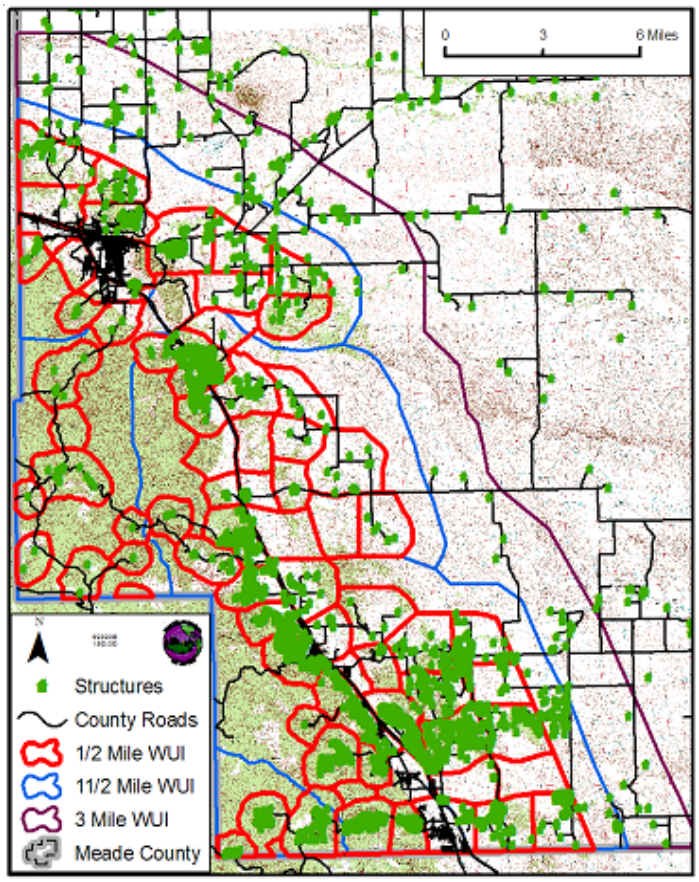
Community Wildfire Protection Plan

A Community Wildfire Protection Plan, (CWPP), is a community-based forest management planning process that identifies areas that may be at risk from wildfire and develops objectives to mitigate the risks associated with hazardous fuels. New incentive generated by the enactment of the Healthy Forest Restoration Act, (HFRA), in 2003 and the National Fire Plan provides a mechanism for identified and prioritized hazardous fuels projects to be given consideration by the USDA Forest Service and the USDI Bureau of Land Management. The primary goal of this Community Wildlife Protection Plan is to reduce the risk from wildfire to life, property, and critical infrastructure. The Wildland Urban-Interface, (WUI), is a set of conditions that exist when man-made fuels, (e.g. structures and other human development), meet or intermingle with natural vegetative fuels. The United States Department of Agriculture in conjunction with the United Statres Department of Interior identified a list of communities and placed them in the Federal Register. These communities in the Wildland Urban Interface are in the vicinity of federal lands and have been identified as being at high risk from wildfire. The following is the list of communities in Meade County that have been placed in the Federal Register; Black Hawk, Boulder Park, Piedmont, Sturgis and Tilford. Everyone living in Meade County should be eligible to receive the same consideration and benefits as the people that are identified in the Communities at Risk in the Federal Register, if they are at risk from uncontrolled wildfire. ½, 1½ and 3-mile WUI buffer zones have been developed around values at risk to provide agencies with a geographic tool to use during the planning process to reduce hazards and associated risks from catastrophic fire events. These geographic areas will be used to prioritize fuels reductions based on structure density, hazardous topography, conifer canopy condition, and proximity to forest management projects performed by state or federal agencies.



Local government, fire officials and state agencies will form the core group to establish a plan, which will allow collaboration with federal agencies to identify areas at risk from hazardous fuels. Programs to reduce these risks will be developed. Possible solutions will include, but will not be limited to, providing fuels reduction programs, field assessment of existing conditions and collaboration between different agencies to provide communication that will help reduce the risk from wildfire across the landscape without regard to ownership or boundaries. Identifying and prioritizing areas of hazardous fuels and development of plans to treat these areas can reduce the threat from wildfire. Public education regarding Firewise materials and practices to reduce the chance of initial ignition of structures in the WUI will be developed. Firefighter and public safety is the primary concern when mitigating the threat from wildfire. Providing adequate survivable space can reduce a

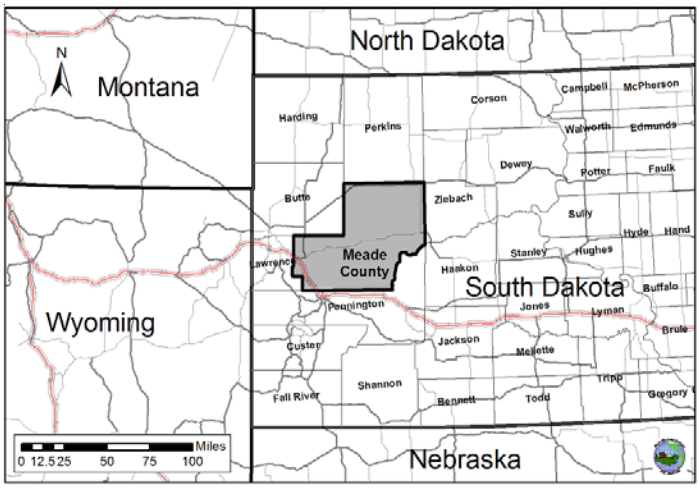
structures chance of initial ignition during a fire event. This also provides a safer environment and allows for more efficient fire suppression activities.

This Community Wildfire Protection Plan will be flexible to provide the best product possible to reduce the threat from wildfire for people residing in Meade County. The Hazardous Fuels Reduction portion of the plan will identify property that is at risk from wildfire and will provide aid in treatment of these areas to make them better prepared to survive a wildfire event. Fuel loads, topography and survivable space will determine who is eligible to participate in the Hazardous Fuels Reduction Program. If the landowner will assume responsibility for the maintenance of the treated area for ten years, the cost share will be increased.

Through proper planning and preparedness we can attempt to reduce the intensity with which wildfires burn and provide adequate survivable space to give structures a better chance of survival. Collaboration between local, state and federal agencies to share information about different programs and activities will be beneficial to all the stakeholders involved in reducing the threat from wildfire.

Community Discussion

Meade County is situated in western South Dakota. It is bordered by Butte and Lawrence County on the west, Perkins County on the north, Ziebach County on the east, and Pennington County on the south. It has a total of 3,482 square miles. Approximately 138 square miles are considered WUI areas. There are approximately 88,518 acres of forested land in Meade County. The USDA Forest Service administers approximately 45,156 of these acres. The USDI Bureau of Land Management manages about 4,789 acres. There are also school and other public lands in Meade County. The majority of Meade County is comprised of private property. Other areas of Meade County are also at high risk from wildfire including, but not limited to the communities identified in the Federal Register. A *community is* a group of people living in the same locality and under the same government.



Meade County has a unique topographical area called the Hog Back. The Hog Back runs on the east side of Interstate 90 from Sturgis to Black Hawk; it is disconnected from the primary portion of the Black Hills by Piedmont Valley. This Hog Back, with its conifer stands, is mostly private land and is generally being developed for housing thus making it a WUI area. There is 25.6 miles of active railroad line being used through Piedmont Valley that may present a risk of ignition for wildfire.

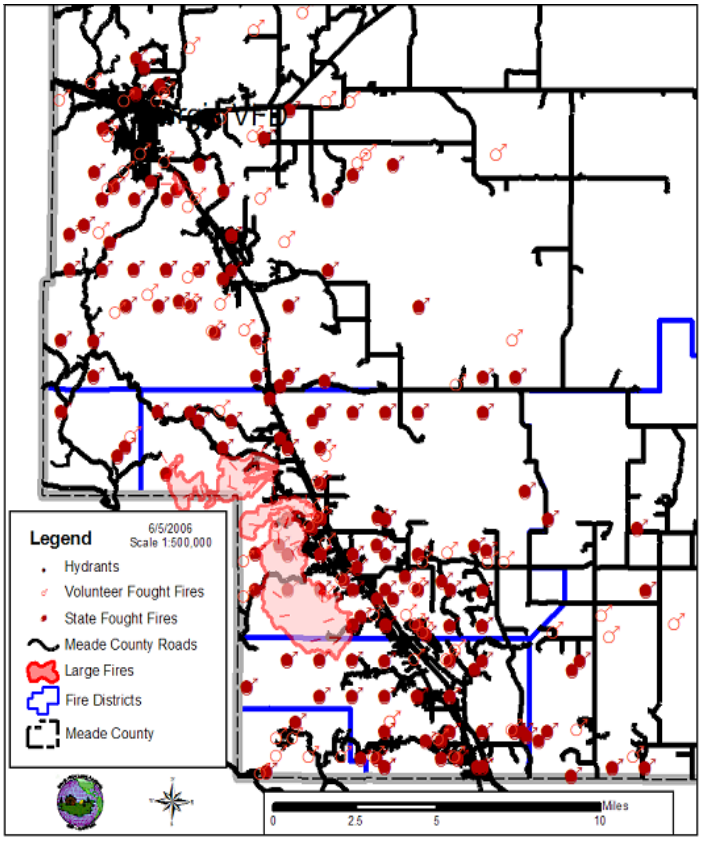
Wildfire does not recognize property boundaries and the occurrence of fire crossing these boundaries is common. Cooperation between the different agencies is important to reduce the risk from wildfire. If agencies work together and collaborate on different projects, continuity can be developed between different programs to make them more effective. Sharing information and developing collaborative strategies will enhance effectiveness of wildfire mitigation across the land without regard to ownership. Reducing the risks from any and all hazards is an important process for everyone concerned.

Fire History

In pre fire suppression era before European settlement, wildfires burned more frequently but usually with less intensity. This resulted in a more open savanna type condition with widely spaced stands of mature Ponderosa Pine. Indications show pre-settlement forest stand density levels may have typically been 30-40 mature trees per acre. This would generally provide 15-20 feet of separation between tree tops. The greater amount of acres burned annually helped the ground fuel from accumulating into dense fire prone fuel conditions. Surface fuel loads were maintained at lower levels by naturally occurring ground fires. The dead litter and regeneration were not given a chance to form the vertical continuity that fire requires to get off the ground and into the forest canopy thus contributing to less intense fires.

There have been 186 ignitions suppressed by volunteer fire departments in Meade County in the past 5 years. In Meade County there have been 76 fires suppressed by the South Dakota Wildland Fire Suppression Division in the past 5 years. The State of South Dakota has suppressed 214 ignitions in Meade County in the past 43 years. There have been some large fires in Meade County over the years, but many of the records are not accurate or the data is incomplete. Many large fires have names, acres burned, and possibly an ignition point location but no specific perimeter, severity data, fuel or weather conditions during the event. The fire history data analyzed for this plan is the best available at this time.

The Big Elk Fire of 1949 burned approximately 6,630 acres. A smoker caused this fire. The Little Elk Fire burned in July of 2002 and consumed 663 acres. This fire was ignited by heavy equipment. Another fire start was caused by the Railroad on BLM property just north of the National Cemetery, which burned 60 acres. The Ricco Fire of 2005 burned approximately 4,000 acres and was started from lightning.



Fire Regime Condition Class

The fire regime condition classes are qualitative measures describing the degree of departure from historical fire regimes. Alterations of key ecosystem components such as species composition, structural stage, stand age, stand density, canopy closure and fuel loads may result from departure of historic conditions. One or more of the following may have caused this departure: fire suppression, timber harvesting, livestock grazing, introduction and establishment of exotic plant species, insects or disease or other past management activities.

Condition classes range from 1-3 where a rating of 1 means that the forest environment is not at risk of losing any major components or at risk of significant change of one or more of its major ecosystem components. A rating of 3 indicates that the forest is at high risk of significant chance on one of those components. An easy indicator of condition class is to count

the number of fire return intervals or frequency intervals missed. Generally speaking, if an area has missed 3 or more frequency return intervals then the stand is at high risk of significant change.

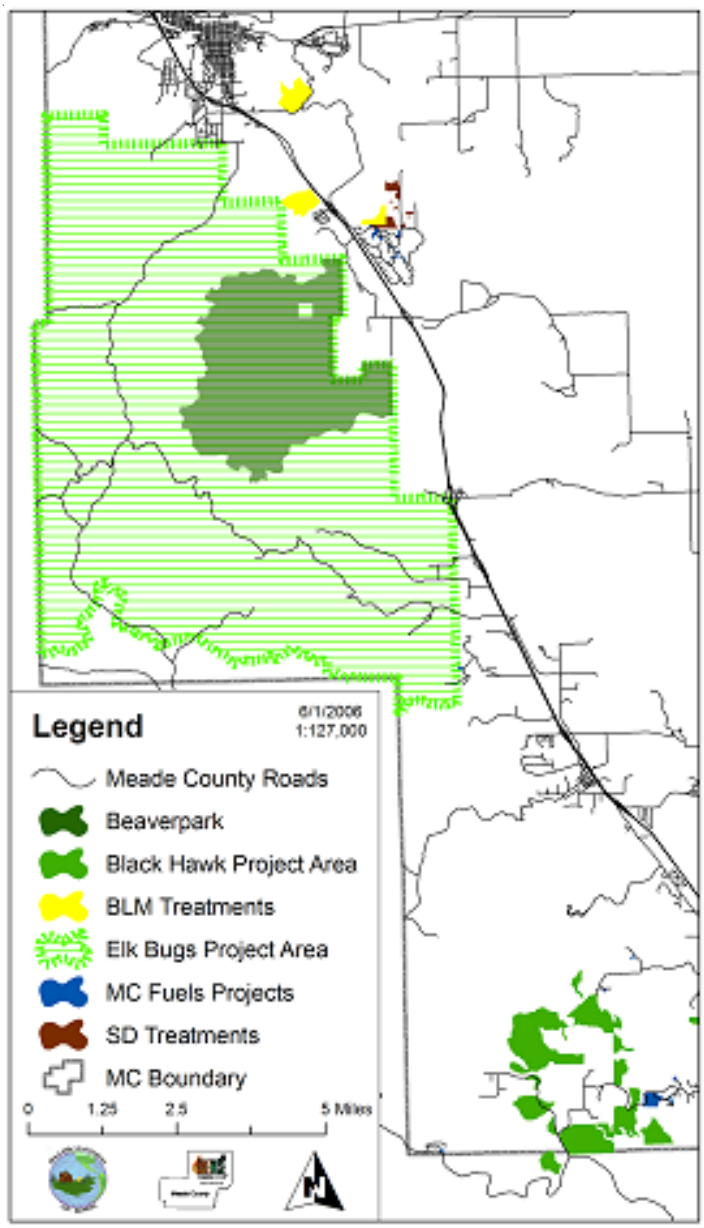
USDA Forest Service data classifies the Black Hills National Forest historical fire regime as low intensity, with high frequency. This means that a historical fire frequency was 35-years or less and that fires generally burned at low intensities and low to moderate severities. This data also identifies the Black Hills National Forest to be in a Condition Class 3. Fire regime condition classes have been significantly altered from the historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historic frequencies by multiple return intervals. This has resulted in dramatic changes to one or more of the following: fire size, intensity, severity and landscape patterns. Vegetation attributes have been significantly altered from their historic range. The structure and orientation of fuels in Meade County vary tremendously. Some areas have had fuels reduction projects done in recent history; other areas have not. Areas that have had some type of fire or fuels activity may have less hazardous fuels than areas that have not had any vegetation management in many years.

Agency Projects

The USDI Bureau of Land Management treated 40 acres of land adjacent to Blucksberg Mountain Estates. They thinned, piled and burned the residue. The BLM created a 200 to 300 foot buffer zone adjacent to private property.

South Dakota also conducted a fuels reduction program in the vicinity of Blucksberg Mountain Estates. They treated 46 acres of school and public lands with commercial thinning, 20 acres with pre-commercial thinning and 10 acres of pine encroachment by clear cutting.

The USDA Forest Service is currently working on the Beaver Park Fire Management Area, which is comprised of 38,299 acres of USDA Forest Service, 620 acres of USDI Bureau of Land Management, 640 acres of state land and 12,550 acres of private land. The infestation of Mountain Pine Beetle has resulted in an extensive level of conifer mortality, which has generated heavy fuel loading in this area. Rugged topography and limited access have created concern for fire suppression activities in this area. Fuel treatments continue in the area to reduce the threat of wildfire. There have also been treatments west of Black Hawk that account for



approximately 1,400 acres. This work was completed several years ago.

The Elk Bugs and Fuels Project encompass approximately 45,498 acres of National Forest land and 15,068 acres of interspersed, private and state lands. Due to the increase of Mountain Pine Beetle activity and storm-damaged trees across much of the analysis area there has been a large increase of fuel loading, which may affect wildfires. Current fuel conditions will possibly create wildfire activity that could overburden fire suppression forces in the event of catastrophic wildfire. Treatments involved in the project will be commercial and non-commercial hard wood restoration, commercial and non-commercial thinning of conifers and prescribed fire.

The South Dakota Wildland Fire Suppression Division is currently managing a hazardous fuels reduction program that provides a 50/50 cost share program for private landowners that are interested in reducing hazardous fuels. This program focuses on the survivable space around structures. They also have another program that provides 100% funding for hazardous fuels reductions in areas that surround communities in WUI zones. The intent of this program is to reduce fire intensity and provide values at risk a better opportunity to survive wildfire.

The state of South Dakota Resource Conservation and Forestry Division also manages a Forestland Enhancement Program that was established to provide additional financial assistance to State Foresters to encourage the long-term sustainability of non-industrial private forestlands. This State Priority Plan outlines policies, priorities and procedures necessary to accomplish the program objectives. The State Forester of the South Dakota Department of Agriculture, Resource Conservation and Forestry Division, in coordination with the Forest Stewardship Coordination Committee has developed this plan. The systems provided under this plan would complement rather than replace or duplicate any existing state and/or federal programs. This plan can be revised as necessary and will continue until all the program funds have been expended.

The objectives of this state plan include:

1. Invest in practices that establish, restore, protect, manage and enhance the health and productivity of Non-Industrial Private Forest lands in South Dakota for timber, flora, fauna, soil, water quality, air quality, wetland buffers, and riparian buffers.
2. Enhance and sustain the long-term productivity of timber and non-timber resources through afforestation, reforestation and timber stand improvement.
3. Reduce the risks and help restore, recover, and mitigate the damage caused by a fire, insects, invasive species and damaging weather.
4. Enhance carbon sequestration opportunities.
5. Enhance implementation of agroforestry practices.
6. Maintain and enhance the forestland base.
7. Preserve the aesthetic quality of non-industrial private forestlands.

The four objectives to the educational portion of the state program will be:

1. Develop, print and distribute brochures and fact sheets explaining the Forestland Enhancement Program.
2. Design and maintain a web page on the South Dakota Resource Conservation and Forestry Division.
3. Advertise the Forest Land Enhancement cost-share program to ensure landowners are aware of the availability of the program.
4. Forest landowner education.

Hazards

The vegetation coverage across Meade County is very diverse. The eastern portion of the county is primarily Great Plains grass with hardwoods in various draws and drainages. Occasionally there may also be areas of Ponderosa Pine stands that could pose a threat

to structures in the eastern portion of Meade County. Hardwoods dominate the lower foothills surrounding the Black Hills. Burr Oak, Iron Wood, Quaking Aspen and Paper Birch are some of the primary hardwood vegetation types. These stands of deciduous vegetation are not as conducive to high intensity wildfires; generally they are not as likely to carry sustained fire through the canopy. Hardwood stands throughout the county should be identified and measures taken to promote the restoration of these fire resistive species. These areas of deciduous vegetation create a diversity of fuels that may significantly reduce fire intensities. Meadow enhancement programs also should be implemented to reduce the encroachment of conifers and other non-native vegetation into meadows and open spaces. These open spaces provide fuel breaks and areas of opportunity for fire suppression activities.

The Black Hills have an abundance of White Spruce also known as "Black Hills Spruce". Spruce typically grows on the northern slopes and in the bottoms of drainages where more moisture is available. The vegetation on these north slopes is generally much denser due to the higher moisture levels and the relationship to the sun. North slopes usually have less fire frequency than south and west slopes. Occasionally hot, dry weather patterns make conditions right for North Slope fuels to burn and possibly with extreme intensities. The branching habit of a Spruce tree is usually

continuous from the ground to the top of the tree, which makes them more conducive to torching and crowning. When a spruce tree torches it showers embers and firebrands and can contribute hazards associated with spot fires. Drier winters and lack of spring storms may reduce the fuel moisture in large fuel sources that are present in the forest. This could contribute to increased fire behavior. Spruce regeneration in areas that are not historically Spruce stands should be reduced to help protect and promote the original stand species.

Hazardous fuels can also be associated with cured grasses found on the prairie. Tall grasses that are cured and available to burn can generate high intensity fires that can spread very quickly. These grass fires can be very dangerous because of the volatility of the fuels

involved. Several firefighter fatalities in South Dakota have occurred on the prairie with grass as the fuel model. Shelterbelts need to be maintained properly to help preserve them from

wildfire. Maintenance may include disking between rows of trees to reduce the amount of fine, flashy fuels. Removing dead material and possibly restoring with fire resistive plant species may help a shelterbelt survive a wildfire event by reducing fire intensity. Shelterbelts that are continuously regenerated and properly maintained can create a buffer that may reduce fire intensity and provide suppression opportunities during a wildfire.

The primary vegetation affecting wildfire in Meade County is grass, Ponderosa Pine and White Spruce. Thinning of live conifers to create canopy separation may reduce the chance of high intense stand replacement fires from occurring. A surface fire generally burns with

lower intensities and provides the larger more mature trees a better chance of survival. These surface fires also help consume typical forest litter and keep fuels from building up and allowing the forest to be maintained in a more natural condition. Fuel reduction activities should target reducing ground fuels such as storm-damaged trees, slash and timber litter. Breaking the vertical continuity of the ladder fuels that contribute to torching and crowning fire behavior may reduce the chance of the fire spreading into the canopy and also improves forest health. Another benefit of reducing crown fires is maintaining the aesthetics after a fire event, thus protecting the ecological sustainability of the forest.

There are many areas in Meade County that have had the absence of fire for over 100 years. This has created fuel loads with much higher ton/acre ratios of fuel. These fuels increase the threat from wildfire by increasing fire intensities. This is not only detrimental to the forest but it can allow a fire to become a large enough conflagration too quickly overwhelm fire suppression crews. The lack of pro-active forest management also allows the stand to become stagnate by over-crowding which increases the competition for sunlight and moisture.

106 year old tree with only a 5 inch diameter.

Fire history in Meade County shows fires can grow to large sizes with extreme fire behavior thus being very detrimental to forest health. Proactive planning and mitigation efforts can lower fire intensities, thereby reducing the loss of life, property, and resources. Existing hardwood stands should be favored, by reducing the encroachment of conifers. Not only does restoration of these original species maintain the forest in a more natural state but also the deciduous vegetation is much more resistant to sustained crown fire.

Values

Values at risk in Meade County include structures and associated out buildings, agricultural land, commercial properties, community water systems, fences, historical property, rangeland, recreational areas, residential, timber products, utility systems, values, watersheds, wildlife habitat improvements and critical infrastructure owned by county, federal, municipal, private and state entities. These values may be at risk from uncontrolled wildfire in Meade County. There are many structures in western Meade County that are situated in the WUI areas. These homes are in the process of being mapped using GPS and a wildfire severity assessment conducted to help determine the amount of risk they are subjected to from wildfire.

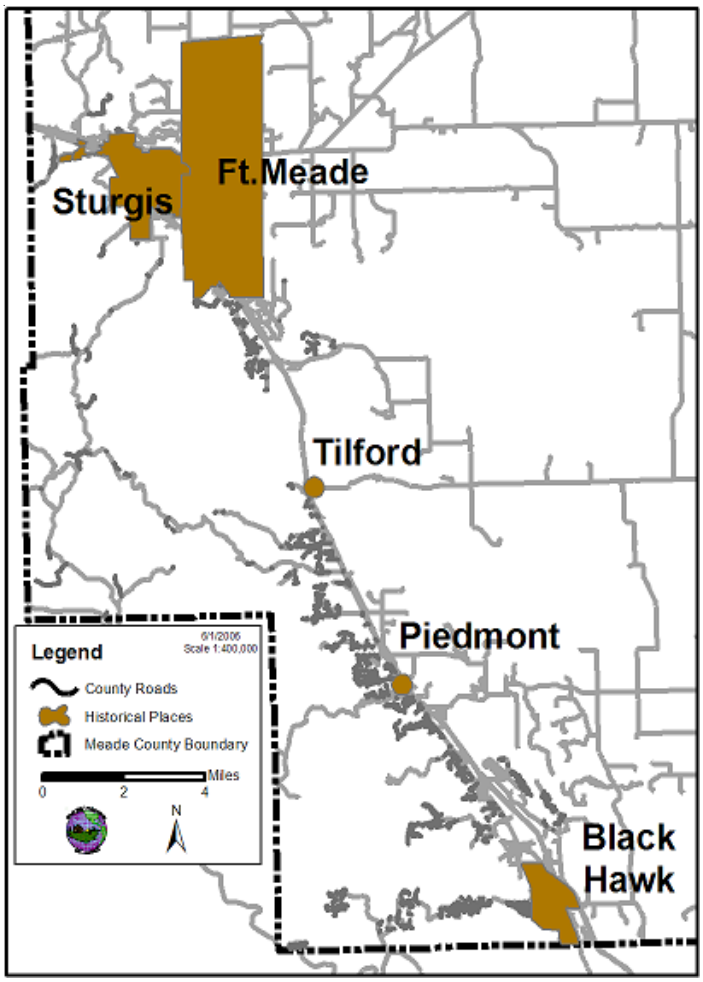
The vegetation itself is also an important resource value in Meade County. People are attracted to and enjoy the beauty of the Black Hills. If the vegetation cannot sustain a fire event without being destroyed then the value of the area is also in jeopardy. Mitigation efforts to reduce fire intensities could provide a better chance for this resource to survive a wildfire event and maintain the value and aesthetics of the area.

Another consideration should be the insurability of property in the county. If structures are at higher risk from wildfire, insurance companies may not insure these properties or they may insure them at much higher rates. Insurance companies are recognizing firewise practices and techniques to reduce the exposure from wildfire in some parts of the country. If we can make the overall area better prepared for wildfire, this may help reduce insurance costs or possibly prevent insurance companies from canceling existing policies or denying insurance altogether.

Historical Sites

The National Register of Historic Places is the nation's official list of cultural resources worthy of preservation. The National Park Service administers the National Register, which is a branch of the United States Department of Interior. Properties listed in the National Register include districts, sites, buildings, structures and objects that are significant in American history, architecture, archeology, engineering and culture.

Meade County has 28 registered historical sites listed in the National Register. These sites present a range of historic places throughout the



county. Both individual historic destinations and districts can be easily found that cover a tremendous range for points of interest. The historical places in Meade County are not only important for historical value but local residents and tourists also value them. Mitigation efforts to help preserve these sights are important and

measures to protect them should be considered during fuel treatments in these areas. There are 15 historical sites in southwestern Meade County.

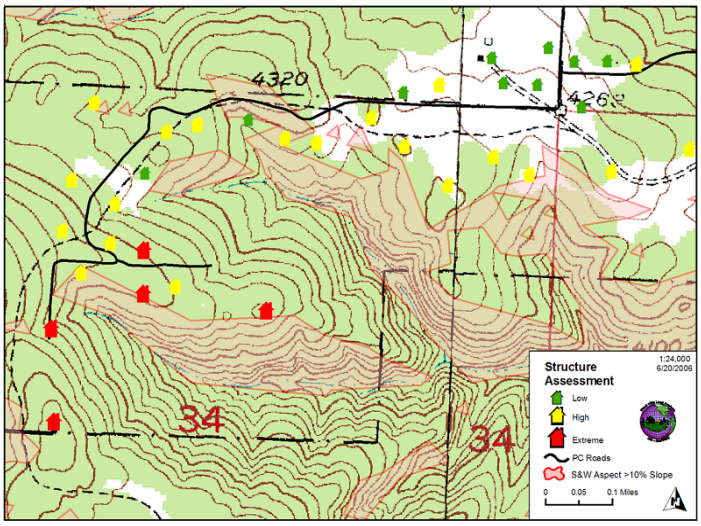
Risks

Ignition of wildfire in Meade County is not uncommon. Ignitions have occurred from railroads, vehicles, lightning, burning debris, power lines, fireworks, and other human caused events. In recent years we have seen a large number of people moving into the Wildland Urban-Interface with little or no wildfire prevention measures. Educating the public about how to build safer structures and co-exist with fire by preventing initial ignition of structures would help save lives, property and values.

Structure density should also be considered. If a structure is burning and it is inside of another structures survivable space it adds to the overall exposure, spread and intensity of the fire. In many cases structure after structure are consumed by fire and the natural vegetation is not consumed. In these cases it is the urban fuels that are supplying fuel for the spread of the fire.

Topography

Topography is a major factor when considering wildfire behavior. Structures that are situated at mid-slope or above could be at higher risk from wildfire. Fires starting at the base of slopes become larger and more intense because of availability of up-slope fuels. As slope increases, rate of spread and flame lengths also increase. Values placed in saddles and chimneys may be more vulnerable from the effects of fire. The topographic conditions of narrow canyons, chimneys and saddles always pose dangerous conditions that shout "Watch Out". The shape of the country can influence the intensity and spread of wildland fire. Areas that are situated on slopes with a south or west aspect can also expect more extreme fire behavior because these slopes are drier and fuels are preheated from solar radiation. There are approximately 162,000 acres in Meade County with south or west aspects and a slope greater than 10 percent. Historical fire paths indicate that when hot, dry winds align with south or west aspects wildfire behavior can escalate to unmanageable intensities.



Weather

Current weather patterns that are creating drought conditions in Meade County are contributing to the risk from wildfire and forest mortality from insects. The overall climate of the Meade County area is continental, which is characterized generally by low precipitation amounts, hot summers, cold winters and extreme variations in both precipitation and temperatures. Local climatic conditions are affected by topography, with generally lower temperatures and higher precipitation at the higher altitudes. Research indicates that historically there have been long durations of drought and wet periods dating back as far as the 1600's. Long periods of drought directly affect tree mortality and may contribute to more severe fire behavior.

Low relative humidity and high temperatures on windy days create weather conditions that are conducive to very aggressive fire behavior.

Ingress/Egress

Access is an important consideration for emergency response, whether it is fire, ambulance or other emergency service vehicles. Any or all of these agencies may be needed at one time or another. Another access consideration would be if the public was trying to evacuate during a wildfire incident and emergency service personnel were responding into the area, properly planned access would accommodate a safer and more efficient travel environment. Primary access roads should be 24-feet wide and built to county specifications. Driveways in excess of 200-feet should be a minimum of 12-feet wide with an all-weather surface and should be provided with turn-a-rounds designed to accommodate responding apparatus. Design loads for bridges on driveways longer than 200-feet should be rated to support the maximum weight of the responding apparatus.

All roads providing access to structures within timbered areas in Meade County have been identified as evacuation routes since they access all the identified inhabited structures within the WUI areas of the county. GIS buffers have been developed to identify treatment areas for primary roads at 180-feet on either side; with the last 30-feet tapering into a natural forest habitat creating a shaded fuel break. These shaded fuel breaks provide a more pleasing aesthetic appearance because the treatments do not end abruptly at the edge of the treatment area. The forested areas of these buffered escape-ways need to be managed in such a manner that will minimize the chances of a catastrophic crown fire from threatening the use of these travel routes during a fire event. Ladder fuels and timber litter would be greatly reduced or eliminated within these fuel breaks. Conifer canopy separation of 10-30 feet between individual crowns is desirable with small clusters of trees allowable to create diversity. These fuel breaks will also provide opportunities to conduct tactical suppression activities and possibly decrease intensity and spread of an active crown fire.

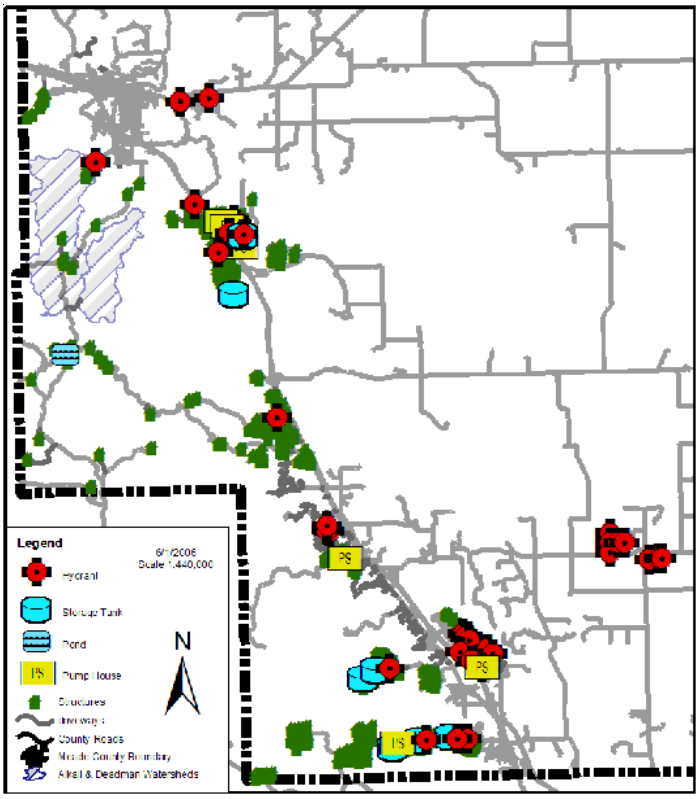
Watershed/Source

Watersheds in Meade County must to be managed in such a way as to minimize the chance of catastrophic fire that would threaten forested areas. When managing watersheds, consideration to protecting and enhancing soil productivity, water quality and quantity and timing of water flows. Maintaining healthy watersheds is critical to supporting a healthy forest and also provides valuable 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. Wildfires significantly alter the collection and transportation of water through a watershed. Increased flow rates after a catastrophic fire event may include severe ash and mud slides that may have a very damaging effect.

In Meade County the major bedrock aquifers are the Madison and the Minnelusa formations. The outcrops of the Madison and Minnelusa formations occur in the southwest portion of Meade County. An outcrop is a part of a geologic formation that is exposed to the land surface. These outcrops occur near the foothills of the Black Hills. Losses that contribute to aquifer recharge occur in numerous streams that cross outcrops of various rock formations that are exposed around the periphery of the Black Hills. The Madison and Minnelusa aquifers receive recharge from stream flow losses

and precipitation on the outcrop. These primary aquifers provide the resource for communities to draw precious water for daily activities. Stream flow recharge to the Minnelusa aquifer generally is less than to the Madison aquifer because much stream-flow is lost to the Madison aquifer before reaching downhill to the outcrop of the Minnelusa Formation. These stream flow losses are recognized as an important source of local recharge to regional bedrock aquifers. Most streams that flow across these outcrops lose all of their flow up to some threshold rate. Stream flow is maintained through a loss zone when the threshold is exceeded.

The fresh water supply for Fort Meade is the Deadman Gulch Watershed, which covers 3,653 acres. The Alkali Creek Watershed supplies water to the Sturgis municipal water collection system and covers 1,695 acres. Watersheds in Meade County need to be managed in such a way as to minimize the chance of catastrophic fire that would severely damage the watersheds.



Water sources should be created for the purpose of fire suppression and fire-fighting agencies should be made aware of the locations and amount of water on hand and how these sources are maintained. Many areas in Meade County may not have readily available water sources for fire suppression and this could greatly impact fire suppression activities. Water sources will be mapped and information will be documented about these sources. This information will be available to fire departments for suppression activities.

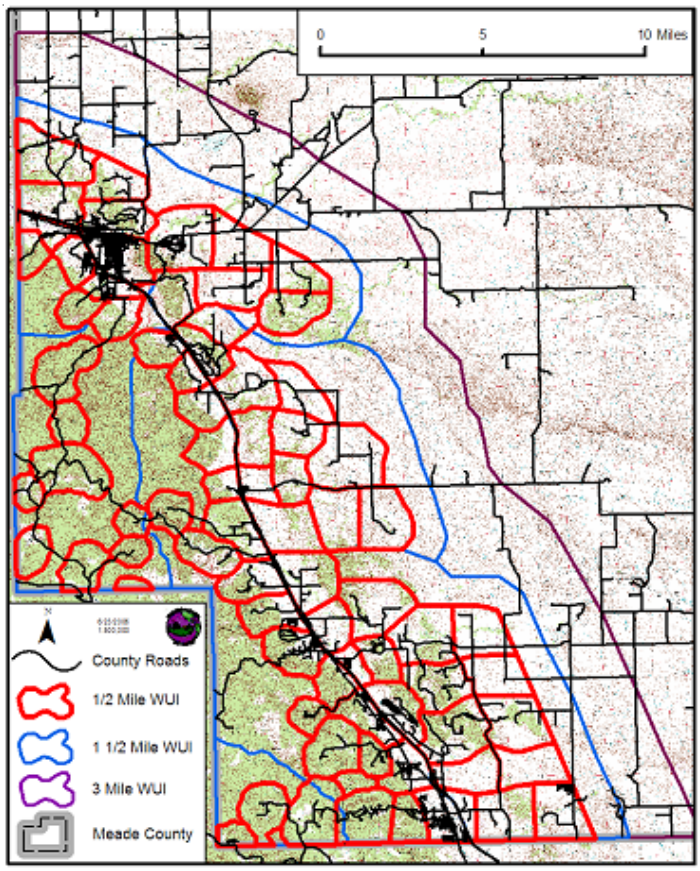
Wildland Urban Interface Zones

Treatments in identified ½, 1½ and 3 mile WUI buffers will all fall under general prescription parameters until site-specific project areas are identified, at which time prescription elements will be developed according to site specific needs and conditions. An interagency collaborative process will identify and prioritize the site-specific project areas and associated prescriptions. Project prioritization will be based on structure density, topography of south and west aspect on a slope greater than 10 percent, conifer canopy condition, and proximity to state or federal projects. The goal of fuels reduction projects will be to reduce the risk from fire by lowering fire intensities and reducing crowning and torching activities that threaten values in the WUI. Treatments should utilize wood fiber as commercial logs, firewood or other forest products where practical. Main considerations for these projects should encourage hardwoods and enhance meadows by reducing encroachment of open space from Pine or Spruce trees. This will help generate fuel breaks and give fire suppression crews better opportunities for suppression activities. Restoring stands where Ponderosa Pine and White Spruce have encroached may help maintain a mosaic of vegetation and viability of the original species. Existing Spruce stands tend

to be uneven aged but usually prevail over hardwoods. Spruce stands need to be treated as any other conifer during hazardous fuel activities. Land managers should consider the use of free thinning practices to maintain uneven aged or multi-storied stand structure to obtain stand diversity. This method may require the stand to be retained in a somewhat more open condition if it is 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. Crowning index refers to the conditions needed for fire to spread through the canopy and torching index refers to conditions needed to torch individual trees. Both the crowning and torching indices will help identify areas of higher risk. Where available this data will be referenced to help develop fuels treatments. Dead standing trees that contribute to the threat in the WUI should be addressed especially if they pose a safety hazard to firefighters and the public. Riparian areas and north slopes may retain higher stocking levels where appropriate.

Site-specific spatial data will be analyzed to identify hazards and help develop projects that reduce risk and decrease the potential of structural ignition from wildfire. Structure assessments in the WUI areas will 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 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.

Structure data of Meade County contributed to the development of 76 ½ mile WUI zones within Meade County that consists of approximately 98,490 acres. These ½ mile buffers have been identified around inhabited structures and defined communities at risk. 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 generally removing surface fuels. 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 structure or community through these ½ mile buffers, it should decrease in intensity and 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 20 feet of separation between conifer canopies. This can reduce the chance of active crown fire in the general vicinity of structures and other values.

The 1½-mile buffer zones will have a target prescription 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. 8 1½-mile buffer zones have been identified and will fall under general prescription guidelines until site specific needs and conditions are identified.

The 3-mile WUI buffer zones will be treated to reduce uncontrolled high intensity wildfire such as the Big Elk Fire, Little Elk Fire or the Ricco Fire. The identified 3-mile buffer zone enables 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 probability of success is 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 during high fire danger conditions. Under story and ladder fuels should be managed to reduce the risk of crowning and torching.

Prescribed fire should be used to manage surface fuel levels and maintain historical fire scars where appropriate. Burned areas may need

future fuel treatments because of fuels that were not completely consumed during the initial fire event. Generally, forest thinning or logging slash should be removed, chipped, ground or piled and burned in such a manner that would minimize the potential for residual forest stands to be damaged if the resulting residue was consumed during a fire event. Slash created by forest operations should be managed according to federal, state and local requirements. At the minimum, all slash will be lopped and scattered and will not exceed a depth of more than 18-inches. Forested areas should be managed in such a manner that will minimize the chances of

a catastrophic crown fire from threatening WUI values, forest health and aesthetics. Not all forest stands are required to be thinned. There are many areas in the Black Hills that are not conducive to landscape treatments due to extreme topography and terrain features.

The intent of these treatment guidelines is to reduce the risk to values in the Wildland Urban Interface. Interagency collaboration by all interested stakeholders will help reduce the conflict with other land management programs and forest management objectives. Areas of endangered species, critical wildlife habitat or areas with mandated special requirements would require special considerations. Various treatments across the landscape should be developed to dovetail together to reduce risk from uncontrolled wildfire. Prescribed burning, mechanical thinning and slash treatment activities are very important for reducing hazardous fuel conditions. Fire and fuel management through above described methods will help protect biological and aesthetic values but reducing the risk to the values in the Wildland Urban Interface will take precedence not only to protect structures but also aesthetics and valuation of property and resources.

Prescription Guidelines for Hazardous Fuels Reduction Program

The intent of this prescription is to reduce the threat of catastrophic fire that would threaten a structure or property. Development or improvement of survivable space will increase the structures chance of survivability and give fire suppression crews a safer working environment so they can be more effective while performing structure protection activities.

All ladder fuels must be trimmed a minimum of 6-feet off the ground. This breaks the vertical continuity of the fuel and prevents the fire from spreading into the canopy. Isolated patches of volatile shrubs and regeneration can exist if they are well separated from surrounding canopy. Under story and dead forest litter must be removed to reduce surface fuels.

Conifer canopy shall have a minimum 15-foot of separation between other conifer canopy. Steep slopes require more spacing between trees to maintain canopy separation and to protect against more aggressive fire behavior commonly seen in rougher terrain. When selecting trees for removal, large dominate trees that are straight, with good form and vigor should be left providing they meet the minimum spacing requirements. Remove all storm bent or damaged trees. Also dead or split top trees or trees with stem cankers should be removed. Remove unhealthy or defective trees first, and then remove remaining trees until desired spacing is achieved.

Remove, chip or pile and burn all resulting vegetation residue that contribute to surface fuel loads. If chips are to be scattered they should not be more than 4-inches deep. Large quantities of chips that could cause a ladder affect should not be placed under existing vegetation; this may threaten residual forest stands if the resulting residue was consumed during a fire event. Utilize wood as commercial logs, firewood, mulch or other forest products where practical.

Hazardous Fuels Reduction Programs

The Individual hazardous fuels cost share program will provide a mechanism to achieve a structural condition of fuels that may reduce the risk to the values in Meade County. This cost share program will be mitigated between private landowners who are interested in participating and the Meade County Commission. Structure density, fuel loads, canopy condition and other existing conditions will help determine treatment priority. Building continuity between different agency projects will make them more effective in the mitigation of severe wildfire events. The main focus of this fuels reduction program will be in the 100-200 foot survivable space around inhabited structures and associated out buildings. This area may be enlarged if by treating a larger area it would be beneficial to other structures in the area. The Wildland Urban-Interface Specialist administrating the program will determine the area to be treated. Landowners will also be encouraged to consider mitigating other hazardous fuels on their property to allow the ecological sustainability of the forest. This will not only promote a healthier forest, but it will maintain the value and aesthetics of the property after a fire event.

This program will be available to land owners who qualify by having a wildfire severity assessment form 502 done on their property (See Appendix A). Fuel loads, topography and survivable space are the primary considerations for who would be eligible to participate. Properties with high or extreme grant eligibility ratings would have a higher priority to receive funds from the program than property that has a low rating. People with high or extreme ratings will be contacted and informed about the program, and will be given the first opportunity to participate. Once it has been determined that the property is eligible for the program the landowner would fill out a request for cost sharing assistance form (See Appendix B). This would include an Internal Revenue Service W-9 form and agreement to abide by the terms of the fuels reduction prescription.

The landowner would be required to obtain and submit 2 bids from contractors to do the work (See Appendix C). Cost share assistance will be based on the lowest bid. The landowner will be responsible for all work being preformed on the property and for the project being done to the specifications of the prescription. The landowner will track all costs and provide documentation of such at the completion of the project. Any profit or revenue received by the landowner as a result of the fuels reduction project will be subtracted from the total cost of a project before determining the total of all qualifying costs. Documentation of any and all revenue the landowner receives as a result of the fuels reduction must also be provided at the completion of the project.

The program will reimburse the landowner 70% of all qualifying costs from approved fuels reduction activities. The commitment to maintain this prescription for 10 years by the landowner will increase the cost share of the program to 80%. There would be no reimbursement for this maintenance after the initial completion of the project. Qualification of a property for the program will be at the discretion of the Wildland Urban-Interface Specialist. A total of $1,500 dollars per acre will be the maximum amount allowed for calculating reimbursement percentages for fuels treatment.

Projects that will be eligible for the cost share program include; thinning dense stands of trees, thinning dense under story, slash or biomass disposal, prescribed fire, eliminating ladder fuels and removal of volatile fuels in close proximity to structures.

Meade County will not be held liable for work that is conducted under this program on a landowner's property. The property owner will be responsible for all work being completed to

the standards of the prescription. Any issues that arise as a result of the fuels project must be settled between the landowner and the contractor.

When the project is complete a certificate of completion form must be submitted to the county (See Appendix D). The project will be inspected to insure all requirements have been met, and then the landowner would be reimbursed for the amount of the approved project. There is no guarantee that the property treated will survive a wildfire event. This program is only intended to reduce the risk from wildfire.

Funding for additional hazardous fuels reduction programs will be pursued to continue reducing risk from wildfire in Meade County. These projects may include larger landscape scale treatments. Projects may vary depending on the situation, cost-share requirements and available funding.

Structure Assessment Data

As of May 2006, 976 structures in Meade County have been assessed for wildfire severity using form 502. The following statistics from the data collected indicate that 54% of the structures assessed are in the low severity, 31% are high severity and 15% are extreme severity. If we consider that high and extreme severity ratings need to be reduced, that would mean 46% of the structures need mitigation work to reduce the threat from wildfire. 79% of the structures surveyed have conifer as the primary vegetation that would affect fire behavior.

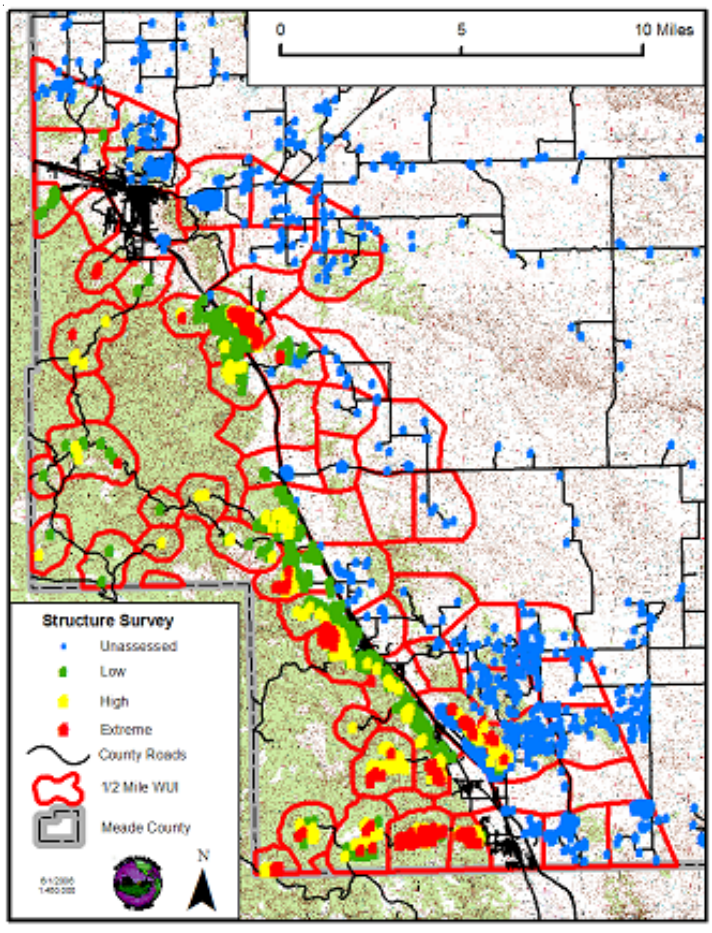
- 18% have a light conifer rating.
- 19% have a medium light conifer rating.
- 24% have a medium conifer rating.
- 35% have a heavy conifer rating.
- 4% have a extreme conifer rating.
- 42% of the structures surveyed have the potential of sustained crown fire within 100 feet of the primary dwelling.

Steep slopes below a structure are very important because of the effect slope has on fire behavior. A steep slope can increase fire behavior dramatically. Of the 976 structures surveyed . . .

- 48% of the structures are on a slope of less than 8%.
- 19% of the structures are on a slope of 8% to 20%.
- 16% of the structures are on a slope of 20% to 30%.
- 17% of the structures are on a slope of greater than 30%.

Survivable space needs to be provided to reduce the intensity a structure is exposed to while the fire is burning in the survivable space of the structure. It also provides space for fire suppression crews to work. Of the structures assessed the data shows . . .

- 34% have treated more than 70% of the survivable space.
- 65% have treated between 30% and 70% of the survivable space.
- 1% has treated less than 30% of the survivable space.



Roof covering materials are a very important feature of wildfire preparedness. The structure assessment data shows…

- 16% have fireproof roof coverings.
- 75% have fire resistive roof coverings.
- 3% have fire resistive, but deteriorating roof coverings.
- 6% have a non-fire rated roof covering.

This information will be very valuable in developing fire mitigation plans to reduce the risk from wildfire for these homes in the Wildland Urban-Interface.

Fire Suppression

The level of emergency preparedness in Meade County relies on volunteer fire fighters. Response capability may vary dramatically depending on the day and time of the incident. Most departments would be unable to man all of their apparatus 24 hours a day, 7 days a week. Many of the volunteers can't stay out on a fire for extended amounts of time because they have employment and other obligations. 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 is dramatically reduced.

The Black Hawk, Box Elder, Doty, Enning, Faith, Ft. Meade, Hereford, Mud Butte, Nemo, New Underwood, North Haines, Opal, Piedmont, Sturgis, Vale, Wasta and the Whitewood Fire Departments provide fire suppression for Meade County. All fire departments in Meade County cooperate under mutual aid with the other fire departments in the county. The following pictures are examples of some of the fire departments in Meade County.

Black Hawk Fire Department
PO Box 233
Black Hawk, SD 57718

The geographic location is 44.15 degrees N Latitude and -103.32 degrees W Longitude.

This station houses:
2- Structure Engines
2- Tenders
3- Wildland Engines
1- Utility Truck
1- Rescue Truck

Doty Fire Department
8770 Nemo Road
Rapid City, SD 57702

The geographic location is 44.11 degrees N Latitude and -103.36 degrees W Longitude.

This station houses:
2- Structure Engines
2- Wildland Engines
2- Tenders

Ft. Meade Fire Department
Building T-296 Reno Road
Ft. Meade, SD 57741

The geographic location is 44.41 degrees N Latitude and -103.47 degree W Longitude.

This station houses:
1- Type 1 Aerial Engine
1- Type 1 Structure Engine
1- Type 5 Engine
1- Type 6 Engine

Ft. Meade also has a fuels module, which consists of a 7-man crew with crew carrier. This module may be available for fire suppression activities and can respond when they are statused and available.

North Haines Fire Department
129 Country Road
Rapid City, SD 57701

The geographic location is 44.13 degrees N Latitude and -103.19 degrees W Longitude.

This station houses:
1- Type 1 Engine
1- Type 3 Engine
2- Type 6 Engines
1- Type 3 Tender
1- Rescue Truck

Piedmont Fire Department
11039 Park St.
Piedmont, SD 57769

The geographic location is 44.23 degrees N Latitude and -103.39 degrees W Longitude.

This station houses:
2- Structure Engines
5- Wildland Engines
2- Tend1-
Rescue Truck
1- Ambulance

Sturgis Fire Department
1901 Ballpark Road
Sturgis, SD 57785

The geographic location is 44.405 degrees N Latitude and -103.519 degrees W Longitude.

This station houses:
3- Structure Engines
5- Wildland Engines
2- 2,500 gallon Tender
4-Ambulance
1-Rescue Truck

The state of South Dakota also has fire suppression crews and apparatus available to suppress wildfires. The South Dakota Wildland Fire Suppression Division has one Type 4 and two Type 6 engines that could be dispatched from the Lead District and five Type 6 engines and one Type 4 engine also available from the Rapid City district.

The USDA Forest Service has one Type 4 engine and four Type 6 engines in the North Zone of the Black Hills. They also have two 10-man hand crews available for fire suppression. These resources are normally available 5-days a week. During elevated fire danger these resources may be statused 6 or 7 days a week according to suppression needs.

Public Education Programs

Public education programs will be developed to provide the public with information to make them more prepared for wildfire. Building materials and building practices are very important to prevent the initial ignition of a structure (See Appendix E). More importantly is the use of fire resistive roof coverings, e.g. steel or asphalt. Removal of surface fuels, e.g. needle litter, leaves and cured grass, needs to be preformed regularly. This will eliminate the fuel bed required for initial ignition from air born embers. Survivable space is also important to reduce the convection and radiant heat that a structure is exposed to during a wildfire event. Research indicates that many homes in the Wildland Urban-Interface don't ignite from the "big flames". These large flames may only last 60 to 90 seconds and then die down. With sufficient survivable space the structure will survive this duration of higher intensities. Structures situated in the prairie areas also need to give consideration to the hazards associated with fuels such as cured grasses and shelterbelts. Mitigation efforts could include graveled driveways and/or disking fuel brakes, cultivated flower beds or well irrigated lawns. This will interrupt the continuity of the natural wildland fuels and the fuels of the structure thus reducing the chance of fire spreading to the structure. If common sense Firewise practices are maintained, this will greatly reduce the chance of initial ignition or at the very least give fire suppression crews a much better opportunity to provide protection to the property.

Meade County will conduct public meetings with communities and homeowners about the Hazardous Fuels Reduction Program to explain the information to those who may be eligible to particiapate in the program. Printed flyers delivered door-to-door or mailed will also be utilized. Promoting Firewise practices and procedures will also be part of the program. Meade County will also be involved with cooperators in having information/education booths at local public events.

A list of fire resistive vegetation will be provided to homeowners to reduce volatile fuels close to structures. Evergreens should be avoided in close proximity to structures. Property owners should consider replacing fire prone plant species with ones that are of a more fire resistive type (See Appendix F).

Evacuation plans and safe zones should be developed for areas that have a higher potential for severe wildfire activity. Meade County currently suspends open burning between July 28 and August 18 of every summer. Burning is also suspended when the Grassland Fire Index reaches very high rating.

Collaborated efforts between interested parties to develop strategies to reduce fire intensity and reduce the threat from catastrophic crown fire will reduce the risk from wildfire. Encouraging people to live Firewise lives can reduce structural ignitability, and is crucial to protecting life and property and resources. This cannot be achieved easily, but will require the shared responsibility of everyone that has a stake in its success.

FIRE HAZARD SEVERITY FORM

Form 502

A. Subdivision Design Points

1.Ingress/Egress

Two or more primary roads	1 ___
One road	3 ___
One-way road in, one-way road out	5 ___

2.Width of Primary Road

24 feet or more	1 ___
Less than 24 feet	3 ___

3.Accessibility Road Grade

5% or less	1 ___
5% to 10%	5 ___
10% or more	10 ___

4.Secondary Road Terminus

Loop roads, cul-de-sacs with an outside turning radius of 45 feet or greater	1 ___
Cul-de-sac turnaround or dead end roads 200 feet or less in length	3 ___
Dead-end roads greater than 200 feet in length	5 ___

5.Street Signs

Present	1 ___
Not present	5 ___

B. Vegetation

1. Grass

Light – Only grass/forbs less than 2 feet tall	1 ___
Medium – Grass greater than 2 feet tall	3 ___
Heavy – Grass with conifer reproduction covering 25% or more ground area	5 ___

2.Conifer: Ponderosa pine or pine spruce mix

Light – Open well space conifers greater than 10 feet tall with grass/forbs	3 ___
Medium light – Conifers more than 50% of vegetation, crowns not touching w/ no ladder fuels	5 ___
Medium – Conifers more than 50% of the vegetation, crowns not touching, with understory or ladder fuels	7 ___
Heavy – Dense conifers with crowns touching	10 ___
Extreme – Dense conifers w/ crowns touching & thick dead and down fuels and ladder fuels	12 ___

3. Aspen/birch

Light – Sparse or mature aspen with grass/forb understory	1 ___
Medium – Aspen/birch intermixed with scattered conifers	3 ___
Heavy – Decadent aspen/birch with standing and fallen dead and intermixed conifers	5 ___

4. Oak/hardwood brush

Light – Patchy oak with less than 25% of the area covered with grass	1 ___
Medium – Mature oak with scattered (less than 10%) conifer	3 ___
Heavy – Continuous oak brush covering more than 50% of area with grass	5 ___

C. Topography (Slope Hazard Rating)

8% or less	1 ___
More than 8%, but less than 20%	4 ___
20% or more, but less than 30%	7 ___
30% or more	10 ___

D. Fire Protection-Water Source

1000 GPM hydrant within 500 feet	1 ___
Hydrant farther than 500 feet or draft site	2 ___
Water source 20 min. or less, round trip	5 ___
Water source farther than 20 min., and 45 min. or less, round trip	7 ___
Water source farther than 45 min., round trip	10 ___

E. Fire Department Response Time (Type I Engine)

Less than 15 minutes	1 ___
15 to 30 minutes	5 ___
More than 30 minutes	10 ___

F. Survivable Space

70% or more of the site	1 ___
30% or more, but less than 70% of site	10 ___
Less than 30% of site	20 ___

G. Existing Building Roofing Material

Fire Proof	1 ___
Fire Resistive	5 ___
Fire Resistive but Deteriorating	10 ___
Non-Fire Rated	20 ___

H. Existing Building Construction Materials

Noncombustible Siding/Deck	1 ___
Noncombustible Siding/Combustible Deck	5 ___
Combustible siding and deck	10___

I. Utilities (Gas and/or Electric)

All underground utilities	1 ___
One underground, one aboveground	3 ___
All aboveground	5 ___

Total _____

Grant Eligibility Rating
(Sum of B, C, F) **Total** _____

Low	4 – 20
High	21 – 28
Extreme	29 – 42

Overall Rating

Low Hazard	32-39
Moderate Hazard	40-59
High Hazard	60-74
Extreme Hazard	75-150

Appendix A

MEADE COUNTY HAZARDOUS FUELS REDUCTION
REQUEST FOR COST-SHARE ASSISTANCE

Applicant Information

First Name: _____ M: ____ Last Name:_____
Address _____
Address _____
City _____ State _____ Zip Code _____-_____
Telephone _____

Project Information

Community/Subdivision _____
Parcel # _____ Latitude _____ Longitude _____

Project Description: _____
_____
_____

Number of Trees _____ Number of Acres _____ Expiration Date _____

I request cost-share assistance to complete the project described above. I agree to complete the entire project by the expiration date or all cost-share funds shall be forfeited. I understand that by completing the application, I am not guaranteed cost-share. Upon completion of the project I agree to provide Meade County with proof of my expenses by submitting a copy of receipts, invoices or other written document itemizing costs incurred. I understand that I will not receive payment until such proof, along with a signed "Certificate of Project Completion" has been received by the County. I authorize a representative of the county to have access to the project site area. I have not yet started the project and I understand that if I begin the project before receiving written approval, I may be denied funding.

☐ I agree that development will commence within 1 year of treatment.

I _____ agree to maintain the prescribed treatment for 10 years.

Signature of Participant _____ Date _____

For Official Use Only ----------
Approved By _____ Date Approved _____
Estimated Total Project Cost _____ Estimated Cost-Share Amount _____
Estimated Completion Date _____

Participation in Meade County Firewise program is open to all eligible applicants withought regard to race, color, religion, national origin, age, sex, marital status or disablility.

Appendix B

Contractors
Fuels Reduction

Last Name	First Name	Title	Company Name	Address	City	St	ZIP	Bus Phone	Home Phone	Precom	Piling	POL	Comm	Salv	Burn	F Break	MPB	Chipper	Pennington	Custer	Fall River	Lawrence	Meade
Allen	Bob	Owner	Black Dog Firefighting	11800 Deerfield Road #	Hill City	SD	57745	(605) 391-7377		Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
Baker	Robert	Vice President	Baker Timber Products Inc.	13536 S Hwy 16	Rapid City	SD	57702	(605) 348-8338	(605) 348-8338	Y	Y		Y	Y			Y	Y	Y	Y	Y	Y	Y
Bartels	Wes				Newell	SD		(605) 456-2940	(605) 257-2528 (Mark)	Y	Y	Y		Y		Y	Y		Y	Y	Y	Y	Y
Bennett	Allan	Owner	Bennett Branch Busters	313 Industry Road	Sturgis	SD	57785	(888) 300-5291	(605) 347-5291	Y	Y	Y	Y	Y		Y	Y	Y	Y			Y	Y
Bourne	Kevin		L & S Contracting	1525 Racine Street	Rapid City	SD	57701	(605) 718-1149	(605) 718-1149	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Carlson	Chuck	Owner	Carlson Logging	HC 83 Box 155	Custer	SD	57730	(605) 673-4522	(605) 673-4522	Y	Y		Y	Y	Y		Y		Y	Y	Y		
Christensen	Rod			1008 Howard St Lot 112	Rapid City	SD	57701	(605) 391-4746	(605) 391-4746	Y	Y				Y		Y		Y	Y	Y	Y	Y
Christensen	Troy			110 E. Van Buren	Rapid City	SD	57701	(605) 381-5520	(605) 343-2787	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
Coburn	Bill	Acq. Forester	Pope & Talbot Inc	PO Box 850	Spearfish	SD	57783	(605) 642-7741	(605) 642-7234	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
Couch	Joe		Joe Crouch Trucking					(605) 722-8557	(605) 641-7592 (cell)	Y	Y	Y	Y	Y	Y	Y	Y		Y			Y	Y
Crawford	Brad	Owner	Crawford Logging	20080 Bench Ln	Spearfish	SD	57783	(605)642-3446	(605)641-5254	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
Dilts	Gene			216 Oriole Dr.	Spearfish	SD	57783	(605) 642-5799	(605) 644-0437	Y	Y				Y	Y						Y	Y
Eddy	Rob			617 Cleveland	Rapid City	SD	57701	(605) 719-9657	(605) 719-9657	Y	Y				Y				Y	Y	Y	Y	Y
Hankee	Bill		Western Mobile Tree Service		Rapid City	SD		(605) 391-5151		Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
Haptonstall	Gary				Moorcroft	WY	82721	(307)756-9520	(307) 660-4704	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y		Y	
Hemsher	Sony	President	"A" Firewood	PO Box 376	Piedmont	SD	57769	(605) 787-4825	(605) 787-5303	Y	Y				Y		Y		Y			Y	Y
Knapp	Larry	Owner	CTB Logging	PO Box 263	Hulett	WY	82720	(307) 680-9936	(307) 467-5980	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
Lanphear	Leroy	President	Lanphear Enterprise Co.	PO Box 168	Deadwood	SD	57732	(605) 584-0042	(605) 584-0042	Y	Y		Y	Y	Y		Y		Y	Y	Y	Y	Y
Lyons	Brent	Manager	Lyons Wildfire	1916 Elk Road	Sturgis	SD	57785	(605) 423-4233	(605) 347-0555 (cell)	Y	Y		Y		Y	Y			Y	Y	Y	Y	Y
Maea	Sione	Supervisor	Maea Enterprise	815 Dilger	Rapid City	SD	57701	(605) 388-0525	(605) 388-0525	Y	Y			Y	Y	Y	Y		Y	Y	Y		Y
Martian	Larry	Owner	Martian Logging	PO Box 103	Whitewood	SD	57793	(605) 580-1230	(605) 269-2444	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
Mckie	Mike	Owner	Copper Mt. Timber Mgt.	PO Box 784	Hill City	SD	57745	(605) 574-2210		Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
Moos	Ron		Mooses Trees	PO Box 201	Custer	SD	57730	(605) 673-2672	(605) 673-2680 (fax)	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y
Munoz	Sergio	Owner	SM Logging	PO Box 153	Keystone	SD	57751	(605) 348-1098	(605) 666-4320	Y	Y		Y	Y	Y	Y		Y	Y	Y	Y	Y	Y
Munoz	Angel	Owner	Munoz Logging & Const.	1540 Rand Road	Rapid City	SD	57702	(605) 716-5494	(605) 390-7686	Y	Y	Y	Y		Y				Y	Y		Y	Y
Munoz	Aurelio		Black Hills Thinning	2400 Lindsey Dr	Rapid City	SD	57702	(605) 348-3057	(605) 390-9577	Y	Y		Y	Y	Y	Y				Y		Y	Y
Novotny	Cam			259 Evans Lane #29	Spearfish	SD	57783	(605) 642-4246	(605) 642-4246	Y	Y	Y	Y		Y		Y		Y			Y	Y
Parsons	Colin		Abstract Logging	P.O. Box 384	Whitewood	SD	57793	(605) 722-2549	(605) 645-0655 (cell)	Y	Y	Y	Y		Y	Y	Y		Y	Y		Y	Y
Pilcher	Roy			201 Highway 24	Devil's Tower	WY	82714		(307) 467-5328	Y	Y	Y	Y	Y	Y	Y	Y		Y			Y	Y
Powell	Tyler	Owner	A & T Thinning	4616 Staton Pl	Rapid City	SD	57702	(605) 415-2637		Y	Y			Y	Y	Y	Y		Y	Y	Y	Y	Y
Purcella	Seth			3071 O'Brien	Rapid City	SD	57703	(605) 393-8329	(605) 393-8329	Y	Y				Y								
Quashnick	Tim	Owner	Tim's Logging Service	21431 Woodville Lane	Lead	SD	57754	(605) 641-7209	(605) 584-2833	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Riggs	Jim		Jim Riggs Logging		Sturgis	SD	57785	(605) 490-1258	(605) 720-8306	Y	Y	Y	Y	Y	Y	Y	Y		Y			Y	Y
Rollette	Monte	Owner		PO Box 442	Hot Springs	SD	57747	(605) 890-0006	(605) 745-6132	Y	Y				Y	Y			Y	Y	Y	Y	Y
Rosencraz	Tim	Owner		19706 Mossing Lane	Spearfish	SD	57783	(605) 645-2347		Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
Sandford	Mike	Owner		PO Box 251	Beulah	WY	82712	(307) 290-2294		Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
Stevens	Alan			340 N 23rd Street	Hot Springs	SD	57747	(605) 890-3122	(605) 745-5039	Y	Y	Y			Y				Y	Y	Y	Y	Y
Summers	Jeff			1408 38th Street	Rapid City	SD	57702	(605) 342-8370	(605) 342-8370	Y	Y				Y				Y	Y	Y	Y	Y
Tangimana	Afui	President	A&M Thinning Inc	6910 Diamond T Rd	Black Hawk	SD	57718	(605) 786-1270	(605) 786-1270	Y	Y		Y	Y	Y	Y	Y		Y	Y	Y	Y	Y
Versemann	Russell		Dakota Tree Service	6683 Green Valley Drive	Rapid City	SD	57703	(605) 393-3002	(605) 393-0419	Y	Y				Y		Y		Y	Y	Y	Y	Y
Weaver	Tim				Rapid City	SD	57702	(605) 394-4186	(605) 721-6877	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y

Precom = Precommercial Thinning
Piling = Piling of limbs and branches for burning
POL = Products Other than Lumber (posts, poles, chips)
Comm. = Commercial Thinning
Salv. = Salvage Logging
Burn = Pile Burning
F Break = Fuel Break Projects
MPB = Treatment of timber infested with Mountain Pine Beetles
Chipper = Chipper available

Appendix C

MEADE COUNTY HAZARDOUS FUELS REDUCTION
CERTIFICATATION OF PROJECT COMPLETION

Applicant Information

First Name: _____ M: ____ Last Name: _____
Address _____
Address _____
City _____ State _____ Zip Code _____
Telephone _____

Project Information

Community/ Subdivision _____
Parcel # _____ Latitude _____ Longitude _____

Project Description: _____
_____
_____
_____

Number of Trees _____ Number of Acres _____ Completion Date_____

I certify that I have completed the above project in accordance with the project specification program requirements. I hereby apply to Meade County for cost-share payment for completed project work. I have included documentation of costs incurred, and a completed W-9 form. Any profit or revenue received as a result of this fuels reduction project has also been disclosed and documented.

☐ I agree that development will commence within 1 year of treatment.

I _____ agree to maintain the prescribed treatment for 10 years.

I also understand this treatment only **reduces the risk**, and **does not guarantee** my property will not sustain damage during a wildfire event.

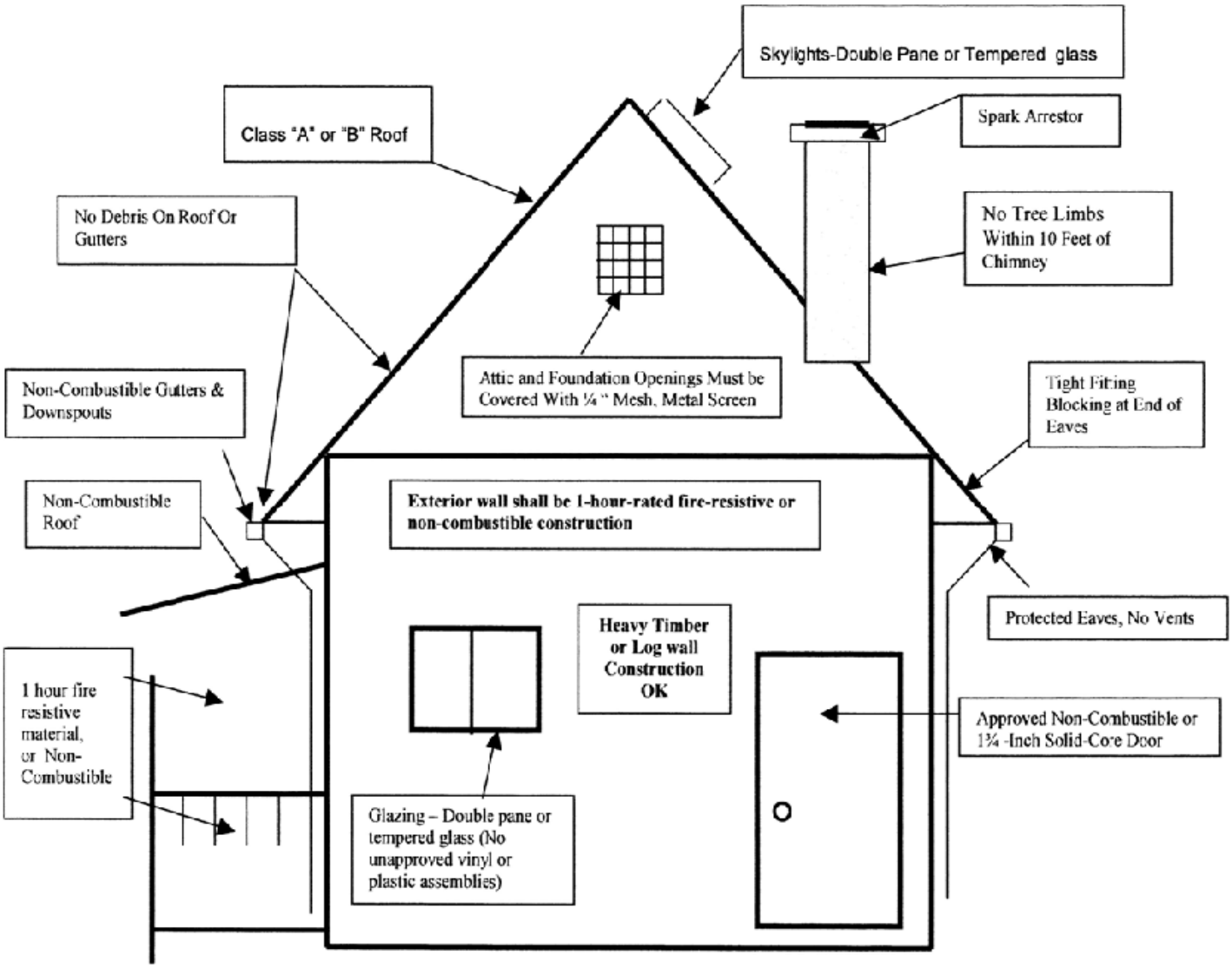
Signature of Participant_____ Date _____

For Official Use Only ----------
Approved By _____ Date Approved _____Cost-Share Earned _____
Date Completed _____Date Cancelled _____
Number of Trees Treated _____Number of Acres Treated _____
Payment Approved By_____ Date Payment Approved_____

Participation in Meade County Firewise program is open to all eligible applicants withought regard to race, color, religion, national origin, age, sex, marital status or disablility.

Appendix D

IGNITION-RESISTIVE CONSTRUCTION



No vinyl or plastic handrails on decks unless approved & fire rated

Appendix E

Fire Resistive Plant Species for the Great Plains

All plant material will burn, but the following is a list of plants that are more fire resistive.

TREES	**Common name**
Deciduous:	
Betula	Birch
Acer spp.	Maple
Alnus spp.	Alder
Catalpa speciosa	Northern Cataplpa
Cornus florida	Flowing Dogwood
Fraxinus spp.	Ash
Gleditsia tricanthos	Honeylocust
Malus spp.	Apple
Populus spp.	Aspen, Cottonwood, Popular
Prunus spp.	Cherry
Quercus spp.	Oak (burr)
Robinia pseudoacacia	Black locust
Salix spp.	Willow

PERENNIALS	**Common name**
Achillea spp.	Yarrow
Allium schoenoprasum	Chives
Bergenia spp.	Bergenia
Brodiaea spp.	Lilies
Coroepsis spp.	Coreopsis
Erysimum linifolium	Wall flower
Eschscholzia spp.	California poppy
Fragaria sp.	Wild Strawberries
Geranium spp.	Geranium
Hemerocallis hybrids	Daylillies
Heuchera spp.	Coral bells
Iris spp.	Iris
Kniphofia uvaria	Red hot poker
Lupinus spp.	Lupine
Oenotheria spp.	Evening primrose
Penstemon spp.	Beard tongue
Solidago spp.	Goldenrod
Strachys bysantina	Lamb's ear

SHRUBS	**Common name**
Amelanchier spp.	Serviceberry
Atriplex canesecns	Four Wing Saltbush
Buddilia davidi	Butterfly Bush
Caryopteris x clandonesis	Blue-Mist Spiria
Cornus serica	Red Osier Dogwood
Cotoneaster spp.	Cotoneaster
Liqustrum spp.	Privet
Mahonia spp.	Creeping Grape Holly
Pachistima canbyi	Dqarf Mountain Lover
Philadelphus spp.	Mock Orange; Syringa
Rhamnus fragula	Buckthorn
Rhododendron spp.	Azalaes, Rhododendrons
Ribes spp.	Currant
Sheperdia argentea	Silver buffalberry
Symphoricarpos albus	Snowberry
Viburnum trilobum	Cranberry bush
Yucca spp.	Yucca

GROUNDCOVERS	**Common name**
Succulents:	
Delospema nubigenum	Hardest ice plant
Echeveria spp.	Hens & Chicks
Sudem spp.	Stone crops
Non-succulents:	
Schillea tomentosa	Wolly yarrow
Ajuga reptans	Carpet bugle
Arctostaphylois uva-ursi	Kinnikinnick
Armeria meritima	Sea pink; thrift
Cerastium tomentosa	Snow in summer
Cotoneaster dammeri	Bearberry cotoneaster
Euonymus fortunei	Winter creeper
Potentilla tabernaemontanii	Spring cinquefoil
Senecio cineraria	Dusty miller
Thymus praecox articus	Mother of thyme
Verbenia bipinnatifida	Verbenia

Appendix F

Glossary

CAR— Community at Risk

Community—A group of people living in the same locality and under the same government.

Community At Risk— A group of homes and other structures with basic infrastructure in an area that is at risk from uncontrolled wildfire.

Community Wildfire Protection Plan—A document that addresses the needs of the people involved in its development. Issues such as wildfire response, hazard mitigation, community preparedness, and structure protection may be covered topics.

HFRA— Healthy Forest Restoration Act; 2003.

Fire Regime Condition Class 3 —This term means the condition class description developed by the USDA Forest Service Rocky Mountain Research Station in the Development of Coarse-Scale Spatial Data for Wildland Fire and Fuel Management (RMRS-GTR-87, http://www.fs.fed.us/rm/pubs/rmrs_gtr87.html), dated April 2000 (including any subsequent revisions). Fire regimes on the land have been significantly altered from historical ranges. A high risk exists of losing key ecosystem components from fire. Fire frequencies have departed from historical frequencies by multiple return intervals, resulting in dramatic changes to the size, frequency, intensity, or severity of fires or landscape patterns. Values of vegetation attributes have been significantly altered from their historical ranges.

Fire Regime I—This term means an area that historically has had low-severity fires every 0 to 35 years that is located primarily in low-elevation forests of pine, oak, and pinyon-juniper.

Fire Regime II—This term means an area that historically has had stand-replacement-severity fires every 0 to 35 years that is located primarily in low- to mid-elevation rangeland, grassland, or shrub land.

Fire Regime III—This term means an area that historically has had mixed-severity fires every 35 to 100 years that is located primarily in forests of mixed conifer, dry Douglas-fir, or wet ponderosa pine.

Hazard—A fuel complex defined by kind arrangement volume, condition and location that forms a special threat of ignition or of suppression difficulty.

Municipal Watershed—A community water system “that serves at least 15 service connections used by year-round residents of the area served by the system; or regularly serves at least 25 year-round residents” (Safe Drinking Water Act, Section 1401, 42 U.S.C.A. 300f.(15)).

Municipal Water Supply System—This term means the:
Reservoirs, canals, ditches, flumes, laterals, pipes, pipelines, and other surface facilities and systems constructed or installed for the collection, impoundment, storage, transportation, or distribution of drinking water.

NFP—National Fire Plan; August 2000

Shelterbelt—A barrier of trees and shrubs that protects against the wind and reduces erosion.

Risk—Activities or things that provide a source of heat sufficient to result in a fire ignition.

Value—Natural resources, improvements, or other values that may be jeopardized or lost if a fire occurs.

Wildland-Urban Interface—A zone where structures and other human development meet and intermingle with undeveloped wildland or vegetative fuels.

Wildland-Urban Interface Buffer Zones (½, 1½ and 3-mile) —Geographic areas centered around values at risk that help develop mitigation strategies to reduce the risk from wildfire.

This plan has been developed through the collaboration of local government, fire officials and State and Federal agencies to reduce the risk from wildfire on Federal and Non-Federal lands in Meade County.

USDI Bureau of Land Management		9-29-06
USDA Forest Service		4-17-07
South Dakota Department of Agriculture:		
Wildland Fire Suppression Division		12/14/06
Resource Conservation And Forestry Division	Last Signature - Resigned	4/30/09

Approved By:	Representative	Date
Meade County Commission		10-3-06
Meade County Department of Equalization		10-3-06

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*Fire Science Lab, USFS Rocky Mountain Research Station; www.firelab.org

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*Forest Restoration and Fuels Reduction Thinning in The Southwest; c. 2004; Marlin Johnson

* National Fire Protection Association; www.nfpa.org

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*NFPA 299 Standard for Protection of Life and Property from Wildfire 1997 Edition; c.1997; Technical Committee on Forest and Rural Fire Protection

*NFPA 1141 Fire Protection in Planned Building Groups 1990 Edition; c.1990; Technical Committee on Forest and Rural Fire Protection

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http://nationalregisterofhistoricplaces.com/SD/Pennington/state.html

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*United States Department of Agriculture Forest Service; www.fs.fed.us

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