

C. BATTALION PRE-FIRE MANAGEMENT PLANS

This section of the Fire Plan contains details specific to the Battalions and programs within the Unit. Each Battalion Pre-Fire Management Plan contains:

- A detailed overview of the Battalion, covering geography, location, fire control organization and resources, communities and .
- Summaries of the Assets At Risk, Fuels, Weather and recent Fire History within the Battalion.
- Descriptions of the Battalion's mitigation efforts, including recent, current and planned projects and programs aimed at reducing the threat to assets posed by wildland fire.

Battalion 1 Pre-Fire Management Plan

Battalion 1 Overview

The San Andreas Battalion consists of 233,960 acres, stretching through the general area of Highways 12, 26 and 49 in Northwestern Calaveras and Eastern San Joaquin Counties. The elevation ranges from around 200' in the western plains to near 2500' in the eastern foothills. In its eastern third, the Battalion is bisected by multiple east-west drainages that have a history of supporting fire spread. In the western two-thirds the Battalion is bisected by a set of unique geographic features, two prominent ridgelines that run north-south - the northern half of the Bear Mountains and the less prominent northern extent of Gopher Ridge.

The Battalion's fire control organization is comprised of two Forest Fire Stations: San Andreas FFS – a two (2) engine station, the Battalion Headquarters co-located with the Unit headquarters; Valley Springs FFS – a one (1) engine station located on in the west in proximity to new Hogan Reservoir. Primary local government fire protection is provided by four Fire Protection Districts: Foothill (greater Valley Springs), Jenny Lind, San Andreas and Mokelumne Hill; along with a small contingent of fire control personnel with the East Bay Municipal Utilities District at Lake Comanche.

The communities of Wallace, Burson, Campo Seco, Paloma, Valley Springs, Jenny Lind, San Andreas and Mokelumne Hill are within this Battalion. Several of these communities serve as bedroom communities for the larger cities in the San Joaquin Valley and even the Bay Area. The most populated area in the Battalion is a seven mile wide north/south swath extending from Comanche Reservoir along the northern county and Battalion boundary to Jenny Lind, south of Hwy 26.

The entire Battalion is SRA/State DPA comprised of relatively small private land holdings – no large commercial or federal timber lands for instance. There are some relatively small Federal holdings: Bureau of Land Management in the Bear Mountains and in the eastern foothills and Bureau of Reclamation along the shores of Hogan Lake. All federal lands are designated State DPA. The East Bay Municipal Utilities District owns lands surrounding Comanche and Pardee reservoirs.

In addition to providing protection for life and property, Battalion 1 provides protection for critical watershed values. The major watershed in the Battalion is the Calaveras River and its primary tributaries: Jesus Maria, Murray, Willow, Calaveritas and San Antonio Creeks – the primary sources for New Hogan Reservoir. The south side of the Mokelumne River drainage and the two major reservoirs it supplies, Comanche and Pardee, is also under the Battalion's protection. The value of these watersheds reaches far beyond the boundaries of the Battalion and the Tuolumne-Calaveras Unit.

The majority of the eastern third of the Battalion has been designated by CDF as *Very High* Fire Hazard Severity Zone lands. The western two-thirds features Zones designated *Moderate*, *High* and *Very High* with the *Moderate* designation dominating.

The western two-thirds of the Battalion (lower) falls within the *Foothills West* Fire Danger Rating Area, while the eastern third (upper) falls within the *Foothills East* FDRA.

Battalion 1 Assessment Summaries: Assets At Risk, Fuels, Weather, Ignitions And Fire History

Assets At Risk: Primary Assets at risk within the Battalion cannot be listed by priority, due to the intrinsic value placed upon private citizen's assets. However, listed below are assets at risk that have been considered, relating to Pre-Fire Management within the San Andreas Battalion:

- Residential and commercial development, including the people living and working therein, is probably the most obvious asset. The list of officially designated "Communities At Risk" in the Battalion includes: Burson, Campo Seco, Paloma, Valley Springs, Jenny Lind, San Andreas and Mokelumne Hill; but all developed areas face considerable threat from wildland fire whether they are on the list or not. The areas with the highest density population and residential construction are located in the lower areas of the Battalion – the 7 mile wide swath noted above. The Pattison Fire Complex of 2004 burned within this area, resulting in a loss of seventeen homes in the greater Valley Springs area. However, many rural homes are also located in the upper (eastern) area of the Battalion and also face a significant threat, due to the history of major fires in that geographical area.

The entire Battalion was predominantly ranch land before development started eating away at the open areas over the last 50+ years. The oldest rural residential development dates from the 1940's - 1960's and is often on multi-acre parcels. As a result, out-dated design features such as shake roofs, wood siding, wood decks, and large single pane windows are common in these areas. Rapid development over the last 20+ years has led to the addition of many new homes throughout the Battalion, either in subdivision style configuration or as individual ranchette style homes scattered throughout. The newer subdivision style developments, closer to the community centers, typically feature higher density development on small lots similar to those found in more urban environments. Though these newer subdivisions in the lower Battalion feature newer materials such as stucco or concrete siding, tile roofing and double pane windows, they are still at risk, often due to being sited in hazardous locations. This rate and kind of development is expected to continue indefinitely into the future, but will incorporate the latest Chapter 7A building codes, resulting in more ember resistant / fire safe structures.

- Fricot City and Mokelumne Hill – These two communities are located on terrain directly above major drainages. As such they face a significant threat from wildland fire. Each has evacuation challenges relating to population density and poor road systems. Neither has seen a significant amount of new residential development in recent years.

- Watersheds. The watersheds noted above all support assets important to an area far beyond the Battalion and Unit boundary, including: water storage for local and regional domestic, industrial and agricultural use; recreational opportunities; power generation; and wildlife habitat among others.
- Pasture / Agriculture. Ranches located throughout the Battalion depend upon the annual grasses to feed their livestock. Despite the loss of acres to development this agricultural asset remains economically significant throughout the county.
- Primary roadways and supporting infrastructure. Portions of three state highways bisect the Battalion.
- Historical and Archeological sites. A long history of Native American occupation and a rich Gold Rush era history have left behind numerous cultural and archaeological sites, often located in remote, difficult to reach areas.
- Power and communications infrastructure. Several government agencies and private communications companies take advantage of the topography within the Battalion for the location of communications system facilities. Power transmission lines are also present.

Fuels: The primary fuels within this Battalion include manzanita, chemise, toyon, oak, bull pine and various grasses. Much of the brush is over-mature and exceeds six feet in height. Fuel loading in much of the upper (eastern) portion of the Battalion is heavy. Historical data indicates that fires in the upper portions of this Battalion, with this type of fuel loading, are difficult to contain and have a high BTU output. The lower elevations of this Battalion have a combination of chaparral brush, oak woodland, bull pine, and grass. Though the fuel loading is generally lower here, the population density is greater, thus increasing the threat to life and property. Much of the fuel bed in the lower elevations is broken up by the road system and grasslands found throughout this area.

Weather: Typical fire season temperature patterns range from lows in the upper 50's to highs in the 90's. Periods of triple digit highs, 100-110 degrees, are not uncommon, and can last from a couple days to a couple weeks. Relative humidity runs in the mid teens to mid twenties during daylight hours, often with poor overnight recovery. Periods of extreme heat are occasionally accompanied by single digit humidity. Prevailing wind is generally from the north along the Hwy 49 corridor, from west to northwest out west of Hogback mountain on the western plains and west/up canyon during the day in the drainages of the eastern portion of the Battalion. Overnight, a strong down-canyon wind across the ridgetops adjacent to the Mokelumne river drainages is common. August and September often bring the threat of thunderstorm activity, but it is not unusual to experience thunderstorms at any time throughout the summer season. As is the case throughout the Sierra Nevada front country, the typical summer weather is ideal for wildland fire

Fire Ignitions / Fire History: Historical fire data on large damaging fires within Battalion 1 reveals fires typically occurring at the lower end of drainages located in the upper (eastern) Battalion, east of Hwy 49. These fires follow terrain and fuels, burning up slope / up drainage into the western portions of Battalions 3 or 4. Containment has occurred primarily due to changes in fuels, topography, and/or weather which offered fire suppression resources opportunities to attack the head and flanks of these fires. Large wind driven grass fires are not uncommon in the lower western-most grassland areas of the Battalion. But these have typically occurred in lightly populated agricultural areas. The Pattison Complex of fires in 2004 added a new dimension to the history of large damaging fires within the Battalion. It occurred in the lower elevation western portion of the Battalion, but instead of burning lightly populated ag lands, it spread through portions of the densely populated greater Valley Springs area. Pushed by 20 mph winds the Pattison fires grew at extreme rates of spread through a variety of fuel models, taxed fire resources to their limits and destroyed seventeen homes on its way to a final size of 1900 + acres.

Battalion 1 Mitigation Efforts

Due to the topographic and fuel differences within the San Andreas Battalion, mitigation prescriptions are organized into three geographic designations : the Upper Battalion (higher elevation east); the Lower Battalion (lower elevation west); and Battalion Wide efforts.

The Pattison Complex has demonstrated a need for an aggressive fire prevention plan throughout the Battalion emphasizing education and mitigation of hazards on private and public property. As advances in alternative methods of fuel removal/modification become available, these will be studied and used if applicable.

Defensible Space Inspections : Battalion Wide

- LE-100 Inspections : Utilizing engine company personnel, with VIP assistance, areas identified as high hazard will have the greatest emphasis. A blanket approach for specific locations within the Battalion is being considered, along with a public relations campaign focusing on notification of possible inspections as well as information relating to minimizing hazards around the residence.

Fuel Reduction/ Breaks : Utilizing historical fire data, fuel break agreements and construction will be pursued in areas identified as favorable to stop future fires before they become catastrophic. Control burns will be conducted as needed in conjunction with the above projects with a goal of fuel modification from a brush model to grass with oak overstory model.

Upper Battalion:

- Jesus Maria Project – Jesus Maria Road is in the Jesus Maria Creek canyon east of Mokelumne Hill. The fuels in the area vary from oak woodland to dense

brush. Homes are scattered throughout the area and it is anticipated that more will be built in the future. Due to the high hazard fuels and steep canyon, many of the homes are at great risk when wildfires occur. The objective of this project is to reduce the fuel hazard around the homes. In tandem with the Jesus Maria Pre-attack Plan compilation. No timeline has been set for implementation.

Additional Upper Battalion projects currently under review, in priority order:

- Hawver Road to Mountain Ranch Road – Fuel Break (Leonard Fire).
- Ponderosa Way to San Antonio Creek – Fuel Break (Old Gulch Fire).
- Hawver Road to Highway 26 at Mokelumne Hill – Fuel Break.
- Mokelumne Hill above Mokelumne River canyon– Fuel Break : This fuel break will protect the Mokelumne Hill Community from fires that originate in the Mokelumne River Canyon. It will be constructed near the top of the canyon adjacent to the community. Some parts of the fuel break area currently have light fuels, but other areas contain heavy brush and dense woodland. The heavier fuels will be treated during this project. No date has been set for its completion.

Lower Battalion:

- Buys V.M.P. – Lower Battalion : A major multi-discipline project incorporating training programs into a fuel reduction project. The training component included: a class from the CDF Fire Academy’s Heavy Fire Equipment Operator’s certification program used to cut fire line, pile brush, and a wide variety of other relevant training evolutions; a fully sanctioned S-234 Firing class; Unit handcrews conducted “Bautista” style training and evaluations.
- Hogan Lake Access Road : The only north-south through-road access immediately adjacent to the south shore of Hogan Lake and the west slopes of the Bear Mountains. Annual maintenance ensures it’s effectiveness as the primary fuel break separating the grass lands of the Lower Battalion from the steep, brush and oak covered slopes of the Bear Mountains; and it’s availability as the primary fire access road to the south and east shore of the lake and the mountains.

Additional Lower Battalion projects currently under review:

- Hogan Lake VMP Series – Series of burns targeting a conversion from brush to grass and the eradication of non-native weed species from the lake shore.

Strategic Planning : Upper Battalion

- Mokelumne Hill Evacuation Plan : No details available.
- Jesus Maria Pre-Attack Plan : An ongoing data collection project producing a structure location inventory and where critical firefighting resources are located in

the Jesus Maria Road Area. In tandem with the Jesus Maria fuels reduction project.

Public Education : Battalion Wide

- Fire Prevention Signs : Post fire prevention signs year-around, to better educate the public on fire hazards and methods of prevention. Additional signs are needed along the Highway 49 corridor and Mountain Ranch Road.
- Issuance of burn permits after May 1 annually : Provide fire prevention education materials and positive agency contact with each permit, explaining debris burning fire safety requirements.
- Campfire permits : Another important opportunity to make an educational contact with members of the local and visiting population.

Law Enforcement : Battalion Wide

- Cause Determination and Code Enforcement : A determined effort by Company Officers and LE staff, as needed, to determine a cause for all wildland ignitions. Accurate cause determination impacts several programs beyond the confines of the Battalion (Fire History, Fire Plan, Funding for example) and can be crucial to the subsequent ability of LE staff to issue citations for violations of the various PRC and PC codes, including debris burning, arson, power line clearance, and equipment related violations, among others.
- Law Enforcement Support of Inspections Program : Continued close cooperation between Battalion inspectors and the Unit's LE staff in support of the Defensible Space Inspection Program in the form of a willingness to write citations as needed.

Battalion 1 Cooperators Mitigation Efforts

Jenny Lind Fire Protection District :

- #1 Priority – Educate community on fire hazards
 - Initiate fire hazard inspection program.
 - Initiate Public Safety Awareness Day.
 - Notify and inform landowners of unimproved lots of fire risk and hazard reduction measures.
 - Distribute material to Real Estate Offices for new owners in the community.
 - Grant funding to be sought.
- #2 Priority – Hazardous Fuels Reduction
 - Establish program to maintain clearances utilizing available methods.
- #3 Priority – Hazardous Fuels Reduction

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- Shaded fuel break along western flank of Calaveras River drainage utilizing mechanical and hand crew methods.
- CEQA to be contracted.
- Homeowner agreements must be established.
- Grant funding to be sought.
- #4 Priority – Wildland Fire Water System Upgrade
 - Improve water storage with the purchase and installation of larger water tanks around District.
 - Grant funding to be sought.

East Bay Municipal Utility District : Pardee and Comanche Lake areas:

- Annual Disking – 18.7 miles per year.
- Annual fire road/trail mowing – 110.6 miles per year.
- Annual mowing in campgrounds and other recreation areas - 387 acres.
- Fuel modification due to grazing: 13,604 acres.
- Heavy fuels modification in acres: 15 acres.
- Removal of downed trees and excess brush around MHP.
- Fuel wood Program – Woody Fuels Management Program.
- Annual fire training of employees – 16-24 hours per year.
- Annual Fire extinguisher training for concession employees.
- Annual Fire Safety Audit of District facilities.
- Red Flag Protocol – Minimum of 2 rangers on patrol during red flag events.
- Prescribed burns.
- Fire Prevention Plans for Concessionaire.

Calaveras Foothills Fire Safe Council : Since 2001 this FSC has been fully engaged in the success of several fuel reduction efforts, including : the production and implementation of the Calaveras County Community Wildfire Protection Plan; production and distribution of Public Education materials, and programs; identification, planning and implementation of numerous on-the-ground fuel reduction projects. The Fire Safe Council currently has two grant projects operating in or near the Battalion. See pages 55-56, C-2, C-3 for more details regarding the accomplishments of the Calaveras Foothills Fire Safe Council.

Battalion 2 Pre-Fire Management Plan

Battalion 2 Overview

Battalion 2 extends over a wide geographic area of the southwest and south-central portions of Calaveras County, from the San Joaquin Valley at about 100' elevation, east approximately 48 miles into the Sierra Nevada foothills up to around 2500' elevation. In its eastern third, the Battalion is bisected by multiple east-west drainages that have a history of supporting fire spread. In the western two-thirds the Battalion is bisected by a set of unique geographic features – two prominent ridgelines that run north-south, the southern end of the Bear Mountains, and the bulk of Gopher Ridge. Also bisecting the Battalion is State Highway 4 west to east, and State Highway 49, north to south.

The Battalion's fire control organization is comprised of three Forest Fire Stations: Copperopolis FFS - a one (1) engine station in the west; Altaville FFS – the Battalion Headquarters, a one (1) engine and a bulldozer station serving the center of the Battalion; Murphys FFS – a one (1) engine station on Hwy 4 in the east. Also located within the Battalion boundaries, but not a part of the Battalion organization, is Vallecito conservation Camp, located just off Hwy 4 about midway between Angels Camp and Murphys.

The major communities in the Battalion are positioned on or in close proximity to the Hwy 4 corridor, including: the greater Copperopolis area; subdivisions adjacent to the north shore of Lake Tullock; Angels Camp (the only incorporated city); Vallecito; Douglas Flat; Murphys and its adjacent subdivisions. The communities of Murphys, Angels Camp and the Tullock/Copperopolis areas are growing the fastest. Much of the oldest residential development outside the community centers dates back to the 60's, and is often on multi-acre rural style parcels. Newer development such as that around Murphys, Angels Camp and the greater Copperopolis area often features higher density development similar to those found in more urban environments.

The entire Battalion is SRA/State DPA comprised of relatively small private land holdings – no large commercial timber lands for instance. There are some relatively small Federal holdings: Bureau of Land Management and Bureau of Reclamation along the shores of New Melones Reservoir and the Stanislaus River; BLM north of Murphys extending across the Battalion 2/3 boundary. All federal lands are designated State DPA. Cal Fire has designated approximately half of the Battalion as *High* Fire Hazard Severity Zone; mostly the western and central portions. Relatively large swaths of territory in the Bear Mountains, along Gopher Ridge and in the eastern third of the Battalion are designated as *Very High* FHSZ. A small swath in the greater Copperopolis area, and some of the westernmost boundary areas are designated as *Moderate*.

In addition to providing protection for life and private property, Battalion 2 provides protection for critical watershed and recreational values. The major watershed in the Battalion is the Stanislaus River and its northern tributaries – the primary source for New

Melones Reservoir and Tullock Lake. Important smaller watersheds include San Antonio and San Domingo Creeks, both tributaries of the Calaveras River system, supporting New Hogan Reservoir in Battalion 1; and Angels Creek which supports New Melones reservoir. Dozens, maybe hundreds of small, mostly seasonal creeks, originating in the Bear Mountains and along Gopher Ridge provide water to Salt Spring Valley Reservoir in the west and Tullock Lake in the south. Protection of these watersheds provides benefits that reach far beyond the boundaries of the Battalion and the Tuolumne-Calaveras Unit.

Primary local government fire protection is provided by six (6) fire districts and one (1) city department. Angels City provides service within the city limits of Angels Camp. The Copperopolis FPD, the largest district in the Battalion, includes everything west of the Bear Mountains to the Stanislaus County line with the exception of a chunk of territory protected by Jenny Lind FPD. The Altaville-Melones FPD, the 2nd largest district, provides services in the heart of the Battalion surrounding Angels City. In the east the Murphys FPD protects Murphys and a large swath of territory south to the County line, and north to the Battalion 2/3 boundary. Very small portions of the eastern most perimeter of Battalion 2 are protected by the Ebbetts Pass FPD and Central Calaveras FPD.

***Battalion 2 Assessment Summaries: Assets At Risk, Fuels, Weather,
Ignitions And Fire History***

Assets At Risk : There are several assets at risk within Battalion 2 : homes and businesses; watershed resources including water collection and distribution infrastructure; electrical power generation and distribution infrastructure; communications infrastructure; recreational resources; and historical and archeological sites.

- Residential and commercial development is probably the most obvious asset. The list of officially designated “Communities At Risk” in the Battalion includes: Altaville, Angels Camp, Copperopolis, Douglas Flat, Milton, Murphys, and Vallecito (including the significant associated subdivisions within those community’s sphere of influence). The County General Plan and zoning laws have allowed several large, modern, high density subdivisions such as Greenhorn Creek and Saddle Creek, as well as several less dense developments such as those in Pennsylvania Gulch, Copper Cove and the XX subdivisions. Several of the older developments date back to the 1940’s through 1960’s. As a result, out-dated design features such as shake roofs, wood siding, wood decks, and large single pane windows are common in these areas. Though the newer subdivisions feature newer materials such as stucco and concrete siding, tile roofing and double pane windows, they are still at risk, often due to being sited in hazardous locations. As development continues the new Chapter 7A building codes will result in more ember resistant / fire safe structures.

- The broad spectrum of watershed values noted above may be less obvious, but are tremendously important within and far beyond the Battalion boundary. The watersheds in the Battalion supply water to several local, regional and state-wide power generation systems, including the Calaveras Public Utility District, and Northern California Power Authority. Several sets of transmission lines cross the Battalion. In addition these watersheds support domestic and agricultural water collection and distribution systems including the, the Calaveras County Water District, and the Stockton East Water District (SEWD) among others. These systems rely on a significant system of ditches and flumes to transport water throughout the Battalion.
- The three large reservoirs mentioned above, along with the primary watersheds supporting them, include significant recreational values – everything from developed BOR campgrounds and boating facilities, to hiking and mtn biking trails, fisheries and hunting grounds. Even wine tasting and wildflower viewing are growing in popularity.
- Several government agencies and private communications companies take advantage of the topography within the Battalion for the location of communications system facilities.
- As a result of its rich gold mining history the Battalion includes several historic cultural sites, often located in remote, difficult to reach areas. Historic and prehistoric Native American archaeological sites are numerous throughout the Battalion.

Fuels : Approximately 75% of the Battalion features grass and oak-woodland fuels; almost everything west of Hwy 49; the exception being a mosaic of brush fields on the slopes of Gopher Ridge and the Bear Mountains. The grass and oak-woodland dominated west transitions to a brush dominated fuel model as one climbs east from Hwy 49. As one moves further into the eastern portions of the Battalion the brush begins to mix with stands of oak and conifer, eventually becoming dominated by the mixed forest model along the eastern Battalion boundary.

Weather : Typical fire season temperature patterns in the Battalion reflect lows in the 60's and highs in the 90's to the 100's. Relative humidity runs in the mid teens to mid twenties during daylight hours often with poor overnight recovery. Prevailing wind is generally from the west. North wind events usually result in an increase in fire activity and it is not uncommon to experience an east wind event. Late August and September bring the threat of thunderstorm activity and it is not uncommon for dry lightning to occur over the Bear Mtn. range and Fowler Peak. These natural ignition causes mixed with high temperatures and low humidity's can produce large late season fire incidents.

Fire Ignitions / Fire History : Historically ignitions in the Battalion have been caused by debris burning and equipment (motor vehicle exhaust, mowers, farm equipment exhaust

and friction). In 2008, this trend continued with vehicle caused fires and equipment use being the #1 and #2 causes.

Equipment caused fires, specifically mowers and trimmers being utilized to remove grass from around structures (as per the PRC 4291 requirements), continue to be a leading fire causes in the Battalion. Public education information about this issue, displayed to the public via 4x8 Fire Prevention signs, reduced the average from 16 fire starts each year, to a low of 3 in 2002.

Large fire occurrence in the Battalion has been on roughly a 10 year cycle. The areas of concern during a large fire will be in and around the town of Murphys, and the Intermix in the "XX" subdivisions.

Battalion 2 Mitigation Efforts

History has shown that all assets within the Battalion have the potential to experience risk the threat of wildfire at some time or another. The best way to address this will be to prioritize Battalion 2 mitigation efforts based on the following criteria:

- First Priority – Occupied residential and commercial structures.
- Second Priority – Grass and Rangeland utilized for cattle and sheep production.
- Third Priority – Watershed protection.

The western areas and communities in Battalion 2, below 2000 foot elevation, consist of scattered ranches and farms, or are in rural subdivision configurations, such as the "XX" and Copper Cove subdivisions. The size of these developed parcels, typically larger than the "urban" sized parcels of the newest subdivisions and in many cases over five acres, provides the opportunity to implement the required 100 foot fuel removal well within the property boundary. The fuel model for these areas is predominately grass, and oak woodlands. The ranchlands are often grazed off by midsummer, significantly inhibiting the spread of fire, and supplementing the clearance work done around structures. However within the subdivisions no such benefit is realized, so a concerted effort toward promoting 4291 compliance remains important in the west.

In those areas of the Battalion above 2000' elevation, typically east of Hwy 49, the heavier brush fuels are reaching their most vulnerable state, fire behavior wise, by midsummer. The result is a particularly significant fire threat to the various assets in these Wildland Urban Interface areas such as the greater Murphys area.

Defensible Space Inspections : Removing fuels around structures provides the single most effective action for increasing structure survivability during a wildfire. An aggressive inspection program can provide firefighters with defensible space for structure

protection operations. Achieving initial compliance with the 100' and related requirements involves a great deal of effort on the part of CAL Fire engine company personnel doing the inspections. It starts with educating the property owners, and continues with on-site consultations over the course of multiple inspection visits to the same property. This initial compliance is a challenge for property owners as well due to the substantial volume of material that must be removed. This removal is often hindered by the cost of hiring out the work, APCD and CAL Fire burning restrictions, and the travel time to the few collection / disposal sites. As a result of the required effort the Battalion's focus will be on quality over quantity.

As part of the Unit wide effort to increase compliance with and enforcement of PRC-4291 requirements, three areas within Battalion 2 are targeted for onsite inspection by engine company personnel beginning in 2009:

- Altaville FFS personnel will be active along the French Gulch Rd. corridor in the Murphys Pines and Darby subdivisions and immediately adjacent parcels.
- Murphys FFS personnel are targeting an area east of Murphy's, working Pennsylvania Gulch, Skunk Ranch and Ponderosa Roads.
- Copperopolis FFS personnel will be working within the Copper Cove subdivision.

All three targeted areas present challenges to fire control operations should any fire become established within them. The French Gulch area subdivisions were planned and built out from the 1960's to the 1980's. Both feature road system designs allowing only single roadway ingress and egress. In addition, the construction materials and techniques used predates ignition resistant building construction standards. The Pennsylvania Gulch area south and east of Murphys presents similar challenges - narrow roads hindering ingress and egress, a mix of mostly widely scattered older homes and ranchettes, narrow driveways, dense brush fuels and rolling terrain in close proximity to the North Fork of the Stanislaus River canyon. In the Copperopolis area the Copper Cove subdivision features light flashy fuels over rolling terrain, one way in/out vehicle access, close proximity to both a highway corridor with an active fire history and steep terrain with heavy fuels.

Fuel Reduction/Breaks : Due to the lack of large land owners, such as Sierra Pacific Industries and the US Forest Service, large scale fuel reduction projects like fuel breaks are more difficult to identify and carry out. As a result the Battalion focuses fuel reduction efforts on the residential parcels within Communities at Risk by way of PRC 4291 enforcement. To supplement 4291 enforcement the Battalion continues to pursue and support fuel reduction efforts initiated by the local Fire Safe Council, Fire Districts and individual ranch and residential property owners.

- Roadside Right-of-Way Fuels Reduction Project : In the event of a wildfire, subdivision roadways become crucial routes for ingress of firefighting personnel and the rapid egress of the public. Three subdivisions have been identified as

needing attention, the Diamond XX subdivision, the Circle XX subdivision, and the Bar XX subdivision. The Roadside Right-of-Way Fuels Reduction Project aims to reduce the brush, small trees, and hanging ladder fuels along identified roadways in the “XX” subdivisions. Fuel reduction will be accomplished by CDF fire crews, with disposal of the removed vegetation accomplished by either “pile & burn” or mechanical chipping methods. The Calaveras Foothills Fire Safe Council submitted a grant proposal to the California Fire Safe Council Grant Clearinghouse that was originally approved in 2005; Initial work on this project began in 2005 and continued thru 2008.

- Treatments have occurred in the following subdivisions:
 - Diamond XX – completed (will need evaluation for maintenance in 2009)
 - Circle XX – completed (will need evaluation for maintenance in 2009)
 - Bar XX – completed fall 2006/winter 2007 (will need evaluation for maintenance 2009)
 - Murphy’s Pines Sub. (In final stages of grant approval. Property Owner approval next step 2009)

Completion of the projects listed above has accomplished the following :

- Create enhanced vehicle sight lines along the roadway.
- Lessens potential fire intensity along the roadways, providing safer access for emergency personnel and equipment in the event of a wildfire.
- Lessens potential fire intensity along the roadways, providing safer evacuation routes for affected residents.
- Creation of advantageous fire control points from which to stop wildfires by reducing the fire intensity, which increases the potential for quick containment of spot fires occurring in the treated areas and creates a fuel bed conducive to firing and direct suppression tactics.

Based on the anticipated success of these projects, expansion of this project concept will occur into the Murphys and Sheep Ranch areas (higher elevation wildland fuels), by obtaining grants via the local Fire Safe Council. In Battalion 2, it is believed that this is the most efficient method to provide community protection from wildfire.

In May of 2008, we were contacted by Walter Valente, a land owner in the Dogtown Rd. area. Mr. Valente had completed a Vegetation Management agreement in the year 2000 and 2001. The Vegetation Management Plan was never executed. The plan is active again in 2009. He has expressed interest in restarting the plan. A new plan is in place; however the freeze of Proposition 40 funding has put the project on hold for the present.

Strategic Planning :

- Strategic Fire Line Location Plan – This plan/map identifies the locations of fire control lines that have been constructed and used to contain fires in the past, within the Battalion. Other key or recommended fire line locations have been identified on this map as recommended locations to stop wildfires. This historical and “Fire History Experience” can be utilized by firefighters and incident command teams in the event of a large fire

Public Education :

- Roadside Sign Program: Battalion staff will continue promoting the fire prevention message regarding equipment caused fires via the 4x8 roadside signs. One additional signboard has been installed on Copper Cove Drive to better carry this message to the residents of Copper Cove, Saddle Creek, and Oak Canyon. In addition, we are working with the California Department of Transportation (CalTrans) to secure a location on State Hwy 4 at the Calaveras/San Joaquin county line for an additional sign. Being a primary entry point for commuters, part-time residents and visitors to Calaveras Co. this stretch of highway experiences a very large volume of traffic, making it an excellent point from which to publicize our fire prevention messages. Another sign on Hwy 49 south of Angels Camp is used to announce outdoor debris burning related messages. This is an annual program in which signs are posted throughout the fire season.
- Calaveras County Fair (aka Frog Jump) : Battalion personnel continue their participation in the educational programs at the fair: helping to staff the CAL Fire booth; “being” Smokey; static engine displays etc. This is an annual event.
- VIP Patrols – A Volunteer-in-Prevention patrol is utilized to contact citizens in ignition prone areas, providing face-to-face education on equipment caused fires and mitigations.
- Local VIP’s conduct school fire safety programs under the direction of the Unit’s Fire Prevention specialist on an annual basis.

Law Enforcement :

- Cause Determination and Code Enforcement : A determined effort by Company Officers and LE staff, as needed, to determine a cause for all wildland ignitions. Accurate cause determination impacts several programs beyond the confines of the Battalion (Fire History, Fire Plan, Funding for example) and can be crucial to the subsequent ability of LE staff to issue citations for violations of the various PRC and PC codes, including debris burning, arson, power line clearance, and equipment related violations, among others.
- Law Enforcement Support of Inspections Program : Continued close cooperation between Battalion inspectors and the Unit’s LE staff in support of the Defensible Space Inspection Program in the form of a willingness to write citations as needed.

Battalion 2 Cooperators Mitigation Efforts

Murphy's Fire Protection District : A Weed Abatement ordinance is in place targeting unimproved lots ¼ acre or less. Their Prevention Officer typically responds to referrals/citizen complaints. Our LE-100 program completes the fire prevention effort within the confines of the town of Murphys.

City of Angels Camp : The Angels Camp Fire Dept has a “Fire Hazard Abatement Plan” similar to the State’s 4291 requirements. Their LE-100 style enforcement efforts are completed each year by the end of May. Residents are subject to a citation after June 1st.

Beginning in the fall of 2007 the TCU Pre Fire Engineer began a series of meetings with City of Angels representatives regarding implementation and adoption of new State building code requirements dealing with ember resistant building materials and techniques. These new “Chapter 7A” codes are tied to Fire Hazard Severity Zone designations within Local Response Area jurisdictions. In January of 2009 the City accepted the FHSZ maps for the city, setting in motion final production and distribution of the FHSZ map by the state, and their adoption process.

Calaveras Foothills Fire Safe Council : Since 2001 this FSC has been fully engaged in the success of several fuel reduction efforts, including : the production and implementation of the Calaveras County Community Wildfire Protection Plan; production and distribution of Public Education materials, and programs; identification, planning and implementation of numerous on-the-ground fuel reduction projects. The Fire Safe Council currently has two grant projects operating in or near the Battalion.

- **Murphys Pines Subdivision** : \$66,000 grant is in the final approval stages. This grant is for road right of way brush clearance to improve ingress and egress issues during a wildfire or other emergency.
- **Senior Assistance/ Defensible Space** : A grant has been renewed for assistance to Senior Citizens, Disabled Persons, and persons with Special Needs to accomplish PRC-4291 clearance of flammable vegetation from around structures.

See pages 55-56, Tables C-2 - C-3, for more details regarding the accomplishments of the Calaveras Foothills Fire Safe Council.

Battalion 3 Pre-Fire Management Plan

Battalion 3 Overview

The West Point Battalion consists of approximately 175,979 acres located in the northeast portion of Calaveras County. The Battalion ranges in elevation from 1,600 feet in the west to 6,800 feet at its eastern boundary, and is bisected by multiple east-west river drainages. Also bisecting the Battalion are two primary transportation corridors: State Highway 26, running east-west through its northwestern zone, and the combination of Mountain Ranch and Railroad Flat roads running generally south to north through the center of the Battalion..

The Battalion's fire control organization is comprised of three Forest Fire Stations: West Point FFS , a two (2) engine station is the Battalion Headquarters located in the community of West Point; Esperanza FFS , a one (1) engine station located 1 mile east of the community of Mountain Ranch; and Hermit Springs FFS , a one (1) engine station located 16 miles east of West Point at the 6,000 foot elevation.

The primary communities in the Battalion are West Point, Wilseyville, Glencoe, Railroad Flat and Mountain Ranch. These population centers are located in the western half of the Battalion along the roadways mentioned above. There are no incorporated towns, and these community centers are relatively small with most of the Battalion's population spread across a wide expanse of territory on parcels of 5 acres or more.

The western half of the Battalion also includes several large blocks of Federal Bureau of Land Management lands in the Mokelumne River drainages, and a few more blocks straddling the western boundary with Battalion 1. The eastern half of the Battalion is an inter-mix of privately owned commercial timberland owned by Sierra Pacific Industries and a smaller portion of federal lands of the Stanislaus National Forest. All Federal lands within the Battalion are designated as State DPA under an inter-agency fire protection agreement.

The entire Battalion has been designated by CDF as having a Very High Fire Hazard Severity Zone rating. It has also been categorized as having a High Fire Hazard rating by the United States Forest Service (USFS). The entire Battalion lies within the Unit's "Sierra" Fire Danger Rating Area.

In addition to providing protection for life and private property, the West Point Battalion provides resource protection for critical watershed, timber, and recreational values. The Battalion protects a sizeable portion of the Mokelumne and Calaveras River watersheds, including the North, South and Licking Forks of the Mokelumne and the North Fork of the Calaveras. The Mokelumne River watershed provides water to Tiger

Creek, Pardee and Comanche Reservoirs and is the primary water source for the East Bay Municipal Utility District. The Calaveras River watershed provides the primary water source for New Hogan Reservoir. Several significant tributaries of the above, smaller in volume but often equal in length also bisect the Battalion, including Murray, Jesus Maria, Forest and Blue creeks. Protection of these watersheds provides benefits that reach far beyond the boundaries of the Battalion and the Tuolumne-Calaveras Unit. The commercial timberland in the Battalion has supported an active logging industry for decades, playing a vital role in the local and state economy. *(In 2009 the SPI mill in Sonora is schedule to close due to challenging economic and regulatory conditions. It appears logging operations will cease, or be significantly reduced, at least in the short term.)* Recreation and aesthetics too are important resources under CDF's protection in Battalion 3; hunting, hiking and OHV activities dominate during the summer season when the private SPI lands are accessible to the public.

Local government fire protection is provided by three (3) fire districts. Central Fire and Rescue Protection District provides protection to the west end of the Battalion serving the communities of Mountain Ranch, Glencoe, Railroad Flat and the western areas of greater Sheep Ranch. West Point Fire and Rescue protects the north and central areas of the Battalion including the communities of West Point, Wilseyville, and the Lily Valley and Upper Blue Creek Subdivisions. Ebbetts Pass Fire District is responsible for the extreme eastern portion of the Battalion.

Battalion 3 Assessment Summaries: Assets At Risk, Fuels, Weather, Ignitions And Fire History

Assets At Risk: There are several assets as risk in the West Point Battalion: homes and businesses, watershed resources including major commercial timber holdings, water collection and distribution infrastructure, electrical power generation and distribution infrastructure, communications infrastructure, recreational resources, and historical and archeological sites.

- Residential and commercial development is probably the most obvious asset. Officially designated "Communities At Risk" in the Battalion include West Point (including the Lilly Valley and Blue Creek Subdivisions), Wilseyville, Glencoe, Railroad Flat, Mountain Ranch, and Sheep Ranch. The County General Plan and zoning laws have allowed fragmented growth throughout the west half of the Battalion; subdivisions that can be classified as modern and high density are rare, resulting in what could best be described as a continuous subdivision, with an average parcel size of five (5) acres. These communities can generally be classified as old. The majority of the development dates back to the 1940's through 1960's. As a result, out-dated design features such as shake roofs, wood siding, wood decks, and large single pane windows are common in these areas. As the communities continue to expand, wood frame remains the primary preference for new construction and the new Chapter 7A building codes will result in more ember resistant / fire safe structures.

- The broad spectrum of watershed values noted above may be less obvious, but are tremendously important within and far beyond the Battalion boundary. The watersheds in the Battalion supply water to the East Bay Municipal District, Stockton East Water District, Calaveras Public Utility District and the Calaveras County Water District. The Mokelumne River watershed is the water source for Tiger Creek, Pardee and Comanche Reservoirs and the primary water source for the East Bay Municipal Utility District (EBMUD). The South Fork and Licking Forks of the Mokelumne are the primary water sources for the Calaveras Public Utilities District (CPUD) with their intake just south of the confluence of the South and Licking Forks where water is pumped into Jeff Davis Reservoir located in the Railroad Flat area. The North Fork Calaveras River is a primary water source for New Hogan Reservoir. Calaveras County Water District and the Stockton East Water District (SEWD) utilize New Hogan for water storage and delivery. Calaveras County Water District (CCWD) utilizes the Bear Creek and Forest Creek Drainages.
- There are various water delivery systems within the Battalion. Calaveras County Water District services the West Point and Wilseyville area. Calaveras Public Water District services the communities of Railroad Flat and Glencoe. The community of Mountain Ranch has a single storage tank and hydrant located near Senders Market. The balance of the Battalion is serviced by individual wells. With the enactment of PRC 4290, water delivery was addressed by an optional formula. Some residents have chosen to install on-site water tanks; however, the majority of new development has opted to pay an in-lieu Water Enhancement Fee to fund the Calaveras County Water Tender program. On-site tanks are minimal and there is not currently a system to guarantee functionality of the existing tanks.
- Sierra Pacific Industries owns the majority of the eastern half of the Battalion. The Stanislaus National Forest manages the rest of eastern high-elevation zones of Battalion 3. These private and Federal timber lands are directly linked to the viability of the above mentioned water collection and distribution systems. When this water element of the resource value is added to the value of the private and Federal timber one can begin to see the crucial importance of the fire protection offered by the C.D.F.

Fuels: With the exception of two small blocks (downtown West Point and the west end of Spink Rd)) the Battalion has been designated by CDF as a *Very High* Fire Hazard Severity Zone. Historically the Battalion was primarily commercial timber land with the western portion a ponderosa pine dominated stand transitioning at the higher elevations to a fir and lodge pole pine dominated stand. Human activity, primarily 150+ years of logging, has changed the balance and mixture of the fuel types in the Battalion. This logging, consistent with the land use policies of any given era, has changed the historical fuel type from a timber dominated model throughout to a brush dominated fuel model at the lower elevations and an intermix of brush and timber fuel models at the higher elevations. This mixture of fuels (brush with an overstory of timber) creates a highly volatile fuel situation. The brush fuel model acts as the primary fire carrier horizontally and vertically into the timber overstory, which increases flame lengths and spotting potential.

Recent logging history is also having an effect on fuels within the Battalion. Starting in 1998 SPI initiated the use of clear cutting on their commercial timber lands: an eighty (80) year harvest cycle on 20 acre plots; typically completing harvest, debris removal and re-planting within 2-year time spans.

The effects of a series of annual low elevation snow falls starting in March of 2006 remain a consideration for the fuels between the 1,500 and 3,000 foot elevations. These events primarily affect the live oaks, black oaks and bull pines, breaking off branches and tops, adding significantly to the amount of down-dead fuels. This in turn increases the availability of ladder fuels thereby increasing the difficulty of fire control through the creation of fuel “jackpots” that burn at a high intensity.

Weather: As the normal summer heat waves begin to subside, the Battalion receives the beneficial effects from the delta breeze about 24 hours after its effects are felt in the San Joaquin Valley and the lower elevations of the Unit. This extends the effects of high hazard weather patterns one day longer than the lower elevations experience. In the upper elevations of the Battalion, it is not uncommon to experience relative humidity’s in the low teens from the middle of September until the rainy season. Correspondingly, 10-hour fuel moistures can stay below 5% for much of the fall. The Battalion frequently experiences East and North wind events at the higher elevations. During these events, high winds coupled with low humidity develop with little or no warning. The Mokelumne river drainages typically come under the greatest influence from these events.

Fire Ignitions / Fire History: The Battalion has averaged 25 fires annually during the past 11 years. If one only looks at man caused fires, the number is reduced to an average of 23 fires per year. Prior to 2005, fires which occurred during the “Winter Preparedness (non-fire season declaration)” were not reflected in the Statistical reporting. As with most mid-elevation Battalions, the Battalion experiences a number of debris burn escapes into the vegetation during the dry periods normally occurring during the winter period. Since 2005, Seventy-Seven (77% or 30 out of 39) of the debris fires within the Battalion have occurred during the Winter Preparedness period.

Debris Burning as a result of the year round reporting now result in the majority of the fire causes at 20%. Vehicle and miscellaneous fires now account for approximately 14% each. With the current increase in Debris Burn related incidents both during the fire season and during the Units historical non reporting period, the focus will be on the Burning Permit process and public awareness through Fire Prevention signs and media releases.

As with all Battalions in TCU, the West Point Battalion has had its share of large and damaging fires. Historically significant fires include:

- The Moore Fire (2001) located in Moore Creek on the No. Fork of the Mokelumne River burned approximately 579 acres of timber.
- The Leonard Fire (2001) burned onto the western boundary of the Battalion burning approximately 5,188 acres.

- The Harley fire south east of Wilseyville which began on April 1, 2000 burned approximately 158 acres of timber.
- The Winton Fire (Lightning #31) (1999) 6 miles east of West Point which burned approximately 114 acres of timber.
- The Lightning #14 fire (1996) in the Swiss Ranch area burned approximately 2,647 acres.
- The Old Gulch Fire (1992) burned on the southern boundary of the Battalion south of Mountain Ranch burning approximately 17,419 acres.
- The Railroad Flat Complex (1988) consisting of the Bridge (6,690 acres) and Mason (4,050 acres) fires located to the East of Railroad Flat and Mountain Ranch burning a total of 10,740 acres.
- The Forest Creek Fire (1959) located 10 miles east of West Point burned approximately 528 acres of timber.
- The Battalion has experienced an additional 27 “Large Fires” since 1918 ranging from 5 to 1,748 acres.

Battalion 3 Mitigation Efforts

The Calaveras County General Plan and Zoning Codes are the governing rules for development. The common 5 acre parcel size required therein contributes to the limited ability to modify fuels over large geographical areas in the populated west half of the Battalion. Large private and Federal land ownership in the eastern half of the Battalion affords a far greater opportunity for cooperative projects which are very beneficial to the associated watershed concerns. As a result, Battalion 3 will continue to focus on the following successful approach to reducing the wildland fire threat:

Defensible Space Inspections : Removing fuels around structures provides the single most effective action for increasing structure survivability during a wildfire. An aggressive inspection program can provide firefighters with defensible space for structure protection operations. Battalion 3 has a focused LE-100 program. As stated previously, the majority of the Battalion is divided into parcels of 5 acres or larger. The size of the parcels provide the opportunity to implement the required 100 foot fuel removal within the property boundary in a majority of the situations. As a result of the initial application of the 100 foot requirement, a large amount of time is required to educate the home owners as to what is required, often requiring multiple inspections. The emphasis of the program will be on education and eventual compliance. The amount of fuel to be removed is substantial in many cases. The removal is hindered by burning restrictions such as APCD rules and/or travel time to waste disposal sites at approximately 1 ½ hours per load. The focus will be on quality and not quantity.

Within the Esperanza area, we will target the areas of East Murray Creek and Jesus Maria Roads. Within the West Point area, the focus will be on the rim of the North Fork of the Mokelumne River and the Lynn Park Acres subdivision area.

Fuel Reduction/Breaks : Fuel breaks are the primary mitigation measure used to modify fuels in Battalion 3. In the eastern portion of the Battalion, Sierra Pacific Industries (SPI) is the primary landowner, followed in total acres by the United States Forest Service – Stanislaus National Forest. SPI, the Stanislaus National Forest (STF), and the California Department of Forestry and Fire Protection (CAL FIRE TCU, including AEU’s Pine Grove Camp) have initiated an extensive network of fuel breaks comprising approximately 71 miles (approximately 2,400 acres) of completed and proposed fuel breaks. These fuel breaks are typically located on a predominant ridge line utilizing a 300’ wide shaded fuel break configuration.

As additional sections of the fuel break network are completed in the coming years, for those portions completed early in the program maintenance will become an issue.

BATTALION 3 FUEL BREAKS - CURRENT & PROPOSED *				
FUEL BREAK	SPI	STF	OTHER	TOTAL
Winton Road FB	14.25	5.25	1.5	21
Schaads FB	4.25	0.5	0.5	5.25
Bailey Ridge FB	9	5.75	0	14.75
West Blue FB	8.2	0.3	1.25	9.75
Blue Mtn Rd/Buck Ranch FB	13.25	1.5	0.25	15
Blue / Moore FB	3.75	1.25	0.25	5.25
Swiss Ranch FB	TBD	TBD	TBD	
<i>* IN MILES</i>			TOTAL	71

Table C-1

- West Blue #1 Project – This is a cooperative project between CDF, Sierra Pacific Industries (SPI) and local landowners. There are 2 main objectives of the project. First, to construct a fuel break on the ridge that extends westward from Blue Mountain. This fuel break is part of the Calaveras-Tuolumne Fuel Break Project. Second, to reduce fuels on wildland adjacent to existing structures in the project area. About 150 of the 370 project acres have been treated to date.
- In July, 2007, Cal Fire entered into a Vegetation Treatment Program agreement with Sierra Pacific Industries covering an area approximately 6,342 acres in the area east of West Point and Wilseyville and surrounding the community of Lilly Gap, also encompassing a portion of the Winton Road Fuel Break. This project is designed to allow for multiple burns utilizing mechanized or hand crew fuel removal methodologies on multiple plots of varying acreages. All designed to take advantage of fuel, weather and resource availability issues. This project uses a systematic approach to reduce fuels, initially in the Wildland-Urban interface. Between July 1, 2008 and June 30, 2009, we have treated approximately 126 acres utilized prescribed fire and manual thinning with a fire crew. A total of 174 acres has been treated within the VTP.

- Winton Road Fuel Break – During 2008/09, we successfully treated approximately 104 additional acres utilizing prescribed fire under the Winton/Schaads VTP agreement.
- Winton Road Roadside Fuel Reduction Project – This is a cooperative project between CDF Sierra Pacific Industries (SPI), local land owners and the Stanislaus National Forest. The road is owned by Sierra Pacific Industries. There are 2 main objectives of the project. First is to reduce the fuels availability immediately adjacent to the main forest road utilized by the public and the logging industry. Second, the reduction in fuels will dramatically improve sight distance for vehicle travel. Winton Road is the primary response road for the Hermit Springs FFS. Providing this clearance will greatly enhance the safety of CDF Personnel, the logging industry and the public. In 2007 this project was completed through the use of Prop 40 funds and mechanical equipment.

Strategic Planning : The Battalion benefits from Structure Protection Plans, originally compiled beginning in 2002, covering all of the significant communities with the battalion.

Public Education :

- Roadside Sign Program : We have 3 sign locations within the Battalion. Signs are hung annually, depicting varying fire prevention messages.
- School Programs : Battalion personnel will continue to support the Fire prevention Specialist's elementary school fire safety and prevention message program.
- West Point Lumberjack Days : Battalion personnel will continue to participate in the annual parade and associated events, during which the majority of the West Point community is present to see the fire prevention message on displayed.

Law Enforcement :

- Cause Determination and Code Enforcement : A determined effort by Company Officers and LE staff, as needed, to determine a cause for all wildland ignitions. Accurate cause determination impacts several programs beyond the confines of the Battalion (Fire History, Fire Plan, Funding for example) and can be crucial to the subsequent ability of LE staff to issue citations for violations of the various PRC and PC codes, including debris burning, arson, power line clearance, and equipment related violations, among others.
- Law Enforcement Support of Inspections Program : Continued close cooperation between Battalion inspectors and the Unit's LE staff in support of the Defensible Space Inspection Program in the form of a willingness to write citations as needed.

Battalion 3 Cooperators Mitigation Efforts

Calaveras Healthy Impact Products Solutions : The C.H.I.P.S. committee is a coalition of organizations and individuals from the West Point, Wilseyville and Rail Road Flat areas that are looking into the feasibility of using wood waste in ways that could provide jobs, reduce energy costs and improve fire safety for area residents. Members of the coalition include the Calaveras County District 2 Supervisor, Calaveras County Mountain Mi-Wuk Tribal Council, Sierra Pacific Industries, BLM, Calaveras Band of Mi-Wuk Indians, Mother Lode Job Training, Calaveras Foothills Fire Safe Council, Foothill Conservancy, and Sierra Nevada Forest Protection Campaign. The wood waste would come from the Wilseyville solid waste transfer station, residual timber harvest debris, and forest wildland fuel reduction efforts. It is hoped that this program would provide jobs, reduce energy costs and improve the safety for local residents.

The committees are currently working on feasibility studies for four options that include the production of electrical energy, mulch and chips, fence posts and wood pellets. The study regarding generation of electricity includes investigating the viability of building a cogeneration plant in the study area to provide cheaper energy to local residents. The other options would provide much needed jobs for local forest industry.

Calaveras Foothills Fire Safe Council : Since 2001 this FSC has been fully engaged in the success of several fuel reduction efforts, including : the production and implementation of the Calaveras County Community Wildfire Protection Plan; production and distribution of Public Education materials, and programs; identification, planning and implementation of numerous on-the-ground fuel reduction projects.

See pages 55-56, Tables C-2 - C-3, for more details regarding the accomplishments of the Calaveras Foothills Fire Safe Council.

Calaveras County : Since 2003 disposal of forest fuels has been made much easier for local residents, thanks to the County's Fuel Waste Disposal program. Under this program, homeowners may take all unwanted yard debris (brush, grass, pine needles, etc.) to local transfer stations and dump these materials at no charge. The program has been very successful in encouraging compliance with PRC-4291 fuel reduction requirements while improving air quality as a result of a reduction in burning. The utilization of this service has dramatically increased due to the PRC-4291 changes requiring up to 100 foot of clearance.

Stanislaus National Forest : The primary focus of the Calaveras District of the Stanislaus National Forest is on their lands comprising the state DPA surrounding the greater Arnold community in Battalion 4. However, they will be continuing their work on their segments of the Moore/Blue and Winton Road fuel breaks in Battalion 3. They also have thinning and under burning plans for the Moore and Blue Garnet timber sales.

Battalion 4 Pre-Fire Management Plan

Battalion 4 Overview

The Arnold Battalion consists of 136,520 acres, covering the southeast portion of Calaveras County, and a significant portion of north-eastern Tuolumne County. The Battalion includes a wide geographic area, with elevations ranging from 1400 to 6800 feet and is bisected by multiple east-west drainages that have a history of supporting fire spread. Also bisecting the Battalion is State Highway 4, recently designated a State of California Scenic Byway.

The Battalion's fire control organization is comprised of two Forest Fire Stations, Arnold and Skull Creek, and the Blue Mountain Fire Lookout. The Arnold FFS is a two (2)-engine station that serves as the Battalion headquarters. The Skull Creek FFS is located several miles south of Big Trees State Park (BTSP) in a remote area of Tuolumne County historically known as the Standard Block, in the heart of Sierra Pacific Industries' commercial timber holdings. Blue Mountain Lookout, located north of Arnold is maintained but not routinely funded for staffing (*staffed as needed only during periods of High Fire Danger and/or lightning activity*).

The major communities in the Battalion straddle Hwy. 4 - Hathaway Pines, Avery, Arnold, and Dorrington; there are no incorporated cities. The Arnold/Dorrington area, with over 6000 structures, is the most densely populated area in the Battalion and one of the most densely populated communities in the county. Most residential development is located within established subdivisions. However, there are also many homes and cabins located outside subdivisions on larger parcels, ranging from 1-40 acres in size. The Battalion includes one certified Fire Wise Community – the Forest Meadows subdivision.

Much of the land in the eastern portion of the Battalion is an inter-mix of privately owned commercial timberland owned by Sierra Pacific Industries and the federal lands of the Stanislaus National Forest. Most National Forest lands within the Battalion are designated as State DPA under an inter-agency fire protection agreement. Local government fire protection and emergency service is provided by the Ebbetts Pass Fire Protection District, which has four stations, two of which are staffed with full-time firefighters.

In addition to providing protection for life and private property, the Arnold Battalion provides resource protection for critical watershed, timber, and recreational values. The Battalion protects portions of the Calaveras, Mokelumne, and Stanislaus river watersheds. Protection of these watersheds provides benefits that reach far beyond the boundaries of the Battalion and the Tuolumne-Calaveras Unit. The commercial timberland in the Battalion has supported an active logging industry for decades, playing a vital role in the local and state economy. (*In 2009 the SPI mill in Sonora is schedule to close due to challenging economic and regulatory conditions. It appears logging operations will cease, or be significantly reduced, at least in the short term.*) Most

importantly, the scenic beauty of the area supports a vibrant year-round local tourism industry that caters to all types of outdoor enthusiasts. The Battalion also protects Big Trees State Park, a highly visited park that features magnificent groves of Sierra Redwoods, Cedar and Douglas Fir.

The overwhelming majority of the Battalion has been designated by CDF as having a *Very High* Fire Hazard Severity Zone rating. It has also been categorized as having a High Fire Hazard rating by the United States Forest Service (USFS). With exception of a small portion of its western lower elevation areas, the Battalion lies within the Unit's "Sierra" Fire Danger Rating Area.

Battalion 4 Assessment Summaries: Assets At Risk, Fuels, Weather, Ignitions And Fire History

Assets At Risk: There are multiple assets at risk within the Battalion, with the most obvious being life and property. The following list reflects those assets those assets that will be considered in pre fire planning for the Battalion:

- Life safety: A very large percentage of the population of the greater Arnold area is comprised of temporary residents. A large number vacation homes exist in the upper Highway 4 corridor which leads to intermittent increases in population throughout the year in response to summer recreation opportunities, holiday weekends and the ski season.
- Residential and commercial development: Battalion 4 assets include all communities along the Highway 4 corridor. Officially designated "Communities At Risk" in the Battalion include: Arnold, Avery, Big Trees Village, Camp Connell, Cottage Springs, Dorrington, Forest Meadows, and Hathaway Pines. Pending official designation is white Pines. Included in and/or adjacent to these communities are numerous subdivisions and commercial developments.

These communities include a wide variety of residential development: modern subdivisions featuring mid-sized homes on small urban-style lots; large modern luxury homes on multi-acre lots within a subdivision or individually located in a purely rural setting; mobile and manufactured homes in parks and/or on multi-acre rural parcels; and widely scattered 50+ year old homes among others. Given the long history of development, a wide variety of building materials and design features are present. The oldest structures in the Battalion are often at significant risk due to threatening locations and non-Fire Safe construction practices. Mid-slope, chimney and ridge-top locations and out-dated design features such as shake roofs, wood siding, wood decks, and large single pane windows are common. The newer development features many improvements in construction materials (double pane windows and fire resistant roofs and siding for example) but often remain at significant risk due to dense concentrations of structures on small parcels carved out of dense forest and brush fuels, often on steep terrain.

Both newer and older residential communities feature many steep and narrow roads and driveways. Development will undoubtedly continue in the interface, but will incorporate the latest Chapter 7A building codes, resulting in more ember resistant / fire safe structures.

- Community infrastructure: water storage and delivery systems (flumes, tanks & reservoirs); electrical distribution equipment; telecommunications system; roads and bridges; schools.

There are various water delivery systems within the Battalion, including a major flume operated by Utica Power Authority. The Calaveras County Water District and the Blue Lake Springs Mutual Water Company also operate facilities within Battalion 4.

Several government agencies and private communications companies take advantage of the topography within the Battalion for the location of communications system facilities. Power transmission lines are also present.

Highway 4, recently designated a State Scenic Byway, is a vital transportation link, providing access for tourism and recreation within the Battalion as well as to the Federal high country and the east side of the Sierra range.

- Big Trees State Park: Located just east of Arnold along Hwy. 4, BTSP features significant groves of old growth Sierra Redwood as well as large stands of old growth Sugar Pine and Cedar, among others. The park is well known, experiences very high visitor numbers and is crucial to the economy of the adjacent communities and the County at large.
- Watershed: The most significant watershed asset is water. The Battalion provides protection to critical watershed, including the South Fork Mokelumne River headwaters; South Fork Calaveras River headwaters, consisting of San Antonio and San Domingo Creeks, among others. Both the above watersheds support New Hogan Reservoir. South of Hwy 4 are the Stanislaus River North and Middle Fork systems, including Griswold, Beaver, Soap and Skull Creeks, among significant numbers of others. The Stanislaus River watershed supplies water to New Melones Reservoir and Tulloch Reservoir.

The watersheds all support assets important to an area far beyond the Battalion and Unit boundary, including: water storage for local and regional domestic, industrial and agricultural use; recreational opportunities; power generation; and wildlife habitat among others.

- Commercial timber resources - private and federal: Another important watershed asset is the commercial timber. The majority of commercial timber resources within these watersheds is owned and managed by Sierra Pacific Industries. Their large holdings between the North and Middle Forks of the Stanislaus river,

historically known as the Standard Block, was considered the most valuable stand of virgin Sugar Pine in the world during the middle of the last century. A significant number of acres belonging to the USFS Stanislaus National Forest lay within the Battalion also.

- Recreation values: A third watershed asset is recreation. As the timber industry has declined over the last several decades the importance of recreation has increased significantly. Fishing, hunting, motor sports, hiking, biking, and other activities are having an increasing positive effect on the local economy. Arguably, the most important influence of recreation on the Battalion is the impact of the ski season on commerce in the greater Arnold area. Not only do thousands of skiers pass through on any given weekend, but thousands also reside in and around Arnold on winter weekends and over holidays. The summer season also sees huge influxes of people into the greater Arnold area, especially on the traditional 3-day holiday weekends.
- Cultural and other resource values: A long history of Native American occupation a rich Gold Rush era history, and major industrial logging activities have left behind numerous cultural and archaeological sites, often located in remote, difficult to reach areas.
- Grazing/Agricultural values: Though not as numerous or significant as in the lower elevation Battalions, agriculture related assets, including orchards, vineyards and cattle grazing, are present and economically important.

Fuels: The majority of the Battalion has been designated by CDF as a *Very High Fire Hazard Severity Zone*. It has also been categorized as having a High Fire Hazard rating by the USFS. Fuels in the Battalion range from dense stands of mature brush mixed with oak woodlands at the lower elevations, mixed conifer forests dominated by ponderosa pines in the mid-range elevations and fir and lodgepole pine dominated stands at the upper elevations. Fuel Models 1 (grass), 2 (oak woodland), 4 (heavy brush), 6 (medium brush), and 10 (heavy timber) are all present. This variety of fuels coupled with the rugged topography creates a highly volatile fire environment that has promoted extreme fire behavior on several occasions over past decades.

Weather: As the normal summer heat waves begin to subside, the Battalion receives the beneficial effects from the delta breeze about 24 hours after its effects are felt in the San Joaquin Valley and the lower elevation portions of the Unit. This extends the effects of high hazard weather patterns one day longer than the lower elevations experience. In the upper elevations of the Battalion, it is not uncommon to experience relative humidity in the low teens from the middle of September until the rainy season. Correspondingly, 10-hour fuel moistures can stay below 5% for much of the fall. The Battalion frequently experiences East and North wind events at the higher elevations during the fall. During these events, high winds coupled with low humidity develop with little or no warning. The Mokelumne and Stanislaus River drainages typically come under the greatest

influence from these events as is evident by a handful of large fires that have occurred after the official close of fire season in the fall.

Fire Ignitions / Fire History: The Ignition Management Analysis shows that the Battalion averaged 14.5 fires per year in the 4 year period between 2005 and 2008. Previous analyses averaged 28 ignitions per year. The major causes, excepting lightning, are debris burning, campfires, and miscellaneous. Over the past years, there has been a steady decline in the number of escaped debris burns and this trend can be attributed to the early suspension of burning permits due to fire conditions. Previous analyses have shown that an average of 2,188 acres has burned in the Battalion each year. This number is skewed due to the Darby fire of 2001 and the Armstrong #1 (Mineral) and #2 fires of 2004. Factoring out these large fires, an average of 10 acres are burned in the Battalion each year.

Despite the relatively low number of ignitions and acres burned that occur on an annual basis, the Arnold Battalion has a history of large and damaging wildfires, most recently the Armstrong #1 and #2 (2004), Sourgrass (2002), Darby (2001), and Gulch (1992) fires. In some cases these fires originated in low country Battalions (Gultch, Darby) and have spread eastward up the drainages that dominate the topography. These fires have been terrain and fuel driven and containment has occurred primarily due to changes in fuels and topography or moderation in weather conditions. In other instances large and damaging fires have occurred in response to wind events in the Mokelumne and Stanislaus River drainages. Several of these fires have occurred after the close of fire season, so their acreages are not included in the statistics provide in this analysis.

Battalion 4 Mitigation Efforts

Other than lightning, there is no consistent and statistically significant fire cause trend in the Battalion. County General Plan and Zoning Codes are the governing rules for development. Within the densely populated areas of the Battalion small parcel sizes limit the ability to modify fuels over broad expanses of terrain. Large private land ownership (SPI) intermingled with USFS lands provides greater opportunity for large scale cooperative fire prevention projects. As a result, Battalion 4 will continue to focus on it's successful two-prong approach to reducing the wildland fire threat:

Defensible Space Inspections : Removing fuels around structures provides the single most effective action for increasing structure survivability during a wildfire. An aggressive inspection program can provide firefighters with defensible space for structure protection operations. The Battalion has developed a model program utilizing VIP assistance to implement a vigorous home inspection program. In the past two years, the Battalion has conducted over 10,500 inspections annually, far exceeding the Unit's inspection target. We continue to work with the media in developing community awareness of PRC-4291 requirements and its benefits. Compliance is further encouraged by an annual enforcement "ticket blitz" (see below).

Fuel Reduction / Breaks : A network of fuel breaks has been completed in cooperation with the Stanislaus National Forest, Big Trees State Park, and Sierra Pacific Industries. Due to the fact that CDF does not control these lands, the CAL FIRE role has been limited to providing technical advice regarding the location of these fuel breaks and assisting with the incorporation of private parcels into existing projects. To date, cooperative fuel breaks have been constructed around the western portions of Lakemont Pines, Hathaway Pines, and the McKay's Road area. These efforts will provide protection to homes in these areas and future efforts to maintain these projects are planned.

This approach serves a dual purpose in that it protects homes from encroaching wildfires and protects wildland areas from fires starting in adjacent subdivisions.

Over the years, several fuel break projects have been completed by CAL FIRE :

- Love Creek Ranch Fuel Reduction Demonstration Project – In 2003, TCU staff applied for and received a USFS grant of \$54,000 to partially fund a demonstration fuel reduction project on the Love Creek Ranch near Avery. The project was completed in 2006. This was a cooperative project between CDF, the Stanislaus National Forest, the Ebbetts Pass Fire Protection District, and the landowner, Mr. David Alford. The goal of the project was to expand the network of fire defense improvements in the Arnold area. The project is immediately adjacent to a fuel break constructed by the Stanislaus National Forest and was successful in expanding the buffer of treated lands between National Forest lands and concentrations of rural subdivisions. The existing fuel break is part of the Calaveras-Tuolumne Fuel Break System that was used to contain the Darby Fire in 2001.

Because of its proximity to numerous forest subdivisions, the project provides an opportunity for the public to view the effects of mechanized removal of hazardous forest fuels. It also provided employment to logging contractors who have experienced a significant reduction in employment opportunities as a result of declining timber harvest levels in Calaveras County. All forest biomass removed from the 120 acre project area was utilized for the generation of electric energy.

- Big Trees Village Fuel Break – A fuel break around the southeast side of the Big Trees Village was completed in cooperation with Calaveras Big Trees State Park, Sierra Pacific Industries, CAL FIRE, and the Big Trees Village Homeowners Association. The purpose of the project was to reduce fuels along the subdivision – State Park interface in order to slow fire spread into and out of either the subdivision development or Big Trees State Park.
- Moran Road Fuel Break – A fuel break along the ridge that separates Moran Road and Love Creek is in the planning stages. Sierra Pacific Industries is planning a timber harvest in this location with the goal of developing a shaded fuel break

condition upon completion of harvest. This project would provide additional protection to the more densely populated portions of the Battalion.

Strategic Planning :

- Structure Protection Plans : Plans have been developed for all developed community areas within the Battalion, identifying hazards, topography, evacuation routes and tactical information.
- Evacuation Planning : Develop a Battalion evacuation plan outlining evacuation routes, facilities, agency contact numbers and fire prevention tips. Application has been made for a grant to fund this project.
- County Ordinance Application : Engage County Building and Public Works officials to support the enforcement of County ordinances which have been adopted as functional equivalents to PRC 4290, with regards to water supply, road standards, signage, and fuel modification.
- Fire Lookout Staffing : Restore funding of lookouts. The loss of Blue Mountain Lookout staffing reduced CAL FIRE's ability to quickly detect wildfires and dispatch appropriate resources. Restoration of these positions would improve CAL FIRE's early detection abilities.
- Right-of-Way Fuel Reduction : Engage County Public Works officials to promote the continuation of road-side fuel clearing projects and the importance of maintenance of previously cleared right-of-ways.

Public Education :

- LE-262 Burn Permit Administration : Provide fire prevention education materials and positive agency contact with each permit, explaining debris burning fire safety requirements.
- Campfire Permits : Encourage all campers to obtain campfire permits.
- Fire Prevention Signs : Post fire prevention signs year-round, to better educate the public on fire hazards and methods of prevention. Messages will target causes identified in the ignition management analysis.
- School Fire Prevention Programs : Battalion personnel will continue to support and participate in annual school fire prevention programs in the Battalion in order to increase fire safety education and awareness.

Law Enforcement :

- Law Enforcement Support of Inspections Program : Continued close cooperation between Battalion and VIP inspectors and the Unit's LE staff in support of the

Defensible Space Inspection Program in the form of a willingness to write citations as needed.

- Cause Determination and Code Enforcement : A determined effort by Company Officers and LE staff, as needed, to determine a cause for all wildland ignitions. Accurate cause determination impacts several programs beyond the confines of the Battalion (Fire History, Fire Plan, Funding for example) and can be crucial to the subsequent ability of LE staff to issue citations for violations of the various PRC and PC codes, including debris burning, arson, power line clearance, and equipment related violations, among others.

Battalion 4 Cooperators Mitigation Efforts

Stanislaus National Forest, USFS : For many years the Battalion 4 Chief has worked closely with his counterparts from the Calaveras District of the Stanislaus National Forest. Coordination of fuel reduction efforts continues to be a high priority given that several large subdivisions within the greater Arnold area are immediately adjacent to USFS lands. Though the majority of these Federal lands are designated as State DPA they remain the responsibility of the USFS for all other land management issues, including forest fuel treatment projects.

Within the USFS, efforts are ongoing to plan and carry out fuel reduction projects in 2009 and beyond. The Calaveras Districts' fuel treatment strategies are designed to reintroduce fire, reduce fuel levels, and mitigate the consequences of large damaging wildfires. These strategies allow managers to set priorities that protect fire fighters, the public, property, and natural resources. In general, landscape level fuel treatment strategies are designed to limit wildfire extent, modify fire behavior, and improve ecosystems. Fire and fuel management relies on a combination of strategies for modifying wildland fire behavior, achieving Fire Management Plan goals, and re-introducing fire across broad landscapes:

- Strategically placed area treatments.
- Defensible fuel profile and fuels reduction zones adjacent to communities and areas of high value.
- Wildland Fire Use.

Fire managers use these strategies for prioritizing projects over the entire Forest to determine priority areas for fuel treatment. The fuel management goals include:

- Protect life and property in the wildland urban intermix (WUI) zone.
- Provide for firefighter and public safety.
- Improve forest health and fire resiliency.

- Reduce fire severity and level of resource damage.
- Adhere to the directions, standards, and guidelines in the Land and Resource Management Plan.

- Protect sensitive habitat.

Since 1992, over 15,000 -acres have been treated in WUI areas within the Calaveras District. An additional 8500+ acres of treatment is in the planning or implementation stage.

Calaveras Big Trees State Park : The California Dept. of Parks and Recreation (DPR) State Park has an aggressive fuel treatment program aimed at restoring the role of fire in park ecosystems while preserving and protecting the unique features of the park. State Park officials have conducted a number of fuel reduction projects at Calaveras Big Trees State Park. The largest single project was a 115-acre fuel break constructed along the boundary shared with Blue Lake Springs subdivision and on the ridge forming the upper watershed boundary of Moran Creek. Most of the other related projects conducted in the park are aimed at restoring forest stand conditions to reflect a natural fire regime, although the end results are essentially the same as a specific fuel reduction/fuel break project. This allows DPR to contribute to the effort to create a fire safe community, while also meeting its responsibility to preserve natural systems within the park. Additional projects include 45 acres treated (as part of a black oak woodland restoration project) along the ridge connecting Blue Lake Springs and Big Trees Village subdivisions, three separate projects to thin understory trees and reduce ground fuels along the Highway 4 Corridor through the park, (approximately 80 acres), and an ongoing effort to restore the forest community of the South Grove Natural Preserve. In addition, approximately 45 acres of several smaller projects have been conducted to reduce fuel loadings that are particularly heavy, but that are not necessarily part of a strategic plan. The park has also been awarded a grant to treat 70 acres along its boundary between Big Trees Village subdivision. This project will provide valuable protection both the park and the subdivision from encroaching wildfires.

Sierra Pacific Industries : As the largest single landowner in the Battalion, Sierra Pacific Industries (SPI) is an obvious partner for collaborative projects. Currently, CAL FIRE is encouraging SPI to conduct additional thinning operations along the boundary of the Big Trees Village subdivision and on additional parcels near Moran Road and Love Creek areas. In support of these efforts CAL FIRE personnel continue to maintain our targeted inspection program in areas that are adjacent to SPI land, in order to reduce the threat of wildfires spreading from developed subdivisions onto SPI timberlands.

Ebbetts Pass Fire Protection District : The Ebbetts Pass Fire Protection District (EPFPD) has been a supporter of CAL FIRE's fuel reduction plans. In addition, the District has an ordinance requiring fuel modification on unimproved parcels on a year-round basis. This ordinance is especially important to CAL FIRE, as it has no legislated authority to enforce fuel reduction on unimproved parcels. CAL FIRE supports the efforts of EPFPD by providing technical assistance to the district upon request

Forest Meadows Homeowners Association : The subdivision is the only certified Firewise Community in the north Division. The Association has successfully applied for a grant through the California State Fire Safe Council to prepare a Community Wildfire Protection Plan for their area. Grant funds will support the preparation of the plan and the subsequent fuels management. The plan examines vegetation conditions, terrain, and climatic influences within the development and on appropriate adjacent lands. It addresses the impact of infrastructure (roads, trails, utility corridors, etc.) on fire behavior and examines the response situation. The plan was prepared in close collaboration with appropriate agencies, special districts, and other concerned parties.

Calaveras Foothills Fire Safe Council : : Since 2001 this FSC has been fully engaged in the success of several fuel reduction efforts, including : the production and implementation of the Calaveras County Community Wildfire Protection Plan; production and distribution of Public Education materials, and programs; identification, planning and implementation of numerous on-the-ground fuel reduction projects.

See pages 55-56, Tables C-2 - C-3, for more details regarding the accomplishments of the Calaveras Foothills Fire Safe Council.

Calaveras County Fuel Waste Program : Disposal of forest fuels has been made much easier for local residents, thanks to the County's Fuel Waste Disposal program. Under this program, homeowners may take all unwanted yard debris (brush, grass, pine needles, etc.) to local transfer stations and dump these materials at no charge. The program has been very successful in encouraging compliance with fuel reduction around structures while improving air quality.

Western Alpine County : While not part of the Tuolumne-Calaveras Unit's administrative boundaries, Western Alpine County is within the Arnold Battalion's sphere of influence. The community of Bear Valley is actively addressing concerns regarding forest fuel accumulations. The homeowners association with the help of a Registered Professional Forester continues to implement treatment projects on common areas within the Bear Valley Subdivision with the intent of reducing fuel loading. In addition, the County Public Works Department continues efforts to reduce fuel accumulations along public road right-of-ways using various grant funds.

Calaveras County Fuel Reduction and Community Education Accomplishments Report

YEAR: 2004-2007	ORGANIZATION / AGENCY : Calaveras Foothills FSC					Project Accomplishments				Breakdown of Funding Sources			
PROJECT NAME <small>Include System ID where appropriate</small>	PROJECT TYPE	LOCATION	PROJECT DESCRIPTION / TREATMENT METHOD	PROJECT SPONSOR	Date Completed	APPROX ACREAGE <small>Fuel Reduction, Conversion</small>	APPROX. MILEAGE <small>Fuelbreaks, Corridors</small>	TONS of FUEL: <small>Removed, Chipped</small>	INFO #'s : <small>Printed Distributed Contacted Broadcast</small>	FUNDING SOURCE	DOLLAR AMOUNT	\$ MATCH or IN-KIND Goods / Services Value	TOTAL Project Cost
2004 FSC Pamphlet Production	Public Information	County Wide	Public Info - flyer/ digital media/ brochure	CFFSC	Dec-04				1000	Calaveras Community Foundation	\$500		\$500
2004 Seniors & Disabled Defensible Space	Fuel Reduction - 4291 comp.	County Wide	HC-PRI, cut / prune / chip	CFFSC	Dec-04	30				Fed-BLM	\$53,943	\$9,194	\$63,137
				2004 TOTALS :		30			1000		\$54,443		\$54,443
2005 Door-To-Door Chipper Program	Fuel Reduction - 4291 comp.	County Wide	Road-side chipping	CFFSC	Dec-05			546	70 lots; 132hrs labor	Cal Co APCD	\$15,000		\$15,000
2005 Seniors & Disabled Defensible Space	Fuel Reduction - 4291 comp.	County Wide	HC-PRI, cut / prune / chip	CFFSC	Dec-05	33				Fed-USFS	\$66,200	\$13,477	\$79,677
				2005 TOTALS :		33		546	70 lots; 132hrs labor		\$81,200	\$13,477	\$94,677
Public Roadway Fuelbreak - Phase 1	Corridor Clearance	various Cala Co roads; Bat. 1 & 3	HC-ST & Pri, cut / prune / chip	CFFSC	Jan-06	20				St-P-40	\$36,480	\$36,480	\$72,960
2006 Door-To-Door Chipper Program	Fuel Reduction - 4291 comp.	County Wide	Road-side chipping	CFFSC	Dec-06			694	57 lots; 92hrs labor	Cal Co APCD	\$14,000		\$14,000
				2006 TOTALS :		20		694	57 lots; 92hrs labor		\$50,480	\$36,480	\$86,960
Forest Meadows Fuel Break - I	Shaded Fuel Break	Forest Meadows subdivision; Bat 4	HC-ST, cut / prune / pile / burn	CFFSC	Apr-07	7				St-P-40	\$49,044		\$49,044
Public Roadway Fuelbreak - Phase 2	Corridor Clearance	various Cal. Co. roads; County Wide	HC-ST & Pri: cut / prune / chip	CFFSC	Apr-07	90				St-P-40	\$72,960	\$72,960	\$145,920
PAWS Fuel Reduction - Phase 1	Fuel Reduction	San Andreas area, Performing Animal Welfare Soc. Pool Station Rd Bat 1	Mastication; HC-Pri: cut / prune	CFFSC	Jun-07	53				St-P-40	\$41,472		\$41,472
2007 Door-To-Door Chipper Program	Fuel Reduction - 4291 comp.	County Wide	Road-side chipping	CFFSC	Dec-07	90				Fed-BLM	\$55,150	\$13,800	
				2007 TOTALS		143		0			\$96,622	\$13,800	\$110,422
				2004 - 2007 TOTALS		226	0	1240	1000 Pamphlets 127 lots 224 hrs		\$282,745	\$63,757	\$346,502

Table C-2

HC-St = Hand Crew - State
HC-Pri = Hand Crew - Private

Calaveras County Fuel Reduction and Community Education Accomplishments Report

YEAR: 2008-2009	ORGANIZATION / AGENCY : Calaveras Foothills FSC					Project Accomplishments				Breakdown of Funding Sources			
PROJECT NAME <small>Include System ID where appropriate</small>	PROJECT TYPE	LOCATION	PROJECT DESCRIPTION / TREATMENT METHOD	PROJECT SPONSOR	Date Completed	APPROX ACREAGE <small>Fuel Reduction, Conversion</small>	APPROX. MILEAGE <small>Fuelbreaks, Corridors</small>	TONS of FUEL: <small>Removed, Chipped</small>	INFO #'s : <small>Printed Distributed Contacted Broadcast</small>	FUNDING SOURCE	DOLLAR AMOUNT	\$ MATCH or IN-KIND Goods / Services Value	TOTAL Project Cost
Public Roadway Fuelbreak - Phase 3	Corridor Clearance	various Cala Co roads; Bat. 1, 2, 3 & 4	HC-ST & Pri: cut / prune / chip	CFFSC	Apr-08	150				St-P-40	\$123,444	\$123,444	\$246,888
Forest Meadows Fuel Break - II	Shaded Fuel Break	Forest Meadows subdivision; Bat 4	HC-Pri: cut / prune; mastication	CFFSC	May-08	65				St-P-40	\$96,840		\$96,840
Murray Creek Fuel Break	Shaded Fuel Break	San Andreas area; west flank of Quiggs Mtn, off West Murry Creek Rd; Bat 1	Maint. : Goats - graze and browse	CFFSC	Sep-08	22				St-P-40	\$11,858		\$11,858
2008 Seniors & Disabled Defensible Space	Fuel Reduction - 4291 comp.	County Wide	HC-PRI, cut / prune / chip	CFFSC	Dec-08	30				Fed-USFS	\$73,267	\$41,700	\$114,967
2008 TOTALS						267	0	0	0		\$305,409	\$165,144	\$470,553
Public Roadway Fuelbreak - Phase 4	Corridor Clearance	various Cala Co roads; Bat. 1, 2, 3 & 4	HC-ST & Pri: cut / prune / chip	CFFSC	Apr-09	50				St-P-40	\$42,552	\$42,552	\$85,104
Wilseyville HOA	Fuel Reduction	West Point Area, Wilseyville, off Blue Mtn Rd; Bat 4	Mastication	CFFSC	Apr-09	13				St-P-40	\$14,256		\$14,256
<small>HC-St = Hand Crew - State HC-Pri = Hand Crew - Private</small> 2009 TO DATE						63	0	0	0		\$56,808	\$42,552	\$99,360
2008 - 2009 TOTALS						330	0	0	0		\$362,217	\$207,696	\$569,913
HISTORICAL TOTALS 2004 - 2009						556		1,240	1000 Pamphlets		\$644,962	\$271,453	\$916,415
									127 lots, 224 hrs				

Table C-3

Calaveras County Fuel Reduction and Community Education Accomplishments Report

YEAR: 2005-2007		ORGANIZATION / AGENCY : PRIVATE / CAL FIRE - CFIP				Project Accomplishments				Breakdown of Funding Sources			
PROJECT NAME <small>Include System ID where appropriate</small>	PROJECT TYPE	LOCATION	PROJECT DESCRIPTION / TREATMENT METHOD	PROJECT SPONSOR	Date Completed	APPROX ACREAGE <small>Fuel Reduction, Conversion</small>	APPROX. MILEAGE <small>Fuelbreaks, Corridors</small>	TONS of FUEL: <small>Removed, Chipped</small>	INFO #'s : <small>Printed Distributed Contacted Broadcast</small>	FUNDING SOURCE	DOLLAR AMOUNT	\$ MATCH or IN-KIND <small>Goods / Services Value</small>	TOTAL Project Cost
Austin CFIP	Fuel Reduction	Bummerville area, off Bald Mtn Rd; Mid Fork Mokelumne drainage; Bat 3	Mechanical: dozer pile; HC-Pri:cut/prune/pile burn	Austin	Jun-05	72				St-P-40	\$31,551	\$10,517	\$42,068
				2005 Totals		72					\$31,551	\$10,517	\$42,068
Bonta CFIP	Fuel Reduction	Indian Crk drainage near Sheep RanchxAvery-Sheep Ranch Rd; Bat. 4	Post-Fire Reforestation Site Prep: herbicide/planting	Bonta	Feb-06	27				St-P-40	\$17,749.00	\$1,972.00	\$19,721
Bardsley CFIP	Fuel Reduction	Indian Crk drainage near Sheep RanchxAvery-Sheep Ranch Rd; Bat. 4	Post-Fire Reforestation Site Prep: herbicide/planting	Bardsley	Mar-06	27				St-P-40	\$11,958.00	\$1,329.00	\$13,287
Ft. Mtn Ranch CFIP	Fuel Reduction	Ft. Mtn Ranch, off Summit Level Rd.; Bat.3	Reforestation Site Prep: mastication/herbicide/Pri HC cut & prune	Ft. Mtn Ranch LLC	Oct-06	52				St-P-40	\$48,969.00	\$16,323.00	\$65,292
				2006 Totals		106					\$78,676	\$19,624	\$98,300
Jesus 9 CFIP Mngt. Plan	Managemtn Plan Development	Railroad Flat area; off Jesus Maria Rd; Bat 3	Mangt Plan Development	California Reforestation Inc	May-07					Fed-FRIF	\$1,334.00	\$1,779.00	\$3,113
				2007 Totals							\$1,334	\$1,779	\$3,113
				2005 - 2007 TOTALS		178					\$111,561	\$31,920	\$143,481

Table C-4

HC-St = Hand Crew - State
HC-Pri = Hand Crew -Private

Calaveras County Fuel Reduction and Community Education Accomplishments Report

YEAR: 2008-2009	ORGANIZATION / AGENCY : PRIVATE / CAL FIRE - CFIP					Project Accomplishments				Breakdown of Funding Sources			
PROJECT NAME <small>Include System ID where appropriate</small>	PROJECT TYPE	LOCATION	PROJECT DESCRIPTION / TREATMENT METHOD	PROJECT SPONSOR	Date Completed	APPROX ACREAGE <small>Fuel Reduction, Conversion</small>	APPROX. MILEAGE <small>Fuelbreaks, Corridors</small>	TONS of FUEL: <small>Removed, Chipped</small>	INFO #'s : <small>Printed Distributed Contacted Broadcast</small>	FUNDING SOURCE	DOLLAR AMOUNT	\$ MATCH or IN-KIND <small>Goods / Services Value</small>	TOTAL Project Cost
Lane CFIP	Fuel Reduction	Camp Stool Ranch: off Prussian Hill RD Bat. 3	Mechanical: dozer piling/burning	Lane	Mar-08	100				St-P-40	\$44,250	\$14,750	\$59,000
Lane CFIP	Fuel Reduction	Camp Stool Ranch: off Prussian Hill RD; Bat. 3	Maint. : Herbicide application	Lane	May-08	81				St-P-40	\$20,528	\$6,843	\$27,371
Swartzell CFIP	Fuel Reduction	San Andreas area; Ponderosa Way off Doster Rd; Bat 1	Mastication; herbicide	Swartzell	Jul-08	19				St-P-40	\$18,285	\$6,095	\$24,380
Wagner CFIP	Fuel Reduction	Railroad Flat area; Eagle Ridge Ranch, off McCarthy Reservoir Rd; Bat 3	HC-Pri, cut/prune/broadcast burn/spray	Wagner	Jun-08	121				St-P-40	\$49,612	\$16,537	\$66,149
Ft. Mtn Ranch CFIP	Fuel Reduction	Ft. Mtn Ranch, off Summit Level Rd.; Bat.3	Mastication; HC-Pri, cut / prune / lop/spray	Ft. Mtn Ranch LLC	Jul-08	107				St-P-40	\$49,522	\$16,507	\$66,029
				2008 Totals:		428					\$182,197	\$60,732	\$242,929
Mauzy CFIP	Fuel Reduction	Mtn Ranch area; Baker-Riley Rd; Bat 3	Mechanical: dozer piling/burning	Mauzy	Apr-09	34				St-P-40	\$23,276	\$7,759	\$31,035
													\$0
													\$0
													\$0
				2009 Totals:		34					\$23,276	\$7,759	\$31,035
						2008 - 2009 TOTALS		141			\$72,798	\$24,266	\$97,064

Table C-5

HC-St = Hand Crew - State
HC-Pri = Hand Crew -Private

Battalion 5 Pre-Fire Management Plan

Battalion 5 Overview

Battalion 15 covers approximately 144,218 acres of northern Tuolumne County, from the Stanislaus River/Battalion 2 boundary on the northwest side, to the Tuolumne River / Battalion 6 boundary on the south. O'Byrnes Ferry Rd. and Highway 120 between Tullock and Don Pedro Reservoirs serve as the western boundary. Along it's north and east perimeter the Battalion abuts the Forest Service / Direct Protection Boundary just east of the communities of Tuolumne City, Twain Harte, Mi-Wuk Village and Long Barn, and north of Columbia . The elevation ranges from about 550 feet at the O'Byrnes Ferry bridge on the west side to over 5,100 feet on the east. State Highway 108 splits the Battalion nearly perfectly in half as it runs west to east.

The Battalion's fire control organization consists of two CDFFP Forest Fire Stations : Standard FFS – opened in 2008 to replace the original Sonora FFS, the Battalion Headquarters, a two-engine station serving the western half of the Battalion, located just minutes east of Sonora; Twain Harte FFS – completely rebuilt and opened in 2009 on the original site, a two engine station serving the higher elevation east half of the Battalion.

Also operating within the Battalion 5 boundary is a portion of the Tuolumne County Fire Department under the direction of the CDF Assistant Chief/County Fire Warden. TCFD in Battalion 5 includes: Mono Village station – a single-engine station staffed 24/7 by CDF company officers, supported by TCFD volunteers; volunteer stations in the communities of Ponderosa Hills, Long Barn, Pinecrest, Soulsbyville, Crystal Falls, and Cedar ridge.

CDF and TCFD maintain strong working relationships with nine fire agencies also providing services within the Battalion's operational area: Sonora City; the Strawberry, Twain Harte, Tuolumne City and Columbia Fire Districts; Tuolumne Band of Mi-Wuk Indians FD; plus joint operations with the Jamestown and Mi-Wuk/Sugar Pine Fire Districts and Columbia College FD.

Despite being the Unit's second smallest Battalion geographically, the population is the highest. The population center for the Battalion is on the Highway 108 corridor from Jamestown to Long Barn. The main communities in the Battalion are Jamestown, Sonora, Columbia, Tuolumne City, Twain Harte, Mi-Wuk Village and Long Barn. Sonora is the only incorporated city. Many vacation homes exist in the upper Highway 108 corridor which leads to intermittent increases in population throughout the year in response to summer recreation opportunities, holiday weekends and the ski season. Commercial development has responded to the population density and features many major retail stores typical of more urban valley locations, in addition to the small businesses seen throughout the Unit.

The overwhelming majority of Battalion lands are privately owned; only a relatively small number of acres are owned by the Federal Government or major property owners. Sierra Pacific Industries owns a swath of commercial timber land in the north-eastern most corner of the Battalion, north of Hwy 108. Two Federal agencies are large land owners: the Bureau of Reclamation manages lands surrounding New Melones Reservoir; the Bureau of Land Management manages lands along the southern and western Battalion boundaries - along the shores of Lake Don Pedro and in the Tuolumne River canyon, plus a swath of ground between Columbia and Sonora, just east of Hwy 49. The Battalion boundary in the north and east follows the western boundary of the U.S.F.S. Stanislaus National Forest very closely, leaving only a very few number of USFS acres within the Battalion. All Federal lands within the Battalion are State DPA.

In addition to providing protection for life and private property, the Sonora Battalion provides resource protection for critical watershed, timber, and recreational values. In the northwest, the Battalion protects a number of small tributaries originating south of the South Fork and main stem of the Stanislaus River just east of New Melones Reservoir, including 5 Mile Creek. The Stanislaus River supplies water to New Melones and Tulloch Reservoirs. In the heart of the Battalion a number of northern tributaries of the Tuolumne River are under their protection, including: Woods, Sullivan, Curtis and Turnback Creeks. The Tuolumne river watershed supplies water to Don Pedro Reservoir.

Approximately two thirds of the Battalion has been designated by CDF as *Very High Fire Hazard Severity Zone* lands; mostly in the north, east and southern areas. A large swath in the west that extends into the heart of the Battalion is designated as *High*. Smaller chunks scattered through this area are designated *Moderate*.

***Battalion 5 Assessment Summaries: Assets At Risk, Fuels, Weather,
Ignitions And Fire History***

Assets At Risk : Battalion 5 is the most broadly developed Battalion in the Unit. Nearly every “asset” imaginable is found within the Battalion: rural and urban style residential development; small-town and suburban style commercial development; critical watershed resources including water collection and distribution infrastructure, commercial timber, and power generation facilities; communications infrastructure; utility and power distribution infrastructure; agriculture; highway and rail road transportation infrastructure; individual historic buildings and whole towns; archaeological sites; recreation infrastructure.

Battalion 15 contains the largest population of any Battalion in the unit which results in the greatest density of Wildland Urban Interface (WUI) classified area. The Battalion correspondingly experiences a high number of ignitions and unwanted fire annually. If history is any indication, as population and development continue to rise, the Battalion will see a corresponding increase in fire activity.

- Residential and commercial development: Battalion 5 assets at risk include all communities along the Highway 108 corridor, and several more beyond. Those officially designated as “Communities At Risk” include Arastraville, Cedar Ridge, Chinese Camp, Cold Springs, Columbia Historic State Park, Confidence, East Sonora, Jamestown, Long Barn, Mi-Wuk Village, Mono Vista, Phoenix Lake, Sierra Village, Sonora, Soulsbyville, Standard, Stent, Tuolumne City, Tuttletown, and Twain Harte. Included in some of these communities, or pending official designation are Big Hill, Crystal Falls, and Sugar Pine. Also included in and adjacent to these communities are numerous subdivisions and commercial developments. Wildfire presents a significant threat to these communities in terms of life and property at risk

The communities in Battalion 5 include a wide variety of residential development: modern subdivisions featuring mid-sized homes on small urban-style lots; large modern luxury homes on multi-acre lots within a subdivision or individually located in a purely rural setting; mobile and manufactured homes in parks and/or on multi-acre rural parcels; widely scattered 50+ year old homes; working agricultural operations, among others. Given the long history of development, a wide variety of building materials and design features are present. The oldest structures in the Battalion are often at significant risk due to threatening locations and non-Fire Safe construction practices. Mid-slope, chimney and ridge-top locations and out-dated design features such as shake roofs, wood siding, wood decks, and large single pane windows are common. The newer development features many improvements in construction materials (double pane windows and fire resistant roofs and siding for example) but often remain at significant risk due to dense concentrations of structures on small parcels carved out of dense forest and brush fuels, often on steep terrain. Both newer and older residential communities feature many steep and narrow roads and driveways. Development will undoubtedly continue in the interface, but will incorporate the latest Chapter 7A building codes, resulting in more ember resistant / fire safe structures.

- Watershed: The watersheds at risk within the Battalion are used regionally for domestic, industrial and agricultural activities. Locally, these waters have two primary uses: domestic supply and recreation. The importance of a sustainable domestic water supply can not be overstated. The Tuolumne Utilities District supplies water throughout the Battalion. Their facilities include ditches and flumes, above-ground tanks, pumping facilities and surface storage such as Phoenix Lake and a number of unnamed holding ponds. Water based recreation is also of critical importance to the economy and lifestyles of Unit communities. As such protection of these watersheds is of critical importance, both locally and far beyond the boundaries of the Battalion and Unit.
- Commercial timber resources: Another component of watershed protection is privately owned commercial timberland. Though small in terms of acres within the Battalion, the economic influence on Battalion communities has been significant for decades. *(In 2009 the SPI mill in Standard is schedule to close due*

to challenging economic and regulatory conditions. It appears logging operations will cease, or be significantly reduced, at least in the short term.).

- Recreation: The reservoirs mentioned above, along with the primary watersheds supporting them, include significant recreational values: Bureau Of Reclamation campgrounds and boating facilities; privately owned RV parks and campgrounds; hiking, equestrian and mtn biking trails; fisheries and hunting grounds, among others. The Battalion is a draw to many types of recreationists for it's local resources, as well as being a stopping place for thousands of tourists enroute to or from Yosemite National Park and the other high country recreation sites adjacent to the Battalion.
- Agriculture: Cattle ranching is arguably the most important agricultural asset. The large ranches in the western portion depend on the annual grass crop to feed their livestock. Vineyards, orchards and horse ranches are a growing component. Despite the loss of acres to development the agricultural asset remains economically significant.
- Transportation: Portions of three state highways bisect the Battalion: 108, 49 and 120. The Sierra Railway operates on a line through the Battalion that terminates at the SPI mill in Standard.
- Telecommunications: Several government agencies and private communications companies take advantage of the topography within the Battalion for the location of communications system facilities.
- Historic / Cultural resources: As a result of its rich gold mining history the Battalion includes several historic cultural sites. The largest, most heavily visited is the Columbia Historic State Park – a living community in the restored historic town of Columbia. Many more historic assets are located throughout the battalion, often located in remote, difficult to reach areas. Historic and prehistoric Native American archaeological sites are also numerous throughout the Battalion.

Fuels : Fuel models range from grassland and oak woodland with scattered brush fields in the western portion of the Battalion to brush and timber in the east. Each of the thirteen Fire Behavior Prediction System (FBPS) fuel models are represented in the Battalion, with fuel models 1 (short grass), 3 (tall grass), and 4 (chaparral) dominating.

Weather : Typical fire season temperature patterns range from lows in the upper 50's to highs in the 90's. Periods of triple digit highs, 100-110 degrees, are not uncommon, and can last from a couple days to a couple weeks. Relative humidity runs in the mid teens to mid twenties during daylight hours often with poor overnight recovery. Periods of extreme heat are occasionally accompanied by single digit humidity. Prevailing wind is generally from the southwest and west during the day, accentuating the normal up-canyon flow due to the orientation of the major drainages. Overnight, strong down-canyon winds across the ridgetops adjacent to the Stanislaus and Tuolumne river

drainages is common. August and September often bring the threat of thunderstorm activity, but it is not unusual to experience thunderstorms at any time throughout the summer season. As is the case throughout the Sierra Nevada front country, the typical summer weather is ideal for wildland fire

Fire Ignitions / Fire History : From 1998 to 2008, an average of 136 fires burned each year for an average of 120 acres. Ignitions from debris burning have been in steady decline since a high of 19 in 1998 to a low of 6 in 2002. While vehicle fires represent the highest number of starts, debris burning escapes continue to result in the largest acreage burned (38 acres). This documents the effectiveness of CDF placing a burn ban in effect during the fire season. Other ignition trends indicate moderate success in preventing fires from equipment use. Vehicle caused ignitions have remained high over the years, which appears to be consistent with the high volume of vehicular traffic on the main roadways within the Battalion.

In 2008, there were 70 fires in the Battalion. Vehicle fires represented 30% of the total fire cause with debris burning and arson representing 17% and 08 % respectively. Children playing with matches caused only one fire indicating that prevention activities targeting the county school system are effective. No major or extended attack fires occurred in 2008. An ignition cause breakdown is listed for all causes.

The Battalion has a long history of large damaging fires since accurate records were begun after World War II. Historical fires that have plagued the Battalion are included in the table below. Seventy five percent of these large damaging fires occurred between mid June and Mid August

Battalion 5 Large Fire History

Year	Start Date	Fire Name	Acreage
1951	8/13	Sierra Railroad	643
1951	7/22	Buzzard	534
1952	7/24	Jacobs	430
1954	9/7	Rosasco Escape	435
1958	7/12	Hayward	549
1959	7/16	Parrotts Ferry #2	313
1961	7/25	Browns Flat	1336
1963	9/26	Rotelli	363
1964	8/10	Emerson R.I. Escape	2881
1967	6/29	Montezuma	781
1974	9/29	Kanaka	1880
1979	6/16	Peoria	491
1982	7/27	Keystone	3500
1987	9/1	Paper	4339
1988	6/26	Lightning #84	1006
1989	9/6	Tuttletown	632
1994	7/18	Parrotts	767
1994	8/9	Creek	1434
1995	7/16	Peoria	3660
1996	8/12	Lightning #40	3345
1999	7/14	Caylor	110
2004	7/14	Rosasco	245
2007	8/22	Italian	102
2008	7/22	French	116

Table C-7

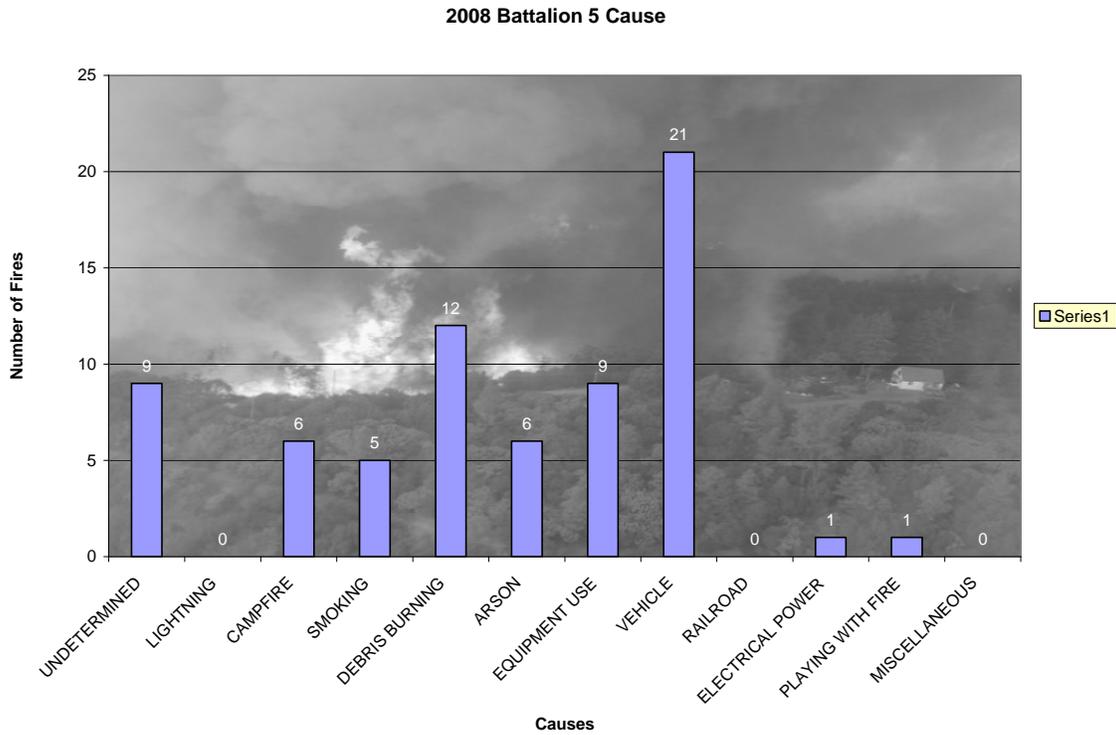


Table C-8

Battalion 5 Mitigation Efforts

Battalion 5 is engaged in a wide variety of efforts aimed at reducing the threat to area assets posed by wildland fire. In these efforts they are joined by the Hwy 108 Fire Safe Council. Since the activation of the FSC cooperation and integration with Cal Fire has steadily increased to the point that it is difficult to differentiate between the two when describing mitigation efforts.

Defensible Space Inspections : Removing fuels around structures, in compliance with PRC-4291 requirements, provides the single most effective action for increasing structure survivability during a wildfire. An aggressive inspection program can provide firefighters with defensible space for structure protection operations.

- Battalion 5 utilizes Self-Inspection mailers throughout the Battalion, including: the greater Twain Harte, Sonora, Cedar Ridge and Phoenix Lake areas.
- At the time of burn permit issuance a Self-Inspection form and other PRC-4291 educational materials are provided and reviewed with the applicant. The Self-Inspection form is either signed at the time or taken and returned upon completion of the required work.

- Signed/returned Self-Inspection notices for defensible space that have been signed certifying PRC-4291 compliance are randomly selected for an inspection by engine companies. Violations observed are documented on form LE-100 and forwarded with the original copy of the signed self inspection notice to the Prevention Bureau for further action up to citation issuance.
- Grant funding from the Highway 108 FireSafe Council has made a reprinting of the defensible space notices possible for CAL FIRE use.

Fuel Reduction / Breaks : For the 2008/2009 year CAL FIRE in cooperation with the Highway 108 FireSafe Council has submitted the following projects for grant funding through the Resource Advisory Council (RAC).

- Lower Yankee Hill Shaded Fuel Break : This project will provide safe egress for emergency response and evacuation of the public in the event of a large scale wildland fire. The Yankee Hill road system is characterized by heavily overgrown brush and narrow winding roads. There is no recorded fire history in this immediate area. This project will compliment fuel reduction work that has been completed on Cattle Drive Trail and fuel reduction work that is scheduled to begin on upper Yankee Hill Road from the Cattle Drive Trail intersection to the Tuolumne Utilities District water ditch. The water ditch is a primary water supply for agricultural use in the Columbia area. By reducing the fuel loading along the roadway, safer access will be possible during a wildfire to the strategic fuel breaks that have been constructed in the area.
- Mt Elizabeth Drive Shaded Fuel Break (Federal Land) : This fuel reduction project is planned to construct a 400 feet wide treated area using Mt. Elizabeth Drive as the centerline for a distance of approximately ½ mile in length (approximately 24 acres). The entire project is located in USFS owned property. The primary purpose of this project is to reduce fuels along the road way that is planned as a secondary escape route for the communities of Cedar Ridge and Comstock Ranch. Currently, there is only one roadway (Kewin Mill Road) into this area and the public could become trapped in the event of a large wildland fire occurring. This fuel reduction project will improve public safety by reducing fuel ladders that have been allowed to develop over a long period of time.
- Mt Elizabeth Drive Road Improvement : This road improvement project will improve public safety by upgrading the existing dirt road to a 20' wide-all weather gravel road (6 inch gravel depth) to be used in the event of an evacuation of the public during a catastrophic wildland fire. This project will require reshaping and grading of the existing road bed prior to the placement of road base. The project will also require rebuilding of the drainage systems along the road way and also the installation of turnouts where feasible. Total length of road improvement project is 2.62 miles.

There is currently only one route into the communities of Cedar Ridge and Comstock Ranch (Kewin Mill Road). CAL FIRE officials desire to construct an evacuation route for use should such a wildland fire occur. The present condition of the existing road is very poor and is not available for evacuations at this time. Improvements to this road surface will also greatly improve emergency response into this area by CAL FIRE and the USFS. A similar project was completed in 2002/03 in the Ponderosa Hills subdivision.

- Twain Harte Lake Shaded Fuel Break : This project will reduce the buildup of brush and trees on approximately 35 acres adjacent to the Twain Harte Lake. This fuel reduction project will improve public safety by reducing fuel ladders that have been allowed to develop over a long period of time. The predominate weather patterns and southwest flow of air currents make this project important in the event a wildfire starts in the Mono Vista/Crystal Falls area. There are many cabins and other residences in the immediate area of the Twain Harte Lake that would be threatened by a fire occurring in this area.

Strategic Planning :

- The Highway 108 Strategic Planning Group was formed to plan and coordinated pre-fire management activities on the Highway 108 corridor and serve as the strategic arm for the Highway 108 Fire Safe Council. Members of this group are from local, state, and federal agencies (fire protection and land management), industry and local government. The experience and expertise of participating agencies and groups involved has resulted in better project identification, coordination and implementation.
- Tuolumne County Community Wildfire Protection Plan (CWPP) was first completed and approved by the Tuolumne County Board of Supervisors in December, 2004. This comprehensive, yet broad based document brought together the decentralized efforts of the various stakeholders, interest groups, and agencies to mitigate the wildland fire problem in the county from a strategic perspective. Individuals from the various communities seeking to develop specific Wildfire Community Protection Plans should use this document as a framework and reference for more narrowly focused plans that would be tailored for specific communities.
- Members of the Strategic Planning and CWPP groups, including Tuolumne County representatives, are working through 2009 toward revisions of the Hwy 108 Strategic Plan and the Tuolumne County Community Wildfire Protection Plan, with the goal of updating and comprehensively coordinating the two documents.
- Tuolumne County Wildland Fire Evacuation Plan – was produced initially for the Ponderosa Hills project and again in 2004 in the Gibbs Ranch subdivision with the intent to be used in other communities in the county. This document was also distributed in 2004 inside the Greater Twain Harte Fire Safe Project as part of the

LE-38 defensible space inspection component. The document has been praised by all who have obtained a copy and only limited quantities exist. This plan has been reprinted one time since first adopted.

Public Education :

- The Highway 108 Fire Safe Council seeks funding in 2008-09 to continue a very aggressive Public Education and Fire Prevention Program. This program is a very important component of "Watershed Protection". The Highway 108 Fire Safe Council conducts this program in partnership with the following fire agencies: CAL FIRE, Tuolumne County Fire Department, US Forest Service, BLM Fire and local fire protection districts. This educational program takes place at homeowner association meetings, civic organization meetings, hobby club meetings, Highway 108 Fire Safe Council meetings, the Tuolumne County Fair and the local Home & Garden Show, among others. In each instance the public is provided with copies of the FSC-produced "Tuolumne County Wildfire Evacuation Plan" and "Living with Fire" publications, and CDF's "Why 100 Feet", among others. The purchase and distribution of these printed materials by the FSC is vital to continued success of this important fire safety educational program.

Burn Permit Administration : Beginning in the Spring of 2007, the burn permit administration in the Battalion was complimented through an effective public education campaign conducted at the time of permit application (see Public Education, above).

Burn permits are issued for a period of two years, after which a new permit is required, providing an opportunity for another educational contact. Since the inception of the program in 2007 this effort has been well received by the public, and public contact time with applicants has increased to approximately 10 minutes per contact.

- Roadside Fire Prevention Signs : A renewed effort to enhance the Battalion's Roadside Fire Prevention Sign program is underway. The existing sign at Montezuma Junction on Highway 108 is in poor condition and in need of repair.

The program, dates back to the 1950's, is designed to educate the motoring public on wildfire and defensible space fire safety, and needs to be updated with additional new signs located along newly constructed portions of State Highways and County Roads traversing the battalion.

Funding for maintenance of the existing sign and installation of new signs through a RAC Grant is pending. Cost sharing through the use of discarded utility poles to construct these structures will expedite the project.

- "Red Flag Alert" Program "phase-in" : An analysis of the fire causes in Battalion 5 shows that all of the fires that occurred could have been prevented. (there were

no lightning caused fires in 2008). Public awareness of extreme fire danger and burning conditions is key to reducing the number of fire starts in debris burning, campfire escapes, equipment use, and smoking.

Department policy mandates the Red Flag Program; see Handbook 9000, Sections 9011, 9012, and 9013.

In 1975, the Department produced a film that described a program called the Red Flag Fire Alert to combat and prevent catastrophic wildfires. The historical film's theme centered on the ideal that "prevention was cheaper than suppression" and that most fires were accidental in cause usually through carelessness and that the program would serve as an effective deterrent to preventing wildfires from these two categories. An added benefit through the program was that potential arsonists might be deterred through the increased awareness and observation. The four stages of the program are:

- Fire Weather Watch issued by National Weather Service, 12-72 hours in advance for impending fire weather.
- Fire Weather Warning issued by National Weather Service, 12-24 hours in advance, for extreme fire weather conditions occurring or about to occur.
- Alert / Public Warning, through media releases and visible display of red flags and patrols.
- Cancellation of Alert, after threat has passed.

The Battalion is in the process of re-introducing this time tested fire prevention program through coordination with the Highway 108 FireSafe Council. Initial implementation will include media contacts on Red Flag Warning days and a visible display of red flags at CAL FIRE Battalion 5 fire stations to increase public awareness.

Law Enforcement :

- Cause Determination and Code Enforcement : A determined effort by Company Officers and LE staff, as needed, to determine a cause for all wildland ignitions. Accurate cause determination impacts several programs beyond the confines of the Battalion (Fire History, Fire Plan, Funding for example) and can be crucial to the subsequent ability of LE staff to issue citations for violations of the various PRC and PC codes, including debris burning, arson, power line clearance, and equipment related violations, among others.
- Law Enforcement Support of Inspections Program : Continued close cooperation between Battalion inspectors and the Unit's LE staff in support of the Defensible Space Inspection Program in the form of a willingness to write citations as needed.

Battalion 5 Cooperators Mitigation Efforts

Highway 108 Fire Safe Council : Since 2001 this FSC has been fully engaged in the Battalion's efforts to reduce the threat posed by wildland fire. They have been instrumental in the success of several efforts, including : the Highway 108 Strategic Fire Planning Group; the production and implementation of the Tuolumne County Community Wildfire Protection Plan; production and distribution of the Public Education materials, and programs noted above; identification, planning and implementation of numerous on-the-ground fuel reduction projects.

With the publication and subsequent implementation of the Highway 108 Strategic Plan, three critical roles have been identified for the Highway 108 Fire Safe Council:

1. Continue to educate and assist individual property owners in making their privately owned property more fire resistant/fire safe.
2. Serve as a formal, non-profit entity that can apply for various funding types and grants for projects that Agencies can not apply for.
3. Assist in working with private landowners where strategic fire treatments on private lands are key to the success of the overall strategic defense system. The Fire Safe Council can assist in securing resources for both planning and treatment implementation within identified areas.

See Tables C-9 & C-10 on page 72-73 for details of the many fuel reduction and public education accomplishments of the Highway 108 Fire Safe Council in concert with Battalion and Unit staff.

Tuolumne County Fuel Reduction and Community Education Accomplishments Report

YEAR : 2002-06	ORGANIZATION / AGENCY : HWY 108 FSC					Project Accomplishments				Breakdown of Funding Sources			
PROJECT NAME <small>Include System ID where appropriate</small>	PROJECT TYPE	LOCATION	PROJECT DESCRIPTION / TREATMENT METHOD	PROJECT SPONSOR	Date Completed	APPROX ACREAGE <small>Fuel Reduction, Conversion</small>	APPROX. MILEAGE <small>Fuelbreaks, Corridors</small>	TONS of FUEL: <small>Removed, Chipped</small>	INFO #'s : <small>Printed, Distributed, Contacted, Broadcast</small>	FUNDING SOURCE	DOLLAR AMOUNT	\$ MATCH OR IN-KIND <small>Goods / Services Value</small>	TOTAL Project Cost
Twain Harte Slash Collection; 2002	Fuel Reduction	CDF Zone 5-D; Greater Twain Harte community	Needle / Slash pick-up	Hwy 108 FSC	Dec-02			163		Fed-RAC	\$50,000	\$26,080	\$76,080
				2002 TOTALS :				163			\$50,000	\$26,080	\$76,080
Jeness Park Slash Collection; 2003	Fuel Reduction	FS Zone-Lyons; Jeness Park subdivision, off Hwy 108	Needle / Slash pick-up	Hwy 108 FSC	Dec-03			1196		Fed-USFS	\$40,000	\$191,360	\$231,360
				2003 TOTALS :				1196			\$40,000	\$191,360	\$231,360
Jeness Park Slash Collection; 2004	Fuel Reduction	FS Zone-Lyons; Jeness Park subdivision, off Hwy 108	Needle / Slash pick-up	Hwy 108 FSC	Dec-04			1157		Fed-RAC	\$46,875	\$185,120	\$231,995
Ponderosa Hills / Mira Monte Fire Defense System: 2004	Fuel Reduction	CDF Zone 15-E; Ponderosa Hills subdivision	HC-Pri, cut / prune / chip	Hwy 108 FSC	Jun-04	10				Fed-USFS-RAC	\$24,000	\$17,352	\$41,352
Twain Harte Slash Collection; 2004	Fuel Reduction	CDF Zone 5-D; Greater Twain Harte community	Needle / Slash pick-up; Fixed Site Chipping/Processing (Plainview)	Hwy 108 FSC	Dec-04			2714		Fed-USFS	\$90,000	\$434,270	\$524,270
				2004 TOTALS :		10		3871			\$160,875	\$636,742	\$797,617
Upper Hwy 108 Slash Collection 2005	Fuel Reduction	CDF Zones 5-C,D,E,I; FED Zones: Lyons, South 108, Pinecrest/Strawberry	Fixed Site chipping / processing; Plainview - by McConnell	Hwy 108 FSC	Dec-05			52		NONE		\$8,320	\$8,320
				2005 TOTALS :				52				\$8,320	\$8,320
Ponderosa Hills / Mira Monte Fire Defense System: 2006	Fuel Reduction - 4291 comp.	CDF Zone 15-E; Ponderosa Hills & Mira Monte subdivisions	Road-side chipping	Hwy 108 FSC	Dec-06			367		Fed-USFS-RAC	\$18,000	\$33,080	\$51,080
				2006 TOTALS :				367			\$18,000	\$33,080	\$51,080
				5 YEAR TOTALS :		10		5649			\$268,875	\$895,582	\$1,164,457

Table C-9

Tuolumne County Fuel Reduction and Community Education Accomplishments Report

YEAR : 2007-2008	ORGANIZATION / AGENCY : HWY 108 FSC					Project Accomplishments				Breakdown of Funding Sources			
PROJECT NAME <small>Include System ID where appropriate</small>	PROJECT TYPE	LOCATION	PROJECT DESCRIPTION / TREATMENT METHOD	PROJECT SPONSOR	Date Completed	APPROX ACREAGE <small>Fuel Reduction, Conversion</small>	APPROX. MILEAGE <small>Fuelbreaks, Corridors</small>	TONS of FUEL: <small>Removed, Chipped</small>	INFO #'s : <small>Printed, Distributed, Contacted, Broadcast</small>	FUNDING SOURCE	DOLLAR AMOUNT	\$ MATCH OR IN-KIND <small>Goods / Services Value</small>	TOTAL Project Cost
Upper Hwy 108 Slash Collection; Phase 1 2007	Fuel Reduction	CDF Zones 5-C,D,E,I; Fed Zones Lyons, South 108, Pinecrest/Strawberry	Fixed Site chipping / processing; Plainview - by Brookstone	MAHA / Hwy 108 FSC	Dec-07			75		Fed-Nat.FP	\$16,000	\$12,000	\$28,000
Upper Hwy 108 Slash Collection; Phase 2 2007	Fuel Reduction	CDF Zones 5-C,D,E,I; Fed Zones Lyons, South 108, Pinecrest/Strawberry	Fixed Site chipping / processing; Plainview - by Brookstone	MAHA / Hwy 108 FSC	Dec-07			75		Fed-RAC	\$10,000	\$12,000	\$22,000
Jeness Park Slash Collection: 2007	Fuel Reduction	FED Zone: Lyons; Jeness Park subdivision, off Hwy 108	Needle / Slash pick-up	Hwy 108 FSC	May-07	90		4050		Fed-USFS-RAC	\$50,757	\$30,243	\$81,000
Ponderosa Hills / Mira Monte Fire Defense System: 2007	Fuel Reduction - 4291 comp.	CDF Zone 15-E; Ponderosa Hills & Mira Monte subdivisions	Road-side chipping	Hwy 108 FSC	Jul-07			194		Fed-USFS-RAC	\$9,874	\$20,393	\$30,267
Turnback Creek Fuel Reduction Stage1	Fuel Reduction	CDF Zone 15-E; P. Hills.; TUD land; both sides Turnback Crk; below Skyline Rd.	HC-St, cut / prune / pile / burn	Hwy 108 FSC	Apr-07	27				St-P-40	\$41,292	\$17,461	\$58,753
2007 TOTALS :						117		4394			\$127,923	\$92,097	\$220,020
Turnback Creek Fuel Reduction Stage2	Shaded Fuel Break	CDF Zone 15-I; south side of Yosemite Rd; Silver Spur Conference Ctr.	Mastication; HC-Pri, cut / prune / lop	Hwy 108 FSC	Jul-08	50	1			St-P-40	\$54,000	\$600	\$54,600
Greater Tuolumne City Fire Defense Syst. - P Hills Phase 1 (A)	Shaded Fuel Break	CDF Zone 15-E; Ponderosa Hills & Mira Monte subdivisions	Mastication; HC-Pri, cut / prune / lop	Hwy 108 FSC	Nov-08	17	1			Fed-USFS	\$35,107	\$26,283	\$61,390
Greater Tuolumne City Fire Defense Syst. - P Hills Phase 2 (B)	Shaded Fuel Break	CDF Zone 15-E; Ponderosa Hills & Mira Monte subdivisions	Mastication; HC-Pri, cut / prune / lop	Hwy 108 FSC	Jul-08	20	1			Fed-BLM	\$29,070	\$19,372	\$48,442
North County Community Chipping - 2008	Fuel Reduction - 4291 comp.	CDF Zones 15-A,B,C,D,H,I;	Road-side chipping	Hwy 108 FSC	Dec-08			43		Fed-USFS-RAC	\$14,000	\$19,309	\$33,309
Greater Columbia Fire Defense Syst. Cattle Dr. Trail Phase 1	Shaded Fuel Break	CDF Zone 5-A; Cattle Drive Trail Rd; from Italian Bar Rd to Yankee Hill Rd.	HC-St, cut / prune / pile / burn	Hwy 108 FSC	Apr-08	39	3	1950		St-P-40	\$74,066	\$2,295	\$76,361
G.C.F.D.S. Cattle Dr. Trail Phase 2	Shaded Fuel Break	CDF Zone 5-A; Experimental Mine Rd, Ponce Rd., Baxter Quarry Rd.	Mastication; HC-Pri, cut / prune	Hwy 108 FSC	Apr-08	26	2	1300		St-P-40	\$49,378	\$1,530	\$50,908
2008 TOTALS :						152	8	3293			\$255,621	\$69,389	\$325,010
HISTORICAL TOTALS:						379	8	13,336			\$652,419	\$1,057,068	\$1,709,487

Table C-10

Sonora City, Tuolumne County/City : Beginning in the fall of 2007 the TCU Pre Fire Engineer began a series of meetings with Tuolumne City, Sonora City and Tuolumne County representatives regarding implementation and adoption of new State building code requirements dealing with ember resistant building materials and techniques. These new “Chapter 7A” codes are tied to Fire Hazard Severity Zone designations within Local Response Area jurisdictions. In 2008 all three entities accepted the FHSZ maps for their LRA jurisdictions, setting in motion final production and distribution of the FHSZ map by the state, and their adoption process.

Highway 108 Strategic Fire Planning Group : In concert with the Highway 108 FireSafe Council efforts, in March 2004, the Highway 108 Strategic Fire Planning Group formed. Made up of County, State, and Federal Fire Protection Agencies and large private landowners (cooperators), the purpose of this group was to cooperatively plan and implement a strategic fire defense system designed to reduce the threat of loss of life, property, and natural resources within the Highway 108 corridor wildland urban interface zone.

The Highway 108 Strategic Fire Planning Group consists of the following agencies and cooperators:

- USDA Forest Service, Stanislaus National Forest
- Tuolumne County Fire Department
- California Dept. of Forestry and Fire Protection – Tuolumne-Calaveras Unit
- Bureau of Land Management
- United States Bureau of Reclamation
- Sierra Pacific Industries
- Highway 108 Fire Safe Council
- Tuolumne Band of the Me-Wuk Indian Tribe

Members of the Highway 108 Strategic Fire Planning Group have developed and signed a Memorandum of Understanding outlining the purpose, benefits and interests, and responsibilities of the participating agencies and cooperators in developing and implementing the Highway 108 Strategic Fire Plan. A Communication Plan was also developed by the Highway 108 Strategic Fire Planning Group. The purpose of the Communication Plan is to ensure that communication goals and objectives are met, and that the involved fire protection agencies and cooperators speak with a single voice as they cooperatively plan and implement strategic fire defense system projects within the planning area.

Within this Strategic Fire Plan, the total fire environment was analyzed. Based on the analysis, treatments needed to create a strategic fire defense system across jurisdictional boundaries and a variety of land ownership were identified. Priorities for treatments have also been addressed.

The local Fire Safe Council, homeowner associations, local business owners and private landowners must continue to be involved and do their part within the each local

Section C: Battalion Pre-Fire Management Plans cont.

community and/or subdivision. By working together, a more fire safe environment will result in minimizing losses of life, property and natural resources when a wildfire does take place.

Tuolumne County Fire Prevention Bureau : See page 86-88

Battalion 6 Pre-Fire Management Plan

Battalion 6 Overview

Battalion 6 consists of 272,725 acres, covering the southwest portion of Tuolumne County and eastern Stanislaus County, making it the second largest Battalion geographically. Spreading across a wide variety of terrain and fuel models the Battalion is bounded by the Tuolumne River canyon, Hwy 120/49, O'Byrnes Ferry Rd and the lower Stanislaus River on the north. The southern boundary follows the Mariposa and Merced County lines. The western boundary follows the LRA/SRA line south from Hwy 108/120 at Lancaster Rd. along the east sides of Modesto and Turlock Reservoirs to the Merced Co. line. In the east the Battalion abuts the Stanislaus National Forest Elevations range from 250 feet in the west to over 4000 feet on the east side State Highways 120, 108, 49, and 132 traverse the Battalion. Hwy 120 is a major access route for Yosemite National Park.

The Battalion's fire control organization consists of three CDFFP Forest Fire Stations: the Battalion Headquarters Station at Groveland (2 Engines), serving the upper elevation eastern third of the Battalion; Blanchard FFS (1 engine) serving the south and western third; and Green Springs FFS (1 engine) serving the north and western third.

Also operating within the Battalion 6 boundary is a portion of the Tuolumne County Fire Department under the direction of the CDF Assistant Chief/County Fire Warden. TCFD in Battalion 6 includes volunteer stations in the communities of Chinese Camp, Moccasin, Smith Station, and Don Pedro. CDF and TCFD also maintain a strong working relationship with the Groveland Community Services District Fire Dept. who provide structural fire protection and emergency services in the greater Groveland area.

Despite being the Unit's second largest Battalion geographically, the population is relatively small. The population centers for the Battalion lay on the Highway 120 corridor west of Hwy. 49 in the greater Groveland area, and along the Hwy 132 corridor between Don Pedro Res. and Lake McClure (Mariposa Co.) A noteworthy percent of the Groveland area residences are vacation homes, and there are many motels, RV parks and campgrounds; which leads to intermittent increases in population throughout the year in response to summer recreation opportunities, holiday weekends and the ski season. Commercial development has responded to the needs of the full-time population as well as catering to the needs of tourists, a significant number of whom take advantage of the Groveland area services and accommodations while enroute to and from Yosemite National Park.

The overwhelming majority of Battalion lands are privately owned; however the Federal Government does have significant holdings. The Bureau of Land Management has large tracts in the Red Hills, the Moccasin Creek drainage, and the Priest Grade and Jackass Ridge areas, among others. The U.S.F.S. Stanislaus National Forest has a smaller number of acres within the Battalion along the eastern boundary and in the extreme southeast

corner south of Hwy 120. All Federal lands within the Battalion are State DPA. The City and County of San Francisco owns and operates a very small number of acres under the control of Hetch Hetchy Water & Power.

In addition to providing protection for life and property, the Groveland Battalion provides for resource protection of critical watershed, timber, and recreational values. The Tuolumne River Watershed provides water and hydroelectric power for a large portion of the Central Valley as well as San Francisco through its Hetch Hetchy project. The entire Battalion is attractive to many types of outdoor enthusiasts.

Fully two thirds of the Battalion has been designated by Cal Fire as a *Very High* Fire Hazard Severity Zone; virtually everything east of J59. The rolling hills west of J59 are a mix of *High* and *Moderate* FHSZ's.

Battalion 6 Assessment Summaries: Assets At Risk, Fuels, Weather, Ignitions and Fire History

Assets At Risk : There are multiple assets at risk within the Battalion, the most obvious being life and property. In recent decades several major fires have either significantly threatened or severely damaged many important community assets in the greater Groveland area. The following list reflects those assets that will be considered in pre fire planning for the Battalion:

- Life Safety

- Residential and commercial development: all communities along the Highway 120, 132 and 49 corridors, and a handful more beyond. Those officially designated as “Communities At Risk” include: Big Oak Flat, Chinese Camp, Groveland, and Moccasin. Also threatened by wildfire are smaller communities, subdivisions and commercial developments, including: Pine Mountain Lake, Second Garrotte, Priest, Blanchard (DonPedro)and LaGrange .

Structures in the Battalion's older developments are at significant risk due to threatened locations and non fire safe construction. Mid slope, chimney and ridge top locations with outdated design features such as shake roofs, wood siding and decks, large single pane windows are common in these areas. In the newer developments, many improvements in fire safe construction are present yet they remain at significant risk due to terrain and fuel type.

- Community infrastructure: Municipal water systems, electrical distribution, telecommunications, transportation, bridges and schools: A unique asset in Battalion 6 is the presence of the Sierra Railroad which operates a freight and passenger concession between Oakdale and Standard, passing through much of the northern end of the Battalion.

Portions of three state highways bisect the Battalion: 120, 49 and 132

Several government agencies and private communications companies take advantage of the topography within the Battalion for the location of communications system facilities.

- Bureau of Land Management, Red Hills Land Management Area: This unique resource consists of 7,100 acres (slightly more than 11 square miles) of public land located near the intersection of State Highways 49 and 120, just south of the historic town of Chinese Camp. The entire Red Hills Management Area has been designated as an Area of Critical Environmental Concern by the Federal Government. The purpose of the designation is to protect the rare plant species found there, the unusual serpentine soils that provide habitat for unique flora of the area, habitat for the rare minnow known as the Red Hills roach and to protect bald eagle wintering habitat. The area is rich in cultural resources as well including a road dating back to 1849, a railroad grade dating from the 1890's, and evidence of Native American utilization, and occupation by Chinese immigrants.
- Knights Ferry Historic Park and recreational area: Located on the Stanislaus river near the Tuolumne/Stanislaus County border, the park features a 330 foot covered bridge built in 1863 and many historic buildings dating back to the late 1800's
- Tuolumne River watershed: The Tuolumne River Watershed provides water and hydroelectric power for a large portion of the Central Valley as well as San Francisco through its Hetch Hetchy project. Don Pedro, Turlock and Modesto reservoirs all depend on the Tuolumne River and its Battalion 6 tributaries, including Moccasin, Big and Smith creeks.
- Timber resources: The majority of timber in the Battalion is in the hands of small private land owners not engaged in commercial operations. The USFS timber lands upslope are at risk from fires starting within the Battalion, and vice versa.
- Recreational interests: Tourism and recreation may be the most significant element of the economy threatened by wildfire within Battalion 6. Proximity to Yosemite National Park and the Tuolumne Wild And Scenic River makes aggressive initial attack fire control a high priority to the community.
- Cultural and other resource values: As a result of its rich gold mining history the Battalion includes many historic assets beyond those mentioned above. Historic and prehistoric Native American archaeological sites are also numerous throughout the Battalion.
- Agricultural values: Agricultural operations are active and remain an important asset to the community. Ranches located in the western half of the Battalion depend upon the annual grasses to feed their livestock.

Fuels: The majority of the Battalion has been designated by Cal Fire as a *Very High* Fire Hazard Severity Zone. The Fuels in the Battalion transition from west to east with the increasing elevation; from grass rangeland to grass and oak woodland, to mature chamise stands, culminating in stands of mixed woodland and timber. These varieties of fuel, combined with the rugged terrain of much of the Battalion, create a volatile fire environment that has produced many large and damaging fires over the decades.

Weather: The Battalion is subject to the hot and dry Mediterranean climate common in the foothills of the Sierra Nevada. In the lower elevations, peak summertime temperatures are often in the high nineties with humidity commonly in the teens. West to Northwest winds, steady from the morning hours into the evening are common. Although temperatures typically decline with a rise in elevation, even at the 4000'+ elevations of the eastern Battalion, summer temperatures remain encouraging to wildland fire. These higher elevations of the Battalion are subject to thunderstorms during the mid to late summer months.

Fire Ignitions / Fire History: The Ignition Management Analysis shows that the Battalion averaged 75 fires per year in the 4 year period between 2005 and 2008. The major causes are vehicle, equipment use, and other/miscellaneous. Over the past years, there has been a steady decline in the number of railroad caused fires. Sierra Railroad operates a freight and passenger concession between Jamestown and Oakdale, passing through much of the northern end of the Battalion. Changes in operational procedures a "fire train" that would follow the vintage steam engines, and decreases in traffic have significantly reduced the number of fires coming off the rail grade.

Debris burning has also seen a historic decline. This can be attributed to an aggressive, educational burn permit administration program as well as earlier summertime burning suspension.

The Battalion does have a history of large fires: Moccasin 1992, Rogge and Ackerson fires 1996, Creek 2001, and Serpentine 2008 to name a few.

The majority of these larger and damaging fires share a commonality in that they have started in the lower elevations west of Groveland and Big Oak Flat, in the Moccasin Creek drainage. By burning upslope in a North to North East direction fires have routinely threatened those communities.

There do not seem to be any significant trends in the western portions of the Battalion other than that fires occurring there are typically wind driven and occur in the lighter, flashy fuels. The strategy for mitigation of these fires is to continue an aggressive fire defense system in the Groveland area as well as an equally aggressive defensible space inspection program in all areas of the Battalion.

Battalion 6 Mitigation Efforts

Defensible Space Inspections : The Battalion has pursued an aggressive PRC 4291, LE-100 inspection program for a number of years. The goal in the Lake Don Pedro community is for 100% compliance so residences in that community can stand alone in the typically fast moving fires in the area. A prime example was the 1400 acre La Grange fire 6/10/2008 that was driven by winds of 20 mph plus. A few small outbuildings were destroyed in the fire but ~~the~~ many residential structures survived due to the efforts of the homeowners ~~and~~ resulting from the inspection program.

The Green Springs Station is largely surrounded by agricultural land that has been owned by families for generations. This population has demonstrated that they were creating defensible space long before the term was invented. Spot inspections are conducted in a yearly rotation.

The Groveland area is home to a large development at Pine Mountain Lake. The inspection program there is conducted by the homeowners association in cooperation with Cal Fire. Requirements are more stringent than called for under PRC 4291 by local ordinance. The areas outside of Pine Mountain Lake range from densely clustered town settings and smaller subdivisions to widely spaced ranches and agricultural use. The plan is to also inspect all areas within this portion of the Battalion and target maximum enforcement efforts on a rotational basis.

Fuel Reduction/ Breaks : A network of fuel breaks have been established in cooperation with the Stanislaus National Forest (STF), the Southwest Interface Team (Swift), the Yosemite Foothills Fire Safe Council (YFFSC) and Cal Fire. Due to the fact that Cal Fire does not control these lands, Cal Fire's role has been limited to providing technical advice regarding the location of these fuel breaks and assisting with the incorporation of private lands into existing projects. To date, fuel breaks have been constructed around the ridgelines that perimeter the greater Groveland, Big Oak Flat area. Numerous other fuel breaks have been strategically located within this perimeter for targeted hazard areas and as secondary reinforcement. These efforts will provide protection to homes in these areas and future efforts to maintain these projects are planned.

- Rim Truck Trail: From Indian Creek west and southwest to a tie with the Ponderosa Fuel Break near Tip Top Peak, called the Pine Mountain Lake section. It is approximately 11 miles in length. A Prop 40 grant has been approved to treat approximately 150 acres on this section and is being administered by the Tuolumne County Resource Conservation District (RCD). Work should commence in late 2009 and should be completed over the next 2 years.
- Ponderosa Fuel Break: Highway 120 south and east to the Mariposa County line. This is also called the Jackass section and work has continued on this piece following the Creek fire in 2001. Crews from Cal Fire's Baseline Camp and

- Sierra Training Center continue to maintain the system that is approximately 6 miles in length. It does need a field review to check on current status.
- Wagner Ridge Fuel Break: A number of agencies share responsibilities for the section of the fuel break that runs easterly from a tie with the Ponderosa Fuel Break south of Big Oak Flat to the Mariposa County Line. Small sections of the Wagner Ridge Fuel Break were established during the Creek Fire of 2001. What remains of the total 5 miles is approximately 2 miles of minor construction, and 3 miles of follow-up maintenance. The STF and BLM have responsibilities with regard to meeting the needs of completing this fire defense system. A Cal Fire grant could be sponsored by the YFFSC to treat the portions of this project on private lands. A coordinated field review is required.
 - Highway 120 Hazard Reduction Project: From the top of Second Garrotte Rd to the Tenaya School just east of Groveland. This section of hazard reduction work ties to the major Highway 120 fire defense system project that will eventually run from the Tenaya School in Groveland to Yosemite National Park. A Prop 40 grant sponsored by the YFFSC has been obtained to complete approximately 2 miles from Second Garrotte to Tenaya School. CEQA clearance has been completed and field work is expected to be completed by late 2009.
 - Crook Ranch VMP: Hazard reduction/range improvement project with private landowner north of Groveland (Prop 40 and CFIP). Continued work planned into the future on various sized acreages utilizing herbicides, burning, and mechanical treatments. Activity each year depends on approval, funding and resource availability.
 - Wagner/Gookin VMP: Hazard reduction projects on 2 different landowner's properties in the Pine Mountain Lake area of Boitano Rd. Prescribed burning is planned on 165 acres. This project is adjacent to segments of the Pine Mountain Lake section of the Rim Truck Fuel Break. Field work commenced in the spring of 2009.
 - Big/Long Fuel Reduction Project: Prop 40 funded grant by the YFFSC to masticate 52 acres on the ridges between Big Creek and Long Gulch. This would tie in mastication work done on Pine Mountain Lake Property to the west and STF to the east. Permission is still being sought from all landowners prior to beginning CEQA evaluation. Grant expires 4/15/2010.
 - Groveland CSD Fuels Management Project: New project proposal to masticate approximately 200 acres in and around their facility off Ferretti Rd. Project to be sponsored by the Groveland Community Services District and funded by a Cal Fire Prop 40 Grant.
 - CFIP: Several CFIP projects (Groveland Demo, Wagner, Anderson, Brunk, and Crook) have been completed near Groveland. Approximately 530 acres of fuels

treatments, both initial and chemical follow up have occurred. Periodic maintenance will be required and in most cases will be handled by the landowners.

Strategic Planning : Since 1999 Battalion 6 communities have benefitted from the efforts of the SouthWest InterFace Team, aka SWIFT. Working closely with Cal Fire, the Yosemite Foothills Fire Safe Council, the US Forest Service, THE Bureau of Land Management and several other government and community groups SWIFT remains an important participant in the planning and coordination of fuel reduction and fire defense planning for the eastern portions of the Battalion.

Public Education :

- LE-62 Burn Permit Administration: Provide fire prevention material and positive agency contact with each permit, explaining debris burning and safety requirements. This public contact is also used as an avenue to discuss defensible space and PRC 4291/LE-100 program
- Campfire Permits: Encourage all campers to obtain campfire permits.
- Fire Prevention Signs: Post fire prevention signs year round to better educate the public on fire hazards and methods of prevention. Messages will target causes identified in the ignition management analysis.
- School Fire Prevention Programs: Battalion personnel will continue to participate in the schools “Team Teaching” program to promote fire prevention, awareness and safety to school age children.

Law Enforcement :

- Law enforcement of inspection programs: Continued close cooperation between Battalion and the Unit’s Law Enforcement staff in support of the Defensible Space Program.
- Cause and Determination and Code Enforcement: A determined effort by Company Officers and LE Staff to determine a cause for all wild land ignitions. Accurate cause determination impacts several programs beyond the confines of the Battalion (Fire history, Fire plan, funding for example) and can be crucial to the subsequent ability of LE Staff to issue citations for violations of the various PRC and PC codes, including debris burning, arson, power line clearance, and equipment related violations, among others.

Battalion 6 Cooperators Mitigation Efforts

Yosemite Foothills Fire Safe Council :

The Yosemite Foothills Fire Safe Council (YFFSC) was formed in 2003, and began fuels treatment projects in 2006. Our focus on fire prevention has and will continue to engage and assist threatened communities in the Groveland Ranger District with aggressive fuel reduction activities. Many of our projects on private lands have complemented work done on adjacent federally owned lands. This partnership has been very effective and continued collaboration is planned.

Completed projects include:

- Yosemite Vista Estates: A fuel break and fuel reduction in a low to moderate income retirement community of nearly sixty homes. A six acre masticated fuel break accompanied by hand crew fuel reduction work along the shred and in nearby greenbelts. Project funded through the California Fire Safe Council (CFSC) with a single \$ 30,000 BLM grant.
- Hells Hollow community: A three-hundred foot 45 acre shaded fuel break, 15 acres of roadside fuel reduction, and an improved evacuation route with new turnouts. This complements federal efforts along Hells Hollow Road, the Long Shanahan project and the Highway 120 corridor fuel reduction effort resulting in greatly improved safety in this region. Over \$ 156,000 has been spent on the project, all of it USFS funds received through the California Fire Safe Council (CFSC) or through the Tuolumne County RAC.
- Community Chipping Program: This residential program has reduced brush, debris, and slash throughout the region. The program began in 2007 and is funded through 2011. In just over two years, we have chipped or ground hundreds of tons of debris. The project is funded through the California Fire Safe Council (CFSC) with BLM funds, and USFS funding through the Tuolumne County RAC and the CFSC totaling over \$ 151,000.

Projects that are funded that have yet to begin are the:

- Wagner Ridge Shaded Fuel Break: Part of a strategic fuel break system that serves the area. The fuel break is in need of new construction or maintenance along the eight-mile section from Highway 120 to Smith Station Road. The project is a partnership of the USFS, BLM and the YFFSC. The private section is funded and scheduled for 2010 through the CFSC grant with USFS funding. The other partners are seeking funding.
- Whites Gulch Area Fuel Reduction Project: is a strategic WUI residential community that has become increasingly threatened with the buildup of fuels.

This effort will begin in late 2009 and the exact treatment will be determined by local, state and federal fire officials.

- Highway 120 Fuel Break: builds on several miles of fuel breaks completed by the Groveland District and constructs about 1.5 miles of corridor treatment along the north side of the highway. This project was funded by State of California Prop 40 funds, but expires in June 2009 and is currently suspended. The project has CEQA compliance and is a viable stimulus funded project.

Hetch Hetchy Water & Power (HHW&P) :

- Hetchy-Anker VMP: Initiate efforts with Cal Fire and BLM to see if the original burn plan can be re-implemented for the protection of high value watershed and storage in the Moccasin area. (SWIFT Coordinator to make contacts).
- Priest Reservoir Water Quality Protection: Continued fuel treatment work around Priest Reservoir to protect water quality and provide wildfire protection to water and power infrastructure.
- HHW&P Transmission Line Hazard Reduction: On going work to reduce fuels under various power lines for both power line protection during a wildfire incident, and reduce the potential of fire start from vegetative line contacts.

University of California Cooperative Extension :

- Fire Effects Research Project: In cooperation with SWIFT, the University of California Cooperative Extension (Tuolumne County) has been involved in a project with UC Davis to study fire frequency and its impacts on soil and vegetation in the Moccasin area.

Mariposa County Fire :

- Pre Attack Mapping: The pre attack map is updated on a semi annual basis by Mariposa County Fire. County Fire was instrumental in the development of the map for use by SWIFT.

Tuolumne County Fire Prevention Bureau : See page 86-88

Cooperators Mitigation Efforts – Battalions 5 & 6 continued

Tuolumne County Fire Prevention Bureau : In Tuolumne County, Battalions 5 & 6, the inspection authority is the Tuolumne County Fire Prevention Bureau (FPB). This department is under the direction of the Tuolumne County Fire Department.

In order to mitigate the wildland fire problem in Tuolumne County, the California Department of Forestry and Fire Protection’s Tuolumne-Calaveras Unit Chief and The Tuolumne County Board Of Supervisors directed the Tuolumne County Fire Prevention Bureau to make the following amendments to the County’s adopted Ordinance Codes for the California Building Code (CBC) and California Fire Code (CFC) and the Fire Safe Regulations with Public Resources Code 4290 and 4291.

- **Defensible Space** : the area within the perimeter of a parcel where basic wildland fire prevention practices and measures are to be implemented and maintained, including but not limited to removing brush, flammable vegetation, or combustible growth that is located from 30 feet to 100 feet from a building or structure measured from the eaves, porches, decks and balconies to the property line, to provide the key point of defense from an approaching wildfire or an escaping structure fire.

Many of the parcels in the County that lend themselves to easier development have now been developed or “built out” leaving many challenging odd shaped or steep parcels for homes to be built on. A combination of exceptions listed below focus on Fuel Reduction for the wildland and Fire Safe Construction standards built into a home to protect it from wildfire. Together, these measures protect the wildland and make the home safer to defend or even able to defend itself should a fire occur.

- A request for an exception to Defensible Space and Fuel Modification shall be made in writing to the inspection authority by the applicant or the applicant’s authorized representative. The request shall state the specific section(s) for which an exception is requested, material facts supporting the contention of the applicant, the details of the exception or alternative measures proposed, and shall include a map showing the proposed location of the exception or alternative measures and a written summary of the exception or alternatives. Exceptions or alternative measures shall be limited to the following:
- Defensible Space may be reduced when the applicant or his/her authorized representative submits a comprehensive fuel reduction plan to the inspection authority (FPB). Once the fuel reduction plan is approved by the inspection authority (FPB), the plan shall be implemented and completed prior to approval of the Final Parcel or Subdivision Map, or prior to conducting a final inspection under a building permit, or issuing a building permit. Implementation and completion shall be documented and approved by the inspection authority (FPB).

- The following alternative measures or others may be granted by the inspection authority (FPB) when Defensible Space requirements are physically impossible to meet and the alternative measures substantially reduce the fire hazard to a level equivalent to that of the Defensible Space, are agreed upon by the applicant prior to the issuance of a Building Permit and are completed prior to the final inspection or the issuance of a certificate of occupancy for the Building Permit:
 - A residential fire sprinkler system meeting the requirements of NFPA 13 D, with the addition of pilot fire sprinkler heads in the attic, and a minimum of one hour-fire resistive construction on the structure's exterior, including accessory attachments with habitable spaces and projections, such as eaves, decks and porches shall be a minimum of one-hour fire resistive construction, heavy timber construction or constructed of approved non-combustible materials and shall have the under floor enclosed within six inches of the ground. Final inspection and approval is required by the inspection authority (FPB).
 - Fuel breaks or maintained green belts with other alternative built-in fire protection measures which may be granted by the inspection authority (FPB) based upon certain modifications of the California Building Code standards for one-hour fire resistive construction installed on the exterior of a structure including the eaves, decks and porches.
- Defensible Space shall not be reduced to less than six (6) feet from the overhang of the eaves on the affected side requiring the Defensible Space.
- Fire flow : To assure the needed amount of water is on site to keep a fire from spreading from a commercial structure under construction to the wildland or forest, fire flow must be on the parcel and available through a fire hydrant at the time of issuance of a building permit as outlined in Section 15.20.010(A) of the Tuolumne County Ordinance Code. (CFC Amended).
- Fireworks : Section 15.20.080 of the Tuolumne County Ordinance Code is adopted to prohibit the use of certain fireworks throughout the County including all Fire Districts and further regulate public fireworks displays to reduce the fire hazard and augment the provisions of the California Fire Code, Chapter 33.
 - Fireworks Public Education / Enforcement : Each year, CalTrans readable message signs are activated in Oakdale, Calaveras County, and Tuolumne County. Cable TV presentations are made during Tuolumne County Board of Supervisors meetings by Tuolumne County Fire Prevention Bureau staff and meetings are also with our high risk communities and stakeholders. CDF Fire Prevention staff also distributes and displays paper signs throughout Tuolumne County. Meeting internally with law enforcement staff, citations are reviewed on an annually basis. All law

- Roads : The Tuolumne County major road system is narrow, steep, and winding system wide and could be characterized in many locations as constantly congested with heavy traffic. Thick vegetation growing along many of the right-of-ways also negatively impacts roadways. Collectively, these factors combine to act as a barrier for timely responses of firefighters.
- The construction of 20 foot wide travel ways, with safe access length limits on roads and proper identification of such roads, is needed to allow a speedy response time for firefighters throughout the year as outlined in Section 15.20.045 of the County Ordinance Code amending the California Fire Code Chapter 505.2 and Section 15.20.050 of the County Ordinance Code supplementing California Fire Code Section 902 and PRC 4290.
- Private Driveways: Chapter 503, Fire Department Access, of Article 9 is supplemented by the provisions of sections 15.20.050 T.C.O.C. and PRC 4290. Creating a Residential Driveway width that is 12 feet, or two parcels may share a common driveway if it's 18 feet and the required slope, turnouts and turn around are installed to safely allow firefighters to move from one home to the next to protect them during a wildland fire.
- Street Addressing: Chapter 505, Premises identification, of Article 9 is supplemented by the provisions of sections 15.20.040 and 4290. Creating identification of buildings, reflective, if the home is more then 50 feet it must be posted at the road and it must be maintained. This is to assist firefighters on the County's narrow, steep, winding roads, rolling hills with thick vegetation that acts as barriers for viewing address and identification on buildings and homes as firefighters try to achieve timely responses during wildland fires or incidents that threaten the wildland.
- Propane Tanks: Under the guidelines outlined in the CFC and NFPA, the Fire Prevention Bureau is now giving homeowners the option to have the tank installed underground which has been proven safer during a wildland fire.
- Recommended Changes to Land Use and Development in the Future :
 - Establish maintenance easement agreements and programs of the fuel treatments or roads as part of new subdivision approvals.
 - Approve a variety of fire resistive siding material to be used on the exterior of all new homes under construction.

Battalion 9 - Emergency Command Center

Battalion 9 Overview

The Tuolumne/Calaveras Unit Emergency Command Center (TCU ECC) provides Command and Control dispatching for SRA, LRA and portions of FRA within the Counties of Tuolumne, Calaveras, San Joaquin, Stanislaus and Alpine. This includes all local government fire agencies in Tuolumne and Calaveras counties and Bear Valley Fire in Alpine county. The TCU ECC also serves as the CAL EMA operational area dispatch center for Tuolumne and Calaveras Counties. In 2008 the TCU ECC managed 12,175 incidents

The TCU ECC is staffed by 4 Fire Captains (FC), 4 Communication Operators (CO) and 1 Battalion Chief. The shift pattern during the Summer Preparedness season is 3 on the Command floor during the day; including 1 Fire Captain and 2 Communications Operators; during Winter Preparedness season staffing is 2 on the Command floor, 1 FC and 1 CO. The staffing from 1900 to 0800 year round is 1 FC on standby and 1 CO on the Command floor.

In 2004 the Command Floor was remodeled, additional square footage was added and many of the systems and furniture were upgraded or replaced. In this remodel all 911 and network equipment was moved into the detached radio vault.

The TCU ECC monitors fire danger conditions and sets dispatch levels in the Unit with the use of the Fire Danger Operating Plan. The FDOP uses 2 Remote Automated Weather Stations and fire history data to determine the dispatch levels. A working group was established in 2009 and is currently re-writing and verifying this document. The objective of the group is to have the plan finished and have the ability to produce Unit pocket cards by 2010. The dispatch levels have standard response plans attached to them that increase the number of resources dispatched as the fire danger increases. Dispatch levels are assessed at 0800, 1100, 1400 and 1800 hrs. each day.

In 2009 the Unit Lightning Plan was also updated. This Plan lays out the details of how the TCU ECC will coordinate with field Battalions to mitigate incidents during times of high fire occurrence.

The TCU ECC maintains an Emergency Resource Directory (ERD) which contains information to support any given incident. Information in the ERD includes; ICS qualifications for personnel, supplies, vendors and call-when-needed privately owned resources such as dozers, helicopters, and water tenders. The TCU ERD is updated yearly.

The TCU ECC also has a separate Expanded Dispatch floor that allows ECC personnel to branch off complex incidents. TCU Expanded Dispatch will be staffed with an adequate

Section C: Battalion Pre-Fire Management Plans cont.

number of qualified personnel to support the incident needs. The Expanded Dispatch floor has the same communication and computer capabilities as the primary Command floor.