

## SECTION IV: PRE-FIRE MANAGEMENT STRATEGIES

### A: FIRE PREVENTION

The Fire Prevention Program is made up of the Prevention Bureau overseeing Fire related public education and law enforcement, the Fire Marshal's Office whom oversees building code compliance issues, and the Pre-Fire Engineering Program, who works with Resource Management and the Vegetation Mgmt. Program Manager. Each of these programs works towards a common goal of reducing ignitions. It is the goal of the prevention program that with the combined efforts of each program, through enforcement, education, and implementation of projects, ignitions will be reduced.

The primary goal of the fire prevention program is to reduce the number of ignitions within the Unit. The 10-year average for number of fires is 133 with a low of 70 in 2005. The number of wildland fires within the Unit is at a 5 year low at 117. In 2010, the Unit kept 100% of all fires under 5 acres, with the largest fire reaching 2.5 acres. The 10-year level of service average, in terms of keeping fires all fires to 5 acres or less is 98%.

Reducing the number of ignitions is a goal; however, there will still be a certain number of fires occurring. The Unit's objective is to keep these ignitions and subsequent fires to a manageable size, minimizing negative impacts to people and their property. There are a variety of methods for this can be accomplished. The CZU prevention program aims to reduce ignitions through the use of education, defensible space inspections, fuel reduction, and enforcement activities. The Unit plans on educating numerous residents throughout each county through LE-100 inspections and public contacts. Additionally, through the development of the CWPP and with numerous collaborators, fuel reduction projects are almost always in progress throughout the Unit. Increased educational efforts, coupled with fuel reduction projects in high priority areas are intended to reduce the number of ignitions.

*Table - Ignition and acreage totals by year*

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>Total # of Fires</b>	144	103	96	96	70	106	153	170	122	84	148
<b>Total # of Acres</b>	140	73	109	46	24.5	45	108	1667	8370	40	29
<b># of Fires 5 acres or less</b>	142	100	91	95	69	106	150	163	119	84	148
<b>% of Total Fires (5 Acres or less)</b>	99%	97%	95%	99%	99%	100%	98%	96%	98%	100%	100%
<b>Largest Fire (Acres)</b>	54	20	35	6	8	3	12	630	7817	2.5	2
<b>Average Fire (Acres)</b>	0.53	0.33	0.28	0.43	0.24	0.37	0.39	.41*	0.36*	0.33	0.20

\* large fires not included in average.

<i>Table - Number of fires by cause / year</i>											
<b>Cause Description</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
<b>Undetermined</b>	17	22	13	16	10	29	45	75	57	25	26
<b>Lightning</b>	8				4	1					
<b>Campfire</b>	13	9	9	4	2	3	3	1			2
<b>Smoking</b>	5		3		3	1	2	4	1	1	3
<b>Debris Burning</b>	11	3	10	7	7	6	14	14	12	5	7
<b>Arson</b>	5	1	5	1	3	8	8	6	5	5	9
<b>Equipment</b>	43	30	31	36	21	30	24	20	13	10	28
<b>Playing w/ Fire</b>	9	2	5	4	1	4	12	9	6	6	27
<b>Misc / Other</b>	16	10	9	13	9	16	36	28	21	30	20
<b>Vehicle</b>	5	12	5	9	3	4	5	2	3		21
<b>Railroad</b>											
<b>Electrical Power</b>	12	14	6	6	7	4	4	11	4	2	5
<b>Annual Totals:</b>	<b>144</b>	<b>103</b>	<b>96</b>	<b>96</b>	<b>70</b>	<b>106</b>	<b>153</b>	<b>170</b>	<b>122</b>	<b>84</b>	<b>148</b>

## **ENGINEERING & STRUCTURE IGNITABILITY**

### **Santa Cruz County**

Santa Cruz County Fire Marshal's Office provides the fire prevention services for areas outside of established fire districts within Santa Cruz County and for the Pajaro Valley Fire Protection District. Santa Cruz County is known to have a pro-active fire prevention program in regards to new and existing building construction. Santa Cruz County recently completed adoption of the 2010 California Fire and Building codes (Title 24 parts 2, 2.5 and 9) with local amendments. The local amendments detail the requirements for roads, driveways, water supply, and the local fire sprinkler requirement for all new construction (in place since 1989).

#### Road Construction

Fire Apparatus access roads shall have an unobstructed width of not less than 20 feet except for approved security gates in accordance with Section 503.6 of Title 24, and an unobstructed vertical clearance of not less than 13 feet 6 inches. There are exceptions outside of the Urban Services Line as established by the County of Santa Cruz. In these locations access roads shall be a minimum of 18 feet wide for all access roads or driveways serving more than two habitable structures, and 12 feet for an access road or driveway serving two or fewer habitable structures. Where it is environmentally inadvisable to meet these criteria (due to excessive grading, tree removal or other environmental impacts), a 12-foot wide all-weather surface access road with 12-foot wide by 35-foot long turnouts located approximately every 500 feet may be provided with the approval of the fire code official.

Title 19 of the California Administrative Code requires that access roads from every state governed building to a public street shall be all-weather hard-surface (suitable for use by fire apparatus) roadway not less than 20 feet in width. Such roadway shall be unobstructed and maintained only as access to the public street. Vertical clearance may be reduced; provided such reduction does not impair access by fire apparatus and approved signs are installed and maintained indicating the established vertical clearance when approved by the fire code official. It is important to note this is for new construction and that many roads in the county do not comply with the standard.

#### Water Supply

In Santa Cruz County an approved water supply capable of supplying the required fire flow for fire protection shall be provided to premises upon which facilities, buildings or portions of buildings which are constructed or moved into or within the jurisdiction. The minimum water supply for all new dwellings within the SRA shall be capable of supplying a flow of 500 gallons per minute for 20 minutes (10,000 gallons) for each parcel. Privately owned water that is not supplied by a licensed water purveyor shall: (1) serve no more than two dwellings and no more than 10,000 square feet of habitable dwelling space, and (2) be provided pursuant to a recorded covenant that runs with the land if the water supply originates from

another parcel. If a water purveyor supplies the water, the applicant must submit with the building plan written verification from the licensed purveyor that the water supply meets the flow requirement. The fire chief may reduce the flow requirement to 250 gallons per minute for 20 minutes by substituting approved enhanced access, defensible space, and/or ignition-resistant material requirements.

### Sprinklers

An automatic fire sprinkler system shall be provided in all new occupancies as defined in Chapter 3 of the California Building Code, regardless of type of construction and/or floor area, unless otherwise pre-empted by the California Health and Safety Code. Any occupancy not specifically mentioned shall be included in the group that it most nearly resembles based on the proposed life and fire hazard.

Alternative automatic fire-extinguishing systems complying with the fire code shall be permitted in lieu of automatic sprinkler protection where recognized by the applicable standard and approved by the fire code official. Private garages, carports, sheds not more than 1,000 square feet of total floor area shall not require fire sprinklers where they are detached and separate from other structures and provided with exterior wall and opening protection as per the California Building Code. Sheds exceeding 1,000 square feet, but not exceeding 3,000 square feet shall not require fire sprinklers at the discretion of the fire chief when the applicant demonstrates that the applicant's proposal does not increase the fire hazard or fire load. For existing structures an automatic sprinkler system shall be provided when, after the effective date of the fire code, a building permit is issued to allow additions to be made to existing structures which either: already are six thousand (6,000) square feet or greater in total floor area; or when additions are made to a structure which contains an existing fire sprinkler system, the fire sprinkler system shall be extended, thus creating fire sprinkler protection throughout the entire structure.

### Summary

These requirements are placed on new construction and some remodels that are reviewed by the Santa Cruz County Fire Marshal's Office during the plan review phase of building permitting. The Santa Cruz County Building department reviews plans for the fire resistive construction requirements found in the fire and building codes (previously Chapter 7a UWIC).

Protection planning is reviewed during the discretionary and building permitting process by both the Santa Cruz County Fire Marshal's office and the building department. Codes found in local amendments to the California fire and building codes and in the Santa Cruz County General Plan provide guidance and requirements for fire and life safety.

Code enforcement for new and existing construction is provided for in a joint effort by the Fire Marshal's office and the Santa Cruz County code enforcement department located within the building department.

All new construction and remodels over 500 square feet that are reviewed by the Santa Cruz County Fire Marshal's office have holds that are placed on the project that can only be removed by thorough inspections of the project during multiple phases of the construction. Most projects that go thru the permitting process receive a pre-site inspection prior to construction. All projects are inspected during

rough and final construction for fire sprinklers. Inspections are also made prior to the final sign-off the roads and driveways, address numbers, smoke detectors, water supply, and vegetation clearance around the structure (PRC 4291).

Pre-plans for fire operations are conducted, at the local level, by the fire station personnel that will respond to an incident. Pre-plans are done for commercial occupancies, schools, and larger residential facilities. Pre-plans are sometimes conducted in conjunction with business inspections or on a rotating basis throughout the year.

## **San Mateo County**

The San Mateo County Fire Marshal's Office provides the fire prevention services for areas outside of established cities and fire districts within San Mateo County and for the Coastside Fire Protection District in Half Moon Bay.

San Mateo County Fire and the Coastside Fire Protection District both have active fire prevention programs inspecting both new and existing building construction and permitting tents, special events and other activities in San Mateo County. San Mateo County and the Coastside Fire Protection District both recently completed adoption of the 2010 California Fire and Building codes (Title 24 parts 2, 2.5 and 9) with local amendments.

The local amendments detail the requirements for roads, driveways, water supply, and the local fire sprinkler requirement for all new construction. The San Mateo County Fire Marshal's Office worked with the San Mateo County Building Department to establish a zero square foot trigger for the installation of Fire Sprinklers in all new residential construction in the 2007 code adoption cycle and decreased the trigger for installation of fire sprinklers in remodels from 75% of valuation to 50% of assessed valuation in the 2010 code adoption cycle.

The local requirements are placed on new construction and existing remodels that are reviewed by the San Mateo County Fire Marshal's Office during the plan review phase of building permitting. The San Mateo County Fire Marshal's Office assists the San Mateo County Building department in reviewing plans for the fire resistive construction requirements found in the fire and building codes and has developed a joint check-off sheet for use by the contractors, inspectors and the plan reviewers.

Code enforcement for new and existing construction is provided for in a joint effort by the Fire Marshal's office and the San Mateo County code enforcement department located within the building department. During the 2010 Code Adoption cycle the Red Tag process was strengthened and a fine structure added to assist in the mitigation of code violations.

All new construction, remodels and tenant improvements are reviewed by the San Mateo County Fire Marshal's Office and field inspections determine compliance of the projects with the state and local amendments to the building and fire code. Prior to the final sign-off the roads and driveways, address numbers, smoke detectors, water supply, fire suppression systems, fire alarm systems, Automatic Fire Sprinkler Systems and vegetation clearance around the structure (PRC 4291) are inspected.

Pre-plans for fire operations are conducted, at the local level, by the fire station personnel that will respond to an incident. Pre-plans are done for commercial occupancies, schools, and larger residential

facilities. Pre-plans are sometimes conducted in conjunction with business inspections or on a rotating basis throughout the year.

## **INFORMATION AND EDUCATION**

Education is arguably the most valuable tool available to reach this goal of reduced ignitions and large fires. The Unit employs education in every aspect of our department from Firefighters to Foresters to Office Personnel. The fire service hopes to educate the community and cooperators through word of mouth, through the media, printed material and other documentation. Some of our educational effort is informal in nature, occurring through unplanned contact at the station, or while out in the community. The majority of our educational effort is more formal and delivered at a variety of public events, community meetings, and defensible space inspections, at the scene of an incident and during law enforcement contact. The formalized events allow the Unit to work with the County and local government agencies to deliver standardized messages and literature. It is the hope of the Unit that through education, the public will have a better understanding of the risks they face and have resources to take action both before and during a wildland fire. This can include everything from removing flammable vegetation and debris from around their residence to having a specific plan of escape should there be a fire.

Each year, Unit personnel and local government agencies attend a variety of events where pre-fire preparedness messages and materials are provided to the public. In 2010, CAL FIRE attended twenty-one local events, including community parades, fairs, festivals, community picnics, and school events. It is expected CAL FIRE resources will attend twenty-five plus community outreach events in 2011.

Property owners living in State Responsibility Areas (SRA) are required by Public Resource Code (PRC) 4291 to maintain clearance of flammable vegetation around their property. A property owner's clearance responsibility is limited to 100 feet from his or her structure(s) or to the property line, whichever is closer, and is limited to their lands. In both counties, state and local fire departments are generally available to conduct home defensible space inspections. Depending on the policy of each department, inspections are made when requested. Prior to the start of fire season, each battalion in CZU identifies priority areas for defensible space inspections (LE-100's.). There are far too many residents in the County to inspect each property every year. Battalions recognize this and focus on different areas each year, with goal of inspecting all SRA residences in the WUI every three to five years. Due to the fact there are more residents than can be inspected, the Unit has made efforts to mail defensible space literature to properties, serving as an informal "inspection". The Unit has mailed defensible space information to over seven-thousand properties in the WUI. When CAL FIRE personnel make a physical inspection of a property, the visit is documented on a LE-100 form. This is a legal form documenting whether the property in question has passed or failed the inspection. If a property fails, the homeowner is given a reasonable amount of time to come into compliance. A second inspection is made and again, it is documented on the inspection form. If the property fails a third time, the homeowner is given a final opportunity to come into compliance and if they fail the case is forwarded to the Prevention Bureau. The Prevention Bureau contacts the property owner and advises them legal action may occur and they could be cited for failure to comply with state law. In almost every case, homeowners have complied prior to

law enforcement action. In 2009, CAL FIRE made (3,600) LE-100 inspection. In 2010 (2,700) were completed. The Unit is hoping to make upwards of (3,000) inspections this year.

Each year, the Unit distributes educational materials through a variety of methods: direct mailing, at defensible space inspections and at public events. Materials are sometimes provided by CAL FIRE Headquarters in Sacramento, while other times they developed locally through cooperative partnerships. Such is the case with the Living with Fire in Santa Cruz County and Living with Fire in San Mateo County. These documents have been developed in partnership with CAL FIRE and Fire Safe San Mateo and the RCD of Santa Cruz County to reflect information relevant to the local jurisdictions.

Another locally produced fire prevention material is the CAL FIRE San Mateo/Santa Cruz Unit - Are you prepared pamphlet. The pamphlet, easily mailed or handed out, contains important wildfire preparedness information for Santa Cruz and San Mateo County. These handouts have been mailed to County residents living in the WUI since 2008. In 2008, approximately (2,500) trifold were mailed to residents of San Mateo and Santa Cruz County. In 2010, approximately (3,800) were mailed to residents. The Trifold is currently being revised, tailored to suit the needs of various agencies throughout the county. Due to budget cuts, it is unknown if the trifold will be used in mass mailing this year.

Beginning in 2011, a new tri-fold titled "Wildfire – are you prepared" is being developed in Santa Cruz County with a partnership between the RCD of Santa Cruz, CAL FIRE, and Aptos-La Selva Fire Protection District. The material focuses on defensible space around your home. There are tips on where to clear and what to plant. A fire safe checklist is also included. In an attempt to deliver a standardized message to specific jurisdictions, the pamphlet has been designed to have include some agency specific information such as websites and phone numbers

At the state level, a new public awareness campaign is underway titled "Wildfire is coming. Is your home ready? The message incorporates (3) simple steps to prepare for wildfire, Ready, Set, Go! The message is to basically prepare your property and home through defensible space. Also, a family disaster plan should be prepared. Step two, "Set" involves being ready to evacuate should a wildfire approach. Finally, before the flames arrive, "Go!", and proceed with an evacuation. This information is available on the website ([www.readyforwildfire.org](http://www.readyforwildfire.org)) as well as in a brochure which is available to the public. The Unit in partnership with local agencies and the RCD has also developed a 20 page pamphlet called "Living with Fire – in Santa Cruz County" and "Living with Fire – In San Mateo County, a guide for homeowners". The document is revised and updated every other year and distributed to the community. This document contains a large amount of important information from available resources, to defensible space, to fire safe landscaping.



Some of the printed materials provided to the community.

## B. VEGETATION MANAGEMENT

The Unit Vegetation Management Program is heavily involved in all aspects of project planning, development, and implementation. The Vegetation Management Program collaborates with Fire Safe councils, community groups and cooperating agencies. In recent years, the VMP program has developed fuel reduction projects utilizing both mechanical and prescribed fire. The CAL FIRE Vegetation Management Program performs as both lead and in advisory roles in the development of fuels management throughout the Unit. There are a variety of methods of treatment prescribed whenever a project is developed. The type of treatment should be tailored to each individual project. Appendix D – General Recommendations describes the types of treatments typically prescribed.



*Cloverdale VMP Burn (2010)*

### Resource Management

Forested areas occupy a large percentage of land area within the San Mateo/ Santa Cruz Unit. The Unit Resource Management staff is tasked by state statute to enforce the California Forest Practice Act and Forest Practice Rules on private timberland in the State of California. Santa Cruz and San Mateo County are within a special rules district, where the only allowable management practice is single tree selection. CAL FIRE and other agencies involved in the review of harvesting permits continually look for ways to improve fire safety, hazard reduction, public safety, vehicular access, water sources, timing of operations, and benefits to wildlife. Managed timberland constitutes an active and critical area for fuels management. Lands utilized for timber management are typically traversed with roads and trails, their use critical during fire suppression operations. During fires such as the Summit and Lockheed, roads primarily maintained for timber management were also used by CAL FIRE for fire-fighting operations. The Unit approves a

variety of forest management permits including 150-foot Fire Hazard Reduction Permits, Timber Harvest Plans, and Non-Industrial Timber Harvest Plans. As part of the permit, operators are required to comply with hazard (slash) reduction rules next to public roads, permitted structures, and throughout the harvest area. Operators are required to maintain firefighting tools during operations within fire season. Prior to the year 2010, the Unit reviewed and approved an average of two-thousand plus acres per year of timber harvesting plans. In 2010, the Unit had less than five-hundred. The same is expected for year 2011. As the economy and log prices improve, additional acreage is expected.

### Suppression Repair

Santa Cruz County experienced (6) significant wildfire events between 2008 and 2009, requiring extensive suppression repair activities. The Unit has (5) Registered Professional Foresters (RPF's) on staff, each trained and experienced in suppression repair. Unit foresters work with other state agencies, large landowners, and the community to complete suppression repair efficiently and to high standards. Additionally, suppression repair activities are completed with future fire prevention in mind. Recent fires in Santa Cruz County have occurred in forested landscapes. Due to high fuel loading and in some locations coupled with reduced fuel consumption, many areas are left with high amounts of unburned fuel. The Unit has a responsibility to repair damage incurred on the landscape during suppression activities, while at the same time attempt to reduce any increased fire hazard those suppression activities may have created. Unless all fuels are consumed, there is typically fuel loading found adjacent to roads, dozer trails, and structures where fire crews or equipment have modified the landscape for fire suppression. Following control of the fire the areas of increased fuel loading need to be addressed. This is done through a variety of methods including: Hand crew, lop and scatter, and pile burning (as weather permits) or mastication. The Group Supervisor, usually a local RPF, will complete a plan of action and oversee the completion of suppression repair activities.



*Post Fire Suppression Repair on the Lockheed Fire (2009).*