

The following general recommendations were taken from the 2010 San Mateo County - Santa Cruz County CWPP. The plan identifies “high priority” areas, where fuel reduction projects should take precedence. When individual projects are implemented, site specific guidelines shall be developed by the persons/agency responsible for project development. Any proposed project shall conform to all applicable local, county, and state regulations concerning fuel modification projects. The following general recommendations are not intended to be site specific, but rather a tool to aid in the development of appropriate prescriptions.

Reduction of fuels adjacent to roads

Overgrown vegetation on or adjacent to the traveled road surface makes access difficult for fire fighters and equipment. Additionally, roadside vegetation, including tree limbs, brush, and grass is responsible for numerous fire starts each year. This is a problem adjacent to all types of roads in both counties. There are many narrow, one-lane roads that often make it difficult for emergency vehicles to access a fire area while residents are simultaneously leaving. During a wildland fire, ingress/egress may be obstructed by roadside vegetation. Vegetation impeding and growing into the road right of way should be reduced to a level allowing greater ease of access for emergency response personnel and equipment, and to reduce the number of roadside fire starts. This vegetation removal is also used for the safety of fire suppression personnel using roads as fire control lines.

County Public Works and Caltrans routinely conduct roadside clearing for access, visibility and fire safety. Historically, this work was accomplished through a combination of chemical and mechanical means. In recent years, there has been increasing public pressure to eliminate the use of chemicals as a roadside treatment. Most of this work has been completed with mechanical mowers and masticators.

Both local and state fire codes specify clearing of at least 10-feet on each side of a road or driveway and up to 15-feet vertical clearance over. Unfortunately, the specifications are inconsistent across the numerous county jurisdictions. A priority should be set to attempt standardization for these requirements across each County.

Strategically placed fuel breaks (including shaded fuel breaks)

The primary goal of a fuel break or shaded fuel break project is to change the behavior of a fire entering the fuel-altered zone. To reduce large flame lengths and high energy output, fuels should be modified to reduce flame length and decrease energy output. Changing fire behavior may be the key to allowing fire crews to protect people and property from wildland fire. Effective fuel breaks may:

- Act as an anchor point for indirect attack on wildland fires.
- Allow for fire fighter to use fire as operational tool (firing out).
- Support safer ingress/egress for emergency responders.

With reduced fuel adjacent to a roadways and structures, flame lengths, fire activity, and heat production will be reduced, making it safer for firefighters to access the area and protect structures in the community.

A fuel break typically refers to the removal of all or the majority of vegetation in a specific strategic area. A shaded fuel break refers to “thinning” of vegetation in a specific area with the remaining vegetation shading the ground. Non-shaded fuel breaks are typically used in non-residential, less visible areas. For the purposes of large scale wildland firefighting, these type of fuel breaks are preferable to shaded fuel breaks because they make little to no fuel available combustion. However, shaded fuel breaks are often preferred because they are less invasive to sensitive resources on the landscape and often have more support from adjacent property owners.

The type and size of fuel reduction projects should be determined on a project by project basis. The widths of roadside shaded fuel breaks generally range from 10 feet up to 50 feet, and in certain instances may even be wider. Strategic fuel breaks can be as wide as 400 feet. The responsible fire agency as well as the community should collaboratively develop projects that meet the needs of the stakeholders.

Shaded fuel breaks can be placed around individual structures, a community or neighborhood identified to be at risk. For example, after a community has developed defensible space out to 100 feet from structures, they may wish to augment that with an extended fuel break. Depending on the topographical location of the community, an extended fuel break around the residences may be of strategic importance. There is no specific prescription for this type of project. It should be developed in collaboration with the community and responsible fire agency, and be adapted to local environmental constraints.

There are many communities and neighborhoods identified as priority areas in this document where a roadside fuel break would be beneficial. Stakeholders in both counties consistently agreed, reducing fuel loading adjacent to roads is one of the most important and highest priority projects. There is no standard distance recommended from the roads edge, other than more is often better. Extended fuel reduction projects may be reduced in some areas with continued maintenance and treatment of roadside grass and continued trimming of vegetation. Roadside fuel breaks are typically between 10 and 40 feet wide. The exact distance should be based on fuel type, slope, aspect, and be environmentally feasible.

Other general recommendations include maintaining defensible space around the home. This is discussed in the “Reducing Structural Ignitability” section of the CWPP.

There are a variety of methods used to create a fuel break or shaded fuel break, however, the primary method is manual labor using chainsaws. Locally, many fuel reduction projects are completed by CAL FIRE inmate fire crews, residents, and private contractors. Although chainsaws are the primary vegetation removal tool, other methods may include livestock, mowing, or other mechanical means such as a masticator. Treatment of the removed vegetation can be accomplished by a variety of methods, listed below.

- Chipping – A variety of chippers available for use in both counties. The Santa Cruz County Fire Chiefs Association offers a chipping program, utilized through local agencies. In San Mateo County, chipping programs have been developed through Fire Safe San Mateo County. Independent contractors with chippers are available for hire in both counties. When a fuel reduction project requires use of a chipper, vegetation to be treated should be placed in a location easily accessible to a chipping crew arranged in a manner to allow for efficient chipping. Such specifications are determined in project planning according to the size of the chipper. Depending on the location and project goals, the chips will be either left on site, or be taken away for proper disposal.
- Pile burning – Vegetation is typically placed in manageable piles to be burned by qualified personnel at a later date. Though this is a very effective means of fuel treatment, vegetation piles can become an increased fire hazard if left untreated. Other factors to consider are the risk of escape and smoke management and air quality restrictions. The agency having jurisdictional authority should be contacted prior to burning for information on all applicable fire and air quality rules and regulations. In general, guidelines for pile burning include:
 - Burn only during daylight hours.
 - Have adequate fire tools and water onsite.
 - Always have an adult in attendance.
 - Piles shall be no larger than 4-feet x 4-feet and no taller than 4-feet.
 - 10-foot clearance around each pile

Additionally, burning can only occur on “burn days” set by:

- Santa Cruz County – Monterey Bay Area Unified Air Pollution Control Board 1-800-225-2876
 - San Mateo and Santa Clara Counties – Bay Area Air Quality Management District 1-800-435-7247
- Lop and Scatter – This method of fuel treatment involves the cutting and spreading of cut material, so that it does not extend above a predetermined height above the ground. This can be

between 12 and 24 inches. Material is spread out to prevent continuous fuels and to allow for quicker decomposition. Care should be taken to not spread cut material in sensitive locations, as identified during the planning process. This method may be used in an area removed from roadways and homes, and in projects with low amounts of cut vegetation.

- Removal to off-site location – If there are no feasible on-site treatments, vegetation can be removed to an appropriate off-site location.

Masticators

Another option for reducing fuel involves the use of a masticator. Masticators are a mechanical means of vegetation removal, in which spinning blades “masticate” or “chew” vegetation. The masticator head can be attached to the end of an excavator arm or to the front of a tracked or wheeled vehicle such as a dozer or loader. They are primarily used in fuel break situations, rather than shaded fuel breaks, due in part, to the large swath of vegetation they remove. Masticators cut, as well as treat the vegetation they remove, pulverizing the vegetation into a loose “chip like” material, obviating the need for a chipper. Masticators are very effective in roadside and ridge top fuel breaks. Smaller masticators are now being used in some shaded fuel breaks.

Controlled / Broadcast / Prescribed Burns involves the burning of surface fuels in a predetermined area, under the supervision of trained fire personnel. Prescribed burns are planned in detail, occurring only when favorable conditions exist. A prescribed fire takes place under predetermined weather and fuel conditions. Other factors affecting prescribed burning include resource availability and atmospheric conditions favorable for adequate smoke dispersion. Prescribed burns have been implemented on State Parks, Peninsula Open Space Trust, Midpeninsula Regional Open Space District lands and several private ranches for the purpose of fuel reduction and habitat improvement. While prescribed fire is an effective means of reducing fuels in the wildland, it is not widely used as treatment locally for a variety of reasons including: limited resources available for burning, smoke management, negative public perception of burning, and the potential threat of escape. CAL FIRE will cooperate with interested landowners to determine opportunities for the appropriate use of controlled burning.