

SECTION IV: PRE-FIRE MANAGEMENT STRATEGIES

The management strategies included in this section focus on pre-fire planning, statutes and regulations, fire prevention, and public education and outreach. These strategies are intended to meet the agency and community goals identified during the development of this Plan. Agency and community goals identified during the development of this Plan include increasing firefighter and public safety, reducing wildland fire costs and losses, implementing WUI building standards, implementing and maintaining defensible space around structures, supporting pre-fire and emergency planning, promoting inter-agency cooperation, reducing ignitions in the County, and promoting public education about wildfire.

A. PRE-FIRE PLANNING

A component of pre-fire management involves pre-planning for anticipated or expected events or emergencies and may include evacuation planning, mapping and GIS data management, or incident pre-attack planning. Additionally, department master plans and strategic plans identify department needs and goals. Fire response and management agencies in the County have different levels of pre-fire planning efforts. The following summarizes pre-fire planning activities in the County and provides links to relevant agency documents/maps.

CAL FIRE/SLO routinely prepares, updates, and maintains the following types of pre-fire planning documents (click on each item to be directed to the appropriate CAL FIRE/SLO website containing pre-plan documents and maps):

- [Wildland Fire Pre-Attack Plans](#)
- [Evacuation Plans](#)
- [Tsunami Plans](#)
- [GIS Mapping](#)

Other fire management agencies in the County with pre-fire planning documents include:

- City of San Luis Obispo – [Fire Master Plan](#)
- Morro Bay Fire Department – [Strategic Plan](#)
- **Others?**

B. STATUTES AND REGULATIONS

This section identifies regulations in place at a state, county, and local level that are focused on fire prevention and other pre-fire management activities.

State Requirements

Public Resources Code 4290 – California Code of Regulations (CCR)

CCR Chapter 1, Division 1.5 of Title 14 (PRC 4290) is the statute that requires emergency access, signing and building numbering, private water supply reserves for emergency fire use, and vegetation modification in areas designated as State Responsibility Area (SRA).

Public Resources Code 4291 (PRC 4291)

The State of California Public Resource Code 4291 (PRC 4291) requires owners of property to create defensible space around structures on their property where firefighters can provide protection during a wildfire. PRC 4291 applies to areas of the state within the responsibility area of CAL FIRE (SRA) and includes:

“a building or structure in, upon, or adjoining any mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or any land that is covered with flammable material...”

The defensible space distance is measured along the grade from the perimeter or projection of the building or structure. Under PRC 4291, the defensible space distances require up to 100 feet, or to the property limit, whichever is closer; however, the amount of fuel modification necessary may extend beyond 100 feet depending on the flammability of the structure, topography, and fuels. The CAL FIRE Guidelines for Creating Defensible Space as outlined in PRC 4291 can be found here:

CAL FIRE/SLO also has an inspection process in place to assure compliance with fire and safety codes. This includes inspection of new construction and maintenance inspections of existing development. New construction inspections are done by fire prevention staff as part of the County building permit process. The maintenance inspection program for existing development includes the hazard reduction inspection program (LE-100 program) and is carried out by fire prevention staff and by fire engine companies and includes inspections of:

- Clearance around structures
- Equipment safety
- Power line right-of-way clearance
- Railroad rights-of-way clearance
- Solid waste facilities clearance and safety

The hazard reduction inspection program (LE-100) is managed by CAL FIRE/SLO Battalion Chiefs. Engine companies are responsible for performing inspections within their initial attack areas and are typically performed during spring and summer months. Engine companies are directed to leave an inspection notice at all properties to inform the homeowner there has been an inspection. Engine companies are also instructed to leave notices at residences where access is blocked. During the inspection, engine company personnel review and educate the homeowner on fire prevention requirements. If there are violations, a notice is issued and the homeowner is instructed to mitigate the violation. The engine company then returns for a re-inspection and if the violation is not mitigated, a citation may be issued and/or turned over to fire prevention staff for enforcement.

County Requirements

Fire Codes

San Luis Obispo County, as well as all other jurisdictions in the County, has adopted with amendments, the California Fire Code (CFC) and the California Building Code (CBC) into local ordinance. These regulations have many requirements for the protection of the citizens from WUI fires, including:

- Water requirements
- Minimum access road requirements
- Roofing requirements
- Construction requirements
- Hazard abatement requirements
- Turnaround requirements

County General Plan

The [San Luis Obispo County General Plan and ordinances](#) include provisions for access requirements, housing density, allowable occupancy use, community water system requirements, and property set back requirements. All development being reviewed by San Luis Obispo County Planning Staff is also reviewed by CAL FIRE/SLO to ensure the project is designed within the parameters of the County adopted General Plan. This review ensures the development has secondary access, proper water storage, defensible space around the development, and will use fire safe construction materials prior the subdivision of lands.

County Municipal Code

The San Luis Obispo County Code of Ordinances also includes requirements for fire prevention, included in Title 16. This Code section outlines burning restrictions and vegetation clearance requirements. Title 16 can be found at: <http://library.municode.com/HTML/16608/level1/TIT16FIPR.html#TOPTITLE>

Local Requirements

In addition to requirements at a State and County level, incorporated cities and other service districts in the County have fire prevention ordinances and practices in place. Direct links to local city or district fire

departments are provided in this Plan in [Section 1 C](#). These agencies should be contacted directly for further information related to their jurisdiction.

Weed Abatement Ordinances

Cities and special districts within the County that have weed abatement ordinances in place include (click on each City or CSD to link to related Ordinance):

Cities

[Arroyo Grande](#)

[Atascadero](#)

[Grover Beach](#)

[Paso Robles](#)

[Pismo Beach](#)

[San Luis Obispo](#)

Community Service Districts

[Cambria](#)

[Cayucos](#)

[Los Osos](#)

[Morro Bay](#)

[Oceano](#)

[Templeton](#)

San Luis Obispo County does not currently have a weed abatement ordinance in place, however if a structure is located within a State Responsibility Area, then PRC 4291 is enforced by CAL FIRE/SLO.

C. FIRE PREVENTION

This section summarizes the factors affecting structural ignitions in the WUI and outlines efforts for preventing such ignitions. The information presented in this section is intended to be general in nature and has not been developed for a specific project. Should projects be identified for the purpose of reducing structural ignition or otherwise affecting wildland fire risk potential, evaluation and documentation of environmental effects will be required prior to implementation, which may include CEQA review. Additionally, project-related permits may be required. This level of assessment is typically conducted in the project planning phase once the scope of a project is identified.

Reduction in Structural Ignitability

A progressive process typically occurs as a structure is exposed to a wildland fire. First, ashes are cast in front of a fire by its smoke or convection column. In some instances, these ashes retain enough heat and/or flame that secondary ignitions are possible. Following the lighter ash, heavier embers/firebrands with more surface area and mass, and consequently, more heat, are blown in front of advancing flames and often provide sources of additional ignition to structures and vegetation. Finally, intrusion of a flame front and the associated radiant heat flux can expose combustible material outside of a building and the exterior of the structure itself to various levels of radiant heat. Studies reveal that the actual exposure of a building to a typical wildland flame front by the perimeter of a fire is usually less than six minutes. However, exposure to the other forms of ignition source materials can result in proliferation of secondary ignitions of structures or adjacent vegetation and a longer exposure, depending on wind, topography and fuel conditions.

To enhance structural survivability, the primary focus must include first, providing sufficient measures to prevent the ignition of structural materials from objects (fire brands) that are cast in front of the fire and, second, reducing the likelihood that direct flame impingement will occur and preventing flames from penetrating into the building and resulting in an interior fire. There are considerable problems in achieving these objectives without the benefit of new construction subject to the latest building codes.

All forms of fire protection are classified as either active or passive. Active fire protection includes implementing specific action to control a fire in some manner. Passive fire protection uses resistance to ignition or provides some form of warning that allows other action to be taken. These two classifications of

self-defense mechanisms create different problems with regard to being accepted as alternatives for building construction. Furthermore, certain self-defense mechanisms must be incorporated during new construction, and others may only be capable of being added as a retrofit to existing structures. In the absence of ignition resistant construction, the focus for reducing structural ignitability shifts to landscaping and fuel treatment areas.

Many of the residential structures within the San Luis Obispo County are not built to current building code standards, which have been implemented statewide and are based on intelligence gained from large wildfire events that included structure loss. It is not realistic to retrofit existing homes with enhanced ignition resistant construction, although the existing code can trigger upgrades to current code requirements for certain home additions. Based on the type of development within the County and the existing fuels and terrain, structural ignition reduction will primarily be realized through implementation of fuel modification as described in this Plan. Standard fuel treatment prescriptions are presented in the following sections. As previously noted, environmental review and permitting may be required prior to project implementation. This should be completed during the project planning phase once the project scope has been identified.

VEGETATION MANAGEMENT

Defensible Space Fuel Treatment Strategies

The following descriptions of vegetation treatment/hazard reduction operations are provided to promote individual homeowner compliance with PRC 4291. The guidelines, published by CAL FIRE² should be reviewed by homeowners. Additionally, Figure 8 presents an illustrated graphic outlining the basics of defensible space creation and maintenance, as published by CAL FIRE. The following guidelines, provided by CAL FIRE, outline two distinct zones: from the structure outward to 30 feet and from 30 to 100 feet from structures (Reduced Fuel Zone):

1. Maintain a firebreak by removing and clearing away all flammable vegetation and other combustible growth within 30 feet of each building or structure, with certain exceptions pursuant to PRC §4291(a). Single specimens of trees or other vegetation may be retained provided they are well-spaced, well-pruned, and create a condition that avoids spread of fire to other vegetation or to a building or structure.
2. Dead and dying woody surface fuels and aerial fuels within the Reduced Fuel Zone shall be removed. Loose surface litter, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches, shall be permitted to a depth of 3 inches. This guideline is primarily intended to eliminate trees, bushes, shrubs and surface debris that are completely dead or with substantial amounts of dead branches or leaves/needles that would readily burn.
3. Down logs or stumps anywhere within 100 feet from the building or structure, when embedded in the soil, may be retained when isolated from other vegetation. Occasional (approximately one per acre) standing dead trees (snags) that are well-space from other vegetation and which will not fall on buildings or structures or on roadways/driveways may be retained.
4. Within the Reduced Fuel Zone, one of the following fuel treatments (4a. or 4b.) shall be implemented. Properties with greater fire hazards will require greater clearing treatments. Combinations of the methods may be acceptable under §1299(c) as long as the intent of these guidelines is met.
 - a. Reduced Fuel Zone: In conjunction with General Guidelines 1., 2., and 3., above, minimum clearance between fuels surrounding each building or structure will range from 4 feet to 40 feet in all directions, both horizontally and vertically. Clearance distances between vegetation will depend on the slope, vegetation size, vegetation type (brush, grass, trees), and other fuel characteristics (fuel compaction, chemical content etc.). Properties with greater fire hazards will require greater separation between fuels. For example, properties on steep slopes having large sized vegetation will require greater

² On-line at: http://www.fire.ca.gov/cdfbofdb/pdfs/4291finalguidelines2_23_06.pdf

spacing between individual trees and bushes (see Plant Spacing Guidelines and Case Examples below). Groups of vegetation (numerous plants growing together less than 10 feet in total foliage width) may be treated as a single plant. For example, three individual manzanita plants growing together with a total foliage width of eight feet can be “grouped” and considered as one plant and spaced according to the Plant Spacing Guidelines in this document. Grass generally should not exceed 4 inches in height. However, homeowners may keep grass and other forbs less than 18 inches in height above the ground when these grasses are isolated from other fuels or where necessary to stabilize the soil and prevent erosion. Clearance requirements include:

- i. Horizontal clearance between aerial fuels, such as the outside edge of the tree crowns or high brush. Horizontal clearance helps stop the spread of fire from one fuel to the next.
 - ii. Vertical clearance between lower limbs of aerial fuels and the nearest surface fuels and grass/weeds. Vertical clearance removes ladder fuels and helps prevent a fire from moving from the shorter fuels to the taller fuels.
- b. To achieve defensible space while retaining a stand of larger trees with a continuous tree canopy apply the following treatments:
- i. Generally, remove all surface fuels greater than 4 inches in height. Single specimens of trees or other vegetation may be retained provided they are well-spaced, well-pruned, and create a condition that avoids spread of fire to other vegetation or to a building or structure.
 - ii. Remove lower limbs of trees (“prune”) to at least 6 feet up to 15 feet (or the lower 1/3 branches for small trees). Properties with greater fire hazards, such as steeper slopes or more severe fire danger, will require pruning heights in the upper end of this range.

The intent of these descriptions is to detail vegetation treatment actions aimed at reducing fire spread rates and heat intensity, while providing defensible space for fire suppression efforts. Although these treatment descriptions are aimed at reducing current fuel volumes and creating both vertical and horizontal separation between vegetation groups, long-term maintenance of the landscape within the WUI should adhere to the vegetation spacing, fuel volume reduction, and vegetation clearance recommendations contained herein. These fuel reduction techniques should be conducted annually during the early spring and late summer in order to avoid the accumulation of hazardous fuels over time. Finally, the 4291 guidelines are specific to State Responsibility Areas (SRA), but may be applicable in Local Responsibility Areas (LRA), depending on local agency standards. Direct links to local city or district fire departments are provided in this Plan in [Section 1 C](#). These agencies should be contacted directly for further information related to their jurisdiction.

Figure 8. Defensible Space Illustration by CAL FIRE

100' DEFENSIBLE SPACE Make Your Home FIRE SAFE

Contact your local CAL FIRE office, fire department,
or Fire Safe Council for tips and assistance.
www.fire.ca.gov

Why 100 Feet?

Following these simple steps can dramatically increase the chance of your home surviving a wildfire!

A Defensible Space of 100 feet around your home is required by law.¹ The goal is to protect your home while providing a safe area for firefighters.

1 "Lean, Clean and Green Zone."

– Clearing an area of 30 feet immediately surrounding your home is critical. This area requires the greatest reduction in flammable vegetation.

2 "Reduced Fuel Zone."

– The fuel reduction zone in the remaining 70 feet (or to property line) will depend on the steepness of your property and the vegetation.

Spacing between plants improves the chance of stopping a wildfire before it destroys your home. You have two options in this area:

- a Create horizontal and vertical spacing between plants. The amount of space will depend on how steep the slope is and the size of the plants.
- b Large trees do not have to be cut and removed as long as all of the plants beneath them are removed. This eliminates a vertical "fire ladder."

When clearing vegetation, use care when operating equipment such as lawnmowers. One small spark may start a fire; a string trimmer is much safer.

Remove all build-up of needles and leaves from your roof and gutters. Keep tree limbs trimmed at least 10 feet from any chimneys and remove dead limbs that hang over your home or garage. The law also requires a screen over your chimney outlet of not more than ½ inch mesh.

1. These regulations affect most of the grass, brush, and timber-covered private lands in the State. Some fire department jurisdictions may have additional requirements. Some activities may require permits for tree removal. Also, some activities may require special procedures for, 1) threatened and endangered species, 2) avoiding erosion, and 3) protection of water quality. Check with local officials if in doubt. Current regulations allow an insurance company to require additional clearance. The area to be treated does not extend beyond your property. The State Board of Forestry and Fire Protection has approved Guidelines to assist you in complying with the new law. Contact your local CAL FIRE office for more details.



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http://www.fire.ca.gov/communications/downloads/fact_sheets/DefensibleSpaceFlyer.pdf

Non-Defensible Space Fuel Treatment Strategies

In addition to defensible space treatments required under PRC 4291, other fuel treatment projects in the County may be desirable to reduce overall wildfire threat to a community or asset. Such projects may occur on private or public land and are intended to act as a buffer between communities and/or assets and non-maintained wildland fuels. Non-defensible space treatments may include the following treatments:

- Fuel Breaks: intended to modify fire behavior and spread by altering fuel beds in a linear alignment, typically situated along ridgetops and may include retained trees (shaded fuel breaks).
- Road-side Fuel Treatments: intended to reduce the likelihood of ignition sources along roadways and maintain access/egress capabilities.
- Prescribed Burning: intended to reduce fuel loads in key locations while considering vegetation type characteristics and disturbance regimes.
- Area Treatments: intended to modify fire behavior by treating fuels over large areas in strategic locations or historic fire corridors; typically conducted on large expanses of federal or private land (e.g. Strategically Placed Area Treatments).

Fuel Treatment Prescription Strategies

The following fuel treatment prescription strategies are provided as potential options for reducing vegetative fuel hazards in defensible and non-defensible space fuel treatment areas:

- Vegetation Thinning. Thinning of vegetation involves an overall reduction of woody biomass to break up the horizontal and vertical continuity of fuels. In defensible space areas, thinning efforts should adhere to the minimum distances in PRC 4291. Site specific conditions should dictate thinning percentages in relation to structures and will be heavily dependent on topography, vegetation type, and building construction characteristics. In cases where shrubs and/or trees require removal, root systems should be left intact where needed to maintain slope stability. In such cases, annual treatment of stump growth or re-sprouting may be needed to maintain reduced fuel load volumes.
- Tree Removal. Removal of trees within the WUI should focus primarily on removing dead and dying trees, however live tree removal may be necessary to improve vegetation spacing and reduce overall fuel continuity. All fuel treatment operations should comply with the criteria set forth in the California Public Resource Code 4291. Tree removal may require oversight by a Registered Professional Forester (RPF).
- Dead/Dying Plant Removal. Removal of dead and dying plant material from the WUI will help reduce low fuel moisture biomass. This practice should also be conducted in combination with vegetation thinning efforts and may help reach or completely satisfy thinning objectives in some areas. Within the WUI, the goal is to reduce flame length to less than 4 feet.
- Exotic/Invasive Plant Removal. Removal of non-native and invasive plants from the WUI defensible space zone will help reduce the presence of undesirable species and enhance thinning efforts aimed at reducing overall biomass levels. The San Luis Obispo County [Weed Management Area](#) (WMA) is focused on limiting the negative effects of invasive plants in the County and maintains a list of exotic and invasive species³. Exotic and invasive species in San Luis Obispo County include, but are not limited to:
 - Giant reed (*Arundo donax*)
 - Jubata grass (*Cortaderis jubata*)
 - Veldt grass (*Ehrharta calycina*)
 - Yellow starthistle (*Centaurea solstitialis*)
 - Artichoke thistle (*Cynara cardunculus*)
 - Barb goatgrass (*Aegilops triuncialis*)

³ http://www.slocounty.ca.gov/agcomm/Weed_Control/SLO_County_s_Weed_Management_Area.htm

- Cape ivy (*Delairea odorata*)
 - French broom (*Genista monspessulana*)
 - Hoary cress (*Cardaria* spp.)
 - Medusahead (*Taeniatherum caput-medusae*)
 - Oblong spurge (*Euphorbia oblongata*)
 - Pampas grass (*Cortaderia selloana*)
 - Perennial pepperweed (*Lepidium latifolium*)
 - Purple starthistle (*Centaurea calcitrapa*)
 - French broom (*Genista monspessulana*)
 - Spanish broom (*Spartium junceum*)
 - Tree-of-heaven (*Ailanthus altissima*)
 - Woolly distaff thistle (*Carthamus lanatus*)
 - Bull thistle (*Cirsium vulgare*)
 - Castor bean (*Ricinus communis*)
 - European beachgrass (*Ammophila arenaria*)
 - Ice plant (*Carpobrotus edulis*)
 - Italian thistle (*Carduus pycnocephalus*)
 - Periwinkle (*Vinca major*)
 - Poison hemlock (*Conium maculatum*)
 - Puncture vine (*Tribulus terrestris*)
 - Russian knapweed (*Acroptilon repens*)
 - Russian thistle (*Salsola tragus*)
 - Saltcedar/Tamarisk (*Tamarix* spp.)
 - Skeleton weed (*Chondrilla juncea*)
 - Tocalote (*Centaurea melitensis*)
 - Wild fennel (*Foeniculum vulgare*)
 - White horenettle/Silverleaf nightshade (*Solanum elaeagnifolium*)
 - Palm trees (various species)
 - Eucalyptus trees (*Eucalyptus* spp.)
 - Pepper trees (*Schinus* spp.)
 - Fennel (*Foeniculum vulgare*)
 - Mustard (*Brassica* spp.)
- Tree and Shrub Pruning. Trees or large tree-form shrubs (reaching 4 feet or taller at maturity) that are to be retained in the WUI defensible space zone should be trimmed or pruned to reduce both vertical and horizontal fuel continuity:
 - Vertical Separation. Pruning of vegetation off the ground should provide vertical clearance that measures 3 times the height of the understory vegetation or 10 feet, whichever is higher. Vertical separation serves to minimize the potential for a ground fire to transition to a crown fire. This process will remove ladder fuels and reduce the potential for fire spread from lower shrubs to higher trees and structures.
 - Horizontal Separation. Pruning of vegetation shall result in horizontal clearance that measures three times the height of the plant material height or 20 feet, whichever is greater. Horizontal separation serves to minimize fire spread from plant to plant and from plant to structure.
 - Vegetation Grouping. Maintaining groups of shrubs is recommended to provide a mosaic pattern in the landscape. However, shrub groups should be separated from other shrub groups according to the horizontal separation criteria discussed above.
 - Mowing. Mowing of native, non-native grasses and exotic weeds should be conducted to maintain grass heights at 4 inches or lower. Focus should be primarily on invasive weed prevention, suppression and monitoring; and properly timed and implemented grassland management (e.g. mowing, grazing) that promotes the establishment of less volatile native perennial grasses. Mowing should take place before 10 a.m. to reduce the risk of wildfire resulting from mowing activities.

- Chipping. Chipping and spreading of existing dead biomass or that resulting from fuel reduction efforts within the WUI is an effective method for weed suppression. However, chip or mulch depth should not exceed 6 inches.
- Grazing. Livestock (including goats) have proven to be an effective method for reducing fuel volumes in wildland-urban interface areas. Management, maintenance, public safety, and environmental permitting issues should be considered prior to use.
- Mastication: Mastication is the operation of reducing vegetation volume by grinding, shredding or chopping material. This treatment can lower fuel bed depth, raise crown base height, increase fuel-ground contact to promote decomposition, and generate more fine materials.
- Vegetation Clearance from Structures. All vegetation should be trimmed such that a minimum clearance of 10 feet exists between structures and exposed wildland vegetation. In cases where vegetation is planted within 10 feet of a structure (vines, shrubs), such vegetation should be maintained free of dead material and shall be pruned and maintained to reduce overall fuel volume. In cases where tree canopies extend over roof tops, 10 feet of clearance should be maintained between the roof and the lowest tree branch extending over the structure. Any tree adjacent to or overhanging a structure should be maintained free of dead or dying wood (PRC 4291 (d)). Firewood or other combustible material should not be stored within 15 feet of existing structures. All combustible material, including tree leaves, pine needles, branches, and twigs should be removed from roofs and rain gutters (PRC 4291 (e)). All vegetation should be trimmed such that a clearance of 10 feet exists in all directions between landscape vegetation and the outlet of a chimney or stovepipe (PRC 4291 (c)). All vegetation should be trimmed such that a 10 foot wide clearance exists along both sides of a structure, from the street to the rear of the property to promote firefighter access/egress. In cases where property setback widths are less than 10 feet, the entire width should be maintained free of obstructing vegetation.
- Prescribed Burning. This management technique is currently employed by CAL FIRE by trained professionals. Prescribed burning may be conducted by private landowners under permit from CAL FIRE, or under contract with CAL FIRE under the statewide Vegetation Management Program (VMP). More information about the statewide VMP is available at: http://www.fire.ca.gov/resource_mgt/resource_mgt_vegetation.php.

D. INFORMATION AND EDUCATION

Public outreach and education is an important component in community wildfire hazard reduction efforts and is a key component in reducing overall costs and losses attributed to wildland fires. Fire prevention education efforts being implemented by fire agencies in the County are intended to provide the public with fire safety education material so that the community can take an active role in fire prevention efforts. Notable groups in the County with the mission of educating the public on the importance of fire prevention include the County Fire Prevention Association and [the San Luis Obispo County Community FireSafe Council](#) (SLOFSC). Fire agency involvement in the aforementioned associations is important in maintaining community relationships to further the goals of this Plan.