



# CITY OF RAPID CITY

## RAPID CITY, SOUTH DAKOTA 57701

**Rapid City Fire Department  
Fire & Life Safety Division**

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### **Wildland Urban Fire Mitigation Plans**

The sole purpose of a Wildland fuels mitigation plan is to create a setting within the Wildland Urban Interface (WUI) where in the event of a fire, the fire spread and over all negative impact can be reduced for both your specific property and neighborhood community. All communities have several factors determining their residents' survivability.

Emergency preparedness for an imminent threat from wildfire should include familiarization with escape routes, assembling emergency supplies and belongings in a safe spot, and ensure all residents within the home are on the same page. Remember to stay aware of the latest news on the fire from local media and the fire department, and always follow your own personal action plan and *leave early*. While this is great advice, remember that many WUI communities are small enough that in most cases fire will grow so rapidly that the event will only last one afternoon, just a few hours. This is not enough time to evacuate, especially when fire impinges on escape routes.

Part of emergency preparedness in neighborhoods is ensuring the viability of the egress routes. Keep the vegetation cut back to a distance of at least 10 ft along the roadways. Failing to do this will result in heavy fire encroachment and impassable exit paths. Many people die every year by being overrun while trying to flee. Most of the WUI areas in the city are relatively small in area, and fire will quickly spread and overtake large portions in a very short amount of time. The grass is the primary carrier of fire, and the height greatly dictates the intensity at which it will burn. 3-4 foot tall cured grass will produce 10ft flame lengths, longer if pushed by wind. That is over half the width of many roadways in WUI areas! In all WUI neighborhoods surface fire will impact egress routes. 'The severity at which the fire will affect you and your neighbors' ability to evacuate is directly linked to the amount and orientation of fuel available to burn. If your property borders an egress roadway you must take action to reduce the amount of hazardous fuel in the buffer zone'.

Various stages of assault occur as a building is exposed to a wildland urban fire. Ashes are cast in front of a fire out of a smoke or convection column, which can result in secondary ignitions. Heavier embers that have more body weight and may contain more heat to serve as sources of ignition follow. Finally, the actual intrusion of a flame front and the radiant heat flux can expose combustibles stored outside of a building and the exterior structure of a building to various levels of radiant heat. A study revealed that the actual exposure of a building to the flame front by the perimeter of the fire was usually less than six minutes. However, the exposure to the forms of other materials that can result in proliferation of other ignitions can vary, depending on wind, topography and fuel conditions.

To enhance structural survivability, the self-defense mechanisms must, first, do everything possible to prevent the ignition of materials from objects that are cast in front of the fire and, second, they must withstand the assault of the fire on the structure to prevent flames from penetrating into the building and resulting in an interior fire. There are considerable problems in achieving both of these objectives without definitive standards for self-defense mechanisms on the exterior of buildings. All forms of fire protection are classified as either active or passive. **Active** fire protection is taking specific action to control the fire in some manner. **Passive** fire protection uses resistance to ignition or provides some form of warning that allows other action to be taken. Ignition resistant building materials are a good example of passive. Many may construe that reducing the amount of hazardous vegetation on homeowners property would fall into the passive category. Actually, actively altering the amount of fuel the fire has to burn directly affects how the fire will burn, which is *taking specific action to control the fire in some manner*. This type of active fire protection is what will undoubtedly have an effect on the level of destruction our communities will suffer when a wildland fire occurs.

The fire department has and will continue educate homeowners on these issues through the Survivable Space Initiative. We feel the reason the program is so successful is that we take the time to talk with homeowners and explain the steps they can take to reduce the hazards on their property. Check lists are a guide and a tool, but giving knowledge, not just information, is what makes the difference. Building trust with the homeowner and demonstrating the willingness to work for a solution brings positive results. This qualitative approach has been well received and has produced not only informed homeowners but strong relationships within our wildland urban community.

Sincerely,

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