

# Crescent Park Subdivision

## Community Wildfire Protection Plan



June 2022

# **Signature Page**

The following agencies have reviewed and agree to this Community Wildfire Protection Plan. NOTE: Please list your official title, sign, and date.

USDA Forest Service

Arapaho/Roosevelt National Forest Golden District

Colorado State Forest Service Boulder District

Colorado State Forest Service Jefferson County Division of Emergency Management

Coal Creek Canyon Fire Protection District

Crescent Park Land & Homeowners Association

Crescent Park Community Fire Protection Association

## **Prepared For:**

Crescent Park Land & Homeowners Association (CPLHA)  
Coal Creek Canyon, Colorado 80403

## **In Cooperation with:**

- Coal Creek Canyon Fire Protection District
- Firewise Colorado

## **Prepared By:**

Crescent Park Community Fire Protection Association (CPCFPA)

- Barbara Mazurowski (President)
- Tony Carmeli (Vice President)
- Steve Shelton (Treasurer)
- Jean Tinder (Secretary)
- Inge Sengelmann (Communications)
- Lea McComas (501(c)(3) Coordinator)
- David Murphy (Plans Officer)

## **Maps Prepared By:**

- Tony Carmeli

## **Collaborative Support:**

- Susan Jeheber-Matthews (Colorado State Forest Service)
- Dan Beveridge (Fire, Fuels, and Watershed Manager, Colorado State Forest Service)
- Daniel Beveridge (Firewise of Colorado)
- Chief Garret Ball (Coal Creek Canyon Fire Protection District)

## **Neighborhood Support:**

- Jeff Nicholson (CPLHA President)
- Jeff Calebaugh (CPLHA Vice President)

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# Introduction

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The 2020 wildfire season was the worst in Colorado history, with 665,454 acres burned. The devastating fire season forced many Coal Creek Canyon (CCC) residents to recognize the potential danger of catastrophic wildfire, and it became evident that without a planned and vigorous effort to mitigate the wildfire risk and contain the spread of wildfires should they occur, CCC is vulnerable to this ever-present threat.

In Crescent Park (CP), this situation led to the formation of the Crescent Park Community Fire Protection Association (CPCFPA), with the mission to protect people, properties, animals, and the environment from wildfires. The CPCFPA began working in conjunction with the Crescent Park Land & Homeowners Association (CPLHA), local CCC fire officials, land management agencies, Firewise, and the Colorado State Forest Service (CSFS) to take various steps to address the wildfire threat. Part of that process includes crafting this Community Wildfire Protection Plan (CWPP) for all of the CP residents, whether they are members of the CPLHA or not.

The CWPP is a plan that identifies specific wildland fire risks facing communities and neighborhoods and provides prioritized recommendations to reduce those risks. The CP CWPP's main goal is to provide guidance to residents and community members in order to reduce the risk to life and property due to wildfire.

The objectives include but are not limited to:

- Implementing recommendations of the August 15, 2008 CCC CWPP
- Becoming a recognized Firewise USA Community
- Educating CPLHA homeowners to recommended mitigation measures
- Promoting ongoing cleanup of slash piles and other combustibles
- Establishing/enhancing fire break and improving defensible space
- Identifying high-risk areas and recommending mitigation strategies
- Providing incentives for fuels reduction
- Increasing awareness of fire-related risks, remedies, and advantages
- Developing and communicating a community evacuation plan
- Coordinating with other CCC neighborhood fire plans
- Seeking grant funding for ongoing fire mitigation and education
- Constructing or improving subdivision wildfire protection capabilities



# Community Description

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## Crescent Park Estates Community

This CWPP covers CP and its defined Wildland-Urban Interface (WUI). WUI delineations in a CWPP focus on somewhat homogeneous communities that represent a common emergency response area with similar assets, risks, and hazards. A CWPP provides wildfire hazard and risk assessments for neighborhoods and subdivisions identified as WUI zones within counties and fire protection districts, and makes recommendations for specific actions to reduce wildfire hazard to individual structures and communities as a whole.

CP is a residential subdivision located primarily in Jefferson County, with a small section in Boulder County. CP is located approximately 12 miles east of Arvada, Colorado, on the north side of State Highway (SH) 72, also known as Coal Creek Canyon Road. It abuts Scar Top Mountain (elevation 8,760 ft) and other smaller peaks which create steep and heavily wooded terrain for much of the subdivision.

CP has a total of 105 observed structures on 135 lots. Lots average from .5 to 10 acres in size. CP was founded in 1972, and cannot expand at this time due to limited lot availability and necessary infrastructure such as water wells.

The subdivision has one entrance off SH-72, called Crescent Park Drive. Butte Drive, Spruce Canyon Drive, Crescent Park Cir, and Hollings Way Road turn off of Crescent Park Drive, but do not access other roads to egress CP. All traffic must use Crescent Park Drive to access or egress CP. Spruce Canyon Drive has three loop roads: (1) Spruce Canyon Cir, (2) Begole Cir, and (3) Butte Drive. Only Butte Drive has an exit that returns to the entrance road, Crescent Park Drive. Crescent Park Circle is separate loop on Crescent Park Drive. All other roads in the subdivision are dead-end roads.

## Fire History and Characteristics

Numerous large fires have occurred in or near Boulder and Jefferson County. Table 1 lists some of those fires but is not all inclusive of the local wildfire history.

**Table 1: Major Fires Near Coal Creek Canyon Since 1988**

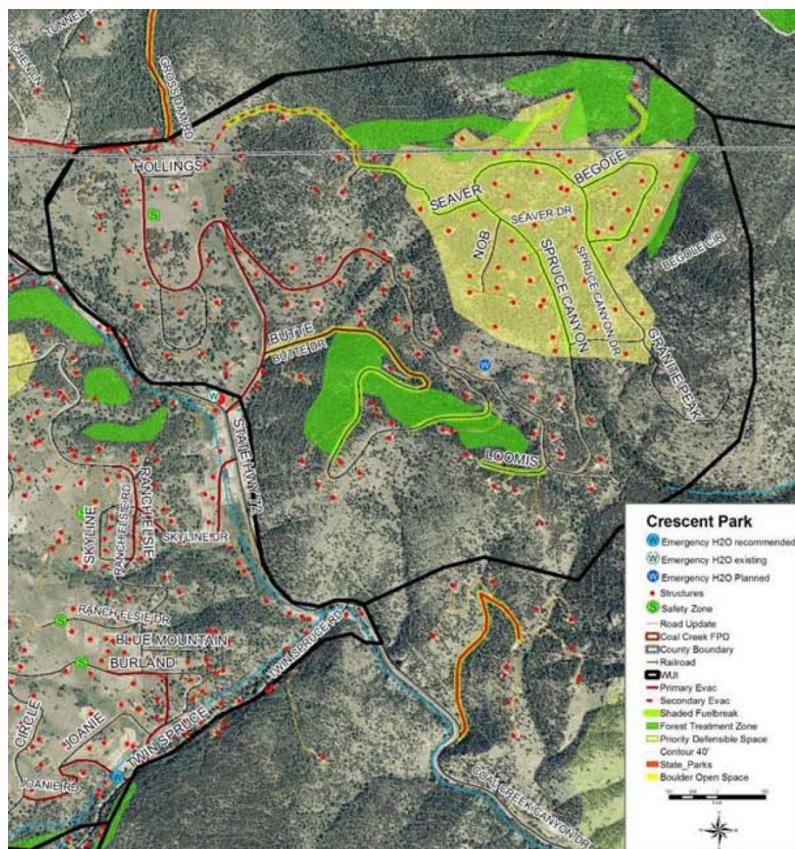
<b>Year</b>	<b>Fire</b>	<b>County</b>	<b>Acres/Structures</b>
1988	North Table Mountain	Jefferson	UNK
1989	The Black Tiger	Boulder	2,100/44
1990	Olde Stage	Boulder	3,000
2003	Overland	Boulder	3,500/12
2006	Rocky Flats Fire	Jefferson	1,600
2009	Old Stage	Boulder	3,008
2010	Fourmile Canyon	Boulder	6,200/169
2011	Indian Gulch	Jefferson	1,700
2016	Cold Springs	Boulder	528/8
2020	Calwood & Lefthand Canyon	Boulder	10,106
2021	Marshall Fire	Boulder	6,026/1,084

# Crescent Park CWPP Area

## Boundaries

The CWPP covering the WUI area was developed collaboratively with the CPCFPA working with the CPLHA, the Colorado State Forest Service, Jefferson County Office of Emergency Management, CCC Fire Protection District, Colorado, and the Bureau of Land Management. The CWPP is diagramed on page C-14 of the CCC Wildfire Plan, dated August 15, 2008 and displayed below.

**Illustration 1: Approximate Boundaries of CP CWPP**



The WUI boundary was determined by looking at how quickly a wildfire could reach the subdivision during a single burning period during high fire danger conditions if pushed by 20 mph winds.

The total acreage of the WUI area is approximately 692 acres (see

Illustration 1), broken into the following characteristics:

### **Private Land Characteristics**

Private land within the WUI boundary includes the CP subdivision with approximately 135 lots. There are numerous other subdivisions and isolated residents located outside the WUI boundary. Parcel sizes range from approximately 0.5 acre to 10 acres. Many of the private parcels have residences or other structures on them. Land uses are generally residential with some horse properties in the western part of the CP subdivision.

### **Fire Protection Area**

Structural and wildland fire protection is provided by the Coal Creek Canyon Fire Protection District (CCCFPD) and the Jefferson County Sheriff's Office (JCSO). Boulder County Fire Management and the Arvada Fire Department may also respond to CCC fires. The local Annual Operating Plan (AOP) is prepared pursuant to the Colorado state AOP. The Jefferson County AOP sets forth standard operating procedures, agreed procedures, and responsibilities to implement cooperative wildfire protection on all lands within Jefferson County. It can be found on the JCSO website.

USDA Forest Service's Jeffco Airtanker Base (Jeffco) is located in Broomfield, CO., at Rocky Mountain Metropolitan Airport and is managed by the Arapaho and Roosevelt National Forests and Pawnee National Grassland (ARP). The Jeffco mission is to provide the very best aerial fire-fighting support for ground personnel.

The airtanker base includes retardant storage tanks, filling facilities, pilot's quarters and offices. The site has the capacity to mix 190,000 gallons of retardant at a time, which is enough for seventy-four and a half 2,555 gallon drops. Jeffco supports a variety of aircraft types, including single engine airtankers, heavy airtankers, lead planes and helicopters.

# Fire Policies and Programs

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## **Federal, State, and Local Fire Policies**

The CP CWPP has been developed in response to the Healthy Forests Restoration Act of 2003 (HFRA). This legislation established unprecedented incentives for communities to develop comprehensive wildfire protection plans in a collaborative, inclusive process. Furthermore, this legislation directs the Departments of Interior and Agriculture to address local community priorities in fuel reduction treatments, on both federal and non-federal lands.

The HFRA emphasizes the need for federal agencies to collaborate with communities in developing hazardous fuel reduction projects and places priority on treatment areas identified by communities themselves through development of a CWPP. Priority areas include the WUI, municipal watersheds, areas impacted by wind-throw or insect or disease epidemics, and critical wildlife habitat that would be negatively impacted by a catastrophic wildfire. In compliance with Title 1 of the HFRA, the CWPP requires agreement among local government, local fire departments, and the state agency responsible for forest management i.e., the Colorado State Forest Service. The CWPP should also be developed in consultation with interested parties and the applicable federal agencies tasked with managing public lands surrounding the at-risk communities.

## **Colorado State**

Every year, wildfires burn across the United States, and a growing number of people are living where wildfires are a real risk. In 2018 more than 58,000 fires burned nearly nine million acres across the U.S. More than 25,000 structures were destroyed, including 18,137 residences and 229 commercial structures.

The State of Colorado is concerned about the size and intensity of wildfires occurring across the state in recent years. Historically, wildfire “seasons” were a four-month event in the middle of summer. Today, the average core wildfire season is 78 days longer than in the 1970’s, with Colorado experiencing large fires every month of the year. The annual state fire plan can be found on the Colorado Division of Fire Prevention and Control

webpage.

Residents who live in fire-prone areas should develop a plan and be prepared to live in fire adapted communities. Defensible space, structural hardening, and family plans for a possible evacuation, including pets, should be part of living in the WUI. Nearly 85% of wildfires are human-caused, we must do our part to prevent wildfires and protect our community.

In 2013, the Colorado State Legislature extended a program that allows landowners to deduct a portion of the cost of wildfire mitigation from their state income tax through 2024. The program allows each landowner to get credit for 50% of the cost of wildfire mitigation, up to a total of \$2,500. To get the full credit the total mitigation costs must be \$5,000 or greater.

### **Jefferson County Annual Operating Plan**

Jefferson County, Colorado Division of Fire Prevention and Control (DFPC), and Federal land management agencies, both approve and operate under the guidelines set forth in a wildfire AOP. This plan is acknowledged by the CCCFPD, the district with jurisdiction for CP. The AOP addresses how participating parties will work together in regard to wildfire prevention, preparedness, response and payment. Included in the plan are provisions for mutual aid between agencies, significantly enhancing initial and extended attack capabilities through the rapid convening of fire protection resources for managing a wildfire.

## **Nearby CWPPs**

### **Coal Creek Canyon CWPP**

The CCC CWPP dated August 15, 2008 is the current governing plan for the CCC area. Pages C-13 and C-14 specifically address issues in CP. This plan is consistent with the goals and strategies described within the Jefferson and Boulder County guidance and provides further strategic and tactical direction specific to wildfire protection and mitigation for the CP community.

### **Blue Mountain Estates CWPP**

Blue Mountain Estates, via the Blue Mountain Forest Stewardship Initiative (BMFSI) has an extensive planning guide and CWPP produced after they achieved Colorado Nonprofit Corporation status in 2013. A special thanks goes to the BMFSI and Cork Rech for their help as a model for the CPCFPA.

### **Copperdale CWPP**

In design

### **Pine Cliff CWPP**

In design

### **Wondervu CWPP**

In design

# Planning Process

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## **Crescent Park Community Fire Protection Association (CPCFPA)**

The CPCFPA is the author and implementation arm of this CWPP. The group formed during the summer of 2021 under the direction of their first president, Barbara Mazurowski. The CPCFPA mission is to protect CP's people, properties, animals, and the environment from wildfires. They do this through outreach, education, fire mitigation, the creation of defensible space, and emergency evacuation plans. More information about the CPCFPA can be found at their website, <https://www.crescentparkfireprotection.org/>.

# Wildfire Risk Assessment

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## WILDFIRE HAZARD ASSESSMENT

The United States General Accounting Office reported in April 1999 that the “most extensive and serious problem related to the health of forests in the interior West is the overaccumulation of vegetation, which has caused an increasing number of large, intense, uncontrollable, and catastrophic wildfires.” (GAO, 1999). Each year, wildfires on public and private lands consume millions of acres of forests, threatening lives, property, and watershed resources. The structure and arrangement of wildland fuels increases the wildfire risk.

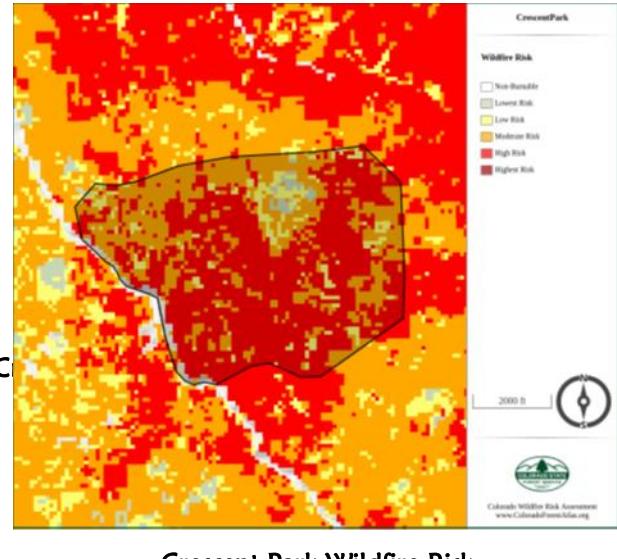
Wildland fuels are arranged both horizontally and vertically. Vertical fuels are considered ladder fuels, which can lead a fire from the ground into the forest overstory, creating crown fires. Horizontal fuels refer to the density and continuous nature of the untreated forests where wildfire can move from tree to tree due to the proximity of the tree crowns. This allows crown fires the ability to move through forest without interruption. Reducing or rearranging both fuel types will reduce the risk of catastrophic wildfire. Decreasing ladder fuels on the property will reduce the potential of ground fire from becoming crown fires. Breaking the crown continuity through thinning and creating openings will create a mosaic structure, which tends to keep fire on the ground, reducing fire severity impacts.

## COLORADO WILDFIRE RISK ASSESSMENT

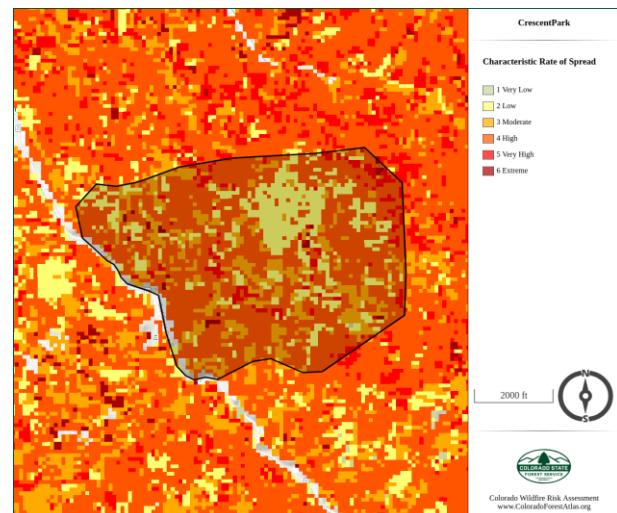
Colorado State Forest Service developed the Colorado Wildfire Risk Assessment (CO-WRAP) in 2012 to assist landowners and decision-makers assess wildfire risk. The Colorado Wildfire Risk Assessment Portal (CO-WRAP) is a web-based mapping tool that provides a spectrum of information, reports, and analyses for all lands in Colorado. The CO-WRAP report for the Crescent Park community generated several indicators of wildfire risk elements. The Crescent Park CO-WRAP report describes potential wildfire behavior characteristics impacting the property.

The Wildfire Risk Assessment Summary Report classifies the wildfire risk for the Crescent Park property as **moderate to high risk**, with approximately 90 percent of the property falling in these two risk classes. Wildfire risk is one of the primary outputs of the COWRAP model. This rating is based on a composite rating obtained by combining the probability of a fire occurring with the values at risk. The report identifies those areas with greatest potential impacts from wildfire, i.e., those areas most at risk, considering all values and assets combined.

Three fire behavior characteristics of importance to the Crescent Park property are: rate of spread, flame length, and fire intensity scale. All three of these fire behavior characteristics are influenced by three factors: fuels, weather, and topography. Rate of spread, the speed with which fire moves across the landscape, is influenced by fuels, weather, and topography. Approximately 60 percent of the Crescent Park property is in areas defined as **high to very high** rate of spread, with fire moving across the landscape at a rate of 13 to 66 feet per minute.

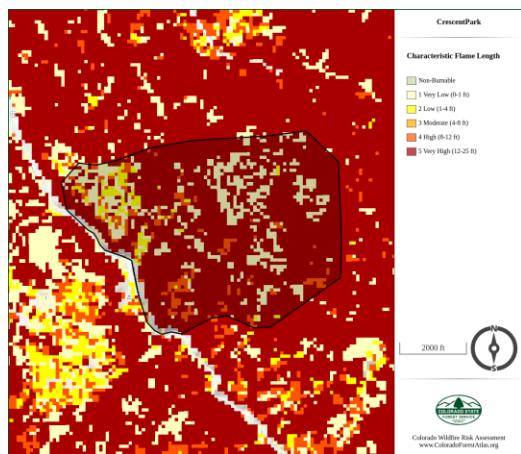


Crescent Park Wildfire Risk

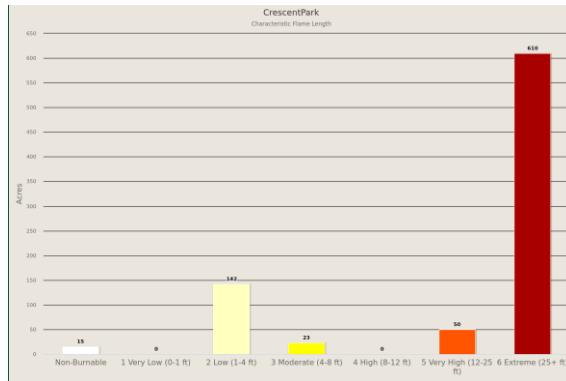


Crescent Park Wildfire Rate of Spread

Flame length is an indicator of fire intensity and is often used to estimate how much heat the fire is generating. Approximately 79 percent of the property is represented in the **very high** to **extreme** classification with flame lengths projected to exceed more than 25 feet in length.

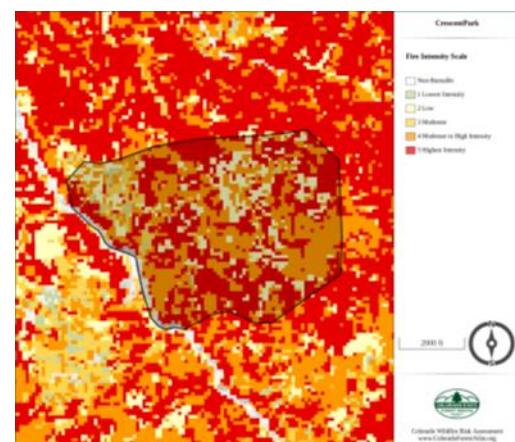


Crescent Park Flame Length



Crescent Park Flame Length

The Fire Intensity Scale (FIS) identifies areas where fuel hazards and dangerous fire behavior potential exist. The Fire Intensity Scale provides a scale to measure the potential wildfire intensity. Like the Richter scale for earthquakes, FIS provides a standard scale to measure potential wildfire intensity. FIS consists of five (5) classes where the order of magnitude between classes is ten-fold. Class 1, the minimum class, represents very low wildfire intensities and the maximum class, Class 5, represents very high wildfire intensities.



Crescent Park Fire Intensity

Approximately 36 percent of the Crescent Park property is represented with a Class 4 **high intensity** scale, with over 40 percent of the property in Class 5, the **highest fire intensity**. Very large flames up to 150 feet are possible, with profuse, short-range spotting, frequent long-range spotting, and strong fire induced winds. Great potential for harm or damage to life and property

can be expected with Class 5 intensity wildfires.

Because most of the property is classified as high intensity, significant consideration of the wildfire potential and effects needs to be made. In the last two decades, multiple wildfires have occurred in Colorado demonstrating the great risk to communities and natural resources: Cameron Peak, East Troublesome, Marshall Complex, Lower North Fork, High Meadow, Hayman, and Buffalo Creek, all reinforcing the importance of active wildfire hazard reduction. The Fire Intensity Scale reinforces the fact that the Crescent Park property needs to see continued forest management activities designed to decrease the possible intensity of wildfire.

There is high potential risk to CP from a wildland fire. Nearly 60 percent of Crescent Park is at high risk from wildfire. Below are the factors contributing to the overall rating:

### **Fuels and Fire Hazard**

Topography: CP is located on the rise between Coal Creek and Scar Top Mountain. The lower portion of the neighborhood has a slope of about 25 percent until it joins the valley with Spruce Canyon Circle, which has a slope of 5 to 10 percent. The upper portion on the subdivision has slopes of up to 45 percent climbing up Scar Top Mountain. Wildfire hazard is generally greater on steeper slopes.

#### **Crescent Park Wildfire Risk**

Vegetation Type: There are four primary vegetation types within CP: (1) mountain grassland; (2) riparian forest, cool-moist mixed conifer and warm-dry mixed conifer (refer to Table X and Figure X).

**Table 2: Major Vegetation Types of Crescent Park Subdivision**

<b>Vegetation Type</b>	<b>Major Plant Species</b>	<b>Acres</b>
Mountain Grassland	Brome, bluegrass, shrubby cinquefoil	4
Riparian forest	Narrowleaf cottonwood, blue spruce	10
Cool-moist mixed conifer	Douglas and white fir, blue spruce	100
Warm-dry mixed conifer	Ponderosa, Lodgepole, Douglas and white fir	400

The mountain grassland vegetation type is found interspersed throughout CP, but especially on the South side near the neighborhood on Spruce Canyon Drive. The primary vegetation is grass with clumps of shrubs and trees. Grass species may include Kentucky bluegrass, nodding brome, mountain muhly and some cultivated species including timothy and smooth brome. Shrub species may include shrubby cinquefoil, Gambel oak and serviceberry. Tree species include ponderosa pine and blue spruce.

Small areas of riparian forest vegetation occur in the flatter valley of the upper neighborhood bordered mostly by Spruce Canyon Circle in an area of comparatively flat ground. There is also a small riparian area near the bottom of Butte Drive. The dominant tree species are narrow-leaf cottonwood, spruce, aspen, ponderosa, lodgepole and pinon pine. There are numerous ladder fuels comprised of small trees and shrubs in the dense clumps. Included within this vegetation type are very small wetlands. Generally, the wetlands are on lower sections dominated by aspen and cottonwood and the soil will be saturated for at least part of the growing season.

Map of vegetation types here

### **Figure 1: Primary Vegetation Types and Topography in Crescent Park**

The area surrounding the riparian forest contains cool-moist mixed conifer forest dominated by pine trees of various types. The forest is moderately dense with dense clumps of trees interspersed by natural and man-made openings. Understory vegetation consists of various shrubs. In the dense patches of trees, the understory is sparse as a result of shading from overstory vegetation. Fuel loading is moderate to high and ladder fuels are common.

The upper portion of the slope adjacent to the south boundary of the subdivision contains a warm-dry mixed conifer forest dominated by Douglas-fir with ponderosapine and white fir tree species. Generally, the forest is dense with multiple layers and ladder fuels present except for dispersed moderate sized openings dominated by grass and shrubs. Understory shrub vegetation includes Gambel oak, snowberry, serviceberry, and chokecherry.

Aspen is present in small patches throughout all three vegetation types.

The cool-moist and warm-dry mixed conifer forests are best thought of as a continuum that follow a moisture gradient based on location on slope and aspect. There is no distinct line separating the two types and ponderosa pine may be found in both but will be more common, if not dominant, in the warm-dry type and only found in isolated patches within the cool-moist type. Generally, the best indicator species of the warm-dry type is presence of Gambel oak.

The historic fire regime for the mountain grassland vegetation type is Fire Regime Group I: 0 – 35 year frequency, low and mixed severity (refer to Table 1, for a summary of the Fire Regime Groups). The fire return interval is an average timeframe that fires will occur at the same location. The majority of fires in mountain grassland burns through the grass and shrubs without burning tree crowns.

Occasionally, fire will torch individual or clumps of trees. Native grasses and most shrubs sprout from roots following fire. Some species of shrubs and trees that are less well adapted to frequent fires such as juniper, blue spruce and buckbrush are more common in grasslands as a result of fire suppression. The species of grasses have been significantly altered since Euro-settlement as a result of the introduction of cultivated grasses and weeds. This vegetation type is considered moderately altered from historic conditions as a result of introduction of non-native species and several missed fire events. Presence of juniper and other ladder fuels and low crown base heights of ponderosa pine significantly increase the risk of torching and small patches of crown fire.

**Table 3: Summary of Fire Regime Groups**

<b>Group</b>	<b>Fire frequency</b>	<b>Fire severity</b>
I	0 – 35 years	Low to mixed understory burn.
II	0 – 35 years	Replacement of above ground features of most of the vegetation.
III	35 – 200 years	Low severity and mixed severity which includes understory burning intermixed with patches of replacement of above ground vegetation.

IV	35 – 200 Year	Replacement of above ground features of most of the vegetation.
V	200 + Years	Replacement of above ground features of most of the vegetation.

The historic fire regime of the riparian and cool-moist mixed conifer forests is characterized by Fire Regime Group III: 35 to 200 year fire return interval with mixed severity. There is a wide range (35 to 200 years) for this Fire Regime because there is a lot of variation in topography, elevation, aspect, slope and adjacent vegetation types that all affect how frequently a site burns. Fire risk is driven by climate while topography and fuel characteristics determine fire severity. Fires are mixed severity with low-intensity, surface fires and isolated torching at one end of the spectrum and high-intensity, stand replacement fire at the other end. Factors that affect the severity of fires include density of the overstory, ladder fuels, aspect, slope and adjacent vegetation. A dense overstory of short-needled conifer trees will shade the understory and surface fuels. Only shade-tolerant plants will be present and in some areas the surface is predominately needle litter. Short-needle litter is less flammable and more compact than long-needle litter which significantly reduces fire spread and intensity. The fuels will have higher fuel moistures during typical fire seasons and the dense shade will create a cooler environment also having the effect of reducing fire behavior. On the other hand, Douglas-fir, blue spruce and white fir tree species tend to have very low crown base heights and understory trees and shrubs create a ladder fuel connection to the overstory thus it does not take very much energy for surface fires to transition to crown fires.

The natural Fire Regime of the warm-dry mixed conifer forest type is Fire Regime Group I (0 to 35 year), low to mixed severity. This Fire Regime Group is typical of ponderosa pine forests on the Colorado Front Range. The fire return frequency of warm-dry mixed conifer forests range from about 10 years on the lower elevations and drier sites to 35 years on the higher elevations, northerly aspects and wetter sites where the warm-dry conifers transition into the cool-moist conifer. Historically, fires burned on the ground surface with occasional individual and group tree torching. During extreme conditions, crown fires may occur in small areas up to about 20 acres in size.

The riparian forests and cool-moist mixed conifer forests are only slightly

different from their historic condition as a result of fire suppression and other activities. However, large areas of high-intensity crown fire could occur during extremely dry summers. The warm-dry mixed conifer forests in Fire Regime Group I are significantly departed from historic conditions. It is likely that three or more fire events have been missed as a result of fire suppression. The result being that surface fuels are unusually high and ladder fuels are very common. The risk of fire outside of the historic fire regime is high, especially during extremely dry years.

Dr. Hal Anderson developed a set of 13 fuel models for wildland fire behavior. These were updated and more fuel models were added by Joe H. Scott and Robert E. Burgen in 2005. Fuel models are a simplified version of wildland fuels represented with mathematical equations. These fuel models aid firefighters in predicting the type of fire behavior that can be expected under various fuel moisture and weather conditions. The following Table 4 lists the Anderson and equivalent Scott & Burgen Fuel Models for CP subdivision.

**Table 4: Scott & Burgen Fuel Models by Vegetation Type**

Vegetation Type	Anderson Fuel Model	Scott and Bergen Fuel Model
Mountain Grassland	1	GS2: Low Load, Dry Climate Grass-Shrub
Riparian and Cool-moist Mixed Conifer Forest	8	TL4: Short-Needle Litter with Small Downed Logs
Warm-dry mixedconifer forest	10	TU5: Very High Load, Dry Climate Timber-Shrub

**GS2 Low Load, Dry Climate Grass:** The primary carrier of fire is grass and shrubs combined. Shrubs are 1 to 3 feet high. Spread rate is high with moderate flame lengths.

**TL4 Short-Needle Conifer with Small Downed Logs:** The primary carrier of fire is a moderate load of fine litter and small diameter downed logs. Surface fire spread rate is low and flame lengths are low. Transition to crown fire can occur at relatively low flame lengths due to low crown base heights. Crown fire spread can be rapid and intense.

**TU5 Very High Load, Dry Climate Timber-Shrub:** The primary carrier of fire is

heavy forest litter with a shrub or small tree understory. Spread rate is moderate with moderate flame length.

**Table 5: Comparable Rates of Spread and Flame Lengths**

Fuel Model	Rate of Spread (ft./min.)	Flame Length (ft.)
GS2	11	3.5
TL4	2	1.3
TU5	7	6.5

**Note: Dry fuel conditions and 10 mph mid-flame level wind.**

The grass fuel models display the highest rates of spread but generally are easy to contain because the small fuels can easily be extinguished with water. The timber fuel models have slower rates of spread but can be much more difficult to contain because of the higher fuel loads with larger diameter fuels. Fires in the TU5 fuel type can be very difficult to contain and control.

## **Structural Vulnerability and Defensible Space**

According to the CFSF guide *THE HOME IGNITION ZONE, A guide to preparing your home for wildfire and creating defensible space*, the two main sources for structural vulnerability are defensible space and the home ignition zone (HIZ).

### **Defensible Space**

Creating defensible space can significantly improve chances of your home and family surviving a wildfire, but defensible space is going to be strongly tested during a major wildfire event. Defensible space can allow firefighters to effectively and safely make a stand to protect your home. Not having defensible space could mean that firefighters will pass by your driveway to look for another spot where their efforts will have a higher likelihood of success. Defensible space could allow your home to survive a wildfire if firefighters are not on scene to protect it. Also, In an extreme situation where a fire has blocked access routes and evacuation is not an option, defensible space will make it safer to shelter in place should this become the last option.

### **Home Ignition Zone (HIZ)**

Includes the home and everything around it up to 100 feet, in three ignition

zones.

**Zone 1** encircles the structure and all its attachments (wooden decks, fences, and boardwalks) for at least five feet on all sides. Note: the 30-foot number comes from the very minimum distance, on flat ground, that a wood wall can be separated from the radiant heat of large flames without igniting.

**Zone 2** is 5 to 50 feet from the home, and plants in this zone should be low-growing, well irrigated and less flammable.

**Zone 3** is 30 to 100 feet from the home and this area should be thinned, although less space is required than in Zone 2. In addition to these factors, choosing fire resistant building materials and landscaping can further increase success should a devastating fire occur. These materials can be found in the *FireWise Construction: Site Design and Building Materials* pamphlet.

### **CP Structural Vulnerability and Defensible Space Assessment**

In 2020 the CPCFPA conducted a neighborhood fire vulnerability assessment using a variety the structural vulnerability rubric in Table 6. This assessment looked at a number of factors including structural ignitability, access to structures, and fire mitigation treatments to determine the risk factors for each home in the subdivision. The results showed both strengths and weaknesses in the subdivision in regards to wildfire safety.

**Table 6: Structural Vulnerability Rubric**

	<b>High Risk 1 pts</b>	<b>Moderate Risk 2 pts</b>	<b>Low Risk 3 pts</b>
<b>Roofing</b> Roofing material Soffit and fascia Vents	High Risk  Roofing material is combustible and has visible damage.  Soffit and/or fascia is open/exposed.  Vents missing or clogged with debris.	Moderate Risk  Roofing material is non combustible but has visible damage.  Soffit and/or fascia is mostly enclosed.  Vents in place but clogged with debris.	Low Risk  Roofing material is non combustible and has no visible damage.  Soffit and/or fascia is enclosed.  Vents in place and free from debris.
<b>Siding and finishes</b> Siding material Gutters/downspouts/eaves	High Risk  Siding needs significant repair or replacement.  Gutters/downspouts/eaves clogged with debris.	Moderate Risk  Siding needs minor repair.  Gutters/downspouts/eaves mostly free of debris.	Low Risk  Siding in good repair.  Gutters/downspouts/eaves free from debris.
<b>Decks and patios</b> Deck material Substrate/storage beneath decks Landscaping attached to home	High Risk  Deck/patio material is combustible.  Substrate beneath decks/patios is combustible.  Storage of combustible materials beneath decks/patios.  No screening over gaps.	Moderate Risk  Deck/patio material is partially combustible.  Substrate beneath decks/patio is non combustible.  Storage of non combustible materials beneath decks/patios, or covered with flame resistant materials.  Some screening over gaps.	Low Risk  Deck/patio material in non combustible.  Substrate beneath decks/patio is non combustible.  No storage beneath decks/patios.  Screens in place over gaps.

Out of 135 total lots in CP at least 105 have observed structures.

### **Strengths:**

- 93% were assessed as being a LOW risk for structural fire vulnerability.
- 5% were assessed as being a MODERATE risk for structural fire vulnerability.
- 2% were assessed as being HIGH risk for structural fire vulnerability.
- The 10,000-gallon water tank is serviceable as confirmed by the Chief of the CCC FPD.

### **Weaknesses:**

- Few turn-arounds for fire trucks.
- There are only two entrances/exits to CP, all other roads end in dead-ends.
- Some of the dead-end roads have insufficient space for a large fire truck to turnaround easily.
- There are no fire hydrants in the subdivision and as all houses are on wells, there are few additional sources of water.
- Some vacant lots contain vast amounts of dead, fallen trees, overstocked trees, slash and other highly ignitable materials. There has been little to no fire mitigation of these lots by property owners.
- There is no identified firefighter central command location.

There is a large parcel of undeveloped land on Scar Top and to the east and west of the neighborhood that is not part of the subdivision and contains vast amounts of dead, fallen, overstocked trees, etc. This land could have a huge impact on CP if a fire started in any of these areas and moved into CP.

### **Protection Capabilities**

Protection capabilities for CP are currently limited as the subdivision access is mostly two-lane road with few turnarounds. Additionally, there are no hydrants and water storage for firefighting is located only at the far end of Loomis Way. The subdivision has limited resources in heavy equipment and volunteers should a devastating fire occur. Fuel breaks in the upper elevations of the subdivision along steeply wooded slopes should be established and maintained.

## **Values at Risk**

CP is a moderate-cost subdivision close to Arvada so the location is prized by its residents. The value of houses in CP has increased significantly in the last decade with the growth of the Denver suburbs to the north and west. The wooded ambiance of CP is valued by its residents, so loss of the trees from wildfire would have a significant impact to the community even if no structures were lost. House pets are common. There are also abundant wildlife habitats within and bordering the subdivision, so impacts to wildlife would be substantial if a large fire occurred. No threatened or endangered species are known to inhabit the subdivision itself, but rare plants may occur within the WUI area.

Wildfire would negatively affect the air quality of the area during a fire. Wildfire can adversely affect soil quality, reducing water permeability, increasing bulk density and removing organic matter. The soils in the subdivision are sedimentary with moderate erodibility and moderate fertility. Loss of tree cover due to a severe wildfire would increase susceptibility to erosion.

Ecosystem health for the WUI is fair. Density of the ponderosa pine component and suppression of small fires over the past 100 years has increased the downed woody fuels across the WUI area as well as needle and leaf litter depths. Fuels management has occurred in many parts of the subdivision as homeowners have increasingly become aware of the wildfire risk and begun to do some mitigation on private land.

# Emergency Management

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## **Protection Capabilities & Infrastructure Protection**

The subdivision is served by the Coal Creek Canyon Fire Protection District (CCCFPD), a Volunteer Fire Department within the Colorado Wildland/Urban Interface. Currently, 60 active members respond to emergencies in Boulder, Gilpin, and Jefferson Counties.

Wildland fires occurring on private lands are generally managed for full suppression. Wildfires on National Forest System lands, BLM-managed public lands, and state lands in Jefferson County are managed with policies that may involve full suppression, point suppression, confinement, or containment strategies.

Evacuation is a major area of concern in the CP subdivision. Currently, vehicle egress is only possible via Butte Drive or Spruce Canyon Drive. All residents beyond the intersection of Butte Drive and Spruce Canyon Drive have only one possible driving egress route.

## **Illustration XX: Emergency Evacuation Routes (On foot only)**

**Place Evacuation Map Here**

Evacuation actions out of CCC are the responsibility of the Jefferson County Sheriff's Office and the Jefferson County Emergency Manager, but it is critical that CP residents understand the key components and procedures necessary for responsible fire evacuation in order to minimize loss of life and property. With this in mind, the CPCFPA encourages all residents to plan carefully now for considerations before, during, and after a wildfire. The Colorado State Department of Public Safety has excellent checklists, see the reference section.

# Implementation Plan

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Three key components for successful implementation of the CP CWPP are **education, mitigation/implementation, and monitoring/evaluation**.

Each of these components is included in the CPCFPA action record, which prioritizes projects based on need, cost, and homeowner participation. A current copy of this record is available on the CPCFPA website.

The audience for mitigation efforts includes the residents of CP, landowners immediately surrounding the subdivision that can benefit from mitigation activities on their properties, government agencies planning complementary mitigation treatments and/or supplying grants/matching funds to perform mitigation, and emergency responders.

## **Preferred Method of Treatment for Fuels Reduction**

There are numerous ways for homeowners to eliminate slash and other wood combustibles from homeowner property. During the wildfire season, Jefferson County provides numerous drop off days and locations to dispose of slash for a small fee. The Boulder County Transfer Station located near Nederland also allows free (as of 2021) drop off of wood and slash. Finally, the CPLHA hosts an annual wood chipping event for homeowners in the CP neighborhood.

Perhaps the most important overarching action to be accomplished by CP homeowners and the CPCFPA in regards to fire-safety awareness is to establish a heightened wildfire prevention attitude among CP's residents. Unfortunately, some CP full and part-time residents do not grasp the critical importance of fire mitigation, precautions, and planning to help lessen the impact of a potentially devastating wildfire on the subdivision. Efforts to encourage community cohesiveness and wildfire safety awareness and prevention are on-going and prominent.

## **Evaluation**

Considering the values at risk, it will be important to monitor CP's wildfire safety accomplishments and continued needs on an annual basis. This will be done primarily during ongoing CPCFPA meetings. Annually, the CPCFPA will

review the CWPP before the annual summer homeowner's meeting and brief important conclusions and lessons learned from fuels mitigation projects and activities over the preceding year. Ongoing adjustments can be proposed in either venue.

After months of work by the CPCFPA, several points have become apparent.

- Education has to be the key to a successful implementation of the CP CWPP. It seems that the average CP resident is currently uninformed concerning the potential impact of a wildfire occurring in the subdivision. Pro-active mitigation efforts are necessary to help maintain the safety of the entire community. People are busy and often don't have the time to participate in preparing their home and their community for a potentially devastating wildfire. Educating the residents on wildfire preparedness and creating a community attitude of "together we stand," can spell the difference between life and death.
- Education and preparation does not guarantee that structures will be saved. Despite doing everything right, it is still possible that homes will be destroyed in a catastrophic fire. Education and preparation can remove the fear and anxiety surrounding devastating fires and help encourage a neighborhood-wide peace of mind.

# Resident Emergency Plan

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Considering the risk, the CPCFPA and CPLHA strongly recommend each resident have an individual emergency plan. The federal, state, and local resources listed elsewhere in this plan are a great place to start and have the most current and updated information. In addition to those resources, each resident should consider the following 10 step emergency planning guidance.

## **#1 Priority: Have an assessment of your Home Ignition Zone (HIZ)**

Key to making your home as defensible as possible is to mitigate your particular risk area. An assessment of your HIZ is a helpful way to start. Contact the CPCFPA via their website and they can help set up a home assessment to learn the ways to harden your property.

Also, you can fill out a CCCFPD Fire Pre-Plan form and have it on file in the CCCFPD Station #3 Firehouse. The form includes a floorplan of your home, location of all exterior doors and egress windows, occupied bedrooms, (especially children's bedrooms, with closets clearly marked, as kids often hide from fire). Also, the location of your fire tote and other valuables firefighters can pull out for you if time permits, where pets are kept when you are away from home (and if they are friendly). Finally, areas with potential hazards to firefighters (propane tanks, combustible liquids, ammo storage, etc.), your emergency contact information and more. The Fire Pre-Plans are kept in a locked wall safe in Station #3 and only accessed in the event of an emergency at your home. Email CCCFPD Station #3 for more information: [docrfb@msn.com](mailto:docrfb@msn.com).

## **#2 Priority: Know the current level of fire danger.**

The Fire Danger Ratings are: Low, Moderate, High, Very High, and Extreme. The current rating is posted on Highway 72 between Highway 93 and Blue Mountain Drive. Ratings can also be found on the CCC Volunteer Fire Department website. The Fire Restriction Stages are: No Restrictions, Stage 1 Restrictions, and Stage 2 Restrictions. Each stage comes with explicit explanations of what activities are banned. Check the [CCCFPD website](#) for more information.

## **#3 Priority: Register all family members' cell phones in the Jefferson County Code RED Emergency Notification System.**

CodeRED reaches numbers from two databases. One is the 911 database, which contains all listed and unlisted landline phone numbers in Jefferson County. If you have a landline, it is automatically included in this database.

The second database is made up of Voice over Internet Protocol (VoIP) numbers (if you have a bundled internet/phone/television service you probably have a VoIP line), and also email addresses owned by people who have registered to receive CodeRED calls. If you don't have a landline phone, and would like to receive a VoIP number, text, email or cell phone call from CodeRED, please consider registering for this free service. To register, [visit the CodeRED phone registry](#).

#### **#4 Priority: Know when to leave.**

Emergency Alerts will be issued by the Sheriff's Department using CodeRED. See below to understand the three levels of alert. However, we encourage the adage, "when in doubt, get out!" Keep in mind, in some cases, there is no time for formal evacuation notifications due to quickly changing conditions.

- **Shelter-in-Place Alert:** There is a hazard in your area and you should remain or go indoors, not go outdoors, and not evacuate the area. This may be the safest strategy for hazardous materials, law enforcement, or other incidents wherein an evacuation could actually increase the danger to you.
- **Pre-evacuation Alert:** There is a hazard in your area that may require you to evacuate in the near future. Everyone should be prepared to leave at a moment's notice. If you feel you are in danger and want to leave, do so. If you need additional time to evacuate, you should consider leaving now. If you need to arrange for transportation assistance, you should do so immediately. If you have livestock or other farm animals, you should consider removing them from the hazard area first. The Jefferson Animal Control Rescue Team (J-CART) aids in the evacuation and sheltering of animals impacted by an emergency or disaster. Their website is included in the list of resources for homeowners and has useful planning information.
- **Evacuation Alert:** There is a hazard in your area and you have been ordered to evacuate immediately. If you need assistance evacuating yourself or need help evacuating animals, call 911. You will be provided, by the Sheriff's Department, the safest escape routes known, so make sure you follow the instructions as other routes may be closed or unpassable. You will also be told where an evacuation point has been established to provide information and safe place if you have nowhere else to go. Do not delay – evacuation means you need to leave immediately!

#### **#5 Priority: Know where you are going.**

CP has only one way to drive out, so the decision to evacuate sooner rather than later is imperative for residents, especially in the upper part of CP. CCC

has four ways in and out, so an orderly evacuation of residents is vital. Early evacuation of livestock is especially important. Follow evacuation instructions given by the Sheriff's Dept. Stick to the main roads. Do not attempt shortcuts. In the event SH72 is unsafe for use, the CCCFPD firefighters will coordinate and lead an evacuation, through private land, locked gates and private roads, to get community members safely to one of the four evacuation routes. After evacuation, designate a safe place to stay well away from the fire zone. This might be a friend or family member's home, motel or Red Cross emergency shelter. Pets are not allowed in emergency shelters, though most support animals should be allowed. Livestock and farm animals can be taken to the Jeffco Fairgrounds for safe boarding in the event of emergency. Make a plan to drop pets off with friends or at a boarding kennel.

**#6 Priority: Create a phone tree with the names and all contact phone numbers of two or three neighbors.**

If you are out of CP when the evacuation order is given you may not be allowed back in. Make a plan with neighbors to help retrieve your family members, pets, "fire tote" and important possessions. Give them a key or garage door code, or let them know where a key is hidden. Review the plan with each neighbor ahead of fire season each year.

**#7 Priority: Your family may become separated as you evacuate, plan for this.**

Identify two meeting places, the first near your home so everyone can evacuate together. The second away from your neighborhood in case you can't return home. Pick a friend or relative who lives out of the area that you can all call and say you're okay. Designate that person as the one to disperse info on your wellbeing to concerned others. Make a plan ahead of time and review it each year.

**#8 Priority: Create a "fire tote" at the beginning of each fire season.**

Keep your emergency tote near your front door, maybe in a coat closet. Make sure your backup evacuation helper neighbors know the location. Use it as a place to store things like these as needed:

- Medical needs: excess prescription medicines, inhalers, etc.
- First aid kit
- Pet medications
- Extra pairs of contact lenses or eyeglasses (even old prescription)
- Connectivity needs:
  - Laptops/CPUs
  - External backup drives of your computer files
  - External USB charging power banks for phones and devices

- Extra charging cables for all electronic devices and phones
- Important documents:
  - Driver licenses
  - Passports
  - Birth certificates
  - Written prescriptions
  - Property deeds
  - Vehicle titles, registration and insurance cards
  - Credit cards, debit cards, emergency cash
  - Homeowner insurance policy
  - Wills, trusts, estate plans
  - A hardcopy of the Crescent Park Estates Resident Directory
- Important items:
  - Extra keys to home and cars
  - Antique or irreplaceable jewelry
  - Family photos which have not been digitized

### **#9 Priority: Determine evacuation duties for each family member.**

- Personal items:
  - Make a list for each person to use in collecting their own personal must have items from the home.
  - In your fire tote (or a separate tote) have a small, empty backpack for each family member with their list inside or attached.
  - Use the backside of each person's list to include your family emergency phone number list.
- Vehicle loading:
  - Determine which vehicles will be evacuated, who will drive each, and what will be loaded into each.
  - Have a primary list of items to load if there are only minutes to do so safely (Evacuation Order issued).
  - Continue with a secondary list of items to load if there is more time to do so safely (Pre-Evacuation Order issued).

### **#10 Priority: Get your property ready for evacuation.**

If there is time, use a few minutes to take actions which will help firefighters defend your home.

- Inside checklist:
  - Close all windows and interior/exterior doors, leaving them unlocked.
  - Shut off the air conditioning.
  - Leave lights on in a few rooms so firefighters can see your house under smoky conditions.

- Outside checklist:
  - Shut off natural gas at the meter.
  - Shut off main propane tank at the house valve.
  - Turn off all propane tanks at fire pits and BBQs.
  - Gather up flammable items from the exterior of the house and bring them inside (e.g. rugs, patio cushions, children's toys, door mats, brooms, etc.)
  - Leave hoses where firefighters can find them, a few feet away but detached from spigots (a burning plastic hose makes a wick to lead fire to your home.)
  - Turn off timed sprinklers, as every drop of water and water pressure may be needed for several days to fight a wildfire.
  - If you have a cistern, make water stored there available to firefighters.
  - Have a metal ladder out and available for use by firefighters.
  - Leave exterior lights on.
  - Do not leave cars in your driveway. To defend your home, firefighters need access to be able to get trucks and equipment in and out safely.

See the Jeffco [\*\*\*Ready, Set, Go!\*\*\*](#) fire preparedness document for more information:

Feel free to print this email and post it somewhere for easy reference or cut, paste, and modify this email to make a customized evacuation plan for your family.

Stay safe and well!



CPCFPA aims to protect our people, properties, animals, and environment from wildfires. We do this through outreach, education, fire mitigation, the creation of defensible space, and emergency evacuation plans.

# Glossary

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**Acre:** an area of land containing 43,560 square feet. A square acre would be about 209 feet by 209 feet. A circular acre would have a radius of 117.75 feet.

**Canopy:** the foliage formed by the crowns of trees in a stand.

**Defensible space:** an area around a structure where fuels and vegetation are cleared or reduced to slow the spread of wildfire towards the structure.

**Downed fuels:** the accumulated woody and vegetative material on the forest floor.

**Ecosystem:** A spatially explicit, relatively homogenous unit of the earth that includes all interacting organisms (plants, animals, microbes) and components of the abiotic environment within its boundaries. An ecosystem can be of any size: a log, pond, field, forest, or the earth's biosphere.

**Fire break:** a natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work.

**Fuel break:** an easily accessible strip of land of varying width (depending on fuel and terrain), in which fuel density is reduced, thus improving fire control opportunities.

The stand is thinned and remaining trees are pruned to remove ladder fuels. Brush, heavy ground fuels, snags and dead trees are disposed of, and an open, park like appearance is established.

**Fuel loading:** the oven-dry weight of fuel per unit area.

**Home Ignition Zone:** includes the home itself and everything around it up to 100 – 200 feet. In areas across the country where the risk of wildfire is high, the home ignition zone extends up to 200 feet beyond the actual home structure. Within this 200 foot area, there are three zones:

- **Zone 1** encircles the structure and all its attachments (wooden decks, fences, and boardwalks) for at least 5 feet on all sides. Note: the 5-foot number comes from the very minimum distance, on flat ground, that a wood wall can be separated from the radiant heat of large flames without igniting.
- **Zone 2** is 5 to 30 feet from the home, and plants in this zone

should be low-growing, well irrigated and less flammable.

- **Zone 3** is 30 to 100 feet from the home and this area should be thinned, although less space is required than in Zone 2.

**Ladder fuels:** combustible material that provides vertical continuity between vegetation strata and allows fire to climb into the crowns of trees or shrubs with relative ease.

**Litter:** the surface layer of a forest floor that is not in an advanced stage of decomposition, usually consisting of freshly fallen leaves, needles, twigs, stems, bark, and fruits.

**Lop and scatter:** a hand method of removing the up-ward branches from tips of felled trees to keep slash low to the ground, to increase rate of decomposition, lowerfire hazard, or as a pre-treatment prior to burning.

**Sapling:** a usually young tree larger than a seedling but smaller than a pole.

**Shaded fuel break:** A strategically located strip or block of land (of varying width)depending on fuel and terrain, in which fuel density is reduced, thus improving firecontrol opportunities. The stand is thinned and remaining trees are pruned to remove ladder fuels. Most brush, heavy ground fuels, snags and dead trees are removed and an open park-like appearance established.

**Slash:** the residue of treetops and branches left on the ground after logging oraccumulating as a result of storms, fire, girdling or delimiting.

**Snag:** a standing, generally un-merchantable dead tree from which the leaves andmost of the branches have fallen.

**Thinning:** a cultural treatment made to reduce stand density of trees primarily toimprove growth, enhance forest health, or recover potential mortality.

**Wildland-Urban Interface (WUI):** The geographical meeting point of two diversesystems: wildland and structures. In the WUI, structures and vegetation are sufficiently close so that a wildland fire could spread to structures or a structure fire could ignite vegetation.

# List of Acronyms

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AOP - Annual Operating Plan

ARP - Arapaho and Roosevelt National Forests and Pawnee National  
Grassland

CCC - Coal Creek Canyon

CCCFPD - Coal Creek Canyon Fire Protection District

CP - Crescent Park

CPCFPA - Crescent Park Community Fire Protection Association

CPLHA - Crescent Park Land & Homeowners Association

CSFS - Colorado State Forest Service

CWPP - Community Wildfire Protection Plan

DFPC - Colorado Division of Fire Prevention and Control

HFRA - Healthy Forests Restoration Act (2003)

HIZ - Home Ignition Zone

JCSO - Jefferson County Sheriff's Office

WUI - Wildland-Urban Interface

# Online Resources for Homeowners

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Colorado State Forest Service, Protect Your Home and Property from Wildfire; Resources 1 – 11.

<https://csfs.colostate.edu/wildfire-mitigation/protect-your-home-property-from-wildfire/>

Crescent Park Community Fire Protection Association Website

<https://www.crescentparkfireprotection.org/>

Coal Creek Canyon Fire Protection District

<https://www.coalcreekcanyonfd.org>

CFSF Guide, THE HOME IGNITION ZONE, A guide to preparing your home for wildfire and creating defensible space.

[https://coloradoforestatlas.org/information/2021\\_CSFS\\_HIZGuide\\_Web.pdf](https://coloradoforestatlas.org/information/2021_CSFS_HIZGuide_Web.pdf)

CFSF Guide, FireWise Construction: Site Design & Building Materials

<https://static.colostate.edu/client-files/csfs/pdfs/firewise-construction2012.pdf>

Colorado State Department of Public Safety Wildfire Preparation and Evacuation Checklists (Including multiple language translations)

<https://dhsem.colorado.gov/info-center/readycolorado/colorado-hazard-information/wildfire>

Colorado Division of Fire Prevention & Control, annual wildfire plan

<https://dfpc.colorado.gov/2021-wildfire-preparedness-plan>

Jefferson County Sheriff's Office Wildfire Information

<https://www.jeffco.us/508/Wildfire>

County Sheriff's Office, Animal Evacuations

<https://www.jeffco.us/468/Animal-Evacuations>

Jefferson County *Ready, Set, Go! Personal Wildfire Action Plan.*

<https://www.jeffco.us/DocumentCenter/View/515/Ready-Set-Go-Colorado-PDF?bidId=>

Jefferson County Code Red Notification Signup

<https://public.coderedweb.com/CNE/en-US/655AC5D55998>

Arapaho & Roosevelt National Forests Pawnee National Grassland, Fire

Management

<https://www.fs.usda.gov/main/arp/fire>

Standard fire behavior fuel models: a comprehensive set for use with Rothermel's surface fire spread model.

Joe H. Scott and Robert E. Burgan

<https://www.fs.usda.gov/treesearch/pubs/9521>

U.S. Department of the Interior, Office of Wildland Fire

<https://www.doi.gov/wildlandfire>

Federal Emergency Management Agency Wildfire Actions

<https://www.fema.gov/disaster/wildfire-actions>

Firewise USA

<https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA>