2. PROGRAM DESCRIPTION

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2.1 OVERVIEW OF THE VTP

CAL FIRE proposes to implement the VTP, which is a formal program that would comprehensively direct the management of wildland fuel sources within CAL FIRE's State Responsibility Area – an area comprised of over 31 million acres of private land. The VTP is projected to treat approximately 60,000 acres of this landscape annually, or 600,000 acres over a 10-year time frame. The VTP consists of a strategy that would implement vegetation treatment activities for the purpose of altering landscape fuels to reduce the size, number, or frequency of damaging fires and reduce losses to life, property, and natural resources. The process would generally involve the survey and monitoring of site conditions before, during, and after treatment to determine if objectives are being met and if program methods need to be revised.

The VTP must be consistent with CAL FIRE's mission to serve and safeguard the people and protect the property and resources of California. The VTP consists of specific vegetation treatment activities: prescribed fire, manual activities, mechanical activities, prescribed herbivory (beneficial grazing), and targeted ground application of herbicides. CAL FIRE has grouped the areas where vegetation treatment activities would occur by the following program treatment categories: wildland-urban interface (WUI), fuel break, and ecological restoration. These program treatment categories are summarized in Section 2.2.3 and described in greater detail in Chapter 4, Section 1 (4.1).

The VTP is intended to evaluate the potential vegetation management activities that would be implemented within individual CAL FIRE Units/Contract Counties. It is at the individual Unit/Contract County level where the initial review of those proposals will take place. As part of the VTP, CAL FIRE would utilize CEQA Coordinators at three levels for review (Unit/Contract County, Region, and Sacramento). The Unit/Contract County CEQA Coordinators would play a key role in reviewing VTP projects proposed by public or private entities and managing them for consistency with the VTP Program EIR. They would seek public input and engage with stakeholders to determine project priorities and fuel treatment strategies. The coordinators will also ensure each project properly implements Project Requirements and mitigation measures included in this Program EIR. Each vegetation treatment project proposed would require the preparation of a Project Scale Analysis (PSA) that would document the project's consistency with the requirements and findings of this Program EIR. The PSA would be submitted to the Region and Sacramento CEQA Coordinators for review and authorization prior to implementation of the project. If it is determined that the proposed project does not fall within the scope of the approved VTP and Program EIR, then that project would need to proceed with separate environmental analysis, documentation, and approval procedures.

Each VTP project will be required to do implementation monitoring, photo-point effectivness monitoring, and be entered into a geospatial database for program tracking purposes. More rigorous project and program monitoring will be implemented once key uncertainties are identified by the VTP Monitoring Working Group, and once funding is secured for a more formal adaptive management process. The Monitoring and Communication Plan (Appendix I) provides more information related to monitoring and adaptive management.

2.2 CONCEPTUAL FRAMEWORK OF THE VTP

CAL FIRE will implement the VTP with the intent of lowering the risk of damaging wildfire in the SRA by managing wildland fuels through the use of environmentally appropriate vegetation treatments. The VTP will only be applied to portions of the SRA that will best allow for the achievement of VTP objectives. The following conceptual framework for the proposed VTP is heavily influenced by recommendations from the California Fire Science Consortium (2014).

Given that California is the most bio-diverse state in the Union (Stein et al., 2000; Stein, 2002), the VTP must characterize the state in such a way that recognizes this diversity while still providing a tractable framework for analysis at the statewide scale. To do so, the Program groups the state's vegetation communities into three major vegetation formations: tree, grasslands, and shrublands. These major vegetation formations generally exhibit similar fire behavior and provide a good first basis for stratifying the state for programmatic assessment (Rothermel, 1983; Scott & Burgan, 2005; Anderson, 1982). Through the use of Standard Project Requirements (SPRs) and Project Specific Requirements (PSRs) (see Section 2.5 below), the process outlined in this VTP would address variability within these major vegetation communities and a variety of other environmental factors to ensure the appropriate application of treatments.

The VTP also stratifies treatments into three basic program treatment categories that are defined in Section 2.2.2: wildland-urban interface (WUI), fuel breaks, and ecological restoration. These three types of treatments would be selected based on the values at risk, surrounding fuel conditions, strategic necessity for fire suppression activities, and departure from natural fire regime. The actual prioritization of such projects would be made at the local CAL FIRE Unit/Contract County level, but the relative prioritization of projects would reflect concepts outlined in Figure 2.4-2.

The data in this Program EIR is generally summarized geographically through the use of California Bioregions. Bioregions are defined based on common geophysical characteristics and existing plant communities. They help describe common qualities, sensitivities, species, and natural processes within a region for purposes of resources management and environmental impact analysis. This chapter and the remaining

portions of the Program EIR utilize the bioregions as modified from the California Biodiversity Council (Figure 2.2-1) to organize the projected VTP treatments in SRA around the state and provide information helpful to environmental impact analysis. Refer to Chapter 4.1 and Appendix A for more information on the Bioregions.

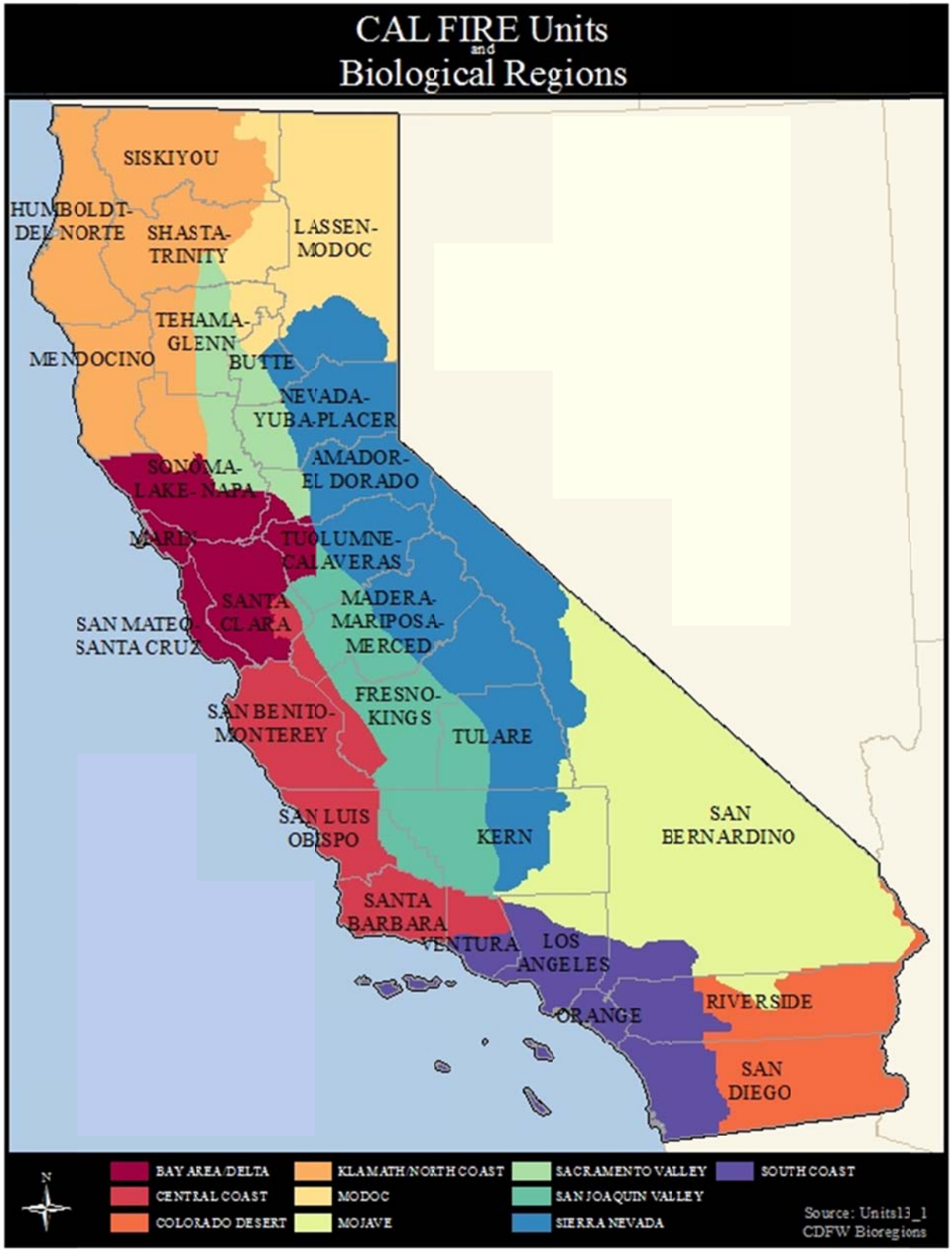

Figure 2.2-1 CAL FIRE Units and Biological Regions

2.2.1 OBJECTIVES OF THE VTP

The general objective of the proposed VTP is to implement vegetation treatment activities throughout California that would meet the goals outlined in the Board of Forestry and Fire Protection's *2010 Strategic Fire Plan for California* and CAL FIRE's *2012 Strategic Plan* in a manner that both reduces wildfire risk and severity and avoids significant environmental effects, to the extent feasible. The primary purpose of these documents and the VTP is to strategically implement actions to minimize the negative effects of wildfire in areas with high values at risk.

While existing modeling literature suggests that relatively large proportions of the landscape needs to be treated to achieve wildfire risk reduction at the landscape scale (Finney, 2001; Finney et al., 2007), these simulations model spatially averaged metrics of fire growth and behavior in response to landscape level treatments. The assumption behind the proposed VTP is that risk reduction can be achieved for targeted areas through strategic fuels treatments. Although the proposed annual acres of treatment may not affect all the potential landscape fuels, the Program will still be a valuable tool to allow landowners and stakeholders the opportunity to reduce risk in targeted locations. As such, the specific objectives of the proposed VTP are:

Vegetation Treatment Program Objectives
1. Modify wildland fire behavior to help reduce losses to life, property and natural resources.
2. Increase the opportunities for altering or influencing the size, intensity, shape, and direction of wildfires within the wildland urban interface.
3. Reduce the potential size and total associated suppression costs of individual wildland fires by altering the continuity of wildland fuels.
4. Reduce the potential for high severity fires by restoring and maintaining a range of native, fire-adapted plant communities through periodic low intensity treatments within the appropriate vegetation types.
5. Provide a consistent, accountable, and transparent process for vegetation treatment monitoring that is responsive to the objectives, priorities, and concerns of landowners, local, state, and federal governments, and other stakeholders.

OBJECTIVE 1: Modify wildland fire behavior to help reduce losses to life, property, and natural resources.

This is the governing objective of the program, and is consistent with the goals outlined in the *2010 Strategic Fire Plan for California* (Board, 2010). Fire behavior is the manner in which fire reacts to weather, topography, and fuels (NWCG, 2014). Of the three

variables, only fuels can be feasibly altered by humans. The primary assumption of the VTP is that appropriate vegetation treatments can affect wildland fire behavior through the manipulation of wildland fuels. Since human activity cannot influence weather or topography, reducing the continuity of wildland fuels would result in lower fuel hazard and more favorable fire behavior. In turn, this would allow for more effective fire suppression and, therefore, reduce the likelihood of wildfire adversely affecting values at risk. Values at risk include, but are not limited to, public and firefighter health and safety, structures, infrastructure, timber and environmental services (e.g., biodiversity, clean water, carbon sequestration, etc.) rangelands and other natural resources. Through the strategic placement of WUI, fuel break or ecological restoration treatments, projects implemented under the VTP will help to reduce losses to life, property, and natural resources.

OBJECTIVE 2: Increase the opportunities for altering or influencing size, intensity, shape, and direction of wildfires within the wildland urban interface.

This objective places emphasis on increasing the strategic and tactical effectiveness of fire suppression within the WUI through the use of appropriate vegetation treatments. The WUI is the geographical overlap of two diverse systems: wildland and structures. At this interface, the buildings and vegetation are sufficiently close that a wildland fire could spread to a structure or a structure fire could ignite wildland vegetation. Focusing vegetation treatments in the WUI is critical, because losses in the WUI are on the rise (Stephens et al., 2009) and are expected to get worse (Mann et al., 2014). This objective only relates to fuel treatments within the WUI; influences or changes to local land use planning associated with the WUI is outside the scope of this VTP, but is part of a larger strategy being implemented by CAL FIRE and the Board (Board, 2010).

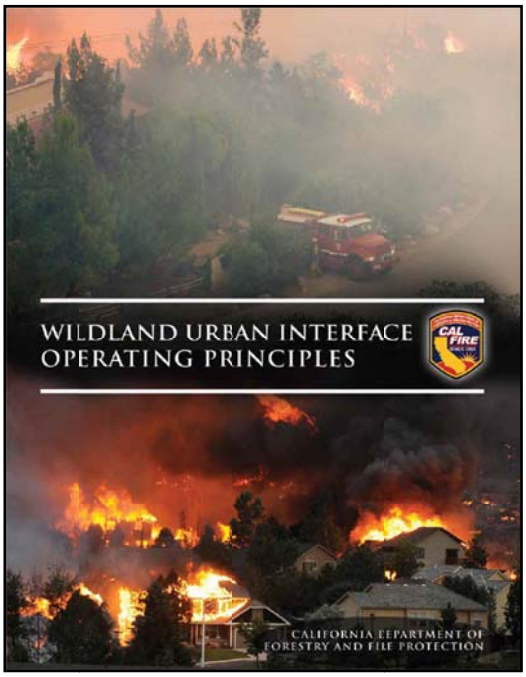

Figure 2.2-2: CAL FIRE's "Wildland Urban Interface Operating Principles" outlines some of the Department's WUI operating policies.

Achieving this objective is dependent on integration with CAL FIRE WUI operating policies, as existing when a VTP project is planned and implemented (Figure 2.2-2). CAL FIRE's current operating principles in the WUI include an emphasis on pre-incident planning and prioritizing perimeter

control before the fire reaches structures (CAL FIRE, 2014). The need for vegetation treatments will be evaluated during the pre-incident planning process, and strategically placed vegetation treatments can offer a more effective means of perimeter control.

OBJECTIVE 3: Reduce the potential size and overall associated suppression costs of individual wildland fires by altering the continuity of wildland fuels.

Wildfire suppression costs borne by California taxpayers have risen significantly in the past 35 years (Figure 2.2-3). Figure 1.1-1 (Chapter 1) and Figure 2.2-3 suggest a steady increase in both acres burned and suppression costs since the year 2000. This objective seeks to reduce the size of fires through the use of appropriate vegetation treatments. The assumption is that decreasing fire size will have a resulting decrease on overall fire suppression costs (Figure 2.2-4). While wildfire acreage is not the only variable that drives suppression costs (Gude et al., 2013[1]), increasing the likelihood that fires would be contained to relatively small areas should also relate to lower cumulative fire suppression costs.

There is strong scientific agreement that the use of fuel treatments helps to reduce the impact and damage from wildfires (Reinhardt et al., 2008; Safford et al., 2009; Schoennagel and Nelson, 2011), but there is a lack of quantifying data to directly relate treatment methods to a reduction in damage and costs relative to the WUI.

Benefits from projects can be realized in the initial attack phase because more fires can be controlled at very small sizes, when ignitions and projects intersect. As fires escape initial attack they grow more complex, with many factors contributing to the costs of fire suppression and damage. Individual treatments within these larger fire areas can systematically realize extended attack benefits outside their actual boundaries if the collection and pattern of treatment areas has been developed using landscape level strategies (Finney, 2005). Targeted fuel treatments aimed at reducing the vulnerability of houses in the WUI can make a difference for individual structures, entire subdivisions, or even towns and villages in the path of an approaching wildfire. Vegetation treatment has other benefits (range improvement, biomass fuels, watershed integrity), but it is from the reduction of fire hazards where the largest share of economic benefits would be derived.

The initial attack phase is the most critical for controlling overall wildfire related costs and losses. CAL FIRE's goal for wildland fire protection is to contain 95 percent of vegetation fires at 10 acres or less. Statewide, approximately 97 percent of all vegetation fires are contained within the first few hours after they are reported. Some of

[1] Gude et al. (2013) suggests that fire proximity to homes is a significant driver of suppression costs.

the three percent that escape initial attack may eventually become large and complex campaign fires which require a formal base camp and management functions including logistics, communication, finance, food services, and other functions. A typical campaign fire can cost one million dollars or more per day at full staffing. Several large fires burning at one time can quickly draw down fire suppression resources, increasing the chances of new starts quickly growing out of control. Stopping fires before they become large is a key to limiting total wildfire related costs, damage, and loss of life. Projects implemented under the VTP will be incorporated into local CAL FIRE Unit Fire Plans and Contract County Strategic Fire Plans, which allows for the best use of available fire suppression resources to help minimize fire spread while allowing safe areas for firefighter deployment. Consequently, the strategic placement of vegetation treatments may help reduce the overall fire size and the associated fire suppression cost.

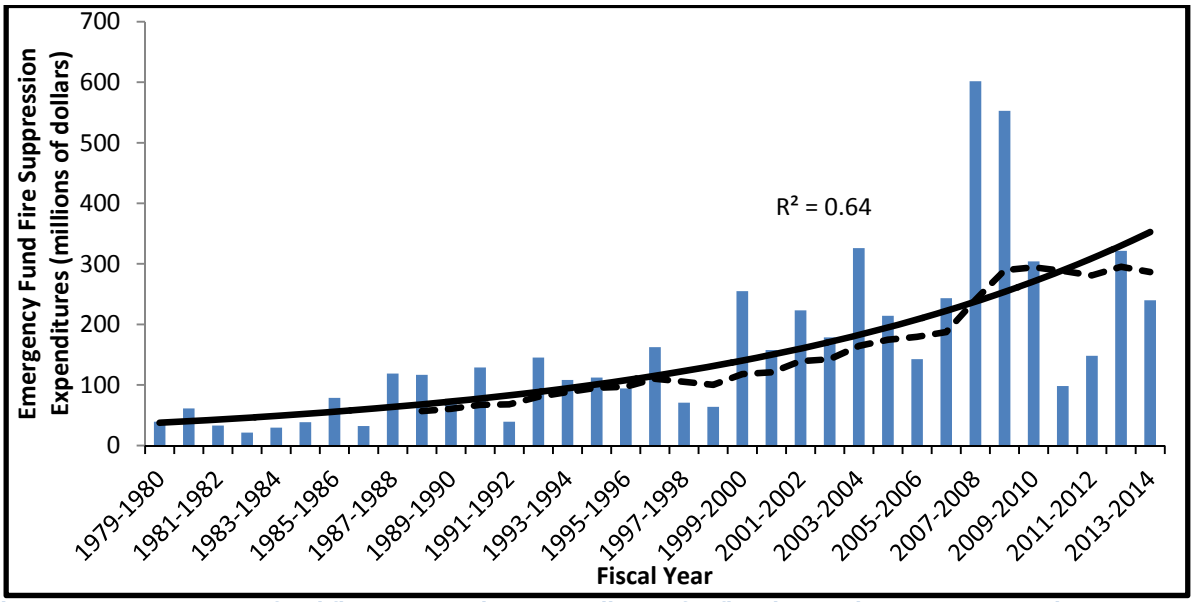

Figure 2.2-3: Emergency fund fire suppression expenditures for fiscal years between 1979 and 2014 Expenditures corrected for inflation using the Consumer Price Index. Data taken from CAL FIRE Emergency Fund Suppression Expenditures, September 2014.

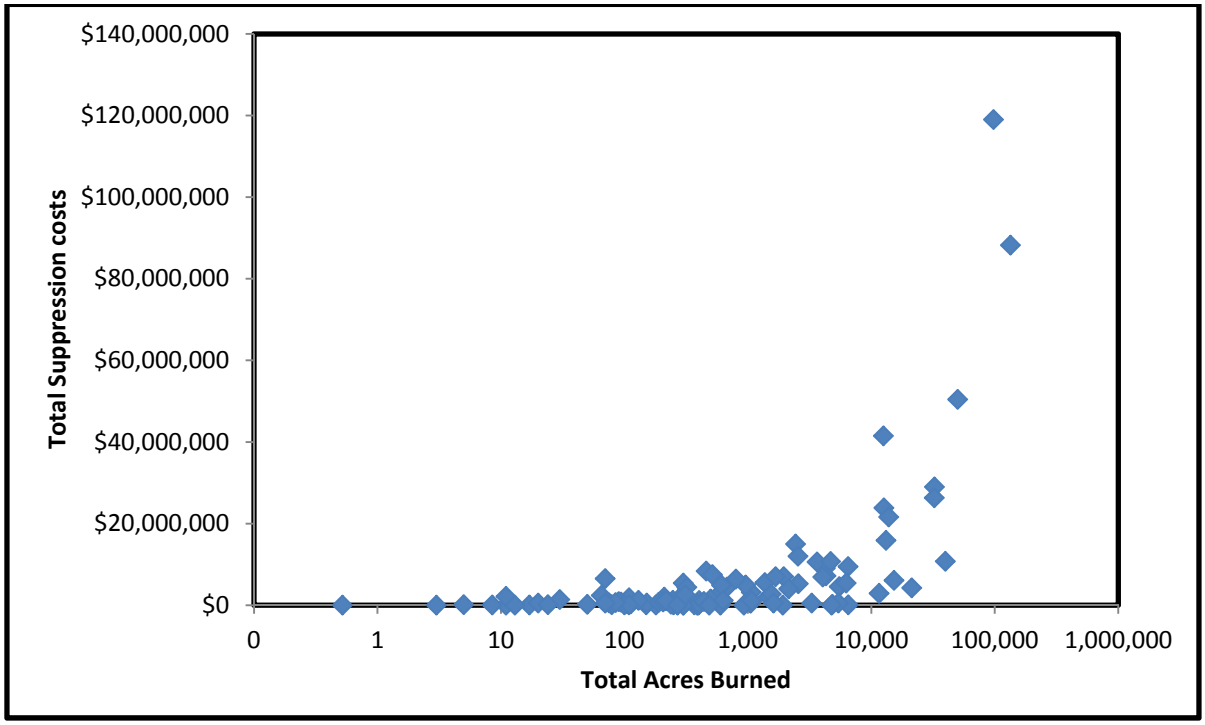

Figure 2.2-4: Suppression costs versus fire size for CAL FIRE incidents during the 2014 calendar year ending on October 25, 2014. Costs and acreage extracted from ICS-209 forms.

OBJECTIVE 4: Reduce the potential for high severity fires by restoring and maintaining a range of native, fire-adapted plant communities through periodic low intensity treatments within the appropriate vegetation types.

Before the twentieth century, many forests within California were generally open and park-like due to the thinning effects of recurrent fire. Decades of fire suppression and other forest management have left a legacy of increased fuel loads and ecosystems dense with an understory of shade-tolerant, late-succession plant species. The widespread level of dangerous fuel conditions is a result of highly productive vegetative systems accumulating fuels and/or reductions in fire frequency from fire suppression. In the absence of fire, these plant communities accrue biomass and alter the arrangement of it in ways that significantly increase fuel availability and expected fire intensity. As such, many ecosystems are conducive to large, severe fires, especially during hot, dry, windy periods in late summer through fall. Additionally, the spatial continuity of fuels has increased with fewer structural breaks to retard fire spread and intensity. The increased accumulations of live and dead fuels may burn longer and more completely, threatening the integrity and sustainability of the ecosystems.

Species composition within these forests is also rapidly changing. Plant and animal species that require open conditions and/or highly patchy edge ecotones are declining and streams are drying as evapotranspiration increases due to increased stocking. Additionally, streams are subject to sedimentation following high severity fires and unnaturally severe wildfires have destroyed vast areas of forest (Bonnicksen, 2003). Some insects and disease have reached epidemic proportions in parts of the state and current forest conditions are conducive to more outbreaks. The understory of these once open forests is now dominated by smaller shade tolerant trees that would have previously been thinned and/or consumed by fire.

Like many disturbances, fire may promote the invasion of nonnative plant species by providing canopy openings, reducing cover of competing vegetation, and creating favorable soil conditions such as newly exposed soil surfaces and increased nutrient availability. Invasive plants may affect fire behavior and fire regimes, often by increasing fuel bed flammability, which increases fire frequency. Cheatgrass, a winter annual which grows rapidly during late winter and early spring, provides a continuous fuel bed of light flashy fuel once cured in early summer and serves as a classic example of an exotic which has significantly altered the fire ecology in the Western United States and Canada.

Other than direct residential development, one of the more important changes in shrubland ecosystems has been the anthropogenic alteration of the natural fire regime. Despite a long-standing policy of fire suppression, the primary impact to these ecosystems has been a dramatic acceleration of human-caused fire occurrence. Because anthropogenic ignitions tend to be concentrated near human infrastructure, more fires now occur at the urban fringe than in the backcountry. Too-frequent fire can result in habitat loss and fragmentation, shifting vegetative composition, and unfavorable impacts to small-mammal populations.

The restoration of lower fuel amounts is a critical need across portions of the western United States (Agee and Skinner, 2005). In California, fuel treatments have been shown to reduce fire severity (Skinner et al., 2004; Stephens et al., 2009). It is also recognized that fuel reduction projects within forested settings appear to be more effective in reducing burn severity as compared to some southern California chaparral ecosystems. Nevertheless, this objective recognizes that appropriately designed vegetation treatments can mimic the disturbance processes that historically controlled plant community composition and structure. In addition, reduced fuel loading in appropriate vegetation types can increase ecosystem resiliency to wildfire, drought, and potentially climate change.

OBJECTIVE 5: Provide a consistent, accountable, and transparent process for vegetation treatment monitoring that is responsive to the objectives, priorities, and concerns of landowners, local, state, federal governments and other stakeholders.

Adopting a programmatic approach to vegetation treatment can assure that a consistent process is applied to the prioritization, evaluation, and implementation of vegetation treatment projects. There is also assurance that projects consider stakeholder commentary, increasing the emphasis on coordination with county or bioregional groups such as fire safe councils. Outreach with private landowners, particularly the ranching community, such as occurred under the Chaparral Management Plan is a vital component of successfully implementing the proposed VTP. In addition, a programmatic approach allows CAL FIRE to determine whether the desired program and/or project outcomes are being achieved, and whether elements of the program should be iteratively changed in response to emerging data (i.e., adaptive management). This objective recognizes that the chosen alternative should foster consistency, accountability, and transparency in a way that satisfies the needs of vested stakeholders.

2.2.2 TREATABLE LANDSCAPE

The VTP's treatable landscape was established by grouping the California Wildlife Habitat Relation (WHR) vegetation classifications into treatable vegetation formations. Treatable vegetation formations are those WHR classifications that can be manipulated or altered to change the wildfire environment. Treatable acreage estimates for the VTP were then created by intersecting treatable vegetation formations with modeled treatment areas, using FVEG15_1 compiled by CAL FIRE FRAP, CDFW, and USDA Forest Service Region 5 Sensing Laboratory (RSL). FVEG15_1 is the best available land cover data available for California in single comprehensive dataset, incorporating the most recent and accurate vegetation classifications from 1990 to 2014. See Appendix A for a more detailed discussion of FVEG15_1. Vegetation formations are divided into three categories: tree-dominated, shrub dominated, and grass-dominated. These are commonly referred to throughout the EIR as tree, shrub, and grass. Treatment areas are divided into three categories: Wildland Urban Interface (WUI), Fuel Breaks, and Ecological Restoration. The following figure shows how the landscape was pared down from 31 million acres within the SRA, to approximately 25 million acres within the treatable vegetation formations, to the final 21.9 million acres that fall within the treatment areas and are referred to as the treatable acreage within the VTP.

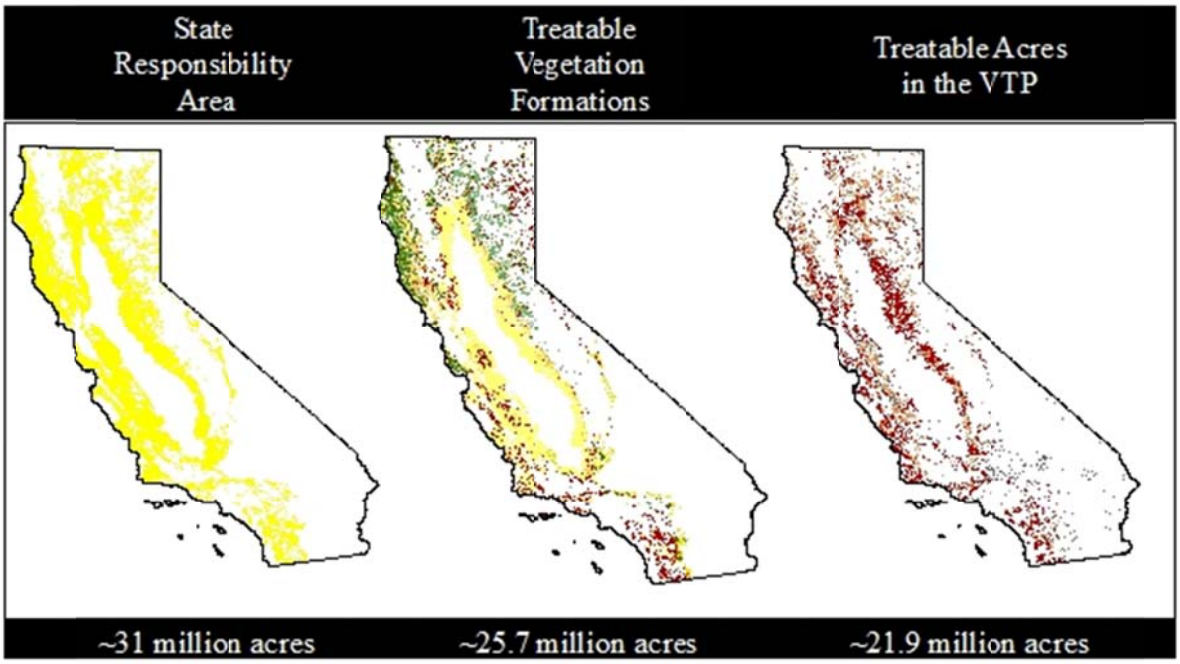

Figure 2.2-5: Identifying the Treatable Landscape within the Program

2.2.2.1 Vegetation Formations

The WHR system, managed by CDFW, is a system which classifies vegetation types important to wildlife and was developed to recognize and logically categorize major vegetative complexes at a scale sufficient to predict wildlife-habitat relationships. Some WHR vegetation types were excluded from the potential vegetation types that could be treated under this program because their wildfire risks are negligible (i.e. agriculture, wet meadow, estuarine, etc.). Table 2.2-1 Vegetation Status in VTP breaks down each WHR life form by treatability within the Program.

A multitude of factors in the wildland fire environment contribute to fire behavior. One of the most important factors that can influence fire behavior is the fuel type. Fuel type represents an identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause resistance to control under specified weather conditions (NWCG, 2014; Anderson, 1982). While California is home to a tremendous range of fuel types, these fuel types can be condensed into three main groups based on the sufficiently distinct fire behavior each group exhibits (Bishop, 2007; Anderson, 1982). These groups can be classified as tree dominated, grass dominated, and shrub dominated vegetative formations. Within these three main formations, subtypes still remain that allow for acknowledgement of variations. The vegetation formation, subtypes, and WHR classifications for each grouping within the SRA is summarized in Figure 2.2-6.

Table 2.2-1 Vegetation Status in VTP

WHR LIFE FORM VEGETATION TYPE	TREATABLE	WHR LIFE FORM VEGETATION TYPE	TREATABLE
Annual Grassland	Likely	Valley Foothill Riparian	Likely
Aspen	Likely	Valley Oak Woodland	Likely
Bitterbrush	Likely	White Fir	Likely
Blue Oak Woodland	Likely	Alkali Desert Scrub	Unlikely
Blue Oak-Foothill Pine	Likely	Alpine-Dwarf Shrub	Unlikely
Chamise-Redshank Chaparral	Likely	Desert Scrub	Unlikely
Closed-Cone Pine-Cypress	Likely	Desert Succulent Shrub	Unlikely
Coastal Oak Woodland	Likely	Joshua Tree	Unlikely
Coastal Scrub	Likely	Subalpine Conifer	Unlikely
Douglas Fir	Likely	Agriculture	Excluded
Eastside Pine	Likely	Barren	Excluded
Eucalyptus	Likely	Cropland	Excluded
Hardwood	Likely	Deciduous Orchard	Excluded
Jeffrey Pine	Likely	Desert Riparian	Excluded
Juniper	Likely	Desert Wash	Excluded
Klamath Mixed Conifer	Likely	Dryland Grain Crops	Excluded
Lodgepole Pine	Likely	Estuarine	Excluded
Low Sage	Likely	Evergreen Orchard	Excluded
Mixed Chaparral	Likely	Fresh Emergent Wetland	Excluded
Montane Chaparral	Likely	Irrigated Grain Crops	Excluded
Montane Hardwood	Likely	Irrigated Row and Field Crops	Excluded
Montane Hardwood-Conifer	Likely	Lacustrine	Excluded
Montane Riparian	Likely	Orchard - Vineyard	Excluded
Perennial Grassland	Likely	Palm Oasis	Excluded
Pinyon-Juniper	Likely	Pasture	Excluded
Ponderosa Pine	Likely	Rice	Excluded
Red Fir	Likely	Riverine	Excluded
Redwood	Likely	Saline Emergent Wetland	Excluded
Sagebrush	Likely	Urban	Excluded
Sierran Mixed Conifer	Likely	Vineyard	Excluded
Undetermined Conifer	Likely	Water	Excluded
Undetermined Shrub	Likely	Wet Meadow	Excluded

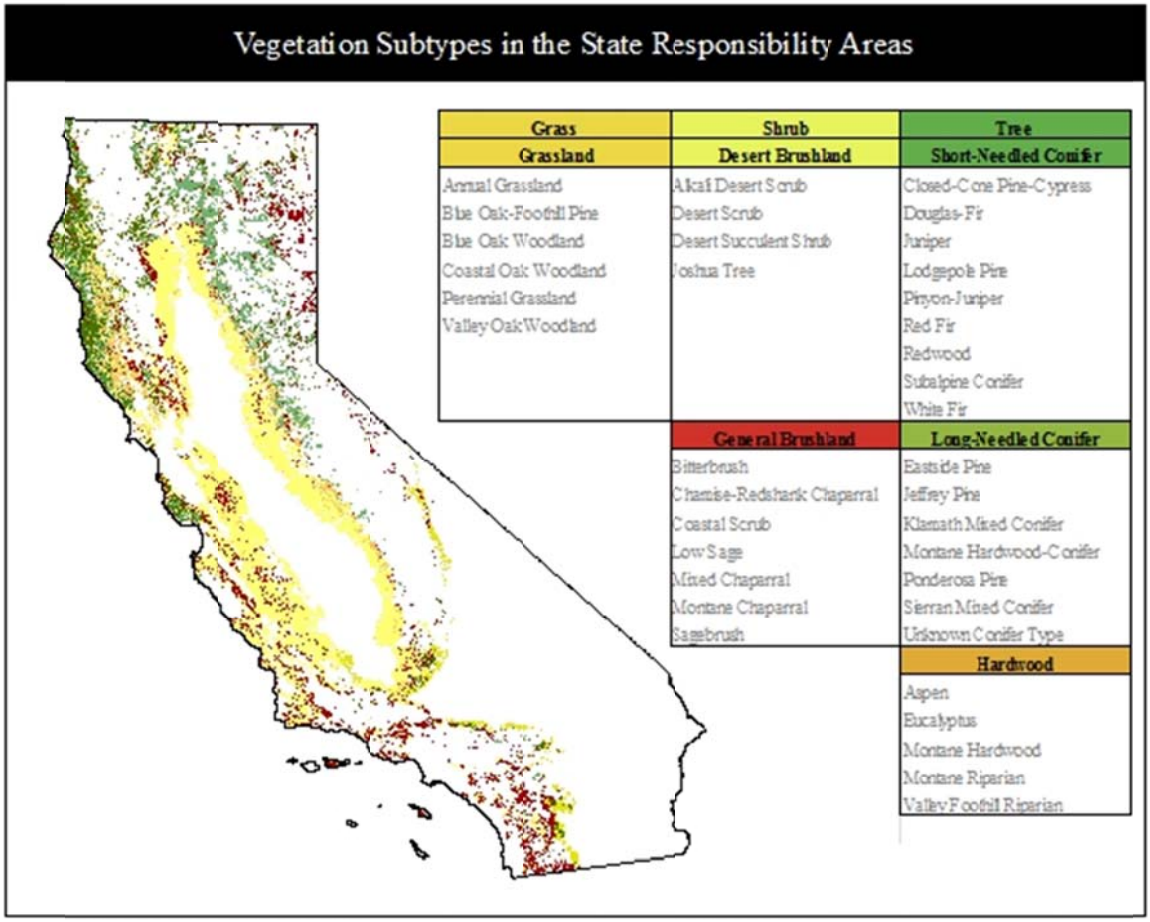

Figure 2.2-6: Vegetation Subtypes in the SRA

In grass dominated groups, fire spread is governed by fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are typically surface fires that move very rapidly through the cured grass and associated material. Generally, less than one-third of the area is comprised of shrub or timber. Where shrub or timber formations exist, fire intensity generally increases along with an increase in firebrand production. Grass dominated groups are typically characterized as a replacement severity regime with a 0-35 year fire frequency.

Fire in shrub dominated groups is generally carried in the surface fuels comprised of litter cast by the shrubs as well as the grasses or forbs in the understory. Fire intensity is variable in this group, however; fuel and weather conditions can produce intense fast-spreading fires as a result of the available live and dead fine woody material in the crowns of a nearly continuous secondary overstory. Besides flammable foliage, dead woody material in the stands significantly contributes to the fire intensity as well as a deep litter layer. Shrub dominated groups are typically characterized as a replacement severity regime with a 35-200 year fire frequency.

Tree dominated groups generally see slow-burning ground fires with low flame lengths, although the fire may encounter an occasional “jackpot” or heavy fuel concentration that can flare up. However, under severe weather conditions involving high temperatures, low humidity, and high winds, fuels can pose significant fire hazards as surface fires transition into crown fires. Closed canopy stands of short-needle conifers or hardwoods that have leafed out support fire in the compact litter layer. Dead/down fuels include greater quantities of 3-inch or larger limb-wood resulting from over-maturity or natural events can create a large load of dead material on the forest floor. Crowning out, spotting, and torching of individual trees are more frequent in this fuel situation, leading to potential fire control difficulties. Tree dominated groups are typically characterized as a mixed severity regime with a 0-35 year fire frequency but can be much greater depending on forest type and location.

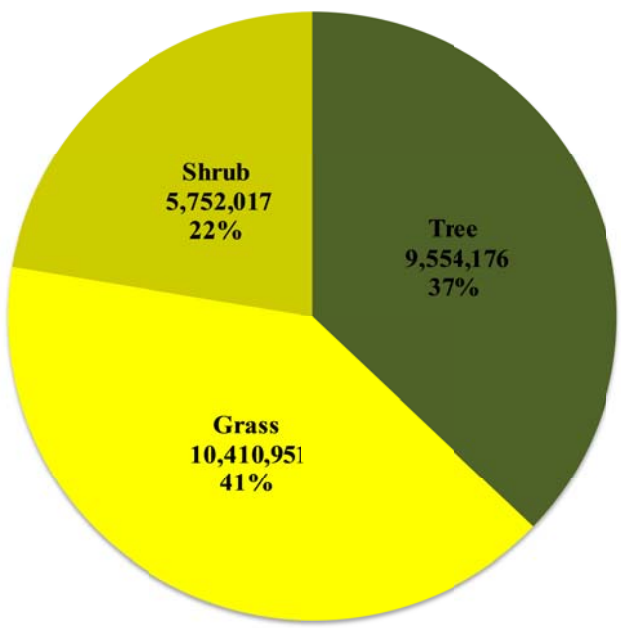

Figure 2.2-7 Acreage estimates for vegetation formations in SRA

Within the primary vegetation formations, the grass dominated vegetation formation occupies approximately 41 percent of the state responsibility landscape and is the largest of the three groups. Tree dominated and shrub dominated formations occupy approximately 37 percent and 22 percent of the total acreage, respectively. Figure 2.2-7 summarizes the acreages associated with each of the three vegetation formations.

2.2.2.2 Program Treatments

Fuels management at the landscape scale is focused on treating fuels to either help suppression forces more easily contain fire or reduce the area burned by high-intensity fire. This is accomplished by modifying fire behavior through strategic placement and arrangement of fuel reduction treatments on the landscape (Finney and Cohen, 2003; Graham et al., 2004). To address the fuel conditions throughout the SRA, projects conducted under this VTP have been organized into three general treatments or project types.

1) **Wildland-Urban Interface:** projects would be focused in WUI-designated areas, would generally consist of fuel reduction to prevent the spread of fire between structures and wildlands.
2) **Fuel Breaks:** projects would consist of converting the vegetation along strategically located areas to support fire control activities.
3) **Ecological Restoration:** projects would generally occur outside of the WUI in areas that have departed from the natural fire regime, would generally consist of restoring the fire resiliency by promoting native fire-adapted plant communities.

Within each of these treatment categories, a menu of treatment activities (see Section 2.4) would be implemented to modify the fuels within the landscape. Participation in the VTP is completely voluntary and the placement of treatments will depend on the public's involvement. The location and type of project must be included in the local Unit Fire Plan to be considered under the VTP EIR. Unit Fire Plans can also function as Community Wildfire Protection Plans (CWPP), and may contain all or some of projects outlined in smaller CWPPs throughout the Unit/Contract County. CWPPs have several requirements to guarantee public participation and sign-off in the creation of the plans, which ensures public input into the selection of VTP projects. Additional VTP projects may also be proposed through Fire Safe Councils or other community groups in coordination with the local Unit/Contract County. Consequently, public feedback helps shape the location and type of vegetation treatment within the Wildland Urban Interface.

Case Study Examples – Throughout the remaining chapter there are nine case studies examining vegetation treatments that were used to help control the impacts of wildfires. There are two additional case studies that discuss the utilization of pre-planning and community involvement as a wildland firefighting strategies and their impacts.

2.2.2.2.1 Wildland-Urban Interface (WUI)

The WUI is the geographical overlap of two diverse systems, wildland and structures. At this interface, the buildings and vegetation are sufficiently close that a wildland fire could spread to a structure or a structure fire could ignite wildland vegetation. WUI treatments would focus on modifying fire behavior by breaking up the horizontal and vertical continuity of fuels while also considering flame size, ignition sources, potential spread rate, and public and firefighter safety.

Geospatially, the WUI was identified through a complex modeling process undertaken by FRAP and the California Fire Alliance in 2001 and was completed in 2003. The modeling process consisted of three main components: ranking fuel hazard, assessing the probability of wildfire, and defining areas of suitable housing density that lead to Wildland-Urban Interface protection strategy situations (FRAP 2003). Further discussion

on spatial modeling of the WUI can be found in Chapter 4.1 and Appendix A. Modeled WUI Treatment Areas can be found in Figure 2.2-9.

Projects implemented under the WUI treatment type would take place outside of the 100 foot defensible space requirements under PRC 4291 and within the outer edge of the defined WUI area as described in Chapter 4.1. The location and type of project must be included in a local Unit Fire Plan. If a WUI pre-incident plan exists as per CAL FIRE's Wildland Urban Interface Operating Principles (CAL FIRE, 2014), projects shall be consistent with:

- The strategy and tactics employed in the target area (e.g., perimeter control adjacent to structures)
- Likely scenarios (e.g., evacuation, road access, protecting critical infrastructure, etc.)
- Likely fire behavior

The focus of WUI treatments is to modify fuels in order to directly protect communities and assets at risk from potential damage from wildfires originating in the adjacent wildlands as well as to protect the wildlands from fires transitioning to the wildlands from human infrastructure. Treatment prioritization within the WUI would be based on concepts illustrated in Figure 2.2-8.

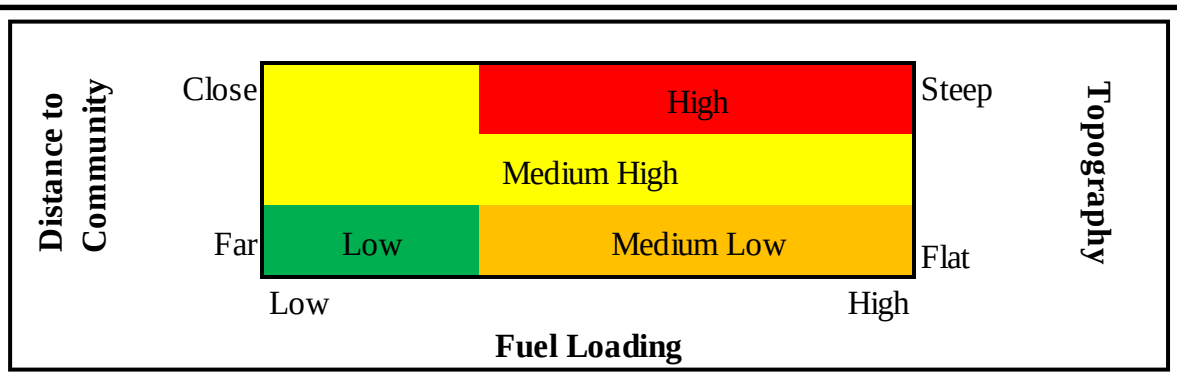

Figure 2.2-8: Treatment prioritization for WUI treatments.

The distribution of the vegetation formations within the modeled WUI treatment areas is summarized in below:

Table 2.2-2: Treatable Acres within the WUI treatment area by Vegetation Formation.

Bioregion	Tree Dominated	Shrub Dominated	Grass Dominated	Total by Bioregion
Bay Area/Delta	345,235	152,571	794,135	**1,291,941**
Central Coast	53,983	410,122	1,162,785	**1,626,890**
Colorado Desert	357	109,459	3,849	**113,664**
Klamath/North Coast	872,897	226,236	505,615	**1,604,748**
Modoc	377,423	235,956	120,292	**733,671**
Mojave	3,348	185,511	37,398	**226,257**
Sacramento Valley	15,173	3,136	494,494	**512,804**
San Joaquin Valley	4,959	52,595	270,582	**328,136**
Sierra Nevada	1,090,662	323,025	1,470,973	**2,884,660**
South Coast	101,424	958,039	284,868	**1,344,332**
Total by Veg Type	**2,865,462**	**2,656,649**	**5,144,991**	**10,667,101**

An example of a WUI treatment is presented in the Ranch Fire Case Study and a more detailed discussion of WUI treatments can be found in Chapter 4.1.

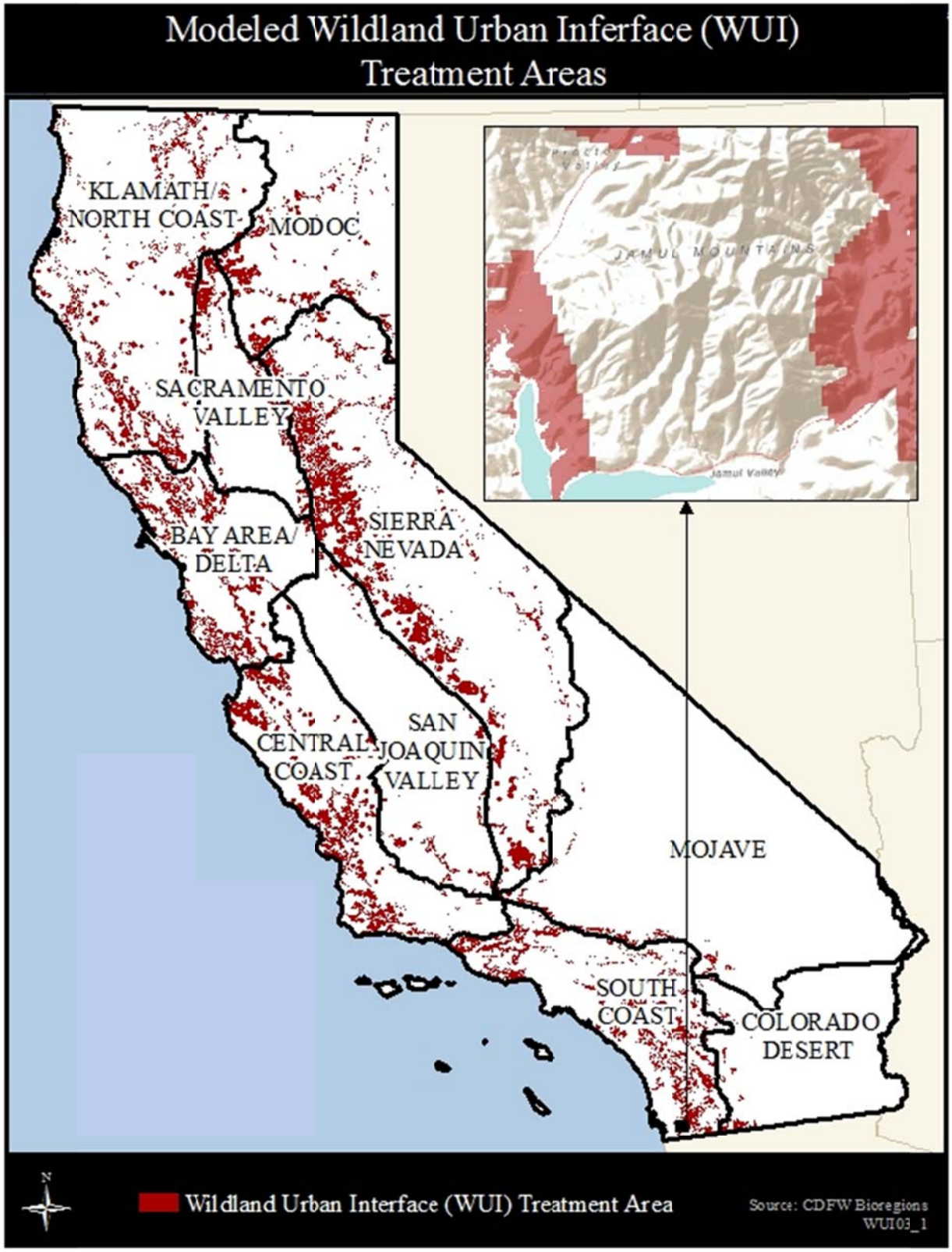

Figure 2.2-9: Wildland Urban Interface within the SRA.

Example of a WUI project:

This project area consists of oak woodlands, low elevation pockets of Ponderosa Pine, and chaparral vegetation with a large number of homes scattered throughout. The Auburn Lake Trails subdivision is situated on a plateau that rests along the south rim of the American River Canyon over the location that was to be a lake created by the Auburn Dam. This subdivision was planned to be a lake side development. At this time, the Auburn Dam project is likely to never be completed, and even if it were, vegetation treatment would still be necessary due to the ignition potential posed by lake side access by recreational users.

The areas directly below the subdivision are covered with heavy vegetation on slopes that are extremely steep. To complicate things, the area is a State Recreation Area with heavy use by river rafting enthusiasts, hikers, bikers, and horse back riders. The ignition potential below the subdivision is extreme as evidenced by the approximately 600 acre Mammoth Bar fire of July 16, 2009. The area has been identified by the local CAL FIRE Battalion Chief as a high priority for fuels management in the Unit Fire Plan.

A primary goal of this project is to maintain and continue to create a Shaded Fuel Break on private and publicly owned lands along the rim of the American River Canyon along topographic features that will allow fire suppression operations to safely occur in the event of wildfire. The Bureau of Reclamation, California Department of Parks and Recreation, and the California Department of Forestry and Fire Protection (CAL FIRE) will be cooperating on the development of this project. CAL FIRE is preparing this VMP to address CEQA on the privately owned lands that will be included in this project. Those lands that are managed or owned by other agencies will be covered by that agencies respective environmental planning process.

A minimum 300' wide shaded fuel break will be maintained and constructed along the edge of the subdivision, utilizing topography as the primary criteria for determining the final location of the fuel break. CAL FIRE inmate crews will be utilized from the Growlersburg Camp to complete the work. Fuel break maintenance and construction will be done by hand and any resulting material will be pile burned or chipped on site by the hand crew.

The Objectives of this WUI project:

1. To reduce wildfire hazard.
2. Maintain & construct a perimeter shaded fuel break on private lands at a location that will provide the maximum safety and benefit to fire suppression operations in the event of wildland fire.
3. Protect residential structures from the wildland fire threat that exists in the area.

CASE STUDY– WUI

Ranch Fire

December 21, 1999

Ventura County's Ojai Valley has long been considered an area especially susceptible to wildland fire. The valley is known for its high winds and dense vegetation. These conditions were made worse in the winter of 1999 when a lack of rainfall made high intensity wildland fire even more likely.

On the night of December 21, 1999 firefighters got the call that they had long been expecting: fireworks had ignited the Ranch Fire in the upper Ojai Valley and in its path lay homes, schools, and agriculture. As Santa Ana winds roared through the valley, the situation looked dire and left many local residents expecting a terrible disaster to be left in the Ranch Fire's wake.

However, almost seven years earlier a process was started that would ultimately save the community and save the taxpayers millions of dollars. The Ventura County Fire Protection District's Vegetation Officer started a five-year plan to reduce the threat in areas with the greatest potential for costly damaging wildfires. A large percentage of the cost of the project was provided by the Federal Emergency Management Agency after severe firestorms ravaged areas of Southern California in 1993.

The upper Ojai Valley had specifically been included in the plan, and by the spring of 1993 a comprehensive action plan was put together with the cooperation of landowners, the U.S. Forest Service, CAL FIRE, local schools, businesses, and residents.

Cooperators used prescribed burns to create defensible space between vegetation and homes. Further vegetation was cut and stacked in many areas and was burned in low intensity prescribed fires during the winter. Maintenance of this new community protection fuel break was the next issue. Property owners fenced the area and used livestock to eat the chaparral regrowth. Almost all of the homeowners in the community pitched in by cleaning flammable vegetation from around their homes. Fire department inspectors reported 99 percent compliance with local and state fire hazard clearance laws.

During the first few hours of the incident many success stories unveiled themselves. The weed abatement and pre-fire work made the disaster much less damaging than it otherwise would have been. While 4,400 acres and one home had burned, crews were successful at saving the other 67 homes in the area. Efforts by this committee freed up fire fighting forces to attack the fire before it could enter the community of Ojai. This is an example of how insightful planning and interagency teamwork can save communities from certain destruction by wildland fire.

2.2.2.2.2 Fuel Breaks

Fuel breaks are an area in which flammable vegetation has been modified to create a defensible space in an attempt to reduce fire spread to structures and/or natural resources, and to provide a safer location to fight fire. This treatment category could be a part of a series of fuel modifications strategically located along a landscape.

The wildland fuels of California occur mainly on mountainous terrain, which increases the difficulty in controlling wildfires. Typical fuel break locations include ridgelines, along roads, or in other favorable topographic situations. Fuel breaks can provide safe access for quickly staffing fire control lines and are a common place where forward progress of a fire can be slowed or stopped. Aerial attack may be used in conjunction with fuel breaks to contain the lateral spread of an advancing wildfire.

Strategic fuel breaks may vary in character depending on their specific location, vegetation type, expected fire behavior in the immediate location, and other land management objectives relative to the area under consideration. Under critical fire weather conditions, strategically placed fuel breaks can assist with containing lateral fire spread. Strategic fuel breaks, in this context, are designed to protect assets with national, state, or regional significance or value. Where possible, fuel breaks will be planned to provide essential linkages between fire control systems across the landscape. Potential fuel break treatments must address a clear fire prevention need and be based on local activity such as ignition patterns and fire spread history. Additional principles for fuel break treatment planning include:

- Be constructed to mitigate the loss of high value assets
- Significantly increase the chance of reducing the occurrence and impact of landscape-scale fires
- Be based on clear objectives, including acceptable fire size within a landscape unit
- Be located at the most effective position on the landscape
- Use or link to, if appropriate, existing roads and fuel break networks
- Be constructed to minimize and/or avoid environmental impacts
- Be constructed to increase firefighter safety
- Sufficiently reviewed and adopted as a component of a Unit Fire Plan

Geospatially, fuel breaks were identified by modeling the dominate ridgelines and identifying roads within the WUI. A 150 foot buffer was placed on the identified ridgelines, which created a 300 foot wide modeled fuel break treatment area. The road modeling component of the fuel break was further constrained to only include areas where Condition Class 2 or 3 were present. Condition Class is defined as the “relative risk of losing key components that define an ecosystem” (Hardy et al., 2001). Condition

Classes 2 and 3 can identify areas where fire behavior is uncharacteristic due to the loss of the key components of an ecosystem. Condition Class and Fuel Break modeling is discussed in further detail in Chapter 4.1. Modeled Fuel Break Treatment Areas can be found in Figure 2.2-10.

Projects implemented under the fuel break treatment category would consist of converting the vegetation along strategically located areas for fire control through mowing, mastication, herbicide application, and other methods. Treatments will focus on reducing fuels in areas exhibiting condition class 2 and 3.

The distribution of vegetation formations within the modeled Fuel Break Treatment areas is summarized below:

Table 2.2-3: Treatable Acres within the Fuel Break treatment area by Vegetation Formation.

Bioregion	Tree Dominated	Shrub Dominated	Grass Dominated	Total by Bioregion
Bay Area/Delta	72,525	47,126	203,365	**323,016**
Central Coast	12,248	132,588	354,799	**499,634**
Colorado Desert	1,403	198,732	1,737	**201,872**
Klamath/North Coast	343,006	89,875	184,560	**617,441**
Modoc	199,678	154,778	51,095	**405,551**
Mojave	5,968	591,422	39,460	**636,850**
Sacramento Valley	5,762	2,022	165,764	**173,548**
San Joaquin Valley	1,279	40,560	186,512	**228,350**
Sierra Nevada	154,834	96,448	253,995	**505,276**
South Coast	25,248	252,806	68,969	**347,023**
Total by Veg Type	**821,951**	**1,606,357**	**1,510,255**	**3,938,563**

An example of a Fuel Break treatment is presented in the Peterson Fire and Toro Creek Case Studies. A more detailed discussion of Fuel Break treatments can be found in Chapter 4.1.

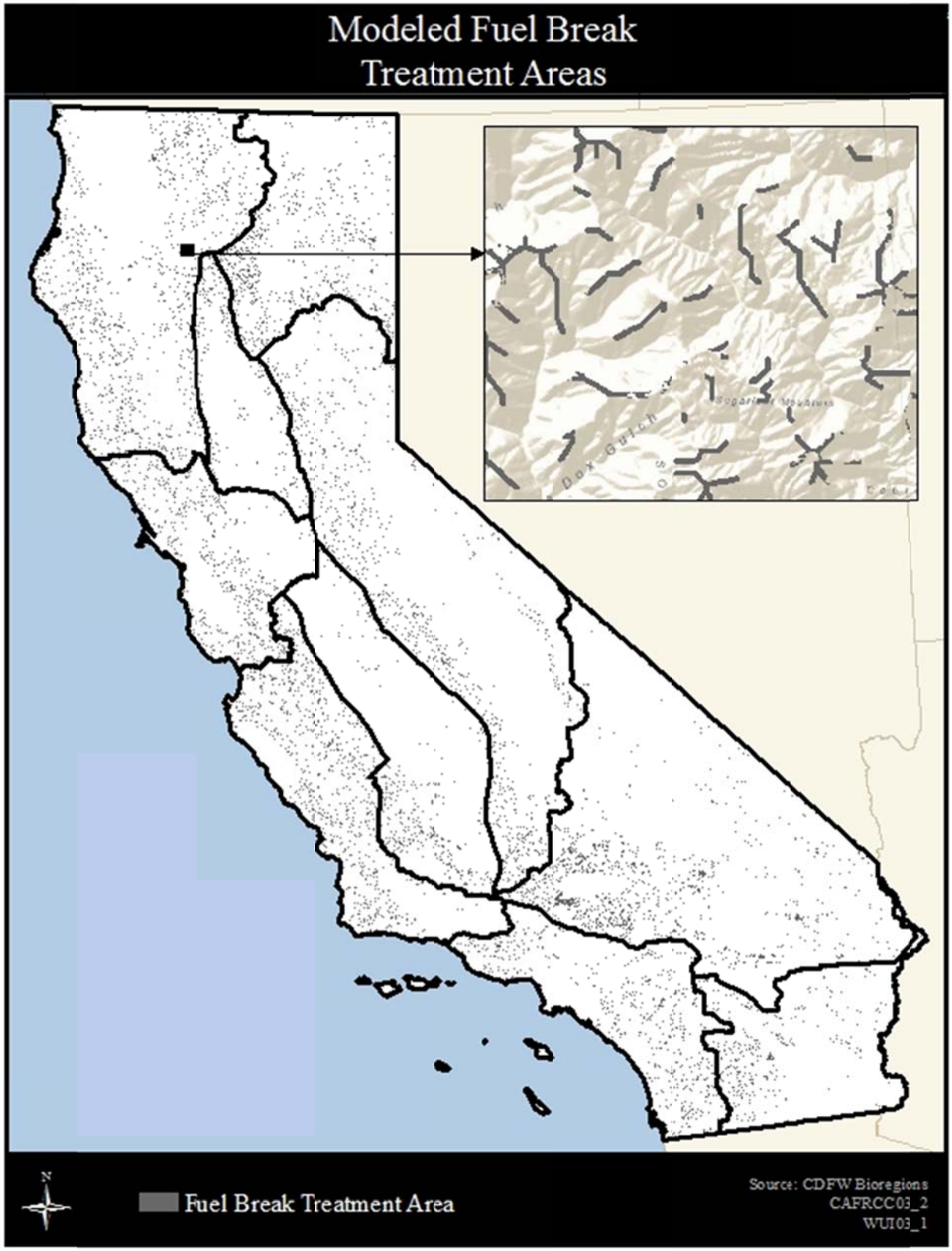

Figure 2.2-10: Fuel Breaks within the SRA.

Western end of San Diego Country Estates (SDCE) Community Defense Zone, location is near Wikiup Road. View is looking west. San Diego Country Estates, Ramona, CA. Photo taken 03/25/15.

Before:
Eastern end of San Diego Country Estates (SDCE) Community Defense Zone. USFS Cleveland National Forest's San Vicente Community Defense Zone parallels (as shown on right side of photo) a portion of SDCE Community Defense Zone. View is looking west. San Diego Country Estates, Ramona, CA. Photo taken 07/31/14.

After:
Eastern end of San Diego Country Estates (SDCE) Community Defense Zone. USFS Cleveland National Forest's San Vicente Community Defense Zone parallels (as shown on right side of photo) a portion of SDCE Community Defense Zone. View is looking west. San Diego Country Estates, Ramona, CA. Photo taken 03/25/15.

San Diego Country Estates Fuel Break

The purpose of this project was to provide enhanced defensible space to homes and properties along the northern perimeter of the San Diego Country Estates (SDCE), located in the San Vicente Valley, six miles southeast of the unincorporated community of Ramona in San Diego County. The intent of this project was to reduce a potential fire's intensity, and decrease the threat of fire originating from the adjacent urban area. Requiring a collaborative approach due to the array of property ownerships the fuel break would be constructed on, the project incorporated lands owned by the Bureau of Land Management (BLM), San Diego Country Estates Association, and private landowners. Width of the proposed zone varied from 150 feet to 400 feet wide and is approximately six miles in length. The average width of the of the defense zone is approximately 200 feet wide, and increases to 400 feet wide for a distance of approximately 1,500 feet at the eastern boundary where it parallels the Cleveland National Forest's San Vicente/Barona Mesa Community Defense Zone.

Before Treatment

After Treatment

Before Treatment

After Treatment

CASE STUDY-Shaded Fuel Break

Peterson Fire

July 12, 2004

On July 12, 2004 in eastern Fresno County a wildland fire was reported. The initial attack Incident Commander arrived at the scene and found the fire rapidly spreading uphill, threatening structures above and on each flank. Reported temperature was 89 degrees Fahrenheit, wind was from the southwest at 5-11 mph, with 17% relative humidity, and fuel moistures were 4.7%. In addition, the fire was rapidly spreading towards the recently completed Cressman Road Fuel Modification Zone (FMZ), a shaded fuel break.

CAL FIRE, in cooperation with the Pine Ridge Property Owners Association, the Highway 168 Fire Safe Council, and the California Department of Corrections, developed the Cressman Road FMZ. A FMZ is an area where selected vegetation has been removed in such a way as to break the horizontal and vertical continuity of forest fuels. The Cressman Road FMZ involved 60 parcels and 57 different landowners.

The purpose of this project was to try to increase the level of safety for both residents and firefighters that may be entering and/or leaving the Cressman Road area under wildfire conditions. This increased level of safety has been achieved through the selective removal of vegetation along Cressman Road. The Cressman Road area was selected for this project because of several reasons:

1. The Fresno/Kings Unit of CAL FIRE had identified the Pine Ridge area as a priority area for fuel reduction projects. This area was selected as a priority because of its high fuel loading, its potential for a large damaging fire, and its high population density intermixed within the wildland.
2. The Highway 168 Fire Safe Council had identified the Pine Ridge area as a priority area for fuel reduction projects for similar reasons.
3. Cressman Road is a single lane road, open to the public, which accesses approximately 113 parcels and 75 residences.
4. At the initial discussion stages of this project, the Pine Ridge Property Owners Association expressed interest in and support of the proposed project.

The Incident Commander on the Peterson Fire states that the Cressman Fuel Modification Project provided him with:

- The confidence that the head of the fire would be stopped or slowed when it reached the FMZ;
- That it would serve as a safe point of attack for firefighters even at the head of the fire;
- That firefighters could "anchor-in" at the FMZ and safely make a downhill hose lay along the flank of the fire;
- Significantly reducing the number of firefighting resources ordered for the incident;
- Significantly reduced fire intensities and subsequent resource damage in the FMZ compared to the non-treated areas in the fire perimeter.

CASE STUDY-Fuel Break

Toro Creek Fire - Fuel Break Utilization

November 8, 2013

At 10:30am on November 8, 2013, CAL FIRE San Luis Obispo Unit (SLU) dispatched a full-scale wildfire response to a 20 acre fire near Toro Creek Road and Highway 41, west of Atascadero in San Luis Obispo County. This area is characterized as mountainous terrain that is heavily covered in brush, set within the northwestern tip of the Los Fadres National Forest.

During the operational planning of this fire, the West Atascadero Wildland Fire Pre-Plan map created by the SLU Pre-Fire Division was utilized. The Incident commander successfully utilized this map and explained that the map helped in "gathering situational awareness on the same operating plan."

Another equally important component in this success story was the presence of the West Atascadero Fuel Break which was completed in 2012 just north of the Toro Fire location. This fuel break was created under the CAL FIRE HFT2 grant program funded by the USFS. The fuel break was constructed using mastication equipment and a limited amount of hand crew work. This fuel break was used exactly as it was designed, to offer a strategic location from which to conduct aggressive control operations. Fortunately, the fire was stopped prior to reaching the fuel break, because the fuel break providing easier access to the fire location. Consequently, suppression resources, especially dozers, could quickly access the ridge on the east side of the fire and build a control line down the gas line. The local knowledge gained from building the fuel break and having accurate maps and firsthand knowledge of exactly how to safely and quickly access this area was why the fire was held to just 51 acres. Were it not for the existence of the fuel break and the knowledge of the local road system, the dozer line would not have been constructed nearly as quickly and the fire would have likely grown substantially larger.

2.2.2.2.3 Ecological Restoration

Ecological Restoration is the process of re-establishing the composition, structure, pattern, integrity and ecological processes necessary to facilitate terrestrial and aquatic ecosystem sustainability, resilience, and health under current and future conditions.

Geospatially, Ecological Restoration treatment areas were identified by excluding all areas identified as WUI and intersecting the remaining area with areas identified as Condition Class 2 or 3. Condition Class is defined as the “relative risk of losing key components that define an ecosystem” (Hardy et al., 2001). Condition Classes 2 and 3 identify areas where fire behavior is uncharacteristic and vegetation composition is altered due to the loss of the key components of an ecosystem. Condition Class and Ecological Restoration modeling is discussed in further detail in Chapter 4.1. Modeled Ecological Restoration Treatment Areas can be found in Figure 2.2-12.

Projects implemented under the Ecological Restoration treatment type would attempt to restore the fire resiliency associated with the specified fire-adapted plant community by renewing degraded, damaged, or destroyed ecosystems and habitats in the environment through active intervention. Ecological restoration could be implemented through grazing, thinning, understory burning, and other methods.

Ecological Restoration treatments include the removal of invasive or non-native species from a Condition Class 2 and 3 in order to promote native fire adapted plant communities. The conceptual basis for ecological restoration is that for fire-adapted ecosystems, much of their ecological structure and processes are driven by fire, and the disruption of fire regimes leads to changes in plant composition and structure, uncharacteristic fire behavior and other disturbance agents (such as pests), altered hydrologic processes, and increased smoke production. This conceptual basis is illustrated in Figure 2.2-11. This treatment may also be used to enhance rangeland landscapes to facilitate terrestrial and aquatic ecosystem sustainability. Under the VTP, median Fire Return Intervals (FRIs) are used to gauge the appropriate frequency of prescribed burns occurring within Ecological Restoration project types. Some vegetative communities, such as mixed chaparral and coastal scrub, are sensitive to short intervals between burns and pose a higher risk for long-term impacts such as type conversion.

An example of an Ecological Restoration project is presented in the Big Creek VMP Project Overview. A more detailed discussion of Ecological Restoration treatment areas can be found in Chapter 4.1.

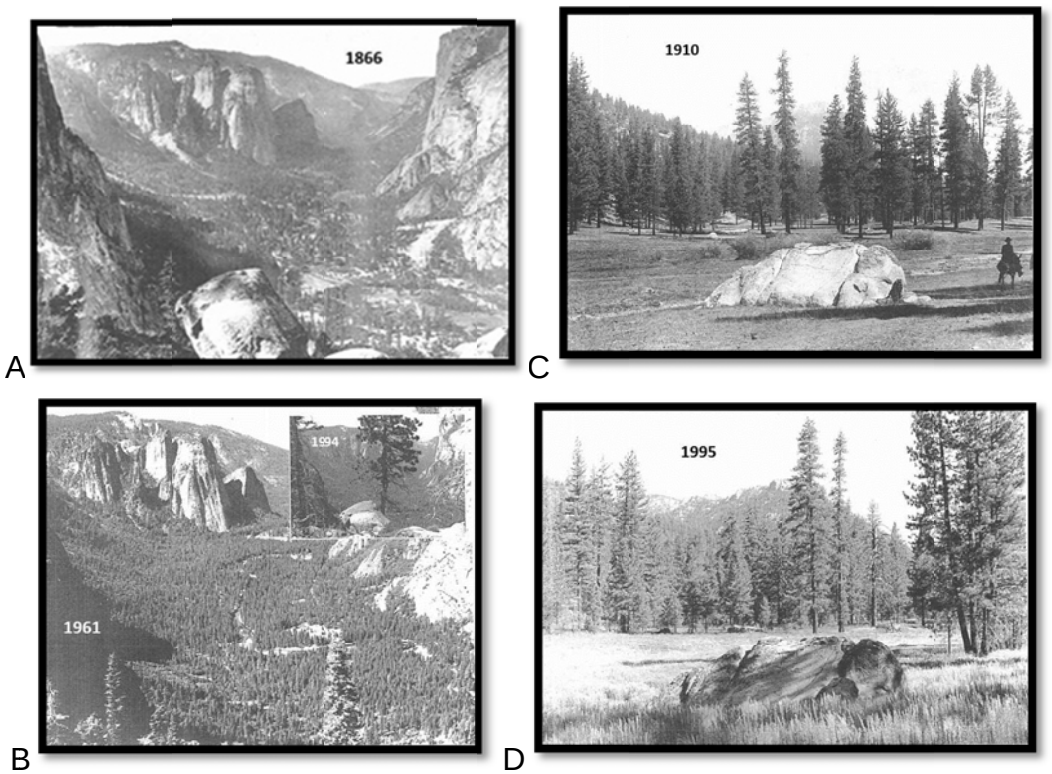

Figure 2.2-11: Photos demonstrating the concept of ecological restoration (taken from Gruell, 2001). The historic photos of Yosemite Valley (a) and Trout Meadows/Tulare County (c) indicate a condition analogous to Condition Class I, whereas the modern photos (B and D) reflect Condition Classes 2 or 3. Ecological restoration treatments would attempt to restore stand densities, fuel loading, and species composition to a condition that more closely resemble the historic photos (A and C).

The distribution of vegetation formations within the model Ecological Restoration treatment areas is summarized below:

Table 2.2-4: Treatable Acres within Ecological Restoration treatment area by Vegetation Formation.

Bioregion	Tree Dominated	Shrub Dominated	Grass Dominated	Total by Bioregion
Bay Area/Delta	191,386	85,988	253,805	**531,178**
Central Coast	41,347	362,589	733,272	**1,137,209**
Colorado Desert	408	45,536	597	**46,541**
Klamath/North Coast	1,443,053	135,324	469,769	**2,048,146**
Modoc	827,087	538,995	124,530	**1,490,612**
Mojave	12,566	40,227	27,062	**79,855**
Sacramento Valley	10,071	6,236	163,818	**180,126**
San Joaquin Valley	1,922	36,231	93,497	**131,651**
Sierra Nevada	722,877	178,085	624,761	**1,525,722**
South Coast	22,850	157,476	35,875	**216,202**
Total by Veg Type	**3,273,567**	**1,586,688**	**2,526,987**	**7,387,242**

Figure 2.2-12: Ecological Restoration within the SRA.

Example of an Ecological Restoration Project:

The Big Creek VMP is an ongoing cooperative effort between CAL FIRE and the landowner to reduce fuel adjacent to the community of Hayfork. Big Creek VMP is being conducted on the Big Creek Ranch and includes a total of 542 acres of proposed fuel treatments. The treatment for the portion of the VMP was prescribed fire. Prescribed fire is the use of live fire to modify vegetation under carefully specified conditions of moisture content, weather conditions, and fire behavior (the prescription) to achieve definite management objectives. Control lines are pre-planned and constructed prior to burning operations. An Incident Commander (IC) will be identified by the Unit Chief to oversee all aspects of the prescribed burn. The firing method and firing device to be used is at the discretion of the IC.

Before treatment...

After treatment...

The Objectives for this Ecological Restoration Project:

- Cooperate with the landowner to meet their goals. Landowner goals include:
  - Protect existing oak stands by reducing understory fuel loads.
  - Encourage return of native grasses by reducing non-native invasive grasses and brush.
  - Improve grazing for livestock and wildlife.
- Reduce the fuel loading in the burn units to limit the spread of future wildfires, thus reducing the threat to life and property.
- Conduct project operations in such a manner as to protect the environmental and cultural values of the landscape.
- Train fire personnel in the safe application of prescribed burning methods and techniques.
- Reduce the threat of sediment delivery to fisheries in Big Creek and Hayfork Creek by reducing the threat of large wildfire.
- Conduct the prescribed burns in a manner to minimize smoke impacts to population centers, specifically Hayfork.

2.2.3 PROGRAM ACTIVITIES

The WUI, Fuel Break, and Ecological Restoration treatment categories include the removal, rearrangement, or conversion of vegetation using various treatment "activities." These activities may be applied singularly or in any combination needed for a particular vegetation type to meet specific resource management objectives. The method or methods used would be those that are most likely to achieve the desired objectives while protecting natural resource values and meeting the overall program objectives. During the planning phase of a VTP project, the appropriate activity would be selected that is best matched to the operational needs and treatment constraints on the landscape (Graham et al., 2010). The activities to be implemented under the VTP are identified in Table 2.2-5.

Table 2.2-5: Proposed VTP Activities

Treatment Activities	Description	Methods of Application
Prescribed Fire: Pile Burn	Application of fire to an intentionally concentrated pile of fuels to accomplish planned resource management objectives.	Pile and burn fuels.
Prescribed Fire: Broadcast Burn	Application of prescribed fire to fuels to accomplish planned resource management objectives under specified conditions of fuels, weather, and other variables.	Understory burn within timber or oak woodlands, or broadcast treatment using fire with a control line along the perimeter.
Mechanical	Use of motorized equipment designed to cut, uproot, crush/compact, or chop existing vegetation.	Masticating, chipping, brush raking, tilling, mowing, roller chopping, chaining, skidding and removal, piling, often combined with pile burning.
Manual	Use of hand tools and hand-operated power tools to cut, clear, or prune herbaceous and woody species.	Hand pull and grub, thin, prune, hand pile, lop and scatter, hand plant, often combined with pile burning.
Prescribed Herbivory	Intentional use of domestic livestock to reduce a targeted plant population to an acceptable level and/or reducing the vegetative competition of a desired plant species.	Grazing or browsing by cows, sheep or goats.
Herbicides	Chemical applications designed to inhibit growth of vegetation.	Ground applications only, such as backpack spray, hypo-hatchet, pellet dispersal, etc.

The activities described above are techniques or tools rather than end results. Projects implemented under the VTP would use prescriptions incorporating the appropriate

vegetation activities and methods described above in order to create specific project results, such as shaded fuel breaks, fuel reduction zones, or improvement of browse or forage for wildlife or domestic stock. The VTP would allow herbicide treatments on the landscape, subject to the landscape constraints and the specific project requirements pertaining to herbicide application described below. Detailed descriptions of Program Activities are found in Chapter 4.1.5.

The number and type of vegetation activities would be selected based on a number of parameters, which may include but are not limited to:

- Potential for significant adverse impacts
- Ability and willingness of landowner to maintain treated area
- Management program requirements or objectives for the site
- Historic and current conditions
- Opportunities to prevent future problems
- Opportunities to conserve desirable vegetation and wildlife habitat
- Effectiveness and cost of the treatment methods and follow-up maintenance treatments
- Available funding
- Success of past treatments, or treatments conducted under similar conditions
- Recommendations by local experts
- Input from local community
- Characteristics of the target plant species, including size, distribution, density, life cycle, and life stage during which the plants are most susceptible to treatment
- Non-target plant species potentially impacted by the treatment
- Fuel configuration (amount, arrangement, and size classes)
- Primary land use (e.g., WUI, forestry, range, and open space)
- Accessibility of the treatment area
- Soil characteristics of the treatment area
- Weather conditions at the time of treatment, particularly wind speed and direction, precipitation prior to or likely to occur during or after application, and time of year
- Proximity of the treatment area to sensitive areas, such as wetlands, streams, or habitat for plant or animal species of concern, rare plants and habitat structure vital to species survival and reproduction, air and water quality, soil productivity and cultural resources
- Need for subsequent re-treatment
- Maintenance of prior treated area
- Size of the target area
- Topography, slope, and aspect of the treatment area

These parameters would be considered before activity methods are selected. In addition, prior to any vegetation activities or ground disturbance occurring, CAL FIRE would verify that any specialists and/or databases for sensitive areas/species are

consulted and reviewed regarding the project area. These notifications would be identified as part of the PSA. Furthermore, the project sites would be surveyed for listed, state-candidate, state/federal threatened or endangered species, rare plants, and for evidence of cultural, or prehistoric sites. The results of these surveys would also be included within the VTP PSA (Chapter 7).

Initial activities and follow up maintenance within specific vegetation types would vary depending on the ecological characteristics of the vegetation types, the objective(s) of the treatment, and funding. In general, all vegetation types require follow up maintenance to meet long-term vegetation management goals. The type of follow up treatment and interval between treatments would depend on site conditions and project objectives. Treatment maintenance is further discussed in Section 4.1.5.7.

A proposed project should identify the time frame to complete the expected project level objectives. Once either the time frame has been met or the contractual agreements in place between CAL FIRE and the project applicant expire, another project may need to be submitted for future maintenance activity. Maintenance of a VTP project may not always require a new project proposal after the contractual obligation expires or is concluded. If the maintenance activity will have similar impacts as evaluated under this PEIR then a new project will need to be submitted for review. However, if the impacts are not covered by this PEIR then another CEQA process may be required.

2.3 SCOPE OF THE VTP

The environmental setting of the fuel landscape that could be modified by VTP activities is diverse, from conifer and hardwood forest and woodlands in mountain and coastal areas; to shrub and herbaceous rangelands in the south coast, north interior, and central valley; to desert habitats in the southeast (FRAP, 2010). Covering such an extensive and heterogeneous region, VTP projects would need to reflect the treatment needs of the vegetation at the local and regional levels. Over a ten year period, CAL FIRE would implement vegetation treatment activities on approximately 60,000 acres per year with a total of 600,000 acres treated over the ten-year period. Within a ten-year period it is estimated that there would be approximately 2,301 projects implemented – approximately 231 projects per year at an average project size of 260 acres.

The above annual rate of treament and total acres treated is the basis for the analysis presented in this Program EIR. However, the actual acres treated annually in any region will vary year-to-year based on several factors, such as: the number of willing landowners, funding ability, and access constraints. In addition, it is expected that the ten-year total acreage treated would never occur all within one year or all within any one bioregion, but would be distributed across several years and several bioregions. Finally, if the acreage being treated in a bioregion exceeded 110 percent of the projected yearly

average by bioregion (Table 2.3-1), then further analysis would be required at the project level to ensure that significant environmental effects do not occur. This determination would be made by the Sacramento CEQA Program Coordinator (ADM-7).

It should also be noted that the VTP is not proposed as the solution to California's vegetation management and fire problem. Although the proposed annual acres of treatment may not impact all the potential landscape fuels, the Program is still a valuable tool to allow landowners and stakeholders the opportunity to impact their community's fire risk. Each VTP project requires implementation monitoring and photo-point effectivness monitoring, and all treatments will be entered into a geospatial database for program tracking purposes. As more rigorous project and program monitoring becomes available through funding, the VTP Monitoring Working Group can evaluate key uncertainities and develop a more formal adaptive management program.

2.3.1 SCALE OF PAST TREATMENTS

Annual records of treated acreage by Unit/Contract County from the 1996/1997 to 2013/2014 fiscal years indicate an average of approximately 14,000 acres of lands are treated per year under CAL FIRE's current VMP. The annual treated acreage statewide ranged from a low of 3,246 acres in the 2013/2014 fiscal year to a high of 50,867 acres in the 1996/1997 fiscal year and indicates a significant decrease in treated acreage over time. However, the dataset suffers from possible quality control/quality assurance issues, as 40 percent of the tabulated data are listed as zeros or are blank, and it is unclear whether the reported acreage was for prescribed burning only or included additional vegetation management projects. Years with more complete reporting (e.g., 1996-2004) indicate an annual average of approximately 23,000 treated acres.

Unit and Contract County pre-fire engineers (PFEs) were contacted via email to determine their capacity for conducting vegetation treatment activities given current staffing levels and constraints (e.g., available burn days). A sample of nine PFEs responded to the information request, with estimated annual treated acreage ranging from 600 to 2,905 acres per year. The average annual treated acreage reported by Unit or Contract County PFEs was approximately 1,500 acres. If this average value is multiplied by the 27 Units and Contract Counties, the estimated annual statewide acreage that could reasonably be treated is approximately 40,000 acres per year.

2.3.2 PROJECTED SCALE OF VTP

It is reasonable to expect CAL FIRE would increase the annual acreage treated under the VTP by 100 percent when compared to historic treatment acreages under the existing VMP for a number of reasons. First, the limited scope of the existing VMP,

which is the primary CEQA mechanism CAL FIRE uses for implementing fuels management projects in shrub and grass fuel types, excludes forested landscapes. As a result, fuel reduction projects occurring within forested fuel types have not been represented under the historic VMP annual treatment acreage figures. Because the proposed VTP scope includes all vegetative fuel types within SRA, including forested fuel types, fuels management projects occurring beyond the scope of the current VMP program can now be accounted for under the proposed VTP. Functionally, the VTP will perform as the primary CEQA mechanism for the VMP. Although the terminology or specific phasing of the goals differs between the two programs, the VTP corresponds with the same goals outlined in the VMP. Secondly, replacing the costly, time consuming, and repetitive process of preparing multiple CEQA documents for projects located in forested fuel types with this Program EIR would result in a more efficient use of staff time and finances, leading to CAL FIRE's ability to treat additional acres.

Thirdly, treatment options such as mechanical mastication and the use of herbicides are options now included under the VTP which were not available to CAL FIRE under existing EIRs. For example, CAL FIRE routinely engages in mastication projects by utilizing Mitigated Negative Declarations or Supplemental EIRs. Mechanical fuel reduction projects, which treat large areas and are favorable when the risk of an escaped prescribed fire may exist, would now be evaluated under the VTP. Additionally, herbicide use, which is a cost effective fuel management option that can be used for a variety of applications, has been largely unavailable under existing CAL FIRE environmental protocols. The inclusion of new treatment options would add flexibility and improve efficiency, which ultimately translates to a greater ability to treat additional acres compared to existing conditions.

Fourth, there are new funding sources available that would allow CAL FIRE to increase treated acres. A variety of grant programs have developed in recent years that specifically fund fuels management. The significant increase in available grant funding statewide combined with the increase in CAL FIRE staffing would provide additional resources to implement VTP projects.

Considering the levels of historic annual treatment acreage through the CAL FIRE's VMP (i.e., approximately 23,000 acres) and the information submitted by CAL FIRE Units regarding the expected increase in project acres utilizing this VTP (i.e., approximately 40,000 acres), the average between the two values is approximately 30,000 acres per year. With the combination of an expanded VTP scope, the inclusion of project acreage historically outside the scope of the existing VMP, the addition of treatment options, and an increase in both funding and staff, it is reasonable to assume that the annual acreage treated would increase by a factor of two. The average annual treated acreage for the VTP is projected to be 60,000 acres, and the estimate of acres treated would be approximately 600,000 acres over a 10-year period.

The spatial distribution of the projects implemented by the proposed VTP is likely to follow the spatial distribution of available acres. As such, the total treated acreage would likely be highest in the Sierra Nevada, Central Coast, and Klamath/North Coast bioregions, respectively. Treated acres would likely be lowest in the Mojave, San Joaquin Valley, and Colorado Desert bioregions, respectively. However, the absolute magnitude of treatments by bioregion is not expected to remain static over time, and would change in response to emerging priorities and environmental constraints.

Table 2.3-1: Proposed program treatment acreage by Bioregion

Bioregion	Total Landscape Acres for Treatment	Approximate 10-Year Acreage	Approximate Annual Acreage	% of Treatable Landscape Treated per Decade	% of SRA Treated per Decade
Bay Area/Delta	2,146,135	58,550	5,855	0.27%	0.19%
Central Coast	3,263,733	89,040	8,904	0.40%	0.29%
Colorado Desert	362,077	9,878	988	0.04%	0.03%
Klamath/North Coast	4,270,334	116,501	11,650	0.53%	0.37%
Modoc	2,629,835	71,746	7,175	0.33%	0.23%
Mojave	942,962	25,725	2,573	0.12%	0.08%
Sacramento Valley	866,478	23,639	2,364	0.11%	0.08%
San Joaquin Valley	688,137	18,773	1,877	0.09%	0.06%
Sierra Nevada	4,915,658	134,107	13,411	0.61%	0.43%
South Coast	1,907,557	52,041	5,204	0.24%	0.17%
Total by Treatment	**21,992,906**	**600,000**	**60,000**	**2.73%**	**1.93%**

Although the annual treated acres are projected to be 60,000 acres, this number should not be considered an upper limit to the number of acres that might be treated over an annual timeframe. Rather, these annual and ten-year acreage estimates are used to determine the individual and cumulative impacts of the proposed program. If the acreage treated within any bioregion exceeds 110 percent of the yearly amounts in Table 2.3-1, then additional analysis would be required at the project level to assess whether there are additional significant effects (ADM-7).

The relative distribution of projects by activity type (e.g., prescribed fire, mechanical) is based on trends from the available recorded data and is generally expected to be distributed as follows:

- 50% prescribed fire
- 10% hand treatments
- 20% mechanical treatments
- 10% herbicide treatments
- 10% prescribed herbivory

Because each of these activity types can have a characteristic impact on the environment, this allows for more focused impact assessment later in the document. It is anticipated that the percentage of treatments utilizing prescribed fire would decline over time due to the environmental constraints associated with burning. Also, additional

funding sources would help to subsidize the less cost-effective treatments such as mechanical and hand treatments, and this increased funding would likely result in a higher proportion of non-burning activities than indicated by the historic data. Consequently, the percent distribution is not a threshold that the Program must maintain. This is expected to change over time as interest in each activity adapts to environmental and political needs. As stated earlier, the assumption in this analysis is that CAL FIRE can increase the number of treated acres by 100 percent, thereby doubling the treated area to approximately 60,000 acres annually on average. Figure 2.3-1 shows the projected acreage by treatment and vegetation subtype. Figure 2.3-2 shows the estimated number of projects by treatment and vegetation subtype. The data in these tables show that the majority of projected VTP treated acres and projects would be WUI treatments. Ecological Restoration and Fuel Breaks treatments would comprise 34 and 18 percent of the treated acreage, respectively. The figures also show that 41 percent of treatments would be in the grass-dominated vegetation subtype, 24 percent in the shrub dominated subtype, and 35 percent in the tree dominated subtype.

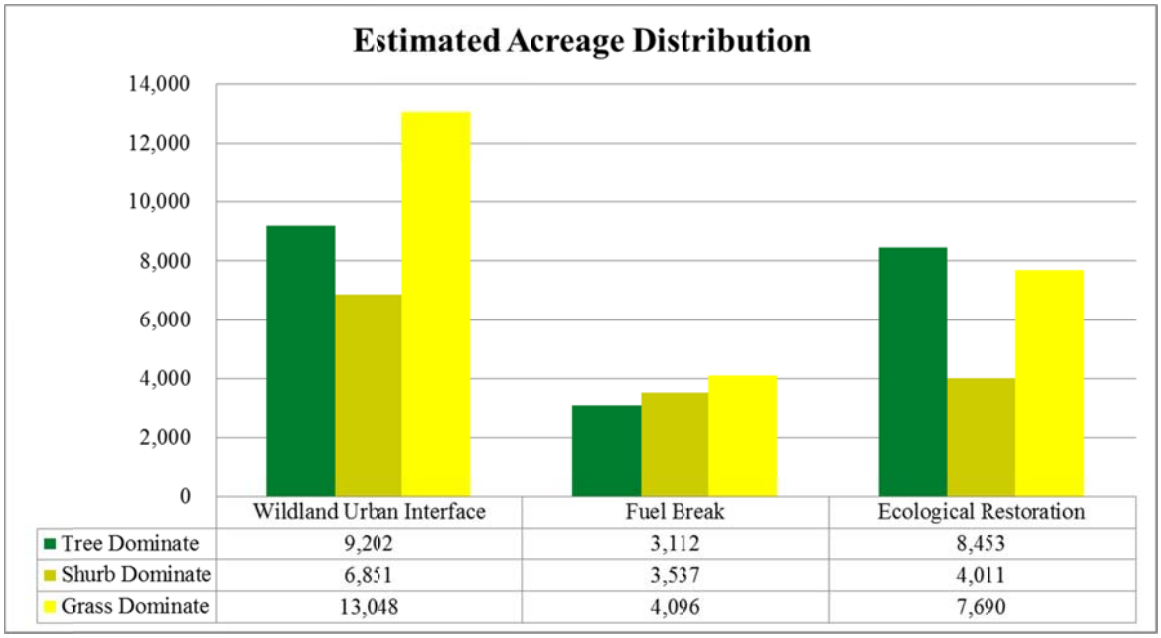

Figure 2.3-1 Estimated Acreage Distribution by Treatment and Vegetation Formation per Year

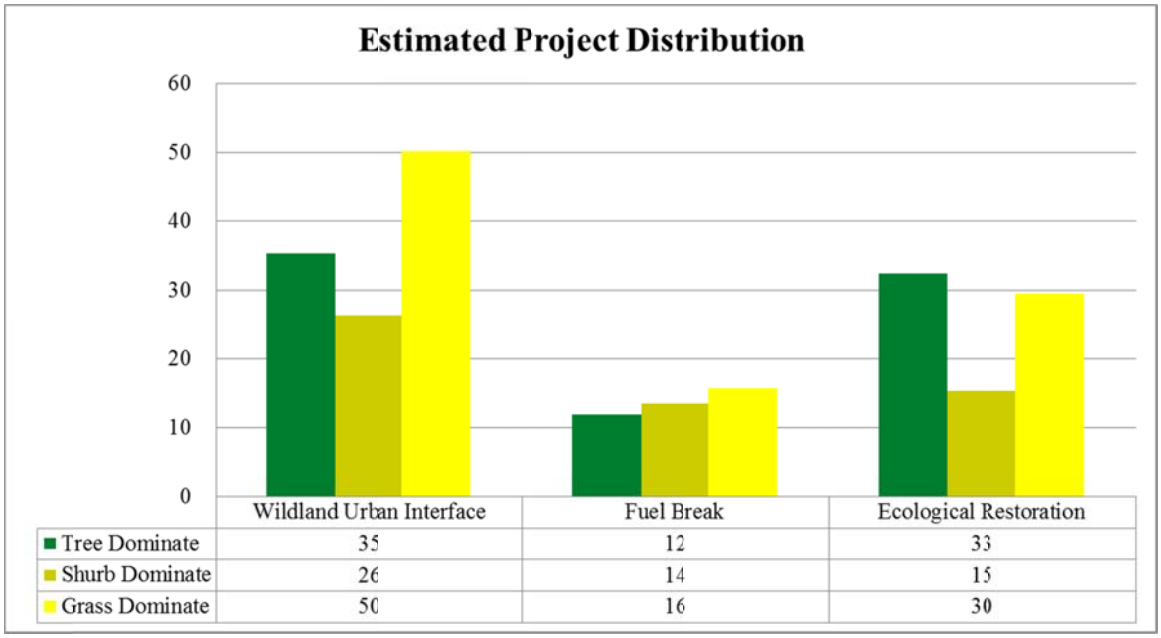

Figure 2.3-2 Estimated Project Distribution by Treatment and Vegetation Formation per Year

2.4 IMPLEMENTATION FRAMEWORK

2.4.1 IMPLEMENTATION PROCESS

As described earlier, the VTP is a formal program that would comprehensively direct the management of fuel sources within CAL FIRE's SRA landscape. The VTP consists of a strategy that would implement vegetation treatment activities on primarily privately owned land for the purpose of altering fuels to reduce the size, number, or frequency of damaging fires and reduce losses to life, property, and natural resources. The implementation process is explained in Figure 2.4-1. VTP treatments will be prioritized using concepts illustrated in Figure 2.4-2. In general, WUI treatments will receive the highest priority.

On private property, VTP projects would only be implemented in cooperation with willing landowners. Efforts should be made to include private, local, state and federal stakeholder involvement where vegetation treatments may connect previous fuel reduction projects. In addition, planning and collaboration for various landscape treatments are encouraged when they directly benefit local communities. During the project planning phase, the project proponent will provide a public meeting for projects outside of the WUI, advertised in a local newspaper and through other means (see Appendix I – Monitoring and Communication Plan). The public meeting will be used to inform stakeholders about the project and to solicit information on the potential for significant environmental impacts during the project planning phase (See SPR ADM-8

and Figure 2.4-1). Although a significant portion of the Project Scale Analysis (PSA) should be complete enough to address public concerns and provide a detailed discussion regarding the project's benefits, the PSA will be completed after the public meeting. For all projects implemented under the VTP, CAL FIRE would serve as the CEQA lead agency and would oversee the implementation of vegetation treatment activities at the CAL FIRE Unit level. The only exception would be in circumstances where proposed VTP projects are located on lands controlled by the California Department of Parks and Recreation (State Parks). In this case, State Parks may act as the lead agency and may rely upon CAL FIRE's Program EIR in implementation of their vegetation treatment projects.

While CAL FIRE would serve as the CEQA lead agency under most circumstances, most projects would be funded, at least partially, and implemented by private landowners, Fire Safe Councils, other public agencies or non-profit groups. In these situations, the implementing entity would enter into a contract or agreement with CAL FIRE to carry out the VTP project. If the project qualifies for this Program EIR, SPRs and mitigation measures would be included in the contract requirements and the project's CEQA compliance and implementation would be coordinated through local CAL FIRE Units/Contract Counties.

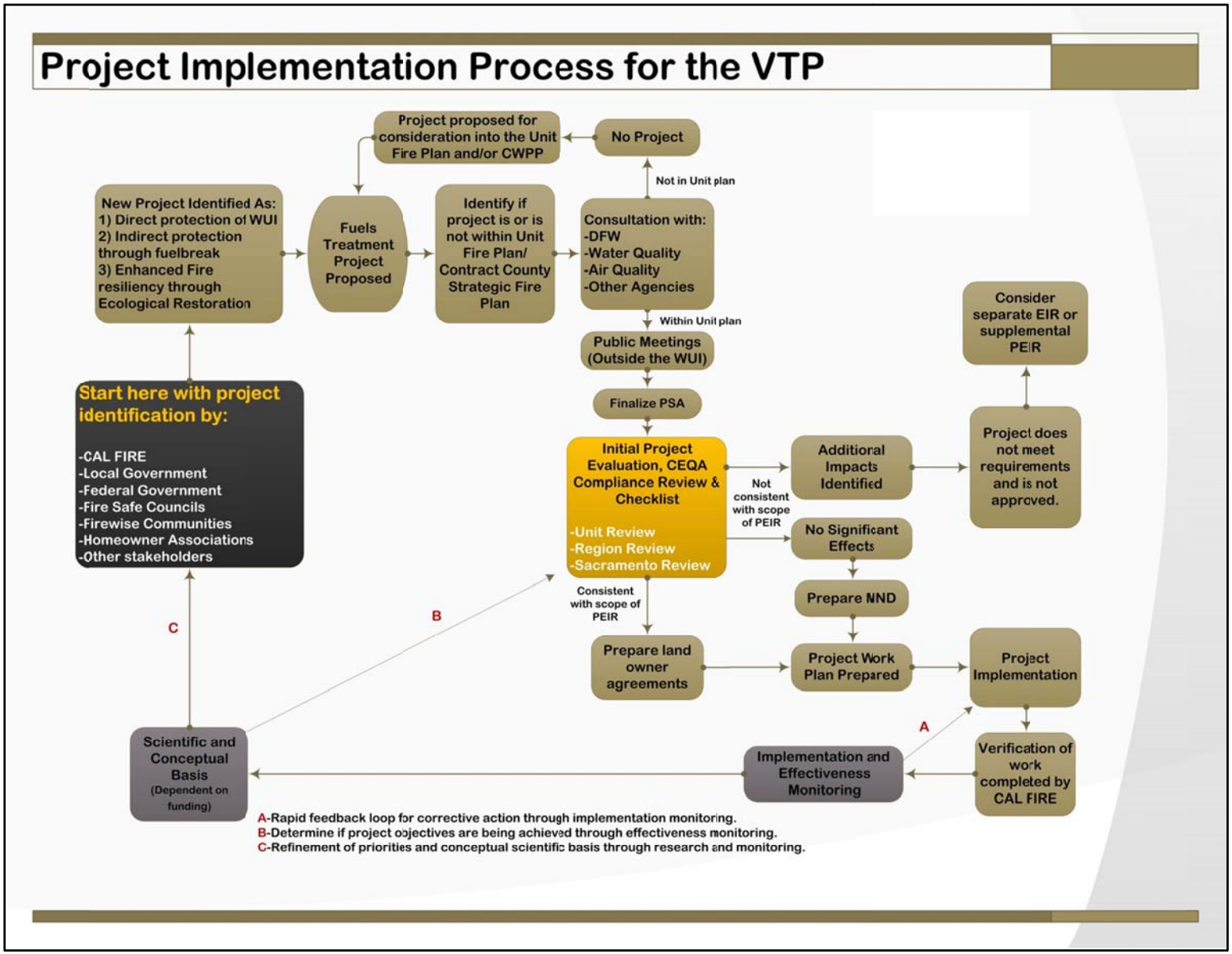

Figure 2.4-1: Project Implementation Process for the VTP

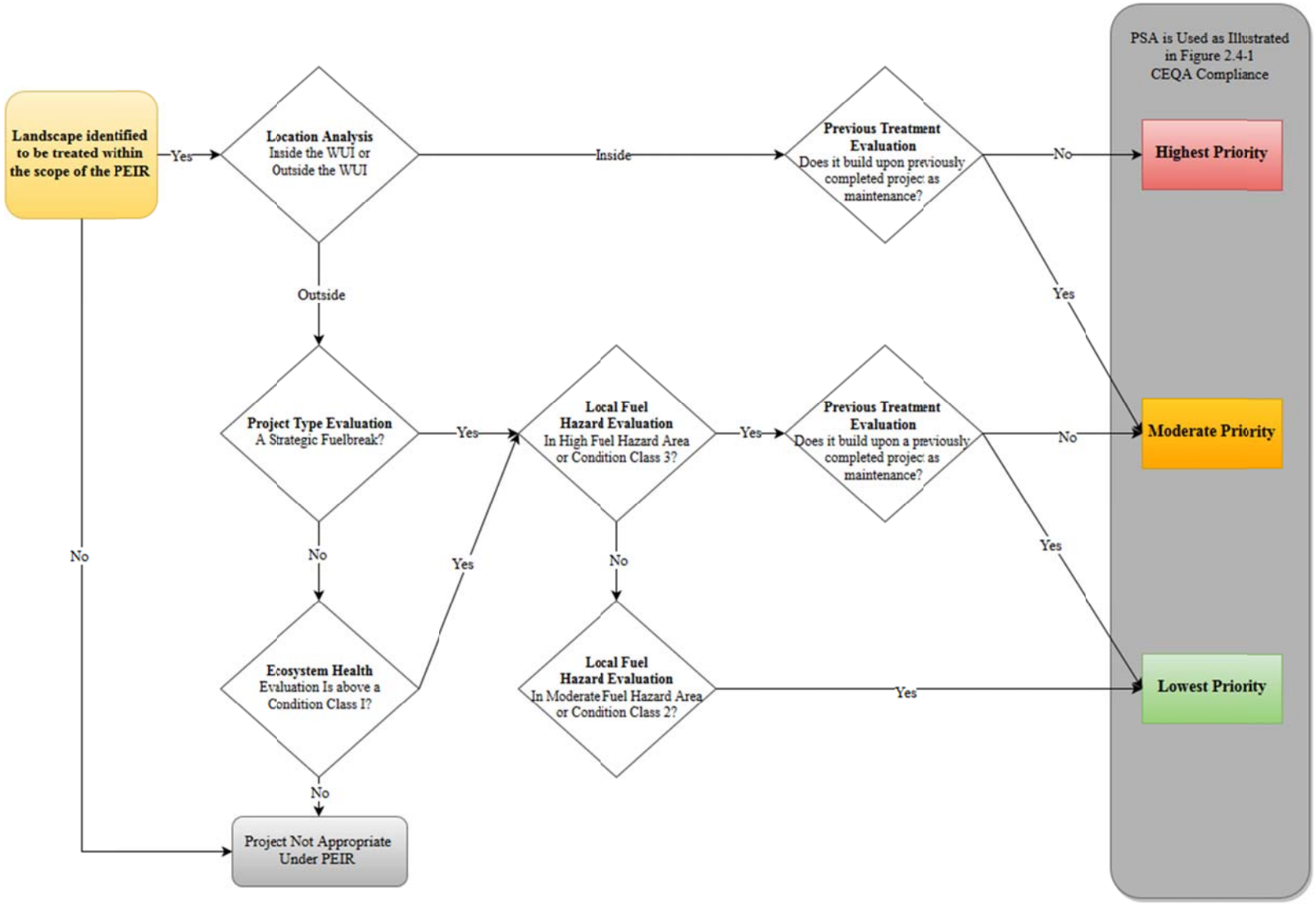

Figure 2.4-2: A relative ranking of project priority based on fuel hazard and values at risk. Using this conceptual framework, the WUI will receive the highest priority for treatment in the Vegetation Treatment Program.

CASE STUDY– Community Pre-planning

Firewise Community in San Luis Obispo 2010-2013

Before Treatment

After Treatment

2010

In 2010, CAL FIRE began discussions with the Oak Shores Community Association (OSCA) General Manager about the hazardous fuel situation in and around the community. After assessing the situation, it was agreed that OSCA should apply to become a Fire Safe Council Focus Group in order to use San Luis Obispo County Community Fire Safe Council (FSCSLO) resources to help implement a fuel management program in cooperation with CAL FIRE. In early 2011 OSCA was accepted as a Focus Group in accordance with Fire Safe Council policies. OSCA immediately began working with CAL FIRE to establish priorities for the Hazardous Fuel Reduction Program, which was then successfully incorporated into the annual FSC Clearinghouse Grants process. 140 acres consisting primarily of OSCA open space parcels and the 2 ½ mile entry road (Oak Shores Drive) were identified as high risk areas in need of fuel removal or reduction.

In 2011, the OSCA Focus Group, through the efforts of the Fire Safe Council, received a grant to begin fuel modification work adjacent to the 2 ½ mile main entry road and within a 16 acre portion of the main drainage that divides the community into two areas. The work was performed by CAL FIRE Hand Crews from Cuesta Camp in San Luis Obispo. This initial phase of the project lasted 9 months.

In 2012, the OSCA Focus Group received additional funding to continue the second phase of the fuel reduction program priorities outlined in 2011. This work was also was done by CAL FIRE Hand Crews from Cuesta Camp. The methods used consisted of cutting/chipping and cutting/piling/burning. Concurrently, OSCA also started a yard waste disposal program allowing owners to bring their trimmings and debris to a common location with the intent of creating a burn pile. This effort was so successful and so much material accumulated that chipping was used to reduce the size of the pile while waiting for fire season to end.

In 2013, additional funding was awarded to complete the third phase of the projects outlined in 2011. As of January 2014, fuel treatment on 120 of the 140 acres identified by CAL FIRE as high fire hazard areas has been completed. This work was done on OSCA property and on adjacent property outside of the community. The support of CAL FIRE with the Cuesta Camp Crews and the financial support from the Fire Safe Council have allowed the Community to be able to continue with follow-up maintenance of this area now and into the future.

CASE STUDY– Pre-Attack Planning

The benefits of Pre-Attack Planning

July 16, 2012

On July 16, 2012 a wildfire started around 11:35 am at the intersection of Highway 58 and Pozo Road, 5-8 miles east of the town of Santa Margarita. The CAL FIRE San Luis Obispo Unit dispatched a full wildland fire response to the incident. The fire, which was burning in very rough terrain making access difficult for firefighters, eventually grew to 640 acres. Evacuations took place along Parkhill Road between Highway 58 and Seven Oaks Road. During the fire, the Parkhill Area pre-attack plan (developed by the San Luis Obispo County Fire Department, GIS Department) was used to efficiently deploy resources around the fire.

According to the Incident Commander, Battalion Chief Phil Veneris, the pre-attack plan allowed for everyone involved to be looking at the same operating plan. The pre-attack plan allowed firefighters to easily locate safety zones, staging areas, water sources, proposed dozer lines, hazards, and other important features. Additionally, all of the residences in the area had been checked and verified prior to the fire during the creation of the pre-attack plan allowing for a timely evacuation. The pre-attack plan enabled the IC to focus firefighting efforts in areas where control lines could easily and safely be held. Lastly, the ICS symbology of the maps allowed everyone to easily read and locate points of interest on the maps.

For firefighters stationed in the area, everyone had seen and gone over the pre-attack map, as well as having double-checked to ensure the map was correct. This allowed for faster deployment when the fire did start and created a safer operating area. Not only was the pre-attack plan useful in the fire, it has also been useful in search and rescue operations and vegetation management plans. The pre-attack plan has also been given to other agencies that are stationed in the area, in order for them to learn the best points around the area for holding a fire.

2.4.2 SUBSEQUENT REVIEW UNDER THE VTP

If the VTP is approved by the Board, CAL FIRE would begin the implementation and roll-out of the program. The first step in the implementation process would be for each of the CAL FIRE Units/Contract Counties to update their annual Unit Fire Management Plans/Contract County Strategic Fire Plans ("Unit Fire Plans") to identify vegetation treatment projects that are proposed for implementation and would be covered under the VTP. In general, the CAL FIRE Unit/Contract County staff would coordinate with private landowners and interested agencies to identify which projects would be implemented. While participation in the Vegetation Treatment Program is completely voluntary, the successful placement of projects will depend on the public's involvement. Unit Fire Plans also function as Community Wildfire Protection Plans (CWPP), and may contain all or some of projects outlined in smaller CWPPs throughout the Unit/Contract County. CWPPs have several requirements to guarantee public participation and sign-off in the creation of the plans, which ensures public input into the selection of VTP projects. Additional VTP projects may also be proposed through Fire Safe Councils or other community groups in coordination with the local Unit/Contract County. Consequently, the public feedback helps shape the location and type of vegetation treatment projects.

By incorporating proposed VTP projects into the Unit Fire Plans, the proposed project would be appropriately linked to the comprehensively planned fire prevention activities within the Unit's jurisdiction, providing enhanced fire suppression capabilities.

Once a Unit Fire Plan has identified proposed VTP projects, the CAL FIRE Unit/Contract County staff and the project proponent, together, would begin the project evaluation process by completing the VTP Project Scale Analysis (PSA). The purpose of the PSA would be to determine whether the environmental effects of the proposed VTP project were addressed in this Program EIR. The PSA also requires CAL FIRE to consider whether all applicable SPRs and mitigation measures identified in the Program EIR have been incorporated into the VTP project and whether additional mitigation would be necessary. This is also an opportune time for the project proponent to initiate the public workshop previously discussed for projects outside the WUI. The PSA will be completed after the public meeting. If the VTP project is being carried out by contract through a private landowner or other public or non-profit entity, the contract terms would require implementation of the applicable SPRs and mitigation measures and any Project Specific Requirements (PSRs) identified after completing the PSA. The PSA would document whether any specific permits from responsible and trustee agencies would be required. A copy of the VTP PSA is included in Chapter 7.

Once completed, the PSA would be submitted for three levels of review: Unit/Contract County review, Regional review, and Sacramento CEQA Coordinator review. The

Unit/Contract County review would focus on the project objectives, project scope, and proper use of the VTP PSA; the feasibility of the activities proposed; and whether the project has been appropriately included in the Unit Fire Plan. The CAL FIRE Region representative would review the PSA, confirm the project is within the scope of the Program EIR, and would determine if there are any areas where shared use of resources between Units could be coordinated. Finally, the Sacramento CEQA Coordinator review would provide the final determination of whether the proposed project is consistent with the Program EIR, whether supplemental environmental review in compliance with CEQA would be required, or whether the project does not qualify under the VTP Program EIR and separate environmental documentation would need to be prepared. If it is determined that the project falls within the scope of the Program EIR then no additional CEQA documentation would be required. The project would be implemented subject to the applicable SPRs, mitigation measures, PSRs, and permitting requirements identified for the project. At the conclusion of the project, a completion inspection would be completed by CAL FIRE staff. The completion inspection (i.e., monitoring) would evaluate if the vegetation management activities were completed in accordance with the authorized project plan. Follow up effectiveness or validation monitoring might also be performed on the project area after project implementation (See Figure 2.4-1 and Appendix I for additional information).

If it is determined that the proposed VTP project includes activities or chemicals that are substantially different from those evaluated in the Program EIR or that the VTP project may result in one or more new significant impacts not addressed in the Program EIR, the following actions may be taken:

- The project may be changed to avoid the potential impact.
- The project may be cancelled.
- Additional CEQA analysis, in the form of a mitigated negative declaration or supplemental or subsequent EIR, may be conducted to address the impacts and identify any feasible mitigation measures.
- An alternate environmental process may be engaged.

2.4.3 MONITORING AND ADAPTIVE MANAGEMENT

The VTP requires program elements that will aid in program implementation, help assess program effectiveness, and will provide feedback for adaptive decision-making. Required elements under the VTP include but are not limited to:

- A mechanism for introducing independent science into the VTP
- A requirement to geospatially track project implementation over time
- Implementation monitoring to provide a rapid feedback loop for corrective action at the project scale

- Qualitative project effectiveness monitoring to communicate “lessons learned” during VTP implementation
- Post-incident effectiveness monitoring
- An annual workshop in each CAL FIRE Region to communicate Program implementation, effectiveness, and “lessons learned” to stakeholders and provide this information to the State Board of Forestry & Fire Protection
- A process that will allow for stakeholder involvement in scoping for non-WUI related projects in southern California
- A goal to implement “active” adaptive management by securing dedicated funding for research effectiveness and validation monitoring

Implementing informal adaptive management will be a required element of the VTP until funding can be secured to employ more formal adaptive management strategies (ADM-3 and ADM-4). Further details on monitoring requirements and adaptive management are contained in Appendix I Monitoring and Communication.

CASE STUDY– Prescribed Fire Fuel Reduction

Winton Fire

September 9, 1999

California is prone to dry lightning in the late summer months. Lightning-caused fires can cost taxpayers millions of dollars because lightning often ignites multiple fires at one time in remote mountainous areas.

Lightning started the Winton Fire outside of the Stanislaus National Forest in Calaveras County on September 9,1999. When fire crews responded to the call, they already knew that as many as 40 homes could be threatened if they were unable to quickly contain it.

The work of those crews was made easier because of logging and prescribed fire projects that had been done in 1996 by Sierra Pacific Industries. Due to reduced fuel on the northwestern side of the fire, where a prescribed burn had been completed, the flames burned at a much lower intensity and spread slower. In addition, the main road used by fire personnel to access the head of the fire ran through this treated area. This allowed fire crews safe access and an escape route should they need one. Because of these factors, the Winton Fire Incident Commander was able to concentrate crews and equipment on more actively burning areas of the fire.

While one home and 115 acres were burned, fire commanders estimated that 40 homes and 300 acres of timber were saved due to the ability of the crews to quickly contain the fire. This is an example of how pre-fire planning and treatment saves homes, resources and money. One of the major benefits of the pre-fire efforts taken in this area was improved firefighter safety. Crews were able to safely access the Winton Fire from the west due to the prescribed fire cone earlier. It was not safe for crews to access the flames from any other side due to the high fire intensity in those areas.

2.4.4 FUNDING

Guidelines for the development of, and participation in, VTP projects would be similar to those used for CAL FIRE's existing Vegetation Management Program (VMP) (see Section 1.5.2 for a discussion) and CFIP (see Section 1.5.4 for a discussion) processes. CAL FIRE may share the costs of the project, accept liability in the case of an escaped fire, and suppress escaped fires. As described above, CAL FIRE, acting on behalf of private landowners, State Parks, and a variety of regional and local agencies, such as RCDs, local fire protection agencies, or Fire Safe Councils, may initiate VTP projects. Participants must be willing to:

- Enter into a contract with CAL FIRE to implement the project.
- Assume and guarantee payment of a proportionate share of the project in cases where cost sharing is required.
- Develop or direct completion of a treatment plan.
- Assume any monitoring requirements for a specific VTP project.

Assistance for project funding would be dependent on the availability of funds and consistency with the objectives of the VTP. It is expected that projects utilizing this Program EIR would be funded through grants or other cost-share agreements. CAL FIRE would evaluate the relationship between public and private benefits to determine the basis for any cost-sharing agreement. Projects that benefit only individual private landowners would receive the least assistance, while projects that emphasize public benefits would receive the most assistance. For instance, CAL FIRE would not fund the portion of a fuel reduction project that is required by regulation (e.g., PRC 4291 to provide defensible space around dwellings) and which would not provide protection to a community at large or other high-value resources. Conversely, CAL FIRE would provide a larger proportion of funding for projects that benefit the public, such as reducing fuel hazards to protect communities and high-value resources or areas that CAL FIRE has designated as high priority areas in Unit Fire Plans.

The *2010 Strategic Fire Plan for California* and the California Department of Forestry & Fire Protection *2012 Strategic Fire Plan* both identify the goals of cultivating and strengthening relationships with stakeholders, governing bodies, cooperators and the Public (Board, 2010 & CAL FIRE, 2012). As a result, there has been coordinating efforts to acknowledge the benefits of vegetation treatments with a variety of stakeholders including but not limited to federal, state and local government agencies and non-governmental organizations. Through the use of MOUs or other mechanisms such as grants, funding may be provided from other cooperating stakeholders. Depending on the project types and funding restrictions, the VTP may help bridge the ground work and provide an ecological evaluation of vegetation treatment on SRA land.

The VTP does not include projects that would cut or remove timber or other solid wood products from timberlands for commercial purposes (as defined by PRC 4527). These projects require a Timber Harvesting Plan (THP), Non-industrial Timber Management Plan (NTMP), or other Program Timber Harvesting Plan (PTHP).

Regardless of the funding, all projects would be reviewed with the same level of detail as described above. (Section 2.4.2 Subsequent Review under the VTP)

2.5 PROJECT REQUIREMENTS

The VTP provides a reasonable and environmentally protective approach to prioritizing, assessing, designing, and implementing vegetation treatment projects. Requirements (e.g., best management practices) related to program and project design and implementation would be based on constraining biotic and abiotic factors, landowner goals, and the types of vegetation manipulation activities needed to implement the three treatment types, and applicable environmental laws and regulations. Requirements common to all projects are known as Standard Project Requirements (SPRs), whereas site-specific requirements are known as project specific requirements (PSRs).

2.5.1 STANDARD PROJECT REQUIREMENTS AND MITIGATIONS

Standard project requirements (SPR) are program design elements for reducing or avoiding adverse environmental effects of the treatment activities that are set by the VTP and applied to individual projects. SPRs apply to all projects governed by the VTP. SPRs are a collection of standard operating procedures, Best Management Practices, and known regulatory requirements related to project implementation and oversight that help protect the environment. The analysis within Chapter 4 identified the following SPRs:

Table 2.5-1 Standard Project Requirements Reference Location

Standard Project Requirements (SPR) Reference Location					
SPR	Reference Section	SPR	Reference Section	SPR	Reference Section
ADM-1	4.2.3.1, 4.6.3.1	CC-1	4.14.3	HYD-1	4.3.3.1, 4.2.3.1
ADM-2	4.2.3.1, 4.6.3.1	CC-2	4.14.3	HYD-2	4.3.3.1, 4.2.3.1
ADM-3	2.4.3	CC-3	4.14.3	HYD-3	4.3.3.1, 4.2.3.1
ADM-4	2.4.3	CC-4	4.14.3	HYD-4	4.3.3.1, 4.2.3.1
ADM-5	4.1.5.2	CUL-1	4.6.3.1	HYD-5	4.3.3.1, 4.2.3.1
ADM-6	4.3.3.1	CUL-2	4.6.3.1	HYD-6	4.3.3.1, 4.2.3.1
ADM-7	2.3, 4.1.2	CUL-3	4.6.3.1	HYD-7	4.3.3.1, 4.2.3.1
ADM-8	2.4.1	CUL-4	4.6.3.1	HYD-8	4.3.3.1, 4.2.3.1
AES-1	4.13.3	CUL-5	4.6.3.1	HYD-9	4.3.3.1, 4.2.3.1
AIR-1	4.12.3	FBE-1	4.36.2.2, 4.4.2.3	HYD-10	4.3.3.1, 4.2.3.1
AIR-2	4.12.3		4.6.2.5, 4.14.2.3	HYD-11	4.3.3.1, 4.2.3.1
AIR-3	4.12.3	FBE-2	4.3.2.2, 4.14.2.2	HYD-12	4.3.3.1, 4.2.3.1
AIR-4	4.12.3	FBE-3	4.3.2.2, 4.6.2.5	HYD-13	4.3.3.1, 4.2.3.1
AIR-5	4.12.3	FBE-4	4.4.2.3	HYD-14	4.3.3.1, 4.2.3.1
AIR-6	4.12.3	GEO-1	4.3.3	HYD-15	4.3.3.1, 4.2.3.1
AIR-7	4.12.3	GEO-2	4.3.3	HYD-16	4.3.3.1, 4.2.3.1
AIR-8	4.12.3	HAZ-1	4.4.3	HYD-17	4.3.3.1, 4.2.3.1
AIR-9	4.12.3	HAZ-2	4.4.3	NSE-1	4.7.3
AIR-10	4.12.3	HAZ-3	4.4.3	NSE-2	4.7.3
AIR-11	4.12.3	HAZ-4	4.4.3	NSE-3	4.7.3
AIR-12	4.12.3	HAZ-5	4.4.3	NSE-4	4.7.3
MM AIR-1	4.12.3	HAZ-6	4.4.3	NSE-5	4.7.3
BIO-1	4.2.3.1	HAZ-7	4.4.3	TRA-1	4.10.3
BIO-2	4.2.3.1	HAZ-8	4.4.3	TRA-2	4.10.3
BIO-3	4.2.3.1	HAZ-9	4.4.3		
BIO-4	4.2.3.1	HAZ-10	4.4.3		
BIO-5	4.2.3.1	HAZ-11	4.4.3		
BIO-6	4.2.3.1	HAZ-12	4.4.3		
BIO-7	4.2.3.1	HAZ-13	4.4.3		
BIO-8	4.2.3.1	HAZ-14	4.4.3		
BIO-9	4.2.3.1				
BIO-10	4.2.3.1				
BIO-11	4.2.3.1				
BIO-12	4.2.3.1				
BIO-13	4.2.3.1				

Administrative Standard Project Requirements

ADM-1: Prior to the start of operations, the project coordinator shall meet with the contractor to discuss all resources that must be protected using standard project requirements (SPRs). If burning operations are done with CAL FIRE personnel, the Battalion Chief and/or their Company Officer designee shall meet with the project

coordinator onsite prior to operations to discuss resource protection measures. Additionally, the project coordinator shall specify the resource protection measures and details of the burn plan in the incident action plan (IAP) and shall attend the pre-operation briefing to provide further information.

ADM-2: All protected resources shall be flagged, painted or otherwise marked prior to the start of operations by someone knowledgeable of the resources at risk, their location, and the applicable protection measures to be applied. This work shall be performed by a Registered Professional Forester (RPF), or his/her supervised designee, for any project in a forested landscape as defined in PRC § 754.

ADM-3: The project coordinator or designee shall monitor SPR implementation (and effectiveness in some cases) as an adaptive management tool. If a SPR does not perform adequately to protect the specified resource, the project coordinator will determine adaptation strategies, in coordination with the contractor and/or CAL FIRE personnel, and require their implementation.

ADM-4: If monitoring is necessary (e.g., effectiveness monitoring), the project coordinator or designee shall notify the party responsible for monitoring a minimum of three weeks in advance of operations. More advanced notification is encouraged from project coordinators to parties responsible for more rigorous monitoring activities.

ADM-5: All ground disturbing treatment activities, including land clearing and bull dozer line construction, shall be suspended when a red flag warning is issued by the local National Weather Service office.

ADM-6: The project coordinator or designee shall consult with the USFS, CAL FIRE, or other public agencies as appropriate to develop a list of past, current, and reasonably foreseeable probable future projects within the planning watershed of the proposed project. If the total combined acreage disturbed in the planning watershed exceeds 20% in a 10-year period, compliance with HYD-16 must be met prior to any ground disturbing operations. Projects that may combine with VTP projects to create the potential for significant effects include, but are not limited to, controlled burning, fuel reduction, and commercial timber harvesting.

ADM-7: The Sacramento Program manager shall track the annual and 10-year average annual acreage treated by the VTP, by bioregion. If the acreage treated within any bioregion exceeds 110 percent of the yearly amounts as identified in Table 2.3-1, the Program manager will notify the affected CAL FIRE Units that any additional projects submitted within that bioregion fall outside of the scope of analysis by this PEIR and additional CEQA analysis will be required. Additional CEQA analysis, such as a mitigated negative declaration, shall assess the cumulative impacts of the proposed project and identify any additional project constraints that may be necessary to mitigate

these to less than significant. Additional CEQA analysis may be tiered off this PEIR when the proposed project is otherwise consistent with the VTP.

ADM-8: During the project planning phase, the project proponent will provide a public workshop for projects outside of the WUI. A public notice will be advertised in a local newspaper. The notification will be used to inform stakeholders and to solicit information on the potential for significant impacts during the project planning phase.

Aesthetics-Related Standard Project Requirements

AES-1: See **BIO-5** for shrublands in San Diego, Imperial, Riverside, Orange, Los Angeles, Ventura, Santa Barbara, and San Bernardino counties.

Air Quality-Related Standard Project Requirements

AIR-1: The project shall comply with all local, state, and federal air quality regulations and ordinances. The local Air Pollution Control District (APCD) or Air Quality Management District (AQMD) will be contacted to determine local requirements.

AIR-2: Prior to approval of an CAL FIRE Unit project under the VTP, the project coordinator shall model the project's Criteria Air Pollutant (CAP) emissions and compare the projected emissions levels to the thresholds identified by the local air district. If emissions levels exceed air district thresholds, consultation of the air district will occur.

AIR-3: In accordance with CCR Section 80160(b), all burn prescriptions shall require the submittal of a smoke management plan for all projects greater than 10 acres or are estimated to produce more than 1 ton of particulate matter. Burning shall only be done in compliance with the burn authorization program of the local air district having jurisdiction over the project area. Example of a smoke management plan is in Appendix J.

AIR-4: Fire emissions and fire behavior shall be planned, predicted, and monitored in accordance with SPRs FBE-1, FBE-2, and FBE-3 with the goal of minimizing air pollutant emissions.

AIR-5: Dust control measures shall be implemented in accordance with SPRs Hyd-9 with the goal of minimizing fugitive dust emissions.

AIR-6: The speed of activity-related trucks, vehicles, and equipment traveling on dirt areas shall be limited to 15 miles per hour (mph) to reduce fugitive dust emissions.

AIR-7: In areas where sufficient water supplies and access to water is available, all visible dust, silt, or mud tracked-out on to public paved roadways as a result of project

treatment activities shall be removed at the conclusion of each work day, or at a minimum of every 24 hours for continuous fire treatment activities.

AIR-8: Ground-disturbing treatment activities, including land clearing and bull dozer lines, shall be suspended when there is a visible dust transport outside the project boundary.

AIR-9: Ground-disturbing treatment activities shall not be performed in areas identified as “moderately likely to contain naturally occurring asbestos (NOA)” according to maps and guidance published by the California Geological Survey (CGS), unless an Asbestos Dust Control Plan is prepared by the Operational Unit and approved by the air district(s) with jurisdiction over the project site. This determination would be based on a CGS publication titled *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos* (Churchill and Hill 2000), or whatever more current guidance from CGS exists at the time the VTP project is evaluated. Any NOA-related guidance provided by the applicable local air district shall also be followed. If it is determined that NOA could be present at the project site, then an Asbestos Dust Control Plan shall be prepared and implemented in accordance with Title 17 of the Public Health CA Code of Regulations of Section 93105.

AIR-10: Operation of each large diesel- or gasoline-powered activity equipment (i.e., greater than 50 horsepower [hp]) shall not exceed 16 equipment-hours per day, where an equipment-hour is defined as one piece of equipment operating for one hour (daily CAPs, TACs, GHGs).

AIR-11: All diesel- and gasoline-powered equipment shall be properly maintained according to manufacturer's specifications, and in compliance with all state and federal emissions requirements. Maintenance records shall be available for verification.

AIR-12: A CAL FIRE Unit shall not conduct more than five simultaneous VTP activities on any day within an air district when multiple units reside within the same air district boundary. When a single CAL FIRE Unit resides within an air district boundary, one day total activity emission estimates will not exceed the current air district’s Threshold of Significance. No more than one of these projects shall be a prescribed burn, unless additional prescribed burns have been approved by the local air district having authority over the project area.

Mitigation Measure AIR-1

To achieve compliance with local air district emission thresholds in the San Joaquin Valley Unified Air Quality Management District, simultaneous projects within that air district will be constrained to an appropriate number as not to exceed air quality standards. As a result, the Program shall implement the following:

- CAL FIRE shall not allow more than seven simultaneous treatment activities to occur in the San Joaquin Valley Unified Air Quality Management District, regardless of the number of CAL FIRE units in the district.

Biological Standard Project Requirements

BIO-1: Projects shall be designed to avoid significant effects and avoid take of special status species as defined in the glossary as a plant or animal species that is listed as rare, threatened, or endangered under Federal law; or rare, threatened, endangered, candidate, or fully protected under State law; or as a sensitive species by the California Board of Forestry and Fire Protection.

BIO-2: The project coordinator shall run a nine-quad search or larger search area (may be required if a project is on the boundary of two USGS quad maps) of the area surrounding the proposed project for special status species, using at a minimum, the California Natural Diversity Database (CNDDB) or its successor (e.g., DFW's Vegetation Classification and Mapping Program, VegCAMP).

BIO-3: The project coordinator shall write a summary of all special status species identified in the biological scoping including the CNDDB search with a preliminary analysis, identifying which species would be affected by the proposed project. A field review will then be conducted by the project coordinator to identify the presence or absence of any special status species, or appropriate habitat for special status species, within the project area.

BIO-4: The project coordinator shall ensure that a CAL FIRE Environmental Coordinator analyze impacts to any species identified in a CNDDB or BIOS search and shall submit the summary and preliminary analysis to the CDFW, USFWS, and [if applicable] NOAA Fisheries for consultation. The preliminary analysis shall be accompanied with a standard letter containing the following:

- A written description of the project location and boundaries.
- Brief narrative of the project objectives.
- A description of the types of activities used in the project (e.g., prescribed burning; mastication) and associated acreages.
- A project and general location map. Project map shall be of sufficient scale to indicate the spatial extent of activities within the project area.
- The output from the CNDDB run, including a map of any special status species located during the field review, and the SPRs that will be implemented to minimize impacts on the identified special status species.
- A request for information regarding the presence and absence of special status species, including any applicable HCPs, in the project vicinity, and potential take

avoidance measures to be implemented as PSRs.
- An offer to schedule a day to visit the project area with the project coordinator.

BIO-5: Vegetation treatment projects that are not deemed necessary to protect critical infrastructure or forest health in San Diego, Imperial, Riverside, Orange, Los Angeles, Ventura, Santa Barbara, Kern, and San Bernardino counties shall:

- Be designed to prevent vegetation type conversion.
- Not take place in vegetation that has not reached the age of median fire return intervals.
- Not re-enter treatment areas for maintenance in an interval shorter than the median fire return interval outside of the wildland urban interface and excluding fuel break maintenance.
- Not take place in old-growth chaparral without consultation regarding the potential for significant impacts with the CDFW and the CNPS.
- Take into account the local aesthetics, wildlife, and recreation of the shrub-dominated subtype during the planning and implementation of the project.
- During the project planning phase provide a public workshop or public notice in a newspaper that is circulated locally describing the proposed project during the project planning phase for projects outside of the WUI. The notification will be used to inform stakeholders and to solicit information on the potential for significant impacts during the project planning phase.

BIO-6: In shrublands containing native oaks, treatments may incorporate retention of older, acorn producing oaks to create deer forage. CAL FIRE or applicants may plant other vegetation to promote species diversity and improve wildlife habitat when such practices are not in conflict with program goals.

BIO-7: Unless otherwise directed by CDFW, a minimum 50 foot avoidance buffer shall be established around any special status animal, nest site, or den location and a minimum 15 foot avoidance buffer shall be established around any special status plant within the project area. Additional buffer distances may be required through consultation with the appropriate State or Federal agencies, or a qualified biologist to avoid significant effects to special status species (see BIO-4).

BIO-8: In order to reduce the spread of new invasive plants, only certified weed-free straw and mulch shall be used.

BIO-9: During the planning phase, if the project coordinator determines that there is a significant risk of introducing invasive plants, then project specific mitigation measures shall be developed using principles outlined in the document “Preventing the Spread of

Invasive Plants: Best Management Practices for Land Managers (3rd edition)" or other relevant documents. Coordination of mitigation measures will also include consultation with CDFW.

BIO-10: If water drafting becomes a necessary component of the proposed project, drafting sites shall be planned to avoid adverse effects to special status aquatic species and associated habitat, in-stream flows, and depletion of pool habitat. Screening devices shall be used for water drafting pumps, and pumps with low entry velocity shall be used to minimize removal of aquatic species, including juvenile fish, amphibian egg masses, and tadpoles, from aquatic habitats.

BIO-11: Aquatic habitats and species shall be protected through the use of watercourse and lake protection zones (WLPZ), as described in California Forest Practice Rules (14 CCR Chapters 4, 4.5, and 10). Other operational restrictions may be identified through consultation with CDFW and RWQCB (see BIO-4). See HYD-3 for these standard protection measures.

BIO-12: For projects that require a non-construction-related CDFW Streambed Alteration Agreement, any BMPs identified in the agreement shall be developed and implemented.

BIO-13: If any special status species are identified within the project area, an onsite meeting shall occur between the project coordinator and operating contractor. At this meeting the project manager shall conduct a brief review of life history, field identification, and habitat requirements for each special status species, their known or probable locations in the vicinity of the treatment site, project specific requirements or avoidance measures, and necessary actions if special status species or sensitive natural communities are encountered.

Climate Change-Related Standard Project Requirements

CC-1: Prior to approval of a Unit project under the VTP, the project coordinator shall run the FOFEM, and/or other GHG-emissions models, as appropriate to the treatment activity, to confirm that GHG emissions will be the minimum necessary to achieve risk reduction objectives.

CC-2: Carbon sequestration measures shall be implemented per SPRs BIO-5 and BIO-6 to reduce total carbon emissions resulting from the treatment activity.

CC-3: Treatment activity-related air pollutant emission control measures for prescribed burns shall be implemented in accordance with SPRs AIR-3 and AIR-4.

CC-4: Treatment activity-related air pollutant emission control measures for equipment operation hours, practices, and maintenance shall be implemented in accordance with SPRs AIR-11 and AIR-12.

Archaeology and Cultural Resources-Related Standard Project Requirements

CUL-1: The project coordinator or designee shall order a current records check as per the most current edition of "Archaeological Review Procedures for CAL FIRE Projects" (CAL FIRE, 2010, see Appendix H). The project coordinator may contact landowners within the project area who might have already conducted a records check for a Timber Harvest Plan or other project on their land to limit costly redundant records searches. Records checks must be less than five years old at the time of project submission.

CUL-2: Using the latest Native Americans Contact List from the CAL FIRE website, the project coordinator or designee shall send all Native American groups in the counties where the project is located a standard letter notifying them of the project. The letter shall contain the following:

- A written description of the project location and boundaries.
- Brief narrative of the project objectives.
- A description of the types of activities used in the project (e.g., prescribed burning, mastication) and associated acreages.
- A project and general location map. Project map shall be of sufficient scale to indicate the spatial extent of activities within the project area.
- A request for information regarding potential cultural impacts from the proposed project.

CUL-3: The project coordinator or designee shall contact a CAL FIRE Archaeologist or CAL FIRE Certified Archaeological Surveyor to arrange for a survey of the project area if necessary. The specific requirements need to comply with the most current edition of "Archaeological Review Procedures for CAL FIRE Projects" (CAL FIRE, 2010).

CUL-4: Protection measures for archaeological and cultural resources shall be developed through consultation with a CAL FIRE archeologist. If new archaeological sites are discovered, the project coordinator or designee shall notify Native American groups of the resource and the protection measure with the standard second letter (see Appendix H). Locations of archaeological resources should not be disclosed on a map to the members of the public, including Native American groups.

CUL-5: If an unknown site is discovered during project operations, operations within 100 feet of the identified boundaries of the new site shall immediately halt, and the project will avoid any more disturbances. A CAL FIRE Archaeologist shall be contacted for an evaluation of the significance of the site. In accordance with the California Health

and Safety Code, if human remains are discovered during ground disturbing activities, CAL FIRE and/or the project contractor(s) shall immediately halt potentially damaging activities in the area of the burial and notify the County Coroner and a qualified professional archaeologist to determine the nature and significance of the remains.

Fire Behavior-Related Standard Project Requirements

FBE-1: The prescribed fire burn prescription shall be designed to initiate a surface fire of sufficient intensity that will only consume surface and ladder fuels. The prescribed fire burn prescription shall be designed and implemented to protect soil resources from direct soil heating impacts. Soil damage will not occur as a result of this project.

FBE-2: A burn plan shall be created using the burn plan template. The burn plan shall include a fire behavior model output of BEHAVE or other fire behavior modeling simulation and performed by a fire behavior technical specialist (S-490 qualified). The burn plan shall be created with input from the vegetation project's Battalion Chief and a fire behavior technical specialist (S-490 qualified).

FBE-3: The project coordinator shall run a First Order Fire Effects Model (FOFEM) to analyze fire effects. The results of the analysis shall be included with the Burn Plan. FOFEM calculates consumption of fuels, tree mortality, predicted emissions, GHG emissions, and soil heating.

FBE-4: Approximately two weeks prior to commencement of prescribed burning operations the project coordinator shall 1) post signs along the closest major road way to the project area describing the project, timing, and requesting for smoke sensitive persons in the area to contact the project coordinator; 2) publish a public interest notification in a local newspapers describing the project, timing, and requesting for smoke sensitive persons in the area to contact the CAL FIRE project coordinator; 3) send the local county supervisor a notification letter describing the project, its necessity, timing, and summarize the measures being taken to protect the environment and prevent escape; and 4) develop a list of smoke sensitive persons in the area and contact them prior to burning.

Geologic Standard Project Requirements

GEO-1: An RPF or licensed geologist shall assess the project area for unstable areas and unstable soils as per 14 CCR 895.1 of the California Forest Practice Rules. Guidance on identifying unstable areas is contained in the California Licensed Foresters Association *Guide to Determining the Need for Input From a Licensed Geologist During THP Preparation* and California Geological Survey (CGS) Note 50 (see Appendix C). Priority will be placed on assessing watercourse-adjacent slopes greater than 50%. If unstable areas or soils are identified within the project area, are unavoidable, and are

potentially directly or indirectly affected by the project operations, a licensed geologist (P.G. or C.E.G.) shall conduct a geologic assessment to determine the potential for project-induced impacts and mitigation strategies. Project shall incorporate all of the recommended mitigations. Geologic reports should cover the topics outlined in CGS Note 45 (see Appendix C).

GEO-2: The potential impacts of prescribed fire on geologic processes shall be reduced by following the Fire Behavior-related SPRs FBE-1, FBE-2, and FBE-3.

Hazards and Hazardous Material-Related Standard Project Requirements

HAZ-1: Prior to the start of vegetation treatment activities, the project coordinator shall conduct an Envirofacts web search to identify any known contamination sites within the project area. If a proposed vegetation treatment project occurs in areas located on the DTSC Cortese List, no activities shall occur within 100 feet of the site boundaries.

HAZ-2: Prior to the start of vegetation treatment activities, the project coordinator or contractor shall inspect all equipment for leaks and regularly inspect thereafter until equipment is removed from the site.

HAZ-3: Prior to the selection of treatment activities, CAL FIRE shall determine if there are viable, cost-effective, non-herbicide treatment activities that could be implemented prior to the selection of herbicide treatments.

HAZ-4: Prior to the start of herbicide treatment activities, the project coordinator shall prepare a Spill Prevention and Response Plan (SPRP) to provide protection to onsite workers, the public, and the environment from accidental leaks or spills of herbicides, adjuvants, or other potential contaminants. This plan shall include (but not be limited to):

- A map that delineates VTP staging areas, where storage, loading, and mixing of herbicides will occur
- A list of items required in a spill kit onsite that will be maintained throughout the life of the project
- Procedures for the proper storage, use, and disposal of any herbicides, adjuvants, or other chemicals used in vegetation treatment

HAZ-5: If remediation of hazardous contamination is needed, the project coordinator shall hire a licensed contractor with expertise in performing such work. The contractor shall comply with all laws and regulations governing worker safety and the removal and disposal of any contaminated material.

HAZ-6: All pesticide use shall be implemented consistent with Pest Control recommendations prepared annually by a licensed Pest Control Advisor.

HAZ-7: All appropriate laws and regulations pertaining to the use of pesticides and safety standards for employees and the public, as governed by the U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, and local jurisdictions shall be followed. All applications shall adhere to label directions for application rates and methods, storage, transportation, mixing, and container disposal. All contracted applicators shall be appropriately licensed by the state. The project coordinator shall coordinate with the County Agricultural Commissioners, and all required licenses and permits shall be obtained prior to pesticide application.

HAZ-8: Projects shall avoid herbicide treatment in areas adjacent to water bodies and riparian areas. Application of herbicides shall be outside the WLPZ and ELZ as specified in HYD-3, or at the distances set forth in the herbicide label requirements, whichever is greater. No aerial spraying of herbicides shall occur under this Program EIR.

HAZ-9: The following general application parameters shall be employed during herbicide application:

- Application shall cease when weather parameters exceed label specifications, when sustained winds at the site of application exceeds seven miles per hour (MPH), or when precipitation (rain) occurs or is forecasted with greater than a 40 percent probability in the next 24-hour period to prevent sediment and herbicides from entering the water via surface runoff
- Spray nozzles shall be configured to produce a relatively large droplet size
- Low nozzle pressures (30-70 pounds per square inch [PSI]) shall be observed
- Spray nozzles shall be kept within 24 inches of vegetation during spraying

Drift avoidance measures shall be used to prevent drift in locations where target weeds and pests are in proximity to special status species or their habitat. Such measures can consist of, but would not be limited to, the use of plastic shields around target weeds and pests and adjusting the spray nozzles of application equipment to limit the spray area.

HAZ-10: All herbicide and adjuvant containers shall be triple rinsed with clean water at an approved site, and the rinsate shall be disposed of by placing it in the batch tank for application per 3 CCR § 6684. Used containers shall be punctured on the top and bottom to render them unusable, unless said containers are part of a manufacturer's container recycling program, in which case the manufacturer's instructions shall be followed. Disposal of non-recyclable containers will be at legal dumpsites. Equipment would not be cleaned and personnel would not bathe in a manner that allows contaminated water to directly enter any body of water within the treatment areas or adjacent watersheds. Disposal of all pesticides shall follow label requirements and local waste disposal regulations.

HAZ-11: Storage, loading and mixing of herbicides shall be set back at least 150 feet from any aquatic feature or special status species or their habitat or sensitive natural communities.

HAZ-12: Appropriate non-toxic colorants or dyes shall be added to the herbicide mixture where needed to determine treated areas and prevent over-spraying.

HAZ-13: For treatment activities located within or adjacent to public recreation areas, signs shall be posted at each end of herbicide treatment areas and any intersecting trails notifying the public of the use of herbicides. The signs shall consist of the following information: signal word, product name, and manufacturer; active ingredient; EPA registration number; target pest; treatment location; date and time of application; date which notification sign may be removed; and contact person with telephone number. Signs shall be posted at the start of treatment and notification will remain in place for 72 hours after treatment ceases.

HAZ-14: All heavy equipment shall be required to include spark arrestors or turbo chargers that eliminate sparks in exhaust and have fire extinguishers onsite.

Hydrologic and Water Quality-Related Standard Project Requirements

HYD-1: The project shall comply with all applicable water quality requirements adopted by the appropriate Regional Water Quality Control Board and approved by the State Water Board (i.e., Basin Plan).

HYD-2: During the planning phase the project coordinator shall submit a standard letter to the appropriate RWQCB containing the following:

- A written description of the project location and boundaries.
- Brief narrative of the project objectives.
- A description of the types of activities used in the project (e.g., prescribed burning, mastication) and associated acreages.
- A project and general location map. Project map shall be of sufficient scale to indicate the spatial extent of activities within the project area.
- Notification of whether the project drains directly into an impaired water body, and the type of water quality constituent(s) that is impairing the water body.
- A request for information and recommendations regarding the potential for significant water quality impacts from the proposed project and an offer to schedule a day to visit the project area with the project coordinator. The project shall incorporate the recommendations that prevent significant impacts to water quality as PSRs.

HYD-3: A WLPZ shall be established on each side of all Class I and II watercourses that is equal to the standard widths specified in the current California Forest Practice Rules (Table 2.5-2). Fifty foot equipment limitation zones (ELZs) shall be established for

Class III watercourses. Vegetation within the WLPZ or ELZ will not be disturbed by project activities, with the exception of backing prescribed fire. Class IV watercourse protections shall be PSRs specified in the PSA, and designed in conjunction with any recommendations from RWQCB staff.

Table 2.5-2 Watercourse and lake protection zone buffer widths by watercourse classification and hill slope gradient (See HYD -3)

Note: ELZ-Equipment Limitation Zone, PSR-Project Specific Requirement

Water Class Characteristics or Key Indicator / Beneficial Use	1)Domestic supplies, including springs, on site and/or within 100 feet downstream of the project area and/or 2) Fish always or seasonally present onsite, includes habitat to sustain fish migration and spawning	1) Fish always or seasonally present offsite within 1000 feet downstream and/or 2) Aquatic habitat for non-fish aquatic species. 3) Excludes Class III water that are tributary to Class I waters	No aquatic life present, watercourse showing evidence of being capable of sediment transport to Class I and II water under normal high water flow conditions of timber operations	Man-made watercourses, usually downstream, established domestic, agricultural, hydroelectric supply or other beneficial use
Water Class	Class I	Class II	Class III	Class IV
Slope Class (%)	Width (ft.)	Width (ft.)	Width (ft.)	Width
<30	75	50	50 (ELZ)	PSR
30-50	100	75	50 (ELZ)	PSR
>50	150	100	50 (ELZ)	PSR

HYD-4: No direct ignition shall be allowed within the WLPZ or ELZs. However, it is acceptable for a fire to enter or back into a WLPZ's or ELZ's.

HYD-5: Compacted and/or bare linear treatment areas (e.g., fire breaks, roads, or trails) capable of generating storm runoff shall be drained via water breaks using the spacing guidelines contained in Sections 914.6, 934.6, and 954.6(c) of the California Forest Practice Rules.

HYD-6: Compacted and/or bare treatment areas shall be drained such that they are hydrologically disconnected from watercourses or lakes. Measures to hydrologically disconnect these areas shall be guided by consulting with Technical Rule Addendum #5 of the California Forest Practice Rules – Guidance on Hydrologic Disconnection, Road Drainage, Minimization of Diversion Potential, and High Risk Crossings

HYD-7: No high ground pressure vehicles shall be driven through project areas when soils are wet and saturated to avoid compaction and/or damage to soil structure. Saturated soil means that soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur. Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing material during timber operations, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without blading wet soil or surfacing materials.

HYD-8: For remaining hydrologically connected areas of compacted or bare linear treatment areas, disturbed areas will be mulched with onsite native vegetative material (e.g., cut material).

HYD-9: During dry, dusty conditions, unpaved roads shall be wetted using water trucks or treated with a non-toxic chemical dust suppressant (e.g., emulsion polymers, organic material). Any dust suppressant product used shall be environmentally benign (i.e., non-toxic to plants and shall not negatively impact water quality) and its use shall not be prohibited by the ARB, U.S. Environmental Protection Agency (EPA), or the State Water Resources Control Board. Exposed areas shall not be over-watered such that water results in runoff. The type of dust suppression method shall be selected by the contractor based on soil, traffic, site-specific conditions, and local air quality regulations.

HYD-10: Prior to the start of onsite activities, all equipment will be inspected for leaks and regularly inspected thereafter until equipment is removed from the project area. All contaminated water, sludge, spill residue, or other hazardous compounds will be contained and disposed of outside the boundaries of the site, at a lawfully permitted or authorized destination.

HYD-11: Staging areas shall be designated and located to prevent leakage of oil, hydraulic fluids, or other chemicals into watercourses or lakes.

HYD-12: All heavy equipment parking, refueling, and service shall be conducted within designated areas outside of the WLPZ or ELZ.

HYD-13: No new roads (including temporary roads) shall be constructed or reconstructed (reconstruction is defined as cutting or filling involving less than 50 cubic yards/0.25 linear road miles). Existing roads, skid trails, fire lines, fuel breaks, etc. that require reopening or maintenance shall have drainage facilities applied at the conclusion of the project that are at least equal to those of the California Forest Practice Rules.

HYD-14: Heavy equipment is prohibited on slopes exceeding 65 percent or on slopes greater than 50 percent where the erosion hazard rating is high or extreme. Heavy equipment is prohibited on slopes greater than 50 percent that lead without flattening to watercourses.

HYD-15: Burn piles shall not exceed 20 feet in length, width, or diameter, except when on landings, road surfaces, or on contour.

HYD-16: At the CalWater Planning Watershed scale, if the combined, appropriately-weighted acreage subjected to fuels treatments and logging exceed 20% of the watershed area within a 10-year timespan (see Appendix K for calculation procedures); an analysis will be performed to determine the potential for hydrologically-induced significant impacts of the proposed activity.

HYD-17: If herbivory is proposed to treat vegetation in a project area containing watercourses, then the following items must be addressed as PSRs:

- The project will require water on site in the form of an on-site stock pond outside the WLPZ or ELZ, or a portable water source located outside the WLPZ or ELZ.
- The project will specify animal containment measures in the PSA to prevent animals from entering the WLPZ and/or ELZs. These might include the use of fencing (i.e., fixed or portable), the use of guard or herd dogs, or the use of an on-site herder.

Noise-Related Standard Project Requirements

NSE-1: All powered equipment shall be used and maintained according to manufacturer's specifications.

NSE-2: Equipment engine shrouds shall be closed during equipment operation.

NSE-3: All heavy equipment and equipment staging areas shall be located as far as possible from nearby noise-sensitive land use (e.g., residential land uses, schools, hospitals, places of worship).

NSE-4: All motorized equipment shall be shut down when not in use. Idling of equipment or trucks shall be limited to 5 minutes.

NSE-5: Public notice of the proposed project shall be given to notify noise-sensitive receptors of potential noise-generating activities.

Traffic-Related Standard Project Requirements

TRA-1: Public road ways leading into project area shall be signed to warn traffic of the project activities that are taking place. Road signage shall be posted the morning prior

to the commencement of burning operations and shall remain until all operations are completed.

TRA-2: Direct smoke and dust impacts to roadway visibility and the indirect distraction of operations shall be considered during burning operations. Traffic control operations shall be implemented if weather conditions inhibiting smoke and dust dispersion have the potential to impact roadway visibility to motorists.

2.5.2 PROJECT SPECIFIC REQUIREMENTS

Projects may require additional measures to protect the environment based on site-specific conditions and consultation with affected regulatory agencies and/or stakeholders. These additional measures are known as Project Specific Requirements (PSRs) mitigations, and will be discussed narratively in the body of the VTP PSA. PSRs will also be placed into contract language so that they are properly implemented during project operations.

2.6 AREAS OF CONTROVERSY

Section 15123(b) of the State CEQA Guidelines requires that an EIR identify areas of controversy known to the lead agency, including issues raised by agencies and the public. The following are areas of controversy known to CAL FIRE:

- Air quality impacts from prescribed burning
- Cumulative impacts to chaparral communities from program treatments and wildfires
- Impacts to water quality, biological resources, and human health
- Impacts to geological features and soil erosion
- Inclusion of herbicide applications as a Program activity
- Introduction or spread of invasive plants
- Potential for loss of life, property, and resource values due to escaped prescribed fire
- Impact to climate change and greenhouse gases Ability to address the ecological and social complexities of the state in a single Program
- Impacts to cultural resources

These areas of known controversy will be addressed through the implementation of the SPRs, PSRs, and mitigation measures.

CASE STUDY– Shaded Fuel Break

West Fire and Critical Defensible Space Lessons

July 28, 2010

The West Fire started on July 28, 2010 at 14:14 hours in Kern County. The fire was human caused and started along Blackburn Canyon Road 3 miles south of Highline Road. First arriving units reported a fast moving vegetation fire 1-2 acres in size with an immediate structure threat. Within the first 15 minutes the fire was exhibiting extreme fire behavior, with moderate duration crown runs and spotting a ½ mile ahead of the main fire and around several structures. The fire was burning in a north direction down-canyon which is not typical for this area, as the typical wind pattern is west to east.

Vegetation management projects within the community of Old West Ranch started in 2004 when the Fire Safe Council receiving their first grant for vegetation management work to develop the Blackburn Canyon Escape Route. Kern County Fire crews spent the next two summers clearing overgrown vegetation. The project consisted of removing dead and overgrown vegetation, limbing up existing live trees, and removing dead trees within 25 feet of both sides of the road. The purpose of this project was to reduce the fuel build up along the side of the access roads to allow the residents a safe way to evacuate the community and allow emergency vehicles a safe way into the community. In 2010 additional project work consisting of a 150 foot wide shaded fuel break along Wildhorse Ridge to the south of the Old West Ranch community. Kern County fire crews utilized a masticator and were able to complete the majority of the work in three months.

These projects were used effectively in the efforts to control the West Fire. The shaded fuel break along Wildhorse Ridge stopped the southern progression of the fire with no re-enforcement and the escape route project proved to be invaluable in the evacuation and safety of the residents and the safety of emergency equipment accessing the fire.

Defensible space was the key to structure survivability during this fire. During initial attack firefighters were battling an intensely burning, fast moving wildfire, with flame lengths in excess of 150 feet and numerous spot fires ¼- ½ mile ahead of the main fire. Kern County Fire Department enforces the 100 feet defensible space requirement in PRC 4291. In this case the minimum provided to be inadequate in areas due to the intensity of this fire. The 100 feet did suffice in some areas but in the areas of extreme fire behavior larger clearances were needed to insure survivability.

CASE STUDY– Shaded Fuel Break

Goat Fire

July 18, 2000

The Goat Fire was caused by a campfire on July 18, 2000. Located in steep, rocky terrain along State Highway 44 in Lassen County, the fire spread rapidly toward the community of Lake Forest Estates. Because of extreme fire conditions, and as a precaution, evacuations were started.

Over 1,100 fire fighting resources were called in to battle the flames which were racing through heavy timber, jumping from treetop to treetop in the form of a crown fire. The land had been owned by Roseburg Resources timber company before purchase by Sierra Pacific Industries. Roseburg had completed a thinning and chipping project in the area back in 1991. When the Goat Fire reached this thinned area flames dropped from the crown of the trees to the ground where firefighters were able to attack it.

In addition to the thinned area, Roseburg had completed a 1,000 foot shaded fuel break along one side of Lake Forest Estates in 1990. The fire reached within a mile of the community. Firefighters were able to safely stop the fire in the thinned forest keeping the flames out of Lake Forest Estates.