



COMMUNITY WILDFIRE PROTECTION PLAN

EAGLE RIVER FIRE PROTECTION DISTRICT

COMMUNITY WILDFIRE PROTECTION PLAN

EXECUTIVE SUMMARY

The Eagle River Fire Protection District Community Wildfire Protection Plan (CWPP) is the result of a community-wide planning effort that included extensive field data gathering, compilation of existing documents and geographic information system (GIS) data, and scientific analyses and recommendations designed to reduce the threat of wildfire-related damages to values at risk. Values at risk include people, property, ecological elements, and other human and intrinsic values within the project area. Values at risk are identified by inhabitants as important to the way of life in the study area, and are particularly susceptible to damage from wildfire.

This document incorporates new and existing information relating to wildfire, which will be valuable to citizens, policy makers, and public agencies throughout central Eagle County, Colorado. Participants in this project include the Eagle River Fire Protection District (ERFPD), United States Forest Service (USFS), Colorado State Forest Service (CSFS), Eagle County officials, Eagle River Water and Sanitation District (ERWSD), Eagle River Watershed Council, and interested landowners.

The assessment portion of this document estimates the hazards and risks associated with wildland fire in proximity to Wildland-Urban Interface (WUI) areas. This information, in conjunction with identification of the values at risk defines areas of special interest (ASI) and allows for prioritization of mitigation efforts. From the analysis of this data, solutions and mitigation recommendations are offered that will aid homeowners, land managers, and other interested parties in developing short-term and long-term planning efforts.

1. This document provides a comprehensive analysis of wildfire-related hazards and risks in the WUI areas covered by the ERFPD. The WUI is the area where human development and activity meets and intermixes with undeveloped, "wild" vegetation. The analysis is delivered in the form of a CWPP. It strives to follow the standards for CWPPs that have been established by the Healthy Forests Restoration Act (HFRA) and to meet or exceed the minimum standards established by the CSFS.
2. Using the results of the analysis, recommendations have been generated that aid stakeholders in preventing and/or reducing the threat of wildfire to values in the area. These recommendations are included throughout the report, wherever appropriate.

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- How to use this document
- Goals & objectives
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3. These recommendations, which include defensible space and fuels treatments, will facilitate the implementation of future mitigation efforts.
4. This report complements local agreements and existing plans for wildfire protection to aid in implementing a seamless, coordinated effort in determining appropriate fire management actions in the study area.

The ERFDP CWPP is a living document, and, as such, will be updated annually, and/or after a major "event," such as wildfire, flood, insect infestation, or even significant new home development.

Completed objectives since the inception of the ERFDP CWPP include:

- ◇ EAGLE COUNTY WILDFIRE COUNCIL CREATED
- ◇ 4 COMMUNITIES IN THE DISTRICT ARE DESIGNATED FIREWISE USA®
- ◇ EVACUATION ROUTES FOR EACH COMMUNITY HAVE BEEN IDENTIFIED AND MAPPED
- ◇ MOST RESIDENTIAL STRUCTURES HAVE BEEN ASSESSED, MAPPED, AND DETAILED
- ◇ MOST COMMUNITY HOA'S AND DRB'S HAVE ADOPTED NEW POLICIES TO HELP CREATE FIREWISE COMMUNITIES
- ◇ SUGGESTED FUEL TREATMENT AREAS HAVE BEEN COMPLETED
- ◇ HOME IGNITION ZONE ASSESSMENTS ARE ONGOING
- ◇ EMERGENCY RESPONSE GUIDE CREATED AND WILL BE CONTINUALLY UPDATED
- ◇ PRESENTATION AND PUBLIC EDUCATION ABOUT BEING FIREWISE HAVE BEEN DONE AND ARE ON GOING
- ◇ FUTURE FUEL TREATMENT PROJECTS ARE BEING PLANNED
- ◇ ACCESS GATES AND GATE CODES ARE MAPPED AND UPDATED
- ◇ WATER RESOURCES HAVE BEEN IDENTIFIED AND MAPPED, AND TESTING IS ONGOING

HOW TO USE THIS DOCUMENT

The main CWPP document provides pertinent information for both the area as a whole and for individual communities. A general overview of the CWPP process is provided first, followed by information more specific to the ERFPD area. This includes an analysis of fire department capabilities and specific community write-ups. Each set of community write-up pages can be regarded as a separate and complete report, and can be delivered to a community independently of the overall document. Community and ASI recommendations in each report address five broad categories: public education; structural ignitability/defensible space; water supply; access/evacuation; and street and home addressing. Although many of the recommendations are general in nature, specific recommendations regarding landscape-scale fuels treatments are included in the Community Analysis and Recommendations section of the report. With this format, each community has all the relevant information available. Combined with general recommendations in Appendix A, "General Recommendations," an individual or community should have the information necessary to begin the fire-mitigation process. Because much of the information contained in the report is extensive and/or technical in

nature, detailed discussions of certain elements are contained in appendices:

Recommendations & Preparedness

Provides detail on recommendations and wildfire preparedness. General defensible space guidelines, which are applicable for every property, are described at length. Eagle County Wildfire Regulations include home construction, preparedness planning, infrastructure, public education, and water supply.

Collaboration

One of the main requirements of HFRA is to ensure community participation. The collaborative process is explained on page 87.

Fire Behavior

Appendix C describes the methodology used to evaluate the threat represented by physical hazards such as fuel, weather and topography to values at risk in the study area, by modeling their effects on fire behavior potential.

Fire Operations

There are a number of unique hazards to the ERFPD. Appendix E includes information on fire suppression in areas of beetle-killed trees and where unexploded ordinance (UXO) is present. This section also includes historical fire information for the ERFPD district area.

How to navigate this document

GOALS AND OBJECTIVES

Goals for this project include the following:

- ◇ Enhance life safety for residents and responders.
- ◇ Mitigate undesirable fire outcomes for property and infrastructure.
- ◇ Identify communities at risk and values at risk.
- ◇ Reduce fuel hazards and prevent fires in these communities.
- ◇ Consider fuels treatment prescriptions and locations.
- ◇ Continue fuels treatment projects already initiated.
- ◇ Mitigate undesirable fire outcomes for the environment, watersheds, and quality of life.
- ◇ Improve the district's position as it competes for grants.

To accomplish these goals, the following objectives have been identified

- ◇ Establish an approximate level of risk (the likelihood of a significant wildfire event in the study area).
- ◇ Provide a scientific analysis of the fire behavior potential of the study area.
- ◇ Group values at risk into areas that represent relatively similar hazard factors.
- ◇ Identify and quantify factors that limit (mitigate) undesirable fire effects on the values at risk (hazard levels).
- ◇ Recommend specific actions that will reduce hazards to the values at risk.

OTHER DESIRED OUTCOMES

1. Promote community awareness:

Quantifying the community's hazards and risk from wildfire will facilitate public awareness and assist in creating public action to mitigate the defined hazards.

2. Improve wildfire prevention through education:

Community awareness, combined with education, will help reduce the risk of unplanned human ignitions. This type of education can also limit injury, property loss, and even unnecessary death.

3. Facilitate and prioritize appropriate hazardous fuels reduction projects:

Organizing and prioritizing hazard mitigation actions will provide stakeholders with the tools and knowledge to evaluate these projects, ensuring that they are valuable and viable for the local community.

4. Promote improved levels of response:

The identification of specific community planning areas and their associated hazard and risk rating will improve the focus and accuracy of preplanning and facilitate the implementation of cross-boundary, multijurisdictional projects.

COLLABORATION: Local Agencies

The names of the initial representatives involved in the development/update of the ERFPD CWPP are included in the table below.

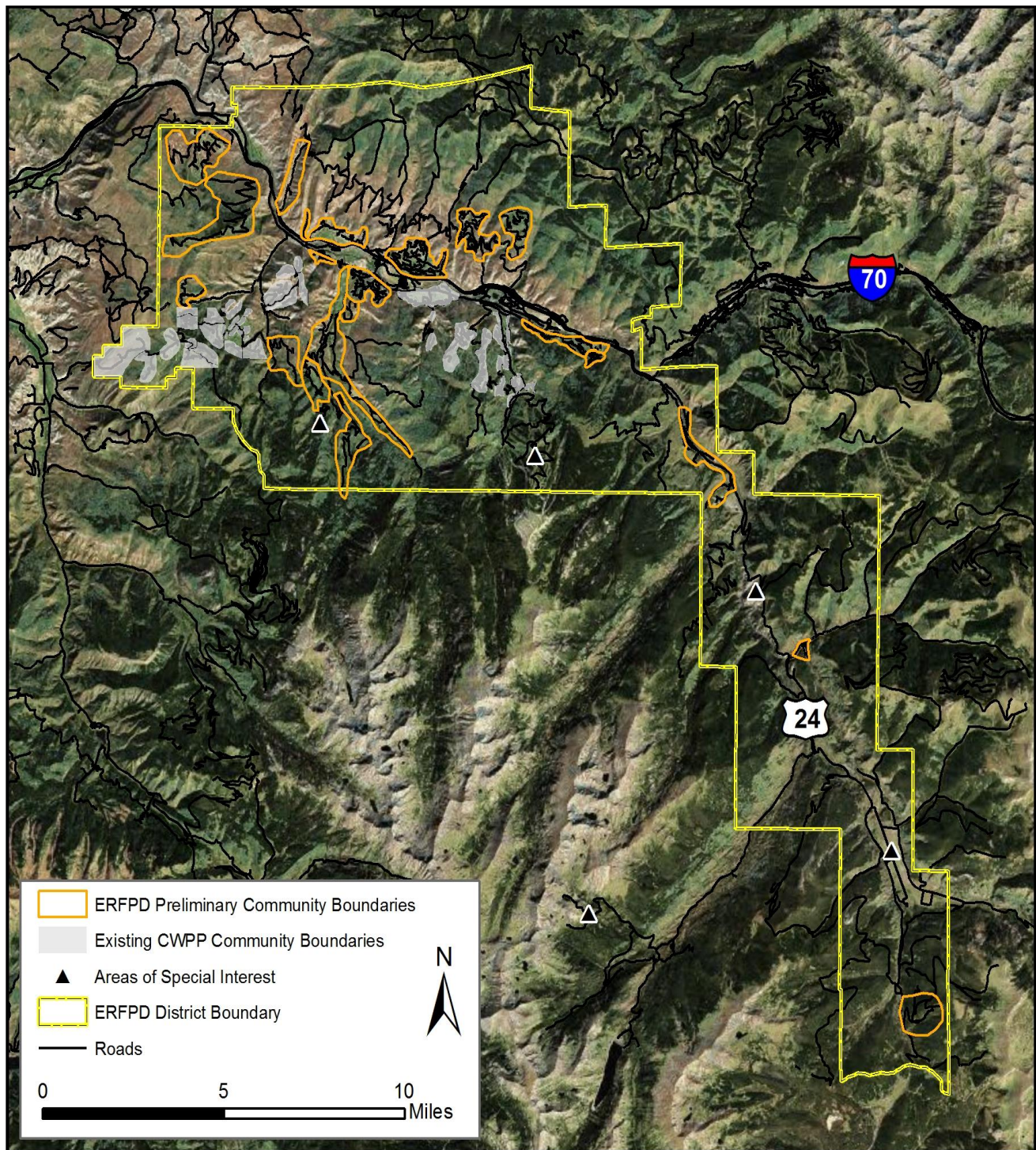
Name	Organization
Karl Bauer, Fire Chief Tracy LeClair, Community Risk Manager Jeff Zechman, Wildland Mitigation Specialist	Eagle River Fire Protection District
Matthew Schiltz	Colorado State Forest Service
Lisa Loncar, Fuels Specialist Ross Wilmore, East Zone FMO Justin Conrad, East Zone Deputy FMO	U.S. Forest Service
Eric Lovgren, Wildfire Mitigation Manager	Eagle County
Sally Vecchio, Assistant Town Manager	Town of Avon
Jeff Snyder, Assistant Manager	Mountain Star Association
Janet Hawkinson, Director of Planning	Town of Minturn
Ted Hanley, POA Compliance Officer Jeff Layman	Eagle Vail Metropolitan District
Bill Wentworth, Healthy Forest Coordinator	Cordillera Metropolitan District
Dave Berg, Operations Manager	Bachelor Gulch Metropolitan District
Holly Loff	Eagle River Watershed Council
Anushka Bales, Mayor	Town of Red Cliff
Tracy Erickson, Executive Director	Homestead Owners Association
Jim Clancy, Director of Resort Services and Public Safety	Beaver Creek, Bachelor Gulch, Arrowhead
Jim Childers, Manager	Pilgrim Downs

AREA OVERVIEW

Long before the arrival of European settlers, the Ute Indians used the Eagle River Valley as their summer hunting and fishing grounds. In 1840, Kit Carson and the Fremont party traveled through the region, bringing behind them prospectors and settlers looking for new opportunities. In 1879, the first permanent camp in Eagle County was established at the town of Red Cliff, which later became the county seat in 1883. Further settlement continued, and additional towns down the valley were later incorporated in the late 1800s and early 1900s. In 2000, the ERFPD was established, which includes the communities of Avon, Arrowhead, Bachelor Gulch, Beaver Creek, Cordillera, Eagle-Vail, Edwards, Minturn, Red Cliff, and Wolcott. The ERFPD currently serves 186 square miles of central and eastern Eagle County. The area is a popular tourist destination and place to reside. Rapid development throughout the area has occurred over the past 30 years, as new homes and businesses have been built to accommodate population growth. Popular destinations in the area include the White River National Forest, the Beaver Creek, Arrowhead, and Bachelor Gulch ski resorts, a number of local golf courses, and a variety of shopping and dining opportunities. Twenty one communities were identified directly within the ERFPD, in addition to those communities that have already prepared CWPPs. Existing communities with CWPPs, which contain updated write-ups, include Arrowhead, Bachelor Gulch, Beaver Creek, and Cordillera. All of these communities represent the most densely populated regions. Each community

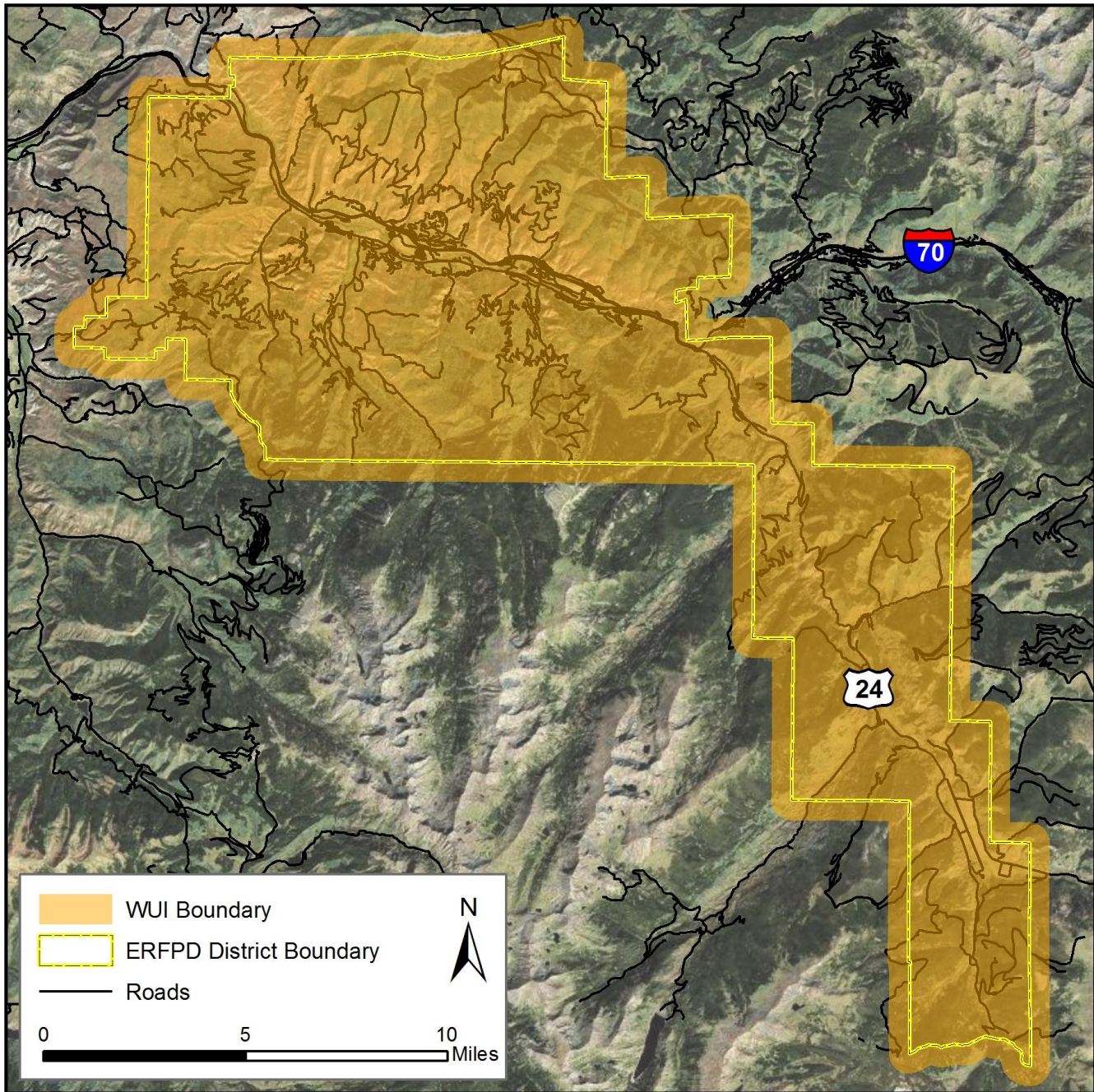
exhibits certain dominant hazards from a wildfire perspective. Fuels, topography, structural flammability, availability of water for fire suppression, egress and navigational difficulties, as well as other hazards both natural and artificial, are considered in the overall hazard ranking of these communities. Construction type, condition, age, the fuel loading of the structure/contents, and position are contributing factors to a home's susceptibility to ignition under even moderate burning conditions. Some areas also exhibit the potential for rapid fire growth and spread due to steep topography, fast-burning or flashy fuel components, and/or other topographic features that contribute to channeling winds and promoting extreme fire behavior. The community-level assessment for the entire study area has identified all of the communities in the study area to be at high or very high risk. In these communities, a parcel-level analysis should be implemented as soon as possible to ensure the ongoing safety of residents and survivability of structures. Please refer to the graphics on the following pages for a color-coded hazard ranking reference. In addition to the communities, three ASIs and four historical areas have been identified: Beaver Creek Ski Resort, Camp Hale, Gilman, and Brett Ranch Cemetery, Edwards Cemetery, Holy Cross City, and Red Cliff Cemetery, respectively. Although these areas may or may not include residences, they contain critical infrastructure, buildings, and/or other structures that necessitate serious attention for fire mitigation.

Communities within the Eagle River Fire Protection District



DEFINING THE WILDLAND URBAN INTERFACE

For the purpose of this CWPP, the defined WUI includes a 1 1/2 mile are extending from the ERFPD boundary for future mitigation planning.



VALUES AT RISK

LIFE SAFETY AND HOMES

The ERFDP encompasses a number of towns, unincorporated Eagle County communities, subdivisions, and small ranches. Most of these areas are at some risk for wildfire, and many have a high to very high wildfire risk.

Moreover, as the available land for additional development has decreased, building in remote mountain areas with difficult access has become a growing concern.

Lot sizes throughout the area vary widely.

Outside of the individual towns and unincorporated communities, lot sizes are generally large, aside from a few scattered subdivisions. Lots within and adjacent to towns and communities are small, and this higher density could make an evacuation of the area more problematic. The risk for wildfire in these areas stems from several different sources, including individuals recreating in adjacent federal lands, structure fires transitioning into the wildlands surrounding homes, seasonal burning, and natural causes, such as lightning.

COMMERCE AND INFRASTRUCTURE

Economic Values

The area has a highly tourism-based and seasonal economy. Jobs in the retail and service sector dominate the workforce, with ski areas being among the largest area employers. Other large employers include local and county government agencies, education centers, Vail Health Center, hotels, retail stores, and restaurants. All tourism-

based businesses could be severely affected by an adjacent, large wildfire due to public perceptions about safety and potential impacts from smoke and road closures. These businesses could also remain negatively impacted after the fire. Tourists could assume that the aesthetics of the area have been impacted, that they might be threatened by another area fire, or that the area is unsafe to visit. A public relations effort should be considered following any large fire to ensure that these impacts are minimized.

Critical Infrastructure

The district is composed of private and public lands. Aside from the obvious negative impacts to tourism by wildfire, there is additional infrastructure within the study area that could be adversely affected. The Interstate 70 corridor could be affected by smoke produced by a large wildfire. Road closure, for example, would cut off the main west-east route between Denver and western Colorado. Area reservoirs serve as sources of drinking water; ash and associated runoff from a wildfire could reduce water quality. Other important infrastructure includes an abundance and wide distribution of power lines, transportation systems such as railways and highways, and vital communication towers. The impact of wildfire to infrastructure must be a consideration for wildfire prevention and planning. A full evaluation of critical infrastructure and key resources (CIKR) is addressed in the District's 2018 Community Risk Assessment.

ENVIRONMENTAL RESOURCES

Natural Resources, Including Watersheds and Rivers

The fire district lies entirely within the 944-square-mile Eagle River Watershed, which is part of the larger Upper Colorado River Basin. The Eagle River originates in the high mountains along the border of southeastern Eagle County, and it flows westward before dumping into the Colorado River near

Dotsero. Principal tributaries of the Eagle River include Beaver Creek, Brush Creek, Cross Creek, Gore Creek, Gypsum Creek, and Turkey Creek. In the upper reaches of the watershed, annual average precipitation is around 28 inches, while it ranges from 12 inches to 19 inches at lower elevations. Approximately 75 percent of the annual river runoff comes from high elevation snowmelt,

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meaning that discharge varies widely between years, depending on snowpack depth and sustained air temperatures. Water sourced from the Eagle River Watershed and Upper Colorado River Basin supplies millions of end users, from local towns, farms, and mining operations to Front Range communities and neighboring states. Within the watershed area, there are 27 different public water drinking systems, six of which are surface-water systems, which supply water to a population of more than 60,000 people. In order to protect water quality, it is vital to minimize impacts upstream that could affect downstream and local users. Wildfires can cause substantial erosion and sediment deposit, thereby impacting aquatic and terrestrial life and/or clogging filters at water-treatment plants, and, thus, potentially impacts water quality. Natural resources potentially at risk for wildfire in the study area include wetlands and riparian areas, a number of threatened and endangered species, and imperiled native plant communities. Wildfire can have damaging impacts to plant and animal life by fragmenting and reducing habitat.

Reduced habitat decreases foraging area and limits protection for ground animals, thereby increasing predator pressures. Several state and federally listed threatened species and species of concern are found within the study area, including lynx (*Felis canadensis*) and the boreal toad (*Bufo boreas boreas*).

Vegetation present in wetlands and riparian areas of the watershed provides valuable habitat for mammals, fishes, amphibians, reptiles, and birds. Moreover, these areas provide vital cover and conduits for the migration of many different species. Currently, four federally listed threatened fish species are found within the watershed area, including the Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*). Indirect impacts to watershed ecosystems associated with wildfire include the use of retardant that changes water chemistry, soil damage/compaction from fire apparatus, and post-fire runoff of chemicals and sediment. Acting to prevent wildfire in these areas and taking special care when a fire occurs are critical measures for maintaining biodiversity and ecosystem function.

CURRENT RISK SITUATION

The surrounding federal lands report an active, but far from extreme, fire history. Fire occurrences for the Holy Cross Ranger District of the White River National Forest were calculated from the U.S. Forest Service Personal Computer Historical Archive for the 40-year period from 1970-2010.

HOLY CROSS RANGER DISTRICT (USFS)

Figure 4 shows USFS fire statistics for the Holy Cross Ranger District. The figure on the upper left shows the number of fires (red bars) and the total acres burned (blue hatched bars) in the Holy Cross Ranger District for each year. The number of annual fires ranges from zero to 30 fires per year, with an average of seven. Between 1970 and 2010 only four fires burned more than 100 acres in the ranger district. The total number of acres burned was the greatest in 1974, when two large fires accounted for approximately 873 acres

burned. Other large fire years occurred in 1987 and 1991.

The figure in the upper right shows the percentage and number of fires occurring in each month of the year between 1970 and 2010. Historically, July has had the greatest number of fires, followed by August, September, and June. The fewest fires occurred between the months of November and April, a fact that reflects the seasonal conditions for the area. Autumn and winter fires within the ranger district have occurred infrequently. Fires outside the summer months are typically wind driven and can have rapid rates of spread.

The figure on the bottom left shows the size class distribution of fires. Table 2 offers an explanation of the size class figure. Approximately 95 percent of the reported fires were less than 10 acres in size. These

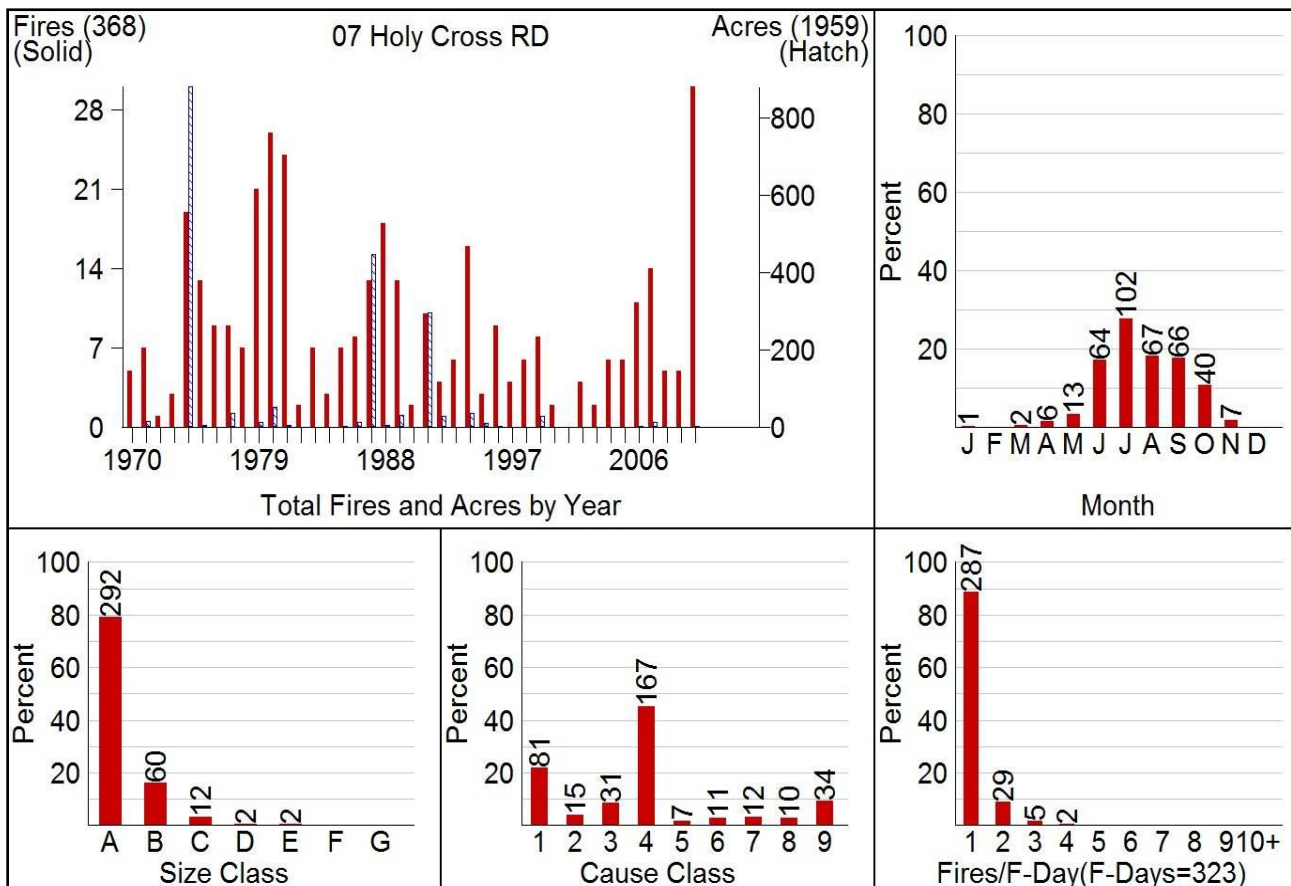
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statistics reflect the widely held opinion that, throughout the western United States, the vast majority of fires are controlled during initial attack.

The figure on the bottom middle shows the number of fires caused by each factor. Table 2 offers an explanation of the cause class figure. By far the most common cause of ignitions is campfires. This reflects the high level of recreationists who visit the area each year. Many campsites in the area are dispersed, and they lack a designated fire pit and area cleared of vegetation around the

fire pit. Educating users of camping areas and increased monitoring will help to reduce this risk. The second most common cause of ignitions is lightning, followed by smoking and miscellaneous. All other causes are roughly equal, and although they are lower threats, they should also be taken into consideration. Finally, the bottom right figure represents the number of starts for each day that a fire start was recorded. Nearly all fires (287) occurred on days with one start. Only 29 days had two starts per day, and no days had more than four starts.

USFS fire statistics 1970-2010 (Holy Cross Ranger District)



Explanation of fire statistics

Size Class (acres)	A	B	C	D	E	F	G		
	<1/4	1/4-9	10-100	100-299	300-999	1000-4999	5000+		
Cause Class	1	2	3	4	5	6	7	8	9
	Lightning	Equipment	Smoking	Campfire	Debris Burning	Railroad	Arson	Children	Misc.

EAGLE RIVER FIRE PROTECTION DISTRICT

In 2005 ERFPD began using the National Fire Incident Reporting System (NFIRS). This system is used by many fire departments use to maintain records in a uniform manner. To date, approximately 23,000 fire departments report in the NFIRS annually. The total number of fires may represent unattended campfires, dumpster fires, agricultural fires, and other fires occurring outdoors. The number of wildland fires more specifically refers to fires occurring in natural vegetation. The ignition source can be both natural (lightning) or human-caused. A map of fire history including recent fires within the ERFPD can be viewed by clicking on the link below;

Wildfire History Map

Mountain Pine, Douglas-Fir, and IPS BEETLE

A CWPP is not designed to be an ecosystem management plan, nor is it a plan dedicated to insect and disease issues. However, because of the intensity of the mountain pine beetle (MPB), (*Dendroctonus ponderosae Hopkins*) the recent presence of the Douglas Fir and IPS beetle, and the impact this could have on life safety and fire behavior, it is important to include it in this document.

The MPB has become a prominent forest pest in lodgepole pine stands on the west and east side of the Continental Divide in northern and Central Colorado. With over two million acres of trees impacted since 1996, the forests in Colorado are among those where trees have long since been attacked and killed. Trees are attacked by MPB during the summer months and into the early fall. By the following summer, successfully attacked trees will begin to fade. Lodgepole pine forests in the ERFPD district were notably being attacked by 2005. Within a few years, large areas of mortality were present across the landscape. At present, while there are still trees in the 'red needle' phase, the majority of the lodgepole have lost their needles and are quickly approaching the 'gray phase.'

Typically, high elevation forests have infrequent fires due to climatic conditions that are not conducive to ignitions and/or large fire development. The combination of increased precipitation (rain and especially snow) and lower summer temperatures does not allow for the same drying impact on wildland vegetation as observed at lower elevations. The concern of large fires is primarily during drought years with

low snowpack. The MPB trees are receptive to fire even in normal and above average moisture years. This increase in frequency and intensity is a significant impact to the communities and fire departments.

It is during the 'red needle' phase that the forest is at the greatest risk in the event of an ignition. The probability of having an ignition source (lightning or human caused) does not increase, but the probability of trees igniting does. The dry needles catch fire upwards of three times more readily than green needles. Fire may spread quickly through the crowns, especially during high wind events. Within 3-5 years, the needles will fall off of the trees. Crown fire risk is significantly diminished when the stand is in the grey phase because there are no needles in the crown to support active burning; however, the risk of intense surface fire increases due to an increase in understory plants and grass following the opening of the canopy and because of increased blowdown associated with rot in attacked trees and the shallow root system of the remaining living Lodgepole pine. The combination of gusty winds and numerous recreational uses creates a dangerous situation, as trees could potentially fall on individuals or block access along roads used by the public, emergency responders and utility companies. At present time, the majority of the MPB outbreak is over, as the majority of the host trees have already been attacked. Instead, the best option is to remove hazard trees, especially in areas of high recreation use, near homes and infrastructure, and near roads. It should be noted that remaining live trees will still be

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susceptible to blowdown. With mortality rates reaching upwards of 90% in most stands, the future composition of the forests is unknown. Management should focus on hazard tree removal and practices that support regeneration.

For more information on the mountain pine beetle and how to stay safe in areas of beetle kill, please contact the Colorado State Forest Service or the USFS Holy Cross Ranger District. Other information is also available at:

[Colorado Healthy Forest Report](#)

OTHER AGENCY TREATMENTS

The Colorado State Forest Service, the U.S. Forest Service, Eagle County, and local communities all have planned and completed fuel mitigation projects in the vicinity. A snapshot of most of these efforts is difficult to show at a large scale, so these treatments are found within the individual community graphics. All of the treatments shown have either been

completed or are in progress. The proposed treatments are often tied into these existing agency projects or are in close proximity. Homeowners' associations and individuals should supplement these efforts with their own wildland fire mitigation treatments, which are detailed in the Community Analysis section.

The following map indicates planned burn units and proposed harvest units from the USFS



USFS Map

FIRE BEHAVIOR

The Eagle River Fire Protection District has had few wildland fires greater than 10 acres. Wildfires are not infrequent, though they are usually small. Under the right conditions (low relative humidity, high winds and temperatures, and drought) extreme fire behavior is possible, especially when combined with effects of the ongoing mountain pine beetle epidemic. Adding in the current infrastructure and home construction, the area has a high to very high risk from wildfire. If such an event were to happen, it is likely that the community would experience multiple structure losses. For a more detailed look at fire behavior.

FUELS

The ERFPD is typical of montane and upper montane ecosystems. Vegetation ranges from grass and shrub meadows to dense high-elevation conifer forests. Lower-elevation areas along Interstate 70 and Highway 24 are primarily grass and sage, with scattered areas of other shrubs and juniper trees. These areas will exhibit rapid rates of spread, especially under high-wind events. Flame lengths in these areas are expected to generally be less than four feet, except in areas of dense juniper, which means that they are generally controllable by hand crews and wildland fire engines.

Moving higher up the valley and in more mesic areas, scattered aspen and Douglas fir stands intermix with the grass and shrub meadows. Aspen is not normally seen as a vegetation type at risk for fire, though stands have been known to burn under drought conditions. In the upper

elevations of the study area, lodgepole pine, Engelmann spruce and subalpine fir stands dominate. Fire intervals in these areas are in the hundreds of years, and these areas are not normally at a high risk of active fire behavior unless persistent drought conditions align with low relative humidity and high winds. However, once a fire has started in these fuels, it can be very difficult to stop, as high winds and dense vegetation will allow active crown fire behavior to occur and spread rapidly.

This threat could be exacerbated by heavy accumulations of dead and downed trees following the mountain pine beetle epidemic. Although scientists and fire managers are not yet certain whether these fuels create a greater than normal threat, it should be assumed that suppression in these areas will nevertheless be more difficult and hazardous because of the abundance and location of these fuels sources. Although the possibility of active crown fire behavior will be reduced, the potential for surface fire could increase. As trees fall and the canopy opens, grasses, forbs, and seedlings will grow in the openings between trees. These fuels can spread fire to and among downed logs, creating the potential for hot-burning, fast-moving fires. Suppression under these conditions can be very difficult, and may require the use of heavy equipment and/or aerial fire resources. Firefighters in areas of large amounts of beetle-kill will need to constantly assess the fire behavior and weather conditions before beginning and continuing suppression actions.

WEATHER

The weather analysis for the area shows that few days will actively support large fire growth. Average temperatures are comparatively low and the relative humidity is normally high. Thus, the daily window of opportunity for ignition is small. The season is also short with winter snows arriving early in the fall and lasting later into the spring, especially in the higher elevations. However, grass and sage areas along the valley bottoms normally dry out sooner and become more susceptible to an ignition later in the fall and earlier in the spring. In these areas, wildfire is possible throughout much of the year until sufficient snowfall occurs. The biggest weather concern is drought or low snowpack coupled with high winds. Generally, forests above 9,000 feet are wet and ignition resistant, but when there is prolonged drought, they are at a greater risk for fire.

High winds are the main cause of large fire events. The area is surrounded by various mountain ranges and valleys that funnel and speed up winds from all directions. Stronger wind speeds of 10 to 15 mph are not uncommon year-round. The area is also known for gusty winds, which can exceed 40 mph on a windy day. Many fuels, such as the large grass and sage meadows, will support active fire behavior only when fuels are sufficiently dried out, and especially during windy conditions. Moreover, strong, gusty winds can penetrate densely forested stands and transition the fire from the ground into the tree canopies.

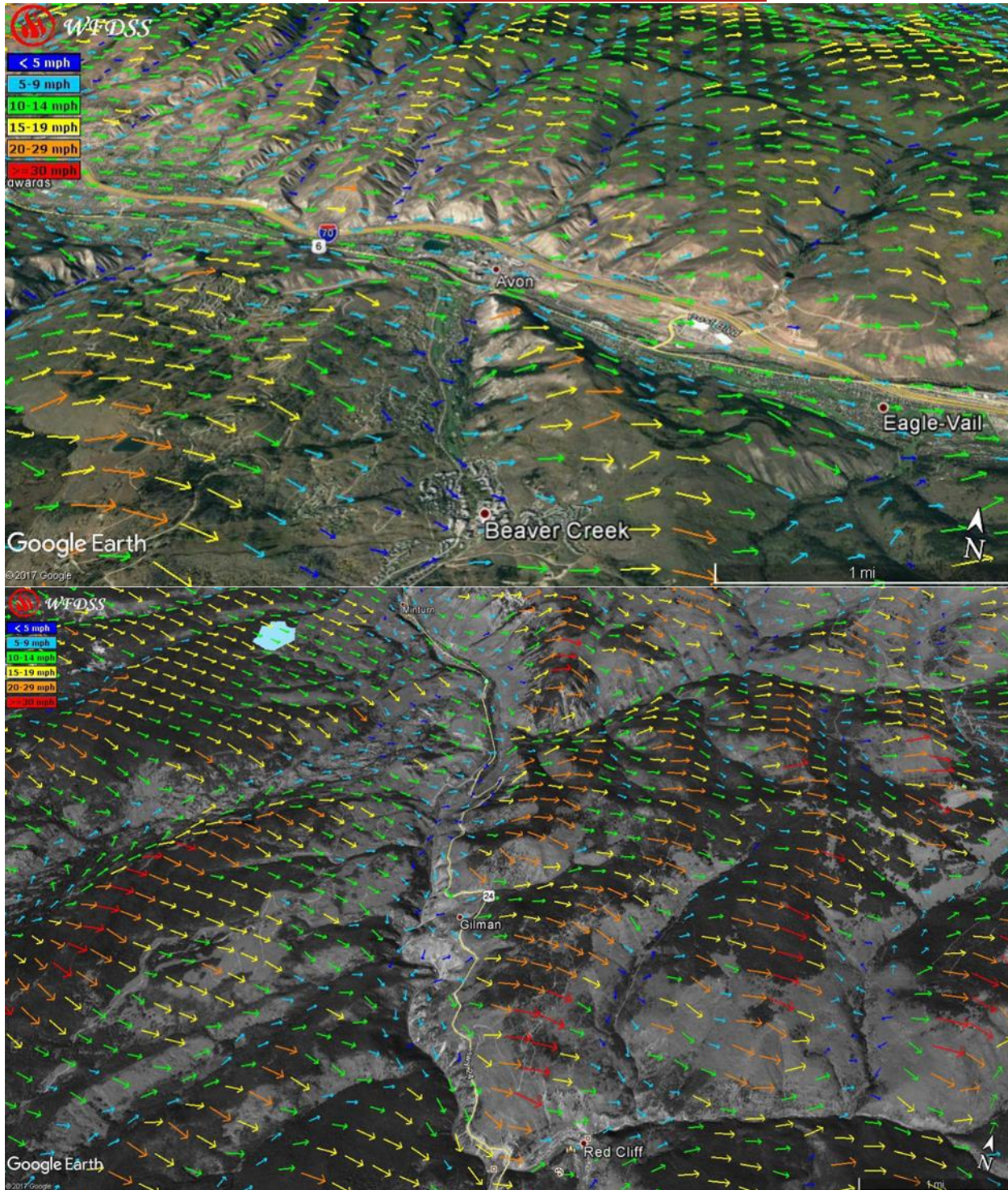
TOPOGRAPHY

Elevation in the area varies from about 7,100 feet along the Eagle River to over 11,000 feet

near Tennessee Pass. Nearby peaks, including Mount of the Holy Cross, exceed 14,000 feet in height. Much of the area surrounding and throughout the fire protection district is mountainous with steep hillsides, narrow canyons, and drainages. These narrow, steep chutes will funnel winds and further increase the rate of spread of a fire. Many homes are located atop ridges, above chimneys, in steep drainages, or mid-slope. These regions are particularly at risk. Slopes in the area are sometimes greater than 45 degrees, or 100 percent. At 30-percent slope, rate of fire spread doubles compared to rates at level ground. Firefighting effectiveness is greatly reduced in these areas as a result.

The position on the slope where a fire starts can make a significant difference in how fast the fire spreads and grows. Steep slopes increase fire behavior as a result of preheating the uphill fuels. A fire originating on the top of the slope can have the most minimal fire behavior, because it backs down the hill with low-flame lengths and rates of spread. This is typically where lightning strikes and single tree ignitions occur but do not often spread. The biggest concern would be a fire starting at the base of the slope and then spreading quickly up the hill, especially under extreme weather conditions. Discarded cigarettes, overheated cars, vehicle accidents, and burning debris can act as ignition sources in these areas. A fire starting lower down in elevation could easily move up into and around the various communities in the study area, potentially threatening egress routes.

Common Wind Vectors



PREPAREDNESS AND FIRE RESPONSE

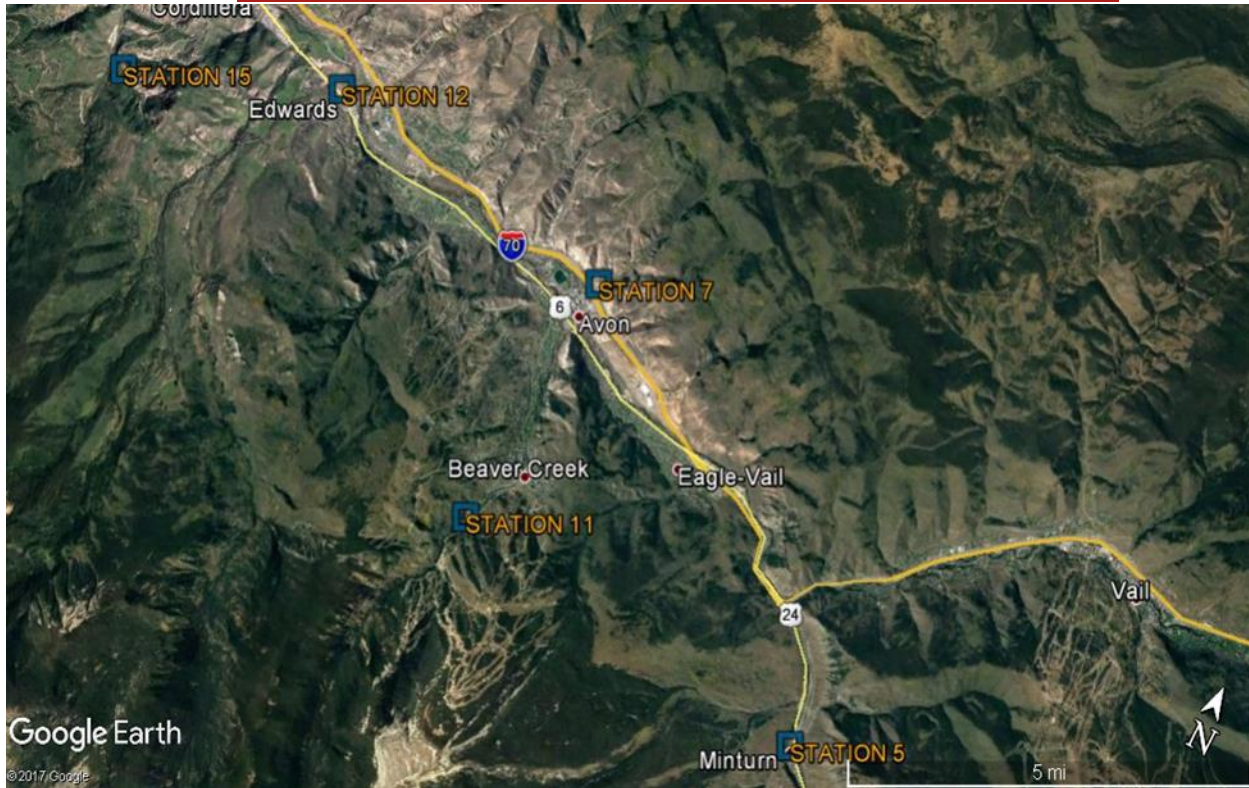
ERFPD covers a 186-square-mile area in Eagle County. The primary communities served by the District include Avon, Arrowhead, Bachelor Gulch, Beaver Creek, Cordillera, Eagle-Vail, Minturn, Red Cliff, and Wolcott. There are four fire stations in the district and one staffed by contractual agreement, all of which are staffed 24 hours a day. Not including administrative personnel, there are 58 full-time firefighters. Additional assistance is available through mutual aid agreements with Greater Eagle, Vail, and Gypsum fire departments, as well as support from the Upper Colorado River Interagency Fire Management Unit (UCR) and from adjacent counties. The largest concern for ERFPD is that wildfire hazards and risks are increasing. Multi-acre fires demand a substantial commitment of

resources, which could overwhelm local capabilities. The limits of the ERFPD could be reached or exceeded in any multi-acre fire burning in 100-hour fuels, by multiple ignitions exceeding two acres and/or fires requiring operations extending beyond two operational periods (24 hours). Additional mutual aid resources may be unable to respond immediately, have wildfires within their own district, or not have enough resources to commit to ERFPD.

Most of the communities are within five miles from a fire station. Response times may vary greatly over the same distance because of road conditions, steepness, curvature, and evacuation traffic.



EAGLE RIVER FIRE STATION LOCATIONS



Minturn – Station 5
195 Pine Street
Minturn, CO 81645



Avon – Station 7
60 Buck Creek Road
Avon, CO 81620



Beaver Creek – Station 11
545 Elk Track Road
Avon, CO 81620



Edwards – Station 12
1050 Edwards Village Rd
Edwards, CO 81632



Cordillera – Station 15
204 Carterville Road
Edwards, CO 81632

APPARATUS



Minturn Station 5

- Type 1 Engine
- Type 3 Engine



Avon Station 7

- Type 1 Engine
- Type 1 Ladder
- Type 6 Wildland
- Haz-Mat Response Vehicle



Beaver Creek Station 11

- Type 1 Engine
- Type 3 Engine



Edwards Station 12

- Type 1 Engine
- Type 3 Engine
- Tech Rescue Trailer



Cordillera Station 15

- Type 1 Engine
- Type 6 Wildland
- Tactical Tender



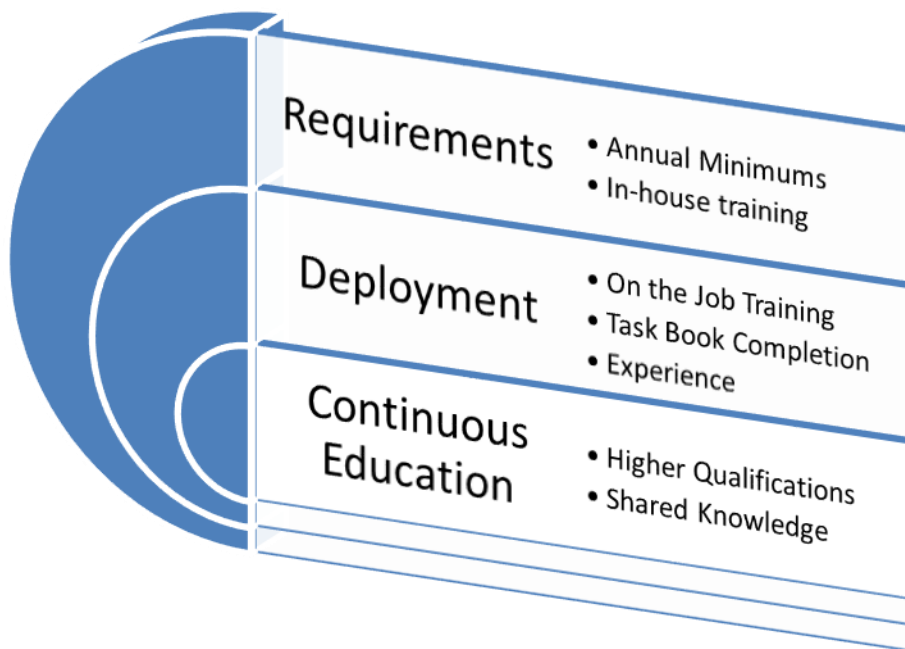
Administration

- Command Response Vehicles

TRAINING

ERFPD provides excellent training opportunities. The recommendations for wildland-specific training, focus on maintenance of current policy, rather than proposing additional requirements:

- ◇ S-130/S-190, S -131, S-215, S-290, L280, L380 (See course descriptions on following page)
- ◇ Annual refresher and arduous pack test.
- ◇ Maintain training opportunities funded by federal resources.
- ◇ Consider agreements that detail use of federal resources, including engine rotations and helicopter crewmember training.
- ◇ Seek higher qualifications and participate in out-of-district fire assignments.



Equipment

PPE

ERFPD provides the necessary wildland PPE for their firefighters, including radios and New Generation fire shelters. Wildland boots are the responsibility of the individual, which is typical of most fire departments.

FIREFIGHTER WILDLAND QUALIFICATIONS

Position	Qualified Personnel	Trainees
Faller A (FALA)	25	2
Faller B (FALB)	2	14
Firefighter Type 1 (FFT1)	8	20
Engine Boss (ENGB)	4	4
Fire Boss (FIRB)	0	2
Helicopter Crew Member (HECM)	0	2
Strike Team Leader Engine (STEN)	1	0
Task Force Leader (TSKF)	1	0
Incident Command Type 3 (ICT3)	0	1
Incident Command Type 4 (ICT4)	2	2
Incident Command Type 5 (ICT5)	3	2
Heavy Equipment Boss (HEQB)	0	1
Safety Officer, Line (SOFR)	1	1
Field Observer (FOBS)	0	1
Public Information Officer Type1 (PIO2)	1	0
Public Information Officer (PIOF)	1	0

Required Qualifications & Training

Introductory fire course.

S-131

Advanced Firefighter Training.

S-215,

Fire Operations in the Wildland/Urban Interface

L-280

Followership to Leadership.

All operational personnel are required to take the annual fire refresher course and pass the arduous pack test. As a combination of training and experience, firefighters have acquired a variety of qualifications.

WATER SUPPLY AND MAPPING

The majority of the fire district has excellent water supply. Hydrants are located throughout most communities, and they are maintained by Eagle County Water and Sanitation District. The communities that are lacking sufficient water, including Ute Forest, Timber Springs, Red Canyon, and Tennessee Pass should have cisterns added.

Recommendations for these communities can be found in the community write-up sections. Recommendations are as follows:

- ◇ Work with residents to mark volumes on all cisterns in the district and ensure all cisterns are filled and operational.
- ◇ Ensure that firefighters are familiar with communities that have homes with sprinklers.
- ◇ All available water sources should continue to be marked by global positioning systems (GPS) and posted on a map that is available to local and incoming suppression resources. This should be updated as needed.
- ◇ Create additional year-round water storage resources in the district, such as ponds, cisterns, and tanks.
- ◇ Dry hydrant locations should be found along creeks and in any permanent water supply within the communities.
- ◇ Add the community of Ute Forest to the existing map books carried on the apparatus.
- ◇ Develop wildfire preplanning response plans for the fire protection district and communities that are covered by but are outside of the fire protection district boundary. Maps in these plans should include roads, evacuation routes, home locations, fuel breaks, and available water sources.
- ◇ Invite Eagle River Water & Sanitation District representatives to continue to participate in wildfire exercises. Those representatives will then be better prepared to assist firefighters in finding reliable sources of potable water during an actual emergency. ERWSD operators would monitor tank levels throughout the water district, and begin pumping water to where it is most needed.

Water Supply
Map

COMMUNITY ANALYSIS AND RECOMMENDATIONS

PURPOSE

The purpose of this section is to examine the communities in greater detail. Of the 21 WUI communities defined in ERFPD, none were found to represent an extreme hazard. Two are rated as having a very high hazard, and 15 are rated as high hazard, while 6 are moderate. It is important to remember these communities are rated relative to what is customary for this specific type of wildland urban interface. While adhering to proven methodology, an attempt is made to approach each community as a unique entity with its own characteristics so that the most accurate, safe, and useful assessments possible are provided.

Very High	High	Moderate	Low
Ute Forest	Bellyache	Eagle-Vail	Eagle River Village
Whiskey Hill	Colorow	Homestead	
	Cordillera Valley Club	Lake Creek	
	Creamery Ranch	Minturn	
	Mountain Star	Red Cliff	
	Pilgrim Downs		
	Red Canyon		
	Red Sky Ranch		
	Singletree		
	Tennessee Pass		
	Timber Springs		
	West Lake Creek		
	Wildwood/Wildridge		

Community Hazard
Rating Map

Community Analysis

- ❑ Assessment Methodology
- ❑ Structure Recommendations
- ❑ Bellyache
- ❑ Colorow
- ❑ Cordillera Valley Club
- ❑ Creamery Ranch
- ❑ Eagle River Village
- ❑ Eagle-Vail
- ❑ Homestead
- ❑ Lake Creek
- ❑ Minturn
- ❑ Mountain Star
- ❑ Pilgrim Downs
- ❑ Red Canyon
- ❑ Red Cliff
- ❑ Red Sky Ranch
- ❑ Singletree
- ❑ Tennessee Pass
- ❑ Timber Springs
- ❑ Ute Forest
- ❑ West Lake Creek
- ❑ Whiskey Hill
- ❑ Wildwood/Wildridge

COMMUNITY ASSESSMENT METHODOLOGY

The community level methodology for this assessment uses a Wildfire Hazard Rating (WHR) that was developed specifically to evaluate communities within the WUI for their relative wildfire hazard. The WHR model combines physical infrastructure such as structure density and roads, fire behavior components such as fuels, topography, rate of spread and flame length with the field experience and knowledge of wildland fire experts. Modeled values for flame length and rate of spread during extreme weather conditions are incorporated into the rating sheet for each community. This methodology has been proven and refined by use in rating thousands of neighborhoods throughout the United States.

The Colorado State Forest Service requires that each community have representation during the planning process. This representation can be a fire department official, an HOA leader or a community member. Because each community must have representation, the unit should be a cohesive enough unit to support a single representative. Thus, a community should be a single geographic area that shares similar infrastructure, vegetation, topography, and as a result, similar recommendations. Lot/parcel sizes should be small enough that actions taken by individual residents will likely have an effect on their neighbor's fire risk, and may motivate further action. Close proximity is an easy way to encourage collaboration, and often a community will include multiple smaller subdivisions.

As a result of the dynamic nature of forested stands following MPB attack, community ratings identified in this document may not be the same in the future. Standing red or grey needled lodgepole pines will break or blow over. The subsequent fire behavior will likely be different than when the trees are standing; hence the risk and recommendations may also vary. On Forest Service land, many stands have been slated to be clear-cut. Depending on when or if these projects are completed, the impact on fire behavior could be significant. A current evaluation of the forest surrounding a

community should be completed before beginning any projects since the goal and prescription may be different than identified at this point.

Each community write-up can be regarded as an individual document. These pages can be delivered to a community independently of the overall document. As a result, you will see specific recommendations, if existing, for each community listed first, followed by recommendations that apply to all communities, such as defensible space. While seemingly repetitive, with this format, each community has all the pertinent information available in three pages, separate from the overall document. Not every community has a specific landscape-scale fuels project identified. In these communities, and in all of the communities, defensible space is the highest priority fuels treatment recommended. Defensible space and home construction is determined to be the greatest benefit for the least cost for landowners in all communities, regardless of whether landscape-scale fuel breaks are recommended.

This does not mean that a larger, landscape-scale project within the community/planning area could not be beneficial for the area, but it was not identified as the most important step in protecting life safety and values at risk. Identifying larger projects in the surrounding influence zones will be meaningful for obtaining grants to help fund all of the projects, especially the small acreage projects. Although large fuel breaks are not always as effective for individual home protection as defensible space, if implemented correctly, they can act as anchor points for suppression activities to begin. Graphics provide general information regarding the overall hazard and risk rating for specific communities, they do not describe fully the specific information that formed the rating. At a minimum, it is necessary to review the individual community write-ups and recommendations. Complete understanding only can be attained by reading the accompanying text, in addition to looking at the graphics.

Fire Adapted Methodology



RECOMMENDATIONS



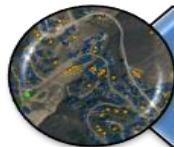
Home and Business
Construction



Landscaping & Fuels



Preparedness



Infrastructure

Properly implemented defensible space and Firewise construction are the most important recommendations for home survivability due to:

- ⚠ Limited firefighting resources, especially during the early stages of an expanding wildfire incident, high home density, and/or long response times, and firefighter safety.
- ⚠ In order to survive a passing flame front, a home will need defensible space and hardened home construction.
- ⚠ Often, homeowners will assume that because they have adequately constructed their homes from noncombustible materials and have cleared vegetation around the structures, firefighters will be able to save their homes. However, defensible space needs to be maintained and re-assessed throughout the fire season and on an annual basis.
- ⚠ Avoid wooden street signs, which are combustible and non-reflective, meaning they could be difficult to see in dark and/or smoky conditions.

Category	Priority	Description
Construction	1	Discourage the use of combustible materials for decks, siding, and roofs, especially where homes are upslope from heavy vegetation.
		Replace any shake-shingle or slab-wood siding and roofs with noncombustible types.
		Open areas below decks and projections should be enclosed or screened to prevent the ingress of embers and kept clean of flammable materials, especially where such openings are located on slopes above heavy fuels.
Landscaping/Fuels	2	Remove all standing dead lodgepole trees that are near structures, power lines, and roads.
		Clean leaf and needle litter from roofs and gutters and away from foundations.
		Thin vegetation alongside roads and driveways. This is especially important for narrow driveways and road segments, and for any areas where ravines with heavy fuels are below the access. Focus on removing vegetation in drainages that cross roads.
		Remove wood piles and any flammable yard clutter to at least 30' from structures and propane tanks. Wood piles should be located uphill or even with homes, never downhill.
		Encourage individual landowners to mow fuels near homes and along roadways and fence lines during times of high fire danger.
Planning/Evacuation	3	Add reflective addressing to all driveways or homes. A good guideline is to use all metal white markers that are 4" in width on a green background. These should be placed 3-5' above ground.
		Develop an evacuation plan for the community, including identifying escape routes and an evacuation center.
		Where available, large temporary refuge areas should be maintained and identified in all evacuation planning and have adequate size and quality in order to be effective.
Infrastructure	4	Continue to develop additional water sources, such as cisterns and tanks.
		Provide adequate turnarounds for fire apparatuses throughout the community.
		Ensure that all gates in the community are removable and/or have access codes that are known to all residents and the FPD.
		Identify all water sources within the community, including hydrants, cisterns and ponds. Make sure that they are visible, maintained, and operable.

The fuels treatment details and general wildfire mitigation recommendations for each community within the district provide a good start for properly protecting one's individual home and the community as a whole. More in-depth information on home construction, defensible space, preparedness planning and evacuation, infrastructure, and water supply are included in this document.

Home Ignition Zone

A home's ignition risk is determined by its immediate surroundings or its "home ignition zone" and the home's construction materials.

According to fire science research and case studies, it's not where a home is located that necessarily determines ignition risk, but the landscape around it, often referred to as the "home ignition zone." The home ignition zone is defined as the home and its immediate surroundings up to 100 feet (30 m). The Firewise USA® Communities Program provides tips for reducing wildfire risk based on the home ignition zone concept:

Home Zone – The home itself and within 5 feet of the foundation: harden (non-combustible material) your home against wildfire. This includes fences, decks, porches and other attachments. From a fire behavior point of view, if it's attached to the house, it is a part of the house. Non-flammable or low flammability construction materials — especially for roofs, siding and windows — are recommended for new homes or retrofits. Keep any flammables, including plantings, debris and mulch, out of the area within 5 feet of your home's foundation as well as off your roof, eave lines, gutters and deck or porch surfaces. Ensure vents and other openings are screened or otherwise protected from ember penetration during a wildfire.

5 – 30 feet: This well-irrigated area around the home includes decks and fences, and provides space for fire suppression equipment in the event of an emergency. Lawns should be well maintained and mowed. Plantings should be limited to carefully-spaced low flammability species, and consider hardscaping using rocks, gravel or stone instead of mulch. Keep any large fuel packages, such as firewood piles, out of this area.

30 – 100 feet: Low flammability plant materials should be used here. Plants should be low-growing and the irrigation system should extend into this section. Create separation between grasses, shrubs and trees to avoid a "fuel ladder" effect where fire can climb into taller vegetation. Trees should be spaced to prevent crowns from touching.

100+ feet: Place low-growing plants and well spaced trees in this area, remembering to keep the volume of vegetation (fuel) low.

Home Ignition Zone Illustration



BELLYACHE

Number of Structures	121
Utilities Above or Below Ground	Below ground
General Construction	Mixture of combustible/noncombustible siding; roof class varies – some shake-shingle roofs
Average Lot Size	~5 Acres
Home Addresses	Present; inconsistent; non-reflective
Dual Access Roads	One way in/out
Road Widths, Slope, and Surface	>24'; <15%; paved
Emergency Vehicle Turnarounds	Long driveways; turnarounds at end of dead-end roads
Water Supply	Hydrants, variable pressure
Proximity to Staffed Fire Station	> 6 miles
Other Hazards	High home density; areas of dead lodgepole pine

Hazard Rating: HIGH



- ❑ Access – Long winding road, one way in and out
- ❑ Fuel Type – Grass, Sage, Aspen, Douglas Fir, Beetle-killed Lodgepole
- ❑ Located on a hillside with steep slopes and drainages
- ❑ Homes situated on the edge of the steep hillsides, more susceptible to fire spread
- ❑ Rapid rates of spread can be expected
- ❑ Flame lengths could exceed 11 feet



BELLYACHE

Accomplishments

Collaborative effort between the homeowners association and fire department to determine future wildfire mitigation needs for the community

Individual home rapid risk assessments have been completed and mapped

Evacuation Routes and Safety Zones identified, mapped, and distributed

Some Home Ignition Zone assessments conducted

Some individual home mitigation projects completed

Critical infrastructure identified and mapped

Significant amount of clearing around homes and power lines has been completed

Mitigation is both ongoing and planned, and, as a result, many homes have decent defensible space

GIS Map



Evacuation map



Mitigation Project(s)

- Bellyache Ridge Road Fuel Treatment
- Home Defensible Space



Description

- Remove hazardous trees along Bellyache Ridge Road, tying into and expanding existing fuel treatments



Method

- Crew handfelling and limbing; mechanical where applicable



Acreage

- 23

COLOROW

Number of Structures	24
Utilities Above or Below Ground	Overhead power lines
General Construction	Mixture of combustible/noncombustible siding; some shake-shingle roofs
Average Lot Size	~20 Acres
Home Addresses	Difficult to see in areas; inconsistent; non-reflective
Dual Access Roads	No
Road Widths, Slope, and Surface	~20'; steep road up with tight switchbacks; paved
Emergency Vehicle Turnarounds	Mostly inadequate; long, narrow driveways
Water Supply	Ponds and tanks
Proximity to Staffed Fire Station	~4 miles
Other Hazards	Adjacent hillside with beetle-kill; poor water supply



Hazard Rating: High



- ❑ Access –Narrow, steep road with tight switchbacks, one way in and out
- ❑ Potential secondary egress route down to Pilgrim Downs
- ❑ Fuel Type – Grasses, Sage, Aspen Douglas-Fir, Spruce, Serviceberry, dead Lodgepole
- ❑ Location has steep terrain with drainages on West side
- ❑ No pressurized hydrants and limited other water resources
- ❑ Rapid rates of spread can be expected

COLOROW

<u>Accomplishments</u>	Collaborative effort between the homeowners association, county and fire department to determine future wildfire mitigation needs for the community
	Individual home rapid risk assessments have been completed and mapped
	Each individual homeowner was notified of their home risk rating
	Evacuation Routes and Safety Zones identified, mapped, and distributed
	Some Home Ignition Zone assessments conducted
	Some individual home mitigation projects completed
	Secondary egress route identified and mapped
	Planning in place to add additional water resource
	Two existing 10,000 gallon tanks and three 5,000 gallon tanks

GIS map



Evacuation map



Mitigation Project(s)

- Fuel Break
- Home Defensible Space
- Improve secondary egress route between Colorow Rd and Pilgrim Drive



Description

- Remove numerous dead standing and dead down MPB affected Lodgpole
- Remove fuels along the route and gate for emergency use only



Method

- Crew handfelling and limbing; mechanical where applicable



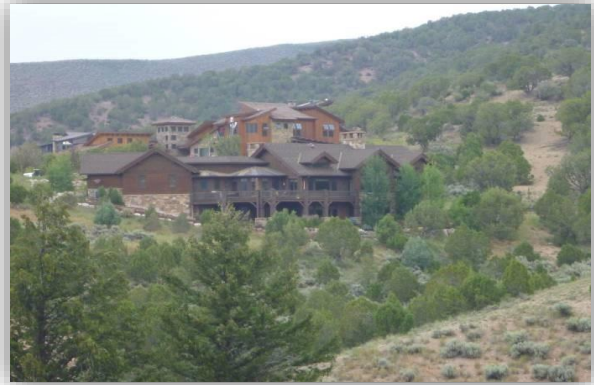
Acreage

- 35

CORDILLERA VALLEY CLUB

Number of Structures	127
Utilities Above or Below Ground	Below ground
General Construction	Mixture of combustible/noncombustible siding; shake-shingle roofs
Average Lot Size	~1 Acre
Home Addresses	Difficult to see in areas; inconsistent; non-reflective
Dual Access Roads	Two ways in/out
Road Widths, Slope, and Surface	<20'; mostly flat; paved
Emergency Vehicle Turnarounds	Not adequate in most areas
Water Supply	Hydrants with good pressure
Proximity to Staffed Fire Station	~3 miles
Other Hazards	High housing density; non-year-round population; homes located on edges of steep hills

Hazard Rating: High



- ❑ Surrounded by 18 hole golf course, which can serve as a safety zone
- ❑ Rapid rates of fire spread are possible, with possible torching and crowning
- ❑ Fuel Type – Grass, Sage, Juniper
- ❑ Home locations include at the base of a steep hillside, steep drainages and ridges
- ❑ Little or no defensible space has been done around structures
- ❑ Addresses are hard to see at night and/or during smoky conditions and are non-reflective



CORDILLERA VALLEY CLUB

Accomplishments Pressurized hydrants identified and mapped

Safety Zones identified and mapped

GIS map



Evacuation map



Mitigation Project(s)

- Linked Defensible Space
- Home Defensible Space



Description

- Create Northern boundary of community fuel break of Sage and Juniper
- Create 200 feet of defensible space around each home



Method

- Crew handfelling and limbing; mechanical where applicable



Acreage

- 10

CREAMERY RANCH

Number of Structures	15
Utilities Above or Below Ground	Below ground
General Construction	Wood siding; shake-shingle roofs
Average Lot Size	~2 Acres
Home Addresses	Difficult to see in areas; inconsistent; non-reflective
Dual Access Roads	One way in/out
Road Widths, Slope, and Surface	<20'; flat; paved
Emergency Vehicle Turnarounds	Not adequate; narrow driveways
Water Supply	Hydrants with good pressure
Proximity to Staffed Fire Station	~3 miles
Other Hazards	Non-year-round residents; adjacent agricultural burning

Hazard Rating: High



- ❑ One way in and out
- ❑ Rapid rates of fire spread are possible due to light flashy fuels
- ❑ Fuel Type – Grass, Sage, Aspen
- ❑ Terrain is mostly flat grade with some shallow drainages
- ❑ Most homes have adequate defensible space with maintained grass mowing
- ❑ Addresses are hard to see at night and/or during smoky conditions and are non-reflective



CREAMERY RANCH

Accomplishments Individual home rapid risk assessments have been completed and mapped

Each individual homeowner was notified of their home risk rating

Evacuation Routes and Safety Zones identified and mapped

GIS map



Evacuation map



Mitigation Project(s)

- Home Defensible Space
- Roadside Thinning



Description

- Create defensible space based the Home Ignition Zone requirements



Method

- Mowing, trimming, hand cutting



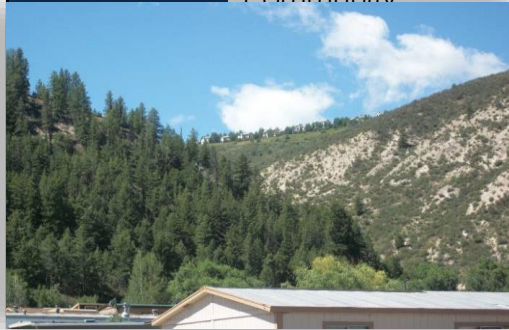
Acreage

- 1-3

EAGLE RIVER VILLAGE

Hazard Rating: Low

Number of Structures	365
Utilities Above or Below Ground	Above ground
General Construction	Combustible siding; metal roofs
Average Lot Size	<1 Acre
Home Addresses	Present; inconsistent; non-reflective
Dual Access Roads	One way in/out
Road Widths, Slope, and Surface	20-24'; flat; paved
Emergency Vehicle Turnarounds	Not adequate for large engines
Water Supply	Private hydrants throughout
Proximity to Staffed Fire Station	~2 miles
Other Hazards	High housing density; steep draw behind community



- ❑ Close proximity of structures could result in direct flame impingement, home-to-home ignition
- ❑ Drainage on South side of community is a concern due to fire spread in upper community
- ❑ Fuel Type – Grass, Sage, Spruce, Douglas Fir, Serviceberry
- ❑ Due to population density, evacuation is a concern due to only one exit to Hwy 6
- ❑ Conduct Wildfire home structure assessments

EAGLE RIVER VILLAGE

Accomplishments

Colaboritive effort between community managers and fire department to educate the homeowners about wildfire risk

Private hydrant system identified and mapped. Some have been tested

Community safety fairs have been conducted

Ready, Set, Go information was distributed to the community

GIS map



Evacuation map



Mitigation Project(s)

- Roadside Fuel Break



Description

- Reduce fuel loading on South side of community and tie into dirt road



Method

- Crew handfelling and limbing; sage mitigation, limited mechanical where applicable



Acreage

- 18

EAGLE-VAIL

Hazard Rating: [Moderate](#)

Number of Structures	512
Utilities Above or Below Ground	Below ground
General Construction	Noncombustible siding; variety of roof classes, including a significant amount of shake-shingle roofs
Average Lot Size	<1 Acre
Home Addresses	Present; inconsistent; non-reflective
Dual Access Roads	Multiple ways in/out
Road Widths, Slope, and Surface	20-24+'; flat; paved
Emergency Vehicle Turnarounds	Mix of adequate and inadequate turnarounds
Water Supply	Hydrants with good pressure
Proximity to Staffed Fire Station	>1 mile
Other Hazards	High housing density; non-year-round population, including tourists; flammable vegetation that runs up to the edges of the community



- ❑ Close proximity of structures could result in direct flame impingement, home-to-home ignition
- ❑ South side of abuts combustible vegetation
- ❑ Fuel Type – Grass, Sage, Spruce, Douglas Fir, Serviceberry, Aspen
- ❑ Edge of community lacks adequate defensible space
- ❑ Some areas protected by the golf course, which can act as a safety zone
- ❑ Addressing hard to see, especially in dark conditions



EAGLE-VAIL

Accomplishments

Designated a Firewise USA(R) Community

Collaborative effort between the homeowners association, county and fire department to determine future wildfire mitigation needs for the community

Individual home rapid risk assessments have been completed and mapped

Each individual homeowner was notified of their home risk rating

Evacuation Routes and Safety Zones identified, mapped, and distributed

Some Home Ignition Zone assessments conducted and through the county REALFire program

Fuel treatment project completed around community maintenance facility

GIS map



Evacuation map



Mitigation Project(s)

- Linked Defensible Space



Description

- Reduce risk of a structure fire starting a wildfire
- link defensible space along Elk Lane



Method

- Crew handfelling and limbing; sage treatments, mowing



Acreage

- 5

HOMESTEAD

Number of Structures	513
Utilities Above or Below Ground	Below; overhead power lines adjacent to community
General Construction	Mostly noncombustible siding; high fire resistant roofs
Average Lot Size	<1 Acre
Home Addresses	Present; non-reflective
Dual Access Roads	One way in/out
Road Widths, Slope, and Surface	20-24'; <5%; paved
Emergency Vehicle Turnarounds	They exist at ends of side roads; long, narrow driveways
Water Supply	Hydrants with good pressure
Proximity to Staffed Fire Station	~.1 mile
Other Hazards	High housing density; nearby elementary school

Hazard Rating: [Moderate](#)



- ❑ Limited evacuation points. Create secondary egress route off of Gold Dust Drive
- ❑ Fuel Type – Grass, Sage, Spruce, Juniper, Ornamental trees
- ❑ Small narrow drainages run uphill into community
- ❑ Homes lack adequate defensible space
- ❑ Light flashy fuels throughout community can create rapid rates of spread and flame length less than four feet
- ❑ Home-to-home ignition possible.



HOMESTEAD

Accomplishments

Collaborative effort between the homeowners association, county and fire department to determine future wildfire mitigation needs for the community

Individual home rapid risk assessments have been completed and mapped

Each individual homeowner was notified of their home risk rating

Evacuation Routes and Safety Zones identified, mapped, and distributed.

Home Ignition Zone assessments as well as through the county REALFire program

GIS map



Evacuation map



Mitigation Project(s)

- Secondary Egress
- East and West Linked Defensible Space
- Individual Home and Multi-Family Residence defensible space



Description

- Gold Dust Dr to Lariat Loop
- Link defensible space behind homes on Gold Dust Drive and Cameron Place
- Create secondary egress route off of Gold Dust Drive



Method

- Crew handfelling and limbing; sage treatments, mowing



Acreage

- 8.5

LAKE CREEK

Number of Structures	236
Utilities Above or Below Ground	Overhead power lines, but buried to homes
General Construction	Varied: mostly noncombustible siding, roof rating varies, lots of shake-shingle roofs
Average Lot Size	~5 Acres
Home Addresses	Difficult to see in areas; inconsistent; non-reflective
Dual Access Roads	One way in/out
Road Widths, Slope, and Surface	20-24' and narrower; generally flat, though some steep areas; paved and dirt
Emergency Vehicle Turnarounds	Not adequate in most areas
Water Supply	Hydrants
Proximity to Staffed Fire Station	1 to >6 miles
Other Hazards	Agricultural field burning; presence of livestock; bridges that are narrow and not always rated; areas of high housing density

Hazard Rating: *Moderate*



- ❑ Paved and dirt roads, narrow side roads, poor turnaround areas, and private bridges
- ❑ Fuel Type – Grass, Sage, Spruce, Juniper, Aspen
- ❑ Home location includes midslope, top of steep hills, and base of hillside drainages
- ❑ Light flashy continuous fuels can create fast fire spread into larger fuels
- ❑ Home defensible space is minimum w some high density home areas
- ❑ Addressing can be hard to locate due to long driveways and no addressing standard



LAKE CREEK

Accomplishments

Individual home rapid risk assessments have been completed and mapped

Evacuation Routes and Safety Zones identified, mapped, and distributed

Each individual homeowner was notified of their home risk rating

Currently working on water agreements for use during an incident with individual homeowners

Bridges have been identified, some GVW determined, and mapped

Water resources including hydrants, cisterns, dry hydrants, and other resources identified and mapped

Access gated identified and mapped which includes gate codes and ownership contact information

Some individual home mitigation projects have been completed

Some Home Ignition Zone assessments conducted

GIS map



Evacuation map



Mitigation Project(s)

- Secondary Egress Improvement
- Home Defensible Space



Description

- Designate and improve the road east of community from West Lake Creek Rd to Lake Creek Rd. Route should be maintained and mitigated



Method

- Crew handfelling and limbing; sage treatments, , mechanical treatments



Acreage

- 1-3

MINTURN

Number of Structures	694
Utilities Above or Below Ground	Above – numerous overhead power lines
General Construction	Mixture of combustible/noncombustible siding; roofs are mostly metal, with some shake-shingle roofs
Average Lot Size	<1 Acre
Home Addresses	Present; inconsistent; non-reflective, nonexistent
Dual Access Roads	Two ways in/out; many one-way side roads
Road Widths, Slope, and Surface	Wide highway, side roads <20'; mostly flat; paved
Emergency Vehicle Turnarounds	Not adequate in most areas
Water Supply	Hydrants in town are not always reliable; dry hydrants at Kings Ranch
Proximity to Staffed Fire Station	<1 mile
Other Hazards	High housing density; railroad tracks through town; no water/snow maintenance on weekends; heavy traffic on Hwy 24

Hazard Rating: *Moderate*



- ❑ Paved and dirt roads, narrow side roads, poor turnaround areas, and private bridges
- ❑ Fuel Type – Grass, Sage, Spruce, Aspen, Lodgepole
- ❑ Home locations are mostly on a flat grade, with some isolated homes on midslope
- ❑ Side roads in town are narrow and lack turnaround space
- ❑ Kings Ranch and Maloit Park are one way in and out with limited defensible space
- ❑ Addressing can be hard to locate or is non-existent



MINTURN

Accomplishments

Collaborative effort to determine future wildfire mitigation needs for the community with the city planner

Individual home rapid risk assessments have been completed and mapped

Each individual homeowner was notified of their home risk rating

Evacuation Routes and Safety Zones identified, mapped, and distributed

Bridges have been identified, some GVW determined, and mapped

Hydrant system has been identified and mapped

Pre-planning with local builder to create defensible space for new structures and ingress/egress routes

Clear cut fuel treatment conducted by USFS in upper Grouse Creek area

Address verification conducted and updated by the county

GIS map



Evacuation map



Mitigation Project(s)

- Fuel Breaks / Defensible Space / Cross Creek



Description

- South edge of town. Connect USFS fuel treatments, enlarge fuel break



Method

- Crew handfelling and limbing; mechanical treatments



Acreage

- 47

MOUNTAIN STAR

Number of Structures	63
Utilities Above or Below Ground	Below ground
General Construction	Noncombustible siding; mostly shake-shingle roofs
Average Lot Size	~3 Acres
Home Addresses	Present; metal; non-reflective
Dual Access Roads	One way in/out
Road Widths, Slope, and Surface	20-24'; <10%; paved
Emergency Vehicle Turnarounds	Not adequate in all areas
Water Supply	Hydrants with good pressure
Proximity to Staffed Fire Station	~4.3 miles
Other Hazards	Non-year-round population; homes near steep edges of hillside

Hazard Rating: **Moderate/High**



- ❑ Most homes located within large healthy Aspen stands
- ❑ Fuel Type – Grass, Sage, Spruce, Aspen
- ❑ Rapid rates of spread can be expected due to steep terrain, funneling drainages, and light flashy fuels
- ❑ Homes are located atop these steep drainages and slopes creating an increased fire risk



MOUNTAIN STAR

Accomplishments

Designated a Firewise USA (®) Community

Collaborative effort between the homeowners association, county and fire department to determine future wildfire mitigation needs for the community

Individual home rapid risk assessments have been completed and mapped

Each individual homeowner was notified of their home risk rating

Evacuation Routes and Safety Zones identified, mapped, and distributed

Some Home Ignition Zone assessments conducted

Fuel treatment projects have been completed around and in the interior of community as well as being managed annually

GIS map



Evacuation map



Mitigation Project(s)

- Fuel Breaks
- Home Defensible Space



Description

- Steep slopes with dense shrub vegetation should be thinned to reduce fire threat to community
- Reduce risk of a larger wildfire



Method

- Sage treatments; mowing grass
- Hand felling and limbing near homes; mowing; mechanical and sage treatments



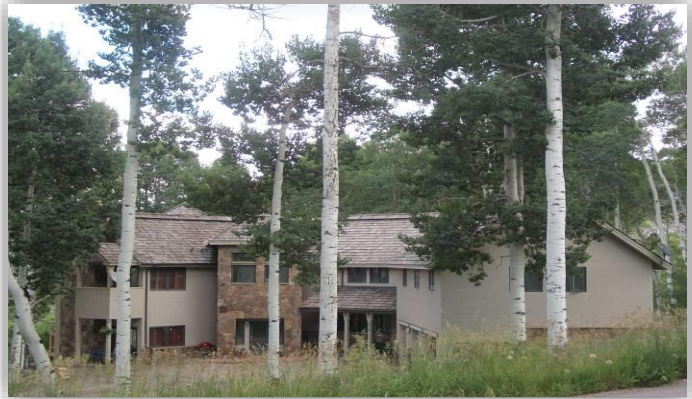
Acreage

- 55

PILGRIM DOWNS

Number of Structures	26
Utilities Above or Below Ground	Below ground
General Construction	Noncombustible siding; shake-shingle roofs
Average Lot Size	~7 Acres
Home Addresses	Difficult to see; non-reflective
Dual Access Roads	One way in/out
Road Widths, Slope, and Surface	<20'; mostly flat; paved
Emergency Vehicle Turnarounds	Not adequate; long, narrow driveways with small turnarounds
Water Supply	Large ponds with stand pipes; no hydrants
Proximity to Staffed Fire Station	<4 miles
Other Hazards	Horses

Hazard Rating: High



- ❑ 300 acre community with 43 structures
- ❑ Fuel Type – Grass, Aspen, Spruce, large stand of beetle kill Lodgepole pine above community
- ❑ Most homes located in forested areas with little defensible space
- ❑ Secondary egress improvement to Colorow subdivision should be considered, designated escape route only



PILGRIM DOWNS

Accomplishments

Collaborative effort between the homeowners association, county and fire department to determine future wildfire mitigation needs for the community

Individual home rapid risk assessments have been completed and mapped

Each individual homeowner was notified of their home risk rating

Evacuation Routes and Safety Zones identified, mapped, and distributed

Some Home Ignition Zone assessments conducted

Fuel treatment projects have been completed around and in the interior of community as well as being managed annually

Water resources and drafts sites identified and mapped

GIS map



Evacuation map



Mitigation Project(s)

- Secondary Egress Improvement (to Lake Creek)
- Secondary Egress (to Colorow)



Description

- Designate and improve the road east of community from West Lake Creek Rd to Lake Creek Rd
- Improve and maintain road between Colorow and Pilgrim Downs, gate for emergency use only



Method

- Hand felling and limbing near homes; mowing; mechanical and sage treatments



Acreage

- 1-3

RED CANYON

Number of Structures	13
Utilities Above or Below Ground	Below ground
General Construction	Mostly noncombustible siding; high fire resistant roofs
Average Lot Size	~35 Acres
Home Addresses	Not present, or not visible
Dual Access Roads	One way in and out
Road Widths, Slope, and Surface	<20'; mostly flat; paved
Emergency Vehicle Turnarounds	Not adequate in all areas
Water Supply	Small ponds for drafting
Proximity to Staffed Fire Station	~4 miles
Other Hazards	Narrow cement tunnel only access to community

Hazard Rating: High



- ❑ Access is Red Canyon Ranch Rd off of Hwy 6 through a narrow cement tunnel. Does not accommodate large apparatus and is not maintained in winter
- ❑ Fuel Type – Grass, Sage
- ❑ No hydrants and water resources limited to ponds
- ❑ Light flashy fuels can promote rapid rates of spread
- ❑ Some home defensible space present but not for all
- ❑ Addressing is difficult to see

RED CANYON

Accomplishments

Individual home rapid risk assessments have been completed and mapped

Water resources identified and mapped



Evacuation map



Mitigation Project(s)

- Home defensible space



Description

- Create defensible space based the Home Ignition Zone requirements



Method

- Mowing, hand trimming



Acreage

- 1-3

RED CLIFF

Number of Structures	160
Utilities Above or Below Ground	Above ground – low hanging power lines
General Construction	Mixture of combustible/non-combustible siding; mostly high fire resistance roofs, some shake-shingle roofs
Average Lot Size	<1 Acre
Home Addresses	Present; non-reflective
Dual Access Roads	Three ways in/out, two that are above and below each other and the other of which is a dirt FS road
Road Widths, Slope, and Surface	<20 feet; mostly flat, some steep areas; paved
Emergency Vehicle Turnarounds	Not adequate in most areas
Water Supply	Scattered hydrants
Proximity to Staffed Fire Station	~9 miles
Other Hazards	Poor radio reception in the area; lower access bridge is old and may not be rated for all types of fire apparatuses

Hazard Rating: *Moderate*



- ❑ Homes and businesses are clustered along valley bottom with railroad tracks through town
- ❑ Fuel Type – Grass, Sage, Spruce, Lodgepole Pine (includes some beetle kill), Aspen, Shrubs
- ❑ Steep hillside surrounds town
- ❑ Homes have partial defensible space
- ❑ Private and state bridges present with some GVW rating indicate but not for all



RED CLIFF

<u>Accomplishments</u>	Individual home rapid risk assessments have been completed and mapped
	Each individual homeowner was notified of their home risk rating
	Evacuation Routes and Safety Zones identified, mapped, and distributed
	Some Home Ignition Zone assessments conducted
	Collaborative effort to determine future wildfire mitigation needs for the community with the Mayor
	Hydrant system has been identified and mapped
	Some individual home mitigation projects have been completed
	Bridges have been identified, some GVW determined, and mapped
	Clear cut and fuel treatments have been conducted around the historic cementary area

GIS map



Evacuation map



Mitigation Project(s)
Home Defensible Space/Non-Combustible Construction



Description
• Create defensible space based the Home Ignition Zone requirements



Method
• Mowing, limbing, handfelling, upgrading



Acreage
• 1

RED SKY RANCH

Number of Structures	56
Utilities Above or Below Ground	Below ground
General Construction	Noncombustible siding; all shake-shingle roofs
Average Lot Size	~2 Acres
Home Addresses	Metal on wooden posts; non-reflective
Dual Access Roads	No
Road Widths, Slope, and Surface	20-24'; <15%; paved
Emergency Vehicle Turnarounds	Not for large trucks; dead-end roads have small turnaround areas
Water Supply	Hydrants; stand pipes
Proximity to Staffed Fire Station	>5 miles
Other Hazards	Frequent lightning on nearby hillside; non-year-round population and guests

Hazard Rating: High



- ❑ West edge of district surrounded by 18 hole golf courses which provide safety areas of temporary refuge
- ❑ Fuel Type – Grass, Sage, Juniper, Spruce
- ❑ Combustible fuels about most homes, some defensible space present
- ❑ Steep ridge runs through the center of the community which could create rapid rates of fire spread and egress route to be unusable
- ❑ Addressing can be hard to locate and see in dark conditions



RED SKY RANCH

Accomplishments

Individual home rapid risk assessments have been completed and mapped

Each individual homeowner was notified of their home risk rating

Evacuation routes and safety zones identified, mapped, and distributed

GIS map



Evacuation map



Mitigation Project(s)

- Secondary Egress Route
- Fuel Breaks
- Home Defensible Space



Description

- Improve road from Elk Bugle to RSR rd
- Reduce fuel load in areas indicated on map
- Create defensible space based the Home Ignition Zone requirements



Method

- Fuel treatments, mechanical, hand felling, mowing



Acreage

- 1-3

SINGLETREE

Number of Structures	677
Utilities Above or Below Ground	Below ground
General Construction	Mixture of combustible/noncombustible siding; mostly shake-shingle roofs
Average Lot Size	<1 Acre
Home Addresses	Present; non-reflective
Dual Access Roads	Two ways in/out
Road Widths, Slope, and Surface	>24'; mostly flat; paved
Emergency Vehicle Turnarounds	Adequate in some areas; some have long, narrow driveways
Water Supply	Hydrants with good pressure
Proximity to Staffed Fire Station	<1 mile
Other Hazards	High housing density; adjacent medical center

Hazard Rating: High



- ❑ Community has an 18-hole golf course that can act as temporary refuge areas
- ❑ Fuel type – Grass, Sage
- ❑ Light flashy fuels will create a rapid rate of fire spread
- ❑ Topography is flat with some steep narrow drainages with homes at the top
- ❑ Some defensible space for interior homes has been created
- ❑ Clearing of sage brush and mowing and maintaining grass height is recommended
- ❑ Some addressing is hard to locate



Community

Accomplishments

Collaboration between the community and fire department to educate the homeowners in Singletree about wildfire danger

Individual home rapid risk assessments have been completed and mapped

Each individual homeowner was notified of their home risk rating

Evacuation Routes and Safety Zones identified, mapped, and distributed.

Home Ignition Zone assessments conducted by fire department as well as through the REALFire program.

Collaborative effort to determine future wildfire mitigation needs for the community.

GIS map



Evacuation Route



Mitigation Project(s)

- Fuel Break
- Linked Defensible Space



Description

- Slope above Latigo Circle; thin and maintain shrub vegetation
- East edge of community from Rowell Dr to Chaparral Rd



Method

- Mowing; sage treatments



Acreage

- 8

TENNESSEE PASS

Number of Structures	33
Utilities Above or Below Ground	Below ground
General Construction	Noncombustible siding; high fire resistant roofs
Average Lot Size	~10 acres
Home Addresses	Present; inconsistent; non-reflective
Dual Access Roads	One way in/out
Road Widths, Slope, and Surface	<20'; <10%; dirt, poorly maintained in some areas
Emergency Vehicle Turnarounds	Not adequate
Water Supply	Some homes have 2,000 gallon cisterns; beaver ponds for drafting below the community
Proximity to Staffed Fire Station	~20 miles to Minturn; ~9 miles to Leadville
Other Hazards	Remaining UXOs may be in the area; Vance's Cabin visitor hut; adjacent Forest Service camping areas

Hazard Rating: High



- ❑ Home locations are hillside with a small drainage through center of town
- ❑ Fuel type – Lodgepole and Spruce-Fir
- ❑ Some homes have defensible space
- ❑ Water resources include streams and ponds, as well as a few cisterns
- ❑ Unexploded Ordinance (UXO) can be present
- ❑ Visitors to Vance's Cabin have a safe evacuation route in case of a wildfire
- ❑ Recommend to install a 20,000- gallon cistern for fire suppression



TENNESSEE PASS

Accomplishments Individual home rapid risk assessments have been completed and mapped

Dry hydrants and cisterns have been identified and mapped

Access from Hwy 24 improved

GIS map



Evacuation map



Mitigation Project(s)

- Escape Route Thinning
- Fuel Break



Description

- Roadside thinning/fuel break should be proposed and maintained by the county
- Fuel reduction - see map



Method

- Hand felling and limbing; mechanical treatments where applicable



Acreage

- 150 feet both sides of road

TIMBER SPRINGS

Number of Structures	4
Utilities Above or Below Ground	Below ground
General Construction	Noncombustible siding; shake-shingle roofs
Average Lot Size	~35 Acres
Home Addresses	Not visible
Dual Access Roads	One way in/out
Road Widths, Slope, and Surface	<20'; <5%; paved
Emergency Vehicle Turnarounds	Not adequate
Water Supply	May be some small home cisterns
Proximity to Staffed Fire Station	~2 miles
Other Hazards	Homes in community accessed by narrow bridges, which are not rated

Hazard Rating: High



- ❑ A narrow one-way-in-and-out road is the only access
- ❑ Road is on east side of a creek, homes on the west side, requiring access by private unrated bridge
- ❑ Fuel – Grass, Sage, Aspen, Conifers, plated vegetation
- ❑ All homes lack defensible space
- ❑ Water resources include the creek and a few small ponds



TIMBER SPRINGS

Accomplishments

Individual home rapid risk assessments have been completed and mapped

Dry hydrants and cisterns have been identified and mapped

GIS map



Evacuation map



Mitigation Project(s)

- Home Defensible Space



Description

- Create defensible space based the Home Ignition Zone requirements



Method

- Mowing, trimming, hand felling, clearing



Acreage

- 1-3

UTE FOREST

Number of Structures	10
Utilities Above or Below Ground	Below ground
General Construction	Mixture of combustible/noncombustible siding, metal roofs
Average Lot Size	>35 acres
Home Addresses	Present; some reflective
Dual Access Roads	One way in/out
Road Widths, Slope, and Surface	<20'; >15%; dirt
Emergency Vehicle Turnarounds	Adequate
Water Supply	Cisterns and Dry Hydrants
Proximity to Staffed Fire Station	<4 miles
Other Hazards	Not included in district map books; extremely steep and narrow roads; year round population; lack of water

Hazard Rating: Very High



- ❑ Access to the community is a steep narrow dirt road with switchbacks
- ❑ Fuel type – Grass, Aspen, Spruce-Fir, Juniper, Service Berry
- ❑ Homeowners have not created a sizable defensible space around their homes
- ❑ Water resources are limited to private ponds
- ❑ Rapid rates of fire spread are possible while response time is delayed due to access
- ❑ Defensible space and adequate home construction is imperative



UTE FOREST

Accomplishments

Individual home rapid risk assessments have been completed and mapped

Evacuation Routes and Safety Zones identified, mapped, and distributed.

Some Home Ignition Zone assessments conducted

Collaborative effort between Homeowners Association and fire department to determine future wildfire mitigation needs for the area

Critical infrastructure identified and mapped

GIS map



Evacuation map



Mitigation Project(s)

- Secondary Egress/Roadside thinning
- Drainage Fuel Breaks
- Home Defensible Space



Description

- Work with landowners to connect a road to Royal Elk Road
- Fuel reduction in drainage do to access/egrees and life safety



Method

- Hand felling: sage treatments: mechanical treatments where possible



Acreage

- 34

WEST LAKE CREEK

Number of Structures	18
Utilities Above or Below Ground	Below ground
General Construction	Mostly noncombustible siding; metal and shake-shingle roofs
Average Lot Size	~35 acres
Home Addresses	Not visible in all areas; nonreflective
Dual Access Roads	One way in/out
Road Widths, Slope, and Surface	<20'; mostly flat; dirt
Emergency Vehicle Turnarounds	Adequate in some areas
Water Supply	Cisterns; ponds
Proximity to Staffed Fire Station	~3.6 -5 miles
Other Hazards	Non-year-round residents; unrated culverts

Hazard Rating: High



- ❑ Most homes located in valley with a few on hillsides and mid-slope
- ❑ Fuel type – Grass, Aspen, Spruce-Fir, Douglas-fir, some beetle-killed Lodgepole pine
- ❑ Homeowners have created some defensible space around their homes
- ❑ Water resources are limited to private ponds
- ❑ Rapid rates of fire spread are possible due to light and flashy fuels
- ❑ Addresses are hard to see during dark conditions



WEST LAKE CREEK

Accomplishments

Collaboration between the community, the county, and fire department to educate homeowners about wildfire risk

Individual home rapid risk assessments have been completed and mapped

Each individual homeowner was notified of their home risk rating

Evacuation routes and safety zones identified, mapped, and distributed

Home Ignition Zone assessments conducted as well as through the REALFire program

Collaborative effort to determine future wildfire mitigation needs for the community

Some individual homeowners have conducted mitigation and maintained areas of defensible space

Water resources including hydrants, cisterns, dry hydrants, and other resources identified and mapped

Currently working on water agreements for use during an incident with individual homeowners

GIS map



Evacuation map



Mitigation Project(s)

- Roadside Thinning (Ridge Road)
- Secondary Escape Route Improvement
- Fuel Breaks and Reduction/ Home Defensible Space



Description

- Reduce fuel along both sides of road
- Ensure secondary egress road is maintained for easy drivability



Method

- Hand felling and limbing near homes; mowing; limited mechanical treatments
- Grading



Acreage

- 40.2

WHISKEY HILL

Number of Structures	80
Utilities Above or Below Ground	Below ground
General Construction	Noncombustible siding; variety of roof classes, including a significant amount of shake-shingle roofs
Average Lot Size	<1 Acre
Home Addresses	Present; inconsistent; nonreflective
Dual Access Roads	One way in/out
Road Widths, Slope, and Surface	<20'; >10%; paved
Emergency Vehicle Turnarounds	Not adequate
Water Supply	Hydrants
Proximity to Staffed Fire Station	~4 mile
Other Hazards	High housing density; non-year-round residents; likely evacuation difficulties

Hazard Rating: Very High



- ❑ Residences are located on a steep hillside via a narrow steep road. Access and egress could deem difficult if evacuation is required
- ❑ Fuel type – Aspen, Serviceberry, Lodgepole (including beetle-killed) Spruce-fir
- ❑ Most residences lack defensible space and have shake shingle roofs
- ❑ High housing density directly below the area
- ❑ Golf course is located at the base of the hill which can act as a safety zone



WHISKEY HILL

Accomplishments

Collaboration between the community and fire department to educate the homeowners in Whisky Hill about wildfire risk

Individual home rapid risk assessments have been completed and mapped

Each individual homeowner was notified of their home risk rating

Evacuation Routes and Safety Zones identified, mapped, and distributed.

Home Ignition Zone assessments conducted as well as through the county REALFire program.

Collaborative effort between EagleVail and fire department to determine future wildfire mitigation needs for the area

3 Acres of the 33 acre Fuel treatment was completed in 2015

Fuel treatment was completed at the end of Daisy Lane in 2014

GIS map



Evacuation map



Mitigation Project(s)

- Fuel Break
- Home Defensible Space



Description

- Remove dead trees and thin fuel load to create fuel break
- Create defensible space based the Home Ignition Zone requirements



Method

- Hand felling and limbing; mechanical treatments where applicable
- Mowing, trimming, hand felling, clearing



Acreage

- 33

WILDWOOD/WILDRIDGE

Number of Structures	383
Utilities Above or Below Ground	Below ground to homes, with major overhead power lines running through
General Construction	Mostly noncombustible siding; mostly high fire resistant roofs, with some shake-shingle roofs
Average Lot Size	<1 Acre
Home Addresses	Present; inconsistent; non-reflective
Dual Access Roads	Two+ ways in/out
Road Widths, Slope, and Surface	>24'; >10%; paved
Emergency Vehicle Turnarounds	Not adequate in all areas
Water Supply	Hydrants with good pressure
Proximity to Staffed Fire Station	<2.5 miles
Other Hazards	Major overhead power lines; high housing density

Hazard Rating: High



- ❑ There are two different subdivisions and is part of the Town of Avon
- ❑ Steep terrain, South aspect, and a number of steep drainages throughout the community
- ❑ Fuel type – Grass, Sage, with some Conifer and other planted vegetation
- ❑ The light flashy fuel and steep terrain can promote rapid rates of spread
- ❑ Some defensible space is present due to irrigated lawns maintenance of grasses and sage
- ❑ Addressing can be hard to locate and difficult to see in dark conditions



WILDWOOD/WILDRIDGE

Accomplishments

Collaboration between the Town of Avon and fire department to assess community wildfire risk

Individual home rapid risk assessments have been completed and mapped

Each individual homeowner was notified of their home risk rating

Evacuation Routes and Safety Zones identified, mapped, and distributed

Some Home Ignition Zone assessments conducted as well as through the county REALFire program

Sheriff's office, Town of Avon, and fire department determined need and location of secondary egress route

Beaver Creek Point association of residents initiated and conducted mitigation for better defensible space

GIS map



Evacuation map



Mitigation Project(s)

- Linked Defensible Space
- Secondary Egress Route
- Home Defensible Space



Description

- Multiple landowners working together to create a large fuel break on South and West side of the community
- Improvement of 4x4 road for secondary egress route



Method

- Sage treatments; mowing
- Grading



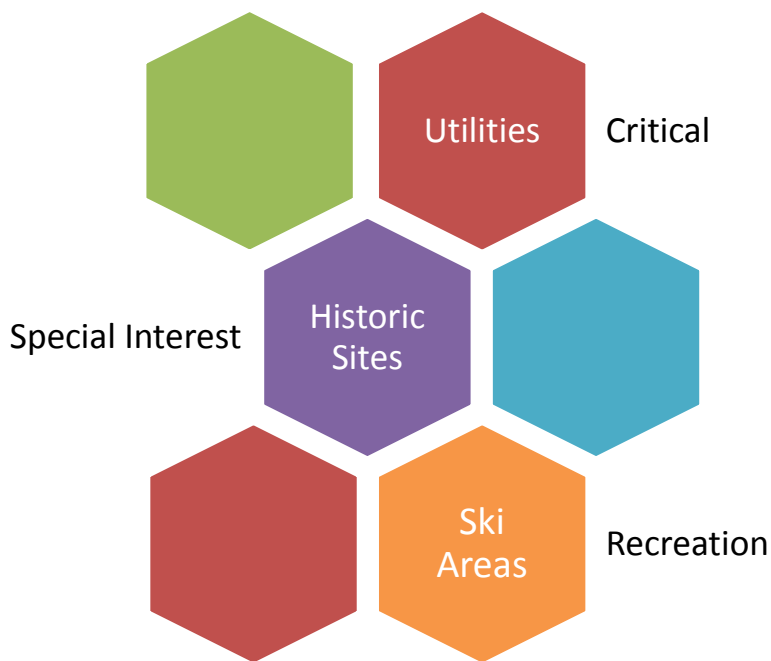
Acreage

- 25
- 3

AREAS OF CRITICAL INFRASTRUCTURE AND SPECIAL INTEREST

ASIs are places within the CWPP area that could be threatened from wildfire and have a social or economic value that is not based on residential development. Unlike communities, ASIs are not given hazard ratings. Frequent candidates for ASIs include recreation areas, such as parks, reservoirs, ski areas, and designated open space. Guest ranches, church camps, RV parks, and other large acreage recreational camps that have a significant, but temporary, population are typically included as ASIs. Also included as an ASI is critical infrastructure, such as communication arrays, that is vital to the local community. ASIs are identified separately from communities because of they either lack or have low permanent population densities.

Recommendations for ASIs and critical infrastructure follow the accompanying write-ups. These recommendations are not inclusive and should be utilized in conjunction with those planned by local utility companies and guest ranches.



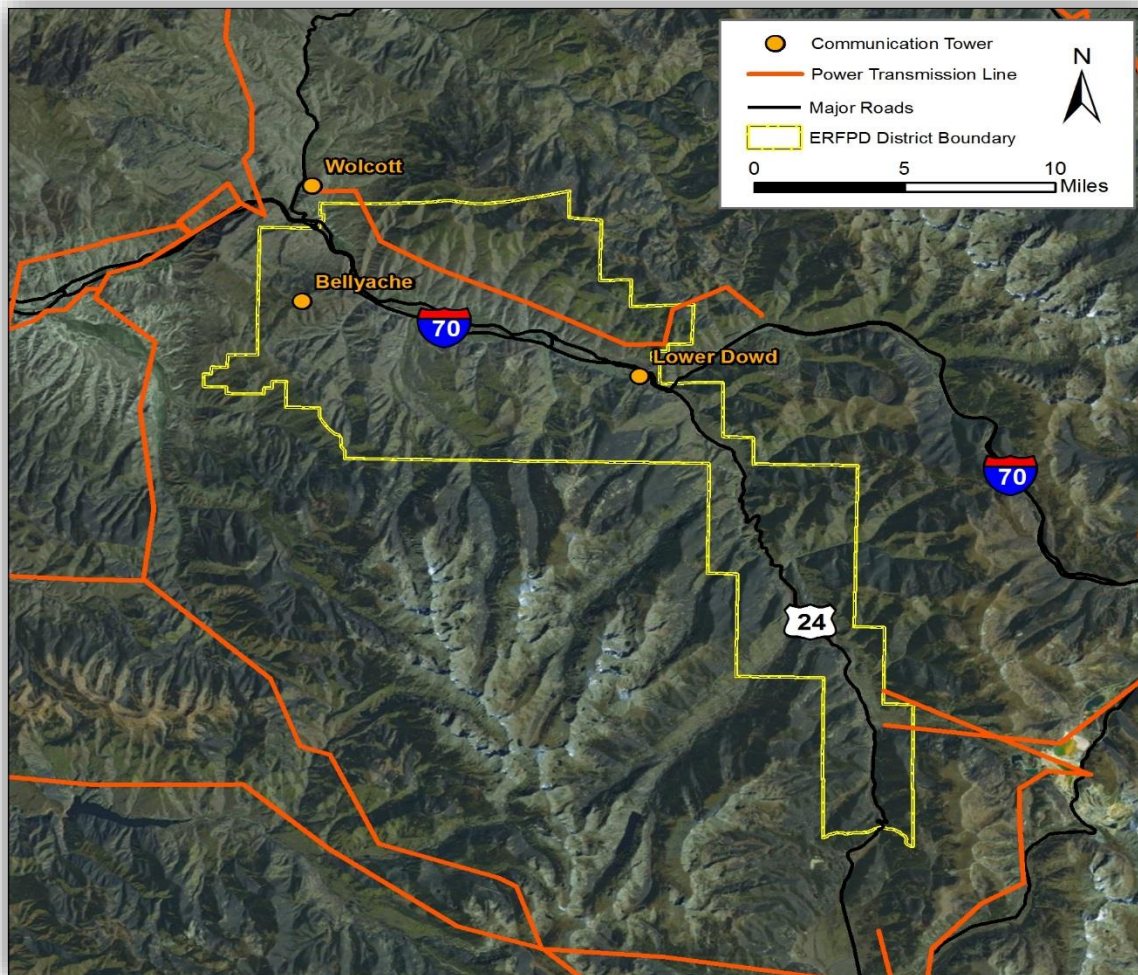
District Diversity

- ▣ Critical Infrastructure
 - ▣ Special Interest
 - ▣ Recreation
 - ▣ Wildfire Protection Plans
- PAGES 74-79

Critical Infrastructure

A variety of critical infrastructure occurs throughout the district, and any impact to these areas could have severe economic and safety implications. Specific to the study area, critical infrastructure includes communication towers, power lines and substations, which serve a vital function during emergency operations. Many areas

that contain these important pieces of infrastructure are currently at risk to wildland fire. These at-risk facilities are shown below. Recommendations for reducing wildfire risk in the accompanying write-up. Information on other types of infrastructure can be found in the following section.



HISTORICAL STRUCTURES

Eagle County's rich history and culture is preserved in many historic buildings. Mining in particular played a predominant role in the growth and development of the area around the fire protection district as it is known today. Many historic mine structures remain intact in the county, but they are vulnerable to wildland fire.

- Brett Ranch Cemetery
- Holy Cross City
- Red Cliff Town Cemetery



Gilman

The town of Gilman is located between Minturn and Red Cliff, west of Highway 24. Once a thriving town centered on lead and zinc mining, the Environmental Protection Agency (EPA) ordered it to be immediately abandoned in 1984 due to high levels of toxic contaminants. It is currently a ghost town that is off-limits to the public, though the area was recently scheduled to become part of the Battle Mountain development, which is currently stalled. Firefighters responding to the area will encounter a recent ghost town, with a high density of homes and other structures. Responders should contact area officials and/or the property owner before engaging in any suppression actions due to any contaminants that may still be present in the area.

CAMP HALE

Camp Hale is a historic and recreation site located between Red Cliff and Leadville, adjacent to Highway 24.



The site was originally used by the U.S. Army as a training facility for what later became the 10th Mountain Division, as well as a prisoner-of-war camp. Later, Camp Hale was used by the Central Intelligence Agency (CIA) as a training area for Tibetan guerrillas. Today, the site has a popular private lodge, as well as camping facilities managed by the U.S. Forest Service. Due to the historic significance of the area, as well as its popularity with visiting recreationists, precautions should be taken to minimize the effects of wildfire to the area.

Responding emergency personnel should also be aware of any unexploded ordinance left in the area, which may have been missed during cleanup efforts.

BEAVER CREEK SKI RESORT



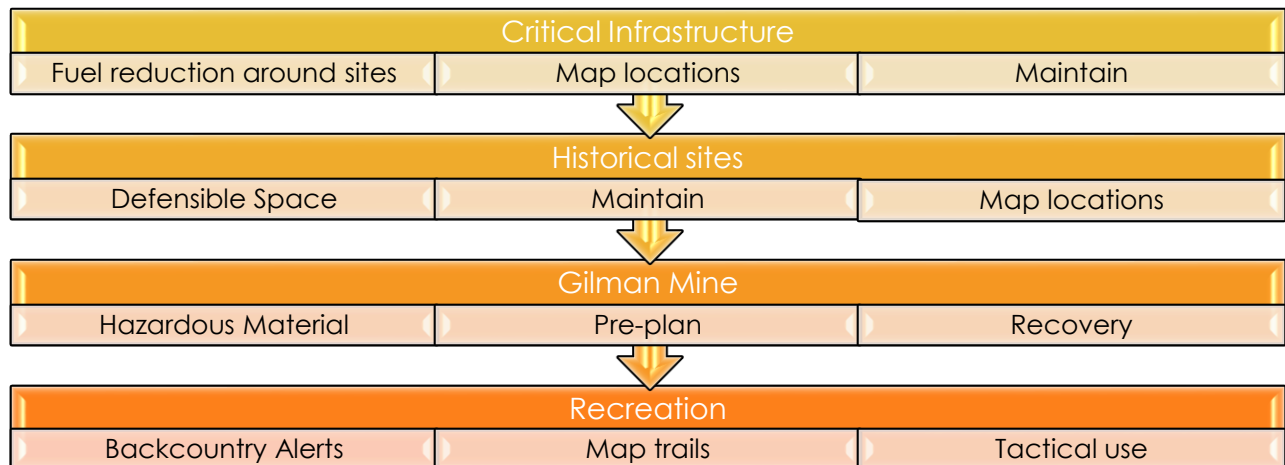
Beaver Creek Ski Area

The Beaver Creek Ski Resort is located south of Avon, on lands managed by the White River National Forest through a special use permit with the U.S. Forest Service. The resort area is a popular year-round tourist destination, especially in the summer and winter months. Numerous structures are on the resort area, including lodges, stables, maintenance facilities, and lift infrastructure. Precautions should be taken to minimize the effects of wildfire in order to reduce damage to structures, as well as impact to current and future visitors.

Arrowhead / Bachelor Gulch Ski Resort



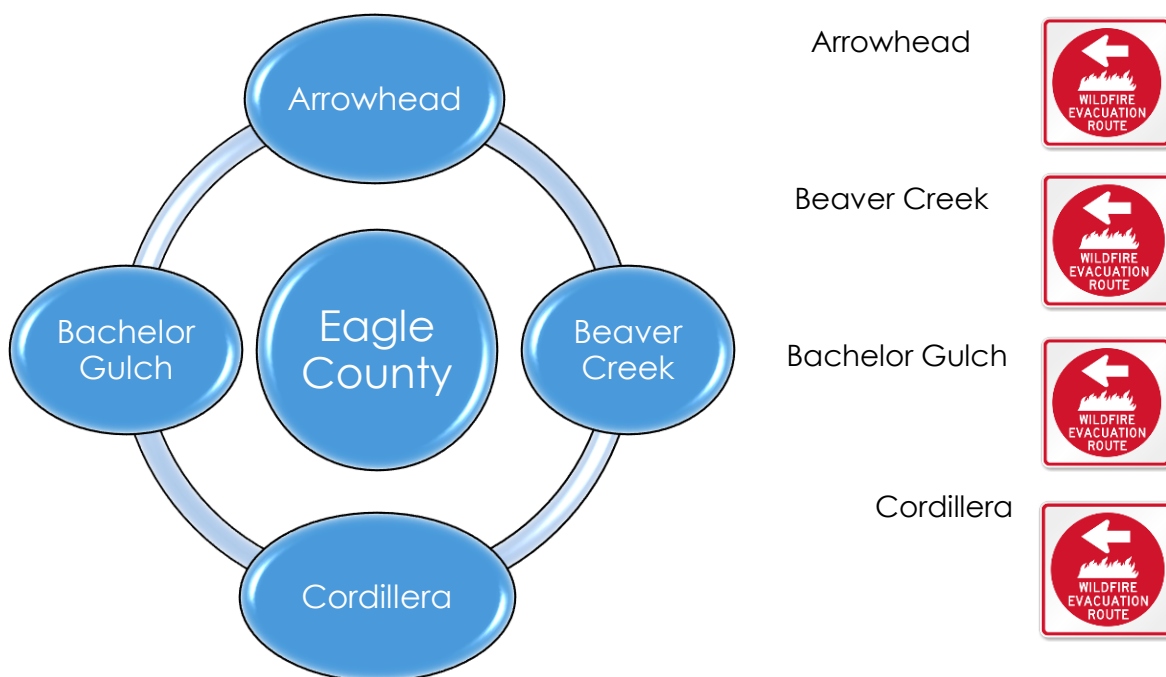
Projects for Areas of Special Interest



Communities within the district that have a CWPP

Since these communities have conducted their own research and analysis to create a comprehensive protection plan. The detailed information can be found by clicking on the community below to view the full CWPP.

However, details of fuel reduction projects that have been completed, and fuel reduction projects that have been planned are included in the interactive maps in the community section of this document.



GENERAL RECOMMENDATIONS

The following information has been identified as areas to focus on within the Eagle River FPD area to mitigate impacts from wildfire: home construction, landscaping/fuels, preparedness planning, infrastructure, public education and water source supply. **To improve life safety and preserve property, every home in the district should have compliant, effective defensible space. Defensible space and proper home construction are THE MOST IMPORTANT actions an individual can do to protect their home.**

PREPAREDNESS PLANNING

Residents play a major role in protecting their lives and property.

Your home ignition zone extends up to 100 feet – and it's quite common to have neighbors whose home ignition zone overlaps yours. Once a structure is engulfed in flames, it could ignite other structures located less than 100 feet away. In addition, many communities have commonly owned property, including natural or wooded areas that can pose fire risks to all. This means that to be most effective, neighbors need to work together and with their local fire service to achieve greater wildfire safety. Together, community residents can work with agencies and elected officials to accomplish the following:

- Ensure that homes and neighborhoods have legible/clearly marked street names and numbers
- Know "two ways out" of the neighborhood for safe evacuation during a wildfire
- Create phone and text trees to alert residents about local fires
- Sign up for emergency notifications- [ECAAlert](#). Talk to your Homeowner Association (HOA) to make sure you are in compliance with existing community rules or regulations on vegetation management and construction materials and if they are "Firewise-friendly"
- Engage with your local fire department on how they can work with you and your neighbors, and participate in the "Ready, Set, Go!" program
- Participation in the Firewise Communities/USA® Recognition Program provides the community with a risk assessment and action plan that will help residents work together annually to make where they live a safer place

General

- ▣ Recommendations & Preparedness
- ▣ Community Outreach
- ▣ Fire Behavior
- ▣ Fire Operations
- ▣ [Glossary](#)
- ▣ Conclusion

HOMEOWNER CHECKLIST

Wildfires don't have to destroy everything in their path. Science and research have proven that using Firewise principles in your landscaping can minimize damage and prevent losses. The work you do today can make a difference. Follow these simple action steps now and throughout the year to prepare and help reduce the risk of your home and property becoming fuel for a wildfire:

- Clear needles, leaves and other debris from the roof, gutters, eaves, porches and decks. This reduces the chances of embers igniting your home.
- To reduce ember penetration, replace or repair loose or missing roof shingles or tiles, and caulk any gaps or openings on roof edges.
- Cover exterior attic vents, and enclose under-eave and soffit vents with metal wire mesh no larger than 1/8 inch to prevent embers from entering the home.
- Remove items stored under decks or porches; replace vegetation in these areas with rock or gravel.
- Replace mulch with hardscaping, including rock, gravel or stone. If it can catch fire, don't let it touch your house, deck or porch.
- Remove flammable items within 30 feet of all structures including firewood piles, portable propane tanks and dry and dead vegetation.
- Dry grass and shrubs are fuel for wildfire so keep your lawn hydrated and maintained. If it is brown, trim it to reduce fire intensity, and don't let debris and lawn cuttings linger. Dispose of these items quickly to reduce fuel for fire.
- Fire can spread to tree tops. If you have tall trees on your property, prune low hanging branches 6 to 10 feet from the ground and for smaller trees, prune low hanging branches no more than a third of the tree's height. Remove tall grasses, vines and shrubs from under trees.

Defensible Space

Construction type, condition, age, fuel loading of the area, and building position are contributing factors that make homes more or less susceptible to ignition under even moderate burning conditions. As mentioned previously, creating defensible space is the most important action an individual can do to protect his or her home. This is especially important for homes with wood roofs and homes located near any other topographic feature that contributes to fire intensity, such as chimneys and saddles. These recommendations are intended to give homeowners enough information to immediately begin making their home Firewise or to improve existing home fire

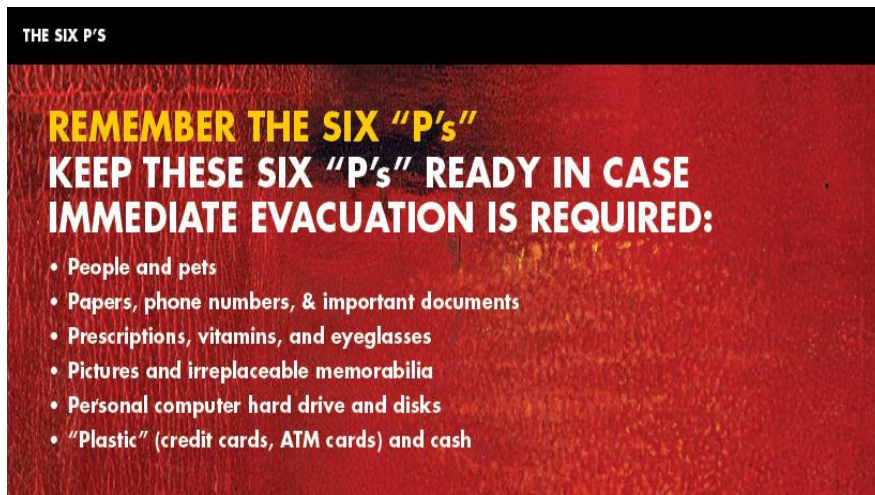
mitigation efforts. Defensible space needs to be maintained throughout the year. Because of differences in vegetation, topography, and construction materials, it is suggested that a trained individual be consulted before embarking on a defensible space project.

Because of the fire ecology of the vegetation and topography, an aggressive program of evaluating and implementing defensible space for all homes combined with adequate home construction, will do more to limit fire-related property damage than any other single recommendation in this report

EVACUATING

Life safety is the number one priority in any wildland fire situation. Although improvements have been made for evacuations, we still have need for the following improvements:

- ◇ Secondary or even a third egress route for each community/neighborhood
- ◇ Widening roadways and driveways
- ◇ Reducing fuel along evacuation routes and home access
- ◇ Improving road maintenance
- ◇ Reducing impediments to travel through such as gates and archways
- ◇ Including evacuation route info when notifying of an evacuation (ECAAlert)
- ◇ Continue to educate the public on preparation for evacuation



Important links for evacuation(s)

[Eagle County Alert System](#)
[Eagle County Sheriff Office](#)
[Twitter Alerts](#)
[Eagle River Fire Department](#)
[Twitter Alerts](#)

Personal

Preparedness

HIGH FIRE DANGER The National Weather Service issues fire weather watches or warnings (also known as Red Flag Days) when weather conditions will support increased wildfire activity and rapid fire growth.

Be ready for A RED FLAG DAY!



Take steps ahead of time and **PREPARE TO PUT YOUR PLAN INTO ACTION**

A **FIRE WEATHERWATCH** is issued when conditions will be present within 12-72 hours.

A **FIRE WEATHER WARNING (Red Flag)** is issued when the Conditions will be present within 24 hours.

PREPARE WELL IN ADVANCE OF A FIRE:


























- ◇ Complete a home inventory – this will assist in talking with your insurance provider should you suffer a loss due to a wildfire. Consider making a video walk-through of your possessions and keep that in a safe off-site location
- ◇ Sign up for local Emergency Notifications/Alerts [Eagle County Alert System](#)
- ◇ Have an Evacuation Plan and a designated meeting place where family members will reconnect after the evacuation. Ensure everyone in the household knows the plan and meeting place location
- ◇ Know where evacuation centers will be located in your community
- ◇ Have an off-site phone number, (relative, etc.) where family members can check in and provide status information
- ◇ Have a plan and supplies for your pets

WHAT TO DO DURING WATCHES OR WARNINGS:

- ◇ Make sure there's at least a 72-hour supply of important medications in your go-bag
- ◇ Know which personal items, (pictures, documents, etc.) have been prioritized to take if time permits, when evacuation is necessary
- ◇ Remove deck/ patio furniture, cushions and door mats to prevent ember ignitions
- ◇ Remove portable propane tanks from the deck/patio
- ◇ Know how to turn off the gas to the home
- ◇ Place a ladder against the house (for Fire Department use)
- ◇ Have your garden hoses connected (for Fire Department use)
- ◇ Make sure windows, doors and garage doors are closed
- ◇ Make sure windows are closed on vehicles that will remain at the residence while you're evacuated
- ◇ If you feel unsafe, LEAVE! Do not wait to be told to evacuate

72-Hour Kit Supply List

This list of recommended items is not necessarily comprehensive or required. Use it as a guideline to create your own kit. You might add items you feel important and / or delete items to meet your needs.

Sample Picture	Product Name	Sample Picture	Product Name	Sample Picture	Product Name
	Poncho with Hood for rain		Pliers – for turning off utilities		Complete or basic - First Aid Kit with medicine
	Emergency Survival Sleeping Bag		Duct Tape – to “shelter-in-place”		Shovel – to dig sanitation holes
	Body Warmers to keep you warm		Plastic Sheet – “shelter-in-place”		Flashlight and extra batteries
	Tube Tent and regular blanket or sleeping bag		Dust Mask (N95)		Waterproof Matches
	Swiss style Army Knife (with can opener)		Leather Palm working Gloves		Lighter
	FM Radio w/ AAA Batteries		Roll of Toilet Paper in Ziploc Bag		30 Hour Emergency Candle
	Pen & Pad of Paper for notes		Hygiene Kit - Tooth Brush & Paste, Wet Wipes & feline items		24 Hour Light Stick
	60 Foot Nylon Rope		Mini Hand Sanitizer		Food Bars – High in calories and don't need to be cooked.
	Survival Whistle to signal for help.		Garbage Bags and ties for sanitation.		Water Boxes – great for travel and on the go.
See Children, Pets & Car Kits on Back!		More information on www.Ready.gov			Backpack to store your supplies. Don't make it too heavy!

Additional Things I need in my 72 Hour Kit

Food & Water (rotate every 6 months) A 3 day supply of food & water, per person, when no refrigeration/cooking is available.

- ☐ Snacks for munching
- ☐ MRE Food Pouches – for tasty meals, are lighter in weight than cans.
- ☐ Juice / Protein Shakes (can or pouch like Slimfast but less sugar. Full of protein, vitamins and minerals.)

Bedding & Clothing

- ☐ Change of Clothing (short and long sleeved shirts, pants, jackets, socks, underwear, etc.)
- ☐ Sleeping Pad (insulation from cold ground)
- ☐ Cold Weather Gear



(Coat, gloves, blanket...)

Personal Supplies & Medication

- ☐ Feminine Hygiene, folding brush, Hair Ties.
- ☐ Immunizations Up-to Date
- ☐ Medication (besides Non-aspirin tablets & Ibuprofen.)
- ☐ Prescription Medication (for 3 days)
- ☐ Glasses/Contacts

Light & Fuel

- ☐ Flares
- ☐ Extra set of AAA Batteries for Radio
- ☐ Gasoline for your car.

Personal Documents & Money

- ☐ Contact information & Pictures of family & friends.



- ☐ Copies of Legal Docs: Birth/Marriage Certificates, Wills, Vaccination Papers, Passports, Contracts, Insurance Policies, Bank Info, Genealogy, Pet, etc...
- ☐ Cash: \$50-\$100 in small bills and \$10 in quarters.
- ☐ Credit Card to your Bank
- ☐ Maps
- ☐ Pre-Paid Phone Cards
- ☐ Extra Car & House Keys

Games & Entertainment

Keep just a few to keep yourself & kids entertained.

- ☐ Books: Scriptures, Reading, Coloring...
- ☐ Crayons, Pencils & Paper
- ☐ 1-2 Board Games & Puzzles, Stuffed Animals.



GUIDELINES FOR HOUSEHOLD PETS AND LIVESTOCK

Wildfire Preparedness for Animals

- ◇ Create neighborhood programs.
- ◇ Keep halters/ropes/leashes ready for each animal that includes: the animals name, your name/phone number and a separate emergency contact number.
- ◇ Keep a reserve supply of animal feed and water on hand. Be prepared to be self-sufficient for at least 72 hours.
- ◇ Survey your property to find the best location to confine your animals in each type of disaster. Check for alternate water sources in case power is lost and pumps and automatic waterers are not working after the disaster.
 - Do not rely on automatic waterers during a disaster.
- ◇ If you have a well, do you have a generator?
- ◇ If you think you might need to evacuate your animals from your property, determine several locations (evacuation sites) the animals could be taken, several routes to these locations, and the entry requirements for each. Make arrangements in advance with the owners/operators to accept your horses, and be sure to contact them before taking the horses there. Locations that could be used for evacuation are private stables, racetracks, fair grounds, rodeo grounds, equestrian centers, private farms, and humane societies.
- ◇ Permanently identify each animal by tattoo, microchip, brand, tag, photographs (ideally, 4 views—front, rear, left and right side), and/or drawing. Record its age, sex, breed, and color with your record of this identification. Keep this information with your important papers. Also consider visible ID markers during an evacuation, e.g., paint or etch hooves, use neckbands, or paint your telephone number (cell phone?) on side of animal.
- ◇ Be sure your horses' vaccination and medical records are written and up-to-date. Check with your veterinarian as to what immunizations are advisable. Have documentation of any medicines with dosing instructions, special feeding instructions, and the name and phone number of the veterinarian who dispensed the drug.
- ◇ Place a permanent tag with your name and phone number and the animals name on each halter.
- ◇ Have a First Aid Kit (check with your veterinarian)
 - Leg wraps, track bandage, tape (do NOT use elastic bandages!)
 - Vet wrap
 - Kling or roll gauze, gauze squares
 - Cotton
 - Soap
 - Antiseptic
 - Bandage scissors
 - Two pieces of garden hose
- ◇ Prepare an emergency kit consisting of:
 - First aid kit, water bucket, leg wraps/quilts, fire resistant non-nylon leads and halters, portable radio and extra batteries, flashlight and extra batteries, sharp knife, wire cutters, rake/shovel, emergency phone numbers/contact list. Consider "Special needs" pets.
- ◇ Have trailers, vans, towing vehicles maintained (including tires), full of gas, and ready to move at all times. Accustom your animal(s) to loading and traveling.

PUBLIC EDUCATION

There is likely to be a varied understanding among property owners of the hazards associated with the threat of a wildfire. An approach to wildfire education that emphasizes safety and hazard mitigation on an individual property level should be undertaken, in addition to fire department efforts at risk reduction.

Use these web sites for a list of public education materials, and for general homeowner education:

www.readycolorado.com

www.firewise.org

Ready, Set, Go! Program

The Ready, Set, Go! Program utilizes firefighters to teach individuals who live in high risk wildfire areas and the wildland-urban-interface (WUI) how to best prepare themselves and their properties against fire threats. Ready, Set, Go! works in complimentary and collaborative fashion with Firewise and other existing wildland fire public education efforts. It amplifies their messages to individuals to better achieve the common goal we all share of fire-adapted communities. The RSG program provides the implementation guidance; background knowledge; and presentation tools to assist fire departments in delivering the program message:

Ready – Preparing for the Fire Threat: Be Ready, Be Firewise. Take personal responsibility and prepare long before the threat of a wildfire so your home is ready in case of a fire. Create defensible space by clearing brush away from your home. Use fire-resistant landscaping and harden your home with fire-safe construction measures. Assemble emergency supplies and belongings in a safe spot. Make sure all residents residing within the home are on the same page, plan escape routes. For more information about how to be **Ready** for wildland fires, go to Firewise.org.

Set – Situational Awareness When a Fire Starts: Pack your vehicle with your emergency items. Stay aware of the latest news from local media and your local fire department for updated information on the fire.

Go – Leave early! Following your Action Plan makes you prepared and firefighters are now able to best maneuver the wildfire and ensuring you and your family's safety.

All homeowners and communities should become familiar with the Ready, Set, Go! program. For more information and to download the free information guide and checklist, please visit:

[Wildland Fire Action Guide](#)

THE NEED FOR A CWPP

In response to the Healthy Forests Restoration Act (HFRA), and in an effort to create incentives, Congress directed interface communities to prepare a Community Wildfire Protection Plan (CWPP). Once completed, a CWPP provides statutory incentives for the federal agencies to consider the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects. CWPPs can take a variety of forms based on the needs of the people involved in their development. CWPPs may address issues such as wildfire response, hazard mitigation, community preparedness, structure protection, or all of the above. Colorado

Senate Bill 09-001 provided revised minimum standards and guidelines for the development of CWPPs in Colorado. The minimum requirements for a CWPP specify that collaboration take place between local and state government representatives, in consultation with federal agencies and other interested parties. The plan must exhibit diverse collaboration with an emphasis on involvement of community members/representatives. This appendix describes and documents the process used to collaborate between the core planning group, stakeholders, and community representatives during the development of this plan.

INTERAGENCY COLLABORATION

Roles and Responsibilities

To be successful, wildfire mitigation in the interface must be a community-based, collaborative effort. Stakeholders and the fire protection district will have the greatest responsibility for implementing the recommended mitigation projects. The CSFS and the USFS/ BLM (Upper Colorado Interagency Fire Management Unit) are valuable participants in addressing cross-boundary projects throughout the area.

Nearly all of the recommendations from this report affect private land or access roads to latest modifications at the community level.

private land. There are also mitigation recommendations for individual structures, which are the responsibility of the homeowner. Homeowners will, however, need a Wildfire Mitigation Advocate to help them implement these recommendations. The best defensible space will be created with oversight and expert advice from the fire district and/or government forestry personnel. One-on-one dialog will continue to build the relationship with community members. This level of involvement will allow agencies to keep track of the progress and update this plan to reflect the

THE COLLABORATIVE PROCESS

Strategic Planning

The core team for the 2011 CWPP included department and board members of the Eagle River Fire Protection District (ERFPD), Colorado State Forest Service (CSFS), Eagle County officials, representatives from the Towns of Avon and Minturn, and other

prominent stakeholders. Discussion focused on the scope of the project, desired outcomes, and agency participation. The 2018 update includes a broader range of community managers, mitigation specialists, homeowner associations, as well as more detailed department input.

COMMUNITY OUTREACH

Assessment Program

The "pre-triage assessment" program was conducted by the ERFPD Wildland Mitigation Specialist from 2013 to present, and by Seasonal Wildland Teams in 2014 and 2015. The program is designed for 'Pre-Triage' assessments based on standard firefighter orders for the Wildland Urban Interface (WUI). A rating of Low, Moderate, High, or Extreme for an individual property is based on a scoring system related to the following categories;

- ◇ Radio Coverage
- ◇ Water supply
- ◇ Access (to the structure)
- ◇ Construction (roof and decking)
- ◇ Clearance (the distance of fuels from the structure)
- ◇ Topography
- ◇ Fuels
- ◇ Hazmat (liquid propane, fuel)
- ◇ Firefighter Safety (is a safety zone present and accessible)

Firewise USA® door hangers were left at each property, indicating its risk rating. If a homeowner was present, the rating was explained and mitigation suggestions were provided; contact information was provided on the door hangers for those homeowners who were not present at the moment of evaluation. Homeowners were also encouraged to request a personalized Home Ignition Zone assessment, which provide detailed suggestions for reducing the home's susceptibility to wildfire.

Several areas already completed will need to be re-evaluated due to policy changes by community design review boards over the last two years. Those changes are mainly due to increased awareness about wildfire risks, and the increasing focus on hardening homes against wildfire (using new or replacing construction materials that are less flammable.) Assessments of homes that have subsequently created defensible space and updated home construction will likely be changed to a lower risk rating.

The curbside assessment program has been extremely successful because it accomplishes a few key benefits.

1. Completion of many assessments quickly.
2. Immediate homeowner awareness of the need to create a defensible space through mitigation.
3. The ability to identify 'High Risk' areas and the need for increased homeowner engagement.
4. CWPP planning for mitigation projects around high risk areas.

Homeowner Associations and Design Review Boards

Recent years have seen a shift in the level of responsibility taken on by HOAs and DRBs when it comes to reducing the risk of wildfire. Most of the communities within the District have adopted policies that harden the home against the threat of wildfire.

For most communities within the Eagle River Fire Protection District, shake shingle roofing is no longer allowed unless a repair is required that comprises less than 25% of the roof's square footage. More and more roofing options are available to homeowners that have either a Class A or Class B fire rating.

Defensible space has also become a priority with some homeowner associations. Some require clearing of fuels up to 100 feet from the home and maintaining that defensible space. Others go so far as to require fuel treatment and mitigation in a 3 acre area around the home.

ERFPD GIS Mapping Project

The GIS mapping project consists of creating a detail map for the entire District which includes the following interactive information:

- ◇ Individual wildfire home risk assessment rating
- ◇ Evacuation routes and secondary egress options
- ◇ Firefighter safety zones
- ◇ Vehicle access control gates – access codes and ownership
- ◇ Water supply – city and rural
- ◇ Bridge ratings
- ◇ Wildfire operations – staging, command post, drop sites, draft sites, access, hazards, historical sites
- ◇ Water shuttle areas
- ◇ UXO Areas
- ◇ Trails
- ◇ River rescue access points
- ◇ Burned area recovery focus Areas
- ◇ CWPP – fuel modeling and behavior, completed and projected mitigation projects, high risk areas

The GIS mapping project is a tool that can provide information for emergency response, training, prevention, and district planning. The information can easily be shared with our mutual aid partners, county officials, and the public. By an interactive solution, we can consistently update the information that is pertinent to our duty as emergency responders and district managers.

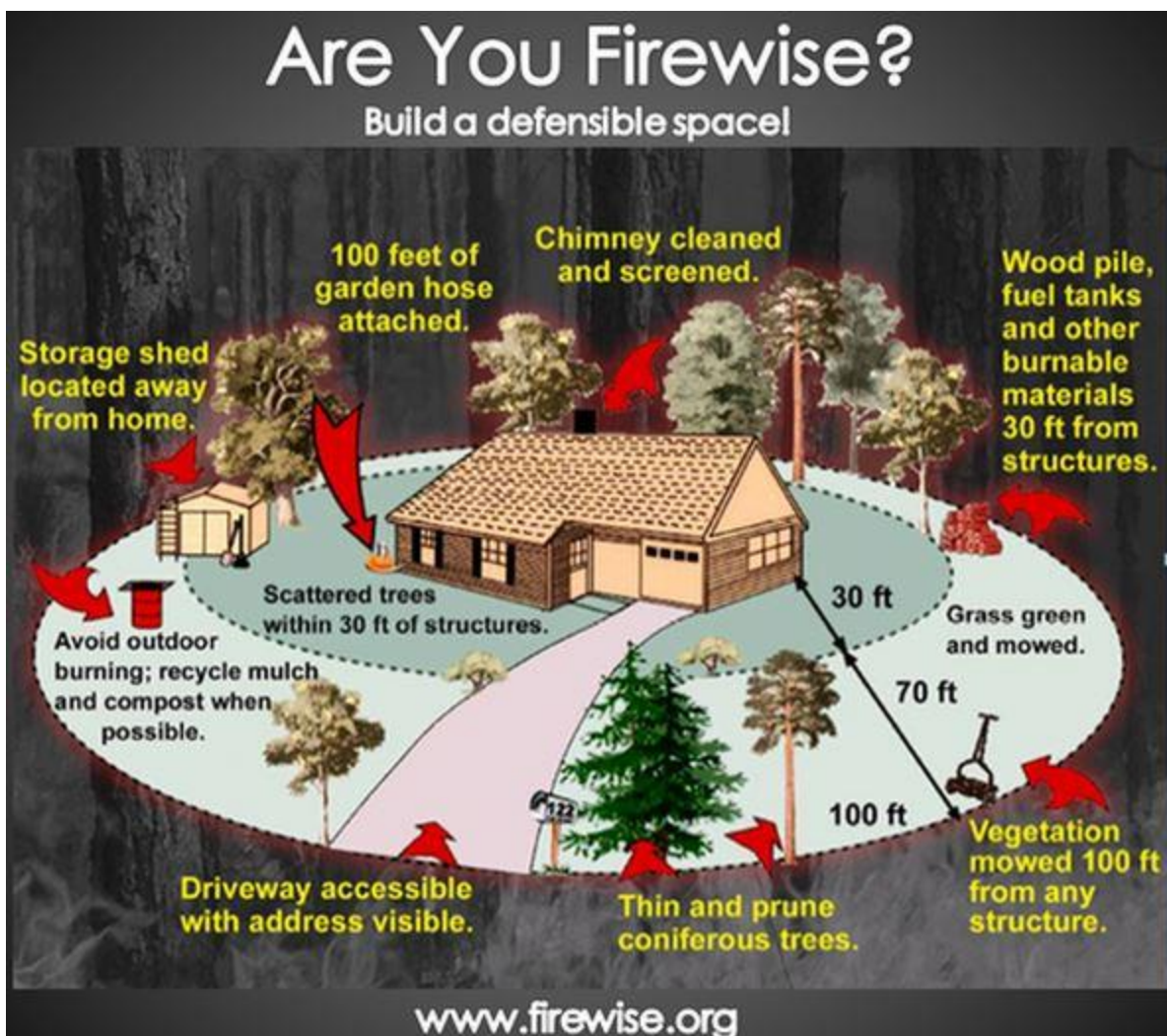
Home Ignition Zone Assessments

The concept of the home ignition zone was developed by [USDA Forest Service fire scientist Jack Cohen](#) in the late 1990s, following some breakthrough experimental research into how homes ignite due to the effects of radiant heat. For more than 15 years, NFPA's wildfire safety recommendations have been shaped by this fire science, and because of it, is able to provide [actionable guidance for homeowners](#) to help them prepare homes/home landscapes to resist wildfire.

ERFPD conducts these assessments based on personal requests from homeowners. A multi-page report is produced via a tablet or iPad. The report includes the following details:

- ◇ Risk based on location of home and the surrounding topographical features
- ◇ Fuels on neighboring properties
- ◇ Construction – siding, roofing, decking, eaves, gutters, dormers
- ◇ Vulnerable areas based on the construction of home where fire brands can penetrate
- ◇ Vents
- ◇ Windows
- ◇ Garage Doors
- ◇ Foundation
- ◇ Type of fuels present – conifers, aspen, juniper, grass
- ◇ Spacing of coniferous trees and bushes
- ◇ Wildfire preparedness – insurance, evacuation kits, signing up for ECAAlert emergency notifications

The report includes pictures and provides suggestions on how to mitigate any of these categories to help harden the home and create a better defensible space.



Public Education Events

Public events are a great way to bring awareness to the local residents as well as those that are vacationing in the area. The following list is just some of the venues visited by crews and staff; who provide prevention and community risk reduction information to the public.

- ◇ Homeowner association meetings
- ◇ Design Review Board meetings
- ◇ Community Manager meetings
- ◇ Outdoor markets
- ◇ Social gatherings
- ◇ Town Council/Planning Commission meetings
- ◇ Eagle County Board of County Commissioners meetings
- ◇ Metropolitan District Board meetings
- ◇ Ready, Set, Go! presentations
- ◇ Annual countywide Emergency Management exercises

Community Risk Assessments

ERFPD is also in the process of conducting district-wide community risk assessments to identify and assess the nature and magnitude of all hazards and risks within its jurisdiction, including wildland fire. When completed, the risk assessments will allow the District to:

- ◇ Identify the unique characteristics of its communities
- ◇ Apply a methodology to perform an all-hazard risk assessment
- ◇ Determine response strategies relative to the communities' unique hazards and risks
- ◇ Assess the historical quality of emergency response performance
- ◇ Develop standards of cover to ensure current and future quality performance for all hazards throughout the district

REALFire Program



REALFire is a voluntary property assessment program being piloted in Eagle County. The REALFire program helps residents identify specific actions they can take on their property to reduce wildfire hazards. The program was inspired by

REALTORS® engaging with residents on wildfire safety and education.

REALFire property assessments provide residents with many benefits:

- An in-depth, on-site assessment conducted by experienced fire professionals;
- An opportunity for property owners to identify mitigation actions unique to their property;
- A detailed follow up report with customized mitigation actions designed to measurably reduce the wildfire risk to their property;
- An opportunity to earn a REALFire certificate acknowledging their mitigation achievements. This type of recognition can be used to enhance real estate transactions, and can be shared with local insurance providers

Fire Behavior

The purpose of this technical reference is to evaluate the threat represented by physical hazards such as fuels, weather, and topography to values at risk by modeling their effects on fire behavior potential.

The fire behavior potential analysis graphically reports the following for the district which includes an extension beyond the political boundary. This 1.5 to 2 mile extension is designated the Wildland Urban Interface boundary. It is based on a set of inputs significant to fire behavior: probable range of spread rate; flame length; and crown fire potential. The model inputs include aspect, slope, elevation, canopy cover, fuel type, canopy bulk density, canopy base height, stand height, and climate data. The model outputs are determined using CO-WRAP, which combines surface-fire predictions with the potential for crown-fire development.

Click on the following to learn about the '[Standard Behavior Fuel Models](#)'. This will help in understanding the fuels and fire behavior modeling that exist in the ERFPD district which can be found on the interactive GIS map(s) below:

A dark gray rectangular button with a subtle 3D effect, containing the text "District Fuels and Fire Behavior Map" in white.A dark gray rectangular button with a subtle 3D effect, containing the text "Extended WUI" in white.A dark gray rounded rectangular button with a subtle 3D effect, containing the text "Fire History Map" in white.

FIRE OPERATION GUIDELINES

Fire Operations Guidance in Bark Beetle Stands

Due to altered fuel conditions, personnel operating within the bark beetle environment should be aware of the imminent danger presented by dead and dying trees, falling at an increasing rate across a broad forested landscape.

Purpose and Intent

Fire Operations Guidance is mindful of Foundational Fire Suppression Doctrine in the Forest Service. The first principle is: No resource or facility is worth the loss of human life, however the wildland fire suppression environment is complex and possesses inherent hazards that can---even with reasonable mitigation---result in harm to fire fighters engaged in fire suppression operations. In recognition of this fact, we are committed to the aggressive management of risk.

This guidance provides a collection of potential hazards unique to bark beetle forests, including appropriate practices that have evolved over time within the wildland fire service. It does not provide absolute solutions to the unlimited number of situations that will occur.

This guidance within bark beetle stands was provided with the intention of being used in conjunction with existing fire risk management documents. No further protocols or rules are necessary to make informed risk management decisions for fire operations in bark beetle stands.

Tactical Hazards

- ◇ Withdrawal and/or reassessment should be considered if any of the following are present:
- ◇ Thunderstorms in the immediate vicinity
- ◇ Wind speeds are strong enough that canopy movement is observed (Consider that wind speeds at eye level in sheltered areas may not indicate the much greater winds aloft)
- ◇ Reliable communication cannot be established with the appropriate Dispatch Center and remain in place 24/7 when resources are engaged.
- ◇ Due to limited ingress or egress in remote areas or in terrain without vantage points, consider using an

aerial platform for risk assessment and size up.

Potential Fire Behavior Hazards

- ◇ Due to increased potential of extreme fire behavior, when ERCs approach the 90th percentile, air reconnaissance should be on scene within 1 hour of detection.
- ◇ The following situations, though possible on any wildfire, may be accentuated in bark beetle stands:
 - Accelerated transition to crown fire (when needles are present)
 - Increased rate of spread (Surface fire)
 - Resistance to control (Heavy dead and down)
 - Frequent spotting, including long range (>.25 miles)

FIRE RESPONSE SUPPORT FOR UNEXPLODED ORDNANCE HAZARD AREAS**Introduction**

Camp Hale is a Defense Environmental Restoration Project - Formerly Used Defense Site (DERP-FUDS) project. The investigation and cleanup of unexploded ordnance (UXO) from past military uses is ongoing and being executed by the Omaha District Corps of Engineers (USACE). The potential for encountering UXO at Camp Hale varies across the site and is currently being quantified by historical research and site investigations. The information from these activities will be utilized for determining future ordnance response activities at the site that will substantially reduce the risk of explosives hazards to the public and USDA Forest Service (USFS) personnel.

Purpose

The purpose is to provide guidance for fire response activities within the Camp Hale site boundaries. Due to the potential for encountering UXO, ordnance safety protocols must be incorporated with fire safety protocols in order to safely address fires within the potentially UXO contaminated areas of Camp Hale. On a fire-to-fire basis ordnance response support activities (i.e. OE safety training and anomaly avoidance support) will be provided as appropriate.

Site Description

Camp Hale is predominately located in the White River National Forest but portions of the site extend into the San Isabel and Arapahoe National Forests also. The main cantonment area of Camp Hale is located just off Highway 24 between Leadville, Colorado and Minturn, Colorado in Eagle County. The White River National Forest encompasses two and one-quarter million acres and ranks as one of the top five Forests nationwide for recreational use. Camp Hale was placed on the National Register of Historic Places in 1992.

Site History

Camp Hale was established in 1942 on 116,188 acres, which was acquired by purchase from private owners and by use permits from the U.S. Department of Agriculture. The size of Camp Hale varied between 5,000 acres and 247,243 acres during the time it was active. The site was used between 1942 to 1949 for various training exercises by the 99th Infantry Battalion, 10th Mountain Division, 38th Regimental Combat Team and various active and reserve units from Camp Carson (Ft. Carson). From 1959 to 1962 and 1963 to 1965 the CIA used portions of the site for training Tibetan guerillas. The post was deactivated in 1965 and the land was turned over to the U.S. Forest Service in 1966.

Unexploded Ordnance (UXO) Fire Hazard Areas

These areas are based on all historical and site information. The following map indicates the areas and the type of UXO hazard. This map can be used while in the field and will indicate your relative location (via mobile device GPS locator), so the responding party can see if they are in a hazard determined zone.

A dark, rounded rectangular button with the text "UXO MAP" in white, centered within it.

GLOSSARY

The following definitions apply to terms used in the Eagle River Community Wildfire Protection Plan and/or are widely used wildland firefighting terms.

1-hour time lag fuels: Grasses, litter, and duff; <1/4 inch in diameter

10-hour time lag fuels: Twigs and small stems; 1/4 inch to 1 inch in diameter

100-hour time lag fuels: Branches; 1 to 3 inches in diameter

1000-hour time lag fuels: Large stems and branches; >3 inches in diameter

active crown fire: This is a crown fire in which the entire fuel complex – all fuel strata – become involved, but the crowning phase remains dependent on heat released from the surface fuel strata for continued spread (also called a running crown fire or continuous crown fire).

crown fire (crowning): The movement of fire through the crowns of trees or shrubs; may or may not be independent of the surface fire.

defensible space: An area around a structure where fuels and vegetation are modified, cleared, or reduced to slow the spread of wildfire toward or from the structure. The design and distance of the defensible space is based on fuels, topography, and the design/materials used in the construction of the structure.

fine fuels: Fuels that are less than 1/4 inch in diameter, such as grass, leaves, draped pine needles, fern, tree moss, and some kinds of slash, which, when dry, ignite readily and are consumed rapidly.

fire behavior potential: The expected severity of a wildland fire expressed as the rate of spread, the level of crown fire activity, and flame length. This is derived from fire behavior modeling programs using the following inputs:

fuels; canopy cover; historical weather averages; elevation; slope; and aspect.

fire danger: In this document, we do not use this as a technical term, due to various and nebulous meanings that have been historically applied.

fire hazard: Given an ignition, the likelihood and severity of fire outcomes (fire effects) that result in damage to people, property, and/or the environment. The hazard rating is derived from the community assessment and the fire behavior potential.

fire mitigation: Any action designed to decrease the likelihood of an ignition, reduce fire behavior potential, or to protect property from the impact of undesirable fire outcomes.

fire risk: The probability that an ignition will occur in an area with potential for damaging effects to people, property, and/or the environment. Risk is based primarily on historical ignitions data.

flame length: The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface); an indicator of fire intensity.

fuel break: A natural or constructed discontinuity in a fuel profile that is used to isolate, stop, or reduce the spread of fire. Fuel breaks may also make retardant lines more effective and serve as control lines for fire suppression actions. Fuel breaks in the WUI are designed to limit the spread and intensity of crown fire activity.

ISO (Insurance Standards Office): A leading source of risk (as defined by the insurance industry) information to insurance companies. ISO provides fire risk information in the form of ratings used by insurance companies to price fire insurance products to property owners.

passive crown fire: A crown fire in which individual or small groups of trees torch out (candle), but solid flaming in the canopy fuels cannot be maintained except for short periods.

shaded fuel break: An easily accessible strip of land of varying width (depending on fuel and terrain), in which fuel density is reduced, thus improving fire control opportunities. The stand is thinned, and remaining trees are pruned to remove ladder fuels. Brush, heavy ground fuels, snags, and dead trees are disposed of, and an open, park-like appearance is established.

slash: Debris left after logging, pruning, thinning, or brush cutting. This includes logs, chips, bark, branches, stumps, and broken understory trees or brush.

spotting: Refers to the behavior of a fire producing sparks or embers that are carried

by the wind and start new fires beyond the zone of direct ignition by the main fire.

structural triage: The process of identifying, sorting, and committing resources to a specific structure.

surface fire: A fire that burns the surface litter, debris, and small vegetation on the ground.

values at risk: People, property, ecological elements, and other human and intrinsic values within the project area. Values at risk are identified by inhabitants as important to the way of life in the study area, and are particularly susceptible to damage from undesirable fire outcomes.

WHR (Wildfire Hazard Rating; community assessment): A 140-point scale analysis designed to identify factors that increase the potential for and/or severity of undesirable fire outcomes in WUI communities.

WUI (Wildland Urban Interface): The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. This is sometimes referred to as Urban Wildland Interface, or UWI.

CONCLUSIONS AND NEXT STEPS

The ERFPD CWPP is a comprehensive analysis of wildfire related hazards and risks in the WUI areas in central Eagle County, Colorado. It has become a priority to treat this document as a source of not only wildfire mitigation goals and practices, but also as a tactical tool for engagement. The current update reflects this by adding interactive geospatial mapping to different aspects of the CWPP, streamlining content, and having the ability to update the mapping in real time. This will give the communities within the district, and the general public, a better understanding of importance when implementing fuel reduction projects. The results of the analysis in the original CWPP were used to determine a variety of fuel-reduction projects throughout the area. Many of these projects have been completed since the inception of the original plan. The original recommendations made by Anchor Point Group, LLC and local stakeholders did use these results to guide decision making for additional fuel-reduction projects. Recommendations, new and past, focus on reducing the threat of wildfire to values within the district.

The concerns, comments and successes of public land management agencies, private landowners, and residents were used to generate this document. The ERFPD CWPP is an updated, guiding document that will facilitate the implementation of future mitigation efforts. The CWPP is a living document, meaning it changes and evolves through time.

Equally as important of having a wildfire plan is having a post wildfire plan. This plan will be how we assess, communicate, protect, recover and rebuild affected areas from a wildfire.

