

Fuel modification – reduction of flammable materials around homes or communities, along roadways or at strategic locations – is one major element wildland community protection planning. Fuel modification alone will not normally save homes or prevent fire spread. Structure hardening is an equally important element of any strategy for improving individual home and community survival. The foremost purpose of fuel modification is to provide safe areas for firefighters to work and thereby provide more favorable conditions for protecting property, halting the fire, or, where necessary, evacuation or shelter-in-place efforts. Secondly, fuel modification should increase the chances of individual structures – and entire communities – surviving a wildfire. It must also be acknowledged that fuel modification efforts can result in significant unnecessary environmental impacts if overdone or carelessly done. The following recommendations are intended to serve as guidelines for all fuel modification actions in the CWPP. In some cases, specific requirements or restrictions may be imposed by state, federal or local laws. In other cases, particularly in the matter of creating private defensible space near homes and Forest Service projects, compliance with the guidelines will be voluntary, but recommended. In other cases, particularly with respect to County Fire projects and community fuel break projects funded with grants, compliance may be required as a matter of County policy, through County permit conditions, or as a condition of receiving grant funding.

A. Fuel Modification Types and Objectives

For purposes of the SMPCWPP, fuel modification efforts can generally be divided into six categories: individual private defensible space and other private fuel clearance; community defensible space; local fuel breaks; roadside clearing; safety zones; and Forest Service fuel breaks. The following recommendations address the basic purposes and appropriate design characteristics of each type of fuel modification. Additional detailed guidelines for fuel reduction priorities, best management practices for environmental protection and long term maintenance are included in following sections. Summaries of applicable regulations and further recommendations and requirements for fuel modification affecting environmentally sensitive species or habitat areas are discussed in the final Sections __ and __ of this Chapter.

1. Individual/Private Defensible Space

State law (Public Resources Code section 4291) establishes minimum requirements for defensible space – generally 100 feet or to the owner’s property line -- around all structures in wildfire areas. Individual defensible space should be designed to accomplish three things: (1) prevent direct flame or convective heat contact with structures; (2) provide a safe area for firefighters to deploy equipment and work; (3) reduce ember impacts. Fuel modification beyond the 100 foot minimum requirement therefore may be required for some structures, particularly for structures on or above slopes or terrain features which may channel fire. Defensible space for individual residences and structures is the responsibility of property owners, and would be expected to occur with or without a CWPP. General guidelines for individual defensible space are set forth in Table __ below for the benefit of residents and property owners. Individual defensible spaces may also sometimes be incorporated into community defensible space (Section A.2 , below.) In other cases, it may be desirable for owners of adjacent property to coordinate defensible space planning, particularly where property boundaries or terrain features would otherwise make it difficult to provide adequate protection to all structures.

BASIC GUIDELINES FOR INDIVIDUAL DEFENSIBLE SPACE

Fuel Type ↓	Primary Defense Zone (A) (0' – 30' of a structure)	Fuel Reduction Zone (B) (30' – 100' of a structure)	Fuel Reduction Zone (C) (100' and beyond a structure')
Grass/ Forbs	Reduce fuel depth to 1" or less.	Reduce grass height to 4" or less. Longer grass in discontinuous open areas is acceptable.	Treatment <i>generally may not be needed.</i>
Surface Dead/Down Material	Remove all dead/down materials.	Reduce dead/down flammable material to < 3" depth. Non-contiguous isolated logs acceptable.	Reduce heavier pockets of dead/down flammable material to < 5" depth.
Chaparral/ Shrub	Remove all but individual specimen chaparral plants. Individual ornamental/native shrubs should be spaced at a minimum 2x shrub height. Replace highly flammable species with fire resistant species or hardscaping.	Remove up to 75 percent of flammable vegetation, including all brush and shrubs under trees. Replace highly flammable species with fire resistant species or hardscaping where practical. Allow for discontinuous small pockets or clumps of chaparral/shrubs. Pockets and clumps of chaparral remaining should be healthy and pruned to 1/3 height of chaparral/shrub crown.	Less intensive brush removal with up to 30 foot for spacing of pockets and clumps of chaparral and shrubs. The remaining pockets and clumps of chaparral should be healthy and at the young-growth stage; and limbed to 1/3 height of chaparral/shrub crown. See further guidelines for Community defensible space, below.
Trees Overstory (without chaparral/shrub understory)	Eliminate all trees/branches within 10 feet of chimney or stovepipe outlets. Thin smaller trees leaving larger trees (>than 6-inches DBH) at 10-20 foot crown spacing (based on slope, tree size and type); limb/prune lower branches 6-feet above grade level, or lower 1/3 of tree height on smaller trees. Replace highly flammable species with fire resistant species	Thin smaller trees leaving larger trees (> than 6-inches DBH) at approximately 10 foot crown spacing (based on slope, tree size and type); limb/prune lower branches 6-feet up, or lower 1/3 of tree height on smaller trees and removing all broken limbs and dead material.	Limb and prune lower branches of larger trees up to 6-feet. Remove broken limbs and dead material. Selective removal of non-native species may be warranted. See further guidelines for Community defensible space, below.

Owners of larger parcels undertake other fuel modification projects on their property that are not part of the CWPP. The CWPP does not prohibit or regulate such projects. However, property owners who create larger than minimum required defensible spaces or undertake other fuel

modification projects are strongly encouraged to apply the guidelines for community defensible space and Best Management Practices in this CWPP. County zoning regulations will also generally require a permit for fuel modification work beyond the minimum required for adequate defensible space if the work affects any environmentally sensitive habitat. State and federal restrictions on interference with nesting sites for raptors and migratory birds also apply to all fuel modification work. A complete discussion of potentially applicable local, state and federal regulations is found in Sections __ and of this Chapter.

2. Community Defensible Space

Community defensible space is intended to provide fire protection at strategic locations around or near threatened communities or cluster of homes. A community defensible space should allow firefighters to safely deploy near or along the edges of the threatened community and prevent the fire from entering the community. Properly designed community defensible space will also reduce the potential for ember spread and resulting spot fires within the threatened community, although this risk generally cannot be eliminated by fuel modification projects alone. Community defensible space may incorporate individual residential defensible space, but will also generally include larger areas located on private lands with the permission of landowners, or on County or Forest Service land through agreements with the County or Forest Service. Responsibility for construction and maintenance of community defensible space will generally be assumed by County Fire, the local volunteer fire departments, local community associations, or some combination of these.

Community defensible space will generally vary in width from 100 feet to 300 feet, although in some cases local topography, concentrations of fuel or the need to go around sensitive habitat areas may warrant additional thinning of vegetation beyond a 300 feet width. General design characteristics are as follows.

General Guidelines:

- Width of community defensible space will be determined on a case-by-case basis, taking into account topography, accessibility, fuels, potential wind factors and environmental constraints. Community defensible space will normally be a minimum of 100 feet and a maximum of 300 feet wide, but may vary where circumstances such as property lines, slopes or sensitive habitat areas narrow the area available for fuel modification, or slopes or particularly heavy fuel loads require additional fuel modification to ensure firefighter safety.
- Community defensible space will utilize existing roads, cleared areas and natural fire barriers to the extent possible. Community defensible space may also incorporate portions of property owner's individual defensible space where appropriate.
- Community defensible space should avoid environmentally sensitive habitat areas where practical. In some cases this may be achieved by preserving areas containing environmentally sensitive habitats or species in islands within the fuel break. Where avoidance is impractical, community defensible space in woodland, riparian and other environmentally sensitive habitat areas will be limited to actions permitted by applicable federal, state and County regulations. More detailed summaries of applicable policies and regulations are contained in Sections __ and __ of this chapter. Community defensible space in wooded areas will generally be shaded fuel

breaks, i.e. will focus on removal of ladder fuels, dead material and concentrations of ground level fuels while leaving the tree canopy intact. Work in riparian areas must not alter stream banks or channels, nor adversely affect streamflow.

- Removal of fuels should generally follow the priorities listed in Section ___. Amount of fuels removed will generally follow the guidelines in section 2 below, subject to the overriding consideration of firefighter safety.
- Where soils, topography and water supply conditions allow, replanting with oak trees or other less flammable native vegetation should be considered as a means of maintaining long term effectiveness and reducing maintenance requirements in community defensible space areas.

b. Zone Characteristics

The critical feature of a community fuel break is space for physical deployment of firefighters and equipment. Beyond the immediate deployment area, fuels must be removed or thinned to the degree necessary for firefighter safety. Removal of all fuels in this extended area is generally unnecessary. Trees, favored chaparral species and pockets of vegetation should usually be retained to preserve aesthetic and habitat values and to help reduce the amount of heat and embers reaching firefighters and structures. Expanding the width of the fuel break to incorporate manageable amounts of vegetation is generally preferable to clearcutting narrow widths to achieve necessary reductions in fuel loads. The zones defined below generally describe the degree of vegetation treatment that should be undertaken as the community fuel break increases in width.

1. Deployment Area: (up to 100 feet)

Fuel modification within the deployment zone (generally the 100 feet nearest the protected community) will be designed to accomplish the following objectives.

- Provide area for safe and unobstructed access, egress, turnaround and deployment of firefighters, equipment and hoselays, free from excessive convective or radiant heat impacts
- Provide clear lines of sight for fire observation and firefighter communication
- Allow for rapid construction of check lines for fire containment and potential backfiring;

Removal of up to 100% of existing vegetation will likely be necessary to achieve these goals in some areas. However, where consistent with the foregoing goals, healthy non-hazardous trees should be preserved to screen radiant heat and embers. Additional specimens or pockets of live vegetation may be retained in portions of the deployment zone to further screen head and embers, and preserve environmental or aesthetic values. Overall, at least 70-80% of the anchor zone would normally be expected to be cleared of flammable vegetation other than groundcover.

2. Intermediate Zone: (generally beyond 100 feet).

Fuel reduction in this zone will be designed to reduce fire intensity by reducing overall fuel volume, eliminating the most volatile fuels and breaking up the continuity of fuel beds. Non-hazardous trees will normally be retained to reduce ember passage, subject to removal of underlying ladder fuels

and dead material, limbing up to 6' height, and thinning where necessary to reduce overall fuel volume. Some specimen species of native chaparral and larger pockets of native vegetation will also be retained for habitat and aesthetic value. Live tree or chaparral vegetation should be retained over not less than 30% of the area, unless fire safety considerations or prevalence of dead fuels makes retention of 30% coverage impractical. Replacement of existing vegetation with oak trees or other less flammable native vegetation should be considered where practical.

3. Outer Zone: (200 -300+ feet)

Fuel reduction in the outer zone of community defensible space should generally follow the principles applicable to the 100-200 foot zone, except that 50% or more of existing live vegetation (or suitable replacement vegetation) should be retained unless local fire safety considerations dictate greater fuel reduction.

3. Local Fuel Breaks

Local fuel breaks are fuel modification zones intended to provide potential contain lines for wildfires in the CWPP area. Local fuel breaks differ from community defense zones in that they are not intended to protect specific or communities or structures, but designed to assist in containing wildfires further from community boundaries. Local fuel breaks differ from strategic fuel breaks in the CWPP area in that local fuel breaks are typically much smaller in scale, and will be managed by County Fire, mountain volunteer departments or local residents associations in conjunction with affected property owners, while all strategic fuel breaks in the CWPP area are managed by the Forest Service. Areas identified as potential locations for local fuel breaks in the CWPP area generally represent gaps in existing fuel modification coverage, or areas where fuel break construction may increase potential for containment along existing roadways or other potential containment lines.

Construction of local fuel breaks should generally follow the guidelines applicable to community defense zones, with the following modifications:

- Where possible, local fuel breaks will include existing roads, trails or graded pathways to facilitate deployment of firefighters and equipment and construction of a containment line.
- Local fuel breaks may be utilized to contain fires approaching from either side. Consequently any deployment zone within a local fuel break may be more centrally located than in community defensible space, and aligned along existing roadways, ridgecrests or other features in the local fuel break area that provide the greatest safety and potential for construction of effective containment lines.
- The maximum width for local fuel breaks will normally be 300 feet. However, local fuel breaks may be considerably narrower, due to (1) limitations on available area due to topography, property ownership or environmental constraints, and (2) limited resources for construction and maintenance.
- Containment of fires along local fuel break lines may be dependent upon successful aerial fire retardant drops. Consequently, where width is constrained by topography, ownership or resource constraints, fuel modification priorities for the local fuel break

may require more aggressive removal of taller fuels (including trees) and islands of denser fuels in order to ensure effective application of retardants.

- Where local conditions allow, replacement of existing vegetation with oak trees or other less flammable may be utilized to increase effectiveness and reduce maintenance burdens of local fuel breaks.

4. Safety Zones

Safety zones are cleared areas where residents or firefighters may occupy in lieu of evacuating while a wildfire approaches or passes through an area. Safety zones should generally be considered for resident or visitor uses where safe evacuation may be impractical due to access issues or the speed of approach of a fire. Safety zones may be used tactically by firefighters as a safe area to assemble personnel and equipment when applying “fire following” tactics. Fire following may be employed where fire conditions are too intense to allow firefighters to deploy ahead of an oncoming fire, but where it may be possible to save structures that have not yet ignited or become fully involved. The size and degree of fuel modification necessary for a safety zone is dependent upon such factors as the location, number of occupants expected, topography, surrounding fuel types, probable wind scenarios, and others. Design must also consider the need to protect occupants from smoke inhalation as well as any direct flame impingement.

Some cleared areas already suitable for safety zones exist in the CWPP area, e.g. recreational areas in Paradise Canyon and the built-up area of Laurel Springs Ranch adjacent to the Painted Cave Community. Two additional potential areas for safety zones were identified in the CWPP process, one primarily for resident and guest use (but also possible firefighter use) at the San Marcos Christian Camp and one potential site for firefighters in the lower Painted Cave area. If creation of safety zones in these areas occurs, the actual extent and amount of vegetation clearance required will be determined through detailed consideration of the factors mentioned above.

5. Roadside Clearing

Fuel modification along roadways is a major element of the community protection strategy of the CWPP. Roadside fuel modification is intended to accomplish three main purposes: (1) reduce threat of fire ignition and spread from roadways; (2) improve safety of evacuation routes for residents, and ingress/egress for firefighters; (3) improve potential for containment of fires along roadways.

Since roadways are a primary source of fire ignitions from such things as discarded cigarettes, overheated vehicles and vehicle accidents, fuel reduction on roadways is an important means of reducing the chances of fires starting, and of minimizing the spread of roadside ignitions that do occur. Since roadside clearing may also promote the growth of highly flammable lighter fuels, i.e. grasses, along roadsides, regular maintenance is essential for maintaining the effectiveness of roadside clearing.

With respect to evacuation and firefighter access, reducing the threat of direct exposure to flames and smoke is an important part of ensuring that available routes are usable during emergency situations. Attempting to escape through active flames is a dangerous exercise at best, and has resulted in significant fatalities in past wildland interface fires. Even the threat of being caught in flames may be sufficient to effectively close evacuation routes. In addition, many public and private roadways in the

mountainous areas of the CWPP are extremely narrow. Removal of brush and foliage along these roadways significantly reduces the risk of collisions between evacuating vehicles and incoming fire equipment or other vehicles by improving sight distances and increasing passing widths.

Roadways in the CWPP area are generally not sufficient to stop an intensive slope-driven or wind-driven wildfire even with major roadside clearing. However, roads can provide a usable barrier and relatively safe space for firefighters to work under more moderate conditions and along the flanks of fires. Roadside fuel modification also serves the purpose of increasing firefighter safety in these situations and substantially increasing chances of containing fires along roadlines.

Within the CWPP area, road clearances will normally be in the 10-20 foot range on both sides of roads. [In some cases terrain features, particularly steep slopes, or environmental considerations may restrict roadside clearing to shorter widths.] Clearance up to 40 feet on each side may be pursued along sections of Highway 154 and West Camino Cielo. [Major portions of East Camino Cielo are within a Forest Service fuel break.] The general design guidelines set forth in Table __ below are recommended for roadside clearing. Clearing activities should follow applicable Best Management Practices found in Section C.

GENERAL DESIGN GUIDELINES FOR ROADWAY CLEARANCE

Fuel Type ↓	Primary Zone (A) (up to 20' beyond road edge)	Secondary Zone (B) (20-40' beyond roadway)
Grass/ Forbs	Reduce fuel depth to 1 inches.	Treatment permitted but not required.
Dead/down material	Remove all dead fuels above surface levels, and accumulations of dead ground fuels in excess of 1" thick.	Remove dead fuels less than 1" in diameter above surface level, any any concentrations of larger dead fuels. Remove or disperse any large accumulations of dead fuels at surface levels.
Chaparral/Shrub	Reduce vegetation to 6-12" in height, or lower to break up patches of continuous fuel. Widely spaced specimen species of chaparral, e.g. mature manzanita, may be preserved. Retain the root crowns of all species to promote soil stability. Retreatment should occur whenever regrowth reaches 3' in height or 18" in height under trees, or when fuels over 18" in height create contiguous fuel patches over 50' square feet. Chipped, masticated or hand-disbursed material may be redistributed back onto cleared areas where feasible to enhance soil coverage and retard grass and weed regrowth.	Remove 60-80 percent of vegetation. Widely spaced small pockets or clumps of chaparral/shrubs are permitted. Pockets/clumps of chaparral remaining should be healthy, early seral stage plants limbed to 1/3 height of chaparral/shrub crown. Retain chipped or masticated material on ground where feasible to enhance soil coverage and retard grass and weed growth.
Trees Overstory	Prune all trees to 6-feet or 1/2 of the live crown height (whichever is less) unless additional pruning is necessary to improve	Same treatment as Zone A with the exception of overstory spacing. Where it exists,

	<p>lines-of-sight or passing room along narrow roads. Remove branches extending over roadways to a minimum height of 14-feet. Thin/remove smaller trees leaving larger trees (6-inch DBH) with crown spacing up to 10-feet.</p>	<p>overstory canopy should be retained provide shading of the surface to limit potential development of grass or shrub understory vegetation.</p>
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6. Forest Service Fuel Modification and Fuel Breaks

The majority of land included within the CWPP area consists of federally-owned lands managed by the U.S. Forest Service as part of the Los Padres National Forest. Fuel management activities within these lands are governed by the Forest Service and are not subject to control by state or County governments. However, existing and planned Forest Service fuel modification plans have been fully taken into account in developing the CWPP, and ongoing collaboration with Forest Service management personnel will be required to implement many aspects of the CWPP in the future. Existing and potential future Forest Service fuel breaks are shown on CWPP maps (Figures __). Forest Service fuel management activities relevant to the CWPP generally fall into three categories.

Santa Barbara Mountain Communities Defense Zone Project: In 2016 the Los Padres National Forest approved the Santa Barbara Mountain Communities Defense Zone Project, which includes proposals for several community-oriented fuel breaks on Forest Service lands within the CWPP area. Some of these fuel breaks involve maintenance or expansion of previously treated areas (e.g. near Rosario Park, Haney Tract, the Trout Club and Painted Cave) and some involve potential new fuel break construction (e.g. Lower Painted Cave area). Two fuel projects in the Plan involve fuel reduction close to existing communities, i.e. Painted Cave and the Trout Club, and therefore may be considered part of the community fuel break system for these communities. Other projects in the CWPP area might more accurately be characterized as local area fuel breaks in that they will serve in part to protect nearby mountain residential communities, but are also situated to help contain larger fires rather than merely let the fires burn around the protected communities. Details concerning these projects may be accessed at <https://www.fs.usda.gov/project/?project=44697>.

Strategic Fuel Breaks. The Forest Service also has historically constructed and maintained a number of strategic fuel breaks in the CWPP area; these include the Windy Gap, East Camino Cielo, Arroyo Burro, Snyder, Freemont and Brush Peak (Rosario Park) fuel breaks. While there are many instances of wildland fires stopping at maintained fuel breaks, they are typically not expected to operate in isolation. Strategically placed fuel breaks are designed to reduce the rate of spread, residence time, and intensity of the wildfire and are intended to be used in conjunction with firefighting resources. Maintained fuel breaks increase the safety, efficiency, and effectiveness of the fire response by providing firefighters better access and safe locations to establish anchor points to engage in wildfire suppression. Many of these strategic fuel breaks were first completed in the 1950's, 1960's and 1970's. The maintenance status of these strategic fuel breaks varies. Funding constraints have generally precluded regular maintenance activities. However, fuel reduction activities have occurred when these fuel breaks were designated as secondary or contingent control lines during past major fires. Specifically, dozer lines and/or hand crew clearing have occurred on the Brush Peak, Freemont, East Camino Cielo, West Camino Cielo, Haney Tract and Windy Gap fuel breaks in response to the Zaca Fire, Gap Fire, Jesusita Fire, Sherpa Fire, and Rey Fires.

Due to uncertainties in federal government funding priorities, the future of these fuel breaks is uncertain. In 2015, the Forest Service conducted a Los Padres National Forest Strategic Fuel Break Assessment. The objective of this assessment was to complete a science-based analysis of the current legacy fuel break system and to develop a decision support tool to determine which fuel breaks should be retained and provide a priority ranking for maintenance activities. The final assessment can be accessed under the "supporting" tab at <https://www.fs.usda.gov/project/?project=44697>.

Recreation Area and Facility Maintenance. The Forest Service maintains an extensive range of recreational facilities (trails, campgrounds and day use areas) in Paradise Canyon, and also an extensive array of administrative facilities, maintenance facilities, firefighting installations and employee housing. The Forest Service generally maintains fuel reduction zones around all such facilities both to protect the facilities in the event of a fire, and (particularly in the case of recreational areas) to prevent accidentally started fires from spreading to adjoining wildlands. The recent White Fire (2013) and Rey Fire (2016) served as good reminders of the real wildfire threat which has historically occurred along paradise canyon recreational sites. There are numerous recreational residences which lease property from the Forest Service along Paradise road. Residents are responsible for maintaining their annual fuel reduction in accordance with state defensible space requirements. One major goal of the CWPP is to increase support for vegetation management around facilities, particularly around campgrounds and other recreational areas.

Fuel Break Design

Forest Service actions are not subject to regulation by the County of Santa Barbara or State of California. Projects planned in the Santa Barbara Mountain Communities Defense Zone Project have been reviewed under the National Environmental Policy Act (NEPA), and various measures included in project approval to address potential adverse environmental effects. Beyond such measures, the guidelines suggested for fuel modification projects in this CWPP are advisory for the Forest Service and subject to compliance only on a voluntary basis, or by way of conditions imposed with project funding, or through collaborative agreements with County Fire, non-profit organizations, or residents associations. Forest Service representatives have stated that applicable recommendations in the CWPP will be fully considered in future project implementation, and applied where budget considerations and Forest Service land and fire management goals and objectives allow.

Community and Local Area Fuelbreaks (SBMCDZ).

Fuel breaks immediately adjacent to the Painted Cave and Trout Club communities are expected to serve primarily as extensions of private defensible space or community fuel breaks in those communities. The standards applied should generally reflect those for Zones B and C of community fuel breaks, except that slope factors and maintenance considerations may result in a greater deal of vegetation removal than may occur on County or resident-maintained community fuel breaks.

Fuel modification for other SBMCDZ projects will vary with location and purpose. The areas mapped for potential local area fuelbreaks in the SBMCDZ reflect maximum widths which allowed the Forest Service resource specialist to more accurately assess potential impacts; actual construction may involve fuel modification of significantly smaller areas, depending upon local topography and fuels. The goal of the SBMCDZ project is to maintain the vegetation in strategic locations in such a state which would reduce fire behavior, specifically as measured by rates of spread and flame lengths. This will promote a safer and more effective fire fighter response and would potentially limit the amount of resource damage occurring during wildfire suppression activities. By maintaining the fuel breaks as identified in the project, the actions which would be occurring would be done in a non-emergency environment. In addition to increased operator safety, the reduction of soil disturbances by using hand crews and masticators and reducing the amount of bull dozer work needed, the time could be taken to identify sensitive areas to avoid and clearly plan the work with the operators. This would include “blending” the edges of the fuel break to make the visual impacts less obvious. This is rarely an option

during a wildfire event. Local area fuel breaks also may be used to contain fires coming from either side of the fuel break. Fuel treatment and maintenance efforts will likely be most intensive along ridge crests or other features that serve as natural locations for containment lines.

Strategic Fuel Breaks

Expansion of existing strategic fuel breaks is unlikely to occur. Maintenance efforts therefore can be expected to focus on periodic cutting back of regrowth within existing boundaries, and grass and weed abatement in areas of substantial public use.

B. Vegetation Removal, Preservation and Replacement Priorities

Fuel modification should focus on removal of fuels with the greatest potential to contribute to fire intensity while preserving species with significant habitat value, aesthetic value or potential to reduce fire impacts by disrupting ember travel or blocking radiant heat.

1. Priorities for removal (in order of priority):

a. Dead Fuels: All dead fuels within 30 feet of structures. Beyond 30 feet, remove all dead fuels less than 1" in diameter, except for materials incorporated in roosting and nesting sites. Dead fuels larger than 1" in diameter may be left if they have habitat value or may reduce ember passage. In addition, woodrat nests more than 100 feet from structures should be preserved and left in islands of standing fuel where possible. Removal of partially living brush species may be necessary where dead material exceeds the volume of surviving live branches, or where dead and live material are too intertwined to permit removal of dead material only.

b. Non-native and invasive weeds and shrub species. If practical, long-term elimination of these species is desirable. A listing of undesirable non-native and invasive species commonly found in the CWPP area is found in the accompanying Priority Fuel Removal Table.

c. Highly flammable chaparral or other species. Examples include chamise, button sage and _____. A complete listing of highly flammable species commonly found in the CWPP area is found in the accompanying Priority Fuel Removal Table. [In all cases, root systems and burls should be preserved in place to reduce soil disturbance and potential erosion.] **WE NEED TO DEVELOP A FULL LIST**

d. Ceanothus megacarpus. Ceanothus megacarpus is a priority for removal because, unlike its cousin ceanothus spinosa, megacarpus does not regenerate from its root system, and therefore reduces the maintenance burden of maintaining the fuel break.

e. Moderately flammable plant species. Additional reduction of fuel volume should be achieved through removal of other non-sensitive, non-fire resistant species. A listing of moderately flammable species commonly found in the CWPP area is found in the accompanying Priority Fuel Removal Table.

d. Fire Resistant Species. Fire resistant species should be removed only when necessary to create adequate clearance in anchor zones, or to create adequate overall fuel volume reduction in intermediate or outer community fuel break zones. A listing of fire resistant species commonly found in the CWPP area is found in the accompanying Priority Fuel Removal Table. **NEED TO DEVELOP LIST**

2. Priorities for preservation: The following vegetation types, in order of priority, will normally be preserved in place in intermediate and outer community fuel break zones, unless removal or thinning is essential for firefighter safety. These vegetation types will also be retained in anchor zones where preservation can be accomplished without compromising fire safety or other firefighting objectives in that zone. Designated species or habitats will also be retained in all zones where preservation is required by law, permit, grant conditions or other legally imposed requirements.

a. Protected Trees or Other Vegetation, Habitat Areas: Restrictions imposed by County ESH policies, federal or state regulations governing threatened, rare and endangered species, or mitigation measures imposed under the California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA) may require preservation of particular species, habitats or stands of vegetation within a project area. Examples include most mature native trees in ESH areas, roosting habitat for raptors, and designated rare, threatened or endangered plant species. A complete listing of protected species and habitat types and associated regulatory restrictions is found in Sections ___ and ___ and supporting Appendix ___.

b. Trees. Healthy trees, whether protected by regulation or not, should generally be preserved, subject to limbing up to 6 feet in height to eliminate ladder fuels and removal of dead branches. Where some thinning is required, priority for preservation should be given to mature native species, particularly oaks, madrone and riparian species. Priority for removal should be non-native species, particular eucalyptus.

c. Manzanita. Healthy manzanita should be preserved to the fullest extent possible. Removal of dead or dying limbs may be removed. Thinning in denser stands should be undertaken only if necessary for safety of residents, structures or firefighters.

d. Healthy Ceanothus megacarpus, individually or in small islands, are relatively fire resistant and may provide ember screening as well as limited shading.

e. Other fire resistant species. NEED LIST.

3. Replacement Vegetation

Where feasible, replacement of existing vegetation with less flammable native species may provide a means of increasing the effectiveness of fuel modification zones while also preserving habitat values and potentially reducing maintenance requirements. Revegetation with species that may retard growth of grasses and other easily ignitable fuels would be particularly useful in reducing maintenance requirements and enhancing fuel break effectiveness. Local conditions such as soils, slope, exposure to sun and surrounding vegetation may dictate options for revegetation, as well as factors such as costs, labor availability and availability of water. Priorities for revegetation include:

a. Native oak trees

b. Native ground cover species with low ignitability

c. OTHERS?

C. Maintenance

Ongoing maintenance activity is necessary to retain the effectiveness of any fuel modification, and also to reduce the risk of fire starts in grasses or other light fuels that usually attempt to establish themselves following removal of existing vegetative cover. All proposals for community fuel breaks and local fuel breaks should include maintenance plans that anticipate long term maintenance requirements, including regular removal of grasses and other easily ignitable fuels in areas exposed to the public, periodic thinning or removal of regrowth and dead fuels, and associated costs.

Light Fuels. Intrusion or regrowth of grasses or other light flashy fuels may increase ignition potential in treated areas. To minimize risks, grasses and seasonal weedy growth should be mowed or weedwhipped to less than 1” in height wherever treated areas are subject to public encroachment, e.g. along roadways, formal or informal trails, near recreation areas, and in private areas which have increased fire risks such as outdoor cooking or barbeque areas, children’s play areas, areas of tool use, etc. Less intensive mowing or weedwhipping of light fuels in interior areas may be desirable to maintain overall defensibility of the fuel break or defensible space.

Dead Fuels. Diebacks of larger vegetation may also occur in treated areas. Significant accumulations of dead material should be eliminated as part of annual hazard reduction. Smaller accumulations of dead material may be removed as part of periodic fuel volume reduction.

Periodic Fuel Volume Reduction. Natural regrowth will necessitate periodic cutting back of new fuel in the project area. Maintenance intervals will vary with the vegetation type(s) and other growing conditions (rainfall, soils, sun exposure). Generally, plans should anticipate recutting every 3 – 5 years. Priorities for removal and amounts removed should follow the guidelines for initial creation of the defensible space or community fuel break.

Management of Invasive and Beneficial Vegetation Types. In some cases revegetation of treated areas with less flammable vegetation types may reduce risks of ignition in grasses or other easily ignitable regrowth, and also reduce overall maintenance requirements. Alternately, selective removal of highly flammable or otherwise undesirable species may facilitate natural regrowth of less ignitable local species. Existing research does not provide clear recommendations for revegetation planning in chaparral areas. However, County Fire and community planners are encouraged to consult conduct reviews of current literature and consult with local experts about potential revegetation plans for future community defensible space, local fuel break and roadside clearing projects.

D. BEST MANAGEMENT PRACTICES

The following guidelines are recommended to minimize potential adverse impacts of fuel modification activities. Additional guidelines pertaining to protection of specific plant or animal resources are found in Section E, below. For projects subject to CEQA, NEPA, state or County permit requirements, grant conditions or other governmental approvals, compliance with recommended practices may be mandatory to satisfy environmental requirements, project conditions of approval, or grant conditions. In all other cases, compliance is recommended.

1. Regulatory Compliance

Fuel modification work must comply with applicable federal, state and County regulations.

- Compliance with California Environmentally Quality Act (CEQA) is required for County projects and private projects that require discretionary state or County permits. Compliance may include qualifying for an exemption, preparing a negative declaration or mitigated negative declaration, or preparing an environmental impact report (EIR).
- Mitigation requirements intended to reduce or eliminate adverse environmental effects may be imposed on projects subject to CEQA and/or County permitting requirements. Compliance with such mitigation requirements is mandatory.
- County projects and private projects less than 5 acres in size normally do not require permits unless they will impact sensitive environmental resources. Exemptions also exist for some limited work in environmentally sensitive habitat areas, e.g. creation of defensible space within 100 feet of existing structures.
- Work affecting environmentally sensitive habitat areas, streambeds, bird nesting sites, sites hosting protected plant or animal species or sites with historic or archaeological resources may be restricted, prohibited or require permits under applicable regulations.
- Work on Forest Service lands is subject to the National Environmental Policy Act (NEPA), Los Padres National Forest policies and procedures, and potentially other federal regulations.

See Section __ for full details on regulatory requirements and Section __ for requirements and recommendations for work involving environmentally sensitive resources and habitat areas. *Guidance for identifying rare species, environmentally sensitive habitats and other sensitive resources may be found in Appendix XX to the CWPP.*

2. General Design Features

- Boundaries between treatment levels will maintain free-form shapes and feathered edges that replicate natural patterns; avoid straight lines by scalloping and feathering along edges of vegetation. The feathering of edges includes undulating edges horizontally and diverse heights of the brush retained on site.
- Preservation of islands of larger chaparral vegetation is preferable over uniform thinning of vegetation in areas away from structures, deployment areas and evacuation routes. However, retention of some scattered larger vegetation may be appropriate to preserve certain species, e.g. manzanita, and to provide for screening of embers and radiant heat.
- Scattered low standing shrubs or other vegetation should be retained between islands to protect soils and water retention, except where removal is necessary to facilitate deployment of firefighting equipment or fire containment lines. Fuel modification should not result in more than a 30 percent reduction in overall vegetative cover within the treated area. Chipped or hand distributed cut materials may be used where live vegetative cover cannot be maintained.
- Environmentally sensitive habitats, rare plants, critical wildlife habitat and cultural resources must be protected as provided in Section __, below. Where present, environmentally sensitive habitats or other sensitive resources should be included in islands of undisturbed vegetation to minimize disruption of habitat value.
- Replacement of existing vegetation with oak trees or other less flammable vegetation should be considered where environmental conditions and fire safety considerations permit.

3. Construction Methods:

Community Fuel Breaks, Local Fuel Breaks and Safety Zones: Construction of new or expanded community fuel breaks is expected to be completed with the use of hand held tools, e.g. chain saws, pulaskis, weedwhips. Use of mechanized equipment (masticators, bulldozers, etc.) is not recommended for any community fuel breaks or potential safety zones in the CWPP area. The majority of areas suitable for community fuels breaks have been subject to clearing in the past and do not require mechanical treatment for maintenance. While a few additional areas have been identified for potential expansion of community fuel breaks in the CWPP, the limited size, topography and vegetative cover of these areas make use of mechanized equipment both unnecessary and probably economically inefficient.

Individual Defensible Space/Private Fuel Modification Projects. Construction and maintenance of individual defensible space will generally be completed with the use of hand held tools, e.g., chain saws, pulaskis, pruning saws and shears, weedwhips. While private landowners are not prohibited from using mechanized equipment such as masticators or bulldozers for fuel modification projects, use of such equipment is not recommended and is not likely to be cost effective for creating defensible space around individual structures. If utilized, operators should follow guidelines in subsection __ below.

Roadside Clearing. Roadside clearing may be completed with hand tools. Due to the extent of annual roadside clearing recommended in the CWPP, use of vehicle mounted mechanized mowing or shredding will also be required. Use of such equipment is authorized provided the vehicles remain within the improved right of way, on shoulders or in established turnouts or parking areas. Areas beyond the reach of vehicle-mounted mowing or shredding equipment should be treated by hand. Use of off-road mechanized equipment is not anticipated or recommended.

Forest Service Fuel Breaks: Use of hand methods is recommended by the CWPP for Forest Service fuel breaks, particularly on slopes and in potentially sensitive habitat areas. However, because of budget constraints and cost-effectiveness considerations, work on Forest Service fuel breaks may also be conducted with masticators. See Santa Barbara Mountain Communities Defense Zone Plan, <https://www.fs.usda.gov/project/?project=44697>.

4. Disposal of Cut Fuels:

Chipping or Hand-Dispersal. Chipping or hand dispersal of cut fuels are the preferred methods of disposing of cut fuel materials.

- Chipping is most efficient where fuels can be piled or dragged in an area accessible to a mechanical chipper. Chips may be dispersed on site to assist with soil stabilization, weed suppression or other landscaping purposes, or may be disposed of off-site. Concentrations of chips more than 6" deep should be avoided.
- Hand dispersal involves reducing cut materials to short lengths (6" or less for small diameter material, longer lengths for larger diameter trunks and branches) and spreading the material in treated areas. Accumulations of cut material more than 4" in depth (or the actual diameter of larger sections of trunks or branches) should be avoided. Hand dispersal is labor intensive and is best utilized on slopes and other areas inaccessible to mechanical chippers.

Burning. Burning may be necessary to dispose of large volumes of cut fuel in areas inaccessible to mechanical chippers. When required, burning should be conducted using the following practices:

- To minimize soil sterilization, burn piles should not be larger than necessary to allow for complete combustion of fuels. Lighter brush (under 1 ½" in diameter) can generally be burned in piles measuring 6' x 4' x 4' or less. Larger piles may be required for larger cut fuels or where space is inadequate for multiple smaller piles.
- Excess dragging of cut materials to piles should be avoided to minimize soil disturbance and trampling of groundcover.
- Piles that cannot be burned before commencement of fire season should be compacted to the extent possible to reduce fire hazard.

5. Protection of Soils, Watersheds and Watercourses:

- In all fuel modification areas, damage to surface soil structure should be minimized to reduce potential for erosion and sediment transport to drainages.
- Existing groundcover vegetation under 12" in height should be retained to the extent possible, and regrowth of groundcover vegetation encouraged.
- Chipped or masticated cut materials should be "blown" back or hand-distributed on slopes where feasible to enhance soil coverage.
- Water bars and other erosion control structures will be located so as to prevent water and sediment from being channeled into stream courses and to dissipate concentrated flows.
- If authorized, use of off-road mechanized equipment should comply with guidelines for mechanized equipment, below.
- Riparian zones along streams and watercourses are considered Environmentally Sensitive Habitats (ESH) in the EGVCP. Fuel modification activities should be avoided in all riparian areas whenever possible. If complete avoidance is not possible, fuel modification should be limited to that specified in Section __ below.
- Fuel modification work should never take place within the bed or along the banks of any stream or watercourse. If work activity unavoidably must occur within the stream bed or along banks, work should not result in physical changes to stream bed or banks themselves. Work which may result in physical alterations, including removal of major vegetation, in the streambed or streambanks requires a Section 1601 permit from the California Department of Fish & Game. (See Section __ on Applicable Regulations, below.) Work that may result in fill to a jurisdictional water or wetland of the United States requires a permit from the Army Corps of Engineers. Plans for full restoration of the stream or wetland area will typically be required as conditions of state, federal or County approvals.
- Project generated vegetation debris shall be removed from the stream course and banks.
- If stream crossings will be required for fuel modification work, the location and method of crossing should be identified prior to fuel reduction activities and selected to provide the least amount of potential impacts.

6. Use of Goats:

The use of goats for fuel break maintenance and occasionally for fuel break construction has been utilized as a cost effective natural means of fuel modification. However, careless management of goats may result in avoidable environmental impacts. The following measures are recommended to avoid or reduce adverse impacts.

- Goats should not be used in environmentally sensitive habitat areas. (See Section __, below.)
- Newly introduced goats may carry seeds of noxious weeds or other invasive species. All goats should be purged prior to commencing work in any new fuel modification area.
- Goats are browse feeders and usually not effective at reducing grassy fuels. Where treatment is required to eliminate grass as an ignition source, treatment should be accomplished by other means.
- Overgrazing must be avoided, particularly on slopes or other areas susceptible to erosion. Goats should be moved to new grazing areas when the required amount of fuel reduction has been achieved.
- Manzanita and rare plants should be protected from goats by (1) being excluded from grazing areas, or (2) fencing within grazing areas.

7. Mechanized Equipment

Although use of off-road mechanized equipment is not recommended in this CWPP, masticators or other heavy equipment may be used on some larger projects, e.g. Forest Service fuel breaks or large private projects. In such cases, the following guidelines should be applied.

- Masticators are designed to remove fuels without major soil disturbance and to leave masticated material on site as groundcover. Masticators are therefore heavily favored over any other type of mechanized off-road equipment for fuel modification.
- When operating equipment off of roadways the use of rubber tracked equipment, with a low ground pressure coefficient is preferred.
- No mechanical equipment use on slopes greater than 30 percent with following exception: Activities can occur on slopes greater than 30 percent where the equipment is operating on slopes less than 30 percent and accessing steeper slopes with a boom arm.
- Movement of any heavy equipment across slopes should be minimized.
- Heavy equipment will not be used in riparian areas.
- Precautions will be taken to prevent scarring of trees by equipment.
- Known landslide and unstable areas should be avoided for safety reasons and because vegetation treatment activities may result in increased potential for mass wasting and sediment delivery to stream courses.
- No servicing or refueling of equipment will occur on site. Operators must remove residues, waste oil, engine coolants, and other harmful materials from all worksites. Spill containment will be established prior to any on-site servicing or refueling.
- Servicing or refueling of equipment will occur only at sites designated by the Santa Barbara County Fire Department or in locations where spill containment protections are in place (e.g. – equipment yards). Operators must remove residues, waste oil, engine coolants, and other harmful materials from all worksites. Spill containment will be established prior to any on-site servicing even in approved on-site service locations.
- To limit the spread and establishment of invasive plant species (e.g., noxious weeds) into treatment areas, all off-road heavy equipment used during project implementation will be washed free of noxious weeds and seeds before entering project areas. If any equipment works

in an area where noxious weeds occur, it will be washed; especially the undercarriage, to remove weed propagules prior to entering other work locations.

- All equipment staging areas should be located away from known areas with noxious weed occurrences.

E. Protection of Environmentally Sensitive Resources

The following guidelines for protection of valuable or sensitive environmental resources are derived from applicable state, County and federal regulations and common practices for avoiding or mitigating environmental effects. The goal of these guidelines is preservation of existing environmental qualities in the mountain and foothill areas of the CWPP while permitting adequate fire protection measures to be implemented by the Forest Service, County agencies and local residents. Legally required restrictions and requirements are noted where applicable. Where not legally required, compliance with these guidelines is recommended.

1. Surveying, Mapping and Marking

- Surveys to identify sensitive resources should be conducted by qualified personnel prior to fuel modification work where (1) required by applicable regulations or (2) where there is a significant potential for unmapped Environmentally Sensitive Habitat, protected species or sensitive cultural sites to exist. Information on identifying potential unmapped Environmentally Sensitive Habitat Areas may be found in Appendix . Funding for necessary surveys should be requested in grant funding proposals.
- Environmentally Sensitive Habitat Areas (ESHA) resources should be marked on project area maps and the boundaries flagged prior to commencement of project work
- Areas containing any other sensitive resources (e.g. rare plants, wildlife burrows, etc.) should also be marked on project maps and flagging placed around the area to be protected prior to commencement of project work in that area.

2. Mitigation Measures

Mitigation requirements may be imposed on projects subject to CEQA where it is determined that the project may have significant adverse environmental impacts, or may be imposed as a result of County permitting requirements or as conditions of grant funding. Compliance with such mitigation requirements is mandatory. In some cases, compliance with environmental protection measures listed in subsequent sections may provide adequate mitigation. In other cases, appropriate mitigation measures based on local conditions and the nature and severity of impacts, may include the following:

- Fuel break redesign, to avoid sensitive habitat areas, reduce clearing and/or increase retention of existing vegetation;
- Replanting with oak trees or other preferred native vegetation
- Measures to reduce and control proliferation of invasive species;
- Off-site habitat replacement or restoration, for major projects which will result in substantial habitat loss which cannot be mitigated through on-site measures.

3. Trees

- Mature living native trees should be preserved when practical. Preservation may be required by applicable regulations. (See, e.g., ECVCP Objective ECO-EGV-4 and implementing measures in Appendix __.) Removal of dead material, lower limbs (up to 6' or 1/3 of height) and understory vegetation may be appropriate to eliminate ladder fuels. The East Goleta Valley Community Plan identifies mature, healthy specimens of the following trees as “protected trees,” to be preserved unless they constitute a threat to life or property:
 - Oaks (*Quercus agrifolia*)
 - Sycamores (*Platanus racemosa*)
 - Willow (*Salix* sp.)
 - Redwoods (*Sequoia sempervirens*)
 - Maples (*Acer macrophyllum*)
 - California Bay Laurels (*Umbellularia californica*)
 - Cottonwood (*Populus fremontii* & *Populus balsimifera*)
 - White Alder (*Alnus rhombifolia*)
 - California Walnut (*Juglans californica*)
 - Any trees serving as known raptor nesting or key raptor roosting sites.
 - Any trees serving as Monarch Butterfly aggregation sites.
- Immature trees less than 6” in diameter may be thinned as needed, or may be retained to provide ember and convective heat screening.
- Dead and non-native trees may be removed or retained to provide ember and convective heat screening.
- Oak woodlands (areas of continuous oak tree canopy) are considered an Environmentally Sensitive Habitat in the East Goleta Valley Community Plan. Compliance with EGVCP restrictions is required for non-exempt projects in the EGVCP area, and recommended for all other projects in oak woodlands.
- For additional information on tree species in the CWPP area, see Appendix ___ of the CWPP.

4. Wildlife

- Sites critical to wildlife should be avoided or included in islands of retained vegetation. Sites may include:
 - Water sources (springs, seeps, seasonal ponds)
 - Burrows (other than ground squirrel burrows)
 - Special food sources
- Woodrat nests located more than 100 feet from structures or deployment areas should be preserved with surrounding vegetation
- Beneficial species should not be harmed. Beneficial species include: king snakes; garter snakes;

- Rare and protected species may occasionally be encountered. Rare and protected animal species occurring or potentially occurring in the CWPP are listed in Appendix __, along with identifying features and directions regarding avoidance or relocation.

5. Birds

- Destroying or injuring individuals and disrupting active nests of migratory bird and raptor species are prohibited at all times by law. Destruction of individuals or active nests of all species must be avoided regardless of season.
- ~~There will be a limited operating period for vegetation treatments in suitable nesting habitat for migratory birds from March 1 through August 31. Activities can proceed during this timeframe if surveys during the current breeding season have determined that birds are not nesting within 200 feet of the implementation area or nesting raptors within 0.25 miles of the implementation area.~~
- Removal of vegetation for fuel breaks, defensible space and first-time roadside clearing should be scheduled to occur outside the general bird nesting season of January 15 through September 15. If removal of vegetation for purposes other than annual removal of grasses and other light fuels must be conducted during the nesting season, the project site and adjacent area must be surveyed by a qualified biologist for the presence of active nests. If active nests are determined to exist, no vegetation removal shall occur within 300 feet of the nest area, or within 500 feet of active raptor nests, unless the consulting biologist determines that a smaller buffer area is adequate for protection of nesting activity, or that nesting and rearing activities have ceased.

WE HAVE MULTIPLE PROPOSALS COVERING NESTING SEASON, SURVEYING FOR NESTS AND BUFFER DISTANCES. SUGGEST THAT ALTERNATE PROPOSALS BE PUT ON A SEPARATE SHEET FOR DISCUSSION

6. Rare or Protected Plants

- Individual specimens or isolated patches of rare or protected species may be encountered in the CWPP area. Specific EGVCP policies and development standards are found in Appendix __. Rare and protected plant species and surrounding vegetation and soils generally should not be disturbed. Project conditions imposed by permit, grant conditions or CEQA may specify further specific protective actions or mitigation measures. Rare and protected plant species potentially found in the CWPP are listed in Appendix __, along with information regarding identification, seasonal and appropriate protective actions.
- Larger assemblages of rare or protected plant species will generally qualify as environmentally sensitive habitats (see below).

7. Environmentally Sensitive Habitat Areas

Certain habitat types found in the CWPP area are classified as Environmentally Sensitive Habitat (ESH) in Santa Barbara County's East Goleta Valley Community Plan (EGVCP). Fuel modification projects within EGVCP ESH areas are subject to a special ESH-GOL overlay zoning and must comply with certain mandatory requirements and restrictions found in the EGVCP, unless exempted in the County Land Use & Development Code. EGVCP policies apply to both ESH identified on County maps and ESH identified during the project planning or permit application process. For areas located outside the EGVCP area, compliance with these guidelines or similar restrictions may be mandated for grant conditions or

governmental approvals subject to CEQA. Where not mandatory, compliance is recommended for all projects in the CWPP area.

Maps showing documented Environmentally Sensitive Habitat Areas are maintained by the County of Santa Barbara, and are included in Figure(s) ___ in this CWPP. [At the time the CWPP was completed, updating ESH maps were under preparation by County Planning & Development. When available, updated maps will be posted on the County Fire website page for the CWPP.

EGVCP Restrictions for Fuel Modification Activities in ESH

The EGVCP establishes the following specific restrictions for fire-related fuel modification activities in ESH.

***DevStd FIRE-EGV-1C:** Within high fire hazard areas, vegetation management practices within Environmentally Sensitive Habitat (ESH)/Riparian Corridor (RC) overlay and setback areas should be limited to the following activities to balance environmental resources preservation against wildfire protection:*

- *Removal of non-native trees or immature native trees*
- *Removal of surface debris*
- *Removal of invasive non-native plants as defined and listed in the California Invasive Plant Council's "California Invasive Plant Inventory"*
- *Removal of vegetation in non-riparian oak woodland or forest within the minimum defensible space area from structures as required by the County Fire Department*
- *Selective limb removal of mature trees away from structures within minimum defensible space area as required by the County Fire Department*
- *Thinning, pruning or mowing of vegetation (except trees) to no less than that required to meet fuel modification criteria (in no case less than 4 inch stubble) and leaving the roots intact*

Oak Woodlands

Oak woodlands are considered ESH in the EGVCP. Oak woodlands are areas of continuous woodland tree canopy dominated by oaks trees. (Scrub oaks are not considered oaks for this purpose; however, one rare species of scrub oak may occur in project areas, and should be protected.)

- Fuel reduction in oak woodlands should be limited to removal of dead limbs, understory vegetation, fallen material and accumulations of ground fuel. The amount of fuels ground-level and understory fuels removed should be sufficient to prevent flame lengths from reaching or seriously damaging the canopy.
- Any naturally occurring duff layer should be disturbed as little as possible.

Riparian Zones

Riparian woodlands and riparian corridors are also considered ESH in the EGVCP. In agriculturally zoned areas in the EGVCP, riparian corridors and woodlands are protected by a similar Riparian Corridor (RC) designation.

- Work in riparian zones should be avoided whenever possible, and should be limited to work necessary to create adequate individual defensible space, community defensible space or roadside clearance. As riparian corridors tend to foster growth of vegetation

with higher moisture content and are typically less exposed to solar pre-heating, they may significantly improve the effectiveness of adjacent fuel modification work even when left intact.

- Where necessary at all, fuel reduction in riparian zones should be limited to removal of dead material, non-native vegetation, highly flammable understory vegetation and accumulations of ground level fuels as permitted by DevStd FIRE-EGV-1C.
- No work of any type should be conducted in stream channels or along banks.
- Any cut materials that fall within stream channels or banks must be removed to retain free flow conditions.
- To minimize erosion, groundcover should be retained to the maximum extent possible. Bare areas created by fuel modification activities should be covered with chipped or hand-disbursed cut materials.

Other Environmentally Sensitive Habitat Types

While Oak Woodlands and Riparian zones are the principal type of ESH found in the CWPP area, other types recognized in the EGVCP that may occur include the following:

- Coastal sage scrub (?)
- Sensitive native flora
- Vernal pools and wetlands
- Raptor and turkey vulture roosts
- Critical wildlife habitat
- Wildlife corridors
- Native grasslands
- Bigcone Douglas Fir alliance
- Chaparral vegetation that supports rare or vulnerable native vegetation alliances and/or sensitive native plants and/or animal species

ESH of these types has not been documented in any areas identified as potential fuel modification areas in the CWPP. However, on-site examination of sites for possible ESH of these types will be required before commencement of projects within the EGVCP area. Relevant policies and standards for activity in these ESH types are found in the compendium of ECVCP policies in Appendix ___.

Buffer Zones

The EGVCP directs that buffer zones be maintained around identified ESH. The restrictions on removal of vegetation for fire protection found in DevStd FIRE-EGV-1C apply equally to buffer zones.

- Minimum buffer zones for riparian zones are 50 feet from the edge of existing riparian vegetation in the developed foothill area and around mountain residential communities, and 200 feet in other mountain areas. (EGVCP Policy ECO-EGV-5.5.) [EGVCP maps should be consulted to determine the precisely where these two different buffer zone requirements apply.]
- Minimum buffer zones for oak woodlands and other native woodlands are 25 feet in the developed foothill area and around mountain residential communities, and 50 feet in other mountain areas.

- Minimum required buffer zones may be adjusted upward or downward by County staff based on relevant site specific factors. (EGVCP DevStd ECO-EGV-5D.)

Cultural Resources:

- Any known cultural resources within the proposed treatment area will be protected. If any sensitive cultural resources are found, work will stop and a qualified Archaeologist will be notified.
PROBABLY NEED TO EXPAND ON THIS ONE