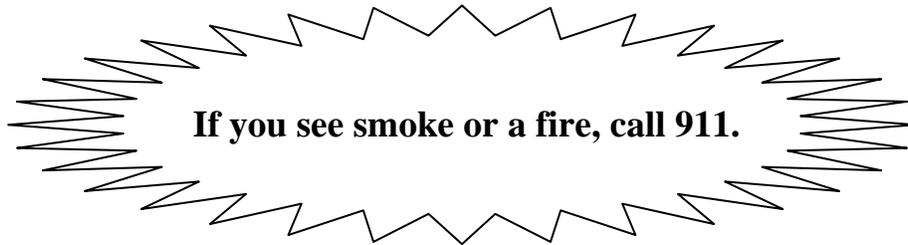


## **APPENDIX C HOMEOWNERS APPENDIX**

This appendix is designed to be read in conjunction with the neighborhood assessment for your particular community. It explains some of the terms and reasons for many of the ratings used in the assessment, and why certain circumstances increase your wildfire risk. It explains in greater detail the actions to take in response to the recommendations. It emphasizes items within your control and explains steps you can take to reduce your wildfire risk. It also provides handy checklists and resources for homeowners.

There is no guarantee of protection for a particular home. However, every action you take incrementally reduces the risk of fire spreading to your home and makes it easier for the firefighters to defend it if a fire is nearby.



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## **Explanation of Terms and Criteria Used in Neighborhood Assessment**

**Defensible Space:** The area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire towards the structure. This accomplishes two things: it reduces the chance of heat, flames and blowing embers catching the house on fire, and gives firefighters room to maneuver around the house with hoses in order to protect the structure.

30 foot rule of thumb: keep flammable materials at least 30 feet from the house. This includes firewood. Firewood should be stacked at least 30 feet from the structure. Avoid storing combustible materials downhill from the structure.

Recommend surrounding the house by at least 5 feet of non-flammable material such as pavement, gravel, pavers or flagstones.

Flame heights are typically 2-3 times the height of the fuel. Therefore, minimize flame heights and intensity by mowing or trimming grasses to less than 6-8 inches within 30 feet of the house.

Green plants do not burn readily, therefore well-watered foundation plants, deciduous (broadleaf) trees, and green lawns are considered acceptable. However, remember to clear dead leaves and branches in the fall and keep grass mowed.

Junipers are particularly dangerous; because of the oil content they have a tendency to catch fire more quickly than other plants. They are not recommended as foundation plants or within 30 feet of the structure.

Ladder Fuels: these are small shrubs and plants beneath a tree, as well as dead limbs close to ground level. Remember that flames can be 2-3 times the height of the material. So either limb the tree to 2-3 times the height of plants below, or remove or trim the lower plantings.

Topography: If your house is not set back at least 30 feet from the top of a steep slope, gulch or gully, you should be aware that this is a particularly dangerous location and you should pay extra attention to minimizing the fuels at/near the top of the slope, and between the slope and the house.

**Construction:** Construction standards for new homes follow the latest building codes for ignition-resistant construction. The same concepts can be used to retrofit an existing home to reduce the risk of fire. Review the building and planning department website for your county for specific details.

Wood Shake Shingle Roofs: the single greatest wildfire risk item under the homeowner's control. If a single burning ember lands on the roof, the fire will spread so quickly that the structure is virtually impossible to save. Although expensive to replace, there may be significant savings on homeowners insurance to offset the cost.

Wood decks: the second greatest risk item from home construction factors. Burning embers can catch the deck on fire, which will quickly spread to the main structure. Composite or non-flammable decking is more fire-resistant. Also, most decks are open underneath, which can trap heat and embers, and spread the fire faster. Homeowners should close in the area under the deck with a solid (preferable non-flammable) material. Do not store any flammable materials under the deck.

Wood siding: if you have wood siding (or vinyl, which melts in a fire), it is particularly important to keep all flammable materials at least 30 feet away from the home. Consider facing the lower 3 feet with a non-flammable material such as stone or cement board.

**Fire Department Access:** If your driveway is more than 100 feet long and does not provide sufficient room to turn around a fire engine, it will have to back in, causing a delay in response time. Consider installing a turnaround if applicable. The driveway must be 12 feet wide, and clear of vegetation for 2 ft beyond on both sides and to a height of 13ft 6 in for adequate fire engine access.

**Locked Gates:** Many driveways and some roads have locked gates to limit access. The preferred means to allow emergency access is to provide a Knox box. This is a small, permanently mounted safe that holds building or gate keys for firefighters and first responders to retrieve in case of emergency. Knox boxes are master keyed for the local fire department, so that they can quickly enter without having to force entry or find individual keys held in deposit at the station. Please provide your Knox box info, gate code or key to the fire department to ensure timely access in case of an emergency.

**Address Visibility:** Nearly half (44%) of houses in the district do not have addresses that are readily visible from the street. If smoke and flames are visibly engulfing the house, it is readily identifiable. However, about two thirds of calls in the district are for medical emergencies. If someone is incapacitated inside the home, a delay due to the first responders driving up and down the street trying to identify your location could literally be a matter of life and death. Make sure your address is readily visible from both directions (with large, contrasting numbers) at the base of the driveway. The sign should be made out of non-flammable material on a nonflammable post. Optimally, the numbers should be 4 inches high and should also be reflective to aid location after dark or in heavy smoke. For remote houses, the address should be visible at every turnoff or fork in the road leading to the house. If multiple mailboxes are grouped together for a common drive, an address on a mailbox only is not sufficient for emergency response.

**Above Ground Propane Tanks and Gas Lines:** Keep vegetation and flammable materials at least 10 feet away from above ground propane tanks, and grass mowed. There should be no overhanging branches. Minimum distance away from the house depends on the size of the tank, and should be placed level with the home (refer to the building and planning web site for your county for more details). Propane tanks should be at the same elevation as the structure – if they are placed below, flames may burn uphill toward your home; if placed above, leaking propane (which is heavier than air) could impact your home when it flows downhill. Ideally, gas lines should be buried. Propane tanks are designed with a valve that should vent if the tank becomes overheated. This may produce a flame (like a pilot light, but several feet in the air). If a propane tank is exposed to extreme heat of a fire, or the valve is damaged, the tank may explode. Likewise, portable propane cylinders may explode if exposed to direct heat from fire. A gas BBQ grill with a tank in good condition should not pose a hazard if used properly, and can be stored near the house unless a fire is imminent. Any spare tanks should be stored at least 30 feet from the house.

**Above Ground Electric Lines:** Overhanging electric lines provide a danger to firefighters, and are a potential cause of fire from downed lines. Consider having electric lines buried on your property. Report any arcing and sparking of electric lines by calling 911. Keep well clear of any downed power lines as they may be live and cause serious injury or death. If you see tree limbs in power lines that you feel pose a danger, contact the electric company listed on the pole.

**Water Supply:** Lack of available water for firefighting is one of the major concerns in the unincorporated area of the district. It can take as much as 30,000+ gallons of water to extinguish a fully involved house fire.

A dedicated fire cistern is normally at least 1500 gallons, is kept full, and is not used for domestic water. It normally has a dry hydrant – a fire hose connection – see diagram below. If you have a dedicated fire cistern, please check the level and ensure it is full.



Many people have cisterns used for drinking, domestic water and livestock. If these are used by the fire department they will likely become contaminated. If you have a drinking water cistern of at least 1000 gallons that is accessible from outside the home (within 20 feet of driveway) and normally has at least 500 gallons of water in it that you would allow to be used only in case of emergency, please provide that information to the Fire Chief. If town hydrants do not service your home, consider adding a fire cistern of at least 1,800 gallons. The cisterns are usually made of pre-cast concrete, buried underground. Estimated cost is approximately one dollar per gallon. Discuss with neighbors the possibility of installing a neighborhood cistern of at least 10,000 gallons plus cost of installation. The Lyons FPD will investigate grant opportunities for community cisterns, however many grants require 50% matching funds be provided.

### Lyons Fire Protection District Cistern List

Below is a list of all cisterns identified during the community assessment. Please verify the list and provide any corrections or additional information to the Lyons Fire Chief (823-6611).

Address	Street	Gallons	Dry Hydrant	Notes
635	Apple Valley Road	1800		
1535	Apple Valley Road	1800	Yes	
940	Blue Mountain	1500		Drinking Water
1100	Blue Mountain			Drinking Water
550	Blue Mountain Rd	1,500	No	Above ground
978	Blue Mountain Rd	2,400	Yes	
1960	Colard Lane		Yes	
520	Eagle Ridge Road		Yes	Fire Cistern
580	Eagle Ridge Road	1, 800	Yes	Fire Cistern
2650	Eagle Ridge Road	12,500		5 cisterns, 2,500 gal each, above ground, not always filled, pump station at garage across street
2715	Eagle Ridge Road		Yes	Drinking water
2801	Eagle Ridge Road	1,800	Yes	Fire Cistern
2820	Eagle Ridge Road	1,800	Yes	Fire Cistern

Address	Street	Gallons	Dry Hydrant	Notes
2874	Eagle Ridge Road		Yes	Fire Cistern
3220	Eagle Ridge Road	2,000	Yes	Fire Cistern
100	Elk Run			Pond
471	Flint Gulch Drive			
1250	Grey Mountain Drive	10,000		Needs plumbing for hose connection
497	Indian Mountain	1,000		Drinking Water
701	Indian Mountain	2,500	Yes	Fire Cistern
168	Jasper		Yes	
246	JJ Kelly Road	1,800	Yes	
450	Lake Drive		Yes	Pond
87	Lone Tree Lane			Pond
1723	Longmont Dam Road	4,000	Yes	Fire Cistern
37	Longmont Dam Road			
1221	Longmont Dam Road	1,800	Yes	
1225	Longmont Dam Road	2,500		
1415	Longmont Dam Road	2,500	Yes	Fire Cistern
1599	Longmont Dam Road	2,500	Yes	Fire Cistern
15529 & 15468	Moss Rock Drive	2,500		Shared drinking water cistern
1035	Open Range Road			Pond
100	Pinwheel Ranch Rd	7,000		6000 gal overflow tank/1000 gal drinking water
590	Pioneer	2,500		
11683	Pointe View	10,000	Yes	Fire Cistern
2484	Ponderosa Hill Road	15,000		Gravity 120 psi 70 gpm
2484	Ponderosa Hill Road	15,000		Gravity (untested)
75	Pyrite Way	1,800	No	
411	Quartz way	1,800	Yes	
651	Quartz Way	10,000	Yes	Community Fire Cistern
	Rabbit Mountain Open Space Parking	2,000	Yes	Fire Cistern, 2 ½ inch connection
6400	Rabbit Mountain Rd			
15600	Redstone Court	1,800		
	River Way	12,000	Yes	Community Fire Cistern
95	Rowell	1,100		
1553	Rowell		No	
1554	Rowell Drive		No	
2213	Rowell Drive			
711	Sandstone Drive			
911	Silver Sage	10,000	No	4 cisterns, 2500 gal each behind studio & garage, Drinking Water
31271	South St. Vrain Drive	1,800	Yes	
2195	Spring Gulch	2,400		Drinking Water
1612	Spring Gulch Drive	2,500		
587	Stage Coach Trail	34,000		Fire Station 2, Electric pump
1507	Stage Coach Trail	12,000	Yes	2.5" suction

Address	Street	Gallons	Dry Hydrant	Notes
923	Steamboat Valley Road	2,000	Yes	
1568	Steamboat Valley Road	2,400	Yes	
1121	Stone Canyon Road	1,800	Yes	
100	Thunder Road	1,000		Drinking Water
1016	Vision Way	10,000	Yes	Community Fire Cistern

## **Wild Fire Behavior**

Detailed scientific models can be used to predict how severe a fire will become and in what direction and how fast it will spread. This is dynamic - on any given day the weather and fuel conditions in effect will produce different results. However, a general understanding of these factors can help homeowners assess their relative risk.

Listed here are some considerations for each of the wildland fire behavior variables.

**Weather:** the following conditions increase the probability of fire starting and spreading:

High temperature

High Wind

Low Humidity

Drought

Season – Typically late summer through fall (until significant snowfall) is the highest risk, but anytime there has been extended dry weather

**Topography:** the following conditions can cause a fire to be more dangerous:

Aspect -south or southwest facing slopes are drier, but north-facing slopes have greater fuel density

Position - higher on the slope is more dangerous because fire spreads faster up hill, by drying out and preheating the fuels before the flame front arrives.

Steep Slope – fire spreads faster up hill. The steeper the slope, the faster the fire moves. Slopes greater than 30% (17 degrees) are particularly dangerous. Houses should be set back at least 30 feet from the edge of a slope greater than 30 percent.

Features such as draws and saddles can cause the fire to behave unpredictably and pose a hazard to firefighters.

Chutes and gullies – create a chimney effect; funnel the fire and cause extreme rates of spread and spotting.

**Fuel Characteristics:**

Quantity: more fuel leads to more intense (hotter) fire

Continuity: spacing or fuel breaks, both vertical and horizontal, can limit spread

Size: smaller, lighter fuels dry out sooner and start to burn faster but larger, heavier fuels burn longer and hotter; light fuels such as grass spread quickly

Compactness: fuel that is lying on the ground and tightly compacted, such as a thick layer of dead needles, has less surface area exposed and restricted oxygen, so it is harder to start and maintain a fire, but extremely difficult to extinguish. A fire with a greater rate of spread can be expected from fuel that is loosely compacted. Think of building a campfire: it is easier to start a fire with fuel arranged with air spacing.

Moisture Content: fuels with low moisture content start to burn more quickly. Heavier fuels take longer to dry out following rain or snowfall.

Type: Class A – wood, paper, and grass can be extinguished with water. Class B - Oily fuels, gas, propane and those that produce vapors requires special extinguishing agents such as foam. Class C – electrical fires require the power to be turned off.

## **Defensible Space**

Defensible space is the area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire towards the structure. This also provides firefighters room to safely access and defend the structure from approaching fire. Creating an effective defensible space involves developing a series of management zones in which different techniques are used. As a mountain property owner, your first defense against wildfire is to create and maintain a defensible space around each building on your property.

**Zone 1 - The Safety Zone:** This area is where you will do the most modification and treatment. It consists of an area of 15 -30 feet around the structure, in which all flammable vegetation is removed. This 15 - 30 feet is measured from the outside edge of the home's eaves and any attached structures, such as decks. Within this zone, several specific treatments are recommended:

- Plant nothing within three to five feet of the structure, particularly if the building is sided with a flammable material. Opt for weed barrier covered with rock or gravel instead.
- Make sure there are no areas of continuous grass adjacent to plantings in this area and frequently prune plants in this zone to ensure vigorous but low growth. Keep grasses mowed to four to six inches.
- Remove dead branches, stems and leaves.
- Enclose or screen decks with metal screening and extend gravel coverage under the decks. Do not use the area under decks for storage of anything that will burn.
- Do not store firewood in this area, particularly in sheds built onto the structure.
- Keep foundations, decks, stairs, gutters and roofs clear of leaves, pine needles and debris.
- Remove all trees from this zone, or if you keep trees, consider them part of the structure and extend the distance of the defensible space accordingly. Isolate trees from each other, prune to at least 10 feet above ground, and remove branches within 10 feet of any chimney.
- Remove all 'ladder fuels' from beneath the trees. Ladder fuels are small shrubs, trees, limbs and other materials that allow a fire to climb on the tree crown of branches and foliage.

**Zone 2 - The Transition Zone:** This is an area of fuel reduction and a transitional area between Zones 1 and 3. The size of Zone 2 will vary depending on the slope of the ground where the structure is built. The defensible space should extend from a minimum of 75 feet from the structure (on flat ground) to 125 feet or more on sloped ground. Within this zone, the arrangement of vegetation (fuel) should be modified. This will help reduce the continuous fuel surrounding a structure and also enhance home safety and the aesthetics of the property.

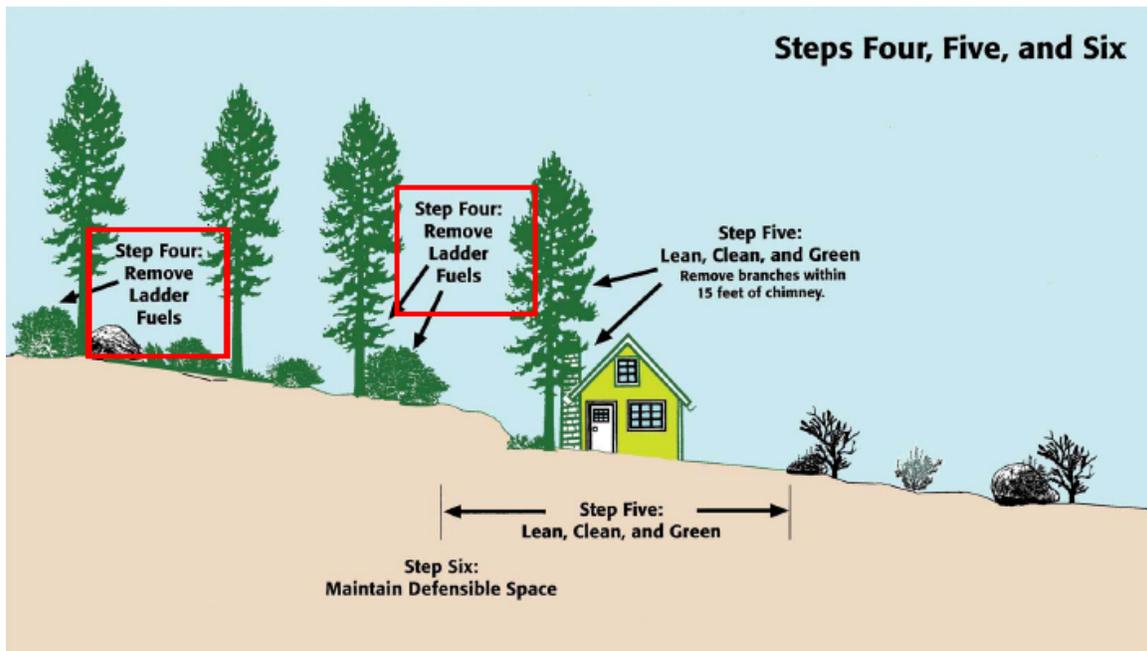
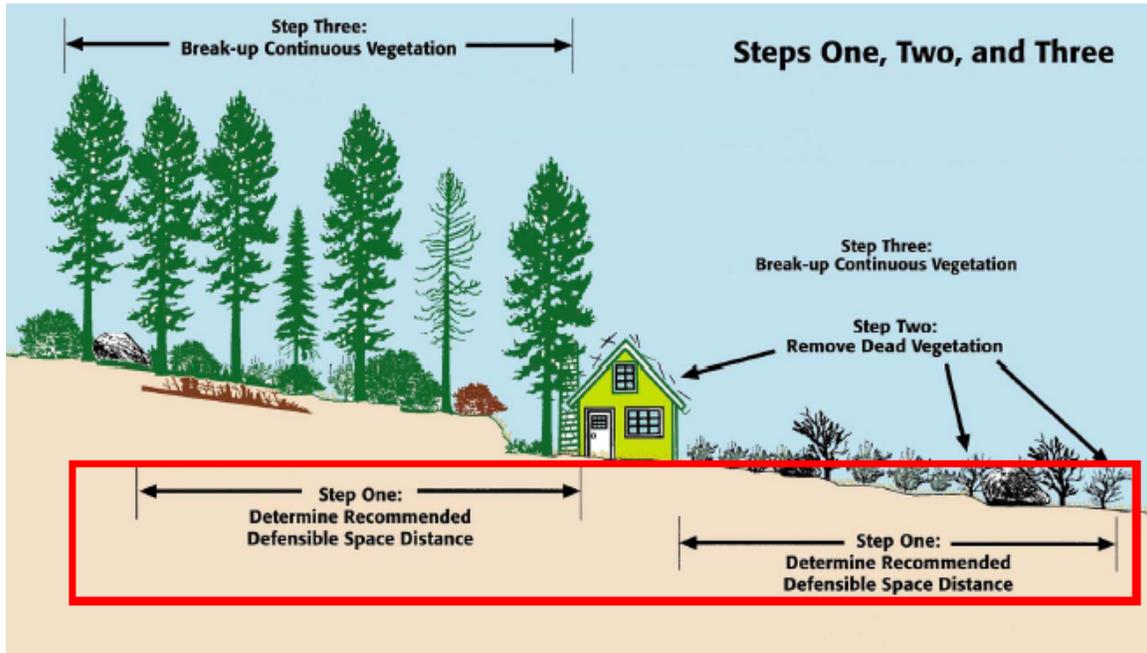
- Remove stressed, diseased, dead or dying trees and shrubs.
- Thin and prune the trees and large shrubs in this zone so that there is at least 10 feet of distance between the crowns.
- Thin along both sides of your driveway all the way to your main access road.
- Blend the treatment of Zones 1 and 3 by gradually decreasing the thinning of trees as you near the outer part of Zone 2.
- Mow or cut down grasses through the growing season to keep them no higher than six to eight inches. This is especially important in the fall when grasses dry out and after the spring thaw, when snow is gone, but before plants green-up.
- Stack firewood uphill or at the same elevation as the structure, but at least 30 feet away. Keep flammable vegetation at least 10 feet away from the firewood pile. Dispose of excessive slash and other dead vegetation by hauling away, chipping, or piling and burning. See discussion on fire restrictions and burn permits later.

**Zone 3 - The Management Zone:** This is an area of traditional forest management and is of no particular size. It extends from the edge of your defensible space to your property boundaries. In this area, you are encouraged to manage your forests in a more traditional manner. The actions you take will be determined by your objectives for your property. At minimum, you may want to:

- Remove trees that are diseased, insect-infested, and those of poor form or low vigor.
- Thin trees for forest health. Maintain age and species diversity.

These actions will sanitize and improve the health of the forest on your land. If you choose to do methodical thinning in Zone 3, contact the Boulder County Wildfire Mitigation Coordinator for specific guidelines and advice at (720) 564-2625, or the Colorado State Forest Service at 303-823-5774.

## Steps to Creating Defensible Space



### Fire Danger and Fire Restrictions: Rules and Terminology

You may be criminally charged or held financially liable if your willful or negligent actions result in a wildfire. You are responsible for understanding and complying with various fire condition terms and what restrictions are in place at any given time.

**Seasonal Burn Restrictions or Burn Bans**

In times of high fire danger, land managers (such as Forest Service, Park Service, and BLM) and political entities (cities, towns, and counties) may issue temporary burn restrictions or burn bans. These restrictions supercede normal rules that may be in place. The specific restrictions and what is allowed will vary by the issuing authority and should be checked carefully.

**Meaning of the Current Fire Danger sign as you enter Lyons from the east:**

Fire danger is the resulting description of the combination of both constant and variable factors which affect the ignition, spread, and difficulty of control of wildfires in an area. Fuels, weather, topography, and risks are key inputs into the model. The goal is to encourage the public to adapt their behavior and obey restrictions based on their knowledge of these levels.

IGNITION: A rating of the probability that a firebrand will cause a fire.

SPREAD: A rating of the forward rate of spread of the head of a fire.

SPOTTING: Behavior of a fire producing sparks or embers that are carried by the wind and which start new fires beyond the zone of direct ignition by the main fire.

CONTROL: The ability to construct effective control lines around a fire, any spot fires, and any interior islands to be saved; burned out any unburned area adjacent to the fire side of the control lines; and cool down all hot spots that are immediate threats to the control line, until the lines can reasonably be expected to hold under the foreseeable conditions.



Fire Danger Rating (Color Code)	Description
<p><b>Low (Green)</b></p>	<p>Fuels do not ignite readily from small firebrands although a more intense heat source, such as lightning, may start fires in duff or dry wood. Fires in open cured grasslands may burn freely a few hours after rain, but timber fires spread slowly by creeping or smoldering, and burn in irregular fingers. There is little danger of spotting.</p>
<p><b>Moderate (Blue)</b></p>	<p>Fires can start from most accidental causes, but with the exception of lightning fires in some areas, the number of starts is generally low. Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot. Short-distance spotting may occur, but is not persistent. Fires are not likely to become serious and control is relatively easy.</p>

<b>High (Yellow)</b>	All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High-intensity burning may develop on slopes or in concentrations of fine fuels. Fires may become serious and their control difficult unless they are attacked successfully while small.
<b>Very High (Orange)</b>	Fires start easily from all causes and, immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high intensity characteristics such as long-distance spotting and fire whirlwinds when they burn into heavier fuels.
<b>Extreme (Red)</b>	Fires start quickly, spread furiously, and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. Direct attack is rarely possible and may be dangerous except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions the only effective and safe control action is on the flanks until the weather changes or the fuel supply lessens.

**Burn Bans and Burn restrictions** are issued by the county, city or federal land management agency (BLM, USFS) during times of dangerous fire conditions. Generally, a burn ban prohibits open burning, but specific prohibitions can vary by jurisdiction and should be checked. Restrictions may apply to: open burning, burn permits, prescribed burns, campfires, fire pits, fireworks, charcoal grills, smoking, and work that produces sparks such as welding and chainsaw use.

**RED FLAG Warning** means that critical fire weather conditions are either occurring or imminent. Red Flag Warning is a forecast issued by the US Weather Service to inform area firefighting and land management agencies that conditions are ideal for wildland fire ignition and propagation. Red Flag Warnings may be issued after drought conditions, when humidity is very low, during storms with dry lightning, and especially during high or erratic wind conditions. Red Flag Warning is a critical statement for firefighting agencies, which often alter their staffing and equipment resources dramatically to accommodate the forecast risk. To the public, a Red Flag Warning means high fire danger with increased probability of a quickly spreading vegetation fire within 24 hours.

**Fire Weather Watch** is issued to alert fire and land management agencies to the possibility that Red Flag conditions may exist beyond the first forecast period (12 hours). The watch is issued generally 12 to 48 hours in advance of the expected conditions, but can be issued up to 72 hours in advance.

**Burn Permits**

Counties have strict regulations about when and how to conduct controlled burning. Regulations regarding what can be burned vary by season and county.

**Boulder County:**

Contact the Boulder County Public Health (BCPH) Air Quality Program to obtain a permit. Burns will not be allowed on red flag days. The following agencies must be notified for burning of a ditch, field, trash or slash:

1. Boulder County Public Health on the day of the burn (or on the following working day if the burn falls on the weekend).
2. Boulder County Sheriff Communications at (303) 441-4444, on the day of the burn (before and after the burn).
3. Your local fire department at least three days prior to burn.

### **Larimer County:**

Most outdoor burning in Larimer County requires a permit signed by both your local fire department and the Larimer County Department of Health and Environment. The fire department evaluates applications for potential fire safety issues, while the health department evaluates air quality issues that can impact human health. Open burning without a permit is illegal and can result in fines of up to \$10,000 per day. The application process and safety guidelines are posted on the Larimer County website listed at the end of this section, or you may call 970-498-6775 for more information.

### **Burn Safety**

Contact the Lyons Fire Protection District at 823-6611 before commencing your burn.

Pile debris in open areas away from standing timber and structures.

Piles should be no larger than 8 feet wide and 6 feet high.

There must be a minimum of 4-6 inches of snow cover around piles.

Winds should be less than 10 mph. Check the weather forecast to avoid burning during high winds or extremely dry conditions.

Always have water, a rake, and a shovel available.

Attend all fires until completely out.

All burning must be extinguished by nightfall.

**COLORADO OPEN BURN FORECAST:** For those with permits for Open Burning, check the web page listed at the end of this Appendix to find out if open burning is allowed that day:

### **Residential Burning in Colorado**

Residential burning pertains to operating wood burning systems and appliances including stoves, fireplaces and heaters in a residence. During the winter high pollution season (November through March) if an air quality Action Day is currently in effect, residential burning is restricted in the seven-county Denver-metro area, including Denver, Boulder, Broomfield, Douglas, Jefferson, and areas west of Kiowa Creek in Adams and Arapahoe counties. The only exceptions to the residential burning restrictions are for people living above 7,000 feet; those who use Colorado Phase III (Phase II EPA) certified stoves, Colorado approved pellet stoves, approved masonry heaters or those whose stoves or fireplaces are their primary source of heat. Residents are also asked to voluntarily limit driving on Action Days.

On days that are not air quality Action Days, no restrictions are in place.

## **Outdoor Recreation Fire Safety**

Be aware of fire risks and take responsibility for your use of fire.

- Before you leave home, check with authorities at your camping location for fire restrictions. During especially dry seasons, even recreational and cooking fires can be restricted.
- Be careful with campfires - only build fires in rings or grates. Avoid areas with overhanging branches, steep slopes and dry grasses.
- Maintain a safety zone around a campfire and always closely supervise children. Teach them to stop, drop and roll if their clothing catches on fire.
- Keep a bucket of water and shovel nearby to put out the fire. When extinguishing a campfire, drown it with water and stir with water and dirt until all the ashes are cold.
- Use self-contained cookers or chemical stoves instead of campfires for cooking.
- Keep hot mufflers and catalytic converters clear of grasses and shrubs.
- Think about how you would evacuate in the event of a wildfire. Plan the routes you could take, including at least one alternate route, in case your primary route is blocked.

## **Annual Fire Safety Checklist**

This is an annual checklist. Don't wait until a fire is approaching to perform these tasks.

Thin trees and brush properly within the defensible space.

Remove trash and debris from the defensible space.

Remove any trees growing through the porch.

Clear roof and gutters of leaves and debris.

Remove branches overhanging chimney and roof.

Stack firewood uphill or on a contour at least 30 feet away from the home.

Place shutters, fire curtains or heavy drapes on windows.

Place screens on foundation and eave vents.

Enclose sides of stilt foundations and decks.

Use a chimney screen or spark arrester.

Clear vegetation around fire hydrants, cisterns, propane tanks, etc.

Make sure an outdoor water supply is available, with hose, nozzle and pump.

Make sure escape ladder and fire extinguishers are available.

Post address signs so that they are clearly visible from the street or road.

Make sure the driveway is wide enough for fire trucks and equipment.

Install and test smoke detectors. Inspect installed sprinkler system.

Practice a family fire drill and evacuation plan.

Create/update home inventory list with photos or videos and store offsite.

Consider signing up for cell phone, text or email emergency notification alerts (in addition to reverse 911, which is automatically sent to home phones).

## Evacuation Checklist

If a wildfire is threatening your area, listen to your radio or local TV station for updated reports and evacuation information.

Confine pets to one room and make plans to take care of them in the event of evacuation.

Make plans for the evacuation of livestock. Arrange for transportation and a place to bring them to, or leave food and water if you are unable to move them.

Arrange for temporary housing with a friend or relative whose home is outside the threatened area. Leave a note in a prominent place in your home that says where and how you can be contacted. Notify an out of town contact where you will be.

If your home is threatened by wildfire, you will be contacted and advised by law enforcement officers to evacuate. If you are not contacted, or if you decide to stay and help defend your home, evacuate pets and any family members not needed to protect your home.

When evacuating, wear protective clothing: sturdy shoes, cotton or woolen clothing, long pants, a long-sleeved shirt, gloves, and a handkerchief to protect your face.

Choose a route away from the fire if possible. Watch for changes in the speed and direction of the fire and smoke.

**What to Take: Customize this list.** Consider having a pre-packed “GO” bag with most of these essential items stored near the vehicle, and make your own detailed list of where the other items are located.

Disaster supply kit, stored close to the vehicle, containing:

- Bottled drinking water
- At least one change of clothing and footwear for each member of the family
- Blanket or sleeping bag for each person
- First aid kit
- Emergency tools including a battery-powered radio, flashlight and extra batteries
- Extra set of car keys and credit cards, cash or traveler’s checks
- Toiletries and other special items for infants, elderly or disabled family members

Important documents (bank, tax, trust, investment, insurance policy, birth certificates, medical records)

Credit and ATM cards

Prescription Medications and Prescription eyeglasses

Driver’s license, Passport, Photo ID (ensure one document shows your name and current residence address (like utility bill or vehicle registration) for reentry

Computer backup files

Inventory of home contents

Photographs of the exterior of the house and landscape if there’s time

Address book, cell phone and charger

Family heirlooms, photo albums and videos

Pet Crate, food, bowls, and leash

## **Preparing Your Home for Approaching Fire**

Whether you choose to stay to defend your home or to evacuate, complete as many of the following preparations as possible. Do not jeopardize your life. No material item is worth a life. You are strongly urged to evacuate as soon as you are advised to do so, or if you feel unsafe.

Wear fire-resistant clothing and protective gear.

Remove combustible materials from around structures.

Close or cover outside vents and shutters.

Position garden hoses so they reach the entire house. Have the hoses charged, with an adjustable nozzle, but turned off.

Place large, full water containers around the house. Soak burlap sacks, small rugs or large rags in the containers.

Place a (non-wood) ladder against the roof of the house on the opposite side of the approaching wildfire. Place a garden hose near the ladder, prepared as described previously.

Place portable pumps near available water supplies, such as pools, hot tubs, creeks, etc.

Close all windows and doors. Do not lock them.

Close all inside doors.

Turn on a light in each room and all outside lights. Leave them on even during daylight hours.

Fill tubs, sinks and any other containers with water.

Shut off the gas at the outside meter or the propane tank.

Remove drapes and curtains made from light material such as cotton, lace, or nylon. Close Venetian blinds, heavy drapes or fire-resistant window coverings.

Move overstuffed furniture and lightweight flammable materials into the center of the house, away from windows and sliding glass doors.

Extra vehicles you are unable to remove: Park in the garage, facing out. Close the windows but do not lock the doors. Leave the keys in the ignition or on the seat. Park any additional vehicles away from the buildings.

Close the garage door but leave it unlocked. Disconnect the automatic garage door opener.

## **Wildfire Mitigation**

Wildfire Mitigation is the implementation of various measures designed to minimize the risk and destructive effects of a wildfire on your property. Some measures are designed to modify the forest environment and reduce the fuel load surrounding a structure or group of structures that puts the structures at risk from destruction by a wildfire.

Others focus on modifying the construction of a structure itself or changing its location to improve its ability to withstand a wildfire without being dependent upon fire suppression resources. These efforts principally apply to the construction or remodeling of a home, and are governed by local building codes.

We will focus on efforts to reduce the fuel load, which lessens the intensity of the fire. Another goal is to keep the fire on the ground. Once a crown fire develops, it is nearly impossible to stop without aircraft support.

Types of mitigation projects:

Clear-cut fuel break

Shaded fuel break

    Limb trees to a height of 10 ft or 1/3 the height of the tree

    Thin trees to provide 10 – 30 ft between crowns

    Remove ladder fuels such as brush under the branches of remaining trees

### **Lyons Fire Mitigation Team**

Lyons Fire will conduct a free homeowners assessment and provide mitigation recommendations. (This does not provide sufficient documentation for the wildfire mitigation plan required to obtain a boulder county building permit.)

Lyons Fire has a wildfire mitigation team that will perform mitigation projects such as thinning, limbing, removal of hazard trees, and constructing fuel breaks. Contact 823-6611 to arrange for a cost estimate.

### **Disposal of Lumber and Slash from Fire Mitigation Projects**

#### **Logs, Post and Poles, and Dimensional Lumber:**

During cutting operations of any kind, the main trunks of trees are delimbed and cut up into logs of various lengths. Logs cut into lengths of 8-feet & 3-inches; 10-feet & 3-inches; 12-feet & 3-inches; or 16-feet & 3-inches can be utilized at their highest value as dimensional lumber, posts, or poles. There is not a huge market for small diameter logs created by many projects, however, the longer the log length the more options there are for utilization.

#### **Firewood:**

One of the most common uses for tree trunks in Boulder and Larimer Counties is as firewood. Use as firewood, from a wildfire mitigation perspective, is an acceptable practice as long as there is a safe and effective way to burn the wood and there isn't more firewood than can be used within a few years. Logs are typically cut up into 8-inch to 12-inch pieces, split, and stacked on-site. A small pile (less than 1/4 of a cord) stacked near the house in the wintertime is acceptable as long as it

is to be used in the immediate future. The main piles must be kept a minimum of 30-feet away from the house and other structures. Firewood must not be stacked near live trees, propane tanks, cisterns, utility poles, wood fences, accessory structures, or other such improvements.

#### Stumps:

For purposes of wildfire mitigation, stumps can be left in the ground. For aesthetic reasons, it is usually preferable to CAREFULLY low-stump to a height of 4 inches or less. Extracted stumps are extremely difficult to deal with. They are often large, unwieldy, and have rocks and gravel embedded in them, making chipping impossible. Additionally, you cannot burn stumps in slash piles. At this time the best disposal option for stumps is to haul them away to a landfill.

#### Slash Disposal:

As you create defensible space or manage your forest to make it healthier you will quickly accumulate a lot of branches and tops of trees that are too small to be used as firewood or dimensional lumber. This material is collectively known as slash and it represents one of the biggest obstacles to any successful forest management or wildfire mitigation operation. Proper disposal of slash is important in reducing the overall fire hazard and in controlling insects and disease in your forest. Removing slash has the added benefit of improving site aesthetics, aids in the development of grasses and shrubs, and improves access for people and wildlife.

### **Four Common Methods of Slash Disposal:**

#### 1. Loading, Hauling and Disposal

As the name implies, with this option cut woody biomass is loaded into trucks, trailers, or dumpsters and hauled to a legal drop-off site or to a landfill. The amount of slash generated from most lots make loading and hauling an expensive option for most people. It often requires a dumpster or the use of a large truck and trailer.

Peak to Peak Wood is a five-county effort in Colorado's northern Front Range to create markets for products coming from our fire-threatened public and private forests in order to lower treatment costs. They operate biomass collection sites and work with Colorado Forest Products to provides uses for forest materials produced by mitigation efforts.

### **Boulder County Community Forestry Sort Yards**

Community forestry collection sites are designed to accept mountain pine beetle infested slash and wood as well as non-infested material. Material includes wood that has been removed from private property for the purposes of fire mitigation efforts, mountain pine beetle mitigation, or general forest improvement efforts. The wood sited is sorted for burning, processing, or use. Boulder County has established two community sort yards to collect wood and slash from county residents. Only one site is open at a time from April to October. The location alternates one time each year between Allenspark and Nederland. There is no charge to drop off trees and slash from private lands. See the website listed at the end of this section for scheduled operating dates and times and information on the material that can be accepted.

### **Larimer County Wood Sort Yard**

The Larimer County Woody Biomass Sort Yards, a partner of Peak to Peak Wood, take wood from forest management, fire mitigation, and mountain pine beetle mitigation projects of property owners in the areas. Check the websites listed at the end of this appendix for current locations and operating times.

## 2. Chipping

Chipping is an effective way of dealing with slash, provided that the amount of material is of small diameter and limited quantity. It is an expensive method, requiring heavy machinery, and is most practical on small, level sites with good access. Chipping is the preferred method of slash disposal for many forestry contractors and tree services that have the knowledge and ability to work with large powerful chipping machines and trucks. Individuals can also rent chippers and do the work themselves, but these machines are generally smaller and don't chip as large a diameter of material. A chipper typically reduces materials into chips approximately one inch square by one-quarter inch thick. These chips decompose on the ground, provided there is enough available moisture, and they represent a low fire hazard. They also serve as mulch to hold soil moisture and aid in plant development. Small quantities of chips have a pleasant appearance and allow easy movement through the area.

It is important when chipping to spread chips discontinuously over an area to keep them from accumulating to a depth of more than a few inches. Be careful not to pile chips too deeply; they can stifle grass and flower development and can create an easy place for a fire to start. Chips can be used as mulch in flower beds, but do not spread chips as mulch around the foundation of your home or under decks.

## 3. Lop and Scatter

This is the easiest and cheapest method of slash disposal, but is not practical in dense stands of trees where the effects of cutting and leaving materials on the ground increases wildfire hazard. It is most often used in open areas of mature trees with few smaller trees or undergrowth and poses little risk for wildland fire. It can be an effective method of returning nutrients to rocky areas with minimal topsoil. Lop and scatter involves cutting trees and branches into small pieces and scattering them widely over an area. In typical forestry operations, it is desirable to cut pieces small enough so all the slash is laying flat within 12 inches of the ground, where it breaks down more readily and it doesn't inhibit walking or maneuvering of equipment.

## 4. Building Slash Piles and Burning

Piling and burning is a way to eliminate a large amount of slash at moderate cost. This method is most practical for use in areas where access is limited, disturbance needs to be minimized, heavy machinery cannot maneuver (or is not allowed), or the cost of such mechanical operations is otherwise prohibitive. Generally, lots greater than one (1) acre in size can use this method effectively to dispose of slash. Forests should be low to moderately dense and have openings large enough to permit the piles to burn without starting nearby trees on fire.

Slash piles should be constructed to facilitate clean burning. There are weather and air quality restrictions for burning. Piles can be safely burned during times when snow cover is sufficient to prevent fire spread (generally, a minimum of 4 to 6 inch depth). Pile burning leaves a scorched fire ring that should be monitored to ensure noxious weeds don't colonize the disturbed area. Check with your county for specific pile dimensions and size of wood that can be burned.

**Pile Burning requires a permit!** It may take several months to more than a year for the fuels to cure and conditions to be appropriate to burn. There are currently several thousand piles along the Front Range waiting for appropriate conditions to allow burning. See the section on fire restrictions for information on how to obtain a burn permit in your county.

## **Mountain Pine Beetles and Ips Beetles**

There is growing concern about mountain pine beetle infestation in the district. While not as severe a problem in the Lyons FPD at this time, compared to areas to the west such as Allenspark and Rocky Mountain National Park, scattered infestations of both Mountain Pine Beetle and ips beetles have been identified within the district. It is probably not unreasonable to expect the problem to increase.

Special care must be taken to treat or dispose of "hot" or infected trees. Once the tree is dead, the beetles have already flown and usual methods of disposal can be used.

Caution: Cutting any trees during the flying season may attract Ips beetles. Ips is a common group of bark beetles that infests pine trees.

Ips beetles rarely attack healthy trees. Most problems with ips occur to newly transplanted pines or when plants are under stress. Ips beetles also attack freshly cut logs and slash, broken branches and blown down trees. Several generations of ips can occur in a season (they fly repeatedly). Flying beetles actively seek new trees between April and October.

- Remove all freshly cut materials that result from pruning or thinning trees, as these attract ips beetles.
- Do not stack freshly cut or infested wood or slash next to living trees.

### **Step 1: Short-Term Management**

- Identify the ponderosa, lodgepole, and limber pines on your property. These trees are most prone to beetle attacks.
- Consider protecting your high-value, non-infested but susceptible trees by applying a preventative spray. You may hire a contractor or contact a forester for approved chemicals.
- Timing is everything! Beetles fly between May and September. Preventative spraying should occur in the spring before the beetles start to fly.

### **Step 2: Treatment of Infested Trees**

- **Identification.** Trees that have been successfully attacked first must be identified. Look for the following signs (contact a forester for assistance):
  - Popcorn-shaped masses of resin, called "pitch tubes," on the trunk where beetle tunneling begins. Pitch tubes may be brown, pink or white.
  - Boring dust in bark crevices and on the ground immediately adjacent to the tree base.
  - Presence of live MPB (eggs, larvae, pupae and/or adults) as well as galleries under bark. This is the most certain indicator of infestation.
  - Blue stained sapwood. Check at more than one point around the tree's circumference.
- After infested trees have been cut and limbed, the logs must be treated by one of the following methods:
  - Solar treatment: intense solar radiation can be used to kill larvae. This can be done with or without plastic and requires six to eight weeks of warm weather. Logs must be rolled periodically, and beetles have been known to chew through the plastic. For solar treatment without plastic,

score the bark lengthwise a few times for the full length of the log to allow better drying. Peeling the bark from the logs is also an option.

Burning, burying, chipping or removing infested logs. Haul logs to the air curtain burner, or to “safe sites” at least one mile from susceptible tree hosts. Infested logs may be burned in a fireplace or buried in the ground to kill larvae.

### **Step 3: Long-Term Management**

A thinned, healthy forest will help prevent outbreaks of the mountain pine beetle, improve mountain views, and reduce wildfire hazard. By creating an environment that promotes healthy trees, you are providing the best defense against beetle attacks.

**Bottom line on timing:** If any cutting is done between April and October, caution is required to avoid further spread of beetles during their flying season (April – October for Ips and July-October for Mountain Pine Beetle). Hot (trees infected with live beetles) should be dealt with immediately, and caution should be taken with all slash to avoid attracting Ips beetles.

## **Wildfire Mitigation Grant and Funding Opportunities for Property Owners**

**Colorado Forest Agriculture Program:** Landowners in Colorado are eligible to manage their forest and sell the timber products through the Forest Ag Program. The advantage of this program is that it offers a similar tax valuation as that of traditional agricultural lands.

Requirements for Eligibility:

- Own at least 40 forested acres
- Have a forest management plan that is prepared or endorsed by a professional forester that meets the CSFS Management Plan Outline for Forest Agriculture Classification standards
- Submit a completed and signed forest management plan, a completed Forest Agriculture Inspection Request form and the appropriate fee to the local CSFS district office by October 1 to be considered for the following tax year
- Manage land according to the approved Forest Management Plan and Annual Work Plan to produce tangible wood products for the primary purpose of obtaining a monetary profit

Contact the Colorado State Forest Service, 5625 Ute Highway, (303) 823-5774

**Colorado State Income Tax Deduction for Wildfire Mitigation Expenses:** For income tax years 2009 through 2013, individuals, estates and trusts may subtract from federal taxable income 50% of the costs incurred in performing wildfire mitigation measures that meet the following qualifications and limitations:

- The taxpayer must own the property upon which the wildfire mitigation measures are performed.
- The property upon which the wildfire mitigation measures are performed must be located in Colorado.
- The property upon which the wildfire mitigation measures are performed must be located in a wildland-urban interface area. (This includes the entire area covered by this CWPP).

- The wildfire mitigation measures must be authorized by a community wildfire protection plan adopted by a local government within the interface area.
- The total amount of the subtraction may not exceed \$2,500

See Colorado Department of Revenue Income Tax FYI #65.

Note: There is no minimum acreage for this deduction.

**Boulder County Chipping/ Wood Transportation Reimbursement Program:** Boulder County is offering financial assistance to encourage mountain communities to conduct community based chipping projects.

This program is being offered to help promote the utilization of locally produced wood products and also to help communities remove/chip highly flammable slash. Only chipping or biomass transportation costs will be reimbursed. Reimbursement is not available for tree cutting costs.

Ideal projects will provide a centralized location within the community to drop off biomass or else chipping and transportation services on a house-by-house basis.

Subject to prior approval, the County will reimburse up to 40% of direct costs up to a maximum of \$4,000 per community, or community organization. Please note that your project may not be eligible for the maximum funding if it serves less than 20 property owners.

**NRCS Colorado Environmental Quality Incentive Program (EQIP):** The purpose of the Environmental Quality Incentives Program (EQIP) is to provide a voluntary conservation program for farmers and ranchers that promotes agricultural production and environmental quality as compatible national goals. EQIP offers financial and technical help to assist eligible participants install or implement structural and management practices on eligible agricultural land. Grants and incentives are available for agricultural producers, which includes trees on private, non-industrial forest land. A management plan and a contract with the NRCS are required. See the resources list for the website for further information.

### **Web sites for Homeowner education materials**

(Note: websites sometimes move; if the link does not work try searching on the title)

**Firewise information you can use: handouts, videos and interactive modules:**

[http://www.firewise.org/fw\\_youcanuse/index.htm](http://www.firewise.org/fw_youcanuse/index.htm)

**Colorado State Annual Wildfire Checklist and Evacuation Checklist**

<http://www.ext.colostate.edu/pubs/natres/06304.pdf>

**Colorado State Forest Service information to protect your home, property and forest from wildfire:**

<http://csfs.colostate.edu/pages/wf-protection.html>

**Boulder County Office of Emergency Management Disaster Preparedness Information:**

<http://boulderoem.com/>

**Northern Front Range Landowners Guide to Living with Bark Beetles**

<http://www.bouldercounty.org/find/library/environment/fhhomeownersguide.pdf>

**Larimer County Wildfire Safety Information:**

<http://www.co.larimer.co.us/wildfire/>

**Larimer County Burn Permit:**

<http://www.larimer.org/burnpermit/>

**Is Your Home Protected from Wildfire Disaster?**

<http://www.firewise.org/resources/files/wildfr2.pdf>

**National Wildfire Coordinating Group Publication Management System Wildfire Publications:** (more advanced and technical information)

<http://www.nwcg.gov/pms/pubs/pubs.htm>

**Driveway access for emergency vehicles, Boulder County:**

<http://www.bouldercounty.org/find/library/environment/w04emervehiclesaccess.pdf>

**Landowners Guide to Thinning, Colorado State Forest Service:**

[http://csfs.colostate.edu/pdfs/landowner\\_g4thin\\_scr.pdf](http://csfs.colostate.edu/pdfs/landowner_g4thin_scr.pdf)

**Chain Saw Safety, OSHA Fact Sheet:**

[http://www.osha.gov/OshDoc/data\\_Hurricane\\_Facts/chainsaws.pdf](http://www.osha.gov/OshDoc/data_Hurricane_Facts/chainsaws.pdf)

**Detailed techniques for cutting and limbing trees:**

<http://www.ag.ndsu.edu/pubs/ageng/safety/ae1025w.htm>

**Colorado Forest Agriculture Program**

<http://csfs.colostate.edu/pages/forest-ag.html>

**Colorado State Income Tax Deduction for Wildfire Mitigation, Colorado Department of Revenue FYI 65:**

<http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1239428516897&ssbinary=true>

**NRCS Colorado Environmental Quality Incentive Program (EQIP)**

<http://www.co.nrcs.usda.gov/programs/eqip/eqip.html>

**Mountain Pine Beetle, Colorado State Forest Service**

<http://csfs.colostate.edu/pages/mountain-pine-beetle.html>

**Ips Beetle, Colorado State Forest Service**

<http://csfs.colostate.edu/pages/ips-beetle.html>

**Boulder County Chipping/ Wood Transportation Reimbursement Program**

<https://www.bouldercounty.org/live/environment/land/pages/chippingreimbursement.aspx>

**Boulder County Propane Tank Location Requirements**

<http://www.bouldercounty.org/find/library/environment/w13propanetanklocation.pdf>

**Boulder County Brochure on Fire Cisterns and Emergency Water Supply for Fire Fighting**  
<https://www.bouldercounty.org/find/library/environment/w05emerwatersupply.pdf>

**Boulder County Community Biomass Collection Sites and Air Curtain Burner Info**  
<http://www.bouldercounty.org/find/library/environment/curtainburner.pdf>

**Boulder County Community Forestry Sort Yards**  
<http://www.bouldercounty.org/live/environment/land/pages/fhsortyards.aspx>

**Peak to Peak Wood**  
<http://www.peaktopeakwood.org/>

**Colorad Forest products**  
<http://coloradoforestproducts.org/>

**COLORADO OPEN BURN FORECAST:** For those with permits for Open Burning, check the following web page to find out if open burning is allowed that day:  
[http://www.colorado.gov/airquality/burn\\_forecast.aspx](http://www.colorado.gov/airquality/burn_forecast.aspx)