Forbes Park Landowners Association

Community Wildfire Protection Plan (CWPP)

The authority for announcing, and the responsibility for implementing, any EMERGENCY EVACUATION from FORBES PARK SUBDIVISION OF COSTILLA COUNTY, COLORADO, is invested initially with the Office of the Sheriff of Costilla County as the INCIDENT COMMANDER. In any emergency evacuation, preservation of life has the highest priority, however, during the evacuation, a primary concern of the Incident Commander (whether the Sheriff or any subsequent higher authority) is TRAFFIC CONTROL. Unregulated traffic that could lead to congestion and blockage of emergency vehicles must be avoided, thus proper planning, education of landowners and suitable communication is mandatory.

The Forbes Park Land Owners Association, Inc. has not incurred, nor does it assume, any liability regarding personal injury or property damage that might occur during any EMERGENCY EVACUATION.

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1 CWPP Overview

1.1 Purpose

The Forbes Park Community Wildfire Protection Plan (CWPP) defines how the Forbes Park community will deal with the threat of wild fires near its location. It describes the nature of the threat and mitigation measures that the community has put into effect. The CWPP also provides guidance to emergency response teams in the area so that they can better assist the Forbes Park community in the event that a wildfire should occur. The document provides critical information to (1) Forbes Park landowners, (2) volunteer and professional fire fighting units, and (3) incident command personnel. It is designed to meet or exceed the minimum CWPP standards described in the "Colorado State Forestry Service Minimum Standards for Developing Community Wildfire Protection Plans".[1]

Forbes Park is covered under the July 2008 Costilla County Community Wildfire Protection Plan. This document is considered a supplemental response document.

1.2 Ownership

Ownership of this CWPP belongs to the Forbes Park Landowners Association (FPLOA). The facilitator of this document is the Forbes Park Director that is charge of our Common Lands. The Director is responsible for the development and maintenance of this document. The CWPP committee will consist of (at a minimum) a local Forestry representative, the chairpersons of the Common Lands, Roads Advisory, and Communications committees, and the chairperson of the FPLOA board of directors. The committee will meet at least once a year to review and update the CWPP, if necessary. Registration of the CWPP with the State is the responsibility of the Director of Common Lands, in conjunction with the Colorado State Forester in charge of the local Field Office.

1.3 Goals

1. Improve fire prevention and suppression in Forbes Park
2. Restore and maintain Forbes Park forest health
3. Promote community involvement
4. Recommend measures to reduce structural ignitability in Forbes Park
5. Open community discussion regarding fuels management options
6. Merge the goals and objectives of the landowners with the needs and expectations of Forbes Park regarding fire risk reduction
7. Coordinate fuels reduction strategies across property boundaries
8. Coordinate the grant funding and federal program budgets to achieve the most effective results with limited funding
9. Reduce the potential for and the consequences of wildfires
10. Reduce the risk to watersheds and drinking water supplies
11. Reduce the risk of catastrophic wildland fires
12. Promote wildfire awareness programs

1.4 CWPP Objectives

1. Create a prioritized action list of mitigation projects to reduce wildfire risk in Forbes Park
2. Identify and prioritize areas for hazardous fuels reduction treatments
3. Reduce hazardous wildland fuels & improve forest health
4. Increase communication among residents of the community
5. Provide recommendations to Forbes Park residents of methods to reduce structural ignitability
6. Create an understanding between local fire response groups

[1] csfs.colostate.edu/wildfire-mitigation/community-wildfire-protection-plans/

7. Enhance the safety of Forbes Park residents and responders
8. Develop a user-friendly set of resources for Forbes Park homeowners to use to reduce wildfire risk
9. Educate Forbes Park residents on wildfire risks

2 The Community

The key word to the CWPP is "Community". With respect to the FPLOA CWPP, the "Community" consists of Forbes Park, Forbes Wagon Creek Ranches, Trinchera Ranches, US Forest Service – San Isabel National Forest, and the Costilla County Sheriff, Fire Chiefs from Fort Garland and San Luis, and the Costilla Emergency Management. The FPLOA Board of Directors will be responsible for periodically arranging a meeting with the "Community". The objective will be to review CWPP changes that affect the Community's support, infra-structure, and/or operations.

Because of the restrictions on meetings resulting from impact of the COVID-19 pandemic the review process for this document described above has been modified. This document has been provided to representatives for each of the members of the community for their concurrence. Their comments and suggestions have been incorporated in the final version.[2]

2.1 General Forbes Park Information

Forbes Park is a rural cooperative residential community development of a type that the State of Colorado terms a "common interest community". It is a legally incorporated association of property owners who have purchased property within the development. It is not a municipal corporation and is politically situated within Costilla County in south-central Colorado. The nearest towns and cities are listed in the Figure 1 below.

Town/City	Approx Distance/Direction From Gate	Approximate Travel Time
Fort Garland	13.6 miles to West	32 minutes
San Luis (County Seat)	29.4 miles to Southwest	57 minutes
Alamosa (Alamosa County)	39.0 miles to West	1 hour 3 minutes
La Veta	28.5 miles to East	39 minutes
Cuchara	37.9 miles to Southeast	1 hour 4 minutes
Walsenburg (Huerfano County)	39.7 miles to Northeast	48 minutes

Figure 1 - Nearby Towns and Cities

Forbes Park is situated in the southern Sangre de Cristo Mountains, and encompasses an area of 13,146 acres which has been subdivided into 3,346 parcels of 1 to 5 acres each with 5,700 acres of common land. A map of the structures within Forbes Park is provide in Appendix A The general topography of Forbes Park slopes upward to the southwest, ranging in elevation from 8,415 ft at the main gate to over 10,400 ft at the south east end of the Park. Forbes Park primarily borders Forbes Wagon Creek to the North, Trinchera Ranches to the West, and the San Isabel National Forest to the South and East. All surrounding areas are heavily wooded. Most of the internal drainage in Forbes Park is into Wagon Creek via South Indian Creek and North and South Forks of West Indian Creek.

The climate in Forbes Park is moderated by its elevation. Winter highs average in the mid-20s and mid-30s. The summer highs are generally in the mid-70s; rarely above 80. Snowfall and Rainfall levels for Forbes Park are shown in the Figures 2 and 3. The majority of the Park is sub alpine with the exception of the small section of semi-arid terrain.

[2] *(Editors note: The review process is still under way, but the final version will represent the compilation of all of the inputs from our neighbors.)*

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals
5 Year Avg.	1.2	12.7	16.1	44.3	43.6	11.7	36.8	36.0	7.7	0.0	209.9
10 Year Avg.	0.9	10.0	12.1	32.8	34.2	19.6	39.3	32.4	5.8	0.0	187.0

Figure 1 - Snowfall levels in Forbes Park

	Apr	May	Jun	July	Aug	Sep	Oct	Totals
5 Year Avg.	0.08	1.18	1.94	2.13	2.68	1.51	0.66	10.18
10 Year Avg.	0.20	0.99	1.55	2.23	2.53	1.77	1.12	10.38

Figure 2 - Rainfall levels in Forbes Park

Tree varieties include aspen, limber pine, spruces and firs, ponderosa pines and a few bristlecone pines in the higher elevations. About 55% of Forbes Park is densely forested, 15% is sagebrush and 30% is meadow. Approximately 50% of the forest was severely damaged by the Spring Creek Fire in 2018. The fire consumed much of the underbrush and small trees. Much of the damaged area is now covered by native grasses and burned tree trunks.

The wind is generally out of the southwest during the summer months and north during the winter months. The winds can vary from near calm to winter gales averaging 35-45 miles per hour with gust as high as 70 mph.

Water resources are available within Forbes Park, mainly in the form of manmade ponds including 2 fire-water draft tubes for loading fire auxiliary tankers. There are two creeks that generally carry water year-around. They are North/South branches of Indian Creek and Forbes Wagon Creek. The summer flow amount is minimal.

Animal species in Forbes Park include deer, elk, coyote, bobcat, mountain lion, black bear, prairie dogs, wild turkey, blue grouse, hawks, owls, porcupine, trout in the two onsite creeks, and a wide variety of smaller animals such as squirrels, chipmunks, and rabbits. Forbes Park is designated as a wildlife preserve, and no hunting is allowed within Forbes Park.

Of the 3,346 parcels comprising Forbes Park, and prior to June 27, 2018, there were 304 homes in the development, but on that day, the Spring Fire entered the park with devastating results, burning 137 homes and damaging 60 others, leaving 167 homes and other structures remaining. Forbes Park is essentially a summertime, seasonal, residential community. Many owners bought property for camping, easy access to hunting areas outside the Park, or simply as a land investment. Currently, approximately 30-40 of the properties have year-round occupancy. Therefore, the community is sparsely populated for most of the winter, and only partially occupied during the summer. The 2018 Spring Fire burned almost 5,000 acres in Forbes Park, of which over 3,800 acres were previously heavily wooded and the remainder being open meadows.

2.2 Delineation of Wildland-Urban Interface

Because of its dispersed, low-density and seasonal occupation, its predominantly forested environment, and its diverse animal species, all of Forbes Park constitutes a Wildland-Urban Interface (WUI). The WUI is any area where structures and other human developments meet or intermingle with wildland vegetative fuels.

As shown on the map in Appendix B, the WUI extends beyond Forbes Park in all directions: Across US 160 to the west and northwest is part of the 17,000 acre (estimate) Forbes Trinchera Ranch, a privately owned, densely wooded and undeveloped region.

On the east side of Forbes Park, from the top of the ridge (the Costilla / Huerfano county line) to Hwy 160 there is over 32 sq. miles (20,500 acres) of densely wooded land sloping steeply eastward. This is mostly San Isabel National Forest, except for about 2,200 acres of State Trust land in the southern portion. The middle portion is being subdivided and sold into 35 acre "ranchettes" similar to Forbes Wagon Creek, but the whole area is still predominantly wild land.

On the north side of Forbes Park is Forbes Wagon Creek Ranches which was also damaged by the 2018 Spring Fire. It is a 14,000 acre development with 404 parcels of 35-40 acres and is also organized as a property owners association (common interest community). Although much more sparsely developed than Forbes Park, with about 70 residences, about 45% (estimate) of Forbes Wagon Creek is still densely wooded after the Spring Fire.

The Rio Grande Scenic Railroad occupies a narrow right away between Forbes Park and Forbes Wagon Creek Ranches. This right away provides a natural fire break between the two heavily forested residential areas, however, the railroad operation has been the source of local fires.

In 2016 the FPLOA applied for and was granted Fire Wise Community status. This designation is a national recognition program that provides resources to inform communities how to adapt to living with wildfire and encourages neighbors to take action together to reduce their wildfire risk. Colorado communities that take the following five steps can be recognized as Firewise:

1. Form a Firewise board or committee
2. Obtain a wildfire risk assessment from the CSFS or local fire department and create an action plan.
3. Hold a Firewise event once per year
4. Invest a minimum of $27.20 (calendar year 2021 rate) per dwelling unit in local Firewise actions annually.
5. Create a National Fire Prevention Association (NFPA) profile and follow the application directions located at https://portal.firewise.org/user/login.

One of the features of the Fire Wise Community assessment was the use and availability of an extensive set of fire risk analyses maps that include Forbes Park and its neighbors. Land Owners are encouraged to access this data online at https://co-pub.coloradoforestatlas.org/ for the risk analysis for their own property, as well as the general risk level for surrounding properties.

Forbes Park Risk/Hazard Assessment – Forbes Park received a ranking of Extreme Fire Hazard from the 2008 Costilla County CWPP. The following tasks were designated to reduce this ranking:

1. Encourage residents to label their address, preferably with reflective lettering
2. Increase the number of homes with defensible space. Each landowner is encouraged to perform the self risk assessment provided in Appendix C and to make the upgrades needed to mitigate the risk to their property[3]
3. Create cul-de-sacs or turnarounds at dead end roads. These upgrades have been incorporated in our ongoing road improvement program.

The Forbes Park Fire Prevention and Control Program has utilized this data base to develop its annual fire mitigation and control plan, This program is described on the FPLOA website under the Resource Center section (www.fploa.org/ResourceCenter/).

[3]The Colorado State Forest Service has recently published a very useful brochure describing how homeowners can reduce their home ignition threat. Copies can be downloaded at **https://csfs.colostate.edu/2021/05/10/home-ignition-zone-guide-for-wildfire/**. Every Forbes Park home owner should review this brochure and apply its guidance. A copy is also attached to this document.

3 Fire Risk and Hazard Severity Assessment

3.1 COWRAP Maps & Analysis

The Colorado Wildfire Risk Assessment Portal (CO-WRAP) was used to generate reports on a variety of wildfire-oriented themes. CO-WRAP was developed by the Colorado State Forest Service as a tool designed to provide wildfire risk information to both resource managers and any interested citizens. Because CO-WRAP utilizes digital data at a resolution of 30 meter by 30 meter units (approximately 100 ft by 100 ft), smaller-scale differences are sometimes unable to be detected.

Maps generated by CO-WRAP showing vegetative cover and fuel type for Forbes Park are shown on the following pages. These are useful illustrations of how the forests within the Park transition across a large area, and the amounts of each type vegetation are found within the Park. On any given parcel of land, there may be several different forest and fuel types present, which will not be reflected on these maps as per the reasons above. Nor do these maps provide any information as to important forest attributes such as tree density, size, age or overall health. These maps do provide information for landscape-scale project planning, but only on-the-ground examination can provide planners the necessary information for detailed project layout.

CO-WRAP maps are from data prior to the 2018 Spring Creek fire.

3.2 Suppression Difficulty

This rating reflects the difficulty or relative cost to suppress a fire given the terrain and vegetation conditions that may impact machine operability under normal fire conditions. This layer is an overall index that combines the slope steepness and the fuel type characterization to identify areas where it would be difficult or costly to suppress a fire due to the underlying terrain and vegetation conditions that would impact machine operability. The amount of effort, risks present, the tactics and resources employed in suppression of wildland fires is dictated to a large extent by the current and predicted fire behavior.

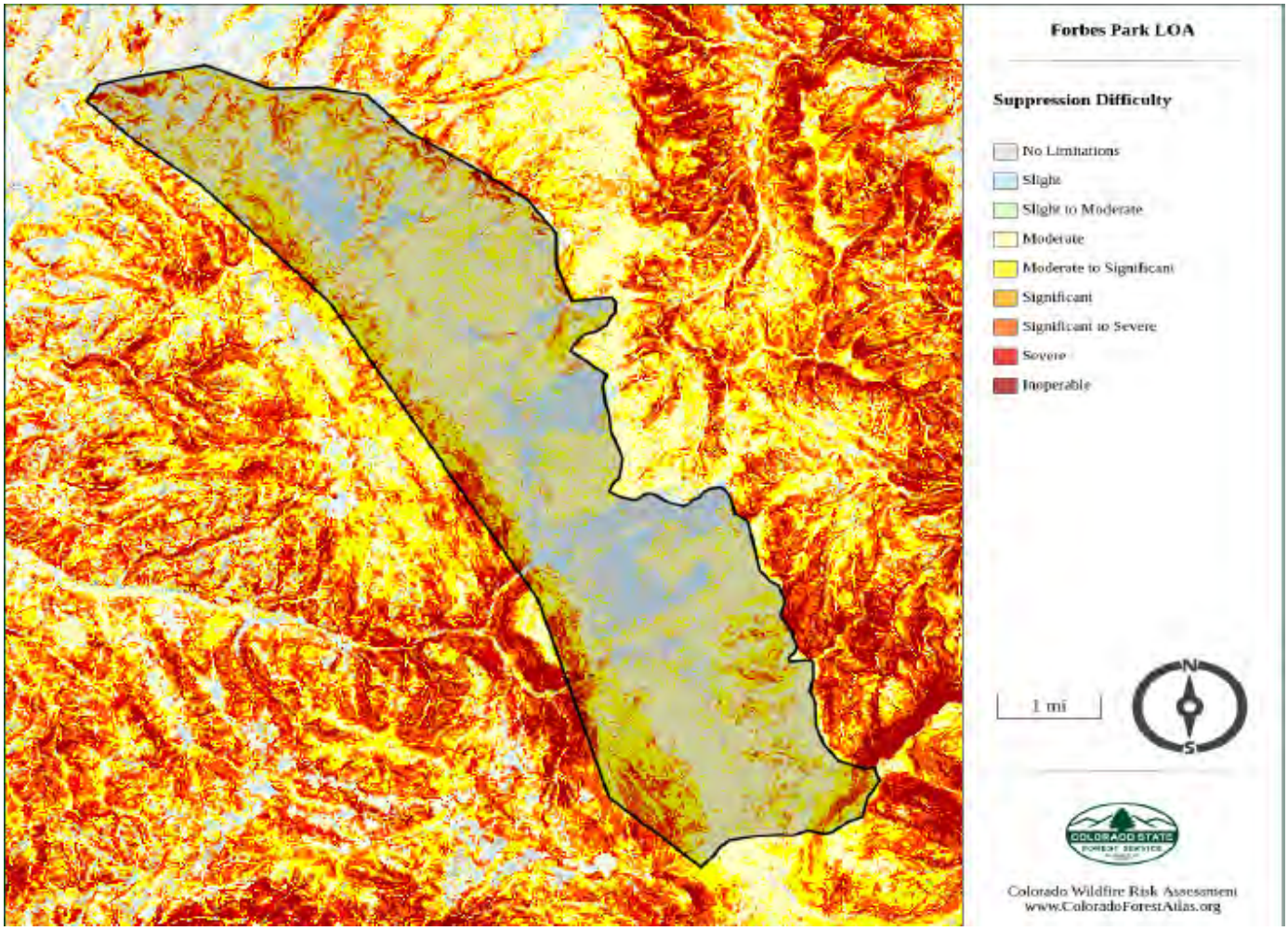

Figure 3 - Suppression Difficulty Map

Figure 3 shows the suppression difficulty rating for Forbes Park. Other important factors may include resource availability, access, ownership and regulations. During the initial attack phase of a fire, the amount of difficulty suppression forces encounter in traveling to and attacking the fire is an important determinant of whether the fire will be quickly brought under control or rage out of control causing great expense and loss.

Homeowner implications: To assist firefighter's efforts the homeowners should create defensible space.

Community implications: Larger scale fuels reduction projects need to be implemented. Consider developing a plan to treat all greenbelts.

3.3 Rate of Spread

The rate of spread represents a measure of the expected rate of spread of a potential fire front over time. Rate of spread is influenced by fuels, weather and topography. This measurement represents the maximum rate of spread of the fire front. The measurement is based off of chains (66 feet). Chains per hour roughly equates to feet per minute (example – a fire moving 12 chains/hour will be moving 12 feet per minute).

A fire's rate of spread also factors into the tactics and resources employed to fight it. Very low rates of spread mean that firefighters may be able to safely attack the fire from all directions or spend time mitigating fuels around structures. A fire moving very quickly may only be safely attacked from the rear and sides (known as a "flanking attack") while the fire front is allowed to burn to a road or some other obstacle and firefighters may not have time to mitigate fuels around a structure.

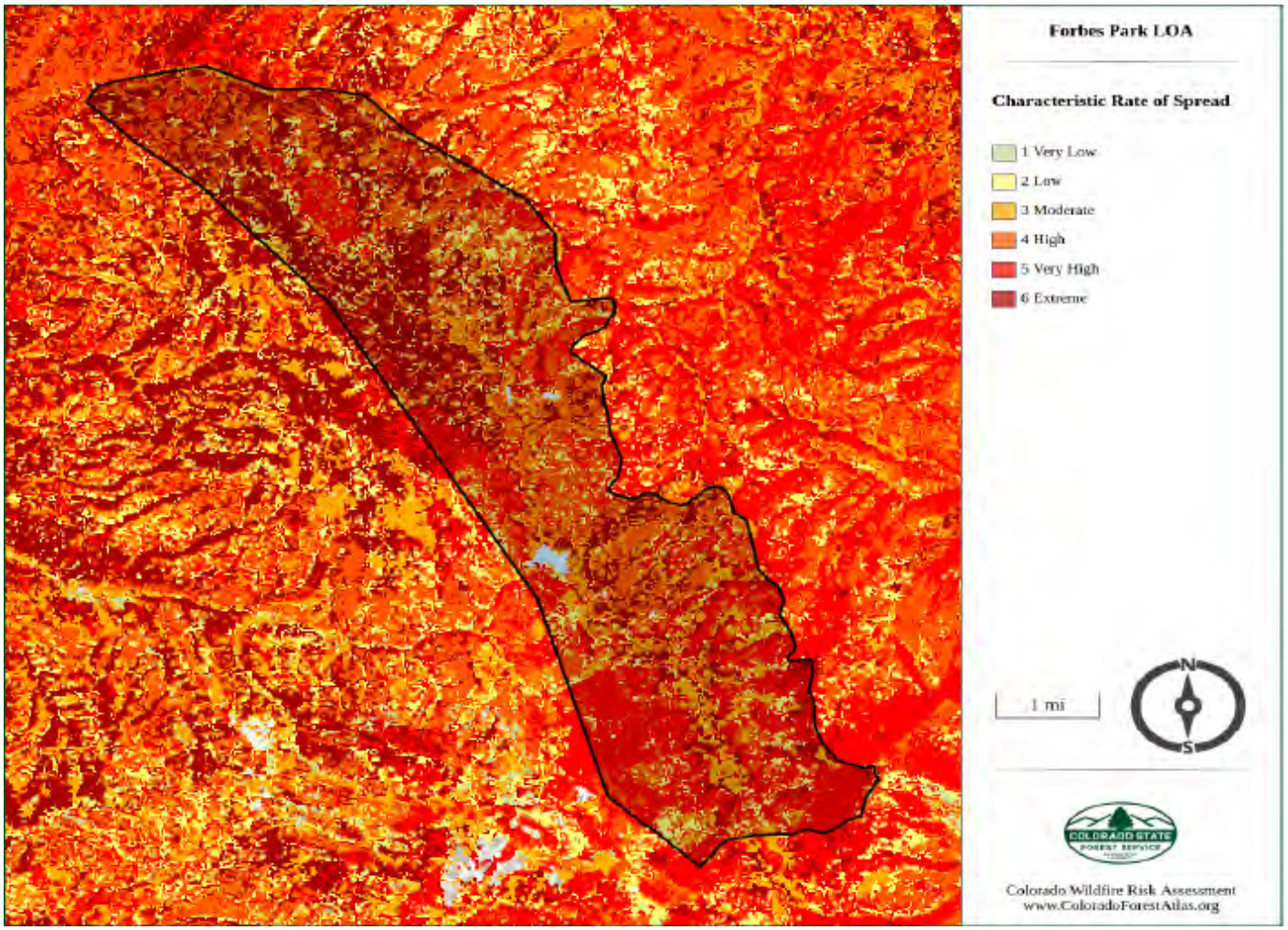

Figure 4 - Rate of Spread Map for Forbes Park

Predictions about rates and direction of a fire's spread also influence emergency managers' decisions regarding public safety. Determining areas for immediate evacuation versus those which may only be on alert are one such example.

The knowledge of how fuel types affect both fire intensity of rate of spread is important to landowners, foresters and fire managers as they seek to reduce risks to lives and property from wildfires. Not only do these measures

dictate actions during a wildfire, they also must be considered when planning preventative measures, such as hazard reduction thinning or fuel break construction.

Homeowner implications: Because much of Forbes Park is rated at "high" or higher firefighters may not have time to mitigate fuels around structures or that the firefighters can safely defend the structures. Homeowners should anticipate limited mitigation time and reduce fuels prior to any fire threats.

Community implications: Residents may not have much time to evacuate. Increase education on having individual evacuation plans and to-go bags ready.

3.4 Flame Length

Flame Length represents the measure of the expected flame length of a potential fire. Flame length is influenced by fuels, weather and topography. It is an indicator of fire intensity and is often used to estimate how much heat the fire is generating. Since flame length describes the intensity of a fire, it follows that when lengths are low, firefighters and machinery can get close to flame front, and when lengths are high, these resources must be positioned further away. Flame lengths that exceed 4 feet mean hand crews cannot safely control the fire.

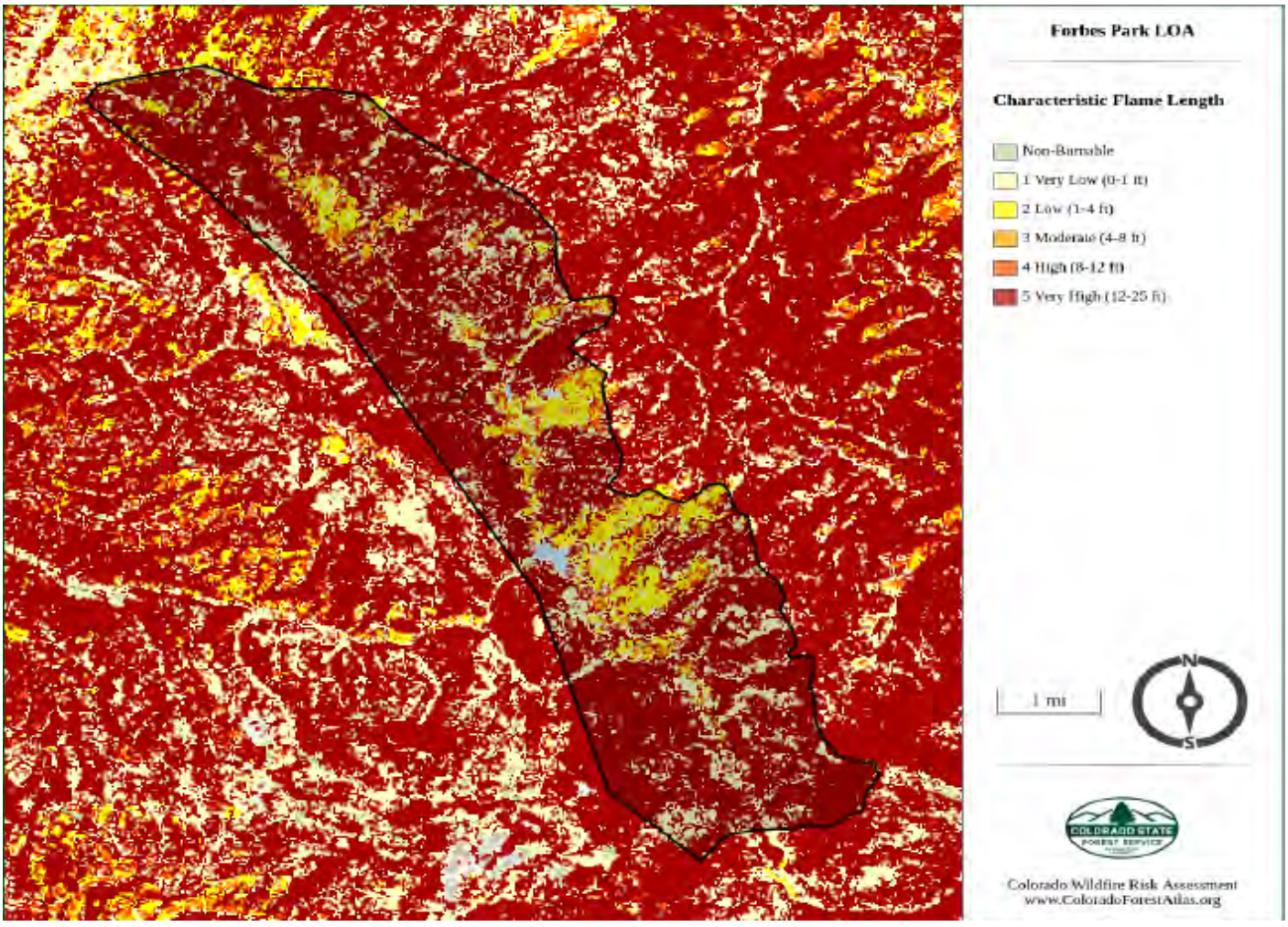

Figure 5 - Flame Length Map

As shown in Figure 5, most of Forbes Park would likely be exposed to fire lengths that would exceed defense by ground-based fire fighters.

Homeowner implications: Due to the anticipated flame lengths firefighters may not attempt to protect structures. Homeowners may decrease flame lengths around their structures through creating defensible space in advance.

Community implications: Additional forest thinning will increase the areas in Forbes where fires are kept low to the ground.

3.5 Fire Intensity Scale

The Fire Intensity Scale (FIS) identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist. Similar to the Richter scale for earthquakes, FIS provides a standard scale to measure potential wildfire intensity. FIS consist of five (5) classes where the order of magnitude between classes is ten-fold. The minimum class, Class 1, represents very low wildfire intensities and the maximum class, Class 5, represents very high wildfire intensities. It only evaluates the potential fire behavior for an area. Figure 6 shows the projected fire intensity rating for Forbes Park.

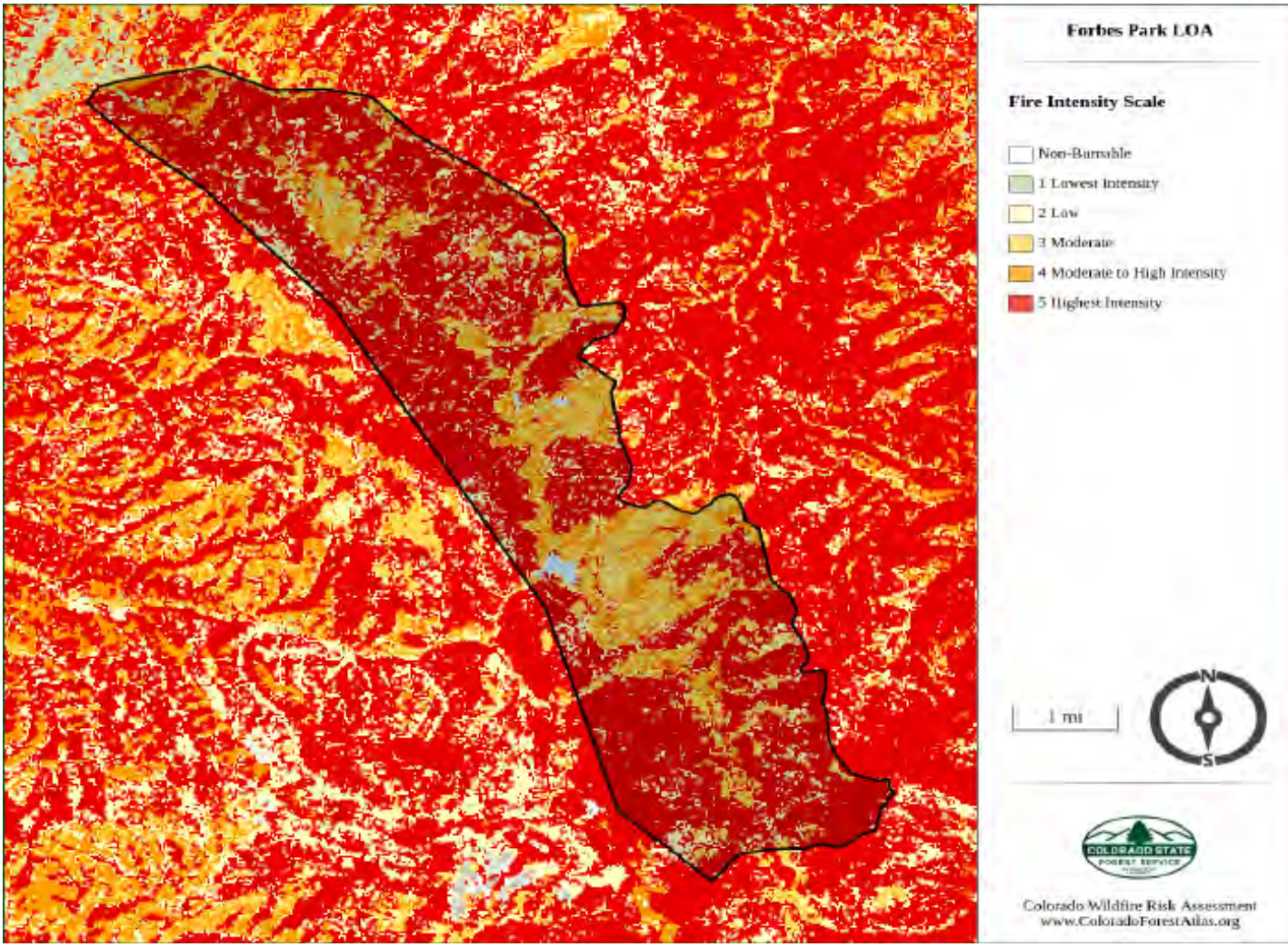

Figure 6 - Fire Intensity Scale Rating

The fire intensity ratings are defined as follows:

1. **Class 1, Lowest Intensity:**
   Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.

2. **Class 2, Low:**
   Small flames, usually less than two feet long; small amount of very short range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.
3. **Class 3, Moderate:**
   Flames up to 8 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.
4. **Class 4, High:**
   Large Flames, up to 30 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.
5. **Class 5, Highest Intensity:**
   Very large flames up to 150 feet in length; profuse short-range spotting, frequent long-range spotting; strong fire-induced winds. Indirect attack marginally effective at the head of the fire. Great potential for harm or damage to life and property.

Homeowner implications: Homeowners should anticipate this and start reducing fuel through creating defensible space.

Community implications: The fire intensity scale indicates Forbes Park has the potential for moderately dangerous fire conditions. Fuels reduction treatments should occur across all land ownerships to make a difference.

3.6 Fire Type - Extreme Weather

This parameter represents the potential fire type under the most extreme fire weather conditions. The type of fire determines how firefighters may be able to suppress the fire. Surface fires means that firefighters may actively engage the fire and may be able to be in the area to protect structures. Canopy fires mean that aerial resources are the main form of suppression and firefighters may not be able to safely engage the fire on the ground. The projection of the type fire Forbes Park could experience is shown in Figure 7. A *Surface Fire* spreads through surface fuel without consuming any overlying canopy fuel. Surface fuels include grass, timber litter, shrub/brush, slash and other dead or live vegetation within about 6 feet of the ground. Surface fires allow firefighters to actively engage the fire and work in the area to protect structures.

Canopy fires are very dangerous, destructive and difficult to control due to their increased fire intensity. From a planning perspective, it is important to identify where these conditions are likely to occur on the landscape so that special preparedness measure can be taken if necessary. Typically canopy fires occur in extreme weather conditions. A *Passive Canopy Fires* burns the crowns of individual trees or small groups of trees. Whereas an *Active Canopy Fire* burns the entire fuel complex (canopy) is involved in flame. Canopy fires often require aerial resources to be used as the main form of suppression since firefighters may not be able to safely engage the fire on the ground.

Homeowner implications: Due to the anticipated fire type firefighters may not attempt to protect all structures. Homeowners may protect their homes in advance by creating defensible space in advance.

Community implications: Increased forest thinning across all land ownerships will decrease the locations where active crown fires can occur.

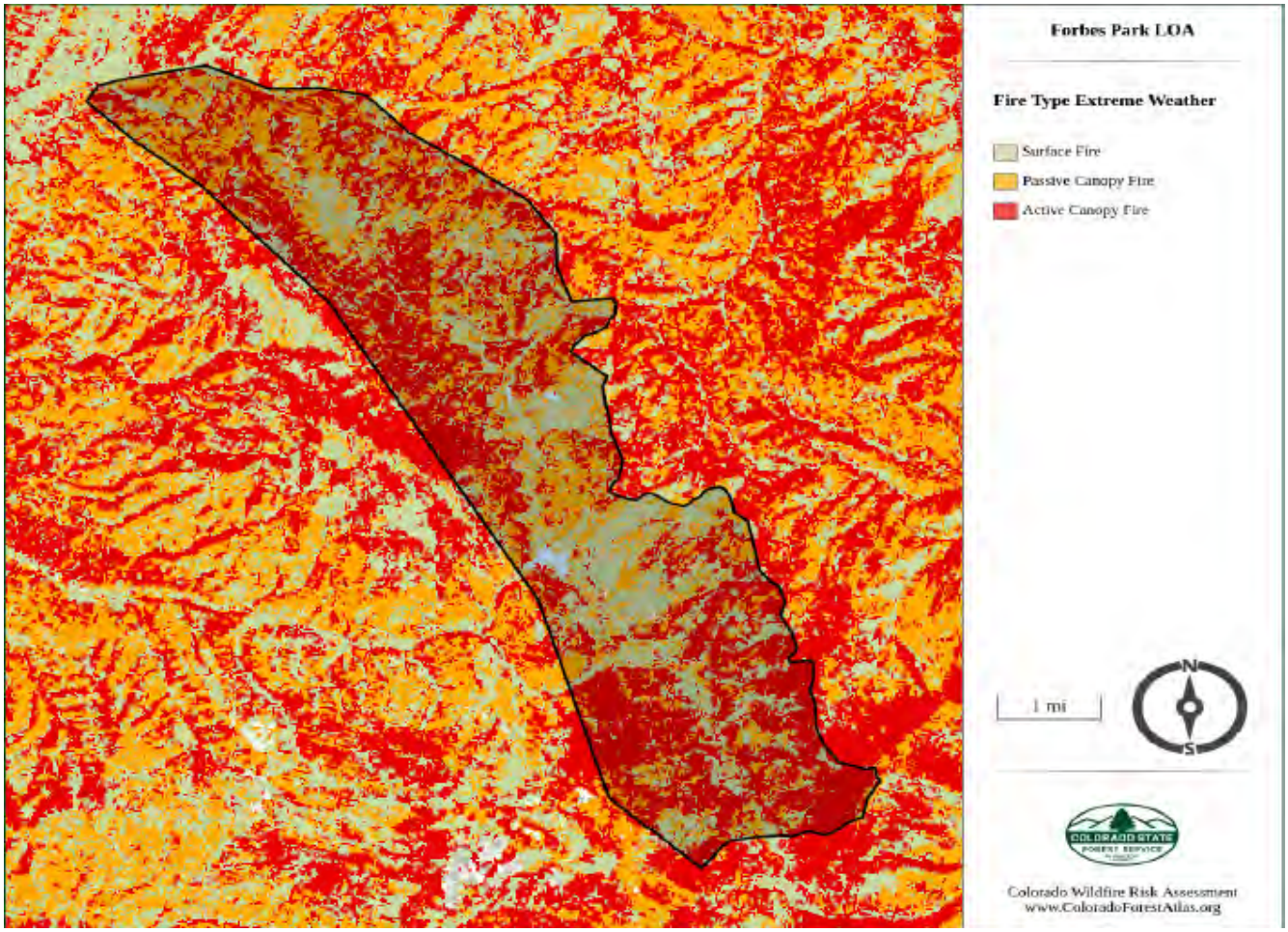

Figure 7 - Fire Type - Extreme Weather

3.7 Summary of Fire Threat Analysis

The data presented above show the nature of the fire threat within Forbes Park. The threat is both complex and pervasive, as also evidenced by the damage caused by the 2018 Spring Fire. However, we can mitigate the damage that fire could inflict on the Park with good forest management and aggressive fire suppression preparedness. For example forest thinning and under brush cleaning can reduce the probability that a small fire could become a canopy fire. This can be done without sacrificing the beauty of our Park,

A Wildland Fire Risk and Hazard Severity Assessment form is provided in Appendix C to assist landowners with assessing the fire risk for their property. Landowners are encouraged to take action to lower their risk level BEFORE the risk of wild fire is immediate. The Colorado State Forest Service web site,[4] provides excellent guidance for landowners on how to lower their risk of wild fire damage. Each landowner is encouraged to perform a self assessment of their property by use of this form. A copy of the assessment should be provided to the Chairperson of the Fire Mitigation Committee to aid fire fighters in protecting the various homes. Copies of these assessments will be provided to the fire fighters so that they can identify which structures are readily defensible.

[4] http://csfs.colostate.edu/pages/defensible-space.html,

4 Wildfire Response Capabilities

In the event of a wildfire within, or near Forbes Park the situation management will require the full cooperation of both private and government organizations, This section describes how the various resources and capabilities will be managed to minimize the impact of such an event on the Forbes Park residents and the surrounding environment,

4.1 Forbes Park Landowners Association

The Forbes Park Landowners Association will rely first upon its two volunteer fire teams for immediate response and then on the Costilla County Fire Protection District (Ft. Garland and San Luis Fire Departments) and the Colorado State Division of Fire Prevention & Control and US Forest Services crews and equipment for professional fire fighting response. La Veta FPD has mutual aid response coverage of FPLOA.

The principal role of Forbes Park landowners, especially permanent residents, with respect to wildfire will be one of early spotting, locating and reporting a fire to our Fire Teams and to the local authorities by calling 911. Immediate reporting of any wildfire, or suspicious smoke, to authorities via 911 is encouraged. It is imperative that landowners be aware of the personal dangers – including the risk of death – that are inherent in attempting to fight a wildfire. It is highly recommended that landowners first call 911 to report a wildfire, and only engage wildfires at the earliest stage and avoid engaging major fires.

The First Response Fire Support Team (FRFT) is an organized effort by resident Forbes Park landowners to respond to the growing and imminent threat of wildfire in a timely, efficient, and capable manner, while always keeping safety a primary concern. The First Response Fire Support Team's core mission is to be the first response to any wildfire threat, to mitigate a beginning fire in the first minutes, secure the site and alert the professional fire fighters to the location and nature of the fire.

There are currently 24 volunteers' members on the team. Most team members have their own firefighting equipment -- shovels, Pulaski's, chain saws, fire extinguishers -- but additionally we have four members who own and maintain pump and hose assemblies with trailer mounted water tanks, Two are located at the north end of Forbes Park, and two at the south end.

Forbes Park also has a Fire Prevention and Control Program (FPCP), one purpose of which is to maintain a fully trained and certified volunteer wildland firefighting team, see Figure 8, that can be dispatched for fast response to wildland fires within the Forbes Park community. This team is currently made up of 8 fully trained, Red Carded (Incident Qualification Carded) wildland firefighters. Forbes Park also owns a CAT D6 dozer, which is always ready for immediate deployment if needed. This team is trained and prepared to attack a wildland fire in our community and keep it from growing until other County and State assets can arrive onsite.

	FRFT	FPCP
Personnel	24	8
Trailer Water Tank & Pump	4	-
Brush Trucks	-	1 @ 250 gallons
Water Tender Trucks w/spray	-	1 @ 1200 gallons
Water Tender Trucks w/spray	-	1 @ 2000 gallons
CAT D6 Dozer	-	1

Figure 8 - FPLOA Personnel and Equipment

4.2 Local Wildfire Response Agencies

The local agencies with the following capabilities will respond to wildfires:

Costilla County Fire Protection District (CCFPD). This district agency provides county-wide fire protection services. The two principal units are located in the towns of San Luis and Ft. Garland. A smaller unit, personnel only, is located in the town of Garcia. The closest unit is the Ft. Garland unit, 15 miles from Forbes Park. Figure 9 shows a current summary of the personnel and equipment available to the CCFPD in addition to the trained volunteers of the Forbes Park FPCP fire team. These resources may change occasionally when Colorado fire fighting responsibilities change or are reorganized.

CO Division of Fire Prevention and Control – DFPC
DFPC has an automatic aid agreement with CCFPD. It is staffed year round with three firefighters and four in the summer.
Equipment: Type III engine. Chase truck.

For a large or complex fire, additional fire fighting resources from adjacent communities may be called upon through a Memo of Understanding (MOU) with the Costilla County Sheriff. Other Local, State and Federal resources may also be deployed if the incident becomes extremely complex.

	Ft Garland	San Luis	Garcia	Los Fuertes	La Veta
Personnel	15	15	10		
Pumper Trucks (T1, T2)	1 – T1, 1 – T2	2 – T1	2	1 – T3	4-T1, 1-T2
Brush Trucks (T5/6, T4/3)	1	2 – T6			4-T5/6, -T3
Water Tender Trucks (Tactical, T4)	1 - Tactical, 1 – T4	1 – T4			1 – T4
Drop Tanks & Portable Pumps	2 @ 3000 gallons	2 @ 3000 gallons			
Ambulance					3
Other					UTV-85G

Figure 9 - CCFPD Personnel and Equipment

4.3 Water Resources

Figure 10 presents the list of water resources within Forbes Park. A map of these sites is also included in Appendix D. All ponds and creeks are accessible via helicopter or truck. No fire hydrants are present in the Park. However, a dry hydrant has been installed on the south end of the Big Lake. Another dry hydrant was installed on the pond on Hayden Lane several years ago, but no recent tests have been performed on these hydrants to determine their effectiveness. All dry hydrants are accessible by a tanker with an inlet extension (usually a pair of 10 foot rigid sided sections). In addition to these sources the FPLOA has developed a commercial well capable of delivering a state regulated 50 gallons per minute. The well is located on Forbes Park Road near the center of the Park.

Resource	Estimated Acreage/GPM	GPS Coordinates North	West
Forbes Park Lake[5]	~~46.2~~	N37 26.820	W105 10.833
Pond 1 – Lower Chimney Pond	0.95	N37 30.588	W105 13.838
Pond 2 – Upper Chimney Pond	0.47	N37 30.535	W105 13.819
Pond 3 – Burgoyne Pond	0.8	N37 28.875	W105 11.892
Pond 4 – McCarty Lake	4.0	N37 28.331	W105 11.583
Pond 5 – Mathilde Pond[6]	10.3	N37 28.248	W105 11.055
Pond 6 – Hayden Pond[7]	0.8	N37 27.495	W105 11.382
Pond 7 – Petito Pond	4.1	N37 26.254	W105 10.010
Community well	50 gpm	N37 27.947	W105-11.545
Wagon Creek	Variable	N37 31.522	W105 14.961
Indian Creek – North Fork	Variable	N37 26.823	W105 10.830
Indian Creek – South Fork	Variable	N37 25.746	W105 10.462

Figure 10 – Water Resources within Forbes Park

4.4 Forbes Park Area Maps

Appendix A includes a map of the Forbes Park area that identifies the lots that include improvements, such as houses, and garages. The Forbes Park Landowners Association maintains a more detailed set of maps of the locations of homes. The FP Manager, located at the office by the front gate, will provide a copy of these maps to the IC at the onset of a wildfire event. Appendix B describes the local fire hazard level based on the local terrain slope, vegetation, and exposure to the prevailing winds. Note that this map does not account for the fire mitigation efforts performed to modify the local forest surrounding buildings and roads, nor the forest damage due to the Spring Fire and the subsequent forest mitigation. The maps of structure locations are up dated on a yearly basis.

5 Wildfire Management Procedures

In order to minimize the losses inflicted by a wildfire a broad array of resources must be brought to bear and coordinated. This begins with the designation of an Incident Commander and continues through the actions of all land owners. The management procedures are outlined below.

5.1 Incident Command

In the event of a wildfire the first qualified person on the scene is the Incident Commander, and remains the IC until the situation exceeds their capabilities. The IC may choose to designate another person as the replacement IC. The IC for a major wildfire event would typically be an experienced firefighter with extensive training in NIMS (National Incident Management Systems) No landowner shall take on the responsibility of IC unless properly trained and given authority by the current IC.

5.2 When, What, & Where

When: Landowners can decide to voluntarily leave the Park, if they deem a nearby wildfire is of concern or danger to their well being. If an emergency is called by the county sheriff, action becomes mandatory and will be directed only by the designated IC.

[5] The lake was drained in 2019 in order to define its origin. July, 20202020 size is 11 acres.
[6] Very shallow pond
[7] Untested dry hydrant

What: Actions that may be directed include standby at home or a designated area, a longer term stay at a designated staging area, or mandatory evacuation from the Park. Again, these actions are to be directed only by the designated IC.

Where: Landowner staging areas and evacuation routes are listed in the next sections. The IC will designate which of these areas should be utilized by the residents, and the location of the IC Command Post. In the event of a major wildfire all landowners should execute the following options (in order of preference)

1. Primary response is to evacuate through the front gate
2. If unable to evacuate then proceed to the nearest Staging Area and prepare to evacuate through one of the alternate evacuation routes
3. Proceed to one of the evacuation route starting points
4. Last resort is to proceed to the nearest Staging Area and wait for the danger to pass.

5.3 Wildfire Communications

One of the most difficult issues resulting from an emergency such as a wild fire is to maintain clear and factual lines of communications. Each of the following communication channels are critical to managing a wildfire event.

5.3.1 Reverse 911

In conjunction with the Alamosa Communications Center, a reverse 911 call-out procedure has been established specifically for Forbes Park and wildfire notification. Landowners with local telephone numbers have been inserted into an automatic notification system. When a fire, or other emergency situation, has been reported in the Park or a nearby community an assessment will be made as to whether or not an alert is to be ordered. In collaboration with the county fire chief, the sheriff will authorize notification of landowners within the Park via the reverse 911 system. The landowners will be instructed to take specific actions depending on current conditions.

Each landowner should contact Alamosa Dispatch at https://www.slve911.org to:

1. verify their existing phone number(s)
2. modify or delete their phone number(s)
3. add a new phone number(s), including cell phones that have reception within Forbes Park
4. report trouble with the phone system that might impair emergency notification

All landowners should personally ensure that Alamosa Dispatch has the correct ADDRESS associated with their phone number for a 911 call. This can be accomplished by requesting a test call through Alamosa Dispatch.

The Park Manager will work with the Alamosa Communications Center to ensure that a current notification list is available. Periodic testing of the reverse 911 system will be performed as requested by the FPLOA FPCP director or the Park Manager. A report is available to the committee chairperson for review to determine if certain phone numbers cannot be reached during the test. This report will allow the chairperson to keep the notification list current.

5.3.2 Notification of key personnel

The FPCP Committee has established a call tree to notify all key personnel (ECC, Safety Coordinators, Board President, and Park Managers) of need to activate CWPP procedures.

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5.3.3 Camper Registration and Notification

Camper registration is critical to wildfire protection. Without registration, communications to campers of any wildfire emergency will not be timely, and in some cases not possible, therefore increasing the risks to campers. The

Forbes Park Management staff maintains a current list of campers. In the event of a wildfire, the management will attempt to notify campers of the need to assemble or evacuate.

5.4 Landowner Staging Areas

A Landowner Staging Area is a section of land within the Park that will be designated by the IC as a short or longer term area for landowners to meet or stay during an incident. Eight sites within Forbes Park have been evaluated and designated as Landowner Staging Areas. The purpose of these areas is to provide locations where, in the event of an emergency, landowners may gather to wait until the emergency passes, or until they are evacuated. Each of these Staging Areas has been analyzed for safety based on the guidelines established in the Fireline Handbook., March 2004 edition. All analyses assume the 4:1 rule for separation distance between human and flames. Land sizes for all staging areas fall within the 12 to 50+ acres with an assumed flame height of 100 ft and 200 ft and distance separation of 400 ft to 800 ft respectively.

The locations listed in Figure 11 have been predefined as Landowner Staging Areas. The locations are also shown on the map in Appendix A - Forbes Park and Staging Areas Structures Map. Road signs have also been posted indicating the locations. These areas can only be activated by the IC. If an area must be prepared for use, the IC will designate personnel to begin preparation.

Zone Name	Location	GPS Coordinates
Big Lake	Both sides of FP Rd near Big Lake	N 37° 26.820 W105° 10.833
FP Loop Split	Both sides of FP Loop-West near intersection with FP Rd	N37° 25.800 W105° 10.370
Sigler/FP Road	Intersection of Sigler & FP Rd	N 37° 27.758 W 105° 11.435
Hayden/FP Road	Intersection of Hayden & FP Rd	N 37° 27.495 W 105° 11.382
FPC Meadow	Meadow south of FPC east of FP Rd	N 37° 30.292 W 105° 13.549
Strauss Burn Site	South of intersection of FP Rd & Emery Loop on east side of FP Rd	N 37° 27.668 W 105° 11.420
Warren Meadow	South of 1810 FP Rd on east side	N 37° 28.300 W 105° 11.240
Mathilde Meadow	East of Mathilde near Sigler	N 37° 28.248 W 105° 11.055

Figure 11 - Staging Area Descriptions

5.4.1 Operating Procedures

A trained person or persons will be assigned as the coordinators for each designated Staging Area. These trained personnel will be responsible for making certain that the area is safe for use and is maintained safe during the course of the incident. All coordinators will report directly to the IC and will be responsible for maintaining calmness, order, and communications within all Staging Areas. The responsibilities of the coordinators are outlined in Appendix E Landowners are cautioned that although these Staging Areas meet the guidelines of the forest service, the environment could present health hazards to some occupants due to heavy smoke, ash, and fumes. The Staging Areas should only be used if evacuation is not possible. At least one qualified person from Alpine First Response team[8] will be assigned to each Staging Area.

[8] See Section 11.2 for a description of the Alpine First Response Team

Residents primary responsibility is to evacuate first. If an emergency occurs, a landowner may be instructed by the sheriff or current IC to travel to one of the designated Staging Areas listed in Figure 11 or to evacuate immediately. The landowner should be prepared to stay at the Staging Area for 12 to 24 hours or until instructed to take additional action. A landowner evacuation checklist is attached in Appendix F. For additional guidance consult the Colorado State University Extension Service brochure "Forest Home Fire Safety", that provides excellent guidance for home owners[9].

5.4.2 Staging Area Details

Figure 12 shows detail information about the potential staging areas within Forbes Park. Any of these areas can be selected and activated during a fire emergency. Their locations are also shown on a map in Appendix A.

Zone Name	FPC Meadow	Strauss Burn Site	Warren Meadow	Sigler/FP Road	Mathilde Meadow	Hayden/FP Road	Big Lake	FP Loop Split
Type	Holding	Holding	Holding	Overflow	Holding	Overflow	Assembly	Assembly
Location	Meadow south of FPC east of FP Rd	South of 1391 FP Rd at old burn site	South of 1810 FP Rd on east side	Intersection of Sigler & FP Rd	East of Mathilde	Intersection of Hayden & FP Rd	Both sides of FP Rd near Big Lake	Both sides of FP Loop-West FP Rd
GPS Coordinates	N30.292 W13.549	N27.668 W11.420	N28.300 W11.240	N27.758 W11.435	N28.248 W11.055	N27.495 W11.382	N26.820 W10.833	N25.800 W10.370
Terrain Description	Relatively flat, at crest of gentle hill	Crest of hill with gentle slopes	Slight valley leading to a small lake	Valley with moderate slope	Very large open flat area with slight slope	Valley with moderate slope	Very large open area; near large lake	Open area with gentle slope
Vegetation Description	Very low grass	Very low grass	Tall grass	Tall grass	Low grass	Tall grass	Low grass to high grass	Very low grass
Surrounding Forestation	Very large distance	50 ft Aspen at 100 yards	30 ft Aspen at 100 yards	50 ft Aspen at 100 yards	Very large distance	50 ft Aspen at 100 yards	Very large distance	Very large distance
Car Access	Easy	Easy	Easy	Need to grade access point	Easy	Need to grade access point	Easy	Easy
Population Proximity	Very high	Moderate	Moderate	Moderate	Low	Moderate	Low	Low
Escape Route Proximity	Close to front gate	Not close	Not close	Not close	Not close	Not close	Not close	Staging area for west escape route
Wind conditions	No dominant direction	No dominant direction	No dominant direction	Dominant wind along FP Rd	No dominant direction	Dominant wind along FP Rd	Strong wind current across lake	Strong wind along FP Loop
Fire Hazard	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Fuel Rating	2 – 5	2 – 5	5 - 6	5	1 – 5	5	1 – 6	1 – 4
Water Access	None	Small lake; steep access	Moderate lake; shallow access	None	Shallow lake; with poor access	Dry hydrant; easy access	Small lake; soft access	None
Size (ft)	849	627	532	633	1250	234	372	708
Capacity (ac)	171.8	48.6	43.6	34.6	271.7	8.3	29.8	101.4
Parking Area (acres)	116	7.8	4.6	4.5	170	0	21.6	31.5

Notes:

1. Size based on radius of largest circle in clearing
2. Capacity is the acreage of clear space available
3. Parking area provides 400 ft buffer to local forest in all directions
4. GPS coordinates are approximate and based on access point to each site
5. All GPS Coordinates are at N 37 degrees, and W 105 degrees
6. Some areas may be compromised by slash awaiting burning

Figure 12 – Forbes Park Landowner Staging Area Descriptions

[9] (http://www.ext.colostate.edu/pubs/natres/06304.html)

5.4.3 Staging Area Maps

Residents primary responsibility is to evacuate first. The following maps (Figures 13 – 20) show the layout of each designated Landowner Staging Areas. (Each map is oriented with North up.)

Each area activated by the IC will be assigned one or more Staging Area Coordinators (SAC) to be available to monitor and coordinate activities within designated staging areas. The SACs will be recruited from members of the Alpine First Response Team (AFRT)[10], members of the First Fire Response Team, and Community Emergency Response Team (CERT) trained Forbes Park landowners. The Forbes Park Director that is charge of our Common Lands will provide an updated list of the SAC to the FPLOA Manager each before fire season begins. The SAC responsibilities will include maintaining a list of occupants, reporting of status of the staging area to the IC, keeping occupants informed about the status of the situation as provided by the IC and assisting in controlled evacuation, if any. Each SAC will maintain a roster of those present, or who have been accounted for while the area is open for residents. Note: It is highly recommended that the IC provide radios for the SACs to use during the occupation of the staging areas. This will permit critical information to be shared between the IC and the various SACs, and the individuals at each site. See Appendix F for more details.

[10] The AFRT is an independent medically oriented organization composed of volunteer residents of Forbes Park. They function on the funds raised by donations from individuals, organizations (such as FPLOA), fund raisers, and an occasional equipment grant from RETAC (Regional Emergency Trauma Advisory Council), e.g. for AEDs.). Their operational territory consists only of Forbes Park and their members are trained in the skills of "Emergency Care and First Aid" in accordance with the curriculum defined by the U.S. Department of Transportation and recognized by the State of Colorado. During normal times members are dispatched by telephone to medical emergencies in the Park by the Colorado Highway Patrol communications center in Alamosa, Colorado. AFRT members are able to act as a focal point for residents for information and instructions from an IC in the event of a major fire or other incident in Forbes Park. One such function in the event of a major wildfire would be manning "staging areas" and awaiting instructions from the IC.

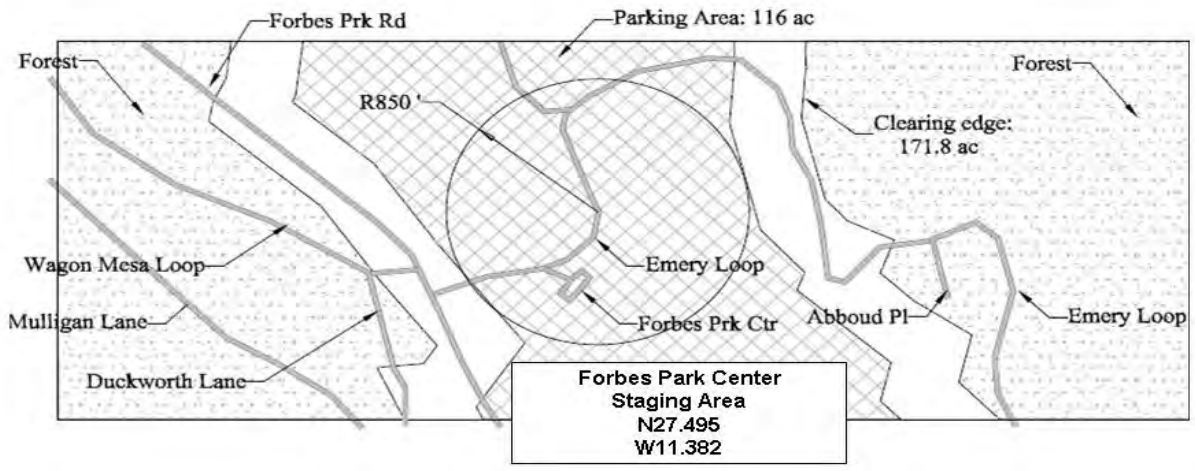


Figure 13 – Forbes Park Center (FPC) Staging Area

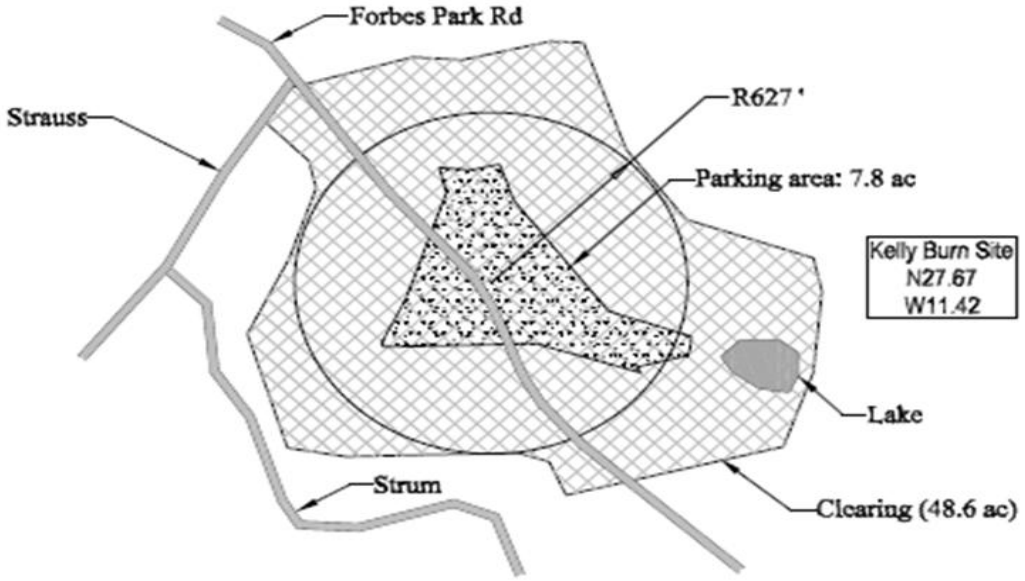


Figure 14 – Strauss Staging Area

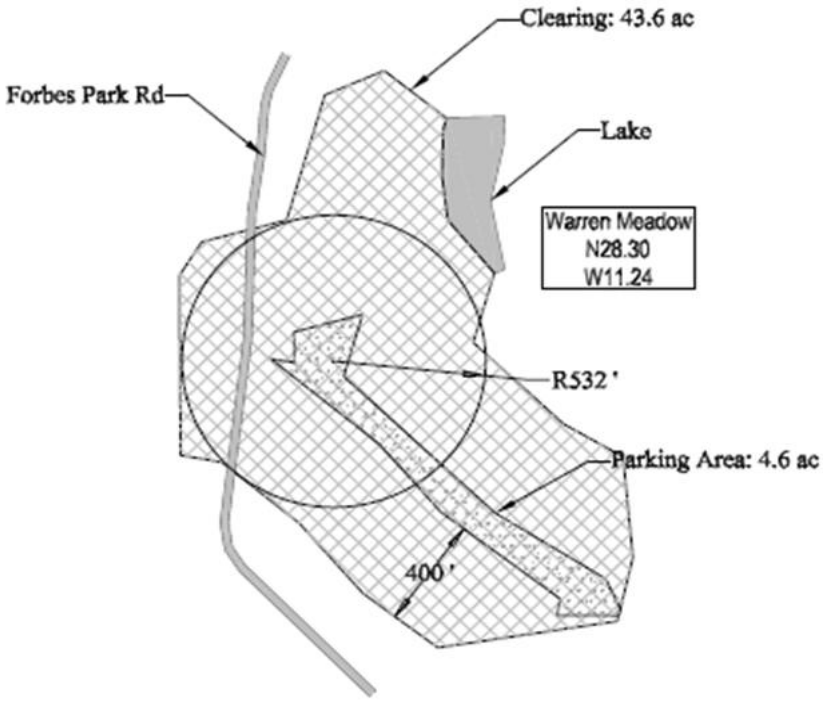


Figure 15 – Warren Meadow Staging Area

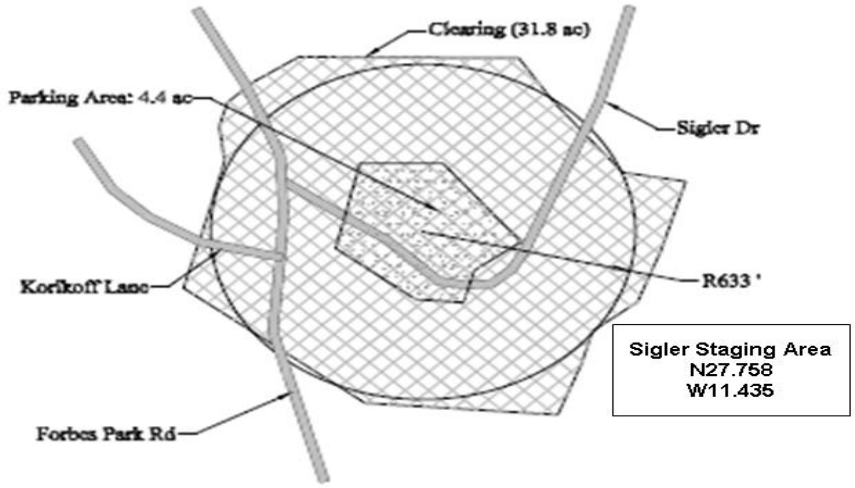


Figure 16 – Sigler Staging Area

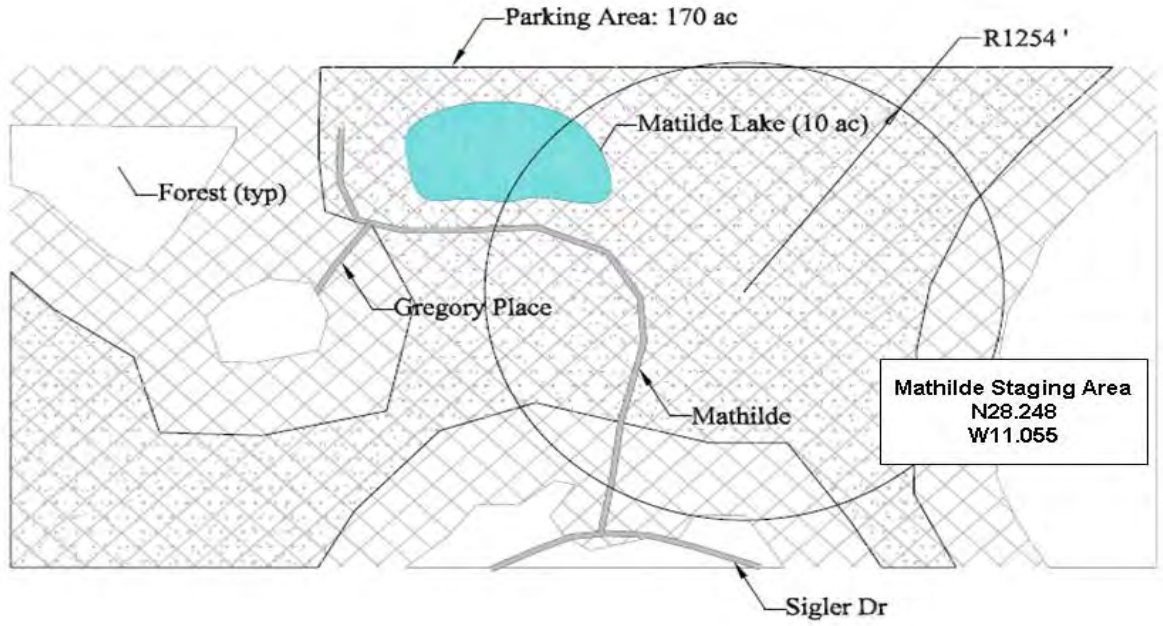


Figure 17 – Mathilde Staging Area

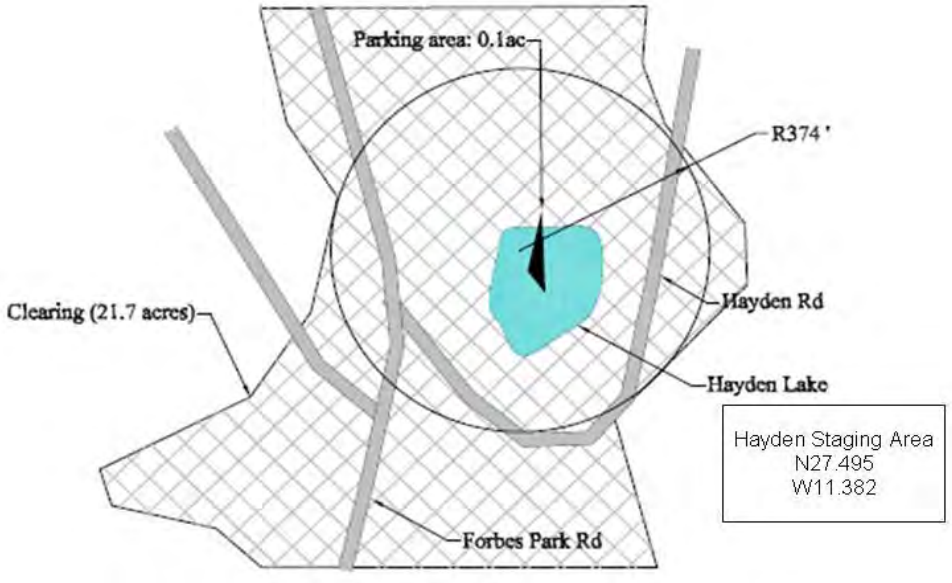


Figure 18 – Hayden Lake Staging Area

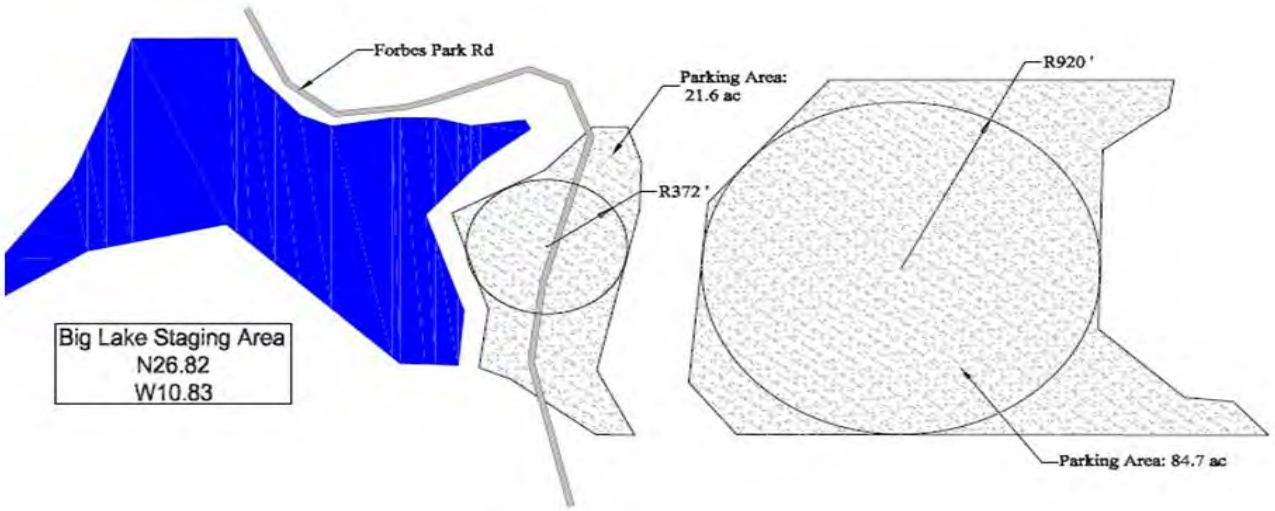


Figure 19 – Big Lake Staging Area

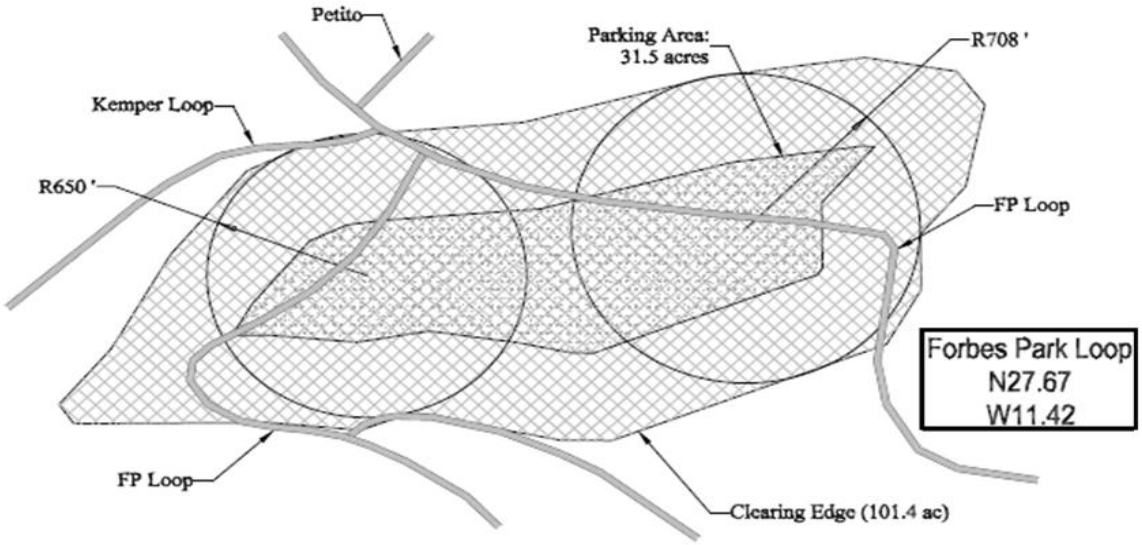


Figure 20 – Forbes Park Loop Staging Area

5.5 Evacuation Routes

Residents primary responsibility is to evacuate first. Figure 21 contains a list of the evacuation routes. Unless blocked, route #1 should be used as the primary route out of the Park. Everyone should use this route, unless it is blocked by fire, or the IC directs otherwise.

	Status	Route	Average No. of Users	Road Hazard Problems
1	Primary	Forbes Park Road to the US Highway 160 through main gate	50 +/- per day	Good condition, cleared and serviced regularly
2	Secondary	West Evacuation Route, shown in Figure 22	Emergency Only	Rough, unmaintained road; enters Trinchera Ranches; sections are private-use by escort only; connects to US 160

Figure 21 - Escape Route Descriptions

5.5.1 Route Descriptions

Since the evacuation process may create unusual traffic volume at the front gate the following special procedures will be enacted:

1. When a full evacuation is implemented, the Park Manager, or designated alternate, will open both traffic gates. These gates will remain open until the evacuation is completed and the IC issues an All Clear command. The gates will be staffed by law enforcement, or qualified residents, e.g. CERT trained residents, designated by the Park Manager to direct traffic. Note: The Park Manager will maintain a list of volunteers for this duty.

2. The contractor gate should be reserved primarily for entering emergency and official vehicles.

3. BOTH gates may be used for exiting traffic until an emergency vehicle approaches. When an emergency vehicle approaches, exiting traffic will be stopped at the entrance to the former RV yard, until the emergency vehicle is on Forbes Park Road.

4. In all cases, whether at the gate or on any Forbes Park road, emergency and official vehicles have the right of way and all private vehicles must give way.

Escape route #2, listed above is to be considered **only** in the event of an emergency evacuation during which the established roads exiting in Forbes Park are unusable. This route are **not** maintained and is subject to being impassable due to weather or other environmental factors (e.g., rock or mud slides, fallen trees, rising creeks, etc.). **As fences and locked gates are present on this route, no resident(s) should attempt passage without prior authorization and coordination with the sheriff's office and/or the on-scene IC. This route is not immune to being overrun by a wild fire. The IC will determine whether the route is safe for use in a given situation. Designated drivers will lead the way, and the type of vehicle safe to travel the route will be specified at the time of evacuation.** In general, high ground clearance vehicles with all-terrain tires are preferable, but the road, weather, and hazard conditions will dictate which vehicles may proceed.

Since not all residents have vehicles suitable to travel these routes, we will expect ALL drivers to offer available seating to fill their vehicle to capacity. At this time we have no special procedures in place for the evacuation of pets. Each family must establish their own plan for caring for their pets.

5.5.2 West Evacuation Route

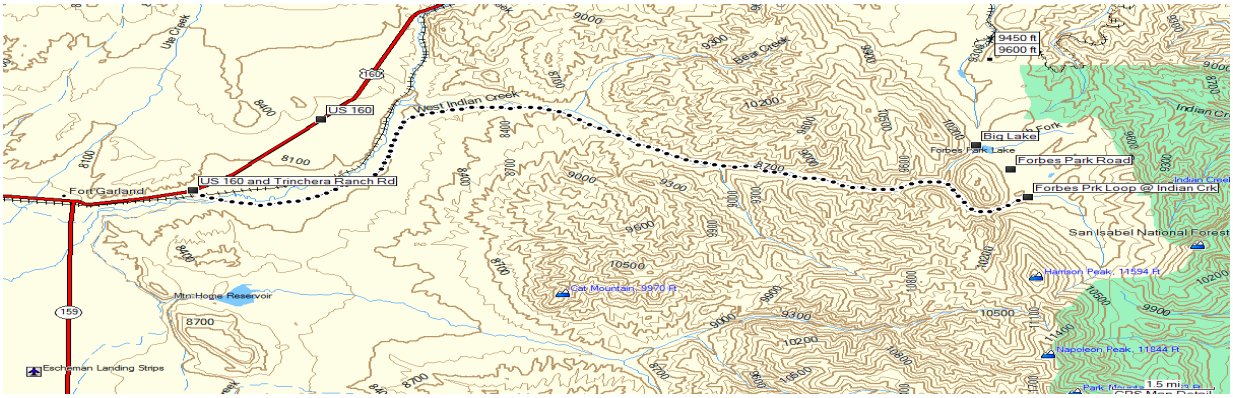


Figure 22 – West Evacuation Route

From Forbes Park Loop, just west of Forbes Park Road, at the South Fork of Indian Creek, go west along the south side of the creek. Continue descending along the creek bed, crossing the creek only where the trail does. The first mile is rough and requires slow driving and attention to the trail. After the first mile the trail improves, follow the creek and you will emerge onto a dirt road within Sangre de Cristo Ranches. At all road intersections continue straight until approaching US 160. Turn right onto the paved Trinchera Ranch Rd. and proceed to US 160 approximately ½ mile east of Ft. Garland (total distance 14.3 mi). Distances and directions are approximate.

This route has two locked gates and requires a high clearance vehicle with all-terrain tires. If the IC chooses this evacuation route, then Trinchera Ranch employees will meet the residents at the first gate and escort the residents as a convoy through the ranch to Sangre de Cristo Ranches.

6 Implementation Plan

This implementation plan will create a prioritized action list of mitigation projects to reduce wildfire risk in Forbes Park It is based on the 2016 FPLOA Firewise USA Community Assessment. The implementation plan will be updated every three years.

6.1 Firewise USA Community Action Plan

Our community action plan is comprised of four action items that will improve the our wildfire readiness. It is created from information contained in the 2016 FPLOA Firewise USA Community Assessment. What is necessary within the plan is the identification of doable action items by the Firewise Board. The action plan can be modified with the passage of time.

1. The FPLOA will establish a "Firewise Showcase Day" every year where a workshop will be presented on defensible space for our homes and we will do a tour of several properties, where owners have mitigated their homes and/or property to the Colorado State Forest Service standards of a WUI community.
2. Our Fire Mitigation Program Director and our "Fire First Response Team" will continue to collaborate and conduct a series of "Woodfest" each year for the San Luis Valley residents to come into Forbes Park to collect the usable firewood resulting from our yearly Fire Mitigation projects.
3. We will continue our yearly efforts to mitigate various road right-of-ways in the more "fire prone" regions of our common areas to widen these areas as more effective firebreaks.

4. The FPLOA will make every effort to mitigate the lots that we acquire through foreclosures or other means before they are released for re-sale

6.2 CWPP Action Plan

The following CWPP action plan has been developed to provide a near-term action plan to address the CWPP objectives listed above.

1. Identify and prioritize areas for hazardous fuels reduction treatments
   a. Priority - Medium
   b. Action – Community "buy in" is the first step in prioritizing treatments. Without it, the plans are less likely to be implemented.
      i. Determine residents' preference for fuels treatments in greenbelts. Consider polling residents.
      ii. Determine residents' preference for treating beyond road easement right of way. Consider polling residents.
   c. Timeframe -
      i. 2021 - Surveys & present
      ii. 2022 – Develop fuels reduction plan based on surveys
      iii. 2023 – Start implementing plan
   d. Responsible Party – Forbes Board
2. Reduce hazardous wildland fuels & improve forest health
   a. Priority - High
   b. Action –
      i. Promote creating defensible space
      ii. Apply for grants to offset treatments
      iii. Work with NRCS to create a CAP (Conservation Activity Plan) for greenbelts.
   c. Timeframe - ongoing
   d. Responsible Party – Fire Mitigation Committee
3. Increase communication among residents of the community
   a. Priority - Medium
   b. Action –
      i. Develop evacuation communication plan
      ii. Provide residents the information to talk to neighbors about fuels reduction
      iii. Investigate whether smaller community "pods" would help educate residents at a more local basis
      iv. Develop a call tree for residents to disperse information
   c. Timeframe – 2021 develop plan. 2022 test. 2023+ maintain
   d. Responsible Party – Forbes manager
4. Provide recommendations to residents on methods to reduce structural ignitability.
   a. Priority - High
   b. Action – Each resident should be made aware of the Firewise USA community assessment.
   c. Timeframe – 2021 and ongoing
   d. Responsible Party – Forbes Park FRFT[11]
5. Create an understanding between local fire response groups
   a. Priority - Medium
   b. Action –
      i. Work with CCFPD to understand the role and training of the First Response Fire Support Team (FRFT)
      ii. Develop a communication system to keep CCFPD up to date with training and equipment of the Forbes Park FRFT
      iii. Develop a wildfire communication response plan with CCFPD
      iv. Work with DFPC to formalize the mutual aid agreement between LVFPD and CCFPD
   c. Timeframe - 2021
   d. Responsible Party – Forbes Board

[11] See FRFT description in Section 8.1

6. Enhance the safety of residents and responders
    a. Priority - High
    b. Action –
        i. Encourage residents to label their address, preferably with reflective lettering.
        ii. Each landowner should contact Alamosa Dispatch at www.slve911.org – See p. 11, section 9
        iii. Develop a shortened Staging Area use and location guide. Simple handout with locations, what to bring, expectations at staging area.
        iv. Yearly update maps of structure locations, provide maps to CCFPD.
    c. Timeframe – 2021 big push. 2021 develop Stage Area guide. 2022+ continued education and maintenance.
    d. Responsible Party – FRFT spearhead. Each resident responsible.
7. Development of a user-friendly set of resources for homeowners and communities to use to reduce wildfire risk.
    a. Priority – Medium
    b. Action –
        i. Determine and stock 2-3 education resources on reducing wildfire risk.
        ii. Post links to educational videos on FPLOA website.
    c. Timeframe – 2021 create. Ongoing to keep up to date and distribute.
    d. Responsible Party – Forbes office staff, Communications Committee and FRFT
8. Educate residents on wildfire risks.
    a. Priority – Medium
    b. Action –
        i. Keep residents aware of current fire bans and fire danger levels in Costilla County. Keep fire danger and fire ban signage current.
        ii. Promote wildfire awareness programs by annually participating in Wildfire Preparedness Day of Service (first Saturday in May)
    c. Timeframe – 2021 and ongoing
    d. Responsible Party – FRFT and Communications Committee

7 During and After a Wildfire

Traditionally, CWPPs have focused on wildfire prevention and response. Recent wildfires have shown the importance of planning ahead for community action during the fire event, as well as for the post-wildfire effects and recovery, which can be as devastating as the fire itself. In the case of a wildfire the FPLOA Board will form a Wildfire Response and Recovery Team to initiate the following actions:

1. Develop a plan to provide residents with refuge from smoke during a wildfire. For example, clean air shelters can be brought into an area for a period of time. The team should identify where to find them, where would it be set-up, what size is needed, where are vulnerable populations in the Park.

2. Identify a community liaison for the residents to interface with incident command and/or Burned Area Emergency Response (BAER) teams during and after wildfires.

3. Review “After Wildfire: A Guide for New Mexico Communities” (www.afterwildfirenm.org). Consider integrating applicable elements into a post-fire section of your CWPP.

4. Identify and establish a wildfire response and recovery team (which may be different from your CWPP Core Team) along with a strategy (see the “Mobilize Your Community: Assess Your Needs” section of the After Wildfire Guide) and an annual action plan to keep the team together.

5. Identify areas at risk from post-fire impacts and use those to develop desired post-fire conditions for your landscape. Consider which techniques we might utilize to help protect areas from post-fire flooding or to rehabilitate burned areas (see the "Post Fire Treatments" section of the After Wildfire Guide).

8 Assessment / Monitoring

8.1 CWPP Assessment Plan

A CWPP is a planning tool. As such, it will help to identify and guide mitigation efforts within the community. Its overall value, however, is directly related to the ongoing evaluation and improvement of the plan in the future. Future editions of our CWPP will reevaluate risks as conditions change and as mitigation efforts are completed. As a living document, the CWPP relies on the input of all stakeholders. The plan should be revisited at least on an annual basis and should be formally updated every five years. We invite all landowners to be involved in that process.

Assessment Plan
Work and wildfire hazards do not stop once the CWPP is complete or even once all action items are completed. Resources and landscapes change over time and our CWPP will be revisited and refreshed regularly. Changes in risk ratings will be reflected upon completion of priority projects and new initiatives developed for the CWPP to remain viable. In addition, effective new strategies and wildland programs will be incorporated into CWPP planning efforts.

These guidelines are designed to enhance effectiveness of our CWPP and were generated from actual experiences with mitigation and large wildfires, as well as community planning processes.
Process to update the CWPP:

1. Review existing CWPP.
2. Describe progress made and list accomplishments since the CWPP was adopted.
3. Host collaborative meetings.
    a. Identify any new risks that have developed.
    b. List any changes in a community's hazard risk rating.
4. Update maps.
5. Reflect changes in risk ratings due to completed projects or changes in landscape.
6. Develop updated priorities.
7. Distribute CWPP update drafts to key stakeholders (including local, state, tribal and federal partners) for review and input before the final approval.
8. Submit the final document to your local government body, local fire department(s) and State Forestry for required signatures and endorsement.
9. Once signed and endorsed by the local governing parties, submit all documentation to CSFS.

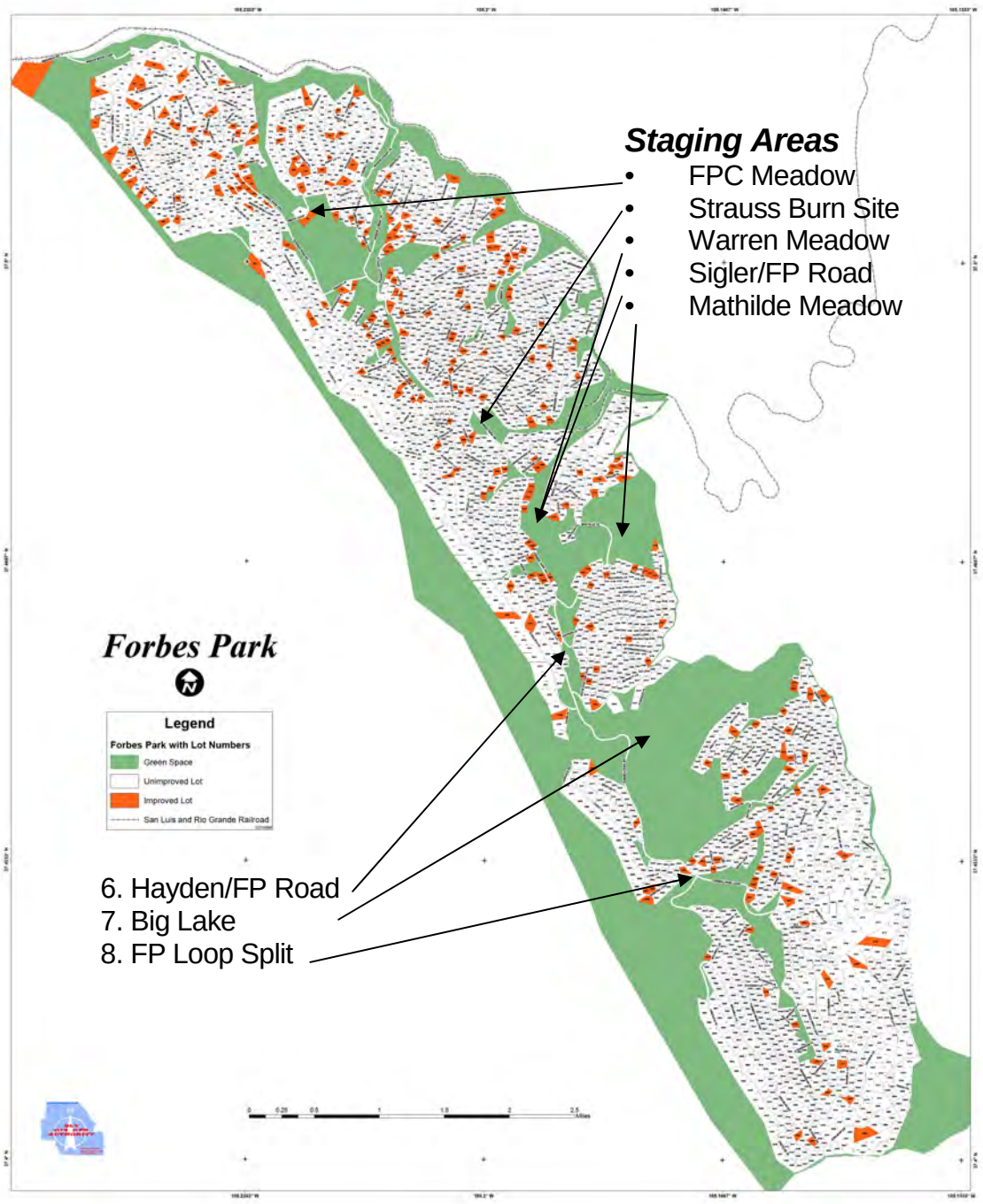
The Forbes Park intends to assess the progress annually and invite Agencies and members to submit projects that provide community protection. Additional projects will be displayed in an updated appendix to this plan.

8.2 CWPP Annual Effectiveness Checklist

1. Are we mitigating annually to keep designated fuel breaks, roadway creek crossings and evacuation routes clear of debris and fuel hazards?
2. Have wildfire impacts changed this year for our watersheds, open spaces and wildlife habitat?
3. Are there any new structural mitigation priorities?
4. Are we continuing public fire safety education efforts such as meetings with discussions on healthy forests and defensible space?
5. Did we update our emergency maps this year?
6. Can we make any improvements to water delivery systems?

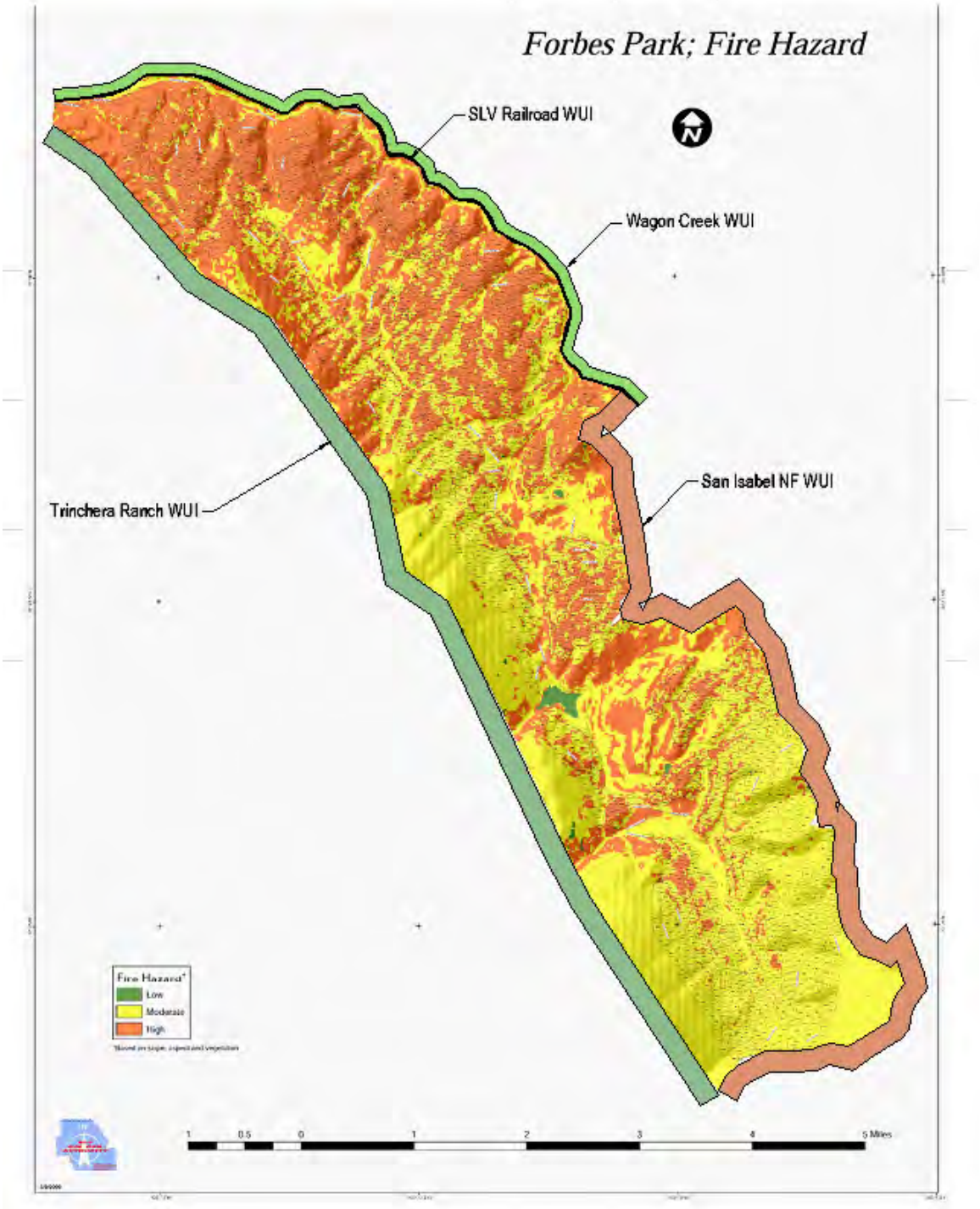
APPENDICES

Appendix A - Forbes Park Structures and Staging Areas[13]



[13] This map reflects conditions prior to the 2018 Spring Fire

Appendix B - Forbes Park WUI and Fire Hazard Map[14]



[14] This map reflects conditions prior to the 2018 Spring Fire

Appendix C - Wildland Fire Risk and Hazard Severity Assessment

(Circle the most appropriate element in each category and total the points)

Home owner: _____ **County:** _____
Address: _____ **City:** _____ **Zip:** _____

Element	Assessed Points
A. Means of Access	
1. Ingress and egress	
a. Two or more roads in/out	0
b. One road in/out	7
2. Road width	
a. ≥ 7.3 m (24 ft.)	0
b. 6.1 m to 7.3 m (20 to 24 ft)	2
c. < 6.1 m (20 ft.)	4
3. All-season road condition	
a. Surfaced road, grade < 5%	0
b. Surfaced road, grade > 5%	2
c. Non-surfaced road, grade < 5%	2
d. Non-surfaced road, grade > 5%	5
e. Other than all-season	7
4. Fire Service Access	
a. ≤ 91.4 m (300 ft.) with turnaround	0
b. > 91.4 m (300 ft.) with turnaround	2
c. < 91.4 m (300 ft.) with no turnaround	4
d. ≥ 91.4 m (300 ft.) with no turnaround	5
5. Street signs	
a. Present: 10.2 cm (4 in.)in size and reflectorized	0
b. Not present	5
B. Vegetation (Fuel Models)	
1. Characteristics of predominate vegetation within 91.4m (300 ft)	
a. Light (e.g. grasses, forbs, sawgrasses, & tundra) NFDRS fuel models A, C, L, N, S, and T	5
b. Medium (e.g. light brush and small trees) NFDRS fuel models D, E, F, H, P, Q and U	10
c. Heavy (e.g. dense brush, timber, and hardwoods) NFDRS fuel models B, G, and O	20
d. Slash (e.g. timber harvesting residue) NFDRS fuel models J, K, and L	25
2. Defensible space	
a. More than 30.48 m (100 ft) of vegetation treatment from the structure(s)	1
b. 21.6 - 30.48 m (71 - 100 ft) of vegetation treatment the structure(s)	3
c. 9.1 - 21.3 m (30 - 70 ft) of vegetation treatment from the structure(s)	10
d. < 9.1 m (30 ft) of vegetation treatment from the structure(s)	25
C. Topography within 91.4 m (300 ft.) of structure(s)	
1. Slope < 9%	1
2. Slope 10% to 20%	4
3. Slope 21% to 30%	7
4. Slope 31% to 40%	8
5. Slope > 41%	10

Hazard Rating	Total Points
1. Low hazard	< 40
2. Moderate hazard	40 - 69
3. High hazard	70 - 112
4. Extreme hazard	> 112

Source: NFPA 1144 Standard for the Protection of Life and Property from Wildfire, 2002 edition, NFPA, Quincy,

Element	Assessed Points
D. Additional Rating Factors (rate all that apply)	
1. Topographical features that adversely affect wildland fire behavior	0 1 2 3 4 5
2. Areas with a history of higher fire occurrence than surrounding areas due to special situations (e.g. Heavy lightning, railroads, escaped debris burning, arson, malicious burning)	0 1 2 3 4 5
3. Areas that are periodically exposed to unusually severe fire weather and strong dry winds	0 1 2 3 4 5
4. Separation of adjacent structures that may contribute to fire spread	0 1 2 3 4 5
E. Roofing Assembly	
1. Class A roof	0
2. Class B roof	3
3. Class C roof	15
4. Nonrated	25
F. Building Construction	
1. Materials (predominate)	
a. Noncombustible/fire resistive siding, eaves, & deck	0
b. Noncombustible/fire resistive siding, combustible deck	5
c. Combustible siding and deck	10
2. Building setback relative to slopes > 30%	
a. ≥ 9.1 m (30 ft.) to slope	1
b. < 9.1 m (30 ft.) to slope	5
G. Available Fire Protection	
1. Water source availability	
a. Pressurized water source availability 1892.7lpm (500gpm) hydrants ≤304.8m(1000ft)apart	0
946.4lpm (250gpm) hydrants ≤304.8m(1000ft)apart	1
b. Non-pressurized water source availability (off site) ≥ 946.4 lpm (250 gpm) continuous for 2 hours	3
< 946.4 lpm (250 gpm) continuous for 2 hours	5
c. Water unavailable	10
2. Organized response resources	
a. Station ≤ 8km (5 mi.) from structure	1
b. Station > 8km (5 mi.) from structure	3
3. Fixed fire protection	
a. NFPA 13, 13R, 13D sprinkler system	0
b. None	5
H. Placement of Gas and Electric Utilities	
1. Both utilities underground	0
2. One underground and one aboveground	3
3. Both aboveground	5

Totals for Home or Subdivision:
(Total of circled points) _____

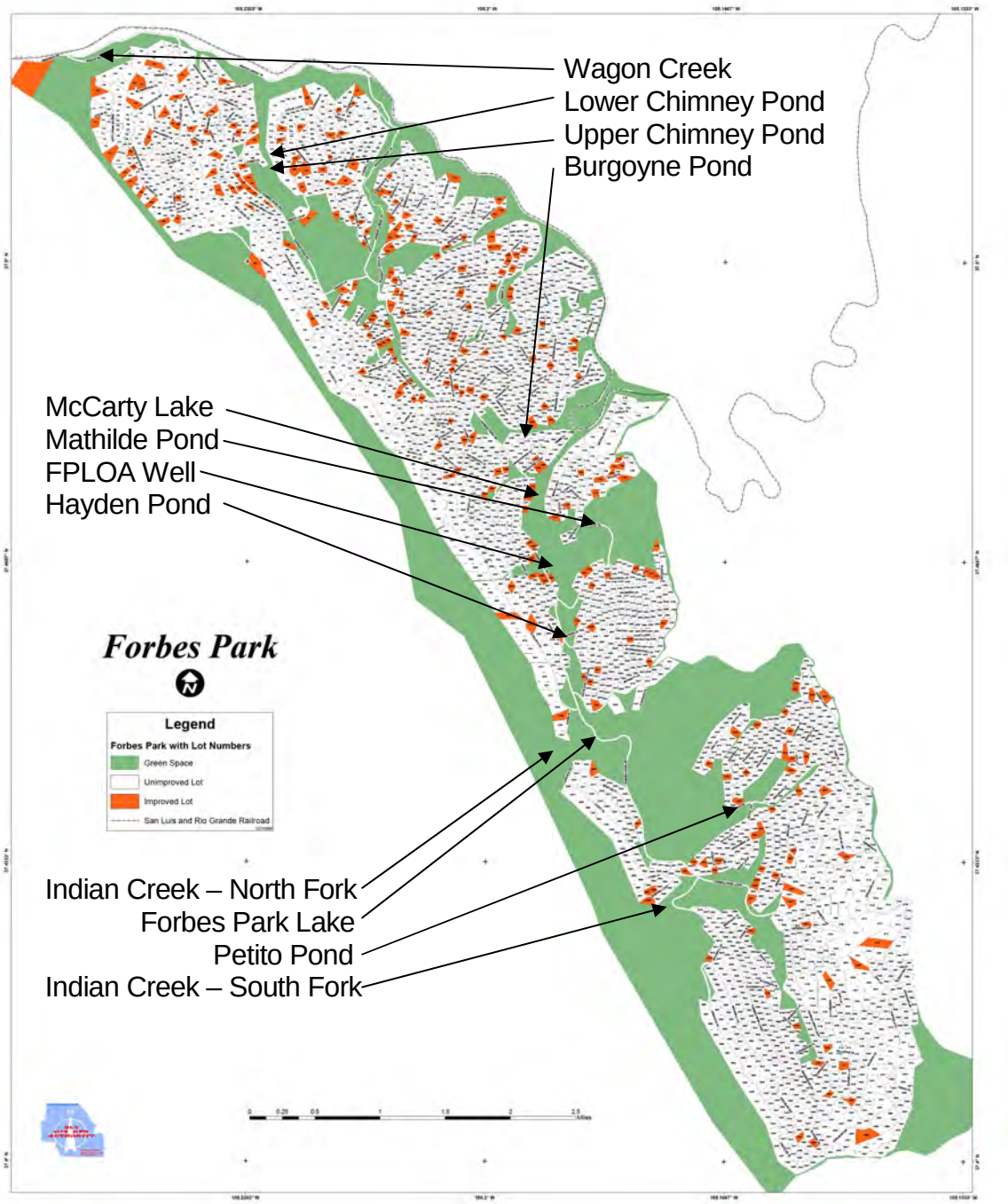
Hazard Rating: _____

Rater: _____

Fire Department: _____

Date: _____

Appendix D - Water Resources in Forbes Park



Appendix E - Emergency Evacuation Checklist

These recommendations are made considering: You may be away from your home for several days, and when you return, your home may not be there. For additional guidance review CSU brochure "Forest Home Safety", No. 6.304[15],

1. **Pour stored gasoline &/or diesel fuel into vehicle's fuel tank.**
2. **Turn off Propane at the tank.**
3. **Pack food, water, clothing, & blankets for 3 days and nights; consider cold nights even in summer months.**
4. **Compactly pack emergency supplies: battery-powered radio, flashlights/lanterns with extra batteries, signal devices (whistle, mirror, and flares), compass, local area map, and charged cell phone. Consider putting these in small backpack.[16]**
5. **Pack your prescription and non-prescription medications and first-aid kit.**
6. **Close shades and blinds to shield valuables from possible looting.**
7. **Wallet with photo ID, credit cards, and checkbook(s); keys: house & all vehicles; eyeglasses; special items for children, elderly, or disabled family members.**
8. **Consider taking small, transportable valuables and important documents.**
9. **Time permitting; notify one non-local family member of evacuation.**
10. **After collecting all needed water, turn off master switch at breaker box.**
11. **When evacuating, wear protective clothing: sturdy shoes, cotton or woolen clothing, long pants, long-sleeved shirt, gloves, and carry a handkerchief to protect face.**
12. **If you are transporting your pets, be sure to bring food and water and any special needs for your pet, e.g. leashes and carrying case. Remember you may have to stay in an area with several pets that may not be as well behaved as yours.**

[15] http://www.ext.colostate.edu/pubs/natres/06304.html

[16] Consider packing these items before the evacuation is ordered. Wildfires can move very rapidly. If you have not packed these items prior to a wildfire, make sure you have enough time to complete the list.

Appendix F - Landowner Staging Area Coordinator Roles and Responsibilities

The roles of a landowner Staging-Area-Coordinator (SAC) are to monitor and report the status of the staging area to the IC. Specific responsibilities include, but are not limited to:

1. Communicate fire status to occupants of the staging area.
2. Monitor staging area activities
3. Maintain list of occupants
4. Maintain calmness and order within area
5. Coordinate evacuation as specified by the IC

Staging Area Procedures

Procedures and their proper execution are the backbone of providing a safe and effective Staging Area. The following procedures will be adhered to by all SAC:

1. Gather First Response kit and proceed to assigned Safe Zone
2. Greet each arriving vehicle and gather following information:
   a. Compile list of names of all individuals staying the zone and their addresses
   b. Compile a list of names and addresses of persons that may be missing, or may need special assistance
3. Engage occupants in managing site to reduce local fire danger
4. Identify vehicles suitable for emergency evacuation. Assign individuals to vehicles, as required, in preparation for emergency evacuation.
5. Insure parked vehicles do not block access to the safe area. Drivers should leave their vehicles unlocked and the keys where they can be readily found in case the vehicle must be moved.

Training

Each SAC shall be trained in at least the following skills:

1. First Aid
2. Recognition and mitigation of fire hazards in the safety zone
3. Evacuation route orientation

Appendix G – Signature Page

This CWPP:

1. Was collaboratively developed. Interested parties in the region of this CWPP have been consulted.
2. Identifies and prioritizes areas for hazardous fuels reduction treatments and recommends the types and methods of treatment to reduce the wildfire threat to values at risk in the area.
3. Recommends measures to reduce the ignitability of structures throughout the area.

The following representatives of the entities required for CWPP approval mutually agree with and approve the contents of this Community Wildfire Protection Plan:

Prepared by: Forbes Park LOA & Colorado State Forest Service, Alamosa Field Office
This report is a collaborative effort between various entities. The representatives listed below comprise the core decision-making team responsible for this report and mutually agree on the plan's contents:

LOCAL FIRE DEPARTMENT REPRESENTATIVE AND OFFICE
Theldon Smith Costilla County Fire Protection District_____

STATE AGENCY REPRESENTATIVE
Adam Moore, Alamosa Supervisory Forester, Colorado State Forest Service_____

COMMUNITY REPRESENTATIVE
Gay Kohl, Forbes LOA, Board Chairperson_____

The list below is comprised of additional representatives from adjacent land management agencies or other government officials. They have reviewed and commented on the document.

LOCAL GOVERNMENT REPRESENTATIVE

Danny Sanchez, Costilla County Sheriff_____

Chris Rodriguez, Costilla County Emergency Manager _____

Robert Espinoza, Costilla County Commissioner _____

MUTUAL RESPONSE FIRE DEPARTMENT REPRESENTATIVE

Ron Jameson, La Veta Fire Protection District _____

STATE AGENCY REPRESENTATIVE

Devin Haynie, Battalion Chief – San Luis Valley, CO Division Fire Prevention and Control

_____

ADJACENT LAND MANAGEMENT

Dennis Page, Fire Management Officer, San Isabel National Forest _____

James Fischer, Forester, Trinchera Ranch _____

Ed Alvarez, President, Forbes-Wagon Creek ROA _____

The previous listed people have reviewed and approved the Forbes Park Land Owners Community Wildfire Protection Plan.

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Joseph Backes FPLOA PRESIDENT

THE HOME IGNITION ZONE

COLORADO STATE FOREST SERVICE
EST. 1955

A guide to preparing your home for wildfire and creating defensible space

Formerly Quick Guide FIRE 2012-1: Protecting Your Home From Wildfire

Reducing Your Home's Wildfire Risk Begins With You

WHY?

Homeowners have the ultimate responsibility to proactively prepare their property for wildfire. By creating and maintaining the home ignition zone, residents can improve the likelihood of their home surviving a wildfire and reduce the negative impacts wildfires can have on their property.

In Colorado, if you live in the wildland-urban interface, it is not a matter of *if* a wildfire will impact your home and property, but *when*.

If your home is located in or near the natural vegetation of Colorado's grasslands, shrublands, foothills or mountains, you live in the wildland-urban interface — also known as the WUI — and are inherently at risk from a wildfire. This includes any areas where structures and other human developments meet or intermingle with wildland vegetative fuels.

Wildfires are a natural part of Colorado's varied ecosystems. Planning ahead and taking actions to reduce the risk of wildfires can increase the likelihood your home survives when wildfires occur.

As more people choose to live in wildfire-prone areas, additional homes and lives are potentially threatened every year. Firefighters always do their best to protect residents, but **ultimately, it is your responsibility to protect your property and investments from wildfire**.

This guide focuses on actions that are effective in reducing wildfire hazards on your property. It is important to recognize that these efforts should always begin with the home or structure itself and progress outwards.

Also, remember that taking wildfire risk reduction steps is not a one-time effort — it requires ongoing maintenance. It may be necessary to perform some actions, such as removing pine needles from gutters and mowing grasses and weeds, several times a year. Other actions may just need to be addressed annually or only once.

While you may not be able to accomplish all of these actions at once to prepare your home and property for wildfire, each completed activity will improve the safety of your home during a wildfire. However, it is important to remember there are no guarantees when it comes to wildfire. Implementing risk reduction actions does not guarantee your home will survive a wildfire, but it does improve the odds.

Knowing that wildfire impacts are inevitable, it is not only important for individuals to work on their own homes, but also for residents to work together to increase their community's resilience to wildfire. To become fire adapted, actions must not only be taken before a wildfire

As the 416 Fire burned near Durango in 2018, firefighters conducted burnouts near homes in the fire's path to eliminate fuel for the main fire and provide a secure control line. The work done by homeowners to create the defensible space buffer visible here gave firefighters the option to safely conduct the operation. Photo: Jerry McBride, Durango Herald

arrives but during and after a fire.

The National Cohesive Wildland Fire Management Strategy defines a fire-adapted community as "a human community consisting of informed and prepared citizens collaboratively planning and taking action to safely coexist with wildland fire."

In order to increase the likelihood homes and infrastructure survive a wildfire, all landowners must work together to reduce fire hazards within and adjacent to communities. This includes work on individual home sites and common areas within communities. Every community member has a role in fire adaptation, from civic leaders, to developers, to first responders, to homeowners and land management agencies.

MORE THAN

HALF

of Colorado residents live in the wildland-urban interface and are at some risk of being affected by wildfire.

Source: CSFS WUI Risk Assessment 2017

Access WUI risk information coloradoforestatlas.org

Reduce your wildfire risk csfs.colostate.edu

Protect your community fireadaptednetwork.org

What Is the Home Ignition Zone?

HOME IGNITION ZONE (HIZ)

is the home and the area around the home (or structure). The HIZ takes into account both the potential of the structure to ignite and the quality of defensible space surrounding it.

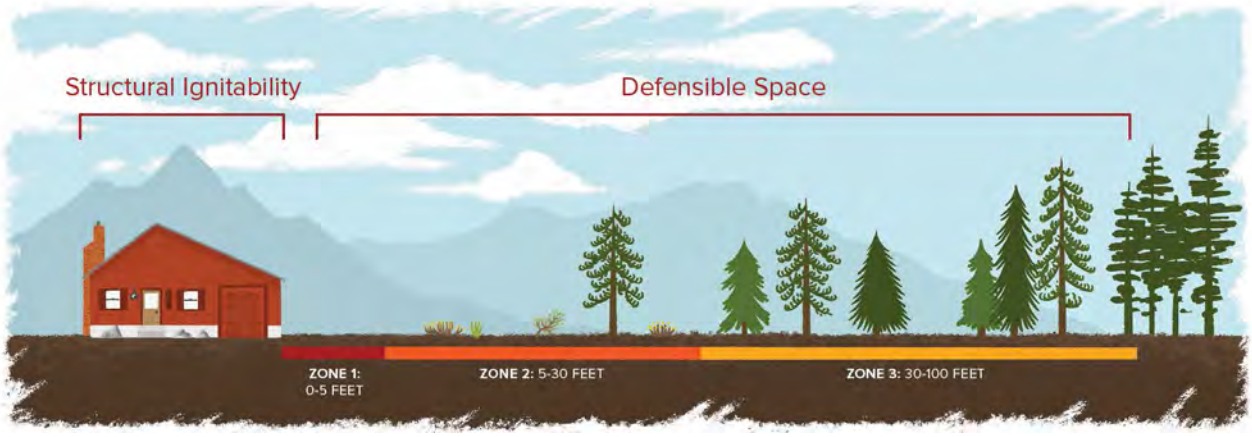


Illustration: Bonnie Palmatory, Colorado State University

The two primary determinants of a home's ability to survive a wildfire include the structure's ignitability and the quality of the surrounding defensible space. Together, these two factors create a concept called the home ignition zone, or HIZ. It includes the structure and the space immediately surrounding it.

The space around the home is divided into three distinct spaces of management, zones 1, 2 and 3. Pages 8-9 outline specific goals and critical steps to manage your property within each of these zones.

To reduce wildfire hazards to your home and property, the most effective proactive steps to take are to minimize the ability of the home to ignite and to reduce or eliminate nearby fuel.

METHODS OF HOME IGNITION

1. EMBER IGNITION

Embers (firebrands) are small pieces of burning material that can be transported by wind more than a mile ahead of a wildfire's flaming front. Embers can vary greatly in size, but even the smallest can start new fires (known as spot fires) on any ignitable surface they encounter, inside or outside a home. This is the most common source of home ignition during wildfires.

Flammable horizontal or nearly horizontal surfaces, such as wooden decks or shake-shingle roofs, are at greater risk for ignition from burning embers.

Many homes in the wildland-urban interface have burned because of airborne embers, so addressing structural ignitability is critical even if it appears difficult for fire to spread in the area surrounding a home.

2. SURFACE FIRE/ DIRECT FLAME CONTACT

If fuels are adjacent to a home, direct flame contact can ignite the house. Ensuring no such fuels exist within 5 feet of a home, particularly near windows or under decks, greatly minimizes this possibility.

3. RADIANT HEAT

Radiant heat is what you feel on your hands while warming them next to a campfire. This same type of heat transfer can ignite a home, whether the source of the heat is a crown fire in treetops or an adjacent home that has caught fire.

Flying embers are the most common source of home ignition during wildfires. Preparing homes for their impact is critical. Embers can ignite leaf litter in gutters and on roofs, as well as shrubs and mulch at the base of the house, as seen in this controlled ember shower experiment. Photo: Insurance Institute for Business & Home Safety

What Is Defensible Space?

DEFENSIBLE SPACE
is the area around a home (or structure) that has been modified to reduce fire hazard by creating space between potential fuel sources.

Firefighters may not be present at your home during a wildfire — they are trained to protect structures only when the situation is safe for them. You should prepare your home and property to withstand wildfire without firefighter intervention. Having an effective defensible space combined with reducing structural ignitability is the best way to improve your home's chance of survival.

Defensible space is the area around a home or other structure that has been modified to reduce fire hazard by creating a disconnected fuel load both vertically and horizontally. In this area, natural and manmade fuels are treated, removed or reduced to slow the spread of wildfire and alter fire behavior.

ATTENTION
These guidelines are adapted for ponderosa pine, Douglas-fir and mixed-conifer forest types below 9,500 feet.

SEE PAGE 14 *for guidelines adapted to other forest types.*

Establishing defensible space reduces the likelihood of a home igniting by direct flame contact or by radiant heat exposure. It also helps limit local production of embers and reduces the chance a structure fire will spread to neighboring homes or surrounding vegetation.

BEFORE

AFTER

A Colorado State Forest Service forest management project near Evergreen cleared dense trees in a residential area to reduce wildfire risk. The same tree with a crooked trunk in the center of these photos shows how tree thinning can be a useful tool to protect property, decrease fire intensity and boost forest health. Photo: Emma Brokl, CSFS

CREATING AN EFFECTIVE DEFENSIBLE SPACE involves establishing a series of management zones. Develop these zones around each building on your property, including detached garages, storage buildings, barns and other structures.

Recognize that fuel continuity and density play a critical role in wildfire behavior.

As you plan defensible space for your property, you can contact your nearest Colorado State Forest Service field office for guidance, or consult a forester, fire department staff or community organization appropriately trained in wildfire mitigation practices.

3 Factors Determine Wildfire Behavior

1. FUELS
2. WEATHER
3. TOPOGRAPHY

Of the three things wildfires need to start and spread, humans cannot change weather or topography, so we must concentrate on altering fuels in order to have any control over a disturbance as dynamic as wildfire.

Fuels can include vegetation like trees, brush and grass; but when near homes, fuels also include propane tanks, woodpiles, sheds and even homes themselves.

East Troublesome Fire. Photo: Zach Wehr, CSFS

Top left: *Hardening your home can include choosing noncombustible building materials like stucco paired with a stone facade. This house near Salida shows you don't have to sacrifice curb appeal to reduce the ignitability of your house. Photo: CSFS*

Top right: *Preparing your home for wildfire can be accomplished as weekend projects, such as clearing vegetation from around your home's perimeter and adding noncombustible material near the foundation that won't ignite if embers land there. Photo: Wildfire Partners*

Bottom: *A metal roof and noncombustible exterior window coverings add layers of protection against wildfire, in addition to the well-maintained defensible space that surrounds this home. Photo: Wildfire Partners*

MORE ONLINE

This guide provides only basic information about structural ignitability.

The National Fire Protection Association (NFPA) and the Insurance Institute for Business & Home Safety (IBHS) together produce Wildfire Research Fact Sheets that provide additional valuable information.

Visit the "Protect Your Home" section at the CSFS website, csfs.colostate.edu/wildfire-mitigation, for links to these and other structural ignitability resources.

Harden Your Home Against the Threat of Wildfire

STRUCTURAL IGNITABILITY

is the likelihood the materials in and on your home will ignite during a wildfire. The practice of reducing structural ignitability is commonly called "home hardening."

The ideal time to address home ignition risk is when the structure is in the design phase. For existing homes, steps must be taken to reduce the structural ignitability in order to improve the likelihood of the home surviving a wildfire. The practice of reducing structural ignitability is commonly called home hardening.

BEST PRACTICES TO REDUCE STRUCTURAL IGNITABILITY

- ☐ Ensure the roof has a Class A fire rating
- ☐ Remove all leaves, needles and other debris from all decks, roofs and gutters
- ☐ Screen attic, roof, eaves and foundation vents with 1/8-inch metal mesh
- ☐ Screen or wall-in stilt foundations and decks with 1/8-inch metal mesh
- ☐ Use tempered glass for windows; two or more panes are recommended
- ☐ Create 6 inches of vertical clearance between the ground and home siding
- ☐ Replace combustible fencing or gates, at least within 5 feet of the home

STRUCTURAL COMPONENTS TO CONSIDER

WINDOWS

Windows can fail either from glass breaking or frames melting before a building ignites, providing a direct path for airborne embers to reach the building's interior. Metal screens should be installed. Windows with multiple panes provide greater protection than single-paned windows.

VENTS

Vents that are not screened or are screened with a gap that exceeds 1/8 of an inch can be a direct entry point for embers to infiltrate a home and ignite it from the inside. Metal mesh screen that is 1/8-inch is small enough that most embers will be extinguished before making it inside.

SOURCE *NFPA/IBHS Wildfire Research Fact Sheet — Attic and Crawl Space Vents*

EXTERIOR WALLS

The exterior walls of a home or other structure are affected most by radiant heat from a fire and, if defensible space is not adequate, by direct contact with flames. Fiber cement board, brick, stucco or other fire resistant materials are recommended.

ROOF

The roof has a significant impact on a structure's ignitability because of its extensive surface area. When your roof needs significant repairs or replacement, choose only fire-resistant roofing materials. Wood and shake-shingle roofs are strongly discouraged because they are highly flammable and are prohibited in some areas of the state. Metal sheets, concrete or shingles made from asphalt, tile, clay, stone or metal are all recommended roofing materials. It is critical to keep the roof and gutters clear of flammable debris.

SOURCE *NFPA/IBHS Wildfire Research Fact Sheet — Roofing Materials*

ROOF EXTENSION

The extension of the roof beyond the exterior structure wall is called the eave. This architectural feature is particularly prone to ignition. As fire approaches a building, the exterior wall deflects hot air and gases up into the eave. If the exterior wall isn't ignition-resistant, the effect of the excess heat is amplified.

SOURCE *NFPA/IBHS Wildfire Research Fact Sheet — Under-Eave Construction*

DECKS/FENCES

Some decks and fences are readily combustible, whether made of synthetic (plastic/composite) or natural materials (wood). Many deck designs allow embers to accumulate between board gaps and at joists below deck boards. Embers can also fall through decks and may easily ignite flammable materials beneath, making it critical to remove all materials from underneath the deck. Regardless of how fuels below decks may ignite, these burning materials can readily ignite the deck and threaten the home.

Fencing material that attaches to the home must be considered a direct extension of the structure and should be made of a noncombustible material, at least where it is immediately adjacent to a home.

SOURCE *NFPA/IBHS Wildfire Research Fact Sheets — Fencing | Decks*

TO MANAGE YOUR HOME, LEARN THE

THREE ZONES

ZONE 1

0-5 FEET FROM THE HOME

The area nearest the home. This zone requires the most vigilant work in order to reduce or eliminate ember ignition and direct flame contact with your home.

ZONE 2

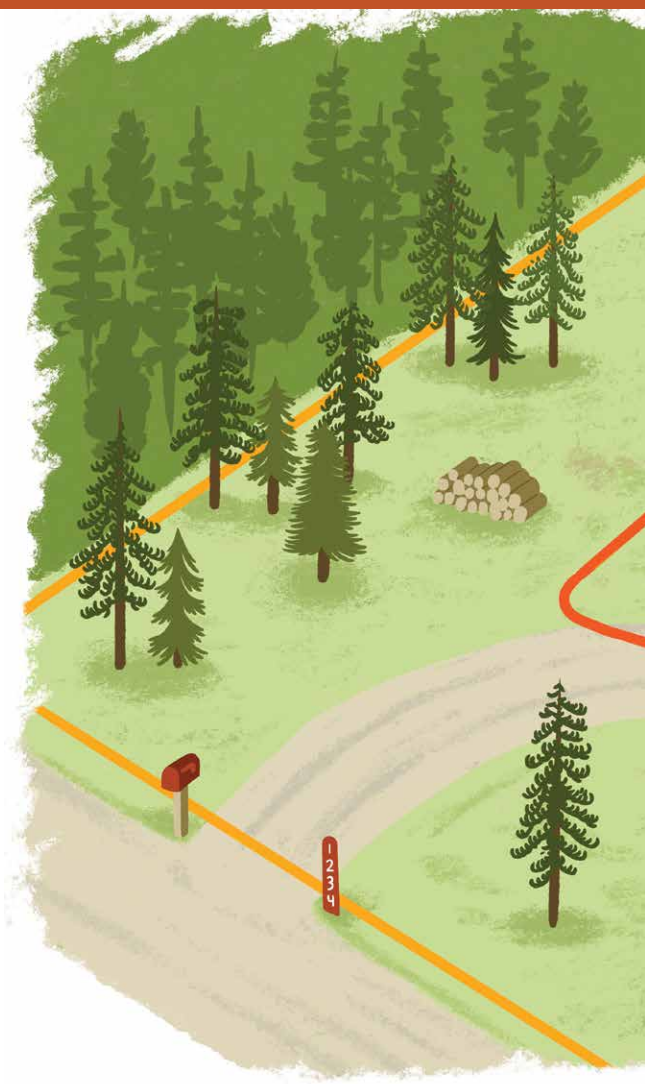
5-30 FEET FROM THE HOME

The area transitioning away from the home where fuels should be reduced. This zone is designed to minimize a fire's intensity and its ability to spread while significantly reducing the likelihood a structure ignites because of radiant heat.

ZONE 3

30-100 FEET FROM THE HOME

The area farthest from the home. It extends 100 feet from the home on relatively flat ground. Efforts in this zone are focused on ways to keep fire on the ground and to get fire that may be active in tree crowns (crown fire) to move to the ground (surface fire), where it will be less intense.



ZONE 1

GOAL: This zone is designed to prevent flames from coming in direct contact with the structure. Use nonflammable, hard surface materials in this zone, such as rock, gravel, sand, cement, bare earth or stone/concrete pavers.

CRITICAL STEPS

- ☐ Remove all flammable vegetation, including shrubs, slash, mulch and other woody debris.
- ☐ Do not store firewood or other combustible materials inside this zone.
- ☐ Prune tree branches hanging over the roof and remove all fuels within 10 feet of the chimney.
- ☐ Regularly remove all pine needles and other debris from the roof, deck and gutters.
- ☐ Rake and dispose of pine needles, dead leaves, mulch and other organic debris within 5 feet of all decks and structures. Farther than 5 feet from structures, raking material will not significantly reduce the likelihood of ignition and can negatively affect other trees.
- ☐ Do not use space under decks for storage.

ZONE 2

GOAL: This zone is designed to give an approaching fire less fuel, which will help reduce its intensity as it gets nearer to your home or any structures.

CRITICAL STEPS

- ☐ Mow grasses to 4 inches tall or less.
- ☐ Avoid large accumulations of surface fuels such as logs, branches, slash and mulch.
- ☐ Remove enough trees to create at least 10 feet* of space between crowns. Measure from the outermost branch of one tree to the nearest branch on the next tree.
- ☐ Small groups of two or three trees may be left in some areas of Zone 2. Spacing of 30 feet* should be maintained between remaining tree groups to ensure fire doesn't jump from one group to another.
- ☐ Remove ladder fuels under remaining trees. This is any vegetation that can bring fire from the ground up into taller fuels.
- ☐ Prune tree branches to a height of 6-10 feet from the ground or a third of the total height of the tree, whichever is less.
- ☐ Remove stressed, diseased, dead or dying trees and shrubs.

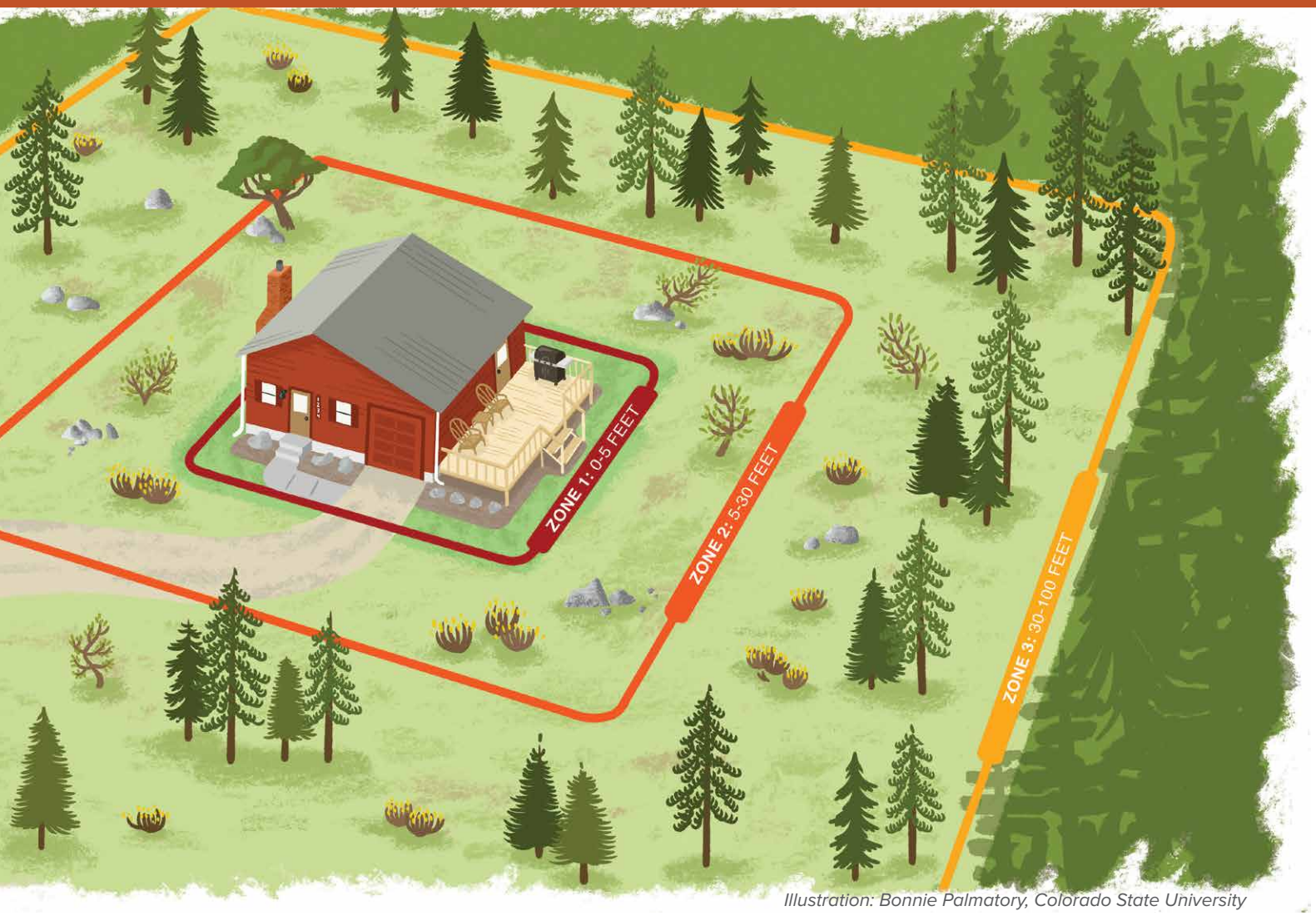


Illustration: Bonnie Palmatory, Colorado State University

This reduces the amount of vegetation available to burn and improves forest health.

- ☐ Common ground junipers should be removed whenever possible because they are highly flammable and tend to hold a layer of flammable material beneath them.
- ☐ You can keep isolated shrubs in Zone 2, as long as they are not growing under trees. Keep shrubs at least 10 feet* away from the edge of tree branches.
- ☐ Periodically prune and maintain shrubs to prevent excessive growth. Remove dead stems annually.
- ☐ Spacing between clumps of shrubs should be at least 2 ½ times* their mature height. Each clump should have a diameter no more than twice the mature height of the vegetation. Example: For shrubs that grow 6 feet tall, space clumps 15 feet apart or more (measured from the edge of the crowns of vegetation clumps). Each clump of these shrubs should not exceed 12 feet in diameter.

** Horizontal spacing recommendations are minimums and can be increased to reduce potential fire behavior, particularly on slopes. Consult a forestry, fire or natural resource professional for guidance with spacing on slopes.*

ZONE 3

GOAL: This zone focuses on mitigation that keeps fire on the ground, but it's also a space to make choices that can improve forest health. Healthy forests include trees of multiple ages, sizes and species, where adequate growing room is maintained over time.

If the distance of 100 feet to the edge of Zone 3 stretches beyond your property lines, it's encouraged to work with adjoining property owners to complete an appropriate defensible space. If your house is on steep slopes or has certain topographic considerations, this zone may be larger.

STEPS TO CONSIDER

- ☐ Mowing grasses is not necessary in Zone 3.
- ☐ Watch for hazards associated with ladder fuels. The chance of a surface fire climbing into the trees is reduced in a forest where surface fuels are widely separated and low tree branches are removed.
- ☐ Tree crown spacing of 6-10 feet is suggested. Consider creating openings or meadows between small clumps of trees so fire must transition to the ground to keep moving.
- ☐ Any approved method of slash treatment is acceptable in this zone, including removal, piling and burning, lop and scatter, or mulching. Lop-and-scatter or mulching treatments should be minimized in favor of treatments that reduce the amount of woody material in the zone. The farther this material is from the home, the better.

Make Home Ignition Zone Maintenance a Priority

WHY?

The home ignition zone requires regular, ongoing maintenance to be effective. Your home is located in a dynamic environment — trees, grasses and shrubs continue to grow, die and drop leaves each season, and there are ongoing maintenance needs on any structures on your property.

HOME IGNITION ZONE CHECKLIST

PREPARE YOUR HOME FOR WILDFIRE WITH THESE STEPS

TOP PRIORITIES

- ☐ **CLEAR** roof, deck and gutters of pine needles and other debris.*
- ☐ **MOW** grass and weeds to a height of 4 inches or less.*
- ☐ **RAKE AND REMOVE** all pine needles and other flammable debris from 5 feet around the foundation of your home and deck.*
- ☐ **TREAT** or mow shrubs that re-sprout aggressively (such as Gambel oak) every 3-5 years or more depending on growth rates.
- ☐ **REMOVE** branches that hang over the roof and chimney.
- ☐ **DISPOSE** of slash from thinning trees and shrubs by chipping, hauling to a disposal site or piling in open areas for burning later. *Any accumulation of slash that's chipped or otherwise should be 30 feet or more from the home.**
- ☐ **AVOID** creating continuous areas of wood chips on the ground when chipping logs and/or slash. Break up the layer of wood chips by adding nonflammable material, or allow for wide gaps of at least 3 feet between chip accumulations.

** Address as needed, more than once a year.*

FIREWOOD

- ☐ Keep firewood stacked uphill from (or at the same elevation as) any structures, and keep the woodpile at least 30 feet away from the home.
- ☐ Do not stack firewood between remaining trees, underneath the deck or on the deck.
- ☐ Remove flammable vegetation within 10 feet of woodpiles.

PROPANE TANKS

- ☐ Keep aboveground tanks at least 30 feet from the home, preferably on the same elevation as the house.
- ☐ Remove flammable vegetation within 10 feet of all propane tanks and gas meters.

DRIVEWAYS

- ☐ Maintain at least 10 feet between tree crowns, thinning them a minimum of 30 feet back from each side of the driveway from the house to the main access road.
- ☐ Remove ladder fuels beneath trees after thinning.
- ☐ Remove any shrubs that are within 10 feet of the outer edge of tree crowns.
- ☐ Space shrubs apart at least 2 ½ times their mature height, as measured from the edge of the shrubs.
- ☐ Post signs at the end of the driveway with your house number that are noncombustible, reflective and easily visible to emergency responders.

SOLUTIONS FOR MANAGING SLASH

1. Spread slash and wood chips over a large area to avoid heavy accumulations and large piles. Being close to the ground will help speed decomposition.
2. Burn slash piles, but before doing so, always contact your county sheriff's office or local fire department for current information or possible restrictions.
3. Lop and scatter slash by cutting it into small pieces (less than 24 inches long) and spreading it over a wide area, to a depth not exceeding 18 inches. Don't scatter material over 4 inches in diameter.

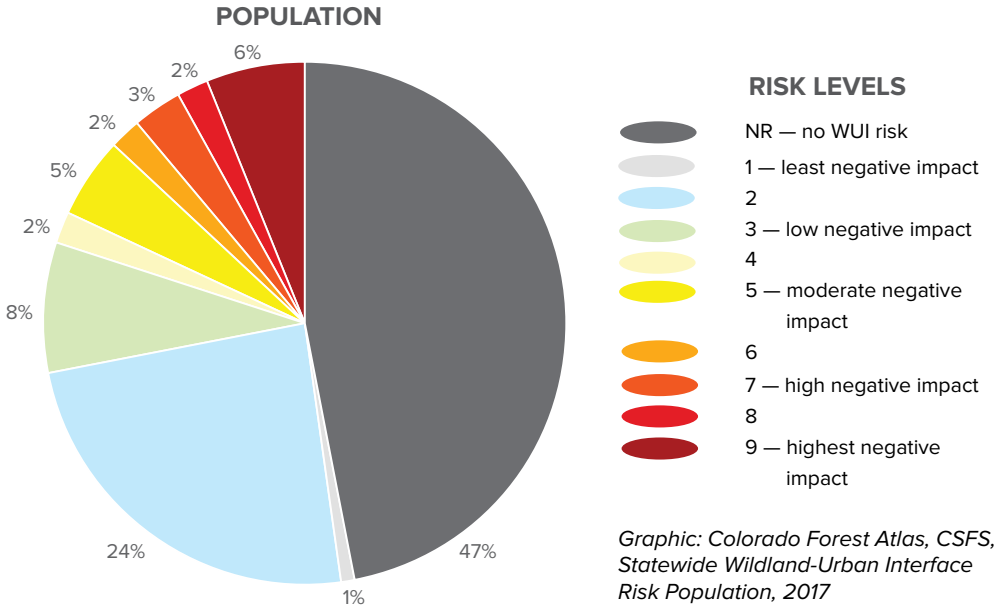
The Colorado State Forest Service works with communities to reduce wildfire risk and become recognized Firewise USA® sites, an accomplishment Piñon Ridge Estates in Chaffee County earned in 2021. CSFS forester Josh Kuehn, right, presents Craig Sommers of Piñon Ridge, with a sign for the community after residents completed the steps required for program recognition. In 2019, the Decker Fire came within a mile and a half of the neighborhood. Photo: Chaffee Chips

More Than Half of Colorado Residents Live With Some Wildfire Risk

The wildland-urban interface (WUI) includes the portions of Colorado where human development meets wildland vegetation.

The majority of Coloradans live in the WUI, in places with at least some risk of wildfire. And that number continues to increase as more residents build homes in the WUI.

As of 2017, the WUI covered about 3.2 million acres in Colorado. By 2040, the WUI area could encompass over 9 million acres in the state, according to projections from Colorado government models.



Graphic: Colorado Forest Atlas, CSFS, Statewide Wildland-Urban Interface Risk Population, 2017

Additional Wildfire Mitigation Resources Online

- Colorado State Forest Service wildfire mitigation information and publications
  csfs.colostate.edu/wildfire-mitigation
- Colorado Wildfire Risk Viewer and Risk Reduction Planner
  coloradoforestatlas.org
- Community Wildfire Protection Planning
  csfs.colostate.edu/wildfire-mitigation/community-wildfire-protection-plans
- National Fire Protection Association: Firewise USA®
  nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA
- Insurance Institute for Business & Home Safety
  ibhs.org/risk-research/wildfire
- Fire Adapted Communities Learning Network
  fireadaptednetwork.org

Fuel Types and Arrangements

FUEL
is any material that will burn.

Whether in a wildland or urban location, when fuels are abundant and there's no space between them, a fire can quickly become uncontrollable and destructive. But when fuels are scarce and separated, a fire cannot build momentum and intensity, which makes it more manageable.

The closer together the fuels are near your home, the bigger the threat they pose.

Fuel hazard measures look at both horizontal and vertical fuels, factoring in the type, amount and arrangement of fuels (called continuity and uniformity). Horizontal continuity is how the fuels are arranged laterally across the ground or among plant canopies. Vertical continuity refers to fuels extending from the ground into the crowns of trees and shrubs.

Fuels with a high degree of both vertical and horizontal continuity are the most hazardous, particularly when they occur on slopes.

Mitigating wildfire hazards in the home ignition zone disrupts this fuel continuity, which helps reduce a fire's intensity and potential sources of home ignition.

SURFACE FUELS

Colorado State Forest Service

GRASSES

Grasses are perhaps the most pervasive and abundant surface fuel in Colorado. When available to burn, grasses can catch fire easily, and grass fires often spread rapidly. They also burn out quickly and do not release as much energy as fires in larger fuel types, like trees. Nonetheless, grass fuels can readily ignite structures that are directly adjacent to them.

Colorado State Forest Service

NEEDLES/LEAVES

Needles and leaf litter accumulate naturally in forests across the state. Long needles from pines like ponderosa and broadleaf litter from trees like aspen, cottonwood and maple do not compact as readily as other leaf types. Fire in these fuels can spread rapidly, particularly during windy conditions.

Shorter needle litter from spruce, fir and lodgepole pines compacts more readily and does not generally spread as fast.

Needles and leaves that ignite anywhere on or adjacent to a structure can cause damage and loss.

Colorado State Forest Service

LOGS/BRANCHES/SLASH/ WOOD CHIPS (MULCH)

Naturally occurring woody material on the ground and debris left from cutting down trees and shrubs (slash) are an important part of the fuel complex near structures.

This larger and denser material generates more heat than smaller fuels do, and it can be problematic when it is burning near structures.

Ultimately, the farther away from a structure that large amounts of these materials can be moved, the better.

MORE: *A guide to mulched materials is available on the Colorado Forest Restoration Institute website,* cfri.colostate.edu.

A firefighter monitors a burnout on the 416 Fire in southwest Colorado in 2018. This effort to manage the wildfire by eliminating fuels left of the train tracks illustrates how fire can transition through different fuel types and arrangements. Photo: Kyle Miller, Wyoming Interagency Hotshot Crew

VERTICAL/LADDER FUELS

Kari Greer

LADDER FUELS

Ladder fuels are burnable materials such as smaller trees and brush that provide a means for fire to climb vertically and continue into aerial fuel sources. Ladder fuels allow a fire to leave the ground level and burn up into the branches and crowns of larger vegetation. Lower branches on large trees also can act as ladder fuels.

These fuels are potentially very hazardous but are generally easy to mitigate. Pay close attention to ladder fuels near homes, as they are extremely hazardous and especially important to address.

InciWeb

BRUSH/SHRUBS

Examples of common brush fuels in Colorado are sagebrush, bitterbrush and mountain mahogany.

As with any type of fuel, brush that is close together and adjacent to homes is hazardous.

In dry climates like Colorado, brush fuels are generally dense and contain more material in a given space than grasses. Brush also usually grows larger and burns longer and more intensely than grass when it ignites.

This makes brush fires more complex, particularly when the brush grows under trees or in large, uniform stands.

CROWN (AERIAL) FUELS

Kari Greer

CROWN FUELS

An intense fire burning in surface fuels can transition into the upper portion of the tree canopies and become a crown fire. Crown fires are dangerous because they are intense, often move rapidly, can burn large areas, and produce embers that can travel great distances and start spot fires well ahead of the main fire.

Crown fire hazard can be reduced by thinning trees to decrease crown fuels, reducing surface fuels under the remaining trees and eliminating vertical fuel continuity from the ground into the crowns.

See recommendations on pages 8-9 of this guide.

Forest Types

Recommendations in this guide refer primarily to ponderosa pine, Douglas fir and mixed-conifer ecosystems below 9,500 feet in elevation.

Those who live in or near other forest types can follow these additional recommendations.

PIÑON-JUNIPER

Fires in piñon-juniper forests tend to burn intensely in the crowns of trees under windy conditions.

When thinning these trees on a property, create a mosaic pattern that is a mixture of individuals and clumps of three to five trees. The size of each clump will depend on the size, health and location of the trees. The minimum spacing between the crowns of individual trees is 10 feet, increasing for larger trees, clumps and stands on steeper slopes.

Pruning trees for defensible space is not as critical in piñon-juniper forests as it is in pine or fir forests. Instead, it is more important to space the trees so it is difficult for a fire to move from one tree clump to the next. These trees should only be pruned to remove branches that are dead or are touching the ground. Live branches can be pruned up to 3 feet above the ground, or a third the height of the tree, whichever is less. Removing shrubs growing beneath piñon and juniper canopies is recommended.

Pruning live branches or removing and processing these trees is not recommended between April and October, when the piñon Ips beetle is active in Colorado. Thinning activity that stimulates sap flow in summer months can attract these beetles to healthy trees. It is acceptable to remove dead trees and dead branches during the summer.

LODGEPOLE PINE

Older lodgepole pine stands generally do not respond well to selective thinning, but instead respond better to removing all trees over a defined area to allow healthy forest regeneration.

Selectively thinning lodgepole can open the stand to severe windthrow and stem breakage. However, if your home is located within a lodgepole pine forest, you may prefer selective thinning instead of removing all the standing trees.

Thinning older stands of lodgepole pine to the extent recommended for defensible space may require several attempts spaced over a decade or more. No more than 30 percent of the trees in a mature stand should be removed in each thinning operation. Focus on removing trees that are obviously lower in height or suppressed in the forest canopy. Leaving the tallest trees will make the remaining trees less susceptible to windthrow.

Another option is leaving clumps of 30-50 trees. Clumps are less susceptible to windthrow than solitary trees. Allow a minimum of 30-50 feet between tree crowns on the clump's perimeter and any adjacent trees or clumps of trees.

To ensure a positive response to thinning throughout the life of a lodgepole pine stand, trees must be thinned early. Begin when trees are small saplings and maintain low densities within the stand as the trees mature.

GAMBEL OAK

Maintaining Gambel oak forests that remain resistant to the spread of wildfire can be a challenge because of their vigorous growing habits. Gambel oak trees grow in clumps or groves, and the stems in each clump originate from the same root system. Most reproduction occurs through sprouts from this deep, extensive root system.

Treat Gambel oak near your home every three to five years, or more often depending on growing conditions. Sprouts should be mowed at least once a year. Herbicides can be used to supplement mowing and control regrowth when treating whole clumps.

This species can be "trained" to grow more like a tree than a shrub in some locations. Remove small diameter oak within clumps and any sprouts growing parallel to the ground.

SPRUCE-FIR

Spruce and fir trees tend to grow in association with each other.

Mature spruce and fir are prone to windthrow when heavily thinned. Light thinnings or leaving groups of trees will help mitigate this problem.

Their hardiness against the wind may not be a problem if a tree has grown to maturity in the open and isn't surrounded by other trees.

Spruce and fir tend to have crowns that extend to the ground. Eliminating lower branches that act as ladder fuels is recommended.

The spruce and Ips bark beetles are native to Colorado and infest Engelmann spruce and Colorado blue spruce. They are particularly attracted to recently fallen green trees and limbs, so it is important to remove any cut branches in a timely manner so surrounding healthy trees are not infested.

Photos: Colorado State Forest Service

ASPEN

Tree spacing and ladder fuel guidelines do not apply to mature stands of aspen trees.

Generally, no thinning is recommended in aspen forests, regardless of tree size, because the thin bark is easily damaged, which can make the tree highly susceptible to fungal infections.

However, in older stands, numerous dead trees on the ground do require removal. Conifer trees often start growing in older aspen stands and can grow up through these old, downed aspens. A buildup of these trees eventually will increase the fire hazard of the stand, so young conifers should be removed from these areas.

Brush also can increase fire hazard in aspen stands and should be thinned to reduce flammability.

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Cover Photography

FRONT
Top left: *Cleaning debris from gutters is a critical step to prevent home ignition. Photo: Wildfire Partners.* ***Top right:*** *Firefighters from Colorado's Platte Canyon Fire Protection District defend a home during a wildfire. As the population expands into the WUI, homeowners must take responsibility to prepare their homes for wildfire. Photo: Kari Greer.* ***Bottom:*** *Of 1,000 homes threatened in the 2016 Cold Springs Fire near Nederland, only 8 burned, due in part to homeowners who readied their properties and followed home ignition zone recommendations. Photo: Wildfire Partners*

BACK *Mitigation work helped spare this Boulder County home near Nederland during the Cold Springs Fire of 2016. Photo: Wildfire Partners*

ADAPT TO WILDFIRE

It's never too early to start protecting your home.
The Colorado State Forest Service can help.

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OUR MISSION

To achieve stewardship of Colorado's diverse forest environments for the benefit of present and future generations