

Community Assessment for the Middle Niobrara Valley Watershed

Middle and Lower Niobrara Natural Resource
Districts, Nebraska

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This assessment describes the wildfire-related characteristics of the central Niobrara Valley in general and the specific wildfire-related characteristics of individual communities within the valley. It addresses the ease with which home ignitions can occur under severe wildfire conditions and how these ignitions might be avoided within the home ignition zones of affected residents. It identifies specific issues within communities that can be addressed, and it explains how communities can become recognized Firewise Communities.

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**FIREWISE COMMUNITIES/USA®
RECOGNITION PROGRAM
COMMUNITY ASSESSMENT FOR THE
CENTRAL NIOBRARA WATERSHED**

FOREWORD

Beginning in 2009 Cherry County, Nebraska, began receiving Title III funds from the U.S. Forest Service as payment in lieu of taxes for the national forest lands located within the county. One of the allowable uses for these funds is to carry out activities under the Firewise Communities program (Secure Rural Schools and Community Self-Determination Act, Reauthorization for Fiscal Years 2008-2011, Sec. 601(a), Title III-County Funds).

In early 2013 the Cherry County Commissioners voted to pursue using these funds to help establish Nebraska's first Firewise Community (or Communities). Cherry County entered into an interlocal agreement with the Niobrara Council and several of its public entity board members, the Region 24 Emergency Management Agency, and the Nebraska Forest Service to establish the Niobrara Council as the coordinator to launch the Firewise Communities program in the central Niobrara River watershed. This area lies within Nebraska's Region 24 Emergency Management area and the boundaries of the Central Niobrara Fire Management Plan, which is the local Community Wildfire Protection Plan (CWPP).

The Niobrara Council was established to assist the National Park Service with management of the Niobrara National Scenic River, which crosses both private and public lands. The Council consists of private landowners, county, natural resource district, state, and federal land managers, and representatives of the environmental community as well as timber and recreation interests. Because the Niobrara Council represents a broad spectrum of stakeholders, it has been deemed to be the ideal organization to coordinate the establishment of the Firewise Communities program in the Central Niobrara Watershed and adjacent rural fire districts.

The Niobrara Council has identified within the boundaries of the CWPP several "focus areas" that have the potential to become Firewise Communities. This community assessment examines the overall hazardous conditions in the Niobrara Valley that apply to all of the focus areas, plus assesses each community individually in terms of wildfire risk and mitigation opportunities. This document is structured so that individual community assessments may be added as needed. The Council determined that this structure best facilitates the central coordination required for utilizing the Title III funds and eliminates duplication.

Each of the identified focus areas lies within a wildland-urban interface (WUI). The focus areas contain residential and/or recreational development adjacent to overstocked forest land and/or mixed-grass prairies. The potential for catastrophic wildfire has been widely recognized in the central Niobrara Valley since 2006, when the "Big Rock" fire burned approximately 3,000 acres and destroyed a dozen homes in and adjacent to Valentine, Nebraska. The 76,000-acre "Region

24 Complex” that burned through the watershed in July, 2012 has lent a sense of urgency to the situation. Areas that did not burn in these wildfires remain dangerously choked with heavy fuels, and areas that did burn are now at risk of re-burn as the tree skeletons “jackstraw” over the landscape, blocking emergency access.

Area homeowners are becoming increasingly aware of the hazardous situation, and the potential for generating positive action is higher now than it has been in the past. There is also an opportunity for these communities to coordinate their efforts with those of surrounding larger landowners. Many of these landowners are participating in or are considering participating in the Nebraska Forest Service’s Forest Fuels Management Program. The combination of implementing forest thinning on lands adjacent to these communities and the establishment of defensible space around structures through the Firewise Communities program should reduce wildfire hazard on a landscape scale and increase the overall safety for communities within the Wildland-Urban Interface.

INTRODUCTION

The Firewise Communities/USA program is designed to provide an effective management approach for preserving wildland living aesthetics. The program can be tailored for adoption by any community and/or neighborhood association that is committed to ensuring its citizens maximum protection from wildland fire. The following community assessment is intended as a resource to be used by residents in each focus area for creating a wildfire safety action plan. The plan developed from the information in this assessment should be implemented in a collaborative manner, and updated and modified as needed.

Data gathering for this assessment was performed by Kalli Kieborz and Sandy Benson with assistance in the Big Rock Rim area from Shane Siewert, Sally Conner, and Bob Stetter.

DEFINITION OF THE HOME IGNITION ZONE

Each focus area covered in this assessment is located in a wildfire environment. Wildfires will happen – exclusion is not a choice. The variables in a fire scenario are when the fire will occur, and where. This assessment addresses the wildfire-related characteristics of the central Niobrara Valley in general and the specific wildfire-related characteristics of each focus area. It examines the area’s exposure to wildfire as it relates to ignition potential. The assessment does not focus on specific homes, but examines the general characteristics of the entire landscape as well as each focus area as a whole.

A house burns because of its interrelationship with everything in its surrounding **home ignition zone** – the house and its immediate surroundings. To avoid a home ignition, a homeowner must eliminate the wildfire’s potential relationship with the house. This can be accomplished by interrupting the natural path a fire takes. Changing a fire’s path by clearing a home ignition zone is an easy-to-accomplish task that can result in avoiding home loss. To accomplish this, flammable items such as dead vegetation must be removed from the area immediately around

the structure to prevent flames from contacting it. Also, reducing the density of live vegetation will affect the intensity of the wildfire as it enters the home ignition zone.

Included in this assessment are observations made while visiting each focus area. The assessment addresses the ease with which home ignitions can occur under severe wildfire conditions and how these ignitions might be avoided within the home ignition zones of affected residents. Residents can reduce their risk of home destruction during a wildfire by taking actions within their home ignition zones. This zone principally determines the potential for home ignitions during a wildland fire; it includes a house and its immediate surroundings within 100 to 200 feet.

Wildfire behavior will be dominated by the residential characteristics of each area. The good news is that by addressing community vulnerabilities, residents will be able to substantially reduce their exposure to loss. Relatively small investments of time and effort will reap great rewards in wildfire safety.

DESCRIPTION OF [SIZE AND NATURE OF] THE SEVERE CASE WILDLAND FIRE CHARACTERISTICS THAT COULD THREATEN THE AREA

Fire intensity and spread rate depend on the fuel type and condition (live/dead), the weather conditions prior to and during ignition, and the topography. Generally the following relationships hold between the fire behavior and the fuel, weather and topography.

- Fine fuels ignite more easily and spread faster with higher intensities than coarser fuels. For a given fuel, the more there is and the more continuous it is, the faster the fire spreads and the higher the intensities. Fine fuels take a shorter time to burn out than coarser fuels.
- The weather conditions affect the moisture content of the dead and live vegetative fuels. Dead fine fuel moisture content is highly dependent on the relative humidity and the degree of sun exposure. The lower the relative humidity and the greater the sun exposure, the lower will be the fuel moisture content. Lower fuel moistures produce higher spread rates and fire intensities.
- Wind speed significantly influences the rate of fire spread and fire intensity. The higher the wind speed, the greater the spread rate and intensity.
- Topography influences fire behavior principally by the steepness of the slope. However, the configuration of the terrain (such as narrow draws and saddles) can influence fire spread and intensity. In general, the steeper the slope, the higher the uphill fire spread and intensity.

The next wildfire that visits the Niobrara Valley can be anticipated to have the same characteristics as the Big Rock Fire and the Region 24 Complex had in 2006 and 2012. The rugged,

overgrown canyons will make emergency access difficult and increase fire speed and intensity, particularly on southern and western exposures that receive maximum sunlight and drying. Woody fuels continue to expand despite increased thinning activity. It will take years of effort to get the forests thinned back to healthy levels. The forecasted continuation of the drought that began in 2012 will bring high temperatures, low humidities, and little rain – drying fuels out dangerously. Dry lightning can be expected to ignite fires that are likely to be driven by high winds. Wildfires can be expected to increase in size and intensity, putting structures, as well as lives, in the Wildland-Urban Interface at extreme risk.

IMPORTANT CONSIDERATIONS

The Firewise Communities/USA program seeks to create a sustainable balance that will allow communities to live safely while maintaining environmental harmony in a WUI setting. Homeowners already balance their decisions about fire protection measures against their desire for certain flammable components on their properties. It is important for them to understand the implications of the choices they are making. These choices directly relate to the ignitability of their home ignition zones during a wildfire.

Residents are reminded to be conscious of keeping high-intensity fire more than 100 feet from their homes. It is important for them to avoid fire contact with their structures. This includes firebrands. The assessment team recommends the establishment of a 'fire free zone,' allowing no fire to burn within ten feet of a house by removing fuels located there. It is a bad idea for fire to touch a house during a wildfire. Remember that, while wildfire cannot be eliminated from a property, it can be reduced in intensity.

Homeowners are reminded that street signs, addresses, road widths and fire hydrants do not keep a house from igniting. Proper attention to their home ignition zones does. They should identify the things that will ignite their homes and address those.

Weather is, of course, of great concern during wildfire season. At such time as fire weather is severe, homeowners should remember not to leave flammable items outside. This includes rattan doormats, flammable patio furniture, firewood stacked next to the house, or other flammables.

FOCUS AREAS

The Niobrara Council initially identified 10 focus areas within the boundaries of the CWPP that are at risk from wildfire and can benefit from becoming a Firewise Community. These areas include Hidden Paradise/Long Pine Periphery, East Minnechaduza/Valentine Periphery, Minnechaduza Acres, Borman Bridge/Ohlmann Rural Subdivision, Sparks/River Road Corridor, Norden/Johnstown Corridor, Meadville Area, Riverview/Highway 7 Corridor, Old Highway 7/Ainsworth Periphery, and Highway 137/Newport Periphery. Additionally, the small towns of Cody, Kilgore, and Crookston also meet the criteria, and these towns may be added to this assessment at a later date. Specific site analyses for individual focus areas will be added to Appendix A as individual community assessments are performed. The Big Rock Rim area at the

northeast edge of Valentine was chosen as the pilot community for the program, and to become the first Firewise Community in the state of Nebraska.

SUCCESSFUL FIREWISE MODIFICATIONS

When adequately prepared, a house can likely withstand a wildfire without the intervention of the fire service. Further, a house and its surrounding community can be both Firewise and compatible with the area's ecosystem. The Firewise Communities/USA program is designed to enable communities to achieve a high level of protection against WUI fire loss even as a sustainable ecosystem balance is maintained.

A homeowner/community must focus attention on the home ignition zone and eliminate the fire's potential relationship with the house. This can be accomplished by disconnecting the house from high and/or low-intensity fire that could occur around it. The following photographs were taken in the Big Rock Rim area and are examples of good Firewise practices.



Keeping yards "Lean, Clean and Green" is a low-cost and effective way to eliminate hazardous fuels from areas surrounding homes.



When it's time to replace the roof, consider switching to metal or Class A fire-resistant shingles.



This metal fence provides a non-combustible interface with the home. Wood fences connected to homes provide an avenue for a fire to move directly from the fence to the house.

Broadleaf trees are higher in moisture than coniferous trees. They provide valuable shade and beauty to a yard while minimizing combustibility.

NEXT STEPS

After reviewing the contents of this assessment and its recommendations, each focus area's Firewise Team, in cooperation with their local fire department, will determine whether or not it wishes to continue seeking Firewise Communities/USA recognition. The Firewise Communities representative (Niobrara Council) will contact the Firewise Team representative to receive its decision.

If the site assessment and recommendations are accepted and recognition will be sought, each Firewise Team will create agreed-upon, area-specific solutions to the Firewise recommendations and create an action plan in cooperation with their local fire department. Assuming the assessment area seeks to achieve national Firewise Communities/USA recognition status, it will integrate the following standards into its plan of action:

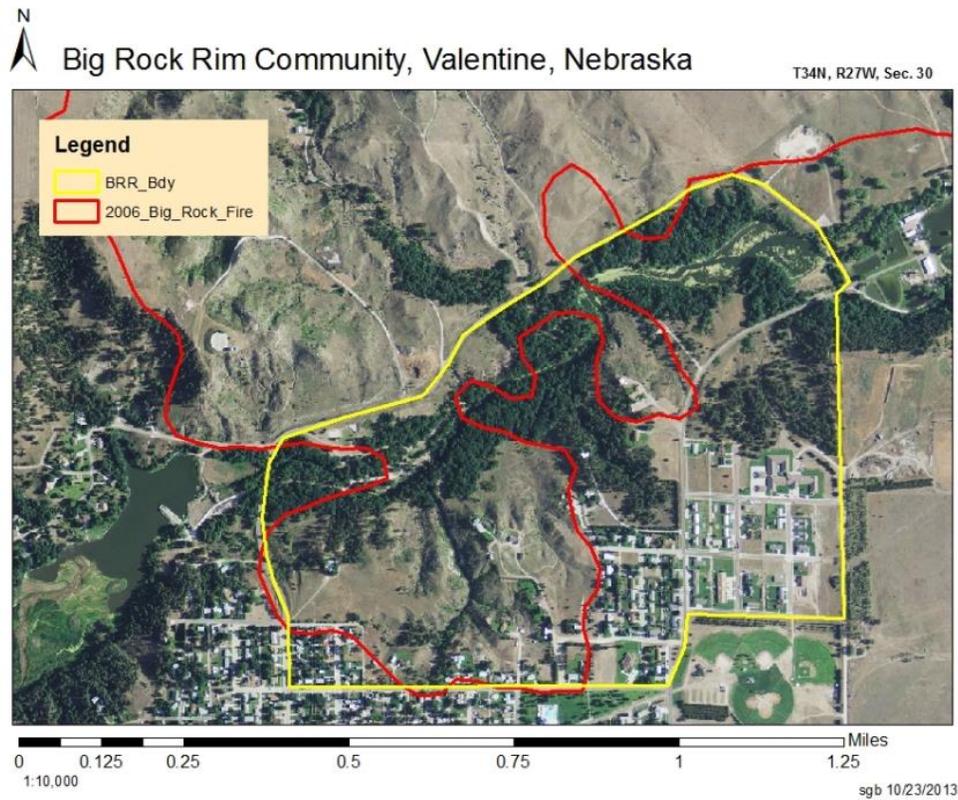
- Sponsor a local Firewise team that works with the Niobrara Council to maintain the Firewise Community program and status.
- Work with the Niobrara Council's WUI specialist to create an action plan that identifies agreed-upon, achievable local solutions.
- A minimum of \$2.00 annually per capita per community will be invested in the program through the Niobrara Council's administration of the Title III funds. Each local team will track work done in its area by public employees and/or volunteers, using public or other equipment, and provide this information annually to the Niobrara Council to be used for reporting purposes. The Council will submit an annual report to Firewise Communities/USA. This report documents continuing participation in the program.
- Work with the Niobrara Council to conduct an annual Firewise Communities/USA Day that is dedicated to a local Firewise project.

APPENDIX A: FOCUS AREA COMMUNITY ASSESSMENTS

Big Rock Rim Community

SITE DESCRIPTION

The Big Rock Rim Community lies on the northeast edge of the City of Valentine. It is bounded by Seventh St. on the south, Main St. on the West, the Fish Hatchery Rd. on the north, and the edge of the residential area on the east. It borders city-owned property on the north and east.



Homes within the community vary in age from new to a hundred years old, with the newer section abutting city property on the southeast side of the community. There are 119 primary structures, many with outbuildings, within the community. In addition to single family homes, there are also several duplexes, two assisted living centers, a city park, and two churches in the area. Population within the community is estimated to be 355 people.

The majority of the residences within the community are located on flat terrain; however, most of the structures on the north side sit at the top of a steep canyon. There are a few homes and other structures on the slopes and in the canyon bottom. Vegetation in the unburned portion of the canyon is generally dense, comprised primarily of ponderosa pine and eastern redcedar, with mixed deciduous trees in the drainages. Mixed-grass prairie dominates the city-owned land to the east of the community. Two forest thinning activities on city property and north of Cherry Hills Estates (assisted living center) were completed in October, 2013.

ASSESSMENT PROCESS

The assessment process began with the identification of a logical community boundary around the area that had been most impacted by the 2006 Big Rock wildfire. Structures within the boundary were identified, and the assessment team examined the area to assess wildfire-readiness issues and strengths. Strengths included:

- Heightened awareness among residents of wildfire hazards associated with this location.
- Recent forest thinning projects along the canyon rim in the eastern portion of the community have strengthened protection for the community and offered a good demonstration site.
- Structures in the newer section of the community (east side) are generally “lean, clean, and green” and have minimal risk factors, as shown in the photo below.



ISSUES

Several common issues were observed within the community. Many of these can be addressed for little or no cost, and others may form a starting point for community discussion of ways to improve the area’s readiness for the next wildfire.

Firewood storage against or close to structures; flammable yard accumulation



This can be easily addressed by moving the firewood away from the structure or putting it inside a woodshed. Flammable yard accumulation can be cleaned up or moved to a storage shed.

Wood fences and decks attached directly to structures



From the perspective of a wildfire, everything attached to the home is part of the home. Placing open space or a metal panel between the fence and the structure will interrupt the fuel source.

Highly flammable landscaping adjacent to structures



Replacing flammable conifers with moisture-laden broadleaf plants and trees will increase safety while retaining visual appeal. Keep conifers well away from structures. Consider using cement walkways or gravel to provide attractive fuel-free zones within three feet of structures.

Access roads narrowed by flammable vegetation and/or only one access into residences



Dead-end roads and narrow driveways edged by flammable vegetation can make evacuation dangerous for residents and pose a real danger to fire fighters. Although creating a second access may not be feasible, the existing access can be made much safer.

OBSERVATIONS AND RECOMMENDATIONS

Many of the issues identified in the previous section can be addressed by individual homeowners. However, working in concert with adjacent homeowners can provide increased safety for the entire community. Particularly on smaller properties where Home Ignition Zones overlap, there are opportunities to increase protection for multiple homes.

Overlapping Home Ignition Zones



The photo at left shows two properties with overlapping Home Ignition Zones. Homeowners have an opportunity to work together to protect both homes. The cedar tree and the wood fence attached to the home on the left put both homes at risk.

Taming Overgrown Vegetation

Refer to photos in the previous section. The community's Firewise Team can coordinate an annual "Chipping Day" during which a chipper, shredder, or mulcher can be provided for homeowners to chip excess vegetation they trim from their Home Ignition Zones.

Long Pine Hidden Paradise Community

Prepared by Justin Nickless, Nebraska Forest Service

Assisted by Jennifer Corman, Nebraska Forest Service

March 14, 2017



SITE DESCRIPTION

Long Pine is a community of approximately 300 people in north central Brown County, Nebraska. The town sits on a plateau bordered by the Pine Creek Canyon to the west and mixed-grass rangeland to the south and southeast. Highway 20 runs along the north boundary of the community.

Long Pine was once a booming hub for the railroad. Many historical sites are still maintained, including a railroad bunkhouse, a museum, and the second longest railroad bridge in the state. Since the loss of the railroad, Long Pine is now a bedroom community. Its small downtown area has various businesses, including a feed mill and lumber yard. There are 202 housing units, many with outbuildings, two city parks, two churches, a Veterans of Foreign Wars post, a volunteer fire department, and a community center.

Hidden Paradise is located southwest of Long Pine along Pine Creek. The community is largely composed of recreational cabins in the bottom of a forested, predominately north and east-facing canyon with steep slopes. The forest is a volatile mix of dense eastern redcedar and ponderosa pine intermixed with deciduous trees. Mixed grass rangeland with aggressive eastern redcedar encroachment borders the canyon on all sides.

Since 2009, two landowners have completed forest thinning activities within the Firewise community and eight landowners have completed forest thinning activities within a mile of the community boundary. Forest thinning has occurred primarily to the north and west of the community.

ASSESSMENT PROCESS

The assessment process began with the identification of the Firewise community boundary by determining where the highest fire potential threatened high population and structure density. The assessment team evaluated the area for wildfire risks and strengths.

Long Pine community strengths included:

- Roofs consistently made of fire resistant material.
- Clean and well-maintained gutters.
- Painted and visible hydrants.
- One dry hydrant in the community as a secondary water source.
- Recent forest thinning projects along the north and west edges of the community, which have strengthened protection for the community and offer good demonstration sites.

Hidden Paradise community strengths included:

- The use of non-flammable materials to construct many of the bridges connecting homes to escape routes.
- Roofs mostly made of fire resistant material.
- The use of less-flammable hardwoods and wildflowers in landscaping within 30 ft. of structures, rather than more-flammable conifers.

OBSERVATIONS AND RECOMMENDATIONS

The evaluation team observed some common fire risks within the community. Many of the risks have simple, low-cost solutions. Others are good reasons to begin a community discussion on how to improve the community's readiness for the next wildfire.

Wooden fences and other risks attached directly to structures



There are multiple pathways for fire to spread to the structures in the photo at left.

Note the propane tank under the picnic table in the photo below.



Improvements could include removing clutter and debris, moving the propane tank away from the structure, and using open space or a metal panel to create a gap between fencing, railings, and the structure.

Flammable yard debris near structures



Removing accumulated yard debris seasonally will help to maintain a clean, more fire resistant landscape.



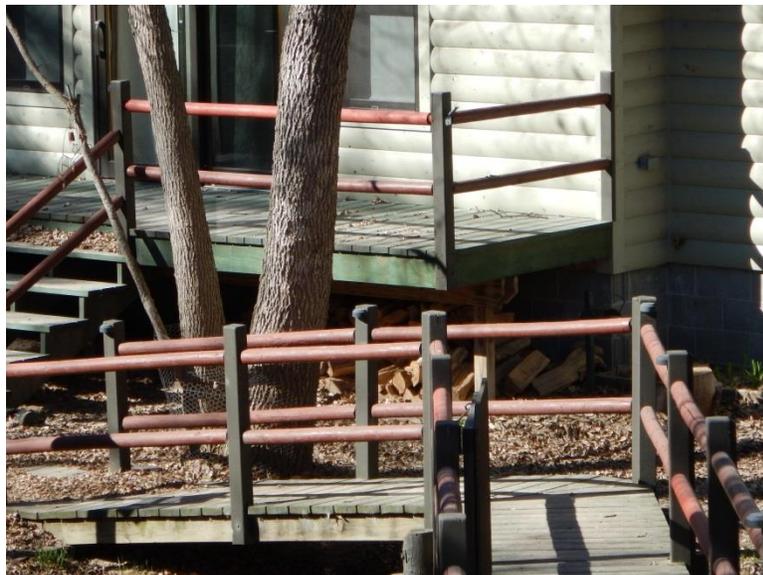
Woody yard waste should be chipped or hauled away. Leaves can be composted or removed.

Pine, cedar, and decorative greenery touching structures or overhanging roofs



Opening up a space between the structure and any flammable vegetation creates defensible space and provides a protective buffer. The Firewise Communities Program recommends using the Home Ignition Zone concept to guide homeowners in this process.

Firewood stacked against structures and under decks



Moving firewood away from structures will minimize the potential for firebrands and other ignition sources to establish fire that can spread to structures.

Roofs holding flammable debris



Trimming back trees that overhang roofs and proactively clearing debris from gutters and roofs will reduce the risk of embers and fire brands spreading fire to structures.

Open lots and unmaintained areas with tall vegetation

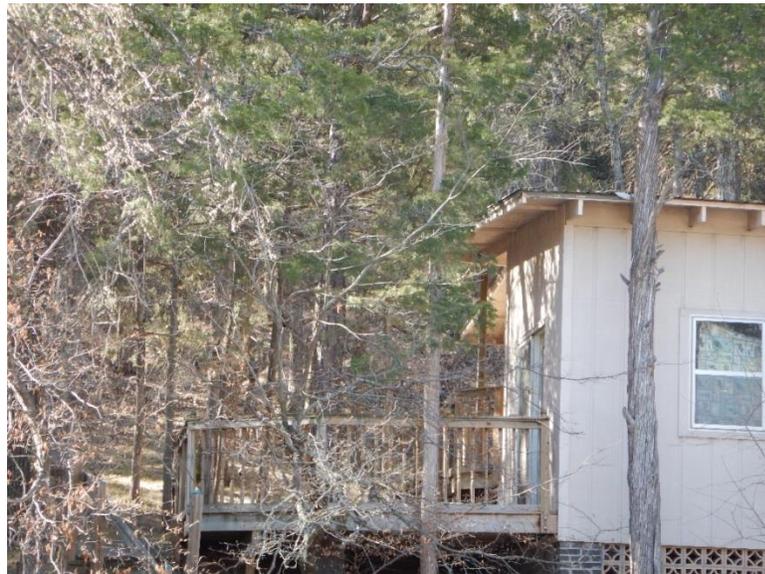


Mowing and maintaining open lots and tall vegetation helps to slow fire spread and limit fire behavior, reducing risk for fire personnel.

Open areas under porches and decks; vacant mobile homes with no skirting



Enclosing areas under decks and porches with a fire-resistant (non-wooden), 1/8 inch wire mesh screen or lattice prevents accumulation of burnable debris, which could ignite the structure from underneath.



Note the flammable vegetation overhanging the porch, which provides an avenue for fire to ignite the structure from above.

Open fire pits



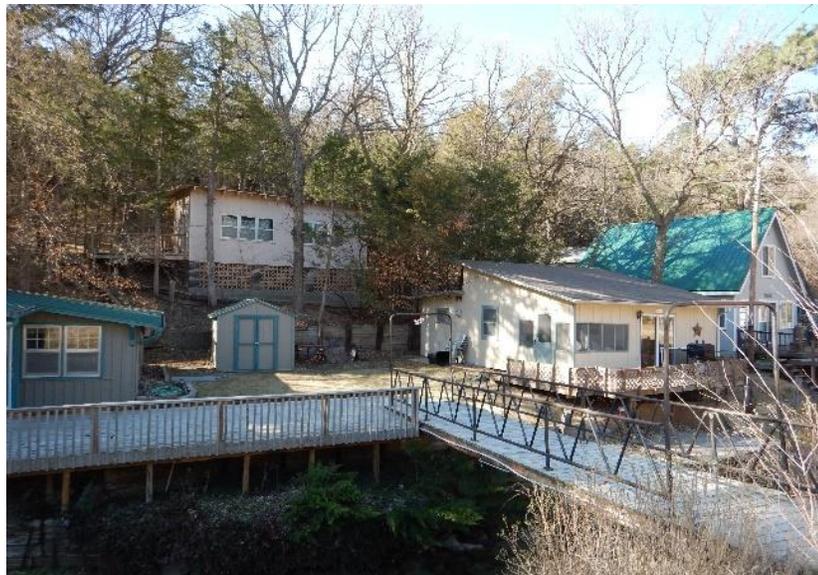
There are numerous open fire pits with no screens. Screens prevent embers from escaping and igniting structures and surrounding vegetation.

Abandoned dance hall



The abandoned historical dance hall is constructed of raw lumber. It has a damaged roof and openings that have accumulated leaves and debris, providing multiple pathways for fire to spread to the dance hall and putting surrounding structures at risk.

Overlapping Home Ignition Zones



Overlapping Home Ignition Zones is the hardest issue to solve. However, by proactively working to manage the natural fuels in the area, community members can reduce overall wildfire risk. Cabin owners can also minimize the potential for structure-to-structure fire spread by using Firewise practices around existing cabins.

Narrow one way access roads, dead ends and poor access



Among other factors, narrow, steep access routes into Hidden Paradise restrict public evacuation and hinder emergency response.



Long Pine lost one of its potential evacuation routes to Highway 20 after a county bridge was closed due to disrepair. With the bridge closed, multiple homes and critical infrastructure only have one-way access, such as the only dry hydrant in the community.

Other observations and recommendations

- House numbers are not consistently displayed. Clearly labeled house numbers aid emergency personnel.
- Some bridges connecting cabins to escape routes are constructed of wood materials, which may endanger or entrap residents. Homeowners should replace wooden components with non-flammable materials.
- Some roofs have flammable wood shake shingles.
- Many decks hold flammable deck furniture that is vulnerable to embers. Furniture can be moved indoors when not in use or replaced with less flammable versions that will reduce the risk of ignition.
- Numerous dead trees create overhead fire and safety hazards. Dead trees should generally be removed from Home Ignition Zones and escape routes.
- The community's Firewise Team can coordinate "Chipping Days" during which a chipper, shredder, or mulcher can be provided for homeowners to dispose of yard debris and to chip vegetation they remove from Home Ignition Zones.