

YOUR!

***Community Wildfire Protection
Implementation Plan***

***Homestead West/Sourdough and
Homestead East/Golden Meadows***

***Inter-Canyon Fire Protection District
Jefferson County, CO***

Final: 2-11-2021

“Effective wildfire mitigation reduces the potential for loss in the event of a catastrophic wildfire. This is accomplished through strategic management of wildland fuels, implementation of defensible space around individual homes and non-fuels mitigation measures such as emergency preparedness, ingress/egress improvements, and community awareness. Results are most effective when these approaches are pursued jointly by governmental entities, citizen groups, and individual homeowners.” Inter-Canyon Community Wildfire Protection Plan



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CWPIP Certification

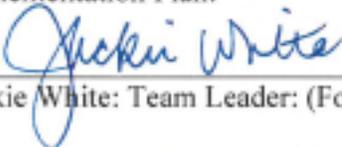
The Homestead West/East Community Wildfire Protection Implementation Plan (CWPIP) was developed in accordance with the guidelines set forth by the Healthy Forests Restoration Act (2003) and the Colorado State Forest Service's Minimum Standards for Community Wildfire Protection Plans (CWPP) (Revised 2010).

This Plan is under the umbrella of the Inter-Canyon Fire Protection District Community Wildfire Protection Plan (CWPP). It provides analysis and mitigation recommendations for Homestead West/Sourdough and Homestead East/Golden Meadows outlined in the Inter-Canyon CWPP.

The plan:

- Was collaboratively developed – residents, interested parties, local government and stakeholders. State and Federal and local agencies managing land in the area were consulted as appropriate;
- 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;
- Presents measures to reduce the ignitability of structures throughout the plan area.

The following entities mutually agree with the contents of this Community Wildfire Protection Implementation Plan:



Jackie White: Team Leader: (For the Team)

2/19/2021
Date



Chief Skip Shirlaw: Inter-Canyon Fire Protection District

2-19-2021
Date

Assistance and Consultation

John Mandl: Captain; Wildland/Training; Intercanyon Fire Protection District

John Chapman; Plan Facilitator

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EXECUTIVE SUMMARY

This is the Community Wildfire Protection Implementation Plan (CWPIP) for the Homestead West/Sourdough and Homestead East/Golden Meadows Unit defined in the Community Wildfire Protection Plan (CWPP) for the Inter-Canyon Fire Protection District (ICFPD). It was formulated by a team of residents with advice and assistance from the Inter-Canyon Fire Protection District and approved by the Chief of the District. This summary contains guidelines, terms, and priorities which are expanded upon in the plan to enable residents to understand the actions recommended. Please refer to the plan for topic areas for which you need clarification.

The CWPIP details priority mitigation actions selected by the team based on general recommendations made in the Inter-Canyon CWPP. These actions are to reduce the impact of wildfire on the neighborhoods and individual residences. As appropriate, State, Federal and local land managing agencies were involved. **The Inter-Canyon CWPP analysis gave Homestead West a fire danger rating of “Moderate”, and Homestead East “High”.**

Specific sections:

Section 1: Community Wildfire Protection Planning;

Section 2: The Community Risk Analysis;

Section 3: Wildland Fire Response Infrastructure and Capabilities;

Section 4: Implementation Actions & Recommendations (Mitigation techniques to be applied and priority Fuels mitigation Projects;

Section 5: Plan Implementation and Follow up;

Section 6: Appendices (containing the state forest service guide on creation of Defensible Space and a section with links to important information).

Sections 1, 2, and 4 are important for background and specific guidelines for recommended mitigation actions to be carried out by the community working with Inter-Canyon FPD.

Recommendations for community mitigation efforts supported by the Inter-Canyon FPD are the heart of the plan as they call for specific actions: See P25. The plan expands in detail on these priorities.

Recommendation 1: Mitigation along area roadways

The Inter-Canyon CWPP calls for “*Shaded fuel breaks along forested primary, secondary, and designated emergency access roads*” in its recommendations for plan units.

The Jefferson County CWPP states: “*All access roads flanked by heavy vegetation in WUI communities should be targeted for thinning or seasonal mowing. Treatments may be coordinated with property owners along private roads and with county and state transportation departments for public roads.*”

Roadways: The team recommends road parcels in both Homestead West and Homestead East for priority treatment: (See plan PP 23-28 for maps and key to selected areas).

The recommendation is for thinning along selected roadways. Thin (including dead fall) on either side of the road, following guidelines listed below. As noted in the publications, “Road systems are important to fuel break construction...crown separation is a more critical factor for fuelbreaks than a fixed tree density level.

Treatment would be in accordance with standards as determined by the team and ICFPD: these are standards accepted by the Colorado State Forest Service and fire districts statewide.

- **Colorado State Forest Service:** “*Fuelbreak Guidelines for Forested Subdivisions and Communities*” by Frank Dennis
- **Colorado State Forest Service:** “*Lodgepole Pine Management Guidelines for Land Managers in the Wildland -Urban Interface*” (Dennis et al)

The USFS standard for roadside mitigation/hazard tree removal: “... implement hazard tree removal activities within a distance equal to 110% of the height of the tallest hazard tree from the edge of: 1) National Forest System (NFS) roads open to motorized travel...”

Recommendation 2: Collaboration with officials and home owners to facilitate creation of Defensible Space and treat structural ignitability in the Home Ignition Zone

2a. The team recommends collaboration with Inter-Canyon Fire Protection District, HOA and neighborhood/community events to educate residents and promote efforts to create Defensible Space and mitigate structural ignitability on residential lands. See CSFS publication: “*Protecting Your Home from Wildfire: Creating Wildfire-Defensible Zones*”, on the CSFS website in the Defensible Space section at: http://static.colostate.edu/client-files/csfs/pdfs/FIRE2012_1_DspaceQuickGuide.pdf; and CSFS publication: *FireWise Construction; Site Design and Building Materials*: <http://static.colostate.edu/client-files/csfs/pdfs/firewise-construction2012.pdf> for structural ignitability concerns. **The Defensible Space Guide is Appendix E** of this plan.

2b. the team recommends working with Inter-Canyon Fire Protection District to develop submittals for grant opportunities to gain funding for completing mitigation actions on properties and area roadways.

2c. the team recommends improvements in road and property signage: In areas where road names are similar, street signs should be revised to more clearly indicate the differences, (For example where roads have similar names such as “Drive” and “Road”).

Recommendation 3: Educate Community on CWPIP and fuel break initiative, and develop project and funding requests & owner commitment based on Inter-Canyon Fire Protection District goals and standards.

This recommendation will help the community understand and facilitate the process of preparing and completing projects. It includes information on gaining resident commitment for action on properties as treatment standards involve areas large enough that private property will be involved and this needs owner agreement.

Recommendation 4: Availability of Emergency Evacuation Routes

The team seeks to assure availability of routes for evacuation in event of wildfire emergencies. Depending on fire location and behavior various main roads in the area could be cut off from use. Determinations of which routes to take would be made by Sheriff's Department and fire officials at the time of an emergency.

Recommendation:

- **The team coordinates with Inter-Canyon Fire Rescue to review the area for any potential emergency evacuation routes which would need work and/or land owner agreement to establish and carry out such actions.**
- **The team coordinates with Inter-Canyon FPD to study the recommendation in the Inter-Canyon CWPP, *“improve or construct secondary road turn arounds at dead ends.”***

Section 1: COMMUNITY WILDFIRE PROTECTION PLANNING`

The Challenge

Decades of aggressive fire suppression in fire-dependent ecosystems, coupled with persistent drought, disease and insect infestation converged to create a threat requiring national attention.

In the Healthy Forest Restoration Act (HFRA) of 2003, Congress directed communities in the Wildland/Urban Interface (WUI) to prepare *Community Wildfire Protection Plans* (CWPPs).

This Community Wildfire Protection Implementation Plan (CWPIP) for the Homestead areas is a plan developed by area residents with advice and assistance from the Inter-Canyon Fire Protection District (ICFPD), and under the umbrella of the Inter-Canyon Fire Protection District CWPP. The complete CWPP is on the Colorado State Forest Service website at: <http://csfs.colostate.edu/> and the “wildfire mitigation” link.

Much of the land involved is private land. It is extremely important for land owners to create Defensible Space and mitigate structural ignitability. And with collaborative, neighborhood action the damage to homes or other buildings can be minimized.

Once the CWPIP is finalized and adopted, it is the responsibility of the community...*that’s US*, to move forward and implement the plan in collaboration with Inter-Canyon. It is a living document to be used on a continuing basis... *THIS IS OUR PROCESS, NOT A SHELF DOCUMENT!!*

The Team – Local residents and agencies involved in developing this plan:

- Jackie White: Team Lead (720-475-6111), and residents of Homestead West/Sourdough and Homestead East/Golden Meadows
- John Mandl: Captain/Wildland Training; Inter-Canyon Fire Protection District (720-648-0861)
- John Chapman; Community Wildfire Protection Implementation Plan Facilitator

There is no legal requirement for residents to implement the recommendations in this CWPIP. This is also the case for CWPPs. **Treatments on private land may require defensible space mitigation called for by county land use and building codes when new construction is planned.** Treatments on public lands are carried out by appropriate agencies and may be subject to federal, state, and county policies and procedures such as The National Environmental Policy Act (NEPA). **However, it is encouraged land owners take part since mitigation of adjacent properties results in a cumulative effect to lower the intensity of wildfire. This has been shown through years of research and actual events.**

CO State Tax Advantage:

Inclusion of the areas in the ICFPD CWPP enables residents to qualify for the CO state tax advantage for defensible space work on their individual properties (see Appendix D).

Section 2: THE COMMUNITY RISK ANALYSIS FOR HOMESTEAD

2.1 The Plan Area: Topography, Vegetation and Hazard Analysis

The CWPIP area (See following maps) includes Homestead West/Sourdough and Homestead East/Golden Meadows in the Inter-Canyon FPD, totaling 1613.21 acres.

The Core Logic *“Wildfire Hazard Risk Report (Residential Wildfire Exposure Estimates for the Western United States-2015)”* rated the WUI areas west of Denver first in the listing with a “Very High” rating for hazard, risk, and potential property loss.

Following are physical descriptions and fire hazard assessments for the Homestead areas. These descriptions are from the Community Assessment Surveys in the Jefferson County CWPP and the Inter-Canyon FPD CWPP. Those plans should be referred to for overall area hazard analysis and fire history. **The Inter-Canyon CWPP fire hazard rating for Homestead West/Sourdough is “Moderate” and for Homestead East is “High”.**

The Inter-Canyon FPD CWPP describes the area:

Homestead-West/ Sourdough (Moderate) • (+/-) Dominant south facing slopes with moderate ponderosa pine, grassy understory, and open irrigated meadows breaking continuity. Heavier mixed conifer on west and southwest margins. Scrub oak is found throughout the area in spots.

(+) Good access through 2 primary routes. Good road condition, low to moderate grade. • (+) Pressurized hydrant grid, close proximity to main fire station and HWY 285, over 80% of home with at least 30ft of d-space. • (-) Regional fire frequency and fire weather.

Homestead-East/Golden Meadows (High)• (+/-) Predominant southeast facing slope with light to moderate ponderosa pine. Irrigated landscapes and meadows present. North margin with north facing slope favors heavy mixed conifer with significant dead and down woody fuels. Scrub oak is found throughout the area in spots.

(-) • (+) Good emergency access on all sides, low to moderate topography. • (+) $\geq 30'$ d-space in-place with 70% of structures, pressurized hydrant grid present • (-) Predominance of flammable construction materials. • (-) Regional fire frequency and fire weather.

Fire is very important for the montane forests. The Jeffco CWPP states for Inter-Canyon, “...Much of the area has gone undisturbed by logging, fire, or insect outbreaks for more than 100 years, which has resulted in a buildup of dense, heavy fuels, particularly in the western half of the District. Much of the area is rated as high fire hazard due to the combination of steep, rugged topography and heavy fuels.” If we prevent all forest fires, all the dry dead trees, branches, and needles get even thicker. When a fire starts, it can quickly become an enormous super-hot firestorm like the Hayman Fire in 2002. Usually fire is helpful for the next generation of seeds to grow...”

INTER-CANYON FIRE PROTECTION DISTRICT

Jefferson County, Colorado

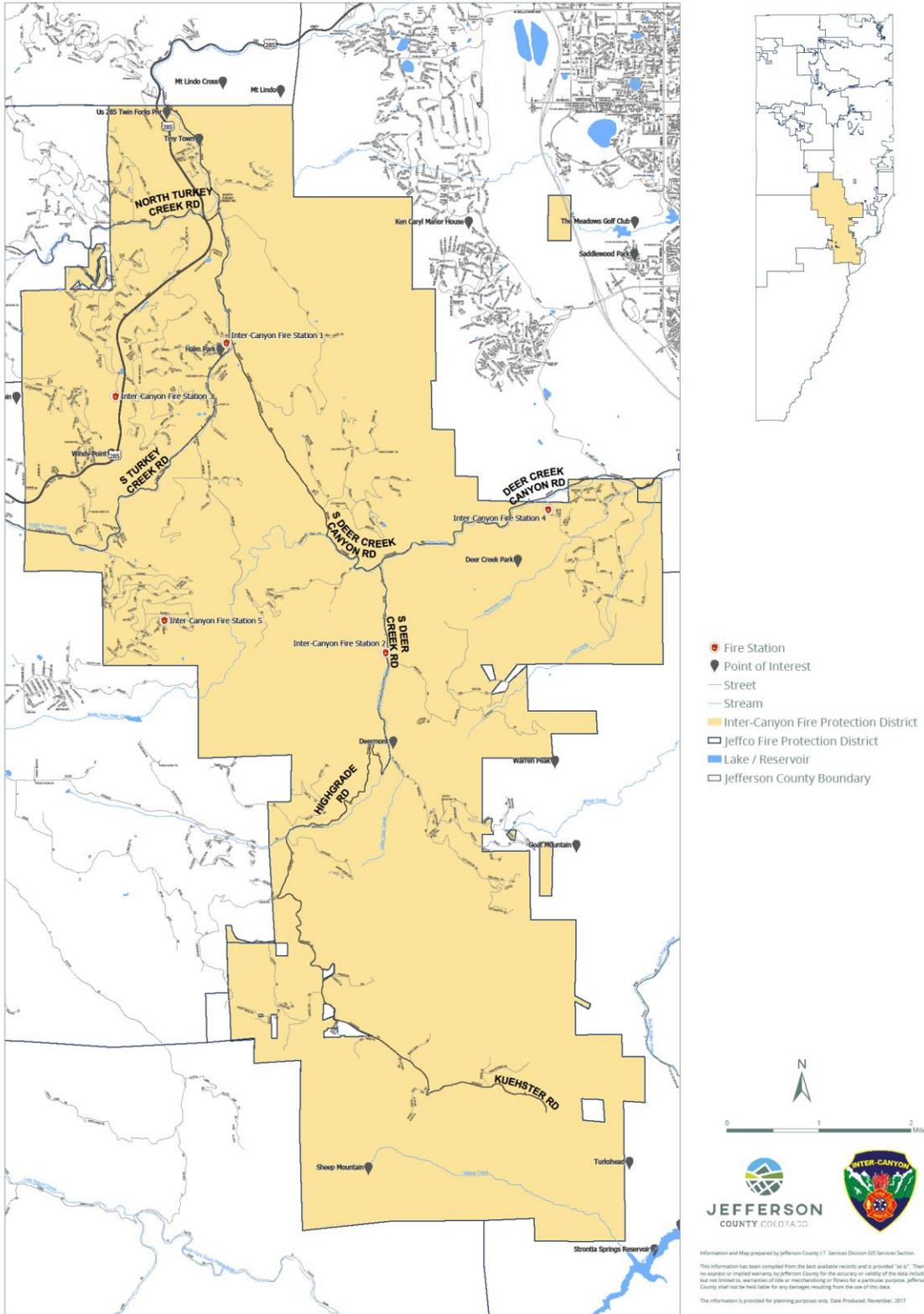


Figure 1: Inter-Canyon Fire Protection District

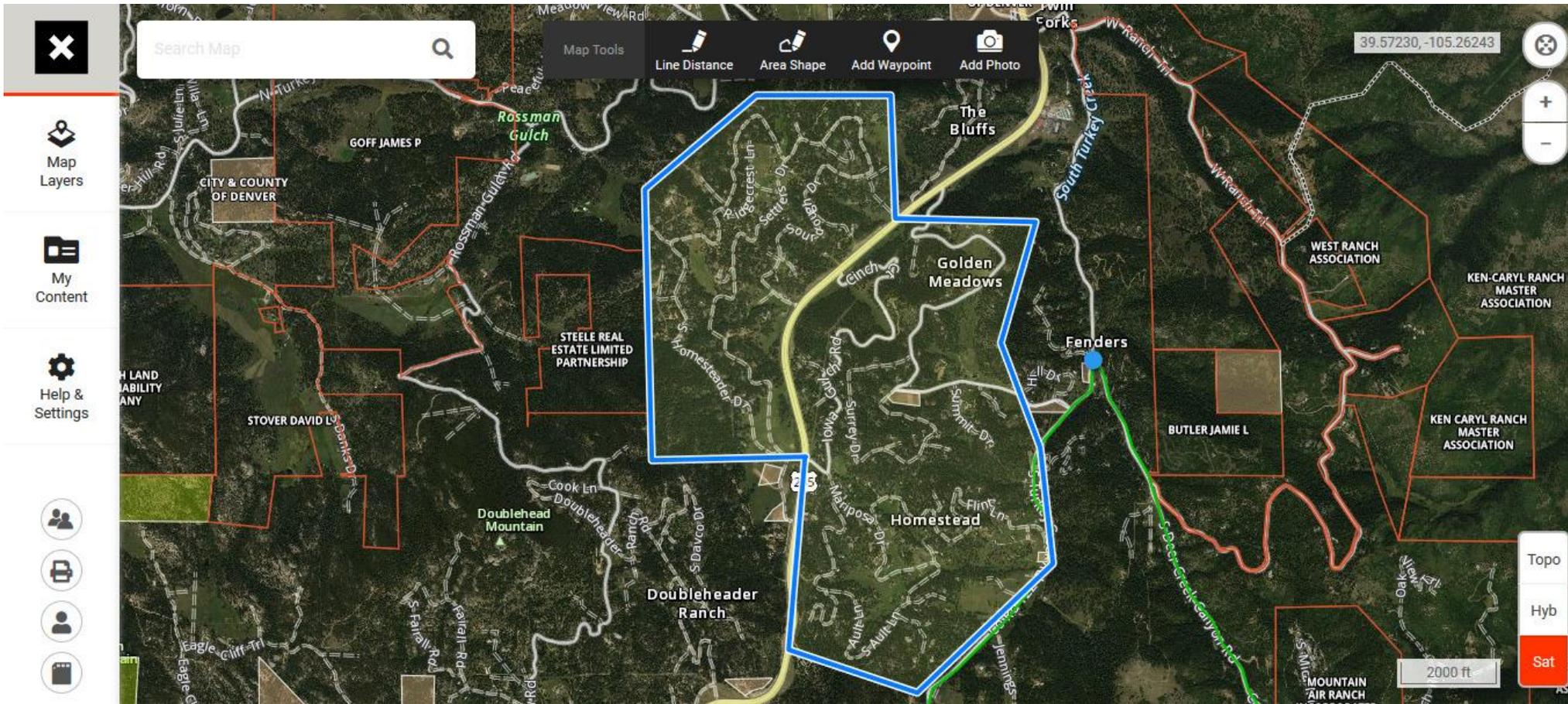


Figure 2: Homestead West/Sourdough and Homestead East CWPIP area

Section 3: Wildland Fire Response Infrastructure and Capabilities

Inter-Canyon Fire Protection District:

Wildland firefighting operations within this CWPIP area are the responsibility of the Inter-Canyon FPD. The ICFPD is responsible for initial attack. Refer to the Inter-Canyon CWPP or the ICFPD website for details <https://intercanyonfire.org/>.

Emergency Evacuation for Animals:

The Jefferson County Animal Response Team (J-CART) is the overall management entity for emergency evacuation. It operates under the Sheriff's office. Responders include:

Jefferson County Horse Evacuation Assistance Team (Jeffco Heat):

While residents are primarily responsible for evacuation of their animals this is an important service.

Pre-evacuation tips and overall knowledge of how HEAT works are at:

www.jeffcoheat.org, [facebook.com/jeffcoheat](https://www.facebook.com/jeffcoheat), or 303-674-4669.

- Additional information on community animal disaster planning can be found at: Colorado State University Extension: <https://extension.colostate.edu/disaster-web-sites/community-animal-disaster-planning-toolkit/>

Ready-Set-Go

Jefferson County endorses the Ready-Set-Go program (RSG) of wildfire action planning for residents and other property owners. This program assists firefighters to teach individuals who live in high risk wildfire areas and the wildland-urban-interface (WUI) how to best prepare themselves and their properties against fire threats. **To register, go to:** <https://public.coderedweb.com/CNE/655AC5D55998>

The RSG Program is a three step process:

- 1) **Ready** – Preparing for the Fire Threat; Be Ready, Be FireWise. Take personal responsibility and prepare long before the threat of a wildfire so your home is ready in case of a fire.
- 2) **Set** – Situational Awareness When a Fire Starts: Pack your vehicle with emergency items.
- 3) **Go** – Leave early! Comply with any evacuation orders and follow evacuation plans early!

The RSG Program provides tools through its website, www.wildlandfireRSG.org. A more complete description of the program is in Appendix D.

Section 4: IMPLEMENTATION ACTIONS AND RECOMMENDATIONS

The heart of a Community Wildfire Protection Implementation Plan is the recommendation of mitigation projects that should be undertaken by the community, landowners, and adjacent land management agencies (county, state and/or federal). Public land projects, when combined with home owner defensible space, structural protection, and roadway fuel mitigation, collaborate to provide area wide protection.

The Jefferson County CWPP states:

“Wildfire mitigation can be defined as those actions taken to reduce the likelihood of loss of life and property due to wildfire. The intent of mitigation is not to completely eliminate the risk of loss nor does it reduce the risk of a wildfire occurring. Effective wildfire mitigation enables residents to evacuate safely, homes to withstand the occurrence of wildfire, and firefighters to safely defend structures and suppress fires where possible...”

As much as possible recommended projects were established to include areas with common features: forest types, fuel loads, and ingress and egress routes.

1. **Values at risk:** Life and property are always the first values. Other values are: transportation and utility corridors and the natural values of vegetation and wildlife.
2. **Current level of activity:** Experience has shown that wildfire mitigation efforts are most effective when the community is involved.
3. **The important actions that residents should take:** Major components of a CWPIP are actions private land owners can take to protect life and property.
4. **Proximity to public lands priority zone:** The Healthy Forest Restoration Act builds on efforts to restore healthy forest conditions near communities and essential infrastructure.

4.1 Mitigation Techniques to be applied

The Inter-Canyon CWPP states: *“Effective wildfire mitigation reduces the potential for loss in the event of a catastrophic wildfire. This is accomplished through strategic management of wildland fuels, implementation of defensible space around individual homes and non-fuels mitigation measures such as emergency preparedness, ingress/egress improvements, and community awareness. Results are most effective when these approaches are pursued jointly by governmental entities, citizen groups, and individual homeowners.”*

4.1a Home Ignition Zone: Defensible Space; Structural Ignitability; Home address signage

CO State Forest Service: Two factors have emerged as the primary determinants of a home’s ability to survive a wildfire – quality of the defensible space around the home and the home’s structural ignitability. Together, these two factors create a concept called the Home Ignition Zone (HIZ), which includes the structure and the space immediately surrounding the structure. The primary goal is to reduce or eliminate fuels and ignition sources within the HIZ. *Research indicates homes with fire resistant roofs and defensible space have an 85% chance*

of surviving a wildfire while homes with neither of these characteristics have a 15% survival rate.

Creation of Defensible Space: This is the important area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire.

You, as residents of the Homestead West and East neighborhoods, are the most important component of this plan! Your actions are truly meaningful in protecting life, property, and the beauty of the area. **The CWPIP cannot mandate a property owner take any action.** It is hoped residents in the area will see that when everyone takes action the broader neighborhood landscape is protected.

To fully understand and act on Defensible Space go to the CSFS publication: “*Protecting Your Home from Wildfire: Creating Wildfire-Defensible Zones*”, on the CSFS website at: http://static.colostate.edu/client-files/csfs/pdfs/FIRE2012_1_DspaceQuickGuide.pdf.

This document is important! Please use it as a guide! It is complete in Appendix E.

You do not have to clear cut your property! Defensible space can be created in an esthetically pleasing manner that maintains privacy, the natural character of the area, and restores forest health.



Figure 4: CSFS Defensible Space Zones

The installation of a defensible space consists of three zones that can be adapted to specific building lot situations.

Zone 1 extends a minimum distance of 15-30 feet from a structure. The closest 3 to 5 feet are a non-combustible zone consisting of such things as decorative rock. The lower branches of trees are pruned 5 to 10 feet above the ground (not to exceed one-third of the tree height). Woody and herbaceous plant debris, tall grass, and ladder fuels (low limbs, small trees, and shrubs that may carry fire into tree crowns) will be removed. Leaves and overhanging branches will be removed from roofs. Leaves will be removed from under porches. Woodpiles will be removed and stored uphill in Zone 2.

Zone 2 (at least 100 feet from structures) depends upon the steepness of the slope around the structures. Treatment of ground fuels and ladder fuels will be the same as Zone 1. Trees (or small

groups of trees) and shrubs will be thinned to provide 10 feet of clearance among crowns on level ground. The distance between tree crowns needs to increase as slope increases. Herbaceous plants will be mowed as they dry in late summer.

Zone 3 occurs beyond Zone 2 and extends to the property line. Zone 3 will be managed for the appropriate land use objectives, such as aesthetics, recreation, and/or wildlife habitat.

Zones 1, 2, and 3 will be maintained annually. Two publications that provide information on appropriate plants to use for defensible space landscaping have been prepared by CSFS: *Grass Seed Mixes to Reduce Wildfire Hazard*, Bulletin No. 6.306 (Dennis, not dated), and *FireWise Plant Materials*, Bulletin 6.305 (Dennis, not dated)

Mitigation of Structural Ignitability: Structural mitigation to prevent ignition is very important to defensible space treatment. Please see CSFS publication *FireWise Construction; Site Design and Building Materials*.

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

1. **Most structures DON'T ignite from direct flame contact, but from radiant heat** (heat that doesn't warm the intervening air but does warm objects) and ember storms. **Use non-combustible roofing material and non-combustible siding (Class C or better), and spark arresters on chimneys.**
2. **Embers or fire brands ignite house fires.** During fires the air contains embers and tosses them onto unburned fuels. Embers can catch in "traps" on roofing, such as beside chimneys or in gutters, and start new fires. **Clean pine needles out of gutters and off roofing. Screen attic and foundation vents with fine mesh screening.**
3. **Large windows are a threat** because they allow radiant heat to enter the structure. As a fire burns the heat passes through air and windows and warm objects inside the home to the point of ignition. **Remove lacey and other decorative curtains** to prevent ignition through the glass. **Double and triple pane windows** are more resistant to heat transfer.

Signing and Evacuation; all Properties:

1. **Homes need visible address signing which are non-flammable and reflective** at the ends of their driveways. Emergency personnel respond based on street addresses.
2. **Create an evacuation plan – in advance.** Include a meeting place outside your area, and a family member or friend outside of your area who can be a point of contact. Think of the **Four Ps:** Pets, Pills, Papers, and Photos. You may have only a short time to evacuate. If you do leave the house, set a ladder in the driveway and connect garden hoses to spigots so firefighters can use your equipment to help defend your home.

4.1b Fuel Break

- **Shaded Fuelbreaks:** A shaded fuel break is a strategy for mitigating the threat of wildfire. Constructing a shaded fuel break is the process of selectively thinning and removing more flammable understory vegetation. Trees in the break are thinned and pruned to reduce fire potential yet retain enough crown canopy to make a less favorable microclimate for surface fires. Larger, more fire tolerant tree species can remain in place.

The Jefferson County CWPP states, “All access roads flanked by heavy vegetation in WUI communities should be targeted for thinning or seasonal mowing. Treatments may be coordinated with property owners along private roads and with county and state transportation departments for public roads. Conifer regeneration along road margins should be controlled...”

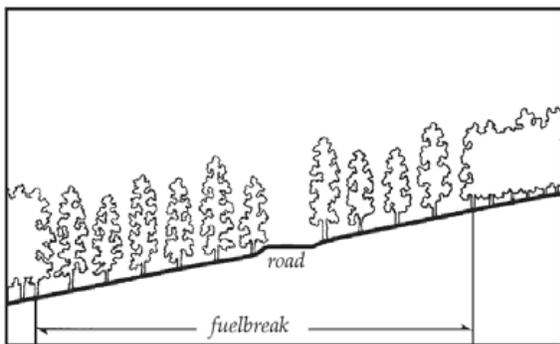
Vegetation treatments include reducing biomass, thinning trees and shrubs, and/or removing ladder fuels. Breaking up vertical and horizontal fuel continuity affords better opportunities to control rate of spread. The CSFS publications, *Fuelbreak Guidelines for Forested Subdivisions and Communities*, (Dennis, not dated) and *Lodgepole Pine Management Guidelines for Land Managers in the Wildland -Urban Interface* (Dennis et al) provide guidance and can be found under the “Publications” section of the COSFS website.

The treatment guide notes that...“**crown separation is a more critical factor for fuel breaks than a fixed tree density level.** Minimum 10-foot spacing between the edges of tree crowns is recommended on level ground. As slope increases, crown spacing should also increase. Small, isolated groups of trees may be retained for visual diversity. Conifer trees would be limbed up approximately 10 feet from the ground. Ladder fuels, such as small trees and shrubs, are thinned so that fire will not easily burn from the ground into the canopy. Aspen trees would not be harvested during the creation of the fuel breaks as aspen are fire resistant.

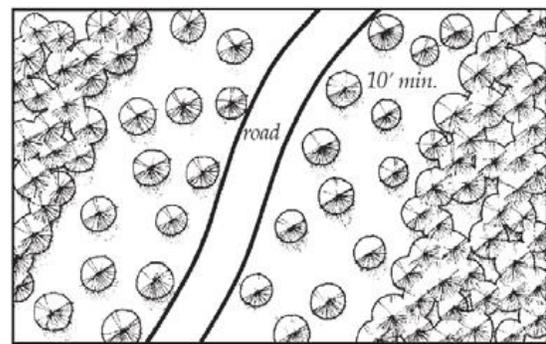
Fuels break Width/Slope

Percent slope %	Minimum uphill distance (ft.)	Minimum downhill distance (ft.)	Total distance of modified fuels (ft.)
0	150	150	300
10	140	165	303
20	130	180	310
30	120	195	315
40	110	210	320
50	100	225	325
60	100	240	340

*As slope increases, total distance for cut-and-fill for road construction rapidly increases, improving fuelbreak effective width.



Cross-section of a typical fuelbreak built in conjunction with a road.



Plan view of fuelbreak showing minimum distance between tree crowns.

Figure 5: Fuel Break Diagram (Dennis not dated)

Logs and other woody material generated from creating the fuel breaks would be disposed through salvage log sales, hauling debris off site to a designated disposal area, or burned on site following CSFS, Golden District *Prescribed Pile Burning Guidelines* (CSFS, not dated). An

evaluation should be made to determine marketability of logs prior to logging. Burning the woody debris requires contact with the ICFPD and/or CSFS.

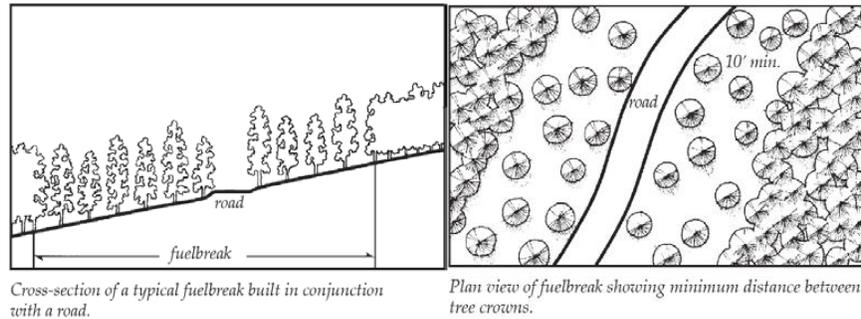


Figure 6: Fuel Break Diagram (Dennis not dated)

Treatment Alternatives and Costs:

The Forest Stewards Guild states: “Fuel treatment cost varies by slope, accessibility, time to initiate contract, and type of treatment. For Colorado’s Front Range, wildland mitigation generally costs \$1,500 to \$3,000 per acre, with little biomass or timber industry to provide financial return (Jones et al. 2017) ...Fuel treatments can reduce suppression costs due to the increased efficiency of firefighter action. They also dramatically reduce rehabilitation costs to property and water sources. It is also important to maintain existing treatments as maintenance is less costly than the initial entry and maintains the original investment...”

Treatment	Comments
Brush Mastication	<p>Brush species (Gamble oak in particular) tend to resprout vigorously after mechanical treatment.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Follow-up treatments with herbicides, fire, grazing, or further mechanical treatments are typically necessary. <input type="checkbox"/> Mastication tends to be less expensive than manual treatment and eliminates disposal issues.
Prescribed Fire	<ul style="list-style-type: none"> • Can be very cost effective. • Ecologically beneficial. • Can be used as training opportunity for firefighters. • Cost varies with complexity. • Carries risk of escape, which may be unacceptable in some WUI areas. • Unreliable scheduling due to weather and smoke management constraints.
Timber Mastication	<ul style="list-style-type: none"> • Materials up to 10 inches in diameter and slopes up to 30 percent can be treated. • Eliminates disposal issues. • Environmental impacts of residue being left onsite are still under study.
Manual Treatment with Chipping or Pile Burning	<ul style="list-style-type: none"> • Allows for removal of merchantable materials or firewood in timber. • Requires chipping, hauling, and pile burning of slash.
Feller Buncher	<ul style="list-style-type: none"> • Mechanical treatment on slopes over 30 percent of materials over 10 inches in diameter may require a feller buncher rather than a masticator. • Costs tend to be considerably higher than mastication. • May allow for removal of merchantable material.

Figure 7: Treatment Alternatives and Estimated Costs

The CWPIP team should consult with Intercanyon Fire for cost estimate assistance.

4.1c Fire Break

A fire break is an area where vegetation has been removed to bare ground or replaced with non-flammable surface such as asphalt. The purpose of the fire break is to stop fire progression. Herbaceous vegetation should be mowed approximately 10 feet on each side annually to further enhance its effectiveness.

4.1d Slash Management

Removal of slash is an important action to protect property. The Jefferson County website <http://jeffco.us/slash/> states, “*Slash is debris, from nature, such as tree limbs, pruning and pine needles. If not removed, slash can add to potential fire hazards on your property...it is critical that home owners clear debris from their properties to help prevent fire damage...*”

4.2 Recommended Mitigation Projects: Homestead West/Sourdough, Homestead East

Following are the recommended projects and descriptions as determined by the Homestead area CWPIP team.

Recommendation 1: Mitigation along area roadways

The Inter-Canyon CWPP calls for “*Shaded fuel breaks along forested primary, secondary, and designated emergency access roads*” in its recommendations for plan units. The hazard analysis also includes: “*visible and consistent home addressing, and improvements of road intersection signage...to improve access information for emergency responders, and, improve or construct secondary road turnarounds at dead ends.*”

Priority Roadways selected for mitigation:

The team evaluated the recommendations and conducted a drive around to identify roadsides in need of mitigation (See P28-32). The accompanying pages and maps show:

- An overall listing of roadways keyed to the following maps;
- Maps of Homestead areas West and East preceded by listings of numbered roadways selected as priority area roadways recommended for mitigation.

Recommendations made in the Inter-Canyon CWPP were considered: Homestead East (Iowa Gulch utility corridors); Homestead West (South Homesteader Drive, South Settlers Drive).

Treatment actions: The recommendation is for thinning along selected roadways. Thin (mostly dead fall) on either side of the road, following guidelines listed below. While encroachment is not along the full lengths of these routes, they will be evaluated for thinning. As noted in the publications, “*Road systems are important to fuel break construction...crown separation is a more critical factor for fuelbreaks than a fixed tree density level.*”

Treatment would be in accordance with three main standards as determined by the team and ICFPD:

- **Colorado State Forest Service:** *“Fuelbreak Guidelines for Forested Subdivisions and Communities”* by Frank Dennis
- **Colorado State Forest Service:** *“Lodgepole Pine Management Guidelines for Land Managers in the Wildland -Urban Interface”* (Dennis et al)
- **The USFS standard for roadside mitigation/hazard tree removal:** *“... implement hazard tree removal activities within a distance equal to 110% of the height of the tallest hazard tree from the edge of: 1) National Forest System (NFS) roads open to motorized travel (maintenance levels two through five); 2) federal, state, county, or other permitted roads...”* In this case the height of the tallest tree within the treatment zone would be used.

In general, mitigation would include, *“... fuel break clearing of dead standing and dead-fall coniferous growth and dead low growth with only moderate live-ground growth removal, then seeding with appropriate mixes to encourage grass cover and prevent soil erosion.”*

The fuelbreak guidelines referenced call for a minimum break of up to 150 feet on both side of the road and as much as 170 feet depending on steepness of the slope. Minimum 10-foot spacing between the edges of tree crowns is recommended on level ground.

Where stands of lodgepole pine exist there is potential for wind-throw if fuelbreak thinning creates “wind” corridors in the forest. It is recommended that thinning be accomplished by leaving groups of 7 to 10 trees separated from adjacent groups of trees to create the desired spacing effect.

Treatment would be primarily hand thinning with some mechanical, and with slash pile and treatment of material or some use of wood for biomass business purposes. The team should consult with Inter-Canyon for advice on getting an up-to-date cost estimate.

Coordination with private landowners

It is recognized that these standards are agency recommended based on research and experience and that these distances could well involve overlap of properties and include all of some properties if the desirable mitigation was accomplished. This will require working with property owners to gain agreement to treatment (see recommendation 3). The goal of the team in working with ICFPD to create projects will be to achieve the most effective result taking into account property and structure locations and boundaries. While recommended thinning distances may not be achievable in all areas they are important in achieving the best possible thinning results.

Numbered areas on maps selected as Priority Mitigation areas for Homestead West (note there are two maps to cover the area):

7 – 7302 Sourdough Dr to 7673 Sourdough Dr (Both sides); Longest stretch that needs work on this side

4, 9, 5 – Sourdough Dr between Fox Trail and Black Fox (Both sides); Sourdough Dr from Black Fox to 7294 Sourdough Dr (South side); 7837 Settlers Dr to 7777 Settlers Dr (Both sides) Tie in with 7 on either side.

2, 12, 8 – 7460 Homesteader Dr to Ridgecrest two track (East side); 7857 Settlers Dr (West side); 7567 Settlers Dr (Both sides of curve); Open up blind corner on a main road

Other areas identified for mention in Homestead West and available for community work.
10, 11, 13, 14

Homestead West Overall Key to Roads on Maps

0. High Spring Trail between Homesteader and Elk Path Way (South side)
1. 7880 Homesteader Dr (North side)
2. 7460 Homesteader Dr to Ridgecrest two track (East side)
3. 7371 Homesteader Dr (West side)
4. Sourdough Dr between Fox Trail and Black Fox (Both sides)
5. Sourdough Dr from Black Fox to 7294 Sourdough Dr (South side)
6. 7294 Sourdough Dr to 7302 Sourdough Dr (East side)
7. 7302 Sourdough Dr to 7673 Sourdough Dr (Both sides)
8. 7857 Settlers Dr (West side)
9. 7837 Settlers Dr to 7777 Settlers Dr (Both sides)
10. 7626 Settlers Dr (East side)
11. Settlers Dr from Spinning Wheel Tr to 7576 Settlers Dr (West side)
12. 7567 Settlers Dr (Both sides of curve)
13. 7536 Settlers to 7507 Settlers (East side)
14. 7507 Settlers Dr to 7436 Settlers (Both sides)
15. Yoke Tr (All both sides)
16. Green Meadow Ln from Settlers Dr to 21200 Green Meadow Ln (Both sides)
17. Ridgecrest Ln from Green Meadow Ln to 7415 Ridgecrest Ln (West side)
18. Sanger Way from Homesteader Dr to Wagon Rim Trail (North side)

)

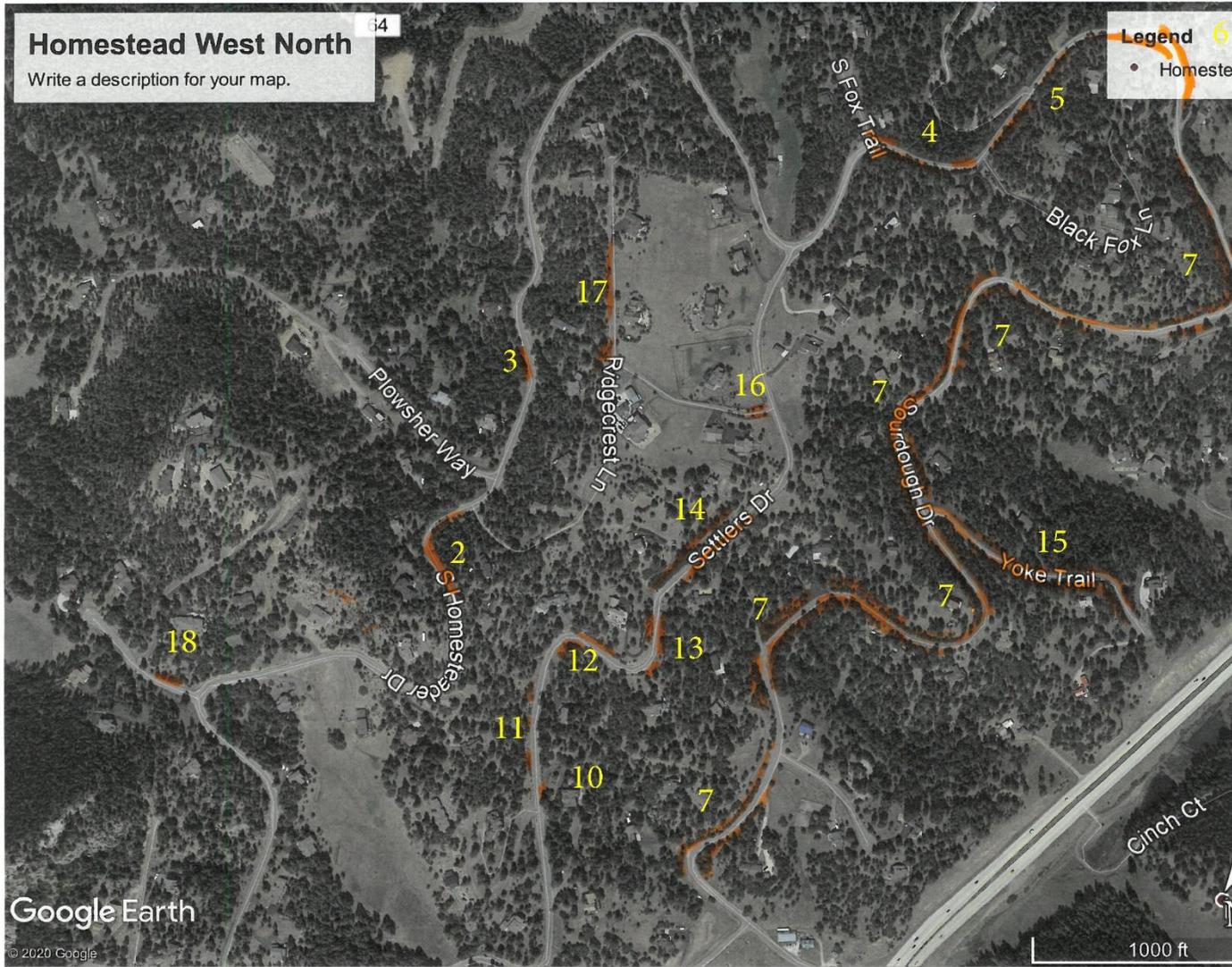


Figure 8: Roadways; Homestead West North

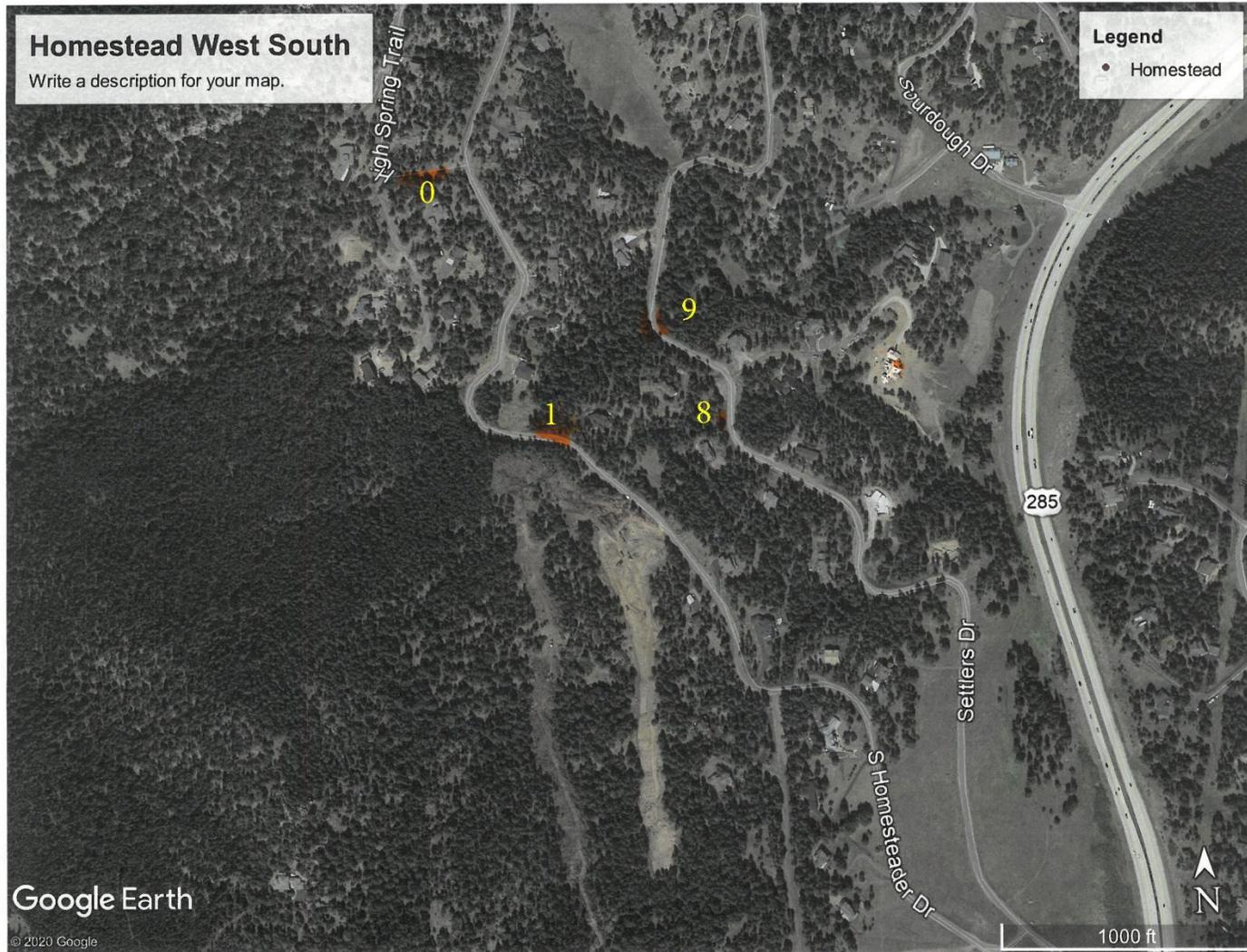


Figure 9: Roadways; Homestead West South

Numbered areas on maps selected as Priority Mitigation areas for Homestead East (note there are two maps to cover the area):

22 - Surrey Dr & Wagon Wheel Rd (Most all both sides); Longest stretch that needs work on this side

19, 20, 21 – 8229 Iowa Gulch Rd to 8139 Iowa Gulch Rd (West side); 8139 Iowa Gulch Rd to Broken Spoke Rd (Both sides);
Broken Spoke Rd (All north side); Also ties in with 22.

36, 37, 38 – 8682 Ault Ln to Creek Tr (South side); Ault Ln from Creek Tr to 8622 Ault Ln (Inside the curve); 8572 Ault Ln to 8552 Ault Ln (Both sides); Opens up an “s” curve on a main road

Other areas identified for mention in Homestead East and available for community work.
31, 34, 35, 46

Homestead East: Overall Key to Roads on Maps

19. 8229 Iowa Gulch Rd to 8139 Iowa Gulch Rd (West side)
20. 8139 Iowa Gulch Rd to Broken Spoke Rd (Both sides)
21. Broken Spoke Rd (All north side)
22. Surrey Dr & Wagon Wheel Rd (Most all both sides)
23. Cottontail Rd (Most both sides)
24. Spring Gulch Rd (At Open Space ball field entrance)
25. Summit Dr (Beginning and cul-de-sac both sides)
26. Columbine Dr (Most both sides)
27. Mariposa Dr from Iowa Gulch Rd to Ault Ln (Both sides)
28. Mariposa Dr from Ault Ln to Flint Ln (North side)
29. 8451 Mariposa Dr to 8511 Mariposa Dr (West side)
30. 8550 Mariposa Dr (Small section east side)
31. 8580 Mariposa Dr to Ault Ln (Both sides)
32. Ault Ln Cemetery Cul-de-sac (North side)
33. 8782 Ault Ln to 8773 Ault Ln (Both sides)
34. Ault Ln from Rockwood Tr to Stonewood Tr (Both sides)
35. 8722 Ault Ln to 8682 Ault Ln (Both sides)
36. 8682 Ault Ln to Creek Tr (South side)
37. Ault Ln from Creek Tr to 8622 Ault Ln (Inside the curve)
38. 8572 Ault Ln to 8552 Ault Ln (Both sides)
39. 8553 Ault Ln to 8453 Ault Ln (Outside curve)
40. 8452 Ault Ln to Mariposa Dr (Both sides)
41. Rockwood Tr (Both sides small pockets)
42. Flint Ln from Mariposa Dr to 20495 Flint Ln (Both sides)
43. 20266 Flint Ln to 20255 Flint Ln (North side)
44. Flint Ln from Mica Way to 20095 (West side)
45. 20086 Flint Ln to 20085 Flint Ln (North side)

- 46. 20085 Flint Ln to 20025 Flint Ln (Both sides)
- 47. 19856 Flint Ln (South side)
- 48. 19795 Flint Ln to 19755 Flint Ln (Inside corner)
- 49. 8382 Mica Way (Both sides)
- 50. Creek Trail first 200 feet (West side)
- 51. Creek trail both curves (Inside curve)
- 52. 8691 Creek Trail to 8700 Creek Trail (Both sides)

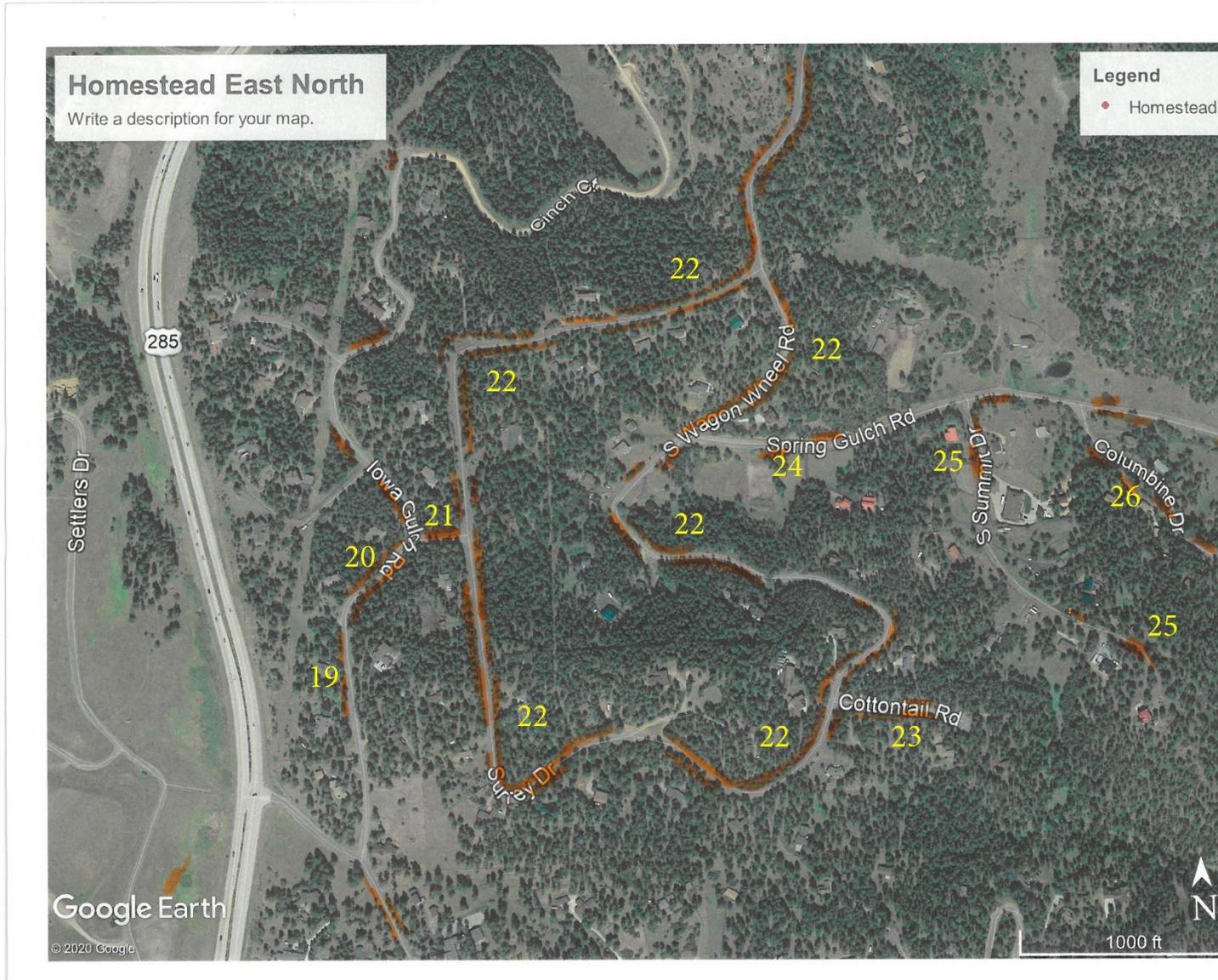


Figure 10: Roadways; Homestead East North

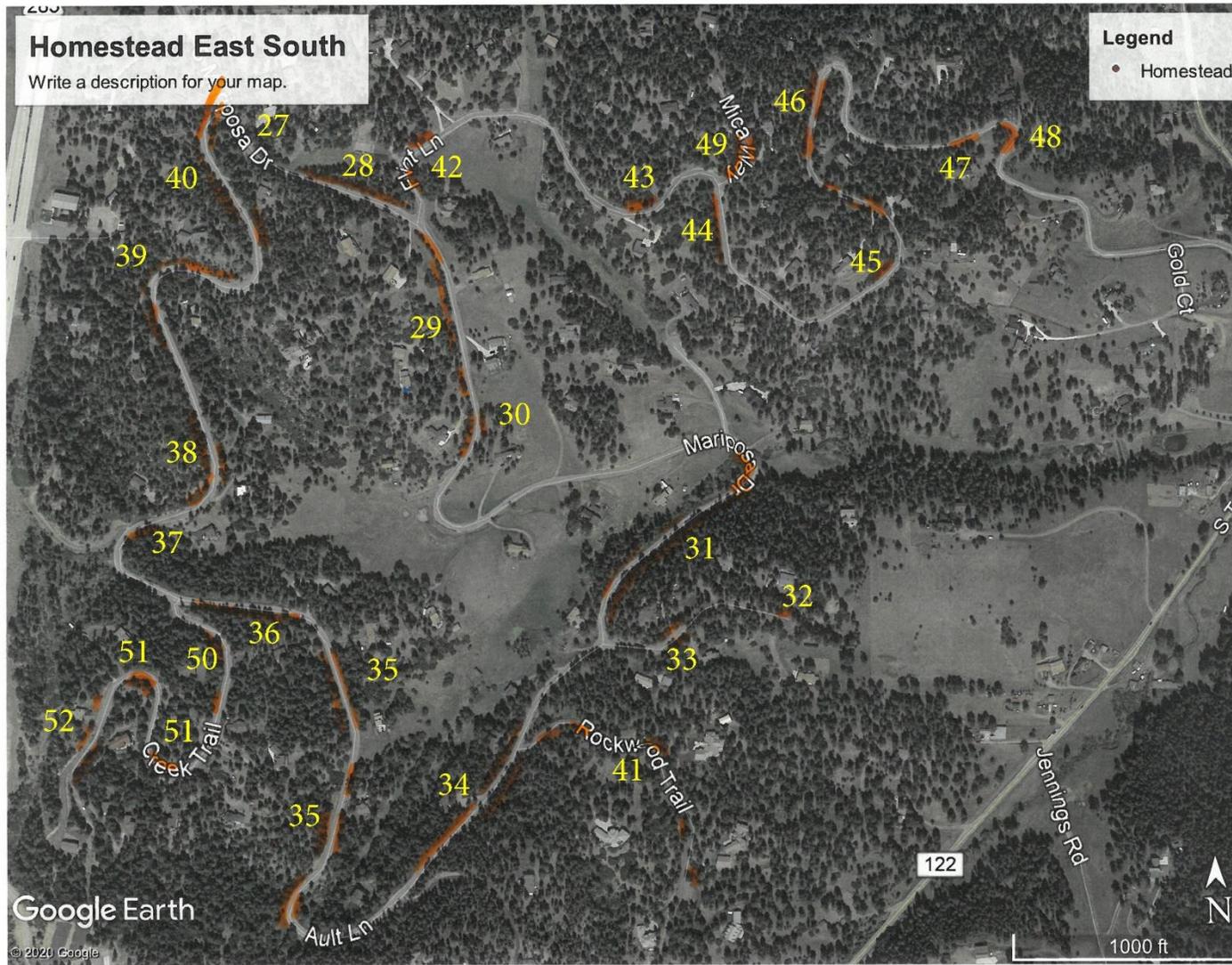


Figure 11: Roadways; Homestead East South



Figure 12: Example of pre-mitigation roadside



Figure 13: Example of post-mitigation roadside



Figure 14: Example of pre-mitigation roadside



Figure 15: Example of post-mitigation roadside

Recommendation 2:

Collaboration with officials and home owners to facilitate creation of Defensible Space and treat structural ignitability in the Home Ignition Zone

Work with Property Owners to facilitate education, creation, improvement, and maintenance of Defensible Space and reduce structural ignitability of homes in the Home Ignition Zone; educate residents on importance of visible signage (e.g. road signs and address markers)

2a. the team recommends collaboration with Inter-Canyon Fire Protection District, HOA and neighborhood/community events to educate residents and promote efforts to create Defensible Space and mitigate structural ignitability on residential lands. See CSFS publication: “*Protecting Your Home from Wildfire: Creating Wildfire-Defensible Zones*”, on the CSFS website in the Defensible Space section at: http://static.colostate.edu/client-files/csfs/pdfs/FIRE2012_1_DspaceQuickGuide.pdf; and CSFS publication: *FireWise Construction; Site Design and Building Materials*: <http://static.colostate.edu/client-files/csfs/pdfs/firewise-construction2012.pdf> for structural ignitability concerns. **The Defensible Space Guide is Appendix E** of this plan.

2b. the team recommends working with Inter-Canyon Fire Protection District to develop submittals for grant opportunities to gain funding for completing mitigation actions on properties and area roadways.

2c. the team recommends improvements in road and property signage: In areas where road names are similar, street signs should be revised to more clearly indicate the differences, (For example where roads have similar names such as “Drive” and “Road”).

The standard for address signage: Addresses on community driveways should be replaced with reflective markers: “...plainly legible and visible from the street or road fronting the property. ...numbers shall contrast with their background. Numbers shall be a minimum of 4 inches...high with a minimum stroke width of ½ inch... Where access is by means of a private road and the building address cannot be viewed from the public way, a monument, pole or other sign or means shall be used...”

Information on the ICFPD website states: “*This standard numbering program will make finding houses easier for everyone...Signs are made of rust-free aluminum, measure 5" x 14" (4 digits) or 5" x 16" (5 digits) with a blue reflective background and white numbers. Signs can be picked up at ICFPD Station 1.*” Signs may also be ordered online from ICFPD (see the website).

Signage should be repeated at every place where the driveway divides and an individual driveway leaves the community driveway. Reflective markers should be placed for each home where the driveway leaves an access road, and on the house itself.

Jeffco evaluation: Jefferson County has requirements for Defensible Space and has contracted foresters who will evaluate defensible space actions. For information on requirements and contractors go to:

<http://jeffco.us/planning-and-zoning/faqs/wildfire-faqs/do-i-need-to-meet-the-wildfire-regulation-/>. To find current contracted foresters click on the link to “*Defensible Space Contact Form*”.

Recommendation 3:

Educate Community on CWPIP and fuel break initiative to develop project and funding requests & owner commitment statements based on Inter-Canyon Fire Protection District goals and standards.

Development of large scale mitigation projects is recognized as a need within the Inter-Canyon FPD, and is an important part of CWPIP planning. A large scale project is, generally speaking, the creation of a fuel break that encompasses roadways, property owners doing defensible space on their adjacent lands, and possibly public lands. **Additional material and a letter of work/financial commitment for individual land owners and HOAs which would be part of a grant request are in Appendix B.**

The goal is to have large project areas identified and all the necessary documents, match dollars and agreements in place and signed, so when grant opportunities become available, each CWPIP team is ready to submit their project within a short time frame.

This priority will include the following: Large Scale CWPIP project process

- 1) Make sure the team has an effective means to quickly contact residents in the CWPIP area.
- 2) Continue the defensible space education and project efforts on area properties, have community chip/cutting days (volunteer days) and track all hours and expenses. Keeping good records helps in grant opportunities.
- 3) Get large scale projects identified; some are already identified in this CWPIP, but additional areas can be identified and placed into the plan; i.e. fuel breaks, ingress/egress fuel breaks in place and ready to go.
 - a) Identify properties to be included.
 - b) Get land use agreements completed, which may include door to door visits, to inform the property owners of the work that is needed in the area or HOA. The form that is included in Appendix B of this plan is for individual property owners to sign and give permission to have work done on their property. Project planning may include talking to public land agencies such as Denver Mountain Parks (DMP), Jeffco Open Space or USFS, to have one contiguous project.
 - c) Find out how much matching monies and/or “sweat equity hours” each property owner or HOA can commit for the large scale project. This is on the same form as the land use agreements.
 - d) Complete a home assessment survey for the community or HOA. This would be led by Inter-Canyon FPD, but may involve team and community volunteers to drive neighborhoods and fill out the surveys for properties. Training will be provided by Inter-Canyon FPD staff.
- 4) This will set up the opportunity for large grant opportunities for large scale project work. There are grant opportunities for the Upper South Platte Partnership (USPP), CSFS, and FEMA type grants. If the CWPIP or community gets everything in place sooner than later then the Jefferson Conservation District (JCD) or CSFS takes over and manages the project, and homeowners can watch the work being done.

Recommended Priority 4 Availability of Emergency Evacuation Routes

The team seeks to assure availability of routes for evacuation in event of wildfire emergencies. Depending on fire location and behavior various main roads in the area could be cut off from use. Determinations of which routes to take would be made by Sheriff's Department and fire officials at the time of an emergency.

Recommendation:

- **The team coordinates with Inter-Canyon Fire Rescue to review the area for any potential emergency evacuation routes which would need work and/or land owner agreement to establish and carry out such actions.**

- **The team coordinates with Inter-Canyon FPD to study the recommendation in the Inter-Canyon CWPP, *“improve or construct secondary road turn arounds at dead ends”*.**

Section 5: IMPLEMENTATION AND FOLLOW UP

The Inter-Canyon CWPP states, “Implementing and sustaining the CWPP is key to success. This ultimately is the responsibility of the CWPP stakeholders. The CWPP process encourages citizens to take an active role as fuel treatment strategies are developed and prioritized. Once the plan is finalized, however, *it’s stakeholder ownership that really drives the action plan.* The magnitude of the wildfire risks and hazards facing the Inter-Canyon FPD is significant and any effective reduction requires on-going commitment and collaboration to implement the treatments recommended in this CWPP.”

Implementing this CWPIP has the potential to significantly reduce the effects of wildfire. This will require the efforts of a committed CWPIP team collaborating with Inter-Canyon FPD, involving local interest groups, and the citizens of the area, and informing adjacent agencies. While groups may not be available for every meeting they should be invited and consulted. **Representation from the area neighborhoods is important. The team should strive for membership from all unit neighborhoods.**

The effectiveness of this plan will be the result of actions taken over time; ***completion of the plan is only the beginning.***

Ongoing community education and demonstration events are needed to demonstrate the necessity of taking personal action. Grant funding, contract crews, and volunteer projects will be spread out over a number of years.

Maintenance of the Plan

The CWPIP is meant to be a “living document” which is updated annually to pursue priority concerns. The overall goal is accomplished through:

- 1) Ongoing monitoring of plan accomplishments and effectiveness;
- 2) Adjusting the plan to account for changes in wildfire hazard conditions, response capabilities, technologies and other circumstances;
- 3) Setting goals and selecting projects for the coming year;
- 4) Seeking funding and other project assistance; and
- 5) Facilitating community project days and other events.

The team should establish guidelines for representation and ongoing operation at its first meeting following acceptance of this plan. Following are some guidelines to be considered by the team:

- **The CWPIP team should be an ongoing team as long as the community and planning efforts have need of such direction.** The CWPIP team should conduct recruitment of new members as needed.
- **Team meetings should be held at least quarterly** (it may be desirable to meet more often as summer approaches each year) to review plan goals, actions and public response. Conduct annual performance reviews to evaluate accomplishments and problems. The

team should consider proposed changes to the CWPIP and select new or ongoing project goals. The team should consult with ICFPD and reach out to neighborhood stakeholders. **The CWPIP evaluation, recommended changes, and upcoming project goals should be presented to the residents** through various meetings and informational avenues.

- **The team contact list should be made available to residents** so they can be informed or offer suggestions for the team to consider.
- **The CWPIP team should organize or take part in an annual community open house each spring** to keep the public continuously aware of healthy forest restoration and wildfire mitigation needs and opportunities.
- **The team should develop or participate in demonstration days, chipping days, and other opportunities in area neighborhoods to showcase projects, techniques, and new ideas.**

The CWPIP team should follow up on completed projects, using a monitoring and evaluation format which addresses the following issues:

- 1) Implementation: Track the CWPIP project(s) as laid-out for the year and assess the success level of execution;
- 2) Execution of project: What issues occurred that either aided or impeded the project?
- 3) Maintenance Needs and Monitoring: Evaluate areas that have been treated in the past, but are in need of maintenance treatments to maintain effectiveness as originally intended.

The CWPIP should be available to residents on various websites, such as an HOA site and the Inter-Canyon FPD site.

Section 6: APPENDICES

APPENDIX A: Glossary

APPENDIX B: Publications and websites

APPENDIX C: Large scale mitigation projects: Inter-Canyon Fire Protection District

APPENDIX D: Tips on insurance coverage from a *United Policyholders* handout.

APPENDIX E: Wildfire Action Planning - The Ready, Set, Go! Program (RSG)

APPENDIX F: Colorado State Forest Service: Protecting Your Home From Wildfire; Creating Wildfire-Defensible Zones

APPENDIX G: Colorado State Income Tax Deduction for Mitigation

APPENDIX A

Glossary of Terms

CWPP - A document that identifies and prioritizes areas for hazardous fuel reduction treatments on public and private land that will protect one or more at-risk communities and essential infrastructure and recommends measures to reduce structural ignitability throughout the at-risk community. A CWPP may address issues such as wildfire response, hazard mitigation, community preparedness, or structure protection - or all the above.

CWPIP - A document that helps a community work together to define specific areas that can be hazards to access and egress during a fire. It also will help define the appropriate mitigation and home hardening standards to implement to make an entire community less susceptible to wildfire. The CWPIP then helps the community prioritize these items into a work plan with achievable goals that benefit the individuals as well as the community. This is all based on the foundational information provided by a CWPP.

Firebrands	Burning material picked up by wind and deposited downwind of the main fire causing increased fire spread
Fuel(s)	Flammable material; (overgrown) vegetation
Fuel/Fire Break	A natural or man-made area of fewer fuels causing a wildfire to lessen its intensity or self-extinguish
Home assessment/inspection	Home walk-through; Fire risk overview; Wildfire Prepared assessment
Incident management team	Personnel making the suppression decisions on a wildfire
Ingress / egress route	Access roads for emergency vehicles and neighborhood evacuation
Ladder Fuels	Vegetation allowing a fire on the ground to travel into the tops of trees
Logging	Cutting/removing (overgrown) trees/brush; harvesting trees
Mastication	Using equipment to grind-up vegetation leaving the debris on the ground
Mitigation	Wildfire risk reduction; creating defensible/survivable space; removing/cutting back flammable vegetation
Prescribed fire	Intentionally starting a controlled fire to remove fuels from a defined area
Safety Zone	A place where refuge can be sought without the worry of impingement from a wildfire

Shelter in Place	The ability to take refuge in a structure that has been mitigated to the point that it is unlikely to burn
Slash; slash pile	Forest waste; yard debris; branches and small trees; brush; debris pile
Structure hardening	Using fire-resistive construction; improving home survivability for potential shelter in place
Thinning (trees)	Cutting/removing overgrown (or excess) trees/brush
Wildland-urban interface;	(WUI) Areas where homes and forests meet; homes near natural areas

APPENDIX B

Websites and Publications for Assistance

Following is a listing of websites and publications available from the Colorado State Forest Service and elsewhere which provide guidance on a range of mitigation activities and grant opportunities which will aid communities in lessening the impact of wildfire. *Residents are encouraged to view these sites.*

The following publications can be viewed on the Colorado State Forest Service website page for Publications: <http://csfs.colostate.edu/csfspublications/>, (or linked directly from below). If you need copies for events, contact the CSFS to order (see website) or you may have to print them from the website.

Funding Assistance

Grant Opportunities:

CO State Forest Service: <https://csfs.colostate.edu>

- Land Owner & Assistance Programs: <http://csfs.colostate.edu/funding-assistance>

- Natural Resource and Grant Assistance Database:
<http://nrdb.csfs.colostate.edu/Home/Search>

CO Dept. of Natural Resources:

- Wildfire Risk Reduction Grant (WRRG) Program:

FireWise: <http://www.firewise.org/>

Resources for Homeowners & Landowners

Jefferson County CWPP and plans in county areas such as Inter-Canyon Fire Protection Dist. CWPP: <http://csfs.colostate.edu/> (go down list by county to the plan).

Jefferson County Slash Management Program: <http://jeffco.us/slash/>

Colorado State Forest Service: Publications on Wildfire, Mitigation, and Resources for Home and Land Owners:

Go to: <http://csfs.colostate.edu/csfspublications/>. Publications with the following titles will be found here under the following headings.

Wildfire Mitigation & Education

- | | |
|--|---|
| •Are You FireWise? Notebook | •FireWise Plant Materials |
| •Are You Plains FireWise? Notebook | •Forest Home Fire Safety |
| •Cheat grass and Wildfire | •Grass Seed Mixes to Reduce Wildfire Hazard |
| •Protecting Your Home from Wildfire:
Creating Wildfire-Defensible Zones – 2012
Quick Guide | •Home Fire Protection |
| •Fire-Resistant Landscaping | •Living with Fire |
| | •Wildfire & Insurance |

Managing your Land & Forest Stewardship

- Colorado's Forest Stewardship Program Brochure (458 KB PDF)
- Landowner Assistance Programs in Colorado
- Landowners Guide to Thinning

FireWise Construction

- FireWise Construction: Site Design & Building Materials
- Decks
- Roofing Materials
- Siding
- Windows & Glass

Resources for Communities – Community Wildfire Protection Planning

- Community Guide to Preparing & Implementing a CWPP
- Community Wildfire Protection Plan Evaluation Guide
- Community Wildfire Protection Planning: HFRA and Beyond
- CWPP Briefing Paper – May 11, 2005
- CWPP Minimum Standards – REVISED 2009
- Fuelbreak Guidelines for Forested Subdivisions & Communities
- Leaders Guide for Developing a CWPP
- Preparing a Community Wildfire Protection Plan – Handbook

Post-Fire Rehabilitation

- Fire-Resistant Landscaping
- Forest Home Fire Safety
- Grass Seed Mixes to Reduce Wildfire Hazard
- Insects and Diseases Associated with Forest Fires
- Replanting in Burn Areas: Tips for Safety and Success
- Soil Erosion Control after Wildfire
- Vegetative Recovery after Wildfire

Websites

Inter-Canyon Fire Protection District: <https://intercanyonfire.org/>

Denver Mountain Parks: <https://www.denvergov.org/content/denvergov/en/denver-parks-and-recreation/parks/mountain-parks.html>

Jefferson County: <http://jeffco.us/>

Sheriff's Office & Wildfire: <http://jeffco.us/sheriff/wildfire/>

Slash disposal: <http://jeffco.us/slash>

Arapahoe & Roosevelt National Forest: <http://www.fs.fed.us/r2/arnf/index.shtml>

Appendix C

Large scale mitigation projects: Inter-Canyon Fire Protection District

The following information will help understand and facilitate the process of developing a large scale project in a CWPIP. A large scale project may be many different things, but generally speaking it's a fuel break that encompasses many different property owners, area roadways and open spaces, and possibly public lands. The ultimate goal is to have multiple fuel breaks to slow, divert or stop a large fire's ignition or progress.

A major step for a CWPIP team is to have large project areas identified within a CWPIP and the necessary documents, matching dollars and agreements in place so when grant opportunities come available each CWPIP is ready to submit their project and no time is lost.

It is extremely important for the CWPIP team and its community to put in the time and effort of getting project and property commitments in place sooner than later as project announcements and deadlines often are often close together. If project planning is done in advance and requests are awarded, then the Jefferson Conservation District (JCD) or CSFS takes over and manages the project.

Committing to and following this process will lead to landscape resilience, fire adapted communities and safe and effective fire response, which is what the Upper South Platte Partnership (USPP) has been working on and encouraging communities to be actively pursuing.

Fire Adapted Communities

Colorado's mountain communities are some of the most beautiful in the US. However, they are also at a higher risk for wildfire. By coming together to identify risk factors for wildfire and create shared solutions, communities of all sizes can improve their community's preparedness against wildfire. Mitigation, neighborhood planning, and education and engagement are all great places to start.

Large Scale CWPIP Project process

- 1) Make sure individual areas are in a current CWPIP and if not, form a new CWPIP in the new area. Contact John Mandl: jmandl@icfpd.net.
- 2) Continue the defensible space efforts on personal properties, as these both help the community and receive positive evaluations in grant requests: have community chip/cutting days (volunteer days) and track all hours and expenses. Designate an individual on the CWPIP team to do this, keep good records as this will help in grant opportunities.
- 3) Large scale projects identified in the CWPIP's can be expanded; i.e. fuel breaks, ingress/egress fuel breaks in place and ready to go.
 - a) Work with residents to designate properties to be included: get all the addresses, names and numbers of the project area(s).
 - b) Get land use agreements completed (see following draft). This will require door to door visits, to inform the property owners included in the project area on the work that is needed in the area or HOA. The agreement is for each property owner to sign, giving permission to have

work done on their property. These agreements would be augmented by public land agencies as needed; i.e. DMP, Jeffco Open Space or USFS projects as needed, so all the dots are connected to have one contiguous project.

c) Find out how much matching monies and/or “sweat equity hours” each property owner or HOA can commit for the large scale project. This is on the same form as the land use agreements.

d) Complete a home assessment survey for the community or HOA. This will be a quick, simple survey on each property. This would be led by Inter-Canyon FPD, but may involve team and community volunteers to drive neighborhoods and fill out the surveys for properties. Training will be provided by Inter-Canyon FPD staff.

4) This will set up the opportunity for small localized grant opportunities if available, and for large grant opportunities for large scale project work. The grant opportunities for the Upper South Platte Partnership (USPP), CSFS, and FEMA type grants.

DRAFT PROPERTY OWNER COMMITMENT LETTER

20XX Owner Commitment Letter: Fuels & Forest Health Projects, Forest Restoration and Wildfire Risk Mitigation Grant by CSFS

As owner of property in the xxxx HOA(or other designation) area I will participate in the 20XX Grant Program. I agree that I will spend the monies/time that I have committed to in this letter to perform mitigation for defensible space (thinning and laddering of trees and removal of slash) on my property in the xxxx.

I will return this letter to the HOA Grant Committee on or before XXXXX, 20XX, and agree to be a member in good standing of the xxxx Home Owner Association.

I understand that prior to mitigation; an approved Colorado Forest Service representative will mark all trees on my property that must be removed. The cost for the Forester to mark my property must be paid to the (HOA or other group) at the time my property is marked. The project will be considered complete only after a State Forest Service representative verifies that all marked trees and slash have been removed. I understand that if I do not complete the work by the grant deadline of xxxx, 20XX, I will be reimbursed nothing for my out-of-pocket costs or my labor.

If I choose to hire a contractor to perform mitigation of my property, I agree to pay the contractor in full and to submit a paid receipt from the contractor to the xxxx HOA for reimbursement after final inspection and receipt by xxxx HOA of grant funding, which could take 90 to 180 days after submission to Grantor.

If I choose to perform these services myself, I agree to submit a log of the dates and hours worked (reimbursable at \$XX.XX per hour (prevailing rate at the time) to the HOA after completion of my project.

I understand that the amount of any grant received by the xxxx HOA will determine how much I will be reimbursed for out-of-pocket expenses or labor for completion of mitigation of their properties.

I will provide only a cash commitment: \$ _____ (maximum)

I will provide only labor commitment: # _____ hours (minimum)

I will provide a combination commitment: \$ _____ cash and # _____ labor hours

My property address is: _____

Exact acreage of my property is _____

Signed: Owner(s): _____

Dated: _____

Mailing Address: _____

Phone: _____ Email: _____

Return completed form to xxxx HOA, xxxxxx, or scan/photo & email to xxxx HOA email: xxxx) By xxxx, 20XX.

APPENDIX D

The following insurance tips are from a *United Policyholders* handout and are good tips for home and business owners in the wildland-urban interface. Insurance companies are well aware of the CWPP and FireWise efforts and are taking more in depth looks at how home owners are protecting and mitigating their properties.

Preparedness Tips from the Trenches

What do disaster victims wish they'd known about insurance before they had a loss? Insurance money – not charitable or government aid makes the biggest difference in people's ability to rebuild and recover after a disaster. Having the right kind and amount of insurance on your property is so important.

- How can I avoid the most common gaps in coverage?
- What helps fire fighters save homes during wildfires and after earthquakes?
- What do disaster victims wish they'd known about insurance before they had a loss?
- How can I avoid the most common gaps in coverage?
- What helps fire fighters save homes during wildfires and after earthquakes?

FEMA money is needs-based and the maximum allocation is \$39k. SBA loans take time and have to be repaid. Charitable aid generally covers basic needs – not the cost of rebuilding a home.

Ask your insurer if you're covered for flooding, earthquakes, and a total loss from wildfire. **After a 2007 wildfire in San Diego County, 75% of the victims found themselves underinsured by an average of more than \$100,000.**

Don't blindly trust that your insurance company has got you fully covered.

The goal of an insurance sales rep is to sell you a policy at a price you're willing to pay. In most cases, the true replacement value of your property gets underestimated at the point of sale and as years go by. Read UP's Home Insurance Buying Tips at www.uphelp.org to avoid this problem. Confirm and keep records of insurance sales promises.

Complete as much of the UP Home Inventory as you can, then store the records off site in a safe place.

Take advantage of insurance discounts for making your home safer.

Avoid letting your insurance lapse.

Get help if your insurer drops you and you can't find replacement coverage.

Clear brush from around your home and keep it clear.

Have an evacuation plan that includes “grab and go” or off-site access to important documents.

Shop around to find which company offers the best discounts for “mitigation” and/or “retrofitting”.

If money’s tight, raise your deductible to keep premium costs down.

Read “Dropped by your insurer?” at www.uphelp.org/pdfs/Wheretogoforhelp.pdf

Ask your local Fire Department if they’ll inspect and certify for an insurance company that you’ve cleared brush adequately.

The #1 thing that helps fire fighters save homes is brush clearance. Clean out gutters and roof drains regularly. Install screens on all your roof vents to keep embers from flying in. Install spark arrestors in chimneys and get the chimney professionally cleaned periodically.

Keep a copy of your policy in a safe place away from your home and better yet, scan the complete document onto your computer or onto a UP Roadmap to Preparedness Flash Drive.

Information presented in this publication is for general informational purposes, and should not be taken as legal advice. If you have a specific legal issue or problem, United Policyholders recommends that you consult with an attorney.

APPENDIX E

Wildfire Action Planning

Code Red Smart 911

The Ready, Set, Go! Program (RSG): www.wildlandfireRSG.org

CodeRed:

CodeRED: The Jefferson County Jefferson County Emergency Communications Authority (JCECA) is the contractor for "CodeRed™" high-speed telephone emergency notification services sometimes referred to as "reverse 911 ®". The CodeRed system allows emergency dispatchers to deliver public safety messages to targeted areas or the entire county.

You may receive a CodeRED call from either Inter-Canyon Fire Dispatch or from the Jefferson County Sheriff's Dispatch Center. The 911 system works with all phones that have a TDD line (for the hearing impaired). If you have a telephone zapper used to block out telemarketers, or if your phone is blocked to unknown callers, you will not receive 911 calls.

Opt In to CodeRED

The CodeRED system calls numbers from two databases. If you have a land line, it is automatically included. There is also a database of mobile phone and VoIP numbers. If you don't have a traditional land line phone, or would like to receive a cell phone call you can register for this free service. **To register go to:** <http://jeffco.us/sheriff/emergencies/code-red/>

SMART 911

Smart911 is a free service that allows citizens to create a Safety Profile for their household that includes any information they want 9-1-1 to have in the event of an emergency. When anyone dials 9-1-1 from a phone associated with their Safety Profile, their profile is immediately displayed, providing information to facilitate the proper response. It is on the internet at: <https://www.smart911.com/>.

Ready-Set-Go!

The RSG Program is a three step process that can significantly increase the safety of residents and the safety of responding firefighters. The RSG Program provides the implementation guidance; background knowledge; and presentation tools to assist fire departments.

- **Ready** – Preparing for the Fire Threat: Be Ready, Be FireWise. Create defensible space by clearing brush away from your home. Use fire-resistant landscaping and harden your home with fire-safe construction measures. Assemble emergency supplies and belongings in a safe spot. Plan escape routes. For more information, go to Firewise.org.
- **Set** – Situational Awareness When a Fire Starts: Pack your vehicle with your emergency items. Stay aware of the latest news from local media and your local fire department.
- **Go** – Leave early! Comply with any evacuation orders and follow evacuation plans early!

The RSG Program provides tools through its website, www.wildlandfireRSG.org.

APPENDIX F
COLORADO STATE FOREST SERVICE: PROTECTING YOUR HOME
FROM WILDFIRE; CREATING WILDLFIRE-DEFENSIBLE ZONES



QUICK GUIDE SERIES

FIRE 2012-1

Protecting Your Home from Wildfire: Creating Wildfire-Defensible Zones

Formerly CSU Extension Factsheet 6.302

If your home is located in the natural vegetation of Colorado's grasslands, shrublands, foothills or mountains, you live in the **wildland-urban interface (WUI)** and are inherently at risk from a wildfire. The WUI is any area where structures and other human developments meet or intermingle with wildland vegetative fuels. In many vegetation types, it is not a matter of *if* a wildfire will impact your home, but *when*.

Wildfires are a natural part of Colorado's varied forest ecosystems. Many rural communities are located in areas historically prone to frequent natural wildfires. Living in the wildland requires more self-reliance than living in urban areas. It may take longer for a fire engine to reach your area, and a small fire department can easily become overwhelmed during an escalating wildfire. Planning ahead and taking actions to reduce fire hazards can increase your safety and help protect your property. As more people choose to live in areas prone to wildfire, additional homes and lives are potentially threatened every year. Firefighters always do their best to protect rural residents, but ultimately, it is **YOUR responsibility to protect your life, family, animals and property from wildfire**.

The information contained in this document is for use by individual landowners to help reduce wildfire risk on their property. In order to effectively protect subdivisions and communities, all landowners must work together to reduce fire hazards within and adjacent to communities.



Figure 2: Colorado's grasslands, shrublands, foothills and mountains all have areas in the wildland-urban interface where human development meets wildland vegetative fuels. Photo: CSFS

This includes treating individual home sites and common areas within communities, and creating fuelbreaks within and adjoining the community where feasible. This document will focus on actions individual landowners can take to reduce wildfire hazards on their property. For additional information on broader community protection, go to www.csfs.colostate.edu.

In this guide, you'll read about steps you can take to protect your property from wildfire. These steps focus on beginning work closest to your house and moving outward. Also, remember that keeping your home safe 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, while other actions may only need to be addressed once a year. While



Figure 1: Firefighters will do their best to protect homes, but ultimately it is the homeowner's responsibility to plan ahead and take actions to reduce fire hazards around structures. Photo: National Interagency Fire Center

This quick guide was produced by the Colorado State Forest Service to promote knowledge transfer.

October 2012
www.csfs.colostate.edu



Figure 3: Burning embers can be carried long distances by wind. Embers ignite structures when they land in gaps, crevices and other combustible places around the home. Photo: CSFS

Remember...

- **Reducing fuels around a home will increase the chances for survival in a wildfire, but there is no guarantee.**
- **This quick guide provides minimum guidelines. The more fuels you remove, the greater the chance your home will survive.**
- **Working with your neighbors and community will increase the effectiveness of your home's defensible space.**

you may not be able to accomplish ALL of the actions described in this document to prepare your home for wildfire, each completed activity will increase the safety of your home, and possibly your family, during a wildfire.

(Note: These guidelines are adapted for ponderosa pine, Douglas-fir and mixed-conifer ecosystems below 9,500 feet. See page 9 for guidelines adapted to other forest ecosystems.)

This guide primarily will help design your defensible space. **Defensible space** is the natural and landscaped area around a home or other structure that has been modified to reduce fire hazard. Defensible space gives your home a fighting chance against an approaching wildfire. Creating defensible space also reduces the chance of a structure fire spreading to the surrounding forest and other homes.

Three factors determine wildfire behavior: **fuels, weather and topography**. We cannot alter weather or topography, so we must concentrate on altering fuels. Fuels include vegetation, such as trees, brush and grass; near homes, fuels also include

such things as propane tanks, wood piles, sheds and even homes themselves. Some plant species are more flammable than others, and the flammability of vegetative fuels changes depending on the season, recent weather events, and other factors such as drought. Fuel continuity and density also play an important role in wildfire.

Wildfire often creates its own weather conditions. Hot rising air and associated winds can carry embers and other burning materials into the atmosphere for long distances, where they can ignite vegetation and structures up to several miles away. Embers have caused the loss of many homes during wildfires.

As you think about protecting your home and property from wildfire, consider how you can manage fuels on your property to prevent fire from spreading to your home and other structures.

For more information on wildfire behavior, please see [Fire Wise Construction: Site Design and Building Materials](http://www.csfscolorado.edu) at www.csfscolorado.edu.

Fuel Arrangement and Types

When fuels are abundant, a fire can be uncontrollable and destructive. But when fuels are scarce, a fire cannot build momentum and intensity, which makes it much easier to control and is more likely to be beneficial to the land.

The more dense and continuous the fuels, the bigger the threat they pose to your home. The measure of fuel hazard refers to its continuity, both horizontal and vertical. Horizontal continuity refers to fuels across the ground, while vertical continuity refers to fuels extending from the ground up 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. Mitigation of wildfire hazards focuses on breaking up the continuity of horizontal and vertical fuels.

Heavier fuels, such as brush and trees, produce a more intense fire than light fuels, such as grass. However, grass-fueled fires travel much faster than heavy-fueled fires. Some heavier surface fuels, such as logs and wood chips, are potentially hazardous heavy fuels and also should be addressed.



Figure 7: Addressing both components of the Home Ignition Zone will provide the best protection for your home. Credit: CSFS



Figure 8: (above) Wood shingle roofs are highly flammable and not recommended. Photo: CSFS



Figure 9: (above right) Class A roofing materials including tile, clay, concrete, slate and asphalt shingles are fire-resistant options. Photo: CSFS



Figure 10: Decks, exterior walls and windows are important areas to examine when addressing structure ignitability. Photo: CSFS

The Home Ignition Zone

Two factors have emerged as the primary determinants of a home's ability to survive a wildfire – the quality of the defensible space and a structure's ignitability. Together, these two factors create a concept called the **Home Ignition Zone (HIZ)**, which includes the structure and the space immediately surrounding the structure. To protect a home from wildfire, the primary goal is to reduce or eliminate fuels and ignition sources within the HIZ.

Structural Ignitability

The ideal time to address home ignition risk is when the structure is in the design phase. However, you can still take steps to reduce ignitability to an existing home.

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, use only fire-resistant roofing materials. Also, check with your county building department – some counties now have restrictions against using wood shingles for roof replacement or require specific classifications of roofing material. Wood and shake-shingle roofs are discouraged because they are highly flammable, and are prohibited in some areas of the state. Asphalt shingles, metal sheets and shingles, tile, clay tile, concrete and slate shingles are all recommended roofing materials.

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

Most **decks** are highly combustible. Their shape traps hot gasses, making them the ultimate heat traps. Conventional wooden decks are so combustible that when a wildfire approaches, the deck often ignites before the fire reaches the house.

The **exterior walls** of a home or other structure are affected most by radiant heat from the fire and, if defensible space is not adequate, by direct contact with flames from the fire.

Windows are one of the weakest parts of a building with regard to wildfire. They usually fail before the building ignites, providing a direct path for flames and airborne embers to reach the building's interior.

Burning embers are produced when trees and structures are consumed by wildfire. These embers sometimes can travel more than a mile. Flammable horizontal or nearly horizontal surfaces, such as wooden decks or shake-shingle roofs, are especially at risk for ignition from burning embers. Since airborne embers have caused the loss of many homes in the WUI, addressing structural ignitability is critical, even if the area surrounding a home is not conducive to fire spread.

This guide provides only basic information about structural ignitability. For more information on fire-resistant building designs and materials, refer to the CSFS *FireWise Construction: Site Design and Building Materials* publication at www.csfs.colostate.edu.

Defensible Space

Defensible space is the area around a home or other structure that has been modified to reduce fire hazard. In this area, natural and manmade fuels are treated, cleared or reduced to slow the spread of wildfire. Creating defensible space also works in the reverse, and reduces the chance of a structure fire spreading to neighboring homes or the surrounding forest. Defensible space gives your home a fighting chance against an approaching wildfire.

Creating an effective defensible space involves a series of management zones in which different treatment techniques are used. Develop these zones around each building on your property, including detached garages, storage buildings, barns and other structures.

The actual design and development of your defensible space depends on several factors: size and shape of building(s), construction materials, slope of the ground, surrounding topography, and sizes and types of vegetation on your property. You may want to request additional guidance from your local Colorado State Forest Service forester, fire department or a consulting forester as you plan a defensible space for your property.

Defensible space provides another important advantage during a fire: increased firefighter safety. Firefighters are trained to protect structures only when the situation is relatively safe for them to do so. They use a process called "structural triage" to determine if it is safe to defend a home from an approaching wildfire. The presence or absence of defensible space around a structure is a significant determining factor used in the structural triage process, as defensible space gives firefighters an opportunity to do their job more safely. In turn, this increases their ability to protect your home.

If firefighters are unable to directly protect your home during a wildfire, having an effective defensible space will still increase your home's chance of survival. It is important to remember that with wildfire, there are no guarantees. Creating a proper defensible space does not mean that your home is guaranteed to survive a wildfire, but it does significantly improve the odds.

Defensible Space Management Zones

Three zones need to be addressed when creating defensible space:

Zone 1 is the area nearest the home and other structures. This zone requires maximum hazard reduction.

Zone 2 is a transitional area of fuels reduction between Zones 1 and 3.

Zone 3 is the area farthest from the home. It extends from the edge of Zone 2 to your property boundaries.



Figure 11: Homesite before defensible space. Photo: CSFS



Figure 12: Homesite after creating a defensible space. Photo: CSFS



Figure 13: Defensible space management zones. Credit: CSFS



Figure 14: This homeowner worked hard to create a defensible space around the home. Notice that all fuel has been removed within the first 5 feet of the home, which survived the Waldo Canyon Fire in the summer of 2012. Photo: Christina Randall, Colorado Springs Fire Department



Figure 15: Clearing pine needles and other debris from the roof and gutters is an easy task that should be done at least once a year. Photo: CSFS



Figure 16: Enclosing decks with metal screens can prevent embers from igniting a house. Photo: Marilyn Brown, La Plata County

Zone 1

The width of Zone 1 extends a minimum distance of 15-30 feet outward from a structure, depending on property size. Most flammable vegetation is removed in this zone, with the possible exception of a few low-growing shrubs or fire-resistant plants. Avoid landscaping with common ground junipers, which are highly flammable.

Increasing the width of Zone 1 will increase the structure's survivability. This distance should be increased 5 feet or more in areas downhill from a structure. The distance should be measured from the outside edge of the home's eaves and any attached structures, such as decks. Several specific treatments are recommended within this zone:

- Install nonflammable ground cover and plant nothing within the first 5 feet of the house and deck. This critical step will help prevent flames from coming into direct contact with the structure. This is particularly important if a building is sided with wood, logs or other flammable materials. Decorative rock creates an attractive, easily maintained, nonflammable ground cover.
- If a structure has noncombustible siding (i.e., stucco, synthetic stucco, concrete, stone or brick), widely spaced foundation plantings of low-growing shrubs or other fire-resistant plant materials are acceptable. However, do not plant directly under windows or next to foundation vents, and be sure areas of continuous grass are not adjacent to plantings. Information on fire-resistant plants is available on the CSFS website at www.csfs.colostate.edu.
- Prune and maintain any plants in Zone 1 to prevent excessive growth. Also, remove all dead branches, stems and leaves within and below the plant.
- Irrigate grass and other vegetation during the growing season. Also, keep wild grasses mowed to a height of 6 inches or less.
- Do not store firewood or other combustible materials anywhere in this zone. Keep firewood at least 30 feet away from structures, and uphill if possible.
- Enclose or screen decks with 1/8-inch or smaller metal mesh screening (1/16-inch mesh is preferable). Do not use areas under decks for storage.
- Ideally, remove all trees from Zone 1 to reduce fire hazards. The more trees you remove, the safer your home will be.
- If you do keep any trees in this zone, consider them part of the structure and extend the distance of the entire defensible space accordingly.
- Remove any branches that overhang or touch the roof, and remove all fuels within 10 feet of the chimney.
- Remove all pine needles and other debris from the roof, deck and gutters.
- Rake pine needles and other organic debris at least 10 feet away from all decks and structures.
- Remove slash, wood chips and other woody debris from Zone 1.

Zone 2

Zone 2 is an area of fuels reduction designed to diminish the intensity of a fire approaching your home. The width of Zone 2 depends on the slope of the ground where the structure is built. Typically, the defensible space in Zone 2 should extend at least 100 feet from all structures. If this distance stretches beyond your property lines, try to work with the adjoining property owners to complete an appropriate defensible space.

The following actions help reduce continuous fuels surrounding a structure, while enhancing home safety and the aesthetics of the property. They also will provide a safer environment for firefighters to protect your home.

Tree Thinning and Pruning

- Remove stressed, diseased, dead or dying trees and shrubs. This reduces the amount of vegetation available to burn, and makes the forest healthier.
- Remove enough trees and large shrubs to create at least 10 feet between crowns. Crown separation is measured from the outermost branch of one tree to the nearest branch on the next tree. On steep slopes, increase the distance between tree crowns even more.
- Remove all ladder fuels from under remaining trees. Prune tree branches off the trunk to a height of 10 feet from the ground or $\frac{1}{3}$ the height of the tree, whichever is less.
- If your driveway extends more than 100 feet from your home, thin out trees within a 30 foot buffer along both sides of your driveway, all the way to the main access road. Again, thin all trees to create 10-foot spacing between tree crowns.
- Small groups of two or three trees may be left in some areas of Zone 2, but leave a minimum of 30 feet between the crowns of these clumps and surrounding trees.
- Because Zone 2 forms an aesthetic buffer and provides a transition between zones, it is necessary to blend the requirements for Zones 1 and 3. For example, if you have a tree in Zone 2 with branches extending into Zone 1, the tree can be retained if there is proper crown spacing.
- Limit the number of dead trees (snags) to one or two per acre. Be sure snags cannot fall onto the house, power lines, roads or driveways.
- As in Zone 1, the more trees and shrubs removed, the more likely your house will survive a wildfire.



Figure 17: In Zone 2, make sure there is at least a 10-foot spacing between tree crowns. Credit: CSFS

Shrub Thinning/Pruning and Surface Fuels

- Isolated shrubs may be retained in Zone 2, provided they are not growing under trees.
- Keep shrubs at least 10 feet away from the edge of tree branches. This will prevent the shrubs from becoming ladder fuels.
- Minimum spacing recommendations between clumps of shrubs is $2\frac{1}{2}$ times the mature height of the vegetation. The maximum diameter of the clumps themselves should be twice the mature height of the vegetation. As with tree-crown spacing, all measurements are made from the edge of vegetation crowns.
- Example - For shrubs 6 feet high, spacing between shrub clumps should be 15 feet or more (measured from the edge of the crowns of vegetation clumps). The diameter of these shrub clumps should not exceed 12 feet.
- Periodically prune and maintain shrubs to prevent excessive growth, and remove dead stems from shrubs annually. Common ground junipers should be removed whenever possible because they are highly flammable and tend to hold a layer of duff beneath them.
- Mow or trim wild grasses to a maximum height of 6 inches. This is especially critical in the fall, when grasses dry out.
- Avoid accumulations of surface fuels, such as logs, branches, slash and wood chips greater than 4 inches deep.



Figure 18: Pruning trees will help prevent a wildfire from climbing from the ground to the tree crowns. Credit: CSFS

Firewood

- Stack firewood uphill from or on the same elevation as any structures, and at least 30 feet away.
- Clear all flammable vegetation within 10 feet of woodpiles.
- Do not stack wood against your home or on/under your deck, even in the winter. Many homes have burned as a result of a woodpile that ignited first.

Propane Tanks and Natural Gas Meters

- Locate propane tanks and natural gas meters at least 30 feet from any structures, preferably on the same elevation as the house.
- The tank should not be located below your house because if it ignites, the fire would tend to burn uphill. Conversely, if the tank or meter is located above your house and it develops a leak, gas will flow downhill into your home.
- Clear all flammable vegetation within 10 feet of all tanks and meters.
- Do not visibly screen propane tanks or natural gas meters with shrubs, vegetation or flammable fencing. Instead, install 5 feet of nonflammable ground cover around the tank or meter.



Figure 19: Keep firewood, propane tanks and natural gas meters at least 30 feet away from structures. Photo: CSFS



Figure 20: This ponderosa pine forest has been thinned, which will not only help reduce the wildfire hazard, but also increase tree health and vigor. Photo: CSFS

Zone 3

Zone 3 has no specified width. It should provide a gradual transition from Zone 2 to areas farther from the home that have other forest management objectives. Your local Colorado State Forest Service forester can help you with this zone.

This zone provides an opportunity for you to improve the health of the forest through proper management. With an assortment of stewardship options, you can proactively manage your forest to reduce wildfire intensity, protect water quality, improve wildlife habitat, boost the health and growth rate of your trees, and increase tree survivability during a wildfire.

In addition, properly managed forests can provide income, help protect trees against insects and diseases, and even increase the value of your property. Typical forest management objectives for areas surrounding home sites or subdivisions provide optimum recreational opportunities; enhance aesthetics; improve tree health and vigor; provide barriers against wind, noise, dust and visual intrusions; support production of firewood, fence posts and other forest commodities; or cultivate Christmas trees or trees for transplanting.

Consider the following when deciding forest management objectives in Zone 3:

- The healthiest forest is one that includes trees of multiple ages, sizes and species, and where adequate growing room is maintained over time.
- Remember to consider the hazards associated with ladder fuels. A forest with a higher canopy reduces the chance of a surface fire climbing into the tops of the trees, and might be a priority if this zone has steep slopes.
- A greater number of snags – two or three per acre, standing or fallen – can be retained in Zone 3 to provide wildlife habitat. These trees should have a minimum diameter of 8 inches. Make sure that snags pose no threat to power lines or firefighter access roads.
- While tree pruning generally is not necessary in Zone 3, it may be a good idea from the standpoint of personal safety to prune trees along trails and firefighter access roads. Or, if you prefer the aesthetics of a well-manicured forest, you might prune the entire area. In any case, pruning helps reduce ladder fuels within tree stands, thus reducing the risk of crown fire.
- Mowing grasses is not necessary in Zone 3.
- Any approved method of slash treatment is acceptable, including piling and burning, chipping or lop-and-scatter.

Other Recommendations

Windthrow

In Colorado, some tree species, including lodgepole pine, Engelmann spruce and Douglas-fir, are especially susceptible to damage and uprooting by high winds or windthrow. If you see evidence of this problem in or near your home, consider making adjustments to the defensible space guidelines. It is highly recommended that you contact a professional forester to help design your defensible space, especially if you have windthrow concerns.

Water Supply

If possible, make sure that an on-site water source is readily available for firefighters to use, or that other water sources are close by. Lakes, ponds, swimming pools and hot tubs are all possible options. If there are no nearby water sources, consider installing a well-marked dry hydrant or cistern. If your primary water source operates on electricity, be sure to plan for a secondary water source. During wildfires, structures often are cut off from electricity. For more information on how to improve the accessibility of your water source, contact your local fire department.

Recommendations for Specific Forest Types

The above recommendations refer primarily to ponderosa pine, Douglas-fir and mixed-conifer ecosystems. For other forest types, please refer to the additional recommendations below:

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, making the tree easily susceptible to fungal infections. However, in older stands, numerous dead trees may be on the ground and require removal. Conifer trees often start growing in older aspen stands. A buildup of these trees eventually will increase the fire hazard of the stand, so you should remove the young conifers. Brush also can increase the fire hazard and should be thinned to reduce flammability.

Lodgepole Pine

Lodgepole pine management in the WUI is much different than that for lodgepole pine forests located away from homes, communities and other developments. Normally, it is best to develop fuels management and wildfire mitigation strategies that are informed and guided by the ecology of the tree species. This is not the case with lodgepole pine.

Older lodgepole pine stands generally do not respond well to selective thinning, but instead respond better to the removal of 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 to the removal of all standing trees.

To ensure a positive response to thinning throughout the life of a lodgepole pine stand, trees must be thinned early in their lives – no later than 20 to 30 years after germination. Thinning lodgepole pine forests to achieve low densities can best be



Figure 21: During high winds, these lodgepole pine trees fell onto the house. Lodgepole pine is highly susceptible to windthrow. Photo: CSFS



Figure 22: Mature aspen stands can contain many young conifers, dead trees and other organic debris. This can become a fire hazard. Photo: CSFS



Figure 23: A young lodgepole pine stand. Thinning lodgepole pines early on in their lives will help reduce the wildfire hazard in the future. Photo: CSFS

The defensible space guidelines in this quick guide are predominantly for ponderosa pine and mixed-conifer forests. These guidelines will vary with other forest types.



Figure 24: Piñon-juniper forests are often composed of continuous fuels. Creating clumps of trees with large spaces in between clumps will break up the continuity. Photo: CSFS



Figure 25: Gambel oak needs to be treated in a defensible space at least every 5-7 years because of its vigorous growing habits. Photo: CSFS

accomplished by beginning when trees are small saplings, and maintaining those densities through time as the trees mature.

Thinning older stands of lodgepole pine to the extent recommended for defensible space may take several thinning operations spaced over a decade or more. When thinning mature stands of lodgepole pine, do not remove more than 30 percent of the trees in each thinning operation. Extensive thinning of dense, pole-sized and larger lodgepole pine often results in windthrow of the remaining trees. 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 perimeter and any adjacent trees or clumps of trees. Wildfire tends to travel in the crowns of lodgepole pine. By separating clumps of trees with large spaces between crowns, the fire is less likely to sustain a crown fire.

Piñon-Juniper

Many piñon-juniper (PJ) forests are composed of continuous fuel that is highly flammable. Fire in PJ forests tend to burn intensely in the crowns of trees. Try to create a mosaic pattern when you thin these trees, with a mixture of individual trees 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 individual trees should be 10 feet between tree crowns, with increasing space for larger trees, clumps, and stands on steeper slopes.

Tree pruning for defensible space is not as critical in PJ forests as in pine or fir forests. Instead, it is more important to space the trees so that it is difficult for the fire to move from one tree clump to the next. Trees should only be pruned to remove dead branches or branches that are touching the ground. However, if desired, live branches can be pruned to a height of 3 feet above the ground. Removing shrubs that are growing beneath PJ canopies is recommended to reduce the overall fuel load that is available to a fire.

It is NOT recommended to prune live branches or remove PJ trees between April and October, when the piñon ips beetle is active in western Colorado. Any thinning activity that creates the flow of sap in the summer months can attract these beetles to healthy trees on your property. However, it is acceptable to remove dead trees and dead branches during the summer months.

For more information, please refer to the CSFS [Piñon-Juniper Management Quick Guide](http://www.csfs.colostate.edu) at www.csfs.colostate.edu.

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 vegetative sprouts from this deep, extensive root system. You may need to treat Gambel oak near your home every five to seven years. Sprouts also should be mowed at least once every year in Zones 1 and 2. Herbicides can be used to supplement mowing efforts for controlling regrowth.

For more information, please refer to the CSFS [Gambel Oak Management](http://www.csfs.colostate.edu) publication at www.csfs.colostate.edu.

Note: This publication does not address high-elevation spruce-fir forests. For information on this forest type, please contact your local CSFS district office.

Maintaining Your Defensible Space

Your home is located in a dynamic environment that is always changing. Trees, grasses and shrubs continue to grow, die or are damaged, and drop their leaves and needles each season. Just like your home, the defensible space around it requires regular, ongoing maintenance to be effective. Use the following checklists to build and maintain your defensible space.

Defensible Space: Initial Projects

- Properly thin and prune trees and shrubs within Zones 1 and 2.
- Dispose of slash from tree/shrub thinning.
- Screen attic, roof, eaves and foundation vents, and periodically check them to ensure that they are in good condition.
- Screen or wall-in stilt foundations and decks; screens should be 1/8-inch or smaller metal mesh (1/16-inch mesh is best).
- Post signs at the end of the driveway with your last name and house number that are noncombustible, reflective and easily visible to emergency responders.
- Make sure that the driveway is wide enough for fire trucks to enter and exit, and that trees and branches are adequately cleared for access by fire and emergency equipment. Contact your local fire department or check the CSFS website for information specific to access.
- Take pictures of your completed defensible space for comparison of forest growth over time.



Figure 26: Keeping the forest properly thinned and pruned in a defensible space will reduce the chances of a home burning during a wildfire. Photo: CSFS

Defensible Space Tasks: Annual Requirements

- Clear roof, deck and gutters of pine needles and other debris. *
- Mow grass and weeds to a height of 6 inches or less. *
- Rake all pine needles and other flammable debris away from the foundation of your home and deck. *
- Remove trash and debris accumulations from the defensible space.*
- Check fire extinguishers to ensure that they have not expired and are in good working condition.
- Check chimney screens to make sure they are in place and in good condition.
- Remove branches that overhang the roof and chimney.
- Check regrowth of trees and shrubs by reviewing photos of your original defensible space; properly thin and prune trees and shrubs within Zones 1 and 2.
- Dispose of slash from tree/shrub thinning. *

*Address more than once per year, as needed.



Figure 27: Sharing information and working with your neighbors and community will give your home and surrounding areas a better chance of surviving a wildfire. Photo: CSFS

Be Prepared

- Complete a checklist of fire safety needs inside your home (these should be available at your local fire department). Examples include having an evacuation plan and maintaining smoke detectors and fire extinguishers.
- Develop your fire evacuation plan and practice family fire drills. Ensure that all family members are aware of and understand escape routes, meeting points and other emergency details.
- Contact your county sheriff's office and ensure that your home telephone number and any other important phone numbers appear in the county's Reverse 911 or other emergency notification database.
- Prepare a "grab and go" disaster supply kit that will last at least three days, containing your family's and pets' necessary items, such as cash, water, clothing, food, first aid and prescription medicines.
- Ensure that an outdoor water supply is available. If it is safe to do so, make a hose and nozzle available for responding firefighters. The hose should be long enough to reach all parts of the house.

Preparing your home and property from wildfire is a necessity if you live in the wildland-urban interface. It is important to adequately modify the fuels in your home ignition zone. Remember, every task you complete around your home and property will make your home more defensible during a wildfire.

Always remember that creating and maintaining an effective defensible space in the home ignition zone is not a one-time endeavor – it requires an ongoing, long-term commitment.

If you have questions, please contact your local CSFS district office. Contact information can be found at www.csfs.colostate.edu.

List of Additional Resources

- The Colorado State Forest Service, <http://www.csfs.colostate.edu>
- CSFS wildfire-related publications, <http://csfs.colostate.edu/pages/wf-publications.html>
- Community Wildfire Protection Planning, <http://csfs.colostate.edu/pages/community-wf-protection-planning.html>
- Colorado's "Are You FireWise?" information, <http://csfs.colostate.edu/pages/wf-protection.html>
- National Fire Protection Association's Firewise Communities USA, <http://www.firewise.org>
- Fire Adapted Communities, <http://fireadapted.org/>
- Ready, Set, Go!, <http://wildlandfirersg.org/>



Figure 28: This house has a high risk of burning during an approaching wildfire. Modifying the fuels around a home is critical to reduce the risk of losing structures during a wildfire. Photo: CSFS



Figure 29: This house survived the Fourmile Canyon Fire in 2010. Photo: CSFS



Figure 30: Firefighters were able to save this house during the 2012 Weber Fire because the homeowners had a good defensible space. Photo: Dan Bender, La Plata County

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APPENDIX G

Colorado State Income Tax Deduction for Mitigation

Colorado landowners with property located in a wildland-urban interface area may qualify to receive a tax subtraction for the costs of wildfire mitigation work. As authorized by §39-22-104(4)(n)(II), C.R.S., **for income tax years 2009 through 2024** individuals, estates and trusts may subtract from federal taxable income certain costs incurred in performing wildfire mitigation measures.

Following is a summary from the Colorado Department of Revenue Taxpayer Service Division: Income 65 Wildfire Mitigation Measures Subtraction

The 2020-2021 Application Instructions issued by the Colorado State Forest Service- Fuels & Forest Health Projects Forest Restoration and Wildfire Risk Mitigation Grant Program Established by SB 17-050, states: “Is the project identified through a community-based collaborative process such as a Community Wildfire Protection Plan (CWPP), Critical Watershed Wildfire Protection Plan or similar? If yes, list the plan name(s).

Community wildfire protection plan must meet the following requirements:

- It must be approved by a local government entity, local fire department and the Colorado State Forest Service...
- It must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatments.
- It must recommend measures to reduce structural ignitability.

Additional information regarding community wildfire protection plans can be found online at www.csfs.colostate.edu.

COMMON QUESTIONS: Consider contacting a tax accountant if you have questions

Does the community wildfire protection plan (CWPP) have to be approved before the fire mitigation activities take place?

Yes, the CWPP must be approved before the mitigation measures are performed. The mitigation measures must be performed in a wild urban interface area and authorized by an existing CWPP.

**THE FOLLOWING SECTION WAS TAKEN OFF CO DEPT. OF REVENUE WEBSITE
1/5/21**

Income 65: Wildfire Mitigation Measures Subtraction

Individuals, estates and trusts may claim a subtraction on their Colorado income tax return for certain costs incurred in performing wildfire mitigation measures on their property in a wildland-urban interface area within Colorado. The subtraction is equal to either 50% or 100% (depending on the tax year) of the qualifying costs for performing wildfire mitigation measures. The total subtraction a taxpayer can claim per tax year is limited to \$2,500.

WHO CAN CLAIM THE WILDFIRE MITIGATION MEASURES SUBTRACTION?

The wildfire mitigation measures subtraction is available to taxpayers who meet certain qualifications and who perform wildfire mitigation measures on their property in a wildland-urban interface area within Colorado. In order to qualify, the taxpayer must be an individual, estate, or trust. Corporations, partnerships, and similar legal entities cannot claim the subtraction. The taxpayer must also be an owner of record of the private land upon which the mitigation measures are performed, but such ownership may include various ownership interests described below.

Qualifying ownership interests

In order to qualify for the subtraction, a taxpayer must have a qualifying ownership interest in the private land upon which the wildfire mitigation measures are performed. Qualifying ownership interests include:

- *Fee Simple Interest*: an absolute and unconditional ownership interest in real property
- *Easement*: a non-possessory interest in real property to enter on to land and use the land, or to restrict the use of such land, for an indefinite or specific period of time, such as a right-of-way to travel across land or to use the land for recreational purposes (e.g., fishing, hunting, camping)
- *Right-of-way*: a type of easement
- *Lease*: a possessory interest in land evidenced by a properly recorded lease contract or agreement

A taxpayer's qualifying ownership interest in real property may be held solely, jointly, or in common. However, in the case of real property owned as tenants in common, the subtraction is allowed to only one of the individuals of the ownership group.

Non-qualifying ownership interests

Taxpayers cannot claim the subtraction for any wildfire mitigation measures performed on public land, regardless of whether the taxpayer holds any ownership interest in the public land (such as an easement, right-of-way, or lease). Additionally, the subtraction is not allowed for wildfire mitigation measures a taxpayer performs on any real property in which they have no ownership interest.

WHAT COSTS QUALIFY FOR THE WILDFIRE MITIGATION MEASURES SUBTRACTION?

The wildfire mitigation measures subtraction is allowed for the actual out-of-pocket expenses incurred and paid by the taxpayer primarily for wildfire mitigation measures. In order to qualify for the subtraction, the wildfire mitigation measures must be performed on real property in which the taxpayer has an ownership interest (see *Qualifying ownership interests*, above) and that is located in a wildland-urban interface area within Colorado. A wildland-urban interface area is an area where structures and other human development are built close to or within natural terrain and flammable vegetation, and where high potential for wildland fire exists.

Wildfire mitigation measures

Wildfire mitigation measures that qualify for the subtraction are any of the following activities so long as such activities meet or exceed any applicable standards established by the Colorado State Forest Service or the Division of Fire Prevention and Control:

- creating a defensible space around structures;
 - establishing fuel breaks;
- thinning of woody vegetation for the primary purpose of reducing risk to structures from wildland fire; or
- secondary treatment of woody fuels by lopping and scattering, piling, chipping, removing from the site or prescribed burning.

For information about standards established by the Colorado State Forest Service and the Division of Fire Prevention

and Control, see:

- Wildfire Information Resource Center - colorado.gov/pacific/dfpc/wildfire-information-resource-center
- Colorado State Forest Service - csfs.colostate.edu/wildfire-mitigation/

Qualifying costs

In order to qualify for the subtraction, a cost must be an actual out-of-pocket expense incurred and paid by the taxpayer primarily for wildfire mitigation measures. A taxpayer must have a receipt documenting the cost of any wildfire mitigation measure for which the subtraction is claimed. Qualifying costs include:

- payment to a contractor to perform wildfire mitigation measures;
- the cost of a chainsaw if purchased primarily for wildfire mitigation measures; or
- the cost to rent an all-terrain vehicle, truck, tractor, or trailer if rented primarily to perform wildfire mitigation measures.

Non-qualifying costs

The subtraction is not allowed for any of the following:

- *inspection or certification fees* paid in association with the performance of wildfire mitigation measures;
- *in-kind contributions or donations* of time, labor, materials, or equipment to perform wildfire mitigation measures;
 - *the value of the landowner's time or labor* for performing wildfire mitigation measures; or
- *cost sharing, incentives, or grants* by which the cost of wildfire mitigation measures are borne, either directly or as the result of reimbursement, by someone other than the landowner.

Additionally, the subtraction is not allowed for any costs incurred primarily for some purpose other than wildfire mitigation, even if such costs yield some wildfire mitigating benefit. For example, the subtraction cannot be claimed for the purchase of an all-terrain vehicle, truck, tractor, or trailer, even if such vehicle is occasionally used to perform wildfire mitigation measures. Similarly, the subtraction cannot be claimed for the costs of landscaping performed primarily for aesthetic purposes, even if such landscaping provides some wildfire mitigating benefit.

CALCULATIONS AND LIMITATIONS FOR THE SUBTRACTION

The allowable subtraction is equal to a percentage of the qualifying costs incurred and paid by the taxpayer during the tax year, subject to the limitations discussed below. The applicable percentage is based upon the tax year for which the subtraction is claimed, as illustrated in the table to the right.

Subtraction Percentage

Tax Years	Percentage
2014-2016	50%
2017-2019	100%
2020-2024	50%

Limitations

The total subtraction claimed on any return cannot exceed \$2,500, regardless of whether the return is for a single filer or joint filers. Additionally, the total subtraction

claimed cannot exceed the federal taxable income reported on the return. If two taxpayers are legally allowed to file a joint return, but elect to file separately, only one of the two individuals can claim the subtraction. In the case of real property owned by tenants in common, the subtraction can be claimed by only one of the taxpayers in the ownership group.

SUPPORTING DOCUMENTATION

To claim the subtraction, a taxpayer must complete and submit a Subtractions from Income Schedule (DR 0104AD) with their Colorado Individual Income Tax Return (DR 0104). The taxpayer must also submit copies of receipts documenting the qualifying costs for which the subtraction is claimed with their return. For electronically filed returns, scanned copies of receipts can be submitted either via e-file or by using the E-Filer Attachment function online at [Colorado.gov/RevenueOnline](https://colorado.gov/RevenueOnline).

ADDITIONAL RESOURCES

- *Colorado statutes and regulations*
 - § 39-22-104(4)(n.5), C.R.S. Wildfire mitigation measures subtraction
 - 1 CCR 201-2, Reg. 39-22-104(4)(N.5). Wildfire mitigation measures subtraction
 - *Colorado forms, publications, and guidance*
 - Subtractions from Income Schedule (DR 0104AD)
 - *Other resources*
 - House Bill 12-1283 – transferring wildfire-related powers, liabilities, and duties of the Colorado State Forest Service to the Division of Fire Prevention and Control within the Department of Public Safety
 - Senate Bill 14-008 – establishing the Wildfire Information Resource Center
 - Wildfire Information Resource Center - colorado.gov/pacific/dfpc/wildfire-information-resource-center
 - Colorado State Forest Service - csfs.colostate.edu/wildfire-mitigation/

FYIs represent a good faith effort to provide general information concerning a variety of Colorado tax topics in simple and straightforward language. By their nature, however, FYIs cannot and do not address all taxpayer situations nor do they provide a comprehensive overview of Colorado’s tax laws. For this reason, FYIs are not binding on the Colorado Department of Revenue, nor do they replace, alter, or supersede Colorado law and regulations.

A taxpayer seeking additional guidance regarding the tax consequences of a particular transaction or factual scenario can request a Private Letter Ruling (PLR) or General Information Letter (GIL). Requests for PLRs and GILs must comply with certain requirements, which are currently set forth at 1 Code of Colorado Regulations 201-1, Regulation 24-35-103.5. PLRs are binding upon the Department only with respect to the specific taxpayer that requested the PLR. GILs are for informational purposes only and are not binding on the Department.