STRATEGIC FIRE PLAN
TUOLUMNE / CALAVERAS UNIT

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

2011

VER. 11.0

Edited By: B. Lodge FC
Pre-Fire Engineer
July 2011

8/2/20118/2/2011

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EXHIBITS: TABLES

SIGNATURES

Unit Strategic Fire Plan developed for the Tuolumne / Calaveras Unit:

This Plan:

- Was collaboratively developed. Interested parties, Federal, State, City, and County agencies within the Unit have been consulted and are listed in the plan.
- Identifies and prioritizes pre fire and post fire management strategies and tactics meant to reduce the loss of values at risk within the Unit.
- Is intended for use as a planning and assessment tool only. It is the responsibility of those implementing the projects to ensure that all environmental compliance and permitting processes are met as necessary.

_____ _____

Unit Chief **Date**

_____ _____

Pre-Fire Engineer / Editor **Date**

Bruce Lodge Fire Captain

EXECUTIVE SUMMARY

The 2011 Tuolumne-Calaveras Unit Strategic Fire Plan (aka the Plan) is intended to be a repository for all information regarding the Unit's efforts to mitigate the inherent threat to communities posed by wildland fire within the Unit's operational area. Our goal is to develop a document that collaborators and agency personnel alike can turn to for background information, a thorough assessment of the threats and challenges presented by wildland fire, and most importantly, the current status of any given project or program whose focus is the reduction of that threat or the increase in safety and awareness on the part of the community.

Coordination and collaboration with cooperating agencies and community groups is an essential element of the Unit's efforts. As such, the Unit Strategic Fire Plan mirrors local Community Wildfire Protection Plans (aka CWPP); and depicts the many valuable contributions by community members and cooperating agencies.

The Process:

An effort has been made to include information from all relevant programs within the Unit regarding their specific efforts to reduce the threat and increase awareness. While every effort has been made to accurately represent these efforts, there may be some program areas that remain underrepresented within the Plan. In compiling the Plan the newly available "assessment tools" were not taken advantage of. Instead, institutional knowledge and first-hand information from the field was relied upon. As such this iteration of the Plan may be characterized as a "first draft". There remains an ongoing effort within the Unit to fill any gaps in the Plan, and to implement the use of modern "tools". In fact the intent is that in moving beyond the initial due date, efforts will continue to accurately describe and continually update all facets of the Unit's wildland fire challenges, and add additional information as needed to fully and accurately depict the mitigation efforts on the part of the Unit and its cooperators.

The primary CAL FIRE contributors are the Battalion Chiefs. Also contributing are Foresters, Prevention Officers and Fire Captains. The Prevention Bureau Chief contributes incident statistics to the Battalion Chiefs for analysis and integration into their project planning. The Unit's Pre Fire Engineer (PFE) serves as the "editor in chief", compiling, revising, and formatting the final document. The application of assessment tools and the production of maps will also be the responsibility of the PFE; who will continue in those capacities throughout the year/s, functioning as the overall manager of the Plan.

Also contributing to the Plan are numerous people from outside CAL FIRE. The contributions from local Fire Safe Council staff have been, and will continue to be, of utmost importance. FSC members often serve as the link between the agency and the community. Without their continuing involvement the Plan will lose its functionality and legitimacy.

Representatives from neighboring Federal land and resource management agencies are also important contributors to the Plan. The inter-agency relationships here in TCU are historically strong. Efforts like the Strategic Fire Plan help to maintain and

encourage these working relationships, and in the end best serve the communities we all seek to protect.

Implementation:

The Strategic Fire Plan as currently conceived is intended to be a “living document”. Its content is based on the real world needs of communities and agencies. As such our Plan, and the associated CalMapper database, will be the “file cabinet” in which all our efforts will be stored. But “stored” is really a misrepresentation in that all mitigation projects and educational efforts will be routinely monitored and documented; they will not be filed away out of mind. Starting with the germ of a project idea and the initial Project Validation Checklist, continuing through the development of the project and its documentation in the Project Description form, continuing further through to completion and designation as “in maintenance”, each project will be represented within the Plan, and status updates will be inserted throughout the life of the project. In this manner it will serve as more than just a “living document’, but will in fact be a “working document” – the “file” to which those engaged in projects and programs return to repeatedly throughout the life of any given project.

It is the also the intent that the Unit PFE position be re-dedicated to the original intent of the position; that of “administrator” of the Unit Strategic Fire Plan. One important benefit of this will be the continuing support and encouragement offered field Officers toward maintaining their engagement in the Plan throughout the year, rather than just for a couple months during annual updates.

Moving Forward By Moving Backward

The recognition that the foothill grass and brush lands, the sprawling oak woodlands and the mountain coniferous forests served as the primary source of water for urban and agricultural development throughout the state was one of the earliest motivations for the creation of what is now known as CAL FIRE. It was recognized in the late 1800’s that without protection from fire and unsound timber harvest practices the state’s water supply could be compromised and the pace of economic growth and physical development would be stalled. But it was not until 1919, as a result of the “Weeks Law” of 1911, that the forestry department’s first four rangers, then known as “Weeks Law Patrolmen”, were hired for a four month period covering that summer. None of those first four “rangers” could have possibly imagined the growth of the department and the expansion of its mission.

The 2010 Strategic Fire Plan For California can be interpreted as a step back; a move to return the focus of the agency to its core mission – the protection of California’s watersheds. While the focus seems to be on protecting communities form fire, one may also argue that the Plan encourages the local Units to undertake efforts to protect the watershed from communities. Perhaps the interpretation depends on which side of the fuel break one stands. Every acre of treated ground adjacent to a community also serves to protect hundreds of acres of wildland watershed. Fuel reduction, public education and an aggressive initial attack comprise the essentials of our core mission. This Unit Fire Plan seeks to direct our focus squarely on that mission.

B. Lodge FC - PFE

A: UNIT DESCRIPTION

Geographic

The Tuolumne-Calaveras Unit is located in Central California, an hour east of Modesto or Stockton, in the foothills of the Sierra Nevada Range; a region known as the Mother lode. It includes the majority of Calaveras and Tuolumne counties, and the eastern portions of San Joaquin and Stanislaus Counties. "The Unit" by definition technically extends down slope from the Forest Service boundary and into the Central Valley as far west as the San Joaquin River in the vicinity of Interstate Highway 5. However the Unit's Primary Operational Area (POA) begins at the LRA/SRA boundary a few miles west of the western Calaveras and Tuolumne County lines (running south roughly from Clements, past Woodward Reservoir to Turlock Lake) up to the Forest Service boundary. *(Throughout this document the phrase "the Unit" refers to that POA.)* The Unit spans an elevation range from a low of 300' among the rolling plains of eastern San Joaquin and Stanislaus counties to highs of near 5,000' in central Tuolumne Co. and 6,000' feet in central Calaveras Co. The heart of the Unit is cut by a series of generally east-west oriented river canyons creating vast areas of extremely steep and rugged terrain. In the west the topography is generally described as rolling hills, however here too steep rugged terrain is created by a unique series of north-south oriented ridges that form a sort of barrier between the foothill country and the western plains.

The entire Unit encompasses almost 2.9 million acres. There are over a million acres of State Responsibility Area (SRA) lands within the Unit. SRA is defined as forest, brush or grass covered lands where the State is responsible for wildland fire protection. SRA is mainly composed of private land holdings. Lands owned and/or administered by the Federal government are designated as Federal Responsibility Areas (FRA). Lands not designated as SRA or FRA typically fall within an incorporated city, are in agricultural use or are rural central valley areas that don't otherwise meet the criteria for SRA/FRA designation. These remaining lands are designated as Local Responsibility Areas (LRA).

TUOLUMNE - CALAVERAS UNIT ACRES BY OWNERSHIP	
TOTAL ACRES	2,869,030
Private	2,040,346
U.S. Forest Service	690,017
U.S. Bureau of Land Mngt.	82,190
U.S. Bureau of Reclamation	24,207
State of California	16,443
U.S. Fish & Wildlife Service	10,297
Bureau of Indian Affairs	356

Table 1A-1

There are four major watersheds in the Unit: the Mokelumne, Calaveras, Stanislaus and Tuolumne River systems. These four systems support seven major reservoirs within the Unit: Camanche Reservoir, Hogan Lake, Pardee Reservoir, Tiger Creek Reservoir, New Melones Reservoir, Tullock Lake, and Don Pedro Reservoir. These hydrologic resources in turn support major local and regional communities and industries.

There are five east-west state highways in the Unit: 12, 26 and 4 in Calaveras County; 108 and 120 in Tuolumne County. State Highway 49 is the only north-south highway. The majority of towns and the greatest population densities in the Unit exist on or near these major transportation corridors.

Socioeconomic

The approximate population within the Unit's two primary counties is 101,906. As of 2009, the US Census Bureau reported an estimated population of 46,731in Calaveras County, an increase of 15.2% since 2000; and 55,175 in Tuolumne County, an increase of just 1.2% since 2000. The population within the San Joaquin and Stanislaus County portions of the Unit's Direct Protection Area is far less dense and only provides a minor contribution to the total Unit population.

The major industries/employers that support the local economy include health care, government, tourism and recreation, construction, and agriculture. In years past the timber industry has been a significant employer, but has steadily declined in recent years. Sierra Pacific Industries, a major timberland owner and mill operator, is planning to reopen their mill in Standard after a two year closure motivated by the weakening economy. The mill is anticipating the return of approximately 130 jobs. Research indicates that each mill job can produce up to six jobs elsewhere in the local economy.

Fire Environment

Being located in the heart of the central Sierra Nevada range, TCU features examples of a wide range of challenging topography, fuels and weather. These naturally occurring elements alone have a great deal of influence on the nature of wildland fires within its boundaries. Add to this an expanding human population and the environment is ripe with potential for large damaging fires.

The grasslands of the rolling western plains routinely experience extreme summer heat, and significant wind events during the spring and fall months. In these areas motorized fire equipment can be fully utilized to great success. The brush fields common throughout the central portions of the Unit lay over broad expanses of steep hillsides and atop narrow ridgelines between the deepening river canyons. Here too routine summer temperatures can be extreme, while the topography makes access increasingly difficult for motorized equipment. The brush transitions into the mixed oak and conifer zones as the elevation increases and the canyon depth and width increase significantly. Over 38% of the CAL FIRE protected lands are covered with these high hazard brush and timber fuels. This mid-elevation area also experiences high summer temperatures, and is most affected by the normal diurnal winds associated with the canyon-dominated topography. The higher elevation zone features dense stands of conifer timber much of

which exhibits large accumulations of ground and ladder fuels. While routinely temperatures are moderated due to the elevation, wind events in the fall contribute to potentially challenging fire conditions. Historically, severe fire weather occurs throughout the Unit on 35% of days during the fire season.

The convergence of significant fire weather conditions, a wide variety of topography and a broad spectrum of fuels has resulted in a long history of large damaging fires within TCU. Concrete evidence of this is depicted in the Battalion maps found in the Exhibits section toward the end of this document, beginning on page 147.

B: UNIT PREPAREDNESS AND FIREFIGHTING CAPABILITIES

Fire Protection Responsibilities

CAL FIRE is mandated by statute to provide wildland fire protection on State Responsibility Area lands (SRA). Wildland fire protection on Federal Responsibility Area lands (FRA) is the responsibility of the federal government (USFS, BLM etc); and of local government entities (city, county, district) on Local Responsibility Area lands (LRA). To reduce fire protection costs, and increase the efficiency of initial attack operations, CAL FIRE and the federal land management agencies have entered into agreements that define Direct Protection Areas (DPA) for each agency. An agency's DPA is the geographic area for which the agency is directly responsible for providing wildland fire protection, regardless of SRA/FRA designation. As an example, a plot of private land (SRA by law) well within the national forest boundary (FRA by ownership) may receive Direct Protection by the USFS due to the closer proximity of USFS fire resources. Thus this plot of SRA is designated part of the federal DPA. Similarly, USFS land (FRA) isolated within private land (SRA) may be provided Direct Protection by CAL FIRE due to it's proximity to CAL FIRE resources. Thus this FRA land is included in the state DPA. On a statewide basis, CAL FIRE and the federal agencies attempt to balance the acreage totals of these trade-offs so that no single agency is protecting more of the other agencies land than the reciprocating agency. Where agency jurisdictions abut is where the majority of DPA swaps have been agreed to. This process is guided by the "Balancing of Acres" agreements amongst agencies. Through this agreement the CAL FIRE Tuolumne-Calaveras Unit and the Stanislaus National Forest provide direct wildland fire protection on some of each other's Responsibility Areas, as shown in the table below. The Bureau of Land Management, Bureau of Reclamation, Army Corps of Engineers and Bureau of Indian Affairs are other Federal agencies with land holdings within the Tuolumne-Calaveras Unit on which CAL FIRE provides Direct Protection. These agencies' and the US Forest Service's are combined and shown as FRA in the following table.

TUOLUMNE - CALAVERAS UNIT CAL FIRE DIRECT PROTECTION ACRES 2011	
Calaveras Co. SRA	527,834
Tuolumne Co. SRA	300,194
Stanislaus Co. SRA	174,913
San Joaquin Co. SRA	60,039
Calaveras Co. FRA	95,386
Tuolumne Co. FRA	86,106
Stanislaus Co. FRA	17
San Joaquin Co. FRA	0
TOTAL CDF DPA ACRES	1,244,489

Table 1A-2

CAL FIRE Organization

The Tuolumne-Calaveras Unit manages a large “schedule B” organization throughout the Unit, and a “schedule A” organization in Tuolumne County. The “schedule B” program consists of the personnel, facilities and equipment directly funded by state dollars for the purpose of providing wildland fire protection on SRA lands. The “B” program in TCU consists of 15 CAL FIRE fire stations, 2 inmate conservation camps, 1 inmate conservation camp training center, an air attack base, an emergency command (dispatch) center and a fire lookout tower. During peak fire season (historically June through September), these facilities provide the base of operations for 21 type III wildland fire engines staffed with 3-4 firefighters, 10 17-man inmate fire crews, 2 bulldozers, 1 air attack plane, 2 air tanker planes, 1 14-person Helitack crew, and 2 lookouts (staffed on a “call when needed” basis).

The “schedule A” program offered by CAL FIRE to local government consists, in part, of equipment owned by the local government entity (Tuolumne Co). Staffing and administration is provided by the State (CAL FIRE) under a contractual agreement. In Tuolumne Co. CAL FIRE provides year-around staffing on a Type 1 municipal fire engine. This engine, along with the many volunteer-staffed engines and water tenders that make up the bulk of the Tuolumne Co. Fire Dept., is also included in wildland fire operations.

TCU is administered by the Unit Chief and a Deputy Chief for Operations, headquartered in San Andreas, Calaveras Co. The fire control portion of the Unit is divided into North and South Divisions, each of which is managed by a CAL FIRE Division (aka Assistant) Chief. The North Division is most easily thought of as being Calaveras County; but also includes eastern San Joaquin Co., a small portion of northeastern Stanislaus Co., and a swath of private timber land north of the Middle Fork Stanislaus River in northeastern most Tuolumne Co. The South Division includes the remaining majority of Tuolumne Co. and eastern Stanislaus Co. A third Division Chief, also operating out of Tuolumne Co., supervises the Tuolumne Co. Fire Dept. (schedule ‘A’ program).

The North Division, in Calaveras Co., is divided into four Battalions, each of which is administered by a CAL FIRE Battalion Chief. Battalion 1 covers from Mokelumne Hill to Wallace on the north, and from Jenny Lind to San Andreas on the south, and includes the Valley Springs and San Andreas Forest Fire Station’s. Battalion 2 covers the lower Highway 4 corridor from Eastern Stanislaus County to Murphys, and includes the Copperopolis, Altaville and Murphys Forest Fire Stations. Battalion 3 is the upper Highway 26 area and includes the communities of Glencoe, West Point, Wilseyville, Railroad Flat and Mountain Ranch, and includes the West Point, Esperanza and Hermit Springs Forest Fire Stations. Battalion 4 covers the upper Highway 4 area from Forest Meadows to Black Springs Road and the area in Tuolumne County north of the Middle Fork Stanislaus River, and includes the Arnold and Skull Creek Forest Fire Stations and Blue Mountain Lookout. Vallecito Conservation Camp, located between Angels Camp and Murphys, completes the North Division list.

The South Division, in Tuolumne Co., is divided into two Battalions. Battalion 5 covers the Tuolumne Co. area north of the Tuolumne river and includes the Standard Forest Fire Station (this station operation relocated from the old Sonora Station in 2008), and the Twain Harte Forest Fire Station (rebuilt in 2008-09 on the same site). Battalion 6 covers the area south of the Tuolumne River and includes the Groveland, Blanchard and Green Springs Forest Fire Stations. The South Division also includes the Columbia Air Attack base (fixed wing and helicopter), Baseline Conservation Camp and the Forestry Training Program located at the Department of Corrections' Sierra Conservation Center.

Local Government Fire Organization

CAL FIRE cooperates closely with all the local city and district fire departments within the TCU boundaries. These agencies have primary responsibility for all emergency incidents within their boundaries, except wildland fires (exception: as LRA's, Sonora City and Angels Camp City retain wildland fire jurisdiction). CAL FIRE and local agencies apply the concept of "closest available resource", via long standing mutual aide agreements, in order to assure the appropriate numbers and types of emergency resources are brought to bear for every emergency. Thus CAL FIRE engines are responding to all incidents throughout the two counties during the months these engines are staffed. Similarly, CAL FIRE relies heavily on district and city resources to supplement our wildland fire response. To facilitate this level of cooperation, TCU's Emergency Command Center (ECC) provides contracted dispatching services for all of the local city and district fire departments in Tuolumne and Calaveras Counties, and the Bear Valley Fire Department in western Alpine County.

- **Calaveras County :** There are 10 fire districts and one city department in Calaveras County: West Point; Mokelumne Hill; Foothill; Jenny Lind; San Andreas; Central Calaveras; Copperopolis; Altaville-Melones; Murphys; and Ebbetts Pass Fire Districts; and Angels Camp City;. The district boundaries combine to cover the entire county except three geographic areas that chose to be excluded from the districts. These areas are as follows: Area 1 – west county area between the Jenny Lind and Copperopolis Fire Districts; Area 2 – Old Gulch Road area south of San Andreas; and Area 3 – the greater Sheep Ranch area. These areas later negotiated with adjacent districts to provide their fire protection. The district boundaries encompass large areas surrounding the communities they are named after (the Foothill Fire Dist. includes the Hwy. 12 corridor from Valley Springs to Wallace; the Central Calaveras Fire Dist. covers the Mountain Ranch and Railroad Flat areas).

- **Tuolumne County :** There are seven fire districts and one city department in Tuolumne County: Columbia; Jamestown; Tuolumne; Twain Harte; Mi Wuk-Sugarpine; Strawberry; Groveland; and Sonora City. The district boundaries encompass relatively small areas surrounding the communities they are named after. Several of these Fire Districts are staffed by a combination of paid and volunteer personnel; some by volunteers only. Sonora City F.D. provides a full time paid staff.

- **Tuolumne County Fire Department;** Paul Speer Assistant County Fire Warden/CAL FIRE Division Chief: The majority of unincorporated Tuolumne County falls outside a fire district boundary thus is protected by the Tuolumne County Fire Department, administered by CAL FIRE under a contractual agreement with the County. There are 15 Stations in the County Fire Dept: Station 51 - Mono Village, Station 53 - Ponderosa Hills, Station 54 - Long Barn, Station 55 - Pinecrest, Station 56 - Mono Vista, Station 57 - Crystal Falls, Station 58 - Cedar Ridge, Station 61 - Chinese Camp, Station 62 - Moccasin, Station 63 - Smith Station, Station 64 - Don Pedro, Station 76 - Jamestown, Station 77 - Mi Wuk, Station 79 - Columbia College, and Station 59 - Sonora which serves as the Mobile Equipment Repair facility. All but one are staffed by volunteer firefighters, the exception being the Mono Village Station, staffed with a minimum of two full time CAL FIRE personnel 24 hours a day, 7 days a week, supplemented by volunteers. The remaining stations are staffed by volunteers from throughout the community. The contract includes a CAL FIRE Training Officer for the nearly 100 volunteers who continue to provide dedicated service to their respective communities; responding in 31 pieces of fire apparatus, including 23 engines, 6 water tenders, and 4 support apparatus and vehicles; under the supervision of volunteer company officers, and in close cooperation with CAL FIRE personnel. Thousands of hours of training is required of these volunteers to enter and remain current in the field. There is a close working relationship between Tuolumne County Fire Department Volunteers and CAL FIRE personnel that has resulted in a long history of effective fire and rescue services in the county.

    - **Fire Prevention Division :** Staffed by County employees; one full time and two part time, the Prevention Division works to provide a safer environment for the citizens of Tuolumne County by preventing the loss of life and property through public education and the enforcement of fire codes, laws and County ordinances related to fire and life safety. The employees of this division also review commercial and residential permits for compliance with currently adopted Fire and Building codes, review applications consisting of Site Development Permits, Development Agreements, Zone Changes, Tentative and Final Maps, Tentative and Final Subdivision Maps, Commercial, Industrial and High/Low Density Residential Development. Other duties include on-site inspections, responding to citizen complaints, code enforcement, issuing permits, and incident response.

    - **Columbia College Fire Dept :** T.C.F.D. has entered into a cooperative fire agreement with the Yosemite Community College District whereby TCFD/CAL FIRE provides a Fire Captain as a Training Officer and front line supervisor to the cadets assigned to the Columbia College Fire Department. Those duties include the management of the day to day operations of the station, including the direct supervision of 15 student firefighters and two pieces of apparatus. The Fire Captain also serves as a Safety Officer and/or Incident Commander overseeing the cadets while on the scene of emergency incidents.

- **Jamestown Fire Protection District :** has contracted with Tuolumne County to provide one CAL FIRE Fire Captain to perform the administrative, supervision and Training Officer duties for the department. During the summer “fire season” the Jamestown FPD relies on volunteer staffing. During the “off season” four CAL FIRE Fire Apparatus Engineers provide driver/operator and incident command services to the district under the terms of the contract with the County.

- **Amador Program :** At the annual closure of the state’s wildland “fire season” the CAL FIRE schedule ‘B’ program lays off its seasonal staff and most of the stations are “closed” while the permanent staff engages in training, maintenance and administrative operations. Under the terms of the “Amador Program”, as set forth in Public Resources Code sect 4144, Tuolumne County has for many years contracted with CAL FIRE to retain engine staffing at some CAL FIRE stations for the purpose of maintaining a higher level of emergency response capability, throughout the winter months, than would be possible with only the schedule ‘A’ Mono Vista station and available volunteers. Historically a single state engine was staffed at Twain Harte, Blanchard and/or Green Springs Forest Fire Stations. In 2010 the County included funding for Fire Fighter positions to supplement the Amador Program’s company officer staffing, the equivalent of CAL FIRE’s Fire Fighter 1 position.

A: COMMUNITY / AGENCIES / FIRE SAFE COUNCILS

Representatives involved in the development of the Unit Strategic Fire Plan are included in the following table. Their organization and title are indicated below:

Plan Development Team:

Representative (title)	Organization
Steven Hollett	CAL FIRE Div. Chief – Admin./Prevention/Resources
Paul Spear	CAL FIRE Div. Chief / Asst. Co. Fire Warden - TCFD
Cameron Todd	CAL FIRE Battalion Chief – Batt. 1
Mario Hernandez	CAL FIRE Battalion Chief – Batt. 2
Chris Post	CAL FIRE Battalion Chief – Batt. 3
Jeff Millar	CAL FIRE Battalion Chief – Batt. 4
Barry Rudolph	CAL FIRE Battalion Chief – Batt. 5
Jeff Sanders	CAL FIRE Battalion Chief – Batt. 6
Andy Murphy	CAL FIRE Battalion Chief – emergency Command Center
Katrina Blumer	CAL FIRE Battalion Chief – Prevention / Education
Nancy Longmore	CAL FIRE Fire Prevention Specialist I
Adam Frese	CAL FIRE Area Forester / VMP Coordinator
Bruce Lodge	CAL FIRE Captain – Pre-Fire Engineer
Kelly Dolan	GIS Intern

Table 2A-1

Plan Contributors / Cooperators: (partial list)

Bill Fullerton	Calaveras Foothills Fire Safe Council – Coordinator
Jerry Tannhauser	Hwy 108 Fire Safe Council (Tuol. Co.) - President
Kelly Bearden	Yosemite Foothills Fire Safe Council (Tuol. Co.) - Chair
John Lucas	U.S. Forest Service – Stanislaus Nat. For. - Calaveras Dist.
Anne Denton	U.S. Forest Service – Stanislaus Nat. For. - Mi Wuk Dist.
Jerry McGowan	U.S. Forest Service – Stanislaus Nat. For. - Mi Wuk Dist.
Steve Barron	U.S. Forest Service – Stanislaus Nat. For. - Mi Wuk Dist.
TBD	U.S. Forest Service – Stanislaus Nat. For. - Groveland Dist.
Brian Mulhollen	U.S. Bureau of Land Management - Mother Lode Field Office
Tim Tate	Sierra Pacific Industries
Patricia Raggio	Cal. Dept. Parks and Rec. – Calaveras Big Trees St. Park
TBD	Hetch Hetchy Water and Power Agency
TBD	East Bay Municipal Utilities District
Cathy Johnson	Forest Meadows Homeowners Association

Table 2A-2

A: ASSETS AT RISK

Life safety is always the first priority during fire control and other emergency operations. Assuring the safety of responders is paramount. Second only to the safety of our personnel is our commitment to the protection of the residents of and visitors to the Tuolumne / Calaveras Unit. There are numerous additional values, resources, and interests, aka Assets At Risk, associated with the human presence within the confines of the Tuolumne / Calaveras Unit. At the core of our mission is the protection of the natural environment, particularly the watersheds. In doing so we provide protection and diminish the risk wildfire poses to all Assets At Risk within the Unit.

LIFE SAFETY:

The approximate population within the Unit's two primary counties is 101,906 . As of 2009, the US Census Bureau reported an estimated population of 46,731in Calaveras County, an increase of 15.2% since 2000; and 55,175 in Tuolumne County, an increase of just 1.2% since 2000. The population within the San Joaquin and Stanislaus County portions of the Unit's Direct Protection Area is far less dense and only provides a minor contribution to the total Unit population. The overwhelming majority of the population within the DPA in all Unit counties is in the State Responsibility Area.

In Tuolumne County, the highest population density is found extending outward along the Highway 108 corridor from Jamestown to Twain Harte. Tuolumne City (LRA), Columbia, the greater Groveland area, and the southern confines of the Lake Don Pedro area also feature high population densities. County wide population density is reported by the census bureau as 24.4 per square mile.

The high density population areas in Calaveras County are the upper Highway 4 corridor from Murphys to Big Trees Village; along Hwy 26 from Valley Springs to Jenny Lind; and in proximity to O'Byrnes Ferry Rd. in the Copperopolis area, including the north shore communities at Tulloch Lake. Other areas of dense population exist in Angels Camp (LRA), San Andreas (LRA), greater Mountain Ranch, and along Hwy. 26 in Mokelumne Hill and West Point. County wide population density is reported by the census bureau as 39.8 per square mile.

Virtually every population center within the Unit is identified as a Community at Risk as per the criteria set forth in the National Fire Plan. (see Sect. III part B)

Outside these concentrations, the population west of Hwy 49, including our DPA in the eastern margins of Stanislaus and San Joaquin counties, is widely scattered, mostly in the form of ranch and farm development. Beyond the highway corridors, east of Hwy 49, widely scattered residential development is seen throughout, carved out of what was once purely forest and brush covered terrain.

The population within the Unit increases significantly at specific times of year, including the summer fire season. The greater Arnold area in Calaveras Co. and the greater Twain Harte area in Tuolumne Co. include large numbers of 2nd homes, providing

destinations for significant numbers of people from outside the Unit. These temporary residents and thousands of others who visit the campgrounds, RV parks and motels throughout the Unit, come during the summer to take advantage of the many recreational and aesthetic opportunities present. Temporary population increases of this sort have several impacts on the counties involved including increasing the potential for human caused fire starts.

In the event of threatening wildland fire one of the key factors in the protection of human life is the ability of residents to evacuate quickly and safely. The topographically rugged terrain of the Unit and historically less informed county building rules has resulted in many narrow public and private roads serving as the sole access/egress routes for much of the residential development throughout the Unit. Quick, organized evacuation is crucial to assuring life safety.

WATERSHED:

The recognition that the foothill grasslands, low elevation oak woodlands and mountain coniferous forests served as the primary source of water for urban and agricultural development throughout the state was one of the earliest motivations for the creation of what is now known as CAL FIRE. It was recognized in the late 1800's that without protection from fire and unsound timber harvest practices the state's water supply could be compromised and the pace of economic growth and physical development would be stalled. In March of 1905 the State Legislature created both the Board of Forestry and the position of State Forester. Between 1905 and 1919 the "forestry department" consisted of the State Forester and miscellaneous office staff working out of Sacramento offices. It was not until 1919, as a result of the "Weeks Law" of 1911, that the department's first four rangers, then known as "Weeks Law Patrolmen", were hired for a four month period covering that summer. The State Forester reported that year that three million acres of watersheds covering the Stanislaus, Mokelumne, Consumnes, American, Bear, Yuba and Feather River systems were to be afforded protection.[1] From those humble beginnings has grown one of the largest fire control organizations in the world. But the core mission has remained constant – protect California's precious watersheds.

The Unit contains all or significant portions of three major river system watersheds: the Mokelumne in northern Calaveras Co., the Stanislaus, which lays over southern Calaveras and northern Tuolumne Co's., and the Tuolumne river in southern Tuolumne Co. A smaller river system, the Calaveras, drains the heart of Calaveras Co.

Any given watershed contains multiple Assets At Risk:

- **Water and Power:** Over 48 water providers and users divert, store or transport water from the watersheds that lie within the Tuolumne-Calaveras Unit. This water is used by millions of people for domestic, commercial and agricultural purposes locally throughout the Central Valley, and as far away as the greater San Francisco Bay Area.[2]

[1] "Management Plan for CDF's Historic and Archaeological Sites" by Mark V. Thornton – Consulting Historian, 1995, Updated 2002; pg. 10-11.
[2] "Tuolumne-Calaveras Pre-Fire Management Plan 2005, by Rich Strazzo et al

There are nine utility companies generating hydroelectric power from within the Unit's watersheds. Over 5.1 million megawatts of electricity are produced each year by the 30 power plants owned by these companies.[3]

- **Timber:** Approximately 920,000 acres of commercial timberland exist within the Unit. It is estimated that 58% of these timberlands have a high site index, which leads to increased timber stand productivity. The largest commercial timberland owner is Sierra Pacific Industries (~140,000 acres). 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. SPI's timber harvest supports two saw mill operations; in Chinese Camp and Standard. In addition to the SPI timberland, many small landowners own commercial timberland. The USFS is the largest government owner of timberland in the Unit.

- **Recreation:** As the timber industry has declined over the last several decades, the importance of recreation has increased significantly. The Federal DPA offers camping, fishing, hunting, off-road motor sports, hiking, bicycling, motorcycle touring, lake and river water sports, skiing, and simply enjoying the view, along with many other activities, are having an increasingly positive effect on the local economy. The summer fire season period sees huge influxes of people into the Unit bent on enjoying these recreational opportunities, especially on the traditional 3-day holiday weekends. All these recreational activities can be negatively impacted in the event of significant wildland fire.

  Within the Unit's DPA many of the same opportunities for recreation exist. Several lakes, campgrounds, and RV parks offer many recreational options to locals and visitors alike. Columbia State Historic Park and Calaveras Big Trees State Park are big attractions throughout the year. Wineries offering tasting and live music; community street fairs, County fairs, and local outdoor music festivals; rodeos, fishing tournaments, bicycle races and fun-ride vents; motorcycle "poker runs"; are all popular activities. All are important to the economy, and all are easily disrupted by wildland fire.

- **Wildlife:** Wildlife in general are a valuable asset in their own right. In addition they contribute to the recreational pursuits and economy within the Unit. River and stream fisheries can be severely impacted by wildland fire due to the erosion that often follows. Much of the Sierra Pacific Industries timberland between the North and Middle forks of the Stanislaus river is designated a State Game Reserve by the Department of Fish and Game.

[3] "Tuolumne-Calaveras Pre-Fire Management Plan 2005, by Rich Strazzo et al

STRUCTURES:

Among individuals and communities, ones house or place of business, is likely to be their most valuable material possession. It is the rare State DPA wildfire within TCU that does not threaten structures, if not immediately then within the first hour. More often than not the first thing on the minds of our initial attack firefighters is the question of whether structures are threatened. This is the reality throughout the State Responsibility Areas statewide. The Department has devoted a tremendous amount of training hours, fire behavior research, equipment development, public education and building practices research toward the goal of reducing structure loss. In fact, the entire scheme for placing, staffing and dispatching the department's initial attack forces is focused on a rapid, aggressive initial attack on every fire; due in large part in this modern era to the goal of protecting structures by putting the fire out sooner rather than later.

According to the U.S. Census Bureau estimates, as of 2009 Tuolumne County contained 30,575 "housing units" [4], Calaveras County had 27,438 housing units. It's unlikely that any of these housing units, anywhere in the Unit, are not facing some risk in the event of wildland fire; including much of the LRA areas of Angels Camp City, Sonora City, San Andreas and Tuolumne City,

INFRASTRUCTURE:

Infrastructure includes transportation systems, communications equipment, water and power delivery systems, and public institutions.

As noted above, water is the core asset the CAL FIRE is mandated to protect. Within the Unit several water delivery systems face significant risk from wildland fire: open ditches, above ground flumes, tanks, ponds, reservoirs and pumping facilities. Since 2001 there are a couple of examples of wildland fires damaging water delivery systems: the Darby fire in 2001 took out a significant portion of a flume in the north fork Stanislaus river canyon, and the Pattison fire in 2004 which destroyed a large capacity community storage tank in the valley Springs area.

Communications equipment is common and widespread throughout the Unit. By necessity it is often located in very remote locations, such as mountaintops, that by definition include a significant threat from wildfire. Towers, vaults, antennas and their associated support equipment, such as propane tanks and generators, are easily threatened by fires if adequate clearance and protective measures are not employed. Cell phone towers and equipment have become more common in the lower foothills, often in close proximity to highways and major county roads, along which fires are common.

It seems that powerlines are everywhere – along every highway, county road and private driveway, traversing pastures, crossing lakes and river canyons, and cutting long swaths through remote forests. While power delivery systems have been responsible

[4] US Census Bureau; "Housing Unit" = a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which have direct access from the outside of the building or through a common hall.

for a decreasing number of fires in recent years due to stepped up maintenance and adherence to Natural Resource Code regulations, they still pose a threat as a potential fire cause, and to the aerial firefighting operations of the Department which requires our firefighting aircraft to fly low and slow, often in close proximity to powerlines. They in turn are routinely threatened by wildfires.

There are six State Highways within the Unit: 4, 12, 26, 49, 108 and 120. Fire rarely has a direct impact on roads and highways beyond burning guardrails and signage, and the occasional superficial damage done by tracked firefighting equipment; however, even a small fire lasting an afternoon can significantly disrupt the delivery of goods and services and people, due to road and highway closures. Upper Hwy 4 in Calaveras County has gained designation as a Scenic Byway due to the unsurpassed scenic landscapes through which it runs as it traverses the mountains. Hwy 120 in southern Tuolumne County is the primary northern route to Yosemite National Park. Both are crucial to the summer time economy of their respective counties.

AIR QUALITY:

The Tuolumne-Calaveras Unit has portions of the San Joaquin Valley and Mountain Counties Air Basins within its boundaries. The Mountain Counties air basin makes up 81% of the CAL FIRE DPA area. The influx of urban dwellers, as visitors or new residents, over the past several decades – people often unfamiliar with the history of natural fire regimes in the Sierras, results in what some might say are unreasonable expectations on the part of the public for pristine “mountain air”. Whether from a neighborhood burn pile, an uncontrolled brush fire, or a weeks-long forest fire in the high country, smoke is and will continue to be an important issue to the local population and governments throughout the region.

During fire season, prevailing southwest, west and northwest winds tend to blow the smog generated in the central valley and greater Bay Area into the Mountain Counties Air Basin. Wildland fire smoke from the federal DPA high country is moved down the river drainages by the daily cycle of air movement into the heart of the populated ares of the Unit. Smoke generated from wildfires occurring within the state DPA will cause an immediate and localized threat to air quality. Factor in the potential for low inversion layers on any given summer day and the the potential for unhealthy air quality designations within the Unit is quite high throughout the summer.

AGRICULTURE:

Agriculture in the Tuolumne - Calaveras Unit is a 40 million dollar industry making it a very important asset in the Unit.

- **Calaveras County** reports 188,300 acres of rangeland, and 631 active farms in the county, for a total of 201,026 acres dedicated to agriculture out of the 667,791 acres which make up the entire county.

Agriculture reports show revenue of just over 20 million dollars in 2010; cattle and calves are the number one commodity with revenue of 5.8 million dollars. Most of this activity takes place in the rolling western foothills and rangeland of Battalions 1 and 2.

The number two commodity is wine grapes which accounts for 3.4 million dollars annually. The mid elevations of the County, 2000' to 3000' elevations, are very conducive to this growing industry. The greater Murphy's area, along Hwy 4 in Battalion 2 may be considered the heart of the Calaveras wine industry. Viticulture is unique among agricultural activities in that it also contributes significantly to the tourism and leisure industries within the county.

The third leading commodity is Poultry at 3.2 million dollars. This again takes place in the lower reaches of Battalions 1, and 2

- **Tuolumne County** consists of over 1.4 million acres; over 1 million of those acres are owned by the federal government: the largest holdings by the US Forest Service, National Park Service, Bureau of Land Management, and Bureau of Reclamation. Of the remaining acres 200,000 are dedicated to rangeland, and there is a total of XXX active farms.

  Agriculture reports show 20 million dollars of agriculture revenues in 2010;. the leading commodity was poultry, valued at over 8 million dollars. Most of this activity is located in Battalion 16 with some additional production in Battalion 15.

  The second leading commodity was cattle and calves at 5 million dollars; the majority of this takes place in the western foothills and rangeland of Battalion 16.

  The third leading commodity is the rangeland grass itself, valued at over 2.6 million dollars. Rangeland owners lease the ground to cattle producers for use as feeding pasture at an average of near $13 an acre.

Close proximity to fire prone brush covered lands, susceptibility to high winds, and the influence of human behavior, means all the top revenue producing agricultural operations within the Unit are at significant risk from wildland fire. Vineyards are often carved from brush covered hillsides in the heart of the Unit, making them susceptible to serious damage from fire and post-fire erosion. Rangeland grass, while often viewed as "just grass", is the life blood of the cattle industry, and is particularly susceptible to loss due to fire, starting in the spring of the year and lasting deep into the fall. Cattle are grazed on the lowland ranges until late spring when the grass turns, at which time they are trucked to either the upper elevations, including leases on USFS lands, or to other areas of the state where they feed before being returned in the fall for the local calving season. Wind driven grass fires in the low country and fules/topography driven fires in the forests can easily destroy hundreds or thousands of acres of valuable feed. Poultry operations too are located in threatening, often remote, environments at risk from running low country grass fires or mid-elevation brush fires.

CULTURAL / HISTORICAL:

Native American cultures thrived within what is now the boundary of the Tuolumne – Calaveras Unit for thousands of years. As a result there are many pre-historic archaeological and historic cultural sites located throughout the Unit. Due to the sensitive nature of these sites they are rarely known to fire control personnel prior to the occurrence of a fire. As such they are hard to identify and take steps to protect ahead of time. Sadly they are often most at risk of damage from fire control operations than from the fire itself.

The discovery of gold in the late 1840's initiated a wave of European American development throughout the Sierra foothill country that continues nearly unabated to this day. As a result of its rich gold mining history the Unit includes many historic cultural sites, from the large number of abandoned mine sites, to remnants of structures and water delivery systems, to entire communities still thriving. The largest, most well known and heavily visited Gold Rush era "site" is the Columbia Historic State Park – a living community in the restored historic town of Columbia. Designated as a Community at Risk, Columbia is an important historical asset both locally and throughout the central California region. Another well known historic site of the era is the Knights Ferry Recreation Area within the SRA of eastern Stanislaus Co. Located on the Stanislaus River, adjacent to Hwy 108/120 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 later 1800's. Starting late in the 19th century, and operating for over 60 years into the 20th, logging on private and public lands, railroad based in the case of Tuolumne Co, was a significant industrial activity. Historic artifacts, camp and mill sites, railroad grades and infrastructure improvements are common throughout the eastern mid-elevation conifer forests of the Unit.

Many more less substantial historic cultural assets are located throughout the Unit, often located in remote, difficult to reach areas surrounded, even obscured by threatening wildland fire fuels.

B: COMMUNITIES AT RISK

The following communities located within or adjacent to the Tuolumne/Calaveras Unit are those officially designated as "Communities at Risk" within the National Fire Plan. Through the National Fire Plan, the Communities At Risk list was developed to identify communities that were at risk from the threat of wildland fire. The official California Communities At Risk list include 35 communities in Calaveras Co., 32 in Tuolumne Co., 5 in Stanislaus Co., and 4 in San Joaquin Co. (Tables *X – X*). Communities At Risk lists, organized by County are also available here:

California Fire Alliance web site: Communities At Risk

The list does not include the name of every small community or subdivision. Some of the communities listed cover broad geographic areas that encompass what the general public would assume to include several separate communities. For example, White Pines would be included in Arnold for the purpose of this list. Other "communities" were

named based on their old town-site name, not the current subdivision or current commonly known name. The absence of a community from these lists does not indicate any unwillingness on the part of the Unit and its cooperators to engage in efforts to mitigate the perceived wildland fire threats therein.

Communities can apply for inclusion on the list using the "Communities at Risk" application form here: California Fire Alliance: CAR Application form

County: TUOLUMNE **Year Listed: 2001**

Name	Battalion	Name	Battalion
Arastraville	5	Long Barn	USFS DPA
Buck Meadows	6	Mather	USFS DPA
Bumble Bee	USFS DPA	Mi Wuk Village	5
Chinese Camp	6	Moccasin	6
Cold Springs	5	Mono Village	5
Columbia	5	Phoenix Lake – Cedar Ridge	5
Confidence	5	Sierra Village	5
Cow Creek	USFS DPA	Smith Station	6
Dardanelle	USFS DPA	Sonora	5
East Sonora	5	Soulsbyville	5
Groveland – Big Oak Flat	6	Standard	5
Harden Flat	USFS DPA	Stent	5
Jamestown	5	Tuolumne City	5
Jupiter	USFS DPA	Tuolumne Rancheria	5
Kennedy Meadow	USFS DPA	Tuttletown	5
Lake Don Pedro	6	Twain Harte	5

Table 3B-1

County: Calaveras **Year Listed: 2001**

Name	Battalion	Name	Battalion
Altaville	2	Jenny Lind	1
Angels Camp	2	Milton	1
Arnold	4	Mokelumne Hill	1
Avery	4	Mountain Ranch	3
Big Meadow	USFS DPA	Murphys	2
Big Trees	4	Paloma	1
Burson	1	Rail Road Flat	3
Calaveritas	1	San Andreas	1
Camp Connell	4	Sandy Gulch	3
Campo Seco	1	Sheep Ranch	3/4
Copperopolis	2	Skyhigh	USFS DPA
Cottage Springs	4	Tamarack	USFS DPA
Dorrington	4	Vallecito	2
Douglas Flat	2	Valley Springs	1
Forest Meadows	4	Wallace	1
Ganns	USFS DPA	West Point	3
Glencoe	3	Wilseyville	4
Hathaway Pines	4		

Table 3B-2

County: SAN JOAQUIN Year Listed: 2001

Name	Battalion
Bellota	1
Clements	1
Linden	1
Lockeford	1

Table 3B-3

County: STANISLAUS Year Listed: 2001

Name	Battalion
Knights Ferry	6
La Grange	6
Oakdale	6
Riverbank	6
Waterford	6

Table 3B-4

A: FIRE PREVENTION

- 2010 IGNITION ANALYSIS

(The fire occurrence statistics below and on the following pages are drawn from the "ignition" database compiled by the CDF Fire Plan program based on CAIRS data. The fire cause code numbers and descriptors used by CAIRS do not coincide with the codes and descriptors used by TCU in Preliminary Fire Information Report and LE-66B Preliminary Investigation documentation.)

TCU 2010	CAIRS/Fire Plan Cause Description	Total # of Fires	Total Acres	# of Fires 10 acres or less	% of Total Fires 10 acres or less	Average Acres	Largest Fire Acres	Median Acres
0	Unknown/Unreported	69	0	69	100.00%	0.00	0.00	0.00
1	Undetermined	61	284	56	91.80%	4.66	68.00	0.50
2	Lightning	4	4	4	100.00%	0.88	1.00	1.00
3	Campfire	2	2	2	100.00%	0.85	1.00	0.85
4	Smoking	5	2	5	100.00%	0.38	1.00	0.20
5	Debris Burning	28	13	28	100.00%	0.47	2.50	0.25
6	Arson	16	57	15	93.75%	3.53	48.30	0.43
7	Equipment	29	247	25	86.21%	8.51	116.00	1.00
8	Playing W/ Fire	21	8	21	100.00%	0.37	3.00	0.15
9	Misc / Other	49	75	47	95.92%	1.54	18.00	1.00
10	Vehicle	4	25	2	50.00%	6.30	15.00	0.20
11	Railroad	0						
12	Electrical Power	7	3	7	100.00%	0.40	1.20	0.18
	Annual Totals:	**295**	**719.30**	**281**	**95.25%**	**2.44**	**116.00**	**0.22**

Table 4A-1

Interpreting the tables:
Comparing the total number of fires to the total number of fires under ten acres gives an indication of the range of fire sizes in any given category

Throughout the categories the average acre size is skewed high due to a very small number of fires within each category, usually between 2-5, that exceeded the ten acre mark significantly. Therefore Median[5] fire size is included in order to present a better picture of "typical" fire sizes that relate to the percentage under ten acres figure.

Cause categories of particular note are highlited yellow; individual values bordered in red.

[5] Median: The middle value in a set of statistical values that are arranged in ascending or descending order (fire size in acres); an equal number of values are lower and higher than the median. Example: Eleven fires are reported at 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 acres. Six acres is the middle size point, the median size; five fires are less than six acres, five fires are greater than six acres. From the table above: 295 total fires with a median of .22 acres: .22 acres was the mid point fire size - 147 fires were at or less than .22acres, 147 fires were at or greater than .22 acres.

- ENGINEERING & STRUCTURE IGNITABILITY

Reducing Structural Ignitability

The communities within the confines of the Tuolumne-Calaveras Unit have always been confronted by the threat posed by uncontrolled wildland fire. The gold rush of the mid-1800's brought the first large wave of non-native American inhabitants into the foothill countryside. The growth off the population has continued unabated ever since. As such the structures within the Unit reflect well over 100 years of the evolution of accepted building materials and techniques. Only within the very recent past have structures been designed and built with a focus on reducing the likelihood of ignition due to wildland fire.

It is a fact recognized by all fire control personnel in the Unit and the local government fire organizations that any ignition can quickly result in a fire that immediately threatens structures. CAL FIRE's entire fire control system is designed to bring to bear a rapid initial attack capable of snuffing out the threat ASAP. Never the less, fires do progress rapidly to the point of being a significant threat to structures. Whether it's 1 acre, 100 or 1,000 acres, structures will be threatened; and some will burn. In the case of small rapidly growing fires a means of structure ignition is direct flame impingement and / or radiant heat. In the case of very large, landscape scale fires a primary means of ignition is airborne embers. The larger the fire, the higher the likelyhood that structures will burn, due in part to the fact that there are simply not enough fire control resources available to immediately protect every threatened structure during a rapidly progressing fire. Recognition of this fact by property owners should encourage them to take personal responsibility for improving the safety of their structures by following the steps required and or recommended to reduce the threat of structure ignition.

The Prevention Bureau of the Tuolumne-Calaveras Unit supports three primary means by which the public, in cooperation with Federal, State and Local Government fire control agencies, can reduce the threat posed by direct flame impingement and airborne embers.

- **Fire Hazard Severity Zones and Building Standards and Materials for Building Code Chapter 7A, 2007 California Building Code (CBC)**

  The California Building Commission adopted the Wildland-Urban Interface codes (Chapter 7A) in late 2005. The majority of the new requirements took effect in 2008. These new codes include provisions for ignition resistant construction standards applicable to the Wildland Urban Interface (WUI); with an emphasis on protecting against airborne embers. During this same period of time CAL FIRE initiated a statewide project to update the Fire Hazard Severity Zone designations within the WUI, using the latest science based analysis techniques and geographic information system technologies to delineate those concentrations of wildland vegetation fuels likely to produce embers when involved in fire. Starting with the State Responsibility Areas in 2005 and concluding with Local Responsibility Areas adjacent to or within the SRA in 2008, Fire Hazard Severity Zones were field validated, updated as required and adopted by local government (County and City governing and regulatory entities), before official CAL FIRE maps were produced and released to local government.

The Chapter 7A Building Code requirements and the associated Fire Hazard Severity Zones have been enacted and are being enforced by local government building officials as development plans work their way through the approval process. The updated zones will also be used by property owners to comply with Natural Hazards Disclosure requirements at the time of a property sale. Local government is encouraged to integrate the updated FHSZ's into the Safety Element of their General Plans.

Property owners, developers, contractors, building materials businesses, and product designers can find specific wording and answers to questions regarding Building Code Chapter 7A, Fire Code Chapter 47, PRC 4290 and 91, Title 14 and other related information at the following CAL FIRE Office of the State Fire Marshal website:

http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_codes.php

Maps depicting Local and State Responsibility Area Fire Hazard Severity Zones are available at the following CAL FIRE Office of the State Fire Marshal website:

Tuolumne County:

http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_tuolumne.php

Calaveras County:

http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_calaveras.php

Stanislaus County:

http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_stanislaus.php

San Joaquin County:

http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_sanjoaquin.php

- **Defensible Space**

Property owners living in State Responsibility Areas (SRA) are required by Public Resource Code (PRC) 4291 to maintain clearance of flammable vegetation around their property. A property owner's clearance responsibility is limited to 100 feet from his or her structure(s) or to the property line, whichever is closer, and is limited to their lands. However, coordination with adjacent landowners to achieve maximum defensible space is encouraged.

Short of expensive remodel and retrofit projects for existing structures, compliance with existing Public Resources Code 4291 requirements is the single most effective means by which property owners can reduce the likelihood of

structure ignition due to wildland fire. The Tuolumne-Calaveras Unit of CAL FIRE is committed to helping the population come into compliance with the PRC4291 clearance requirements: a 30' wide *Defensible Space* zone immediately adjacent to the structure, plus an additional 70' *Reduced Fuel* zone, for a total of 100' of *"Clearance"* around all structures.

The Prevention Bureau and each Battalion in the Unit is actively engaged in PRC 4291 education and compliance efforts, including: on-sight inspections, self-inspection forms, face to face education at the fire stations, participation in community events, close cooperation with Home/Property Owner Associations, and collaborative efforts with the local Fire Safe Councils and Local Government and Federal fire control and land management agencies.

Detailed guidelines for creating defensible space can be found at this CAL FIRE web site:

http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_sanjoaquin.php

Information regarding updates to PRC 4291 requirements is available at this CAL FIRE web site:

http://www.osfm.fire.ca.gov/informationbulletin/pdf/2009/defspacebulletin.pdf

- **Fuel Reduction Program**

The Prevention Bureau, through its Fire Captain-Pre Fire Engineer position supports and collaborates with a wide variety of agencies and community members in the planning, organizing, and documentation of fuel reduction projects throughout the Unit.

Starting in 2010 the Pre Fire Engineer began the long slow process of implementing the State Board of Forestry and Fire Protection's new *2010 Strategic Fire Plan For California.* Under that umbrella document this Unit Fire Plan attempts to document all efforts within the Unit to mitigate the threat posed by wildland fire. One of the primary means by which this is undertaken is through on-the-ground projects designed to create fuel breaks adjacent to threatened communities and help private landowners and organizations reduce the threat within their property boundaries.

Three Fire Safe Councils are active and productive within the Unit:

- Calaveras Foothills FSC in Calaveras County
- Highway 108 FSC in northern Tuolumne County
- Yosemite Foothills FSC in southern Tuolumne County

The tireless dedication of the members of these community organizations has been, and continues to be crucial to the success of fuel reduction efforts I the Unit. Nearly every fuel reduction project within the Unit involves representatives

from the local Fire Safe Council. Without their involvement few projects over the past decade would have come to fruition.

The Unit is preparing for the implementation of the CalMapper project tracking and mapping database system in the fall of 2011 (renamed from PACDAT). It is anticipated that CalMapper will facilitate accurate long term project tracking and mapping efforts. Supporting Pre-Fire Project Framework documents and procedures are being gradually implemented in the wake of the completion of this Fire Plan. The goal is to have CalMapper and the Pre-Fire Project Framework fully implemented sometime during the winter of 2011-12.

During the winter of 2011 the Unit's Pre-Fire Engineer began collaborating with the private consultant hired by the Calaveras Foothills Fire Safe Council to produce a comprehensive Community wildfire Protection Plan for Calaveras County. This collaboration has resulted in a new CWPP document that supports the Unit Fire Plan, and vise versa. As is the case with the Unit priorities reflected herein, the Calaveras County CWPP emphasizes collaborative efforts to mitigate the threat posed by wildland fire through coordinated fuel reduction and public education projects.

The Unit anticipates a similar effort in Tuolumne County to update its Community Wildfire Protection Plan within the next year or 18 months. Due to the natural geographic and demographic division of Tuolumne County caused by the location of the Tuolumne river canyon, tentative plans include the potential for splitting the existing, outdated Tuolumne Co. CWPP into separate documents; a north and south county CWPP each reflective of the unique conditions and geographic separation of the those areas.

-INFORMATION AND EDUCATION

Nancy Longmore Fire Prevention Specialist I

In the 1970's, Fire Captain Specialists carried out the Unit's fire prevention education work in addition to law enforcement. Each Battalion had its own Fire Prevention Aide who did wildland property inspections under Public Resources Code 4291, as well as other fire prevention work. The Aides worked for the Battalions rather than the Prevention Bureau. The Fire Prevention Aide positions were eliminated in the late 1970's, but later "came back to life" as Fire Prevention Assistants, eventually to be upgraded to Fire Prevention Specialists (FPS).

Since then, the FPS has been the face of public information and fire prevention education in the Unit, as well as managing a large Volunteers In Prevention program and providing guidance and oversight to a significant portion of the Unit's PRC 4291 inspection program.

A detailed accounting of the agency's Volunteers In Prevention program history is available at the CAL FIRE website, here:

http://www.fire.ca.gov/communications/communications_volunteers.php

An excerpt from the above web site is of particular note: "History has shown that when VIP teams provide fire prevention teaching in grades K-3rd, child-related fires in those areas have dropped by 50 percent. In addition, VIPs educate thousands of children and their parents about fire prevention by participating in fairs, displays, and parades each year. Volunteers are trained to make preliminary wildland homeowner property inspections for fire safety as required by Public Resources Code 4291, and to discuss with homeowners ways to make their homes fire safe. These one-on-one contacts are an increasingly important education tool as the population in California's wildlands continues to grow."

Currently within TCU about 150 VIPs perform a wide variety of work under the supervision of the Unit's Fire Prevention Specialist and Battalion personnel. This work greatly expands the reach of the fire prevention message in the Unit, well beyond what the corps of company officers and firefighters could hope to achieve. Most of these volunteer folks are retired, but many seasonal firefighters participate during the off season, accruing valuable time and experience that help move them toward their career goals. This dedicated group of VIP's faithfully support fire prevention education efforts in hundreds of school programs, community events, and the Unit's 4291 inspection program, among others.

Throughout the 1980's and 90's the surge in development of relatively inexpensive rural property in the foothills coupled with overpriced urban housing triggered a mass migration of people seeking not only primary housing, but recreational and investment properties. Many of these new throughout the Unit were, and still are, unaware of the wildfire danger inherent in their new rural environment, nor how to mitigate it. Among the growing population are residents physically and/or financially unable to do the necessary clearance around their homes. Still others seek isolation for various reasons

ranging from a simple desire to “get away from it all’ (including government “interference”), to those who make their living via illegal activities.

Reaching and educating these various groups, and gaining their compliance with defensible space requirements is always challenging, frequently rewarding, often frustrating, and potentially life-threatening.

These challenges increased in 2005 when the defensible space requirements increased from 30 feet around structures to 100 feet. The confusion this created for both inspectors and property owners is lessening somewhat, but giving the public a consistent interpretation of the law remains a challenge.

To resolve these challenges, TCU’s current FPS developed and implemented an award winning three part education and training program.

Three Part Prevention and Education Program: Developed locally by the Unit’s Fire Prevention Specialist, this program brings consistency to the prevention message, the training of VIP and agency inspectors, and the conduct of on-site inspections. CAL FIRE personnel, Volunteers In Prevention, and other community members provided input, and viewed all three tools for clarity and user-friendliness. In 2010 this innovative program and the Unit’s Fire Prevention Specialist, received the CAL FIRE “Director’s Innovation Award.”

- **Part One:** A locally developed educational handout, intended to simplify and clarify the defensible space requirements. It also explains the reasons for those requirements so that people with no knowledge of fire behavior can understand why defensible space is important.

- **Part Two:** An easy-to-use defensible space inspection form. This locally developed form, using the agency LE100 as inspiration, contains detailed explanations of violations and how to correct them. Used by agency and VIP inspectors alike, its checkbox format acts as a detailed guide for inexperienced inspectors, a prompt for veteran inspectors while minimizing the amount of writing required, and speeding up and standardizing inspections.

- **Part Three:** Reaching and teaching an ever-changing crew of inspectors has always been time-consuming and haphazard. To improve the consistency of the final product (effective inspections) and reduce the amount of time anyone had to spend teaching new inspectors, a “PRC 4291 Inspection Training” PowerPoint program was designed to be a stand-alone, self-paced training program. Jokingly referred to as “the world’s longest PowerPoint”, it uses hundreds of pictures, to help explain the history of today’s fire problem and what property owners need to do about it. It also outlines in step by step detail exactly how to perform a defensible space inspection, and how to counter common objections. A companion version, “Defensible Space For Homeowners” is suitable for presentation to community groups or for use by homeowners.

4291 Inspection Program / Community Partnerships: TCU's fire prevention program has always included many partners, from the community and other agencies. For example, in the late 1980's and early 1990's, VIPs regularly inspected the Rancho Calaveras subdivision west of Valley Springs, in Battalion 1. They were so effective in educating the relatively sparse population about the necessity for and benefits of defensible space, that they literally worked themselves out of a job. Property owners did their clearance every year without prompting, and the inspection crew dissolved.

As the mission of the department has evolved throughout recent decades, and the day to day operations of engine companies have expanded, it has grown more and more difficult and unrealistic to rely solely on fire station personnel to produce the volume of 4291 inspections needed to address the challenge of 4291 education and enforcement. The incorporation of the VIP's into the inspection program has greatly expanded the ability of the agency to educate the population and enforce 4291 regulations. No better current example of that success is found within Battalion 4, the greater Arnold area of Calaveras County. By the late 90's the efforts of VIP's recruited from within Homeowner Associations and elsewhere, under direct supervision of agency company officers, had succeeded in reducing the number of debris burn escapes to near zero in any given year. To this day the defensible space inspection program has continued to build strong partnerships throughout the Unit's communities.

- **Twain Harte Community Services District:** Captain Mark Slater of the Twain Harte Community Services District Fire and Rescue Division had been inspecting lots for years, but CAL FIRE was unable to follow up with citations for non-compliant properties. In 2010, the Unit engaged in a focused effort to support THCSD-FD enforcement of PRC 4291 as their inspection program swung into high gear. In 2010 CAL FIRE wrote 56 citations in the Twain Harte Fire District.

  In the process, it became obvious that very few lot cleaners really understood what PRC 4291 requires. Many were still clearing to pre-100' standards, and some weren't even doing that. Even more owners were doing nothing at all. In Calls came flooding into the office of Captain Slater, whose existing depth of knowledge and practical experience with 4291 issues, recently heightened by his study of the Power Point training materials, proved invaluable to the community. In a commendable example of collaboration he often filled in for the Unit FPS, doing site-visits with owners or lot cleaners, or re-inspections, or handling phone inquires. April 2011 Captain Slater and the FPS put on a training program attended by about 15 lot cleaners.

- **Groveland Community Services District, Groveland Fire Department:** Chief Shane Warner is a staunch proponent of fire prevention, especially defensible space, and collaborates with CAL FIRE at every turn.

  - **Pine Mountain Lake Association:** Located within the Groveland Community Services/Fire District is another key player - PMLA. In the last 5 years they have become increasingly pro-active with their fire prevention activities. They have always had a fire safety officer who was also responsible for defensible space inspections. PML requires corner-to-corner clearance on ALL lots, including vacant lots. With one inspector and 3564 lots (739 unimproved) the inspection/re-inspection/enforcement

process was sketchy at best. More lots than not went un-cleared year after year, especially the unimproved ones. Beginning in 2008 PML has hired 3 temporary inspectors to inspect every single lot. The Unit's Fire Prevention Specialist provides training for these inspectors, using the Power Point training materials.

Subsequent years have brought further refinements to the program, including stringent deadlines, mandatory compliance, and Association levied fines big enough to make most people take notice. When owners don't cooperate, PML hires contractors to do the work for them, then bills the owner, and adds administrative costs and a fine. As a result of these efforts, compliance has increased dramatically, as seen in the fact that CAL FIRE hasn't issued a citation in PML since 2008.

The Association is also engaged in fuel reduction efforts on community greenbelt lands in cooperation with the local Fire Safe Council, in its effort to gain Firewise Community certification. Of 1,207 acres of green belt, common areas, wildlife and stream beds, 475 acres have been treated as of 2011. During 2010 and 2011, 7,000 cubic yards of slash have been burned; 4,000 cubic yards of slash have been chipped. 10,000 cubic yards of composting material was worked in 2010.

- **Yosemite Vista Estates:** This is a small retirement community within the Groveland Fire District, a few miles east of Groveland, surrounded by dense wildland vegetation. A number of years ago they dedicated a large number of maintenance person-hours to reducing the fire hazard on individual lots, concurrent with a Yosemite Foothills Fire Safe Council effort to clear around the community and on the common area lands inside the community. The managers of Yosemite Vista continue to work closely with the Unit FPS when questions or concerns related to fire safety and defensible space arise within the community.

- **Tuolumne County Superior Court:** Under the terms of PRC 429, the court levies fines over $450 per violation, but drops the fine amount to a flat $250 when the violations are corrected, regardless of the number of violations that were cited. This incentive has motivated property owners throughout Tuolumne County, while at the same time supporting the credibility of agency and volunteer efforts in the field toward enforcement.

- **Sonora City Fire Dept / Sonora Community Estates:** A retirement community located in east Sonora city within the jurisdiction of the Sonora Fire Department is able to leverage a personal tie to the Unit's FPS, to receive a defensible space consultation every year or so. The current community manager recognizes the vulnerability of his elderly and disabled population, and is determined to make them safer. The hazardous fuel conditions within the community have gone from potentially catastrophic to nearly non-existent in the last three years.

- **Yosemite Foothills Fire Safe Council:** The Unit Fire Prevention Specialist helped start the Yosemite Foothills Fire Safe Council, and has been a board

member since its beginning in 2002. YFFSC has obtained grant funding for community chipping projects, senior and disabled defensible space assistance, roadside clearing, fuelbreaks, and an emergency water storage system, among other projects. They maintain a close cooperative relationship with the Unit Pre-Fire Engineer and Battalion 6 personnel.

- **SouthWest InterFace Team:** The Unit Fire Prevention Specialist and Pre-Fire Engineer maintain memberships with SWIFT, a collaborative effort of city, county, state, and federal fire and land management partners to reduce the threat of wildfire in a 132,000 acre area of southern Tuolumne and northern Mariposa counties. This group has met monthly since 1999, to help coordinate interagency projects such as fuelbreaks and other strategic pre-fire planning and community protection activities.

Fireworks Prevention and Enforcement : During the 4th of July holiday, Tuolumne County's ban on fireworks was openly ignored for years by many Pine Mountain Lake residents and visitors. Since 2006 PML has requested that the TCU FPS patrol the subdivision during the holiday period. PML's Security Department receives calls about illegal fireworks activity in the subdivision, and relays them to the FPS. When possible, PML Security personnel accompany the FPS on the contact, and assist as needed. In 2009 the FPS began blanketing the business districts of Groveland and Big Oak Flat with "Fireworks Prohibited In Tuolumne County" fliers. Virtually every business in the community, including every pump at the largest gas station, displayed these day-glo orange "no fireworks" signs. Fireworks activity in the greater Groveland / south county area of Battalion 6, and Pine Mountain Lake in particular, dropped noticeably. No citations were issued in 2010. Also in 2010, those same signs appeared (in multiples) at every fireworks stand in Oakdale, a major fireworks supplier to the Mother Lode. This program is ongoing.

California Department of Transportation is another cooperator in the effort to eliminate fireworks as a fire cause. Cal Trans provides display space for the message "Fireworks are illegal in Tuolumne County" on all its electronic highway signs along Hwy 108/120, starting about 10 days before the 4th of July holiday.

Schools Team Teaching Program: Perhaps the largest single component of TCU's fire prevention program is our elementary school program, active within both Calaveras and Tuolumne counties. Each year team teachers from CAL FIRE, the Volunteers In Prevention, and the U. S. Forest Service (Stanislaus National Forest) visit 25-30 schools. This group presents approximately 120 fire safety programs to over 3000 kindergarten through third grade students; one or two classes at a time,

The team teaching approach has been used since at least the 1980's. Classes are divided into small groups, and kids receive individual attention that encourages even the shy ones to interact with a "ranger" or a "firefighter."

In 2007, a dedicated VIP took over and streamlined the program reservation system, coordinating the annual distribution of program letters to schools throughout both counties of the Unit, including one Mariposa County school that serves Tuolumne

County students. The letters explain the program to school officials and invites them to participate. Nearly 100% of the schools invited elect to take advantage of the program.

The program targets kindergarten thru 3rd grade students, aged 5-9 typically, with age appropriate messages concerning Smokey Bear's 5 rules of fire and match safety, use of the 911 system including address and phone number knowledge, and Stop Drop and Roll situations

The importance of the 911 system portion of the program has been growing recently as it has become evident in recent years that at least half the children in this Unit do not know their address or their telephone number. There is anecdotal evidence that even a percentage of local teenagers don't know their street address. We have started emphasizing the importance of this to parents, sending home letters stressing how critical it is for kids to know their address, phone number, and area code.

Each school program finishes with an appearance by Smokey Bear and a final review of everything they've learned. Letters that we receive from the students after these programs clearly indicate that the kids have learned and taken to heart the messages that they've heard. This is further born out when these kids come to our fire prevention booth at the county fairs and other events, and are able to answer correctly when quizzed on the topics presented in their class program months before. Also evident at these booth encounters is that many kids from out of the area are quite unfamiliar with the fire safety messages our local students have learned since kindergarten. By interesting contrast – even very young children from out of the area almost invariably know their addresses. Another more serious example of the value of these lessons is a recent case where within days of learning Stop, Drop, and Roll one kindergartner fell face down into a campfire. She covered her face and rolled out of the fire, while her classmates helped her to roll, and even patted dirt on her clothes where they were still burning. The girl escaped with barely-visible scarring.

The local team teaching concept promotes innovation on nearly an everyday basis; the larger and more varied the team, the more often new ideas surface. One of the biggest innovations should be completed in 2011.

Tired of using twenty or thirty year old "window shade" style teaching aides to teach 911 use, young brains on the Forest Service side of the team took the lead in developing interactive videos featuring realistic emergency scenarios with stop-action capability. They filmed a draft of what they wanted, got administrative support, obtained grant funding, lined up the film production department of Modesto Junior College with script-writers, actors, directors, producers – and by school year 2011-12 the first-ever Interactive 911 Training Video will be in use, and going state-wide, if not nationwide. CAL FIRE is a supporting partner and participant in this project.

Public Information: While the Unit Fire Prevention Specialist is technically the Unit's Public Information Officer (PIO), since 2007 Unit Resources Secretary Lisa Williams has carried out the majority of the PIO work. Lisa is the person the media call first when they hear emergency traffic on their scanners. She also maintains the lists of names and numbers of people who need to be notified of news from TCU CAL FIRE. This intra-agency cooperation between the Unit's Prevention and Natural Resources bureaus

has been instrumental in allowing the Fire Prevention Specialist to focus efforts on the purely Prevention related programs and projects described above, while at the same time streamlining and making more efficient the dissemination of Unit information to the news media and cooperators

Fairs & Community Outreach: VIP's from both counties join with the Unit's Prevention Specialist in staffing information booths and static displays at local county fairs, home and garden shows, and other community events that provide information on defensible space, fire safe landscaping, outdoor burning, fire safety in the home, and all aspects of fire prevention pertinent to children and adults

- **Camp Smokey:** TCU has been supporting the agency's California State Fair project annually for many years, via the involvement of the Unit Fire Prevention Specialist. Known as "Camp Smokey", this interagency fire prevention education exhibit at the California State Fair, is actually much more than an "exhibit". At Camp Smokey thousands of children and adults learn about fire safety in the home, how to get out of a burning house, the difference between good fire and bad in the environment, how to play nice in the woods, and of course, who Smokey Bear is. Even though this event is far beyond the confines of the Unit, we regard it as an important element of our own Prevention program in that it reaches tens of thousands of people every year, any one of whom might learn to prevent a fire or save a life in our Unit.

Ham Radio Incident Support: Several dozen amateur (ham) radio operators await the opportunity to put their sophisticated communication equipment into service should traditional communication avenues fail or become overwhelmed during a disaster. These individuals meet regularly and share knowledge and the latest technology. TCU has used these VIP's many times in the past. Their service has proved invaluable both during large fires, and during times of high fire danger when they have carried out Red Flag Patrols as mobile lookouts watching for activities that could start wildfires.

B: VEGETATION MANAGEMENT

Resource Management

Adam Frese – Area Forester

Forest Practice Overview:

CAL FIRE Area Foresters work with private landowners, foresters, and licensed timber operators to ensure timber harvesting on private property is conducted in compliance with the California Forest Practice Rules. CAL FIRE is the lead agency, and works with other agencies such as the Department of Fish and Game, Regional Water Quality Control Board, and California Geological Survey to evaluate timber harvest plans when they are in the review process. Once the plans are approved, CAL FIRE Foresters conduct ~~active~~ inspections to ensure timber operations are being conducted in accordance with the rules, and follow-up inspections to ensure the timber harvest plans have been properly implemented.

Since 2005, approximately 70 timber harvest plans have been submitted in the Tuolumne/Calaveras Unit. From 2005 to 2009, there was a steady decline each year in the number of plans submitted due to poor market conditions. Since 2009 there has been an increase in the amount of plans submitted. The Sierra Pacific Industries saw mill in Standard is expected to open in June, 2011 and is currently receiving logs. The re-opening of this saw mill has increased timber harvesting activity in the Unit.

There are approximately 33 non-industrial timber management plans in the Unit. Non-industrial timber management plans do not have an expiration date. Other timber harvest permits include emergency notices, and exemptions. There have been several harvests completed in the Unit under Emergency Notices for Fuel Hazard Reduction and Forest Fire Prevention Exemptions. These two harvest documents are designed to create shaded fuel break conditions. The Forest Practice Rules have very stringent fuel reduction requirements when using these two permits, so harvests typically do not generate much revenue; however, since 2005, approximately 657 acres have been treated under emergency notices for fuel hazard reduction, and approximately 135 acres have been treated under Forest Fire Prevention Exemptions.

Hazard Fuel Reduction / Risk Mitigation

Resource Management has had an increasing role in fuel reduction projects throughout the Unit in recent years, and will continue to remain heavily involved in the years to come.

The Proposition 40 Program was implemented statewide in 2005 in the wake of the passage of a state bond act in 2004. TCU hired a “prop 40 forester” in January of 2005 to coordinate this new program. CAL FIRE’s share of this bond money provided an opportunity to fund two previously existing agency mechanisms for facilitating projects: the California Forest Improvement Program and the Vegetation Management Program; and it motivated the creation of the agency’s new Community Assistance Grants

program, in order to meet the requirement for involvement by non-profits. Proposition 40 funding was extended through March of 2011; the program was suspended as of April 1st.

- **Community Assistance Grants (CAG):** the Prop 40 Forester worked with community Fire Safe Councils, CAL FIRE camp program crews, and private foresters and contractors to complete fuel reduction projects in the Unit. Battalion Chiefs provided project strategic validation and input during the planning phases of projects. The Forester was primarily involved with the planning of projects in cooperation with local Fire Safe Councils and others, and ensuring they were properly implemented. Under this program approximately 702 acres were treated for fuel reduction since 2009.

  Ongoing maintenance of those treated acres is now the greatest challenge to their continuing effectiveness as fire control points and defensive barriers.

- **The California Forest Improvement Program (CFIP):** encourages private and public investment, and improved management of California forest lands and resources. CFIP is a cost share program, where the state pays 75% of the cost of thinning, planting, herbicide application, mastication etc. Historically CFIP was funded from revenue generated by the State Forest program. Proposition 40 funds became a key source of funding starting in 2005. In the Unit prop. 40 funded CFIP projects have treated approximately 164 acres since 2009.

- **The Vegetation Management Program:** is a cost sharing program that allows landowners to contract with CAL FIRE to use prescribed fire, and other means, to accomplish fire protection and resource management goals. Since 2009, approximately 590 acres in the Unit were treated for fuel reduction under the VMP.

  Availability of resources and shrinking burn windows are challenges to the continuing implementation of VMP projects.

  The following VMP projects have been implemented in the Unit since 2009:

  - **Crook VMP** (Rx-CSR-044-TCU) – Batt. 6. This project expired on 8/31/2009. Approximately 53 acres were treated out of the 793 acre project area. This project was located in the Groveland area.

  - **Donovan VMP** (Rx-CSR-045-TCU) – Batt 2. This was an approximate 600 acre VMP. No operations were ever conducted on this VMP.

  - **Buys VMP** (Rx-CSR-049-TCU) – Batt 1. Approximately 275 acres were treated out of the 580 acre project area. This VMP expired on 5/20/2010.

  - **Winton/Schaad VMP** (Rx-CSR-047-TCU) – Batt 3. Approximately 262 acres were treated out of the 6,342 acre project area. This VMP expired 7/1/2010. A new VMP was submitted covering the same area on 6/1/2011, and is under review.

- Other potential VMPs to be prepared during 2011 include the Whittles VMP near Fowler Peak – Batt. 2, one in the Mocassin area, and one on the Kistler Ranch between Highway 108 and Tulloch Reservoir – Batt.6.

- **Federal Fuels Grant Program (FFGP):** is the working name of the Cooperative Fire Assistance Grant - Northern California Disaster Supplemental. Implemented in early 2010, this is the most recent funding source for fuel reduction projects available to the agency and cooperators in the wake of the end of the Prop 40 program. The Tuolumne/Calaveras Unit applied for 10 projects under this program, which reimburses CAL FIRE camp program hand crews $200.00 per day to perform hazard fuel reduction and timber stand improvement work. ~~Input for~~ Project suggestions and strategic validation was obtained from CAL FIRE Battalion Chiefs, with cooperation and input from local fire district authorities, and Fire Safe Councils. The TCU Area Forester coordinating the projects received input from CAL FIRE archaeologists, and personnel from the California Department of Fish and Game, Regional Water Quality Control Board, and U.S Fish and Wildlife Service during the preparation of the project CEQA documentation.

  In Calaveras County six FFGP projects were proposed. All six projects were new fuel reduction projects. The four proposed projects in Tuolumne County consisted of maintenance of fuel breaks established under the Proposition 40 program. The projects in both counties are beneficial to the adjacent communities by reducing fuel loads in strategic locations,. The agency's fire control capabilities are also enhanced through the opportunity that this project work provides our fire crews to prepare for fire season – improving job skills and physical fitness. This project work requires hand crews to use chainsaws and hand tools, fell trees and cut brush, burn piles, and work on steep, un-even ground.

  On Tuolumne Co. maintenance projects such as the Mt. Havalia fuel break, crews have been treating approximately one acre per day by cutting, piling and burning brush. On the new projects in Calaveras County, crews have averaged about ½ an acre per day treating dense live oak stands by cutting, piling and burning. This program is set to expire in December of 2011. In Tuolumne County, work has only started on one of the four projects, and only 5 acres have been treated to date. In Calaveras County, one project has been completed, and work has started on two others. It is unlikely all 10 projects will be completed by the December 2011 deadline; however, there is a chance the program will be extended till June of 2013.

  Calaveras County FFGP projects:

  - **Union Public Utilities District Fuel Reduction Project** – Battalion 2: This project is located in Murphy's along Sheep Ranch Road. Approximately 18 acres were treated by cutting, piling and burning. This project had a lot of support from the community, and was proposed by

Steve Kovacs of the Murphy's Fire protection District. This project is complete.

- **Winton/Schaad Fuel Reduction Project** - Battalion 3: This project consists of fuel reduction on SPI property along Winton Road, and around the Lily Valley Estates subdivision. Approximately 40 acres have been treated by cutting and piling. Approximately 25 acres have been burned, with 15 acres of piles remaining to be burned.

- **Gold Strike Fuel Reduction Project** – Battalion 1: This project is located on property owned by the San Andreas Sanitary District. The project area is approximately 75 acres in size. Crews have treated approximately 17 acres. 85 crew days have been allotted for this project.

- **Big Trees Village Fuel Reduction Project** – Battalion 4: This project is approximately 17 acres in size. Crews will cut, pile and burn brush and small trees on property owned by the Big Trees Village Homeowner's Association. The project area will complement work done on the adjacent Big Trees Village Fuel Break. CEQA work still needs to be completed for this project.

- **Murphys Roads Fuel Reduction Project** – Battalion 2: This project consists of crews cutting, and chipping or burning brush along roads in the Murphy's Pines subdivision. This project will pick up where crews left off under the Proposition 40 project.

- **Calaveras County Roads Fuel Reduction Project:** This project will maintain work that was done under the Proposition 40 program, as well as some additional roads. CAL FIRE hand crews will work with the County Road Department to cut and chip brush along the road right-of-ways of primary roads in Calaveras County. Roads have been prioritized by B4412 and B4413. County personnel will be available to begin work on this project in September of 2011.

Tuolumne County FFGP projects:

- **Cattle Drive Fuel Break Maintenance** – Battalion 5: This project will consist of cutting, piling, and burning brush that has re-grown in the Cattle Drive Fuel Break near Columbia. The fuel break was established under the Proposition 40 program. The project area is approximately 61 acres in size. 40 crew days have been allotted for this project. Crew work has not started yet.

- Sierra Outdoor School to Cedar Ridge Fuel Break Maintenance – Battalion 5: This project is approximately 36 acres in size. The fuel break was established under the Proposition 40 program, and extends from the Sierra Outdoor School at the end of Old Oak Ranch Road to Cedar Ridge. Hand crews will cut, pile and burn brush that has re-grown in the fuel break. No work has been conducted on this project.

- **Mt. Havalia Fuel Break Maintenance** – Battalion 5: This project is approximately 106 acres in size. Approximately 5 acres have been treated by cutting, piling and burning brush. 55 crew days have been allotted for this project. This fuel break was established in 2007 under the Proposition 40 program.

- **Turnback Creek Phase 2 Fuel Break Maintenance** – Battalion 5: This project is around the Silver Spur Camp near the town of Tuolumne. It is connected to the Mt. Havalia Fuel Break by the Baker Ranch. 25 crew days have been allotted for this fuel break maintenance project. This fuel break was established under the Proposition 40 program.

A: DIVISION / BATTALION / PROGRAM PLANS

Battalion 1 (San Andreas Battalion) Pre-Fire Management Plan

Cameron Todd - Battalion Chief

Battalion 1 Overview

The San Andreas Battalion consists of 229,486 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.

With the exception of the San Andreas Fire District, 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 straddling the Batt. 1 / 3 boundary, and Army Corp of Engineers lands along the shores of Hogan Lake. All federal lands are designated State DPA. The East Bay Municipal Utilities District owns large tracks of land in the north of the Battalion bordering Comanche and Pardee reservoirs and stretches of the Mokelumne River.

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:

- **Life Safety:** As is the case throughout much of CAL FIRE's jurisdiction, within minutes of any wildland fire start individual homes or entire subdivisions are likely to be threatened. The need for fire defense improvements, concerted educational campaigns, safe access/egress routes and a coordinated initial response remains the priority in the minds of Battalion personnel.

- **Residential and Commercial Development:** 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.

- **Watershed:** Watershed protection and enhancement is key in developing a sufficient water supply for human consumption. The Calaveras River and its primary tributaries: Jesus Maria, Murray, Willow, Calaveritas and San Antonio Creeks drains the heart of the Battalion and constitutes the primary source for New Hogan Reservoir. Both the Calaveras River system and the Mokelumne watershed support assets important to an area far beyond the Battalion and Unit boundary. The Mokelumne River watershed is the water source for Pardee and Camanche Reservoirs and provides 90% of the water that goes to the East Bay Municipal Utility District (EBMUD). EBMUD's water system serves approximately 1.3 million people in a 331-square-mile area of Alameda and Contra Costa Counties, including the major cities of Oakland and Berkeley and east to Walnut Creek and the San Ramon Valley.

- **Recreation Values:** Tourism and recreation is an important element of the economy threatened by wildfire within Battalion. The reservoirs mentioned above, along with the primary watersheds supporting them, include significant recreational opportunities: Army Corps of Engineer campgrounds and boating facilities; privately owned RV parks and campgrounds; hiking, equestrian and mtn biking trails; fisheries and hunting grounds, among others.

- **Agricultural Values:** The large cattle ranches in the western portion of the Battalion depend on the annual grass crop to feed their livestock. The expansion of vineyards, orchards and other crop lands in the west continues to slowly take land out of SRA designation. horse ranches are a growing component of the local agriculture industry also at risk from wildland fire.

- **Community Infrastructure:** water storage and delivery systems (see Watershed above); electrical distribution equipment; telecommunications systems; transportation networks; schools.

  - Transportation infrastructure ranks as a critical asset in need of protection. Portions of three State Highways bisect the Battalion: 12, 26 and 49. Thousands of miles of county and private road spread throughout the Battalion. While road surfaces themselves only are only rarely damaged by wildfire, the supporting infrastructure is frequently. Even when no physical damage is suffered the disruption of traffic caused by fire control operations can cause a range of negative impacts from short delays to significant disruptions to the economy.

- Telecommunications is another critical element of the infrastructure present within the Battalion. Several government agencies and private communications companies take advantage of the topography within the Battalion for the location of communications system facilities. These are high-dollar installations that are by necessity placed in threatened locations atop ridges and mountains.

- Schools are at risk in the same way as the rest of the community is. But their importance as one of the prime choices for use as evacuation centers makes them doubly important in the event of a significant wildland fire

- Electrical distribution systems are ubiquitous throughout the Battalion, and a critically important asset. Power distribution lines and equipment are unique among assets as being both a potential cause of wildland fire and a threat to fire fighting operations. While not nearly as frequently a cause of wildland fire as they were historically, they remain a threat to aerial firefighting operations. Most every wildland fire has some potential to damage this equipment; the biggest fires present the most serious threat. Disruption of the power distribution system is likely to have a significant impact on lives and the economy..

- **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.

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.

The effects of a series of annual low elevation snow falls starting in 2006 through 2011 remain a consideration for the fuels between the 1,500 and 3,000 foot elevations. These events primarily affect the live oak, black oak and bull pine, breaking off their branches and tops. This adds significantly to the amount of dry dead and down fuels in the under story and, in turn, increases the availability of “ladder fuels.” This increased dead fuel loading increases the difficulty of fire control through the creation of fuel “jackpots” that burn with high intensity.

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 agricultural 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.

Bat. 1 2010	CAIRS/Fire Plan Cause Description	Total # of Fires	Total Acres	# of Fires 10 acres or less	% of Total Fires 10 acres or less	Average Acres	Largest Fire Acres	Median Acres
0	Unknown/Unreported	22	0.00	22	100.00%	0.00	0.00	0.00
1	Undetermined	12	68.56	11	91.67%	5.71	56.00	0.50
2	Lightning	0						
3	Campfire	0						
4	Smoking	0						
5	Debris Burning	10	6.66	10	100.00%	0.67	2.50	0.18
6	Arson	6	4.20	6	100.00%	0.70	3.00	0.30
7	Equipment	8	80.50	6	75.00%	10.06	56.00	0.19
8	Playing W/ Fire	12	1.61	12	100.00%	0.13	1.00	0.03
9	Misc / Other	12	7.28	12	100.00%	0.61	3.00	0.23
10	Vehicle	2	25.00	0	0.00%	12.50	15.00	12.50
11	Railroad	0						
12	Electrical Power	4	1.65	4	100.00%	0.41	1.20	0.18
	Annual Totals:	**88**	**195.46**	**83**	**94.32%**	**2.22**	**56.00**	**0.21**

Table 5A-1

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 of 2004 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 determined to be viable.

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.

- **LE-100 Inspections - Battalion Wide**: 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 Projects:**

    - **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:

- **Ponderosa Way to San Antonio Creek – Fuel Break (Old Gulch Fire)**:

- **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 Projects:**

  - **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 its 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 its availability as the primary fire access road to the south and east shore of the lake and the mountains.

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.
- **LE-62 Burn Permit Administration:** Door yard burn permits are required for residential burning annually from May 1 until the end of the declared fire season. Burn permits are issued for a period of two years at the time of application. Burn permit administration provides agency personnel opportunities to educate the general public on safe burning techniques and the threat posed by wildland fire to their homes and businesses throughout the community

- **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

Calaveras Foothills Fire Safe Council: Since 2001 the Fire Safe Council has been fully engaged in the planning and implementation of several county-wide fuel reduction and public education efforts. In the spring of 2011 their contractor finished work on the Calaveras County Community Wildfire Protectin Plan, which was signed and ratified by the County Board of Supervisors in early July. Projects initiated by the FSC which are currently active in or planned for within Battalion 1 include:

- **Seniors and Disabled Defensible Space Program:** A program designed to aid seniors and the disabled in attaining compliance with PRC4291 requirements for 100 foot clearances around structures. The Fire Safe Council will hire a contractor to accomplish these requirements at no cost to the resident.

- **Door-to-Door Chipper Program:** The Calaveras Foothills Fire Safe Council will offer free chipping services for residents throughout Calaveras County. The CFFSC provides a contract chipping crew for the disposal of brush and woody debris around resident's homes in prioritized high fire-risk areas. Residents cut and stack slash along public roads and contract chipping crews chip the piles. The program assists residents in meeting the California vegetative clearance requirements of PRC4290/4291.

- **Public Roadways Fire Break Phase 4:** The Fire Safe Council will reduce brush, small trees and hanging ladder fuels along identified roadways within Calaveras County. This county road Fire Break Management Project, implemented in cooperation with the Calaveras Co Public Works Dept., will help in the following ways:

    - Lessen wild fire intensity along the roadways in the event of a fire, providing safe ingress and egress routes for emergency personnel and equipment as well as citizens involved in the evacuation process

    - Creates more advantageous fire control points to stop wild fires due to fire intensity interruption, reduction of spot fires to the opposite roadside and a fuel bed conducive to backfiring and direct suppression tactics.

    - Create enhanced vehicle view along the roadway.

  Clearing of brush along easements will be to the property line or approximately 30 feet. Reduction will be done by a crew utilizing hand and power tools. The

brush will be immediately chipped in a mechanical chipper. The ground up chips will be redistributed back onto the roadway easement. This will provide ground cover that will temporarily inhibit growth of new fuel.

Calaveras County: The county is a valuable partner in Battalion efforts to improve fire safety for residents and visitors. Access to Public Works staff and equipment has been instrumental in the success of several projects over the years. In July 2011 the Board of Supervisors ratified a new Community Wildfire Protection Plan.

- **Fuel Waste Program:** 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 for a nominal fee. The program has been very successful in encouraging compliance with fuel reduction around structures while improving air quality as a result of less "dooryard" burning by residents.

- 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
    - 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.

Battalion 2 (Angels Camp Battalion) Pre-Fire Management Plan

Mario Hernandez – Battalion Chief

Battalion 2 Overview

Battalion 2 extends over 290,576 acres 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 significant assets as risk within Battalion 2 including 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.

- **Life Safety:** The population centers within Batt. 2 can be characterized as widely dispersed high density communities and subdivisions; ranging from the greater Lake Tulloch area in the southwest and the greater Copperopolis area in the west central portion of the Battalion to the greater Angels Camp/Altaville area straddling Hwy 49 and east up Hwy 4 to Murphys. The need for fire defense improvements, concerted educational campaigns, safe access/egress routes and a coordinated initial response remains utmost in the minds of Battalion personnel.

- **Residential and Commercial Development:** 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 Gultch, 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.

- **Watershed:** The broad spectrum of watershed values noted elsewhere may be less obvious, but are none the less important within and far beyond the Battalion boundary. Salt Spring Valley Reservoir is supported by a large number of small creeks draining the east side of Gopher ridge and the west side of the Bear range. Angels Creek drains the central portion of the Battalion and supports New Melones Reservoir. The San Domingo Creek drainage cuts a path through the north-eastern portion of the Battalion on its way to New Hogan Reservoir in Battalion 1.

- **Community Infrastructure:** Water storage and delivery systems; electrical distribution equipment; telecommunications systems; transportation networks; schools.

    - Domestic and agricultural water collection and distribution systems including the Calaveras County Water District, and the Stockton East Water District (SEWD), are critical assets. These systems rely on a significant system of ditches and flumes to transport water throughout the Battalion.

    - The balance of the Battalion is serviced by individual domestic water wells. With the enactment of PRC 4290, water delivery for fire protection is addressed by an optional formula. Although some residents have chosen to install on-site water tanks, the majority of new development has opted to pay the in-lieu fee to fund the Calaveras County Fire Service Water Tender program. On-site tanks are minimal and there is not currently a system to guarantee functionality of the existing tanks.

    - Telecommunications is another critical element of the infrastructure present within the Battalion. Several government agencies and private communications companies take advantage of the topography within the Battalion for the location of communications system facilities. These are high-dollar installations that are by necessity placed in threatened locations atop ridges and mountains. The most noteworthy may be the multiple installations on Fowler Peak in the Bear Range overlooking Angels Camp and the northern reaches of New Melones reservoir.

    - Schools are at risk in the same way as the rest of the community is. But their importance as one of the prime choices for use as evacuation centers makes them doubly important in the event of a significant wildland fire

    - Electrical distribution systems are ubiquitous throughout the Battalion, and a critically important asset. 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. Power distribution lines and equipment are unique among assets as being both a potential cause of wildland fire and a threat

to fire fighting operations. While not nearly as frequently a cause of wildland fire as they were historically, they remain a threat to aerial firefighting operations. Most every wildland fire has some potential to damage this equipment; the biggest fires present the most serious threat. Disruption of the power distribution system is likely to have a significant impact on lives and the economy.

- Transportation infrastructure ranks as a critical asset in need of protection. Portions of two State Highways bisect the Battalion: 4 and 49. Thousands of miles of county and private road spread throughout the Battalion. While road surfaces themselves are only rarely damaged by wildfire, the supporting infrastructure can easily be damaged. Even when no physical damage is suffered the disruption of traffic caused by fire control operations can cause a range of negative impacts from short delays to significant disruptions to the economy.

- **Recreation Values:** The 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. BLM lands, inherently important as watershed, are also utilized for their recreational opportunities; hunting and fishing being two of the most common.

- **Cultural Values**: 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 common throughout the Battalion.

- **Agricultural Values:** The large cattle ranches in the western portion of the Battalion depend on the annual grass crop to feed their livestock. Vineyards, orchards and horse ranches are a growing component of the local agriculture industry also at risk from wildland fire. Despite the loss of some acres to development agriculture remains an economically significant asset.

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.

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. Battalion 2 was less effected than other Battalions, but snow storm impacts are evident in the eastern-most areas as elevations rise toward 3000', and along the crest of the Bear Mountains in the center of the Battalion. 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: 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 Gopher Ridge. These natural ignition causes mixed with high temperatures and low humidity's can produce large late season fire incidents.

Fire Ignitions / Fire History:

Bat. 2 2010	CAIRS/Fire Plan Cause Description	Total # of Fires	Total Acres	# of Fires 10 acres or less	% of Total Fires 10 acres or less	Average Acres	Largest Fire Acres	Median Acres
0	Unknown/Unreported	7	0.00	7	100.00%	0.00	0.00	0.00
1	Undetermined	14	2.81	14	100.00%	0.20	1.00	0.23
2	Lightning	0						
3	Campfire	1	0.70	1	100.00%	0.70	0.70	0.70
4	Smoking	5	1.91	5	100.00%	0.38	1.00	0.20
5	Debris Burning	2	1.65	2	100.00%	0.83	1.40	0.83
6	Arson	2	1.12	2	100.00%	0.56	1.00	0.56
7	Equipment	13	127.58	12	92.31%	9.81	116.00	1.00
8	Playing W/ Fire	1	1.00	1	100.00%	1.00	1.00	1.00
9	Misc / Other	12	7.65	12	100.00%	0.64	1.00	1.00
10	Vehicle	1	0.20	1	100.00%	0.20	0.20	0.20
11	Railroad	0						
12	Electrical Power	1	1.00	1	100.00%	1.00	1.00	1.00
	Annual Totals:	**59**	**145.62**	**58**	**98.31%**	**2.47**	**116.00**	**0.70**

Table 5A-2

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 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.

- **PRC4291:** 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 2011:
  - Altaville FFS personnel will be active in the Bar XX subdivision and areas adjacent to New Melones reservoir.
  - Murphys FFS personnel are targeting the Murphys Pines and Darby subdivisions and immediately adjacent parcels.
  - Copperopolis FFS personnel will be working within the Copper Cove subdivision along with the Diamond XX and Circle XX subdivisions.

All targeted areas present challenges to fire control operations should any fire become established within them. The Murphys Pines and Darby 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 Bar XX subdivision 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 New Melones reservoir. In the Copperopolis area the Copper Cove, Diamond XX and Circle XX subdivisions feature 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, landscape scale fuel reduction projects like fuel breaks are more difficult to identify and implement. 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.

- **Whittle VMP:** In May of 2010, we were contacted by Perry Whittle, a land owner in the Bar XX area. Mr. Whittle has completed a Vegetation Management agreement with CAL FIRE in the year 2011. The Vegetation Management Plan is in the CEQA process. The plan is active anticipated to begin Spring 2011 . He has expressed interest in maintaining this fuel reduction project into the foreseeable future.

- **Federal Fuels Grant Program:** CAL FIRE has received a Northern California Disaster Supplemental Federal Fuels Grant to retreat several of those same Fuel reduction projects beginning in 2011.

    - **Union Public Utilities District Fuel Reduction Project**: Battalion 2: This project is located in Murphy's along Sheep Ranch Road. Approximately 18 acres were treated by cutting, piling and burning. This project had a lot of support from the community, and was proposed by Steve Kovacs of the Murphy's Fire protection District..

    - **Murphys Roads Fuel Reduction Project:** Battalion 2: This project consists of crews cutting, and chipping or burning brush along roads in the Murphy's Pines subdivision. This project will pick up where crews left off under the Proposition 40 project.

    - **Calaveras County Roads Fuel Reduction Project** (see below)**:_**This project will maintain work that was done under the Proposition 40 program, as well as some additional roads. CAL FIRE hand crews will work with the County Road Department to cut and chip brush along the road right-of-ways of primary roads in Calaveras County. Roads have

been prioritized by B4412 and B4413. County personnel will be available to begin work on this project in September of 2011.

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 re commended 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: A variety of education methods are routinely employed in Battalion 2, including:

- **LE-62 Burn Permit Administration:** The issuance of this so-called "door yard burn permit", required for residential burning during portions of the year, provides a valuable opportunity for agency personnel to educate the general public on the threat posed by wildland fire to their homes and community, in addition to the specific burn requirements. The permits are valid for a period of two years which gives us the opportunity to reeducate the public when they are renewed.

- **Campfire Permits:** This is another important opportunity to engage the public, especially those from out of the area seeking camping and outdoors experiences within the Battalion.

- **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/Stanislaus 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.

- **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: Continued close cooperation between Battalion personnel and the Unit's Law Enforcement staff in the event citations are needed to gain compliance with 4291 requirements is a priority. Without the full support of the Unit's LE staff, as evidenced by a willingness to issue citations, it's difficult for Battalion 4291 inspectors to maintain credibility within the community.

- **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 2 Cooperators Mitigation Efforts

Calaveras Foothills Fire Safe Council: Since 2001 the Fire Safe Council has been fully engaged in the planning and implementation of several county-wide fuel reduction and public education efforts. In the spring of 2011 their contractor finished work on the Calaveras County Community Wildfire Protectin Plan, which was signed and ratified by the County Board of Supervisors in early July. Projects initiated by the FSC which are currently active in or planned for within Battalion 2 include:

- **Seniors and Disabled Defensible Space Program:** A program designed to aid seniors and the disabled in attaining compliance with PRC4291 requirements for 100 foot clearances around structures. The Fire Safe Council will hire a contractor to accomplish these requirements at no cost to the resident.

- **Door-to-Door Chipper Program:** The Calaveras Foothills Fire Safe Council will offer free chipping services for residents throughout Calaveras County. The CFFSC provides a contract chipping crew for the disposal of brush and woody debris around resident's homes in prioritized high fire-risk areas. Residents cut and stack slash along public roads and contract chipping crews chip the piles. The program assists residents in meeting the California vegetative clearance requirements of PRC4290/4291.

- **Public Roadways Fire Break Phase 4:** The Fire Safe Council will reduce brush, small trees and hanging ladder fuels along identified roadways within Calaveras County. This county road Fire Break Management Project, implemented in cooperation with the Calaveras Co Public Works Dept., will help in the following ways:

- Lessen wild fire intensity along the roadways in the event of a fire, providing safe ingress and egress routes for emergency personnel and equipment as well as citizens involved in the evacuation process

- Creates more advantageous fire control points to stop wild fires due to fire intensity interruption, reduction of spot fires to the opposite roadside and a fuel bed conducive to backfiring and direct suppression tactics.

- Create enhanced vehicle view along the roadway.

Clearing of brush along easements will be to the property line or approximately 30 feet. Reduction will be done by a crew utilizing hand and power tools. The brush will be immediately chipped in a mechanical chipper. The ground up chips will be redistributed back onto the roadway easement. This will provide ground cover that will temporarily inhibit growth of new fuel.

Three subdivision road systems within Battalion 2 have been identified as needing attention in 2011-12: Diamond XX, Circle XX, and Bar XX subdivisions.

Based on the anticipated success of these projects, expansion of this project into the greater Murphys and Sheep Ranch areas (high elevation fuels) is anticipated in subsequent years.

Calaveras County: The County is a valuable partner in Battalion efforts to improve fire safety for residents and visitors. Access to Public Works staff and equipment has been instrumental in the success of several projects over the years. In July 2011 the Board of Supervisors ratified a new Community Wildfire Protection Plan.

- **Fuel Waste Program:** Since 2003 disposal of forest fuels has been made much easier for local residents working to comply with state 4291 regulations, 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 for a nominal fee. The program has been very successful in encouraging compliance with fuel reduction around structures while improving air quality as a result of less "dooryard" burning by residents.

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.

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.

Battalion 3 (West Point Battalion) Pre-Fire Management Plan

Christopher Post – Battalion Chief

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.

Battalion 3 is served by three primary transportation corridors: State Highway 26, Ridge Road and Winton Road running west to east through its' northern portion, the combination of Railroad Flat Road and Mountain Ranch Road running generally north to south through the center of the Battalion and Sheep Ranch Road in the southern portion of the Battalion.

There is a significant forest road system on Sierra Pacific Industries (SPI) and Stanislaus National Forest (STF) lands east and south of West Point, between the North Fork of the Mokelumne River south to the north side of Blue Mountain, all within the Battalion's direct protection area (DPA).

The Battalion also benefits from several long, intact and contiguous traditional sections of the Ponderosa Way, which runs from north to south through the western portion of the Battalion from the main stem Mokelumne River all the way to Calaveritas Creek. These Ponderosa Way sections and the bridge which crosses the North fork of the Calaveras River to this day can still provide for its' historical wildland fire suppression access and fuels treatment area purposes and should remain an integral part of CAL FIRE's wildland fire suppression infrastructure within the Battalion.

The primary developed communities in the Battalion are West Point, Wilseyville, Glencoe, Railroad Flat, Mountain Ranch and Sheep 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 parcels of Federal Bureau of Land Management (BLM) lands in the Mokelumne River drainages and also in the Calaveras River and Calaveritas Creek drainages straddling both the eastern boundary with Battalion 1 and northern boundary with Battalion 2.

The eastern half of the Battalion is an inter-mix of private commercial timberland owned by Sierra Pacific Industries (SPI) along with portions of the Stanislaus National Forest, Calaveras Ranger District (STF), BLM lands and some private parcels.

All Federal lands within the Battalion are designated as CAL FIRE DPA under the California Master Cooperative Wildland Fire Management Agreement (CFMA).

The entire Battalion has been designated by CAL FIRE 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 western half of the Battalion lies within the Unit's *Foothills-East* Fire Danger Rating Area. The eastern half, comprised primarily of SPI and USFS lands, falls within the *Sierra* FDRA.

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, is located 1 mile east of the community of Mountain Ranch; and Hermit Springs FFS, a one (1) engine station, located 18 miles east of West Point at the 6,000 foot elevation on SPI land, at the Battalion's eastern DPA boundary adjacent to the STF.

CAL FIRE in the West Point Battalion protects life and private property and provides vital economic and natural resource protection to 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 River and the North Fork of the Calaveras River.

The Mokelumne River watershed provides water to Tiger Creek, Pardee and Camanche 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 rivers, which may be smaller in volume, but often equal in length, also bisect the Battalion, including Murray, Jesus Maria, Forest and Blue Creeks.

Protection of these watershed values provide benefits that reach far beyond the boundaries of the Battalion and the Tuolumne-Calaveras Unit.

The commercial timberlands in the Battalion have supported an active logging industry for decades and continue to play a vital role in the local and state economy. Active logging on SPI lands within the Battalion and associated activities within the surrounding commercial forested lands are still active and routine.

Natural resource and recreation values are important resources under CAL FIRE's protection within Battalion 3. Hunting, fishing, hiking, cycling and OHV activities are active during the summer season when both public lands and private SPI lands are fully accessible to the public. Jamboree type concert, barbeque and RV group events occur regularly on several large private ranches within the SRA in various locations in the Battalion.

Local government fire protection within Battalion 3 is provided by three (3) fire districts. Central Fire and Rescue Protection District provides local government fire protection to the west end of the Battalion serving the communities of Mountain Ranch, Glencoe, Railroad Flat and Sheep Ranch. West Point Fire District protects the north and central areas of the Battalion including the communities of West Point, Wilseyville, Lily Valley

and Upper Blue Creek. 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 many significant assets as risk in the West Point Battalion. These include rural communities on private parcels, homes and businesses. There are critical downstream urban watershed resources which include water collection and distribution infrastructure and hydro-electric power generation and distribution infrastructure. There are major private commercial timber holdings and transportation and communications infrastructure. Also included are significant parcels of federally owned public lands comprised of watershed, timber, wildlife habitat and recreational resources along with Native American as well as pioneer historical and archeological sites.

- **Life Safety**: The western half of the Battalion is characterized by a handful of small communities that function as the hubs for a widely dispersed population. The eastern half, being private and federal timberland, is sparsely populated. The need for fire defense improvements, concerted educational campaigns, safe access/egress routes and a coordinated initial response remains utmost in the minds of Battalion personnel.

- **Residential and Commercial Development:** 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.

  There has historically been fragmented growth throughout the west half of the Battalion. Subdivisions that can be classified as modern and high density are rare, with an average parcel size of five (5) acres. Communities within the Battalion can generally be classified as rural and older with the majority of the development dating 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 Battalion 3. Wood frame construction remains the primary preference for new development construction. However, newer building codes should result in more ember resistant and fire safe structures into the future.

- **Watershed:** The broad spectrum of watershed values noted above may be less obvious, but are tremendously important within and far beyond the Battalion boundary.

  The Mokelumne River watershed is the water source for Pardee and Camanche Reservoirs and provides 90% of the water that goes to the East Bay Municipal Utility District (EBMUD). EBMUD's water system serves approximately 1.3 million people in a 331-square-mile area of Alameda and Contra Costa Counties,

including the major cities of Oakland and Berkeley and east to Walnut Creek and the San Ramon Valley.

This watershed also provides for electric power through the Tiger Creek Reservoir and related infrastructure as a component of Pacific Gas and Electric's (PG&E) hydro-electric distribution system.

The watersheds in Battalion 3 also supply water to the Amador Water Agency, Stockton East Water District, Calaveras Public Utility District and the Calaveras County Water District.

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.

- **Community Infrastructure:** Water storage and delivery systems (see Watershed above); electrical distribution equipment; telecommunications systems; transportation networks; schools.

  - Water delivery systems within the Battalion are critical assets. 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 for fire protection is addressed by an optional formula. Although some residents have chosen to install on-site water tanks, the majority of new development has opted to pay the in-lieu fee to fund the Calaveras County Fire Service Water Tender program. On-site tanks are minimal and there is not currently a system to guarantee functionality of the existing tanks.

  - Telecommunications is another critical element of the infrastructure present within the Battalion. Several government agencies and private communications companies take advantage of the topography within the Battalion for the location of communications system facilities. These are high-dollar installations that are by necessity placed in threatened locations atop ridges and mountains.

  - Schools are at risk in the same way as the rest of the community is. But their importance as one of the prime choices for use as evacuation centers makes them doubly important in the event of a significant wildland fire

- Electrical distribution systems are ubiquitous throughout the Battalion, and a critically important asset. Power distribution lines and equipment are unique among assets as being both a potential cause of wildland fire and a threat to fire fighting operations. While not nearly as frequently a cause of wildland fire as they were historically, they remain a threat to aerial firefighting operations. Most every wildland fire has some potential to damage this equipment; the biggest fires present the most serious threat. Disruption of the power distribution system is likely to have a significant impact on lives and the economy.

- **Commercial Timber Resources:** Sierra Pacific Industries (SPI) owns large tracks of high value commercial timber land within the SRA in the eastern half of the Battalion. The Stanislaus National Forest (STF) also owns a large number of acres managed for commercial timber among other uses. BLM parcels comprise most of the remaining portions of the eastern high-elevation zones in Battalion 3, with some interspersed private parcels.

  These private and Federal timber lands are directly linked to the viability of the above mentioned watersheds, water collection and distribution systems, recreation values, and the economies of Calaveras and surrounding counties. When considered as a broad interconnected system one can begin to see the critical importance of the wildland fire protection provided by the CAL FIRE within the West Point Battalion.

- **Recreation Values:** The same critical importance holds true in the western portion of Battalion 3 where CAL FIRE provides direct wildfire protection to the large areas of Bureau of Land Management (BLM) lands along the main stem of the Mokelumne River adjacent to the community of Glencoe. Inherently important as watershed, BLM lands may be most utilized for their recreational opportunities; hunting and fishing being two of the most common. This particular section of the Mokelumne River watershed is currently being managed by the BLM in anticipation of future potential Wild and Scenic River designation. There are also long term plans for the creation of a major trail along this stretch of the river that would connect to a system designed to link the pacific coast with the Sierra crest.

  Additional large tracks of BLM lands protected by CAL FIRE in Battalion 3 include the North fork of the Mokelumne River east of the community of West Point to the Tiger Creek Reservoir, the Middle Fork of the Mokelumne River along Silver Mountain, as well as BLM parcels around and adjacent to the North Fork of the Calaveras River and south of the community of Mountain Ranch south to Calaveritas Creek.

- **Cultural Values**: As a result of a long history of mining and logging, the Battalion includes several historic cultural sites; often located in more remote, difficult to reach areas. Historic and prehistoric Native American archaeological sites are also numerous throughout the Battalion.

- **Agricultural Values:** Much of the high elevation timberland in the eastern half of the Battalion is used via lease agreements as summer “pasture” for open range grazing by low country cattle ranchers.

Fuels: With the exception of two small blocks (downtown West Point and the west end of Spink Rd), the entire West Point Battalion has been designated by CAL FIRE as a *Very High* Fire Hazard Severity Zone.

Historically the Battalion was primarily timberlands, with the western portion a ponderosa pine dominated mixed conifer forest that transitioned at the higher elevations to fir and lodge pole pine. Human activity including over 100 years of logging, mining and ranching has changed the balance and mixture of the fuel types in western Battalion 3 from what once was a timber dominated fuel model to what is now a brush dominated fuel model.

At the extreme lower elevations of the Battalion, there is an intermix of brush, grass and oak woodlands. There are timber fuel models with heavy brush understory at the mid and higher elevations. This mixture of fuels, grass with an over story of brush and brush with an over story of timber, creates a highly volatile fuel situation. The grass and brush fuel models act as the primary "ladder fuels" that carry fire vertically into the over story. The high potential for vertical fire spread, that is caused by the increased understory fuel loading, increase both fire intensity and spotting potential.

The effects of a series of annual low elevation snow falls starting in 2006 through 2011 remain a consideration for the fuels between the 1,500 and 3,000 foot elevations. These events primarily affect the live oak, black oak and bull pine, breaking off their branches and tops. This adds significantly to the amount of dry dead and down fuels in the under story and, in turn, increases the availability of "ladder fuels." This increased dead fuel loading increases the difficulty of fire control through the creation of fuel "jackpots" that burn with high intensity.

Weather: When normal Central Valley summer heat waves begin to subside, Battalion 3 eventually receives the beneficial effects from the "Delta Breeze" about 24 hours after its fire dampening effects are felt in the San Joaquin Valley and the lower elevations of the Unit. This extends the effects of high hazard fire weather patterns a full 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 to the single digits from the middle of September until the rainy season begins. Correspondingly, the 10-hour fuel moistures can stay below 5% for much of the fall season.

Battalion 3 frequently experiences East and North wind events at the higher elevations. During these dry wind 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. A late season, east wind driven fire event most likely represents the greatest threat for major timber fire growth in the Battalion.

Fire Ignitions / Fire History:

Bat. 3 2010	CAIRS/Fire Plan Cause Description	Total # of Fires	Total Acres	# of Fires 10 acres or less	% of Total Fires 10 acres or less	Average Acres	Largest Fire Acres	Median Acres
0	Unknown/Unreported	4	0.00	4	100.00%	0.00	0.00	0.00
1	Undetermined	4	7.60	4	100.00%	1.90	5.00	1.25
2	Lightning	1	1.00	1	100.00%	1.00	1.00	1.00
3	Campfire	0						
4	Smoking	0						
5	Debris Burning	1	0.30	1	100.00%	0.30	0.30	0.30
6	Arson	0						
7	Equipment	0						
8	Playing W/ Fire	0						
9	Misc / Other	2	2.10	2	100.00%	1.05	2.00	1.05
10	Vehicle	0						
11	Railroad	0						
12	Electrical Power	1	0.05	1	100.00%	0.05	0.05	0.05
	Annual Totals:	**13**	**11.05**	**13**	**100.00%**	**0.85**	**5.00**	**0.65**

Table 5A-3

- Historically Significant Fires: As with all Battalions in the Tuolumne Calaveras Unit, the West Point Battalion has had its share of large and damaging wildfires, including:

  - The Moore Fire (2001) located in Moore Creek on the North 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

Calaveras County's General Plan, Zoning Ordinances and Building Codes govern development in the Battalion. The common 5 acre parcel size required to maintain the rural character of the West Point Battalion contributes to the limited ability to effectively modify fuels over large geographical areas on private parcels in the more populated western half of the Battalion.

As a result, Battalion 3 will continue to focus on the following successful approaches to reducing the wildland fire threat in and around the West Point Battalion's various "communities at risk:"

Strategic Planning: Property owners and the natural resources within the Battalion both benefit from the strong working relationships in place between CAL FIRE, its' local government and forest agency cooperators and large landowners, both public and private. This is and will remain the foundation for the Battalion's wildfire prevention and pre-fire mitigation efforts.

- **Community Wildfire Protection Plan:** CAL FIRE is partnered with the Calaveras Foothills Fire Safe Council in developing and maintaining its' Community Wildfire Protection Plan (CWPP) for wildland fire mitigation efforts within the West Point Battalion.

- **Structure Protection Plans:** Battalion 3 also benefits from its' Structure Protection Plans, originally compiled beginning in 2002, covering all of the significant communities with the Battalion.

Defensible Space Inspections: Removing fuels around structures provides the single most effective action for reducing structure ignitability and 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 provides the opportunity to implement the required 100 foot fuel removal within the property boundary in a majority of the situations. Due to the rural character of the Battalion however, a large amount of time and effort is required to make contact with and educate property owners as to what is required, and then to perform inspections that often require multiple re-inspections.

The emphasis of the Battalion defensible space program through 2009 was mostly on public education. After several years of increasingly successful public education efforts and corresponding increases in defensible space compliance, Battalion 3 efforts in 2010 moved to enforcement through the LE-100 inspection process with good success.

The amount of fuel to be removed is substantial in many cases.

- The goal in the future is to coordinate CAL FIRE LE-100 inspection program efforts within the West Point Battalion with Calaveras Foothills Fire Safe Council fuels reduction activities; to support the overall removal and reduction of fuels around structures on private parcels in and around communities at risk within the Battalion; with the intent of reducing the Battalion's structure ignitability problem in support of the CWPP.

Public Education: Roadside Sign Program: There are three highway wildland fire prevention sign locations within the Battalion. These all weather signs provide messages in support of CAL FIRE's "Ready for Wildfire" and 100' Defensible Space requirement programs.

- **School Programs**: Battalion 3 personnel will continue to support the Unit's Fire Prevention Specialist elementary school fire safety and fire prevention message programs.

- **Community Events:** West Point Lumberjack Days and Mountain Ranch Day: Battalion 3 personnel will continue to participate in the annual parades and activities associated with these events. It is during both these events in which the majority of West Point, Glencoe, Railroad Flat and Mountain Ranch communities are present to see CAL FIRE wildland fire prevention messages on display.

Law Enforcement: Wildland Fire Cause and Origin Determination and Code Enforcement: *CAL FIRE* Company Officers and Law Enforcement staff will work to determine a cause for all wildland fire ignitions in Battalion 3. Accurate cause and origin determination will remain a priority in the Battalion in support of CAL FIRE's fire prevention and cost recovery programs.

- **Law Enforcement Support:** Cooperation between Battalion 3 defensible space inspectors and the Unit's Law Enforcement staff will continue in support of the Battalion's "Defensible Space Inspection Program." Citation, legal remedy and cost recovery measures will be initiated as needed to ensure compliance with defensible space requirements.

Fuel Reduction / Breaks: Fuel break construction and maintenance, cooperative fuels reduction projects and Vegetation Management Plans provide for the most effective economy of scale to protect values at risk; by modifying strategic wildland fire fuels along the dominant ridgelines in Battalion 3.

Large private timber holdings and Federal land ownership along the rim of the North Fork of the Mokelumne River are basically contiguous from Rich Gulch, Glencoe and West Point,

through Blue Creek and on to Moore Creek near Hermit Springs. Large strategic contiguous land holdings also exist in areas east of the communities of Railroad Flat and Mountain Ranch along the South Fork of the Mokelumne River, Summit Level Road and the vicinity of Blue Mountain.

These contiguous parcels afford the most significant opportunities for cooperative projects of "landscape scale;" to protect both communities and watersheds in the Battalion from the devastating effects of large and catastrophic wildland fires.

- **Collaboration:** Sierra Pacific Industries (SPI), the Stanislaus National Forest (STF), the Bureau of Land Management (BLM) and CAL FIRE, along with the Calaveras Foothills Fire Safe Council have initiated several significant cooperative fuels reduction projects (see below), including proposed and completed fuel break construction, fuels treatment areas and Vegetation Management Plans.

  As an on-going Battalion priority; CAL FIRE intends to work closely with our forest agency cooperators in the West Point Battalion, including BLM and STF, to determine the best sustainable locations for fuel breaks and fuels treatment areas in the Battalion. The goal is to limit, concentrate and focus "landscape scale" fuels reduction efforts to these identified and agreed upon strategic locations.

- **Maintenance:** As additional sections of fuel breaks and fuels treatment areas are proposed and then completed in the future, those portions completed ~~earlier~~ previously will require maintenance. Continued maintenance is critical in order o maintain the effectiveness of any given treated area. Continued availability of funding and crews, along with long term inter-agency relationships are critical.

- **Roadside Brushing:** Access for wildland fire suppression resources, firefighter safety, egress for citizen evacuation and effective traffic control requires an on-going commitment to roadside brushing and maintenance along all major roadway corridors within Battalion 3. Included in this is the re-establishment and on-going future commitment to the brushing and maintenance of the Ponderosa Way sections throughout the Battalion, including the bridge over the North Fork of the Calaveras River.

  - Roadside brushing for wildland fire hazard reduction in the Battalion has been and will continue to be accomplished through the cooperative efforts of CAL FIRE and its partners in this effort including Calaveras County, Calaveras Foothills Fire Safe Council, the Stanislaus National Forest and Sierra Pacific Industries.

  - Calaveras County Road Fuels Reduction: An approved CAL FIRE "Fed Fuels Grant Program" project; roadside brushing project will be conducted in late 2011 in cooperation with Calaveras County to treat approximately 40 miles of roadway within Battalion 3.

Battalion 3 Cooperative Mitigation Efforts

Sierra Pacific Industries (SPI): In July 2007, CAL FIRE entered into a Vegetation Management Program agreement with Sierra Pacific Industries (SPI) covering an area of approximately 6,342 acres east of West Point and Wilseyville and surrounding the community of Lilly Gap.

The objectives of the project are to create a shaded fuel break on the ridge top to protect Sierra Pacific Industries timberlands, Stanislaus National Forest land and the surrounding subdivisions from an uncontrolled wildfire. The VMP will protect the mixed conifer over story by reducing surface fuel loading and increasing canopy base height. The project is also designed to enhance wildlife habitat and protect homes within the Lily Valley Estates and Blue Creek subdivisions.

- **The Winton Schaads VMP:** a project designed to utilize controlled burning as well as mechanized and/or hand treatment fuel removal methodologies on multiple plots of varying acreages. It is designed to take advantage of potential fuel, weather and resource limitations; by providing for multiple available options during any given season within the scope of the plan.
    - Between July 1, 2008 and June 30, 2011, a total of 174 acres has been treated within the VMP.

- **Winton Road – Roadside Fuels Reduction:** Integral to the Winton Schaads VMP is roadside fuels reduction along the Winton Road, which is owned by Sierra Pacific Industries. There are 2 main objectives to this project. First is to reduce the wildland fire fuels availability adjacent to Winton Road to provide for a dominant fuel break location, and second, to improve sight distance for vehicle travel. Winton Road is the primary response road for the CAL FIRE engine assigned to the Hermit Springs FFS. Providing this clearance will greatly enhance safety along Winton Road. In 2007 this project was completed through the use of Prop 40 funds and mechanical equipment. It remains on-going as part of the VMP.

- **Timber Harvest Plans:** Fuels reduction and fuel break construction along Winton road and the dominant ridge east of West Point to Hermit Springs has also been enhanced through the private enterprise efforts of SPI. Through several timber harvest plans (THP) specifically designed to reduce forest fire hazard and support fuels reduction and fuel break construction efforts, SPI has assisted in reducing overall wildland fire hazard in this area of Battalion 3.

- **Lily Valley Fed Fuels:** In addition to the Winton Schaads VMP and various Winton Road fuels reduction efforts, in 2011 SPI also partnered with CAL FIRE within the Battalion in the Lily Valley Circle “Fed Fuels” shaded Fuelbreak project around the Lily Valley Circle subdivision and along Winton Road just east of West Point.

Bureau of Land Management (BLM): A strong partnership is being fostered between CAL FIRE in the West Point Battalion and the Bureau of Land Management (BLM) -

Motherlode Field Office fuels management personnel in support of fuels reduction efforts in Battalion 3 with the goal of creating and maintaining several significant fuel breaks over the next five years, including Tiger Creek South, Alabama Hill, Red Corral and Bald Mountain. These fuel breaks are designed to protect both the Mokelumne River Watershed and the communities of Glencoe, West Point and Wilseyville and serve as the foundation of fuel break efforts in the western portion of the Battalion.

- **Tiger Creek Fuelbreak**: Provides an anchor point on the west end of the Winton Schaads VMP connecting it to the Mokelumne River and provides landscape integration by connecting the Antelope/Doakes Ridge Fuelbreak in Amador County in AEU to the north.

- **Alabama Hill Fuelbreak:** Dominant ridge fuelbreak above the Mokelumne River to protect the community of Glencoe. See Glencoe CWPP Addendum.

- **Red Corral Fuelbreak:** Ridgeline protection for the residential areas east of West Point on the north end of the Battalion in an area of historical fire starts on the Mokelumne River at the Amador county line.

- **Bald Mountain Fuelbreak:** Connects VMP and Lily Gap projects to points south of West Point and east of Wilseyville to complete community fuelbreak

- **Lily Gap Biomass Project:** 400 acre demonstration project for harvesting woody biomass material as an alternate means of fuels reduction in lieu of burning. Provides enhanced protection to the community of West Point and SPI timber lands and is landscape integrated with both the Winton Schaads VMP and Tiger Creek Fuelbreak

- **Glencoe Shaded Fuel Break Project:** In 2010 the BLM completed this project just east of the community of Glencoe .

Calaveras Foothills Fire Safe Council: CAL FIRE in the West Point Battalion has established an integral partnership with the Calaveras Foothills Fire Safe Council.

- **Community Wildfire Protection Plan:** 2010 and 2011, Battalion personnel assisted with the update and creation of a comprehensive Community Wildfire Protection Plan (CWPP) for Calaveras County, including the Battalion.

- **Lily Gap Mastication:** In 2010 the Calaveras Foothills Fire Safe Council coordinated the Lily Gap Mastication Project, which masticated surface and ladder fuels to create a shaded fuel break around the Lily Gap subdivision.

- **Sandy Gulch Lane Fuels Reduction Project:** A shaded fuel break project in the Sandy Gulch area.

- **Mountain Ranch Ponderosa Way Fire Protection Project;** Proposed as right of way brushing, shaded fuelbreak construction on private parcels and road grading improvements to enhance access and egress.

- **Defensible Space Inspection Program:** The Fire Safe Council provides funding for CAL FIRE seasonal employees to perform LE-100 inspections within the Battalion prior to fire season.

- **Roadside Brushing:** The Fire Safe Council will reduce brush, small trees and hanging ladder fuels along identified roadways within Calaveras County to lessen wild fire intensity along the roadways in the event of a fire.

- **Door to Door Chipper Program:** The Fire Safe Council will offer free chipping services for residents throughout Calaveras County. The CFFSC provides a contract chipping crew for the disposal of brush and woody debris around resident's homes in prioritized high fire-risk areas. Residents cut and stack slash along public roads and contract chipping crews chip the piles.

- **Seniors and Disabled Defensible Space Program:** The Seniors and Disabled Defensible Space Program is designed to aid seniors and the disabled to comply with PRC 4291 that requires 100 foot clearances around structures. The Fire Safe Council will hire a contractor to accomplish these requirements at no cost to the resident.

Stanislaus National Forest: A strong partnership is also being fostered between CAL FIRE in the West Point Battalion and the Stanislaus National Forest (STF) Calaveras Ranger District fire management personnel.

- **Cooperative Mitigation Projects:** efforts in the eastern portion of Battalion 3 have included:

  - **Moore Creek drainage** fuels reduction

  - **Blue Creek Subdivision** road brushing projects .

  - **Joint Prescribed Fire Project:** Efforts are underway to perform a joint prescribed fire project on STF lands directly adjacent and integral to the Winton Schaads VMP in cooperation with SPI with the goal of ultimately connecting the VMP with the STF Moore Creek Fuelbreak.

Amador Calaveras Consensus Group: The Amador-Calaveras Consensus Group (ACCG) has been convened in order to foster partnerships between private, non-profit, local, State, Federal and tribal entities that all hold common interest in the health and well-being of California's forested lands. The West Point Battalion is geographically located in the center of this effort.

With the intention of serving as a model for other areas of the Sierra Nevada, the group has developed an initial strategy through which job creation, industrial and commercial development, fire-safe forests and communities, and a heightened degree of environmental stewardship will result.

The Amador-Calaveras Consensus Group has identified a series of challenges which, while not exclusive to this area of the State, are likely surmountable given the collaboration and innovative thinking currently taking place. Challenges for the group include but are not limited to the extremely high risk of severe catastrophic wildfire and corresponding threats to the watershed within the West Point Battalion.

It is because of these direct mission related challenges that CAL FIRE, through the West Point Battalion is an integral participant in the ACCG.

To date, over $350,000 of federal and state grants, in addition to revenue derived from private contracts, has been acquired in support of this effort; with the result being the creation of new jobs in the fuels management arena. Most of these efforts have occurred within Battalion 3.

It is essential that the next steps, namely the establishment of a value-added cluster industry, be completed in order to utilize the treated materials which would otherwise go to waste. Several significant proposals for these projects are slated to occur within the West Point Battalion.

With such a broad coalition in place, the Amador-Calaveras Consensus Group is uniquely positioned to initiate a series of actions in support of the broader goals of the group. To date, projects have been prioritized, agreements in principle have been reached, and a vision has been established which will benefit the area in a variety of ways, including but not limited to fuels reduction and forest restoration and enhancements to the watershed to benefit the 1.3 million downstream users in the East Bay.

Calaveras Healthy Impact Product Solutions (C.H.I.P.S.): Part of the work the Amador-Calaveras Consensus Group has undertaken is a major effort to establish a series of value-added forest biomass applications locally. This will provide a means of fostering job-growth, expanding local economic capacity, and utilizing treated forest material which would otherwise linger as a fire threat. Proposed value-added products and operations include, but are not limited to, Post and Pole Manufacturing, Densified Wood Product Manufacturing, Biomass/Cogeneration and Marketable Firewood.

In order for these commercial endeavors to begin, there must be a reliable supply of forest material. Federal land managers will be an important part of ensuring this supply, in addition to providing much needed employment for fuel-reduction practitioners in the area. Sites have already been zoned and approved by the County for purposes of constructing the necessary commercial and industrial facilities.

Efforts to utilize woody biomass as a means of creating more fire safe communities within the West Point Battalion includes support by CAL FIRE for and a working relationship with Calaveras Healthy Impact Product Solutions (C.H.I.P.S.)

C.H.I.P.S. was founded to address the communities' extreme fire threat while creating healthy forestlands, and is committed to building a sustainable model of economic and social development that stimulates economic recovery and an enhanced capacity to address social needs.

The CHIPS Project is an example of the “New Forest Economy,” where ecological, economic, and social issues are blended into a successful outcome for the environment, the community, and the economy.

Efforts by the C.H.I.P.S. organization to establish a woody biomass product site within Battalion 3 in the community of Wilseyville are underway. CAL FIRE is participating in this effort in support of its’ fire safe communities activities.

CAL FIRE through the West Point Battalion is supporting the efforts of both the A.C.C.G. and C.H.I.P.S. through participation in these groups, to help establish woody biomass harvesting as a viable commodity and as a potential wildland fire fuels reduction alternative and possibly a future component of the Battalion’s overall wildland fire mitigation efforts.

Calaveras County: The county is a valuable partner in Battalion efforts to improve fire safety for residents and visitors. Access to Public Works staff and equipment has been instrumental in the success of several projects over the years. In 2011 the Board of Supervisors ratified a new Community Wildfire Protection Plan.

Since 2003 disposal of forest fuels has been made much easier for local residents working to comply with state 4291 regulations,

Fuel Waste Disposal program: Under this County 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 PRC4291 changes requiring up to 100 foot of clearance.

Battalion 4 (Arnold Battalion) Pre-Fire Management Plan

Jeff Millar – Battalion Chief

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. Skull Creek FFS, a one (1) engine station, 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. This facility is staffed only as needed 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. While the logging industry has experienced a significant decline over the past years due to economic conditions, it continues to have an impact on the Arnold area. 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, Sugar Pine 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, 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. The following list reflects 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 of 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. Included in and/or adjacent to these communities are numerous subdivisions and commercial developments. See Section III Pt. B page 21 for Communities at Risk information.

  These communities include a wide variety of residential development: modern subdivisions featuring mid-sized homes on small urban-sized 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, a designated 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 the production of water. The Battalion provides protection to critical watersheds, including the South Fork Mokelumne River headwaters; South Fork Calaveras River headwaters, consisting of San Antonio and San Domingo Creeks, among others. These 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 use, 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 are also within the Battalion.

- **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 increasingly 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 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.

- **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.

The effects of a series of annual low elevation snow falls starting in 2006 through 2011 remain a consideration for the fuels between the 1,500 and 3,000 foot elevations. These events primarily affect the live oak, black oak and bull pine, breaking off their branches and tops. This adds significantly to the amount of dry dead and down fuels in the under story and, in turn, increases the availability of “ladder fuels.” This increased dead fuel loading increases the difficulty of fire control through the creation of fuel “jackpots” that burn with high intensity.

Weather: Summer (fire season) weather in the Battalion is characterized by periods of high heat ranging from 90-105° degrees with relative humidity ranging from 10-24%. The Battalion experiences frequent summer heat waves where the temperature may remain in the high 90’s for several days. 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:

Bat. 4 2010	CAIRS/Fire Plan Cause Description	Total # of Fires	Total Acres	# of Fires 10 acres or less	% of Total Fires 10 acres or less	Average Acres	Largest Fire Acres	Median Acres
0	Unknown/Unreported	2	0.00	2	100.00%	0.00	0.00	0.00
1	Undetermined	0						
2	Lightning	1	0.50	1	100.00%	0.50	0.50	0.50
3	Campfire	1	1.00	1	100.00%	1.00	1.00	1.00
4	Smoking	0						
5	Debris Burning	1	0.25	1	100.00%	0.25	0.25	0.25
6	Arson	0						
7	Equipment	0						
8	Playing W/ Fire	1	0.15	1	100.00%	0.15	0.15	0.15
9	Misc / Other	0						
10	Vehicle	0						
11	Railroad	0						
12	Electrical Power	0						
	Annual Totals:	**6**	**1.90**	**6**	**100.00%**	**0.32**	**1.00**	**0.25**

Table 5A-4

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 (Gulch, 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 provided 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 provide 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 its successful two-prong approach to reducing the wildland fire threat: 4291 defensible space inspections and cooperative fuel reduction projects; while continuing our involvement in planning, education and enforcement.

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 CAL FIRE 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 cooperative projects serve a dual purpose in that they protect homes from encroaching wildfires while protecting wildland areas from fires starting in adjacent subdivisions. Future efforts to maintain these projects are planned.

- **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: A close working relationship has been developed in recent years between CAL FIRE and several stakeholders including the USFS, Sierra Pacific Industries, Ebbetts Pass Fire Dist., Big Trees State Park and homeowner associates, to name a few. Strategic Planning is a significant issue of concern to all.

- **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:** An ongoing effort to secure the restoration of funding for Blue Mountain Lookout. The loss of Blue Mountain Lookout staffing several years ago reduced CAL FIRE's ability to quickly detect wildfires and dispatch appropriate resources. Restoration of this lookout will improve CAL FIRE's early detection abilities; and contribute to the reduction of wildland fire threats to the greater Arnold area and the entire central region of Calaveras County.

- **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: A variety of education methods are routinely employed in Battalion 4, including:

- **LE-262 Burn Permit Administration:** The issuance of this so-called "door yard burn permit", required for residential burning during portions of the year, provides a valuable opportunity for agency personnel to educate the general public on the threat posed by wildland fire to their homes and community, in addition to the specific burn requirements. The permits are valid for a period of two years which gives us the opportunity to reeducate the public when they are renewed.

- **Campfire Permits:** This is another important opportunity to engage the public, especially those from out of the area seeking camping and outdoors experiences within the Battalion.

- **Fire Prevention Signs:** Road-side fire prevention signs remain posted year around, carrying a variety of seasonally appropriate messages, in an effort 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: Continued close cooperation between Battalion personnel and the Unit's Law Enforcement staff in the event citations are needed to gain compliance with 4291 requirements is a priority. Without the full support of the Unit's LE staff, as evidenced by a willingness to issue citations, it's difficult for Battalion 4291 inspectors to maintain credibility within the community.

- **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 Battalion 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.

- **Treatment Strategies:** Efforts are ongoing to plan and carry out fuel reduction projects in 2011 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.

- **Management Goals:** 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 stages, as indicated in the following projects:

- **East/West Arnold Shred:** Maintenance of a fuel break through shredding of brush and specified Conifer trees. Additional acres were added to reduce fuel loading and ladder fuels within the W.U.I.

- **Prather-Medusa Forest Restoration Project:** Mechanical thinning, biomass removal, mastication and prescribed fire (Pile burning, understory burns and jackpot burning.)

- **Irish/O'Manual Understory Burn:** Maintain existing fuel breaks utilizing prescribed understory burning. Reduce naturally occurring and activity created fuel loads through prescribed understory burning to minimize the potential for large wildfires and help to protect the communities of Hathaway Pines, Avery, White Pines and Arnold.

- **Bloods Ridge Timber Stand Improvement:** Thinning of shrubs and small diameter trees (Under 8 inch DBH) to improve residual tree vigor by increasing water and nutrient availability and reducing susceptibility to insects, pathogens and drought related stressors. Secondary benefits include reducing fuel loads, ladder fuels and breaking up the continuity of fuels, which in turn will help to protect mature stands and wildlife habitat from intense, severe wildland fires. It will also provide better wildland fire protection to the town of Bear Valley.

- **Sourgrass Fuels Reduction and Vegetation Management Program:** Reduce forest surface, ladder fuels and lower timber stand densities to reduce the size and severity of future wildfires, reduce the risk of insect/pathogen drought related mortality and promote growth and vigor in residual trees, optimize visual quality, improve watershed conditions and restore or enhance habitat for riparian and aquatic species. Additionally, widen an existing fuel break, along Summit Level Ridge, utilized during the Sourgrass Complex, in T6N, R16E, Sec. 30, to connect with an SPI fuel break.

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 with the Big Trees Village subdivision. This project will provide valuable protection both the park and the subdivision from encroaching wildfires.

- **Projected projects** for 2011 include the Big Trees National Forest (BTNF) Restoration Project below the north rim of the South Grove Preserve. This is a 35 acre fuel reduction and ecological restoration project to not only provide another line of protection to the South Grove itself, but to restore and protect hundreds of

old-growth sugar and ponderosa pines within the historic BTNF. There will also be the continuation of manual surface fuel and small tree-reduction within the South Grove Basin in preparation for prescribed burns, and a fuel break on the west corner of the South Grove Basin for a buffer with wildfires approaching from the west.

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.

Big Trees Village/Snowshoe Springs HOA's Perimeter Fire Safety Project: The Homeowner Associations of two contiguous subdivisions, Big Trees Village and Snowshoe Thompson, located in the Camp Connell/Dorrington W.U.I., seek to protect approximately 2,400 structures from wildfire spreading from the adjacent forests, and conversely to protect those forests from structure fires spreading from within those subdivisions to those surrounding forests.

- **Collaboration:** The two subdivisions are surrounded by the following land managers: Calaveras Big Trees State Park to the west, Sierra Pacific Industries to the south, United States Forest Service to the east, and California Department of Transportation to the north (Highway 4). Big Trees Village and Snowshoe Thompson will work collaboratively with these land managers to create a fuel break around the perimeter of Big Trees Village/Snowshoe Thompson. We will also work collaboratively with CAL FIRE to ensure that this application is scientifically and strategically sound.

- **Inspections:** Big Trees Village is an active participant in CAL FIRE's VIP program. Annually local residents from within Big Trees Village, who have been certified by CAL FIRE as VIPs, conduct a thorough inspection which is submitted to CAL FIRE for follow up enforcement. The BTV VIP committee then works with CAL FIRE on follow-up inspections to ensure compliance. Also, Big Trees Village Property Owner's Association has education material on its website to teach its property owners about the 100' clearance requirements: http://www.bigtreesvillage.org/newlotclearingre.html

Arnold Lilac Park Emergency Evacuation Plan: Lilac Park, a community of 206 lots, with approximately 50 year round residents, has only two exits, both of which merge

onto Highway 4. If Highway 4 is inaccessible due to fire or other disasters, trapped homeowners currently have no alternative exit routes. Efforts are ongoing to provide alternate exit routes and signage with the cooperation of neighboring subdivisions.

Meadowmont Evacuation Plan: The Meadowmont subdivision in Arnold is in need of routes for residents to leave in case of emergency. Both sides of the subdivision exit onto Highway 4. There are many cul-de-sacs and many streets with only one way in and one way out. As of 2011 a project targeting the identification of alternate ingress / egress routes, right-of-way clearance and evacuation planning is in the planning.

Big Trees Village Fuel Reduction Project: Fuels reduction on 18 acres of land that is situated on the rim of the Stanislaus River Canyon which would assist in protecting 2500+ residential and commercial structures within the Big Trees Village Subdivision. Crews will be utilized to cut and pile fuels for burning.

Forest Meadows Homeowners Association: The subdivision is the only certified Firewise Community in the north Division. The Association produced a Community Wildfire Protection Plan in 2007 that 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 has not yet been validated by CAL FIRE as per the requirements.

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 project including:

- **Defensible Space Inspection Program:** The CFFSC will contract with CAL FIRE seasonal employees to perform over 4,000 4291 Inspections throughout Calaveras County.

- **Seniors and Disabled Defensible Space Program:** A program designed to aid seniors and the disabled in attaining compliance with PRC4291 requirements for 100 foot clearances around structures. The Fire Safe Council will hire a contractor to accomplish these requirements at no cost to the resident.

- **Door-to-Door Chipper Program:** The Calaveras Foothills Fire Safe Council will offer free chipping services for residents throughout Calaveras County. The CFFSC provides a contract chipping crew for the disposal of brush and woody debris around resident's homes in prioritized high fire-risk areas. Residents cut and stack slash along public roads and contract chipping crews chip the piles. The program assists residents in meeting the California vegetative clearance requirements of PRC4290/4291.

- **Public Roadways Fire Break Phase 4:** The Fire Safe Council will reduce brush, small trees and hanging ladder fuels along identified roadways within Calaveras County. This county road Fire Break Management Project, implemented in

cooperation with the Calaveras Co Public Works Dept., will help in the following ways:

- Lessen wild fire intensity along the roadways in the event of a fire, providing safe ingress and egress routes for emergency personnel and equipment as well as citizens involved in the evacuation process

- Creates more advantageous fire control points to stop wild fires due to fire intensity interruption, reduction of spot fires to the opposite roadside and a fuel bed conducive to backfiring and direct suppression tactics.

- Create enhanced vehicle view along the roadway.

Clearing of brush along easements will be to the property line or approximately 30 feet. Reduction will be done by a crew utilizing hand and power tools. The brush will be immediately chipped in a mechanical chipper. The ground up chips will be redistributed back onto the roadway easement. This will provide ground cover that will temporarily inhibit growth of new fuel.

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 for a nominal fee. The program has been very successful in encouraging compliance with fuel reduction around structures while improving air quality as a result of less "dooryard" burning by residents.

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.

Battalion 5 (Twain Harte Battalion) Pre-Fire Management Plan

Barry Rudolph – Battalion Chief

Battalion 5 Overview

Battalion 5 covers approximately 144,218 acres of northern Tuolumne County, from the Stanislaus River/Battalion 2 boundary in the north, to the Tuolumne River/Battalion 6 boundary on the south. O'Byrnes Ferry Rd. and Highway 120 between Lake Tulloch and Don Pedro Reservoir serve as the western boundary. Along its north and east perimeter the Battalion adjoins the Stanislaus National Forest and Direct Protection Boundary east of the communities of Tuolumne City, Twain Harte, Mi-Wuk Village, Long Barn, and north of Columbia . Elevation ranges from a low of 550 feet at the O'Byrnes Ferry bridge on the west side to over 5,100 feet in 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 CAL FIRE Fire Stations : Standard (replaced the original Sonora station 2008), the Battalion Headquarters, a two-engine station serving the western half of the Battalion, located just minutes east of Sonora; Twain Harte station (replaced in 2009 on the original site), a two engine station serving the higher elevation eastern half of the Battalion.

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

CAL FIRE and TCFD maintain strong working relationships with nine fire agencies also providing services within the Battalion's operational area: Sonora City; Strawberry, Twain Harte, Tuolumne City and Columbia Fire Districts; Tuolumne Band of Mi-Wuk Indians Rancheria Fire Department. Additionally joint operations with the Jamestown and Mi-Wuk/Sugar Pine Fire Districts and Columbia College FD are conducted through cooperative fire protection agreements.

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 Highway108. Two Federal agencies are large

land owners: the Bureau of Reclamation (BOR) manages lands surrounding New Melones Reservoir; the Bureau of Land Management (BLM) manages various tracts of non-continuous land interspersed throughout the Battalion. All Federal lands within the Battalion are State DPA.

In addition to providing protection for life and private property, the Twain Harte Battalion provides resource protection for critical watershed, timber, and recreational values. The Battalion provides protection to regionally significant watersheds, including very large portions of the Tuolumne and Stanislaus River systems. Water collected from these watersheds, and stored in area reservoirs, is critically important to an area stretching far beyond the Battalion and Unit boundary, for use as domestic, industrial and agricultural supply, recreational opportunities, power generation, and wildlife habitat.

Approximately two thirds of the Battalion has been designated by CAL FIRE 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; water collection and distribution infrastructure; commercial timber; 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 5 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.

- **Life Safety**: Being the most densely populated area of the entire Unit means that within minutes of any wildland fire start individual homes or entire subdivisions are likely to be threatened. The need for fire defense improvements, concerted educational campaigns, safe access/egress routes and a coordinated initial response remains utmost in the minds of Battalion personnel.

- **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:** Watershed protection and enhancement is key in developing a sufficient water supply for human consumption. In the northwest, the Battalion includes 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 Five Mile Creek. The Stanislaus River supplies water to New Melones, Tulloch and Woodward reservoirs. A number of northern tributaries of the Tuolumne River including Woods, Sullivan, Curtis and Turnback Creeks cut through the center of the Battalion with year round flows. The Tuolumne River watershed supplies water to Don Pedro Reservoir and Turlock Lake.

  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 (TUD) supplies water throughout the Battalion. TUD facilities include historic ditches and flumes, dating to the California Gold Rush, to a modern above-ground tank network, pumping facilities, and surface storage such as Phoenix Lake and a number of smaller reservoirs connected to the ditch system.

  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 important asset is privately owned commercial timberland. Though small in terms of acres within the Battalion, the

economic influence of the timber industry on Battalion communities has been significant for decades.

- **Recreation Values:** Tourism and recreation is one of the most significant elements of the economy threatened by wildfire within Battalion. The reservoirs mentioned above, along with the primary watersheds supporting them, include significant recreational opportunities: 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 its 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 areas adjacent to the Battalion.

- **Agricultural Values:** The large cattle ranches in the western portion of the Battalion depend on the annual grass crop to feed their livestock. Vineyards, orchards and horse ranches are a growing component of the local agriculture industry also at risk from wildland fire.. Despite the loss of some acres to development agriculture remains an economically significant asset. Historical fires predating the Department annually ravaged these lands destroying feed and improvements.

- **Community Infrastructure:** water storage and delivery systems (see Watershed above); electrical distribution equipment; telecommunications systems; transportation networks; schools.

    - Transportation infrastructure ranks as a critical asset in need of protection. 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. Thousands of miles of county and private road spread throughout the Battalion. While road surfaces themselves only are only rarely damaged by wildfire, the supporting infrastructure is frequently. Even when no damage is suffered the disruption of traffic caused by fire control operations can cause a rank of negative impacts from short delays to significant disruptions to the economy.

    - Telecommunications is another critical element of the infrastructure present within the Battalion. Several government agencies and private communications companies take advantage of the topography within the Battalion for the location of communications system facilities. These are high-dollar installations that are by necessity placed in threatened locations atop ridges and mountains.

    - Schools are at risk in the same way as the rest of the community is. But their importance as one of the prime choices for use as evacuation centers makes them doubly important in the event of a significant wildland fire

    - Electrical distribution systems are ubiquitous throughout the Battalion, and a critically important asset. Power distribution lines and equipment are

unique among assets as being both a potential cause of wildland fire and a threat to fire fighting operations. While not nearly as frequently a cause of wildland fire as they were historically, they remain a threat to aerial firefighting operations. Most every wildland fire has some potential to damage this equipment; the biggest fires present the most serious threat. Disruption of the power distribution system is likely to have a significant impact on lives and the economy..

- **Cultural Values:** 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. In addition to tourist visits and the positive economic impact they bring to Tuolumne County, thousands of school age children from throughout central California enhance their education and understanding of California history by visiting this living Gold Rush era town annually as part of their curriculum.

  Another fascinating cultural resource found in and about Tuolumne County's ranch lands are remnants of the miles of rock wall "fences" and rock corrals used by ranchers in the 1800's. Easily seen today throughout the pasture lands in the western portion of the Battalion, these stone features are in constant peril of being damaged by firefighting operations, thus special care and consideration must be taken to protect these time tested structures when fires occur next to them.

  Many more historic assets are located throughout the Battalion, often located in more 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.

The effects of a series of annual low elevation snow falls starting in 2006 through 2011 remain a consideration for the fuels between the 1,500 and 3,000 foot elevations. These events primarily affect the live oak, black oak and bull pine, breaking off their branches and tops. This adds significantly to the amount of dry dead and down fuels in the under story and, in turn, increases the availability of "ladder fuels." This increased dead fuel loading increases the difficulty of fire control through the creation of fuel "jackpots" that burn with high intensity.

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 are 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:

Bat. 5 2010	CAIRS/Fire Plan Cause Description	Total # of Fires	Total Acres	# of Fires 10 acres or less	% of Total Fires 10 acres or less	Average Acres	Largest Fire Acres	Median Acres
0	Unknown/Unreported	28	0.00	28	100.00%	0.00	0.00	0.00
1	Undetermined	8	7.36	8	100.00%	0.92	3.00	0.50
2	Lightning	0						
3	Campfire	0						
4	Smoking	0						0.00
5	Debris Burning	13	3.39	13	100.00%	0.26	2.00	0.01
6	Arson	1	1.00	1	100.00%	1.00	1.00	1.00
7	Equipment	3	5.40	3	100.00%	1.80	4.30	1.00
8	Playing W/ Fire	5	1.09	5	100.00%	0.22	1.00	0.01
9	Misc / Other	11	4.95	11	100.00%	0.45	1.70	0.25
10	Vehicle	1	0.01	1	100.00%	0.01	0.01	0.01
11	Railroad							0.00
12	Electrical Power	1	0.10	1	100.00%	0.10	0.10	0.10
	Annual Totals:	**71**	**23.30**	**71**	**100.00%**	**0.33**	**4.30**	**0.175**

Table 5A-5

- No major or extended attack fires occurred in 2010. In light of that it is noteworthy that in 2010 CAL FIRE staffed engine companies with four firefighters. Anecdotal evidence and observations documented by Incident Commanders, confirmed the effectiveness of the additional staffing; as seen in the many initial attack successes. This resulted in lower suppression costs by preventing extended and major fire scenarios.

  The Battalion has a long history of large damaging fires that occurred before accurate records were kept after World War II. This damage was an annual event despite the efforts of an emerging fire protection system that was beginning to take shape in the early 1900's. By 1927 the Division of Forestry had been formally created, yet the summer destruction of Tuolumne County by fire remained.

  Newspaper accounts were frequent in number and detailed, describing wildfires that swept tens of thousands of acres of Tuolumne County. Sonora's Union Democrat newspaper from the week of August 10, 1929 detailed four large fires occurring in a single week with total acreage burned totaling over 30,000 acres. The Union Democrat reported that the fires,…" *laid waste in various parts of the county. In its destruction the fires destroyed many ranch houses, barns, and*

outbuildings." Many fires according to reports of that time were of incendiary origin and located in or about the remaining mining and lumber mill operations.

The fire protection "system" at the time was one State Forest Ranger supported by volunteer wardens. Firefighting work crews were comprised of Pacific Gas and Electric employees, ranchers, lumbermen, or other able bodied adults who were summoned to work by the State Forest Ranger from where ever he could find them.

More permanent records began to be kept after the end of World War II with the rapid expansion of the "Division." Historical fires occurring after 1951 in Battalion 5 are included in the table below. Interestingly, seventy five percent of these large damaging fires occurred between mid June and Mid August and more focused analysis shows a period of the first three weeks of July as being prone to having a fire escape initial attack.

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 5A-6

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. CAL FIRE's primary partner in these efforts is the Highway 108 Fire Safe Council.

Highway 108 Fire Safe Council: Since the creation of the Council in 2001, the working relationship with CAL FIRE has steadily evolved from one of only planning and concepts to a partnership that is now implementing projects and reducing fuels in areas deemed strategically important. Both the Highway 108 Fire Safe Council and CAL FIRE staff are committed to not only continuing this productive working relationship, but enhancing it further with newer opportunities. The depth of this collaboration is evident in the project and program details below.

The Highway 108 FSC is deeply integrated in all aspects of pre fire planning, funding development, project implementation, and public education. In addition to a large number of on-the-ground fuel reduction projects, the Council has been instrumental in the success of several other particularly noteworthy efforts, including: the Highway 108 Strategic Fire Planning Group; the implementation of the Tuolumne County Community Wildfire Protection Plan; and the production and distribution of high quality Public Education materials and the defenisible space "self inspection" notice forms.

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 locally developed Self-Inspection mailers throughout the Battalion, including: the greater Twain Harte, Sonora, Cedar Ridge and Phoenix Lake areas. At the time a burn permit is issued 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. A signature signifies compliance with all 4291 requirements.

  Signed and returned Self-Inspection notices are randomly selected for an inspection by engine company personnel. Violations observed are documented on form LE-100 and forwarded with the original copy of the signed self inspection form to the Prevention Bureau for further action up to citation issueance.

  Grant funding from the Highway 108 Fire Safe Council has made a reprinting of the Self-Inspection notices possible for CAL FIRE use.

Fuel Reduction / Breaks: Battalion 5 communities have benefitted from a long and vigorous history of cooperation between CAL FIRE and the Highway 108 Fire Safe Council; along with the US Forest Service and other community groups. The Battalion has a full slate of Funded/Active and Planned projects for the 2011/12 year.

- **Resource Advisory Council (RAC) Funded/Active Projects.**

  - **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 foot 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.

  - **Odd Fellows Sierra Recreation Association/Fuel Reduction-Road Maintenance** : Odd Fellows Sierra Recreation Association encompasses 400 acres near the community of Long Barn. 125 acres were developed into a park with 364 privately owned lots. 340 cabins are located in the

park. 37 homes are occupied full time by 67 residents. The others are used as vacation homes. The park has the potential of having hundreds of residents at any given time during the summer/fire season. There is only one paved road (Wheeler Road) providing emergency equipment access into of the park, and evacuee egress. The buildup of trees along the road has made it dangerous in the event of a wildfire. An abandoned county dirt road (Long Barn-Sugar Pine Road) goes through the park and exits to the East and the West. It could provide alternate entry and exit routes in the event of a fire. This project would address 64 acres along Wheeler Road and Long Barn-Sugar Pine Road East. It would reduce the buildup of brush and trees which has occurred over many years. The fuel reduction will improve public safety by reducing fuel load and offering a safe alternate route for emergency responders and evacuees out of the park to the East in the event of a wildfire.

- **Highway 108 (Plainview to Soulsbyville Road)**: Continuing fuel reduction work along Highway 108 in the Twain Harte area west to a termination point at Soulsbyville Road in Mono Vista. The project is located inside the highway right-of-way. In addition to fuel reduction, project benefits include improved visibility for driver safety, removal of shaded portions of the road surface to reduce hazardous winter driving conditions, and improving general health of small conifer trees through reduction of overstocking. This project provided connectivity to previously completed fuels reduction between the west and east entrances to Twain Harte along Highway 108 completed in late 2010.

- **Proposition 84 Bond Funded/Active Projects**

  - **Cattle Drive Phase 3/Upper Yankee Hill:** This project is located entirely on lands managed by the Bureau of Land Management. The planned reduction of fuels along this road will assure safe access by responders and egress by evacuees in the event of a wildland fire. The project area bisects the upper portion of Yankee Hill Road near the intersection of Cattle Drive Trail where prior fuel reduction work was completed through Proposition 40 bond funding. The upper portion of Yankee Hill Road is heavily overgrown with brush and trees and the roadway is narrow and one lane in many sections. The project area contains several archeological sites from the Gold Rush era mining activities. The area also is popular with the local residents for panoramic views of the Columbia area and Stanislaus River canyon country. Unfortunately, the area is also plagued by illegal dumping of household trash and other debris.

- **Federal Fuels Grant Program Funded/Active Projects**

  - **Cattle Drive Fuel Break - Maintenance:** This project will consist of cutting, piling, and burning brush that has re-grown in the Cattle Drive Fuel Break near Columbia. The fuel break was established originally under the Proposition 40 program. The project area is approximately 61 acres in

size. 40 crew days have been allotted for this project. Crew work has not started yet.

- **Sierra Outdoor School/Cedar Ridge Fuel Break - Maintenance:** This project is approximately 36 acres in size. The fuel break was originally established under the Proposition 40 program, and extends from the Sierra Outdoor School at the end of Old Oak Ranch Road to Cedar Ridge. Hand crews will cut, pile and burn brush that has re-grown in the fuel break. No work has been conducted on this project.

- **Mt. Havalia Fuel Break - Maintenance :_** This project is approximately 106 acres in size. Approximately 5 acres have been treated by cutting, piling and burning brush. 55 crew days have been allotted for this project. This fuel break was originally established in 2007 under the Proposition 40 program.

- **Turnback Creek Phase 2 Fuel Break - Maintenance:_** This project is around the Silver Spur Camp near the town of Tuolumne. It is connected to the Mt. Havalia Fuel Break by the Baker Ranch. 25 crew days have been allotted for this fuel break maintenance project. This fuel break was originally established under the Proposition 40 program.

- **2011/12 Planned Projects to be submitted for funding**

  - **East Willow Springs** : This fuel reduction project will be located south of Highway 108 in the Twain Harte area. The eastern portion of the project provides connectivity to the completed Highway 108 project near North Knox Road and is planned in several phases. The Highway 108 Fire Safe Council is considering options to obtain grant funding.

  - **East Bald Mountain Road** : Planned fuel break using East Bald Mountain Road as an approximate centerline from the former Hatler Mill site to south of Telegraph Hill, a significant communications infrastructure site. There are scattered residences along this ridgeline road system and BLM parcels of land also are included in this project area. A meeting with homeowners was conducted in early 2011 by the Highway 108 Fire Safe Council to discuss this project where planners received enthusiastic support from land owners. Funding options are being explored presently.

  - **Yerba Santa Road Phase #1** : Planned fuel reduction project is located on Yerba Santa Road which is a secondary road system intersecting with Montgomery Road. This planned treatment is part of a larger effort to treat fuels from Montgomery Road west along favorable terrain features terminating at the Pacific Gas and Electric powerhouse on Lyons Road east of Sonora. There are large naturally occurring grassland parcels in that area providing an opportunity to connect funded fuel treatments. Highway 108 Fire Safe Council is currently evaluating options for funding and application submission.

- **Completed Projects 2009/10; USFS Funded:**

  - **Montgomery Road** : A Highway 108 Fire Safe Council sponsored project using USFS/National Fire Plan grant funding. This 76 acre project in the Phoenix Lake area of east Sonora. It created a 300 foot wide shaded fuel break with Montgomery Road and the old Conklin Trail serving as the approximate centerline, This fuel treatment connects portions of Potato Ranch Road/Phoenix Lake Golf Course to Big Hill Road and Sierra Glen Apple Ranch. The project is located exclusively on private parcels of land and provides connectivity of previous fuels reduction efforts to the north of Big Hill Road on Old Oak Ranch and Sierra Outdoor School.

  - **Mt Provo/Nelles North** : This Highway 108 Fire Safe Council sponsored project was funded by a USFS/National Fire Plan grant. Located along Forest Road 2N09 in the Ponderosa Hills subdivision area, this project used a combination of mechanical and hand treatments to create a mosaic of fuel reduction along the road and surrounding terrain features. The project was designed to enhance the grading and gravel placement done in 2002 intended to develop Road 2N09 as an alternative evacuation route for Ponderosa Hills residents. Three major wildland fires have occurred in or adjacent to the project area since 1981; the most recent being the Cotton Fire which occurred in 1990 on Federal DPA.

- **Completed Projects 2009/10; Proposition 40 Bond Funded:**

  - **Highway 108 (between west and east entrances to Twain Harte)** : Highway 108 Fire Safe Council sponsored project in collaboration with the California Dept. of Transportation, using Proposition 40 Bond funding reduced ladder fuel build up along Highway 108 in the Twain Harte area. The project was located inside the highway right-of-way between the west and east entrances to Twain Harte. In addition to fuel reduction, project benefits include improved visibility for driver safety, removal of shaded portions of the road surface to reduce hazardous winter driving conditions, and improving general health of small conifer trees through reduction of overstocking.

  - **Mt. Elizabeth Drive** : Highway 108 Fire Safe Council sponsored project using Proposition 40 Bond funding to reduce ladder fuel build up along Mt. Elizabeth Drive in the Cedar Ridge area. The project is located on private parcels of land and is part of a larger effort to develop an alternative evacuation route for residents of the Cedar Ridge area subdivisions, and safe access for responders. The project is located directly adjacent to National Forest land and provides connectivity to the Sampson fuel reduction project completed by the Stanislaus National Forest.

- **Completed Projects 2009/10; Private Funding:**

  - **Twain Harte Lake Shaded Fuel Break** : This project was funded exclusively with private donations and reduced the buildup of brush and

trees on approximately 35 acres adjacent to the Twain Harte Lake. Two separate tracts of land were treated connecting a large granite rock feature that forms part of the Twain Harte Lake. This fuel reduction project also improved public safety by reducing fuel ladders that developed directly adjacent to Twain Harte Drive which serves as a main access/egress route to Twain Harte.

Strategic Planning: In March 2004 the Highway 108 Strategic Fire Planning Group (SFPG) was formed for the purpose of planning and implementing a strategic fire defense system designed to reduce the wildland fire threat to life, property, and natural resources within the northern Tuolumne County wildland urban interface zone. The Highway 108 SFPG is a collaborative effort by the following agencies and cooperators:

- Highway 108 Fire Safe Council
- USDA Forest Service, Stanislaus National Forest
- Tuolumne County Fire Department
- CAL FIRE – Tuolumne / Calaveras Unit
- Local Government Fire Agencies
- USDI Bureau of Land Management
- US Bureau of Reclamation
- Sierra Pacific Industries
- Tuolumne Band of the Me-Wuk Indian Tribe

In 2005 the Highway 108 SFPG developed and signed a Memorandum of Understanding outlining the purpose, benefits, 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 SFPG. 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 ownerships were identified. Priorities for treatments have also been addressed.

2011-12 goals of this group are to revise the original 2005 document and look for opportunities to integrate the strategic plan with the Tuolumne County Community Wildfire Protection Plan.

- The Highway 108 Strategic Plan identified three critical roles that remain the focus of the Highway 108 Fire Safe Council:
  - Continue to educate and assist individual property owners in making their privately owned property more fire resistant and their structures fire safe.
  - Serve as the formal, non-profit vehicle through which various funding sources can be secured for project implementation.

- 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.

- Tuolumne County Community Wildfire Protection Plan (CWPP) was first completed and approved by the Tuolumne County Board of Supervisors in December, 2004. This comprehensive 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, began work in 2009 to update and revise both the Hwy 108 Strategic Plan and the Tuolumne County Community Wildfire Protection Plan The goal of this effort is to modify and merge the two documents into a single guiding plan and this effort continues as of this printing.

- Tuolumne County Wildland Fire Evacuation Plan: Originally adapted in 2003 for local use, targeting the Ponderosa Hills subdivision, this plan originated as the Butte County wildland fire evacuation plan for the town of Paradise. The document has been updated subsequently as needed. The plan has been distributed county wide with the assistance of the local newspaper, a wide variety of community groups, local government fire agencies and property owner associations. The publication remains an integral part of the Battalion and Unit's public education program. Originally designed as a stand-alone document, the plan is now included in the latest revision of the publication titled, "Living With Fire". This wildland fire evacuation plan contains the critical information residents need to know regarding what to do when a wildfire occurs near you.Staff are seeking funding in 2011-12 to update and reprint this plan.

- **Public Education:** A variety of education methods are routinely employed in Battalion 5, including:

  - **Education Materials:** The Highway 108 Fire Safe Council continues to seek funding in 2011-12 to continue a very aggressive Public Education and Fire Prevention Program. Current challenges are to identify and obtain grant funding to maintain this program as stocks of the FSC-produced "Tuolumne County Wildfire Evacuation Plan" and "Living with Fire" publications, and CAL FIRE's "Why 100 Feet" among others,are now in limited supply. This program is a very important collaborative effort between the Council and all members of the Highway 108 SFPG and local Fire Districts.

  - **Community Outreach:** The Fire Safe Council and Battalion personnel continue to seek opportunities to meet with community groups such as

service clubs, home owner associations, and hobby clubs for the purpose of seeking input on fuel reduction programs and delivery of the agency's fire prevention and 4291 related messages. Participation at the Tuolumne County Fair, the local Home and Garden Show and other large public events continue to be important opportunities to spread the messages. Presentations are made to homeowner associations upon request.

- **LE-62 Burn Permit Administration**: Door yard burn permits are required for residential burning annually from May 1 until the end of the declared fire season , Burn permits are issued for a period of two years at the time of application. Burn permit administration provides agency personnel opportunities to educate the general public on safe burning techniques and the threat posed by wildland fire to their homes and businesses throughout the community

  Beginning in 2007 Battalion 5 expanded the permit issuance process in order to take full advantage of this educational opportunity. In addition to instruction on debris burning safety, uniformed personnel also provide applicants with detailed information concerning Public Resources Code 4291 compliance requirements. Applicants wanting to secure a burning permit also complete a defensible space "Self Inspection" notice., On average about 10 minutes of time is spent educating each applicant

  One result of this focused public education program is the steady decline in wildland fire ignitions in this Battalion resulting from escaped debris burns since the program started in 2007.

- **Roadside Fire Prevention Signs:** 2011 will see the addition of two new roadside fire prevention signs. These two-sided signs will be located on Highway 49 just south of the "Pedro Y" (between Columbia and Sonora) and just west of the Sullivan Creek Bridge on Highway 108 in east Sonora. These new signs will enable CAL FIRE to reach a larger segment of the local population on the need to take preventative measures to reduce wildfires.

  The program, dating back to the 1950's, was originally designed as a tool to educate the motoring public on wildfire and defensible space fire safety. Even with the advent of new technology and media, this program remains an effective way to keep CAL FIRE's fire prevention message in the public eye.

  Funding for maintenance of the existing sign and installation of new signs is being provided by the Highway 108 Fire Safe Council and CAL FIRE.

- **"Red Flag Alert" Program - "phase-in":** An analysis of historic fire causes in Battalion 5 shows that with the exception of Lightning the vast majority of fires could have been prevented. Public awareness of extreme fire danger and burning conditions is key to reducing the number of fire starts due to Debris Burning, Campfires, Equipment Use, Vehicles 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 descibed 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 caused accidentally, usually through carelessness, and that the program would serve as an effective fire prevention and detection tool. 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 occuring 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 Fire Safe Council. Intial implimentation 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*:* The ongoing close cooperation between Battalion personnel and the Unit's Law Enforcement staff in the event citations are required to gain compliance with 4291 requirements remains a priority. Citation and enforcement are critical to success and compliance of any defensible space program.

- 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 6 Pre-Fire Management Plan

Jeff Sanders – Battalion Chief

Battalion 6 Overview

Battalion 6 consists of 268,832 acres, covering the southwest portion of Tuolumne County and eastern Stanislaus County, making it the second largest Battalion geographically. It is the only Battalion in the Unit to stretch from the LRA boundary to the FRA boundary .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. (See section V, page 12 for TCFD program.) 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, Cal- Fire handles all dispatching services for the TCFD and local fire districts in Battalion 6 and throughout Tuolumne County.

Despite being the Unit's second largest Battalion geographically, the population is relatively small. The population centers for the Battalion lay along the Highway 120 corridor east 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 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: Life safety is always the first priority during fire control and other emergency operations. In addition there are numerous additional assets at risk associated with the human presence in the Groveland Battalion : homes and businesses; a wide variety of assets within the confines of large important watersheds: water collection and distribution infrastructure, electric power generation and distribution infrastructure , recreational resources and infrastructure, and commercial timber; communications and transportation infrastructures; and historical and archeological sites.

- **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. (see sect. XX for official C.A.R.list.) Also threatened by wildfire are smaller communities, subdivisions and commercial developments, including: Pine Mountain Lake, Second Garrotte, Priest, Blanchard (Don Pedro) 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.

- **Red Hills Land Management Area:** managed by the Bureau of Land Management; this unique resource consists of 7,100 acres (slightly more than 11 square miles) of federal 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 historic 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.

- **Watershed:** The Battalion provides protection for a portion of the Tuolumne River system, starting just above the confluence of the North Fork and main stem, at the DPA boundary. Noteworthy as a critical source of water and hydroelectric power for the central valley and much of the greater S.F. Bay Area, the Tuolumne is also the sole source of water for the community of Groveland. Water from the Tuolumne is collected and stored in three area reservoirs - Don Pedro, Modesto, and Turlock, where it is used for recreation and irrigation by Modesto and Turlock Irrigation Districts. Forty seven miles of the river has been designated Wild and 23 miles as Scenic by the federal government.

  Big Creek, a Tuolumne River tributary, also falls under the protection of Battalion 6. Critical as a source of domestic water supply to the Pine Mtn Lake subdivision, it also fills Pine Mtn Lake providing aesthetic and recreational value.

  The largest entity utilizing the Tuolumne River watershed is Hetch Hetchy Water And Power. They provide 260 million gallons of water daily to the greater Bay Area, and also produce power from three powerhouse's located within or in close proximity to the Battalion. Their distribution and water lines run through the entire length of the Battalion. Their administration, electrical power generating, water collection and distribution, and residential infrastructure make up the majority of the Moccassin community, another designated Community At Risk.

- **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. Hwy 120 brings tens of thousands of people into and through Battalion 6 annually. The marquee destination, Yosemite National Park, located just east of the Battalion, receives over 4 million visitors annually. A large percentage of those visitors, along with local residents, use the wide variety of recreation assets available

within the Battalion along the way: fishing, lake and river sports, hiking, cycling, touring, to name just a few.

Also at risk are a series of federally managed river parks straddling the lower Stanislaus River, including the Knights Ferry Recreation area featuring a 330 foot covered bridge built in 1863 and many historic buildings dating back to the late 1800's.

- **Cultural / Historical 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 production is second only to Tourism/Recreation in terms of economic importance to the area within Battalion 6. The top three agriculture assets in the Battalion are poultry, cow and calf production, and rangeland. All three of these are located in the western portion of the Battalion among the rolling foothills. Almond and Walnut farming are also gaining in popularity in the west, along the SRA / LRA boundary. Over the past five years orchard development and expansion has caused the SRA line to be moved eastward, removing roughly 6,000 acres from SRA designation within the Unit. As orchard operations push eastward they reduce the rangeland pasture available to fire, while at the same time remain threatened themselves along the orchard margins.

Fuels: Battalion 6 is unique in that it is the only Battalion in the Unit to extend from the LRA boundary in the west to the FRA / DPA boundary with the US Forest service in the east. 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 fuel model (#1) grass rangeland, to fuel model (#2) grass and oak woodland, to fuel model(#4) mature chamise stands, culminating in stands of fuel model (#10) 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.

The effects of a series of annual low elevation snow falls starting in 2006 through 2011 remain a consideration for the fuels between the 1,500 and 3,000 foot elevations. These events primarily affect the live oak, black oak and bull pine, breaking off their branches and tops. This adds significantly to the amount of dry dead and down fuels in the under story and, in turn, increases the availability of "ladder fuels." This increased dead fuel loading increases the difficulty of fire control through the creation of fuel "jackpots" that burn with high intensity.

Weather: Typically fire season temperatures range from the lows in the upper 50's to highs in the 90's. Periods of temperatures in the triple digits are not uncommon and can last for several days. Relative humidity runs in the mid teens to mid twenties during the daylight hours, often with poor recovery in the overnight hours. Periods of extreme heat are occasionally accompanied by single digit humidity. Prevailing winds are out of the northwest in the lower elevations below Hwy 120 and are affected by topography in the

upper elevations and are also greatly influenced by the Tuolumne river drainage. Above 3,000 ft the temperatures are often a few degrees cooler and lag behind the delta influence the lower elevations receive. During late August and September the upper reaches of the Battalion are subject to thunderstorm activity in the afternoons. This type of summer weather is ideal for wildland fire.

Fire Ignitions / Fire History:

Bat. 6 2010	CAIRS/Fire Plan Cause Description	Total # of Fires	Total Acres	# of Fires 10 acres or less	% of Total Fires 10 acres or less	Average Acres	Largest Fire Acres	Median Acres
0	Unknown/Unreported	6	0.00	6	100.00%	0.00	0.00	0.00
1	Undetermined	23	198.02	19	82.61%	8.61	68.00	1.00
2	Lightning	2	2.00	2	100.00%	1.00	1.00	1.00
3	Campfire	0						
4	Smoking	0						
5	Debris Burning	1	1.00	1	100.00%	1.00	1.00	1.00
6	Arson	7	50.20	6	85.71%	7.17	48.30	0.10
7	Equipment	5	33.24	4	80.00%	6.65	27.00	1.00
8	Playing W/ Fire	2	4.00	2	100.00%	2.00	3.00	2.00
9	Misc / Other	12	53.51	10	83.33%	4.46	18.00	2.00
10	Vehicle	0						
11	Railroad	0						
12	Electrical Power	0						
	Annual Totals:	**58**	**341.97**	**50**	**86.21%**	**5.90**	**68.00**	**1.00**

Table 5A-7

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.

Battalion 6 Mitigation Efforts

Battalion 6 is engaged in a wide variety of mitigation efforts aimed at reducing the threat of wildfire to Battalion assets. This is being done in collaboration with many cooperators including SWIFT, Yosemite Foothills FSC, USFS, BLM, Pine Mountain Lake Association, and Hetch Hetchy Water and Power, among others. It is a two pronged approach of inspections and fuel breaks.

Defensible Space Inspections: The Battalion has pursued an aggressive PRC 4291, LE-100 inspection program for a number of years.

- **Lake Don Pedro community:** The goal 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.

- **Green Springs;** A small community, 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.

- **Greater Groveland area:** is home to a large development at Pine Mountain Lake. The inspection program there is conducted by the PML Association in cooperation with CAL FIRE. Requirements are more stringent then 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. Battalion personnel in cooperation with the Groveland Community Services / Fire District plan is to inspect all areas within this portion of the Battalion on an annually rotating schedule .

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 15 miles in length. In the spring of 2011 BLM finished their portions on the Tip Top Peak section and work is continuing on the private ownership portions as agreements are completed.

- **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 12 miles in length.

- **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. Work continues on this project from all agencies involved. BLM just completed work on the section from Black Rd to Harper Rd in the Big Oak flat section in the spring of 2011.

- **Kistler Ranch VMP:** This project is in the early planning stages. It is located on the north side of Hwy 108/120 west of Jamestown the project proposes to burn approximately 1,000 acres of fuel model (2) intermixed with heavy concentrations of poison oak. This will improve the available rangeland for the property owner. It will also have a positive affect on the seasonal streams that feed into Tulloch Reservoir.

Strategic Planning: Since 1999 Battalion 6 communities have benefitted from the efforts of the SouthWest InterFace Team, aka SWIFT; a collaborative effort to provide coordination and direction to agency and community efforts to reduce the threat of catastrophic wildland fire in southern Tuolumne and northern Mariposa counties. Working closely under the SWIFT banner are the Tuolumne-Calaveras and Madera-Mariposa-Merced Units of CAL FIRE, the Stanislaus National Forest, the Bureau of Land Management, the Tuolumne and Mariposa County Fire Dept's., Hetch Hetchy Water and Power, the Yosemite Foothills and Mariposa County Fire Safe Councils, Yosemite National Park and representatives from other agencies 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. In addition to numerous fuel breaks one important outcome of SWIFT activity has been the production of a detailed Wildland Fire Pre-Attack map for use by fire control personnel and community groups.

Public Education: A variety of methods are routinely employed in Battalion 6, including:

- **LE-62 Burn Permit Administration:** The issuance of this so-called "door yard burn permit", required for residential burning during portions of the year, provides a valuable opportunity for agency personnel to educate the general public on the threat posed by wildland fire to their homes and community, in addition to the specific burn requirements. The permits are valid for a period of two years which gives us the opportunity to reeducate the public when they are renewed.

- **Campfire Permits:** Encourage all campers to obtain campfire permits. This is another important opportunity to engage the public, especially those from out of the area seeking camping and outdoors experiences within the Battalion.

- **Fire Prevention Signs:** Road-side fire prevention signs remain posted year around, carrying a variety of seasonally appropriate messages, in an effort 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 Unit's "Team Teaching" program, to promote fire prevention, awareness and safety to school age children.

- **Community Outreach:** Battalion personnel continue to seek opportunities to meet with community groups such as service clubs and home owner associations for the purpose of seeking input on fuel reduction programs and delivery of the agency's fire prevention and 4291 related messages. Interaction with the Tuolumne County Farm Bureau, for example, remains a priority as an opportunity to meet with local ranchers to exchange contact information and discuss ways to protect valuable rangeland and infrastructure from wild fire.

Law Enforcement: Continued close cooperation between Battalion personnel and the Unit's Law Enforcement staff in the event citations are needed to gain compliance with 4291 requirements is a priority. Without the full support of the Unit's LE staff, as evidenced by a willingness to issue citations, it's difficult for Battalion 4291 inspectors to maintain credibility within the community.

- **Cause Determination and Code Enforcement:** A determined effort by Company Officers and LE Staff to determine a cause for all wildland ignitions. Accurate cause determination impacts several programs beyond the confines of the Battalion (Fire history, Fire plan, agency 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 throughout the SWIFT operational area and the larger extent of Battalion 6 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.

- **Community Chipping Program:** This residential program has reduced brush, debris, and slashes throughout the region. The program began in 2007 and is funded through 2011During the life of this project we have chipped or ground hundreds of tons of flammable 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.

Hetch Hetchy Water & Power (HHW&P): The supplier of domestic water and power to the City of San Francisco, HHW&P is actively engaged in efforts to reduce the threat of fire to the watersheds from which they draw their highly valuable products.

- **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. Currently in the planning phase for implementation in 2012. The project would encompass the roughly 1,300 acres that were last burned in the fall of 2002.

- **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 line contacts; approximately 13 miles with an average width of 100' from Moccasin to the South Fork of the Tuolumne River

Pine Mountain Lake Association: Is a densely populated residential development consisting of 3,564 lots, 739 of which are unimproved. In the last 5 years they have become increasingly pro-active with their fire prevention activities. PML requires corner-to-corner clearance on ALL lots, including vacant lots; more strict than the State's 4291 regulations. Beginning in 2008 PML has hired 3 temporary inspectors to inspect every single lot. The Unit's Fire Prevention Specialist provides training for these inspectors. The Association imposes strict deadlines and levies their own fines as needed in cases of non-compliance.

The Association is also engaged in fuel reduction efforts on community greenbelt lands in cooperation with the local Fire Safe Council, in its effort to gain Firewise Community certification. Of 1,207 acres of green belt, common areas, wildlife refuge and stream beds, 475 acres have been treated as of 2011. During 2010 and 2011, 7,000 cubic yards of slash have been burned; 4,000 cubic yards of slash have been chipped; 10,000 cubic yards of composting material was worked in 2010.

Battalion 9 - Emergency Command Center

Andrew Murphy – Battalion Chief

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 2010 the TCU ECC managed 11,965 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 hours to 0800 hours year round is 1 FC on standby and 1 CO on the Command floor.

The 2011 TCU Radio Operating Plan has been updated and includes new terminology (see Appendix G). “Emergency Traffic” and “New Incident” have been redefined to become compliant with the pending 8100 Command And Control Handbook update. The narrow-banding of the White Fire frequencies and their subsequent name change to VFIRE were also added

In May 2011, the Calaveras County Board of Supervisors voted on a resolution approving a new 3 year agreement for continued CALFIRE dispatch services.

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 dispatch levels. 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 1000, 1200, 1400 and 1600 hrs. each day. A working group, consisting of the ECC Chief, Prevention Bureau Chief, the Pre Fire Engineer and a Station Captain, was established in 2009 and tasked with re-writing and verifying the FDOP. The goal of the group is to have the plan finished and have the ability to produce Unit pocket cards in 2011. Long term goals include the addition of another RAWS. Upon completion the FDOP will be added to this Fire Plan as an appendix.

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 manage incidents during times of high fire occurrence. As of the spring of 2011, additional modifications are being made to improve the TCU Lightning plan with a planned roll-out prior to August 2011. Upon completion the Unit Lightning Operations Plan will be added to this Fire Plan as an appendix.

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. As of the spring of 2011 the information contained in the ERD was being transitioned into other databases such as the OF-294 and ROSS.

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 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.

APPENDIX A: HIGH PRIORITY PRE FIRE PROJECTS

Batt	Project Number	Project Name	Status	Estimated Completion Year	Project Type	Net Acres (Approx.)
UNIT		LE-100 PRC 4291 Defensible Space Inspections	Active	Annually	Edu/Enf	
UNIT		Schools Team Teaching	Active	Annually	Edu	
UNIT		Fireworks Prevention and Enforcement	Active	Annually	Edu/Enf	
UNIT		Roadside Fire Prevention Message Signs	Active	Annually	Edu	
UNIT		LE62A-Residential Burn Permit Administration	Active	Annually	Edu	
UNIT		Battalion Structure Protection Plan	Maint.	Annually	Ops	
UNIT		Volunteers In Prevention	Active	Annually	Edu	
UNIT		Three-Part 4291/LE 100 Training	Active	Annually	Edu/Enf	
Nor. DIV.		Calaveras Co. Community Wildfire Protection Plan	Active	Annually	Admin	
Nor. DIV.		Door To Door Chipper Program	Active	Annually	Fuel Mod	TBD
Nor. DIV.		Seniors / Disabled Defensible Space Assistance	Active	Annually	Fuel Mod	TBD
Nor. DIV.		Calaveras Co. Fuel Waste Disposal Program	Active	Annually	Fuel Mod	TBD
Nor. DIV.	Federal Fuels Grant Program	Public Roadways Right-of-Way Clearance	Active	2011/Annually		TBD
Batt 1	Federal Fuels Grant Program	Gold Strike FRP	Active	2011-12	Fuel Mod	75
Batt. 2	Federal Fuels Grant Program	Union Public Utilities Dist. FRP	Active	2011-12	Fuel Mod	18
Batt. 2	Federal Fuels Grant Program	Murphys Pines Roads FRP	Active	2011-12	Fuel Mod	TBD
Batt. 3	Federal Fuels Grant Program	Winton / Shadds FRP	Active	2011-12	Fuel Mod	100
Batt. 4	Federal Fuels Grant Program	Big Trees Village FRP	Active	2011-12	Fuel Mod	17
Batt. 5	Federal Fuels Grant Program	Cattle Drive FB Maintenance	Active	2011-12	Fuel Mod	61
Batt. 5	Federal Fuels Grant Program	Sierra School / Cedar Ridge FB Maintenance	Active	2011-12	Fuel Mod	36
Batt. 5	Federal Fuels Grant Program	MT. Havalia FB Maintenance	Active	2011-12	Fuel Mod	106
Batt. 5	Federal Fuels Grant Program	Turnback Creek FB Maintenance	Active	2011-12	Fuel Mod	TBD
Batt.1		Mokelumne Hill River Canyon Fuel Break	Planning	2012	Fuel Mod	TBD
Batt.1		Hogan Lake Road Access Maintenance	Active	Annually	Fuel Mod	TBD
Batt.1		Ponderosa Way / San Antonio Creek Fuel Break	Planning	TBD	Fuel Mod	TBD
Batt. 2		Whittle VMP	Planning	2012	Fuel Mod	TBD
Batt. 3		BLM - Tiger Creek FB	Planning	2012-15	Fuel Mod	TBD
Batt. 3		BLM - Red Corral FB	Planning	2012-15	Fuel Mod	TBD
Batt. 3		BLM – Alabama Hill FB	Planning	2012-15	Fuel Mod	TBD
Batt. 3		BLM - Bald Mountain FB	Planning	2012-15	Fuel Mod	TBD
Batt. 3		Lily Gap Biomass	Planning	TBD	Fuel Mod	400
Batt. 3		Sandy Gulch Lane FRP	Planning	TBD	Fuel Mod	TBD
Batt. 3		Ponderosa Way – Mountain Ranch	Planning	TBD	Fuel Mod	TBD
Batt. 4		Moran Rd FB	Planning	TBD	Fuel Mod	TBD
Batt. 4		Fire Lookout Staffing	Planning	TBD	Ops	TBD
Batt. 5		Lower Yankee Hill Shaded FB	Planning	2011-12	Fuel Mod	TBD

Batt	Project Number	Project Name	Status	Estimated Completion Year	Project Type	Net Acres (Approx.)
Batt. 5		Mt Elizabeth Dr FB	Planning	2011-12	Fuel Mod	24
Batt. 5		Mt Elizabeth Dr Road Improvement	Planning	2011-12	Ops	TBD
Batt. 5		Odd Fellows/Sierra Recreation Association FRP	Planning	2011-12	Fuel Mod	TBD
Batt. 5		Highway 108 FRP – Plainview to Soulsbyville	Planning	2011-12	Fuel Mod	TBD
Batt. 5		Cattle Drive Phase 3/Upper Yankee Hill	Planning	2011-12	Fuel Mod	TBD
Batt. 5		Plainview Community Chipping Service	Active	Annually	Fuel Mod	
Batt. 5		East Bald Mtn FB	Concept	2012-132	Fuel Mod	TBD
Batt. 5		East Willow Springs FB	Concept	2012-13	Fuel Mod	TBD
Batt. 6		Rim Truck Trail FB	Planning	2012-13	Fuel Mod	TBD
Batt. 6		Ponderosa FB	Maint	2011-12	Fuel Mod	TBD
Batt. 6		Wagner Ridge FB	Maint	2011-12	Fuel Mod	TBD
Batt. 6		Kistler Ranch VMP	Planning	2012-13	Fuel Mod	TBD
Batt. 6		Southwest InterFace Team	Active	Annually	Admin	

Status Guide: A = Active, P = Planning, C = Completed, O = Ongoing, M = Maintenance.

APPENDIX B: UNIT STRATEGIC FIRE PLAN AMENDMENTS

Date	Section Updated	Page Numbers Updated	Description of Update	Updated By
July 25, 2011			Ver 1.0 published	B Lodge

CAL FIRE Units were asked to identify two or more priority objectives under each goal in the 2010 Strategic Fire Plan for California. The Units' priorities are identified in bold and a measurement criteria are provided for each of the identified objectives. Throughout the next year, the Units will implement the identified priorities and report on the measurement criteria by June 2012. The priority objectives are displayed under three headings:
A. SACRAMENTO PROGRAMS OR COMMITTEE ONLY
B. SACRAMENTO PROGRAMS AND STAFF OR COMMITTEE, REGIONS AND UNITS
C. UNITS ONLY
These categories are not intended to exclude Units from addressing priority objectives in any of the three categories, they are only recommendations.

A. SACRAMENTO PROGRAMS OR COMMITTEE ONLY

Goal 1: Identify and evaluate wildland fire hazards and recognize life, property and natural resource assets at risk, including watershed, habitat, social and other values of functioning ecosystems. Facilitate the sharing of all analyses and data collection across all ownerships for consistency in type and kind.

Objectives:

a) Identify and provide appropriate automated tools to facilitate the collection, analysis and consistent presentation of datasets.

Measurement Criteria: *CAL FIRE shall establish policy that specifies spatial databases covering all forest and rangeland to not be older than 10 years. Include minimum requirements for spatial databases. Follow the coordinated work schedule with the USDA Forest Service to maintain cost effective collection and processing of data.*

Goal 2: Articulate and promote the concept of land use planning as it relates to fire risk and individual landowner objectives and responsibilities.

Objectives:

a) Identify the minimum key elements necessary to achieve a fire safe community, and incorporate these elements into land use planning, CWPPs and regional, county and Unit fire plans.

Measurement Criteria: *CAL FIRE to create a working committee with CAL Chiefs, USDA Forest Service and other key organizations to develop, monitor and refine elements of fire safe community, including evacuation plans. The Committee shall review existing templates for FIREWISE Assessments, CWPPs, fire plans and land use plans; identify the common elements and approaches for better integration. Utilize fire protection, planning and engineering expertise to identify the key elements (from existing templates) necessary for fire safe communities. Once agreed upon, these key elements will then be used as a checklist to guide*

consistency in fire safe planning efforts across jurisdictions. At a minimum, annually report to the Board on results.

Goal 3: Support and participate in the collaborative development and implementation of wildland fire protection plans and other local, county and regional plans that address fire protection and landowner objectives.

Objectives:

a) Establish a working group, consisting of Board members and Departmental staff, to develop minimum standard elements for inclusion in Unit fire plans.

b) Emphasize coordination of Unit fire plans with community wildfire protection plans to encourage and support one consistent approach. Develop county or regional fire plans by bringing together community-based groups, such as fire safe councils and affected fire and land management agencies.

Measurement Criteria*: These measurement criteria meets objectives a and b. CAL FIRE to revise the template for the Unit fire plans to incorporate the goals and objectives of the 2010 Strategic Fire Plan. During the revision, the template for a CWPP will be jointly reviewed in order to reduce duplication of fire planning efforts. The key elements identified through the process identified in Goal 2, Objective b will also be incorporated into the Unit fire plan/CWPP.*

c) Create and support venues in which individual community members can be actively involved in local fire safe councils, community emergency response teams, FIREWISE and other community-based efforts to develop readiness plans and educate landowners to mitigate the risks and effects of wildland fire.

Measurement Criteria*: The California Fire Alliance to work with the California and local FSCs to develop venues (e.g., workshops) that assist landowners with readiness planning and education. CAL FIRE, California Fire Alliance Liaison to report to the Board annually on Alliance activities.*

Goal 4: Increase awareness, knowledge and actions implemented by individuals and communities to reduce human loss and property damage from wildland fires, such as defensible space and other fuels reduction activities, fire prevention and fire safe building standards.

Objectives:

a) Educate landowners, residents and business owners about the risks and their incumbent responsibilities of living in the wildlands, including applicable regulations, prevention measures and preplanning activities.

Measurement Criteria*: In coordination with the CAL FIRE Communications Program, the USDA Forest Service and local fire agencies, University of California and county cooperative extension offices, CAL FIRE to collect information on methods and effectiveness of existing outreach. Complete the information collection within year one of adoption of the 2010 Strategic Fire Plan. Develop a common set of measures to assess CAL FIRE efforts, build those into Unit fire plans and report to the Board. Report the progress of implementation at the end of year two.*

Goal 5: Develop a method to integrate fire and fuels management practices with landowner priorities and multiple jurisdictional efforts within local, state and federal responsibility areas.

Objectives:

b) Work to remove regulatory barriers that limit hazardous fuels reduction activities.

Measurement Criteria: *In conjunction with the Resource Protection Committee, CAL FIRE will develop an approach to identifying and recommending ways to address regulatory and other barriers that limit hazardous fuels reduction activities. This approach should include consultation with the Board's Interagency Forestry Working Group and with other agencies, such as the USDA Forest Service, the US Fish and Wildlife Service, the California Energy Commission, the Department of Fish and Game, regional water quality control boards, local government and the public. Finish this compilation within the first year of adoption of the 2010 Strategic Fire Plan. Based on barriers identified and recommendations for change, report to the Board starting in the second year.*

Goal 6: Determine the level of fire suppression resources necessary to protect the values and assets at risk identified during planning processes.

Objectives:

e) Initiate and maintain cooperative fire protection agreements with local, state and federal partners that value the importance of an integrated, cooperative, regional fire protection system and deliver efficient and cost effective emergency response capabilities beneficial to all stakeholders.

Measurement Criteria: *CAL FIRE to identify the number and effectiveness of agreements and partnerships. In conjunction with the Board's Resource Protection Committee, CAL FIRE will develop suggested measures of effectiveness of cooperative agreements. This should be in collaboration with its partners, completed within 18 months of adoption of the 2010 Strategic Fire Plan and reported to the Board.*

i) Provide for succession planning and employee development at all levels within CAL FIRE to maintain emergency response leadership capabilities, administrative management skills and pre-fire planning expertise.

Measurement Criteria: *CAL FIRE to revise and update the information developed in the 2005 Succession Planning meetings. This work should be completed within two years of the adoption of the 2010 Strategic Fire Plan, with annual reporting to the Board based on issues raised, including identification of key training needs, funding available and expenditures on the training program, content of Academy curricula, number of students requesting and/or able to take classes at the Academy, local community college or other educational outlets.*

B. SACRAMENTO PROGRAMS AND STAFF OR COMMITTEE, REGIONS AND UNITS

Goal 1: Identify and evaluate wildland fire hazards and recognize life, property and natural resource assets at risk, including watershed, habitat, social and other values of functioning ecosystems. Facilitate the sharing of all analyses and data collection across all ownerships for consistency in type and kind.

Objectives:

b) Engage and participate with local stakeholder groups (i.e., fire safe councils and others) to validate and prioritize the assets at risk.

Measurement Criteria: *CAL FIRE shall designate personnel as advisors/liaisons to the California Fire Safe Council (CFSC) and to each county or regional FSC. The advisors will be responsible for reporting activities to the Unit and Region. The advisor to the CFSC will report to the Board. Annual reporting of time-spent working will be displayed in hours at the Unit, Region and Headquarters level. Reporting will include activities with local FSCs, communities, watershed groups or others defining hazards and risk of wildfire and documenting these in a CWPP or Unit fire plan. Emphasize the products developed in Goal 3, Objective b. Advisors will emphasize using standard guidelines and templates for consistency throughout the state.*

Goal 2: Articulate and promote the concept of land use planning as it relates to fire risk and individual landowner objectives and responsibilities.

Objectives:

b) Assist the appropriate governmental bodies in the development of a comprehensive set of wildland and wildland urban interface (WUI) protection policies for inclusion in each county general plan or other appropriate local land use planning documents.

Measurement Criteria: *CAL FIRE to appoint a committee including Unit, Region, Headquarters and Contract County representatives. Develop a work plan that identifies key elements of improving WUI strategies, including planning. Reporting should be based on elements identified and priorities for addressing them.*

Under the Board's Resource Protection Committee, review existing Board policies as they relate to wildland fire and the relevance (ease of use, applicability) to incorporation in local general plans. Identify areas of possible improvement and update policies.

Track and report hours at the Unit, Region and Headquarters level spent in reviewing plans and projects; number of local Board/Council, Planning Commission meetings and/or meetings with other cooperators.

Goal 4: Increase awareness, knowledge and actions implemented by individuals and communities to reduce human loss and property damage from wildland fires, such as defensible space and other fuels reduction activities, fire prevention and fire safe building standards.

Objectives:

c) Increase the number and effectiveness of defensible space inspections and promote an increasing level of compliance with defensible space laws and regulations through the use of CAL FIRE staffing as available, public and private organizations, and alternative inspection methods.

Measurement Criteria: *CAL FIRE to form an advisory committee to review PRC §4291 regulations and make recommendations to the Board that will provide for consistency, streamlining and clarification of existing regulations. The Committee shall develop criteria to increase the number and effectiveness of defensible space inspections. The Committee will develop an implementation plan for the recommendations and report on progress to the Board*

Goal 7: Address post-fire responsibilities for natural resource recovery, including watershed protection reforestation, and ecosystem restoration.

Objectives:

a) Encourage rapid post-fire assessment, as appropriate, and project implementation to minimize flooding, protect water quality, limit sediment flows and reduce other risks on all land ownerships impacted by wildland fire.

Measurement Criteria: *Provide training for CAL FIRE personnel on suppression repair and damage assessment procedures. Develop standard formats and documentation templates for these assessments. Identify and use the findings to reduce the impacts of fire suppression on the landscape and improve resiliency of assets at risk from wildfire.*

C. UNITS ONLY

Goal 5: Develop a method to integrate fire and fuels management practices with landowner priorities and multiple jurisdictional efforts within local, state and federal responsibility areas.

Objectives:

h) Support the availability and utilization of CAL FIRE hand crews and other CAL FIRE resources, as well as public and private sector resources, for fuels management activities, including ongoing maintenance.

Measurement Criteria*: CAL FIRE will report to the Board on the number of crews available each year with a description of projects, including acres treated, completed by each Unit. Report the number of agreements and/or amount of funding and acres treated that involve grants or partnerships with federal agencies, resource conservation districts, local FSCs, fire districts, watershed groups or other non-profit or community groups that support the ability to carry out fuels reduction projects.*

Goal 7: Address post-fire responsibilities for natural resource recovery, including watershed protection reforestation, and ecosystem restoration.

Objectives:

e) Assist landowners and local government in the evaluation of the need to retain and utilize features (e.g., roads, firelines, water sources) developed during a fire suppression effort, taking into consideration those identified in previous planning efforts.

Measurement Criteria: *CAL FIRE (utilizing Incident Command Teams) to schedule a post-fire review of the planning documents that cover the area affected by the fire. Review the goals, objectives and projects (implemented and planned) to identify successes and failures. Review the features developed during the fire and incorporate them into the existing Unit fire plan documents. This objective will only be reported when a fire occurs in an area with an existing Unit fire plan document. Incident command teams may conduct this post fire assessment under the direction of the Unit Chief.*

D. ADDITIONAL UNIT SPECIFIC GOALS AND OBJECTIVES

Pre Fire Project Framework documentation:

- **Project Validation Checklist**
  - Risk Factors Checklist
  - Opportunity Factors Checklist
  - Treatment Influence Zone defined
  - Project Influence Zone defined

- **Geographic Information System Data**
  - Proposed Project Footprint
  - Treatment Influence Zone
  - Project Influence Zone
  - Final Project "As Built" Footprint

- **Project Status Description Record**
  - Proposed
  - Planning
  - Active
  - Completed
  - Maintenance

[6] In early development: work flow procedures; forms; map standards; field training; implementation. Target rollout is December 2011

National Fire Danger Rating System – Unit Operating Plan:

- Significant Fire / Weather History - Pocket Cards
- Significant Fire / Weather History – Indices Tracking Posters
- Fire / Weather History Based Dispatch Levels
- Fire / Weather History Based Burn Permit Administration

[7] In final development stage: Unit Pocket Cards; Dispatch level determination; burning suspension timing. Target implementation is fall 2011.

Tuolumne Calaveras Unit - Lightning Plan

6/16/2009

Table of Contents

[8] 2011 Revision in final development stage: individual Battalion specific plans. Final adoption target is August 2011

Introduction

Within the boundaries of the Tuolumne Calaveras Unit are located three primary river drainages (Mokelumne, Stanislaus, and Tuolumne) originating from the west slope of the Sierra Nevada Mountain Range. Periodically, monsoonal moisture originating from the desert southwest or Southern California will produce thunderstorm and lightning activity. While lightning caused fire occurrence is limited in this unit, there is a history of multiple lightning fire events that resulted in major fire activity such as the “Siege of ‘87” and lightning series of 1996. The same history has shown that suppression action must take place within the first burning period to prevent them from becoming major fires. This Lightning Plan has been developed to allow for the quick and effective reporting, tracking, staffing, and suppression of multiple lightning fires utilizing the Incident Command System. Utilization of this plan will also improve span of control in the San Andreas ECC when multiple fires occur. This plan can also be adapted for use during non-fire events such as snow, flood, or earthquake, where units are isolated.

Activation of the Plan

The Plan consists of three phases. The complexity of the situation dictates when each successive phase is implemented. Phases are not intended as hard fast rules of operation, but as guidelines for a smooth and orderly transition into an expanding organization required by the increasing incident work load.

Phase I – Prediction
Will be entered due to several reasons.

A predicted LAL of 3 or higher by the NWS Sacramento (Fire Weather Forecast, Fire Weather watch or warning)
Information gathered by Unit personnel of thunder cells moving towards the Unit. Example: monitoring other Units frequencies, Command Nets and Intercom. Patterns detected on the BLM Lightning Page indicating approaching cells.

Actions

☐ Notify Unit Duty Chief and Notify DC’s and BC’s via page

☐ Initiate authorization of staffing pattern, Consider:
- ☐ Lookouts
- ☐ ECC expanded or extra staffing
- ☐ Personnel to staff Lightning Coordination Areas (LCA)
- ☐ Hard covering Local Government Equipment
- ☐ Ordering OOU resources for pre-position.
- ☐ Logistics Chief and PIO for the ECC to coordinate between the LCA’s (attached to the area command)
- ☐ Check with CAAB on the availability of CWN aircraft for detection

- ☐ Depending on certainty and confidence in the forecast, consider implementing Phase III immediately.

Phase II – Cell Activity (Down Strikes)
Will go into effect when either of the following conditions exists:

- Visual observation of build-up or other indication of active cells or down strikes on CAL FIRE direct protection areas or adjacent DPA's and expected to move onto CAL FIRE DPA shortly

- The ECC is getting reports of fires.

Actions

☐ The ECC may notify the Unit that the Unit Lightning Plan is in affect.

☐ Modify the IA Dispatch from full response to a level that considers incident complexity. (Recommended: 1 Overhead, 2 CAL FIRE Engines, 1 Hand Crew or Dozer, and nearest local government fire agency)

☐ Unit Duty Chief, Unit Duty Officer and the responsible Battalion Chief(s) will continually evaluate the need to move into Phase III (LCA and Area Command Activation)

Phase III – LCA and Area Command Activation
Phase III will go into affect when the potential of overextending the ECC's capabilities is approached. This decision will be made by the Unit Duty Chief, Unit Duty Officer and affected Battalion Chief(s).

- Area Command will be formed and include:
  - AC (Unit Duty Chief)
  - Plans (ECC Chief or ECCO), or Plans Section Chief
  - Logistics Chief
  - PIO

- LCA logistics should be coordinated through the Area Command Logistics Chief in order to allow effective use of Unit support resources.

- LCA public information releases should be coordinated or routed through the Area Command PIO.

LCA Definition and Reporting Responsibility

- The Area Command and the responsible Battalion Chief(s) "IC" will develop specific geographical boundaries for any area of the Unit impacted by lightning, referred to as a Lightning Coordination Area (LCA). The coordination area may be limited to a battalion, division or any other geographical sub-division of the Unit.

- A transition time will be established for the LCA to take over dispatching for the area.

- Each LCA will have a geographic name and operate as an “incident”. The IC for each LCA will report to the Area Command. Each IC will establish an appropriate ICS organization for the LCA.

- IC’s will give incident updates to the ECC at 0700 hrs each morning and 1900 hrs each afternoon at a minimum for ICS 209 information.

- IC’s are responsible for providing all command functions within their respective LCA’s

    Minimum recommended organizational Staffing:

        - Incident Commander
        - Incident dispatcher
        - Plans
        - Logistics
        - Safety Officer
        - Operational overhead to staff incidents

Naming convention

- The IC will be responsible for naming incidents within the LCA and will work with the ECC to insure that incident numbers are assigned, and determine who will be responsible for the fire report.

- Each fire will be given a geographic name.

Detection

- Lookouts will report all smokes to the ECC.

- Air recons will be ordered by the ECC and coordinated with adjoining Units or the Forest if possible.

- Air recons will report new smokes to the ECC, Unless directed by the ECC to report to the LCA’s

Dispatch

- New incidents that are reported to the ECC will be relayed to the appropriate LCA IC or communications. The IC will assign resources as appropriate.

- The IC will be responsible for informing the ECC of any new incidents that are discovered within the LCA and will assign resources as appropriate.

- The IC will make requests to the ECC for additional resources and maintain a sufficient number of resources in reserve for new incidents.

- Dispatch functions for non-wildland fire incidents will occur as normal. IC's may need to support these incidents with LCA resources (i.e. medical aids, structure fires etc.)

- The ECC will retain all dispatching responsibilities for areas of the Unit not designated as an LCA

Escaped fires

- If a fire grows into the extended attack phase and exceeds the capability of the LCA resources the IC will request the Area Command take the incident back over

- Once the Area Command has a command organization in place a transition time will be agreed upon.

- As unit overhead resources will be severely taxed, Incident Command Team activation should be considered

Deactivation

The deactivation of an LCA will be a joint decision by the Area Command and the IC. The following should be used as guidelines:

- Most fires should be contained or in patrol status

- Sufficient IA resources will be available to the ECC

- All information pertaining to any incident in the mop-up stage will be given to the ECC

- Activity in adjoining LCA's and Unit activity will be taken into consideration

- Employee responsible for CAIRS and Preliminary reports will be reconciled

Attachment I

Lightning Activity Level

LAL 1 – No thunderstorms.

LAL 2 – Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1-5 cloud to ground strikes in a 5 minute period.

LAL 3 – Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6-10 cloud to ground strikes in a 5 minute period.

LAL 4 – Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11-15 cloud to ground strikes in a 5 minute period.

LAL 5 – Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a 5 minute period.

LAL 6 – Same as LAL 3 except thunderstorms are dry (no rain reaches the ground). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag Warning.

San Andreas Command Center

Tuolumne-Calaveras Unit

Radio Operating Plan

JUNE 2011

Scope

The Tuolumne-Calaveras Unit Radio Operating Plan shall be utilized by CAL FIRE and all Local Government Fire Agencies dispatched by the San Andreas Command Center within the administrative boundary of Tuolumne-Calaveras Unit. All cooperators utilizing any frequencies described in this document or attachments shall utilize this plan while operating as part of the Tuolumne-Calaveras Unit radio system.

Purpose

The plan is developed to comply with FIRESCOPE as well as provide common procedures and understanding of the communication system deployed in the Tuolumne-Calaveras Unit.

Procedure

Dispatch Frequency – TCU Local

This frequency will be used primarily as a method of communicating new emergencies and unit announcements as well as the primary command frequency when another is not assigned. Resource Units not assigned to an incident shall monitor this frequency.

The closest resources will be dispatched to all incidents in conformance with the standard response plan and local agreements. Resources in the vicinity of an

incident shall proceed in the direction of the incident. If they are not dispatched, they will advise the ECC of their location and availability after the dispatch is completed on the dispatch frequency. The ECC will advise whether they are to continue.

Primary Use

1. ECC dispatch of New Incidents
2. Field Report of New Emergency Incidents (See Emergency Traffic)
3. Lookout Smoke Reports
4. System Status Management assignments (i.e. Move-up / Cover)
5. ECC announcements
6. Fire Weather

Secondary Use

Secondary use of the dispatch frequency is limited to initial contact with another unit or station. This contact shall be limited to directing further communication needs via other frequencies or modes of communication (i.e. phone, pager, cell etc.).

Secondary uses of the dispatch frequency require prior authorization from the ECC for routine traffic.

Example:

Engine 4462: **"San Andreas, Engine 4462, is the air clear for routine traffic?"**

San Andreas: **"Engine 4462, affirmative"**

Command Frequency

This frequency will be used as a method of communicating while responding to emergencies and unit status changes. Units assigned to an incident and not at scene or staging shall monitor this frequency. The Incident Commander shall monitor the command frequency at all times. The command frequency will be designated by the geographical location of the incident for units assigned to the incident.

Secondary Use

Secondary use of the command frequency includes essential routine or administrative traffic and shall not interfere with emergency communications.

Tactical Frequency

This frequency will be used as a method of communicating while at the scene of emergencies. Units at scene or staging at an incident shall monitor the assigned tactical frequency. Incident Commanders shall monitor the assigned tactical frequency at all times. Tactical frequencies are approved for use in Tuolumne-Calaveras Unit and shall only be used as assigned by the ECC for incidents. If there is a need for a tactical frequency for training, there is no need to ask the ECC unless several incidents are using tactical frequencies already. The preferred tactical frequencies for training/drills are VTAC 11, VTAC 12, and VTAC 13. (See Attachment B)

Exception

Units assigned to staging for the purposes of scene security shall remain on the command frequency.

VFIRE

In Spring 2011, the White 2 and White 3 channels were narrow-banded, and the names were changed to VFIRE 22 and VFIRE 23. Additionally, VFIRE 26 will be added as a new Fire Interoperability tactical channel. The White 2 and White 3 naming conventions will no longer be used on incidents in California, effective June 1, 2011. White Fire 1 will stay the same until the end of 2012.

Aviation Frequencies

Aviation frequencies are no longer being assigned by Unit, instead they are now assigned by Air Base. The frequency is based on the zone of influence for the aircraft. Air Tactics 22 is the default frequency for the Columbia Air Attack Base.

LRA / MTZ Response

When responding to an LRA / MTZ incident, responding resources need to switch to the appropriate county's command frequency once entering Stanislaus or San Joaquin County. Each resource then must come up on that command frequency with its identifier and state which incident they are responding to. Each resource will remain on that assigned command and tactical frequency until released by the IC.

SRA Response to San Joaquin and Stanislaus Counties

The ECC will advise Stanislaus and San Joaquin County dispatch the incident number, command frequency, tactical frequency, and IC designator for their responding resources. Once responding, cooperating agencies must come up

on the command frequency with its identifier and state which incident they are responding to. Each resource will remain on the assigned command and tactical frequencies until released by the IC.

Incident Commander

The incident commander shall be assigned as follows:

1. ECC Officer - The ECC Officer shall be the IC until the arrival of the first qualified officer/unit.

2. Air Attack Officer - The air attack officer may be designated as IC until another qualified officer/unit arrives at the scene

3. Ground Attack Officer/Unit - The first qualified Officer/unit or chief officer who arrives at the scene will normally assume the IC from either the ECC Officer or the Air Attack Officer at an incident.

4. Authority Having Jurisdiction - The first qualified Officer/unit or chief officer from the authority having jurisdiction may assume the IC of an incident as incident needs dictate.

5. Upon arrival of the first IC, the ECC will advise that person and all additional resources assigned to that incident of that fact plus repeat the tactical frequency and time by broadcast announcement. If the role of Incident Commander changes during an incident, the ECC will broadcast the update to all units on the incident preceded by two-alert tones. A ranking officer arriving at scene (after assessing the necessity) has the authority to state "No change in command" or "Assuming command."

6. The Incident Commander is responsible for all units at scene.

Emergency Traffic

The following incident shall be prefaced by the use of the phrase **"Emergency Traffic".**

- **You or your crew are in peril and require an emergency response to your location.**

New Incident

The following incidents shall be prefaced by the use of the phrase **New Incident".**

- **You discover a new incident while responding to another incident.**

- **You receive a walk-in or phone-in report of an incident that you are responding to.**

Priority Traffic

The following incident shall be prefaced by the use of the phrase **"Priority Traffic."**

- **A non-emergency urgent message having precedence over routine traffic.**

Routine Traffic

The following incident shall be prefaced by the use of the phrase **"Routine Traffic."**

- **Resource status, or a non-emergency message.**

No other terminology prefaced with the word traffic is approved. (i.e. "urgent traffic," etc.)

Status Change

The ECC shall be advised of status changes on the appropriate command frequency. This may include a change in status by the Incident Commander when assigned to an incident or a change in the response area or location of a unit. The ECC does not require notification of equipment movement within a station's response area unless there will be a **15** minute delay or more. When a resource advises of a "delayed response" status, the ECC will acknowledge with the unit identifier and time. The ECC will reflect the status change in CAD. When you put yourself on a delay, you may be passed over for multiple other resources because on a delay you are unavailable in CAD even though you are still closer. The company officer is also responsible for notifying the ECC when back on normal response. As always, when you hear a dispatch and think you are the closest available resource, notify the ECC on the Dispatch frequency.

Move-Up/Cover

The ECC will be responsible for maintaining appropriate resource coverage in the Unit at all times. The ECC will immediately consider a Move-Up/Cover at the conclusion of each dispatch and thereafter as additional resources are committed and/or released. The ECC will consider the length and probability of commitment in addition to the location and ETA of cover units when assigning coverage.

Move-Up/Cover assignments will be made on the dispatch frequency. Cover assignments shall be made utilizing the individual tone of the station or engine to be moved on the Dispatch Frequency. The ECC may utilize the TCU ALL CALL between the hours of 0700 to 2100 when 4 or more stations need to be identified. The ECC shall announce to stations, equipment, and personnel to cover the appropriate stations as necessary. Units assigned will acknowledge their Move-Up/Cover location upon arrival if it is not their normally assigned station. Units will continue to monitor the dispatch frequency for new assignments/emergencies.

Example

Dispatch Frequency

San Andreas: "Engine 4473, cover Valley Springs Station. West Point Station, one engine cover Headquarters. Copper Fire Personnel, cover your station with a Type III Engine 4.0."

Engine 4473:"San Andreas Engine 4473 in quarters Valley Springs Station."

Personnel covering a station shall advise the ECC on the Dispatch Frequency or landline when equipment has been staffed. Personnel may be asked to maintain staffing if Unit coverage will be adversely impacted.

Units Staffed as a Result of a Call Back

Resources shall indicate their staffing level and geographic location upon staffing. Units shall acknowledge the directive (respond or cover assignment) given by the ECC.

Pre-Alert

All incidents involving CAL FIRE and/or Local Government Fire Agencies (dispatched by San Andreas ECC) in Tuolumne and Calaveras Counties will be pre-alerted on TCU Local Net (Dispatch Frequency). The pre-alert may include additional simul-selected frequencies based on the incident location and needs.

Example:

San Andreas: Three-alert tone, "West Point, Medical Aid 1234 Main Street"

Radio silence shall be maintained on the dispatch frequency between the pre-alert and the tones of an incident except in the case of new emergency traffic.

Tones

The ECC will tone individual units when the quantity of dispatched resources is four or less per dispatch. When the quantity of dispatched resources exceeds this level, the group page can be used. When receiving a group page, field units should recognize that they might not be dispatched to the incident. The TCU ALL CALL will not be used from 21:00 – 07:00 unless for a Unit wide message. The TUOLUMNE COUNTY ALL CALL and CALAVERAS COUNTY ALL CALL however, may be utilized at all hours. Radio silence shall be maintained between the tones and the dispatch of an incident except in the case of emergency traffic.

Check Back

Resources dispatched to an incident shall acknowledge their response to the incident when requested by the ECC on the appropriate command frequency during the incident check back. Resources responding to an incident that were not on the initial dispatch shall advise the ECC after the check back of their status. The ECC will then determine if it's appropriate to modify the dispatch for those units. Resources responding to incidents shall monitor the command frequency while responding. Typically, a check back occurs within 3 minutes of the initial dispatch during the day and 6 minutes after the initial dispatch at night. Exceptions to resources waiting for check back shall be limited to 1) Units arriving at the scene prior to check back, 2) Units having information that may change the configuration of the response, or 3) A brief report on conditions by the first arriving unit.

Life/Safety Alert

Life safety alert will follow CAL FIRE 8100 Handbook Procedure No. 002. The three alert tones identified in the policy will be used during a life/safety announcement such as "lines down." <u>All units shall acknowledge receipt of the announcement by repeating the hazard during a check back</u>.

<u>Example:</u>

San Andreas: "Engine E4475 Response Check Back And Acknowledge Power Lines Down"

Engine 4475: "Engine 4475 Acknowledges Power Lines Down."

Command

Communications from incidents will normally be from the IC to the ECC on Initial Attack incidents. Extended attack incidents may have other communication protocols established and an incident specific command frequency should be requested by the ECC (i.e. CMD I, CMD II) or IC. The exception to this is when reporting a Life/Safety Alert and the IC or Line Supervisor is not reachable. A field unit may have direct contact to the ECC in that event.

Resource Identifier

Use your FULL resource identifier for all radio traffic. Example, "Engine 4455", not "4455" or "55".

Staging

Resources arriving at staging shall advise the ECC on the command frequency. Units assigned to staging for the purposes of scene security on violent crime scene incidents shall remain on the command frequency so as to facilitate future communications with the ECC. Units staged for all other purposes shall switch to the tactical frequency assigned and communicate via the ICS system at the incident, while monitoring the command frequency.

At Scene

Resources arriving at scene shall advise the ECC on the command frequency prior to switching to the tactical frequency. Additionally, there is no need for responding units to state, "…at scene switching to tac". It is already known that units arriving at the scene of an incident are expected to switch to the assigned tactical frequency.

Expediting Resources

Requesting cooperating agencies and vendors to **"Expedite"** does more to alert responders of a situation rather than to **"Expedite"** anything. A current typical request may sound like:

Main IC: **"San Andreas, Main IC, expedite PG&E"**

Requests from this point forward will sound like:

Main IC: **"San Andreas, Main IC, notify PG&E we have lines down with fire and will not take action until they arrive.**

Air Ambulance Operations

When protocol or initial report of conditions warrants, an air ambulance will be dispatched. The ECC will usually request an air ambulance to the scene or a known approved helispot nearby. If responding units determine there is a more appropriate helispot they will advise the ECC on the command frequency and the incoming air ambulance will be advised. The ECC will assign an LZ name. That name will be given by its location if it is approved LZ or mimic the incident name if at an incident. A helispot manager will be assigned by responding fire personnel unless in another jurisdiction. The helispot manager will switch to Cal-Cord for all traffic with the incoming air ambulance. If Cal-Cord is not available, any high band tactical frequency may be used as assigned by the ECC. The ECC is to be advised when the air ambulance has landed, when they lift off, and their destination (even if it is to return to base).

Initial Report of Conditions

When the first unit arrives at scene it is their responsibility to give an initial report of conditions using the following guidelines:

Structure fire

Confirm location, product of combustion (example: fire, light/heavy smoke, nothing showing), location of fire within structure, type of structure (single story, two story office building, etc.), initial action, and resource needs.

Vegetation fire

Confirm location, size of fire in acres, type of fuel, topography, wind direction, rate of spread, initial action, and resource needs.

Hazardous materials:

Confirm location, type of carrier transporting hazardous material if appropriate, whether incident is moving or static (spill confined or moving, cloud moving and its direction), if fire is involved, determine the materials involved (identify name, state (liquid, solid, gas), containers, quantity, ascertain the correct DOT numbers), and initial action.

Medical aid:

Confirm medical need. Request additional medical resources or cancel medical resources ASAP.

Traffic collision:

Location, number of vehicles involved, roadway blockage, injuries, additional needs, commitment time of units, and commitment of the medic unit. As a reminder, CHP orders the tow vehicles.

Disaster:

Confirm location and extent, confirm incident type, establish with ECC the correct disaster operating plan.

Can Handle with units “At Scene”/ Call Cancelled

When the ECC is notified of a “Can handle with units at Scene” or when a call is cancelled, the ECC will announce the cancellation on the Dispatch and Command Frequency proceeded by a two-alert tone.

Example:

San Andreas: Two-alert tone, "The following units on TCU#1234 can cancel, Engine 4455…"

Available at Scene

Incident Commanders shall notify the ECC as soon as practical when units are available at scene. Units available at scene shall monitor the dispatch frequency and may be redirected to a new incident or Move-Up/Cover location.

Operational Summary

Units not assigned to incidents should scan the dispatch frequency as priority when monitoring additional command and tac frequencies.

Contacting the ECC

When contacting the ECC via radio; state your full identifier, frequency, and tone at the beginning of your transmission while out of normal response area.

Example:

E4483: "San Andreas Engine 4483 Local Tone 2"

****

TCU Local Tone Locations

Tone 1 – Sierra Vista. – Mountain Ranch / San Andreas Area / Mokelumne Hill
Tone 2 – Bear Mountain – Valley Springs / Jenny Lind Area
Tone 3 – Fowler Peak – Murphys / Altaville / Copperopolis Area / San Andreas
Tone 4 – Penon Blanco – Don Pedro Area
Tone 5 – Blue Mountain – Arnold / West Point Area / MiWuk
Tone 6 – Liberty Hill – Bear Valley / Pinecrest Area
Tone 7 – Telegraph Hill – Twain Harte / Sonora / Jamestown Area / MiWuk
Tone 8 – Mt. Lewis – Highway 108 Between Twain Harte & Pinecrest

Attachment A

IDENTIFIER	*RX*	*TX*
CONSOLE CHANNELS		
TCU Local Net (Rx Tone:136.5)	151.1750	159.4500
CDF Command 1	151.3550	159.3000
CDF Command 2	151.2650	159.3300
CDF Command 5 (NB)	151.3175	159.3525
TLU Command (NB)	151.1300	158.6925
Travel Net (CESRS)	153.7550	154.9800
OES Fire Net	154.2200	159.1350
Air Guard (Telegraph) (110.9 Tone) (NB)	168.6250	168.6250
White Fire 1	154.2800	154.2800
RECEIVE ONLY CONSOLE CHANNELS		
Air Tactics 4 (NB)	151.2800	
Stanislaus CO Fire	153.7700	
Stanislaus NF Ops Net (NB)	168.7500	
Amador Command	153.9350	
Calaveras CO SO	45.3200	
MMU Local Net	151.4600	
AEU Local Net	151.1900	
OTHER FREQUENCIES		
Air Tactics 1 (NB)	166.6750	166.6750
Air Tactics 2 (NB)	169.1500	169.1500
Air Tactics 3 (NB)	169.2000	169.2000
Air Tactics 4 (NB)	151.2800	151.2800
Air Tactics 5 (NB)	151.2950	151.2950
Air Tactics 6 (NB)	151.3100	151.3100
Air Tactics 21 (NB) (Do Not Use w/CMD2)	151.2725	151.2725
Air Tactics 22 (NB)	151.2875	151.2875
Air Tactics 23 (NB)	151.3025	151.3025
CDF Tac 2	151.1600	151.1600
CDF Tac 5	151.2500	151.2500
CDF Tac 8	151.3700	151.3700
VFIRE 22	154.2650	154.2650
VFIRE 23	154.2950	154.2950
Calcord	156.0750	156.0750
TLU Tac (NB) (Rx and Tx Tone of 136.5)	155.4900	155.4900
Cal Tac (Rx and Tx Tone of 136.5)	153.8150	153.8150
CDF Air to Ground (NB)	151.2200	151.2200
CAAB Victor Frequency (Base Frequency)	123.9750	123.9750
VTAC 11 (NB)	151.1375	151.1375
VTAC 12 (NB)	154.4525	154.4525
VTAC 13 (NB)	158.7375	158.7375
VTAC 14 (NB)	159.4725	159.4725

Attachment B

CALAVERAS COUNTY		
	COMMAND NET	
CDF Command 2	Mt Zion Tone 2	North County
CDF Command 2	Telegraph Tone 6	South County
CDF Command 1	Telegraph Tone 6	South County
CDF Command 5	Fowler Tone 9	South County
	TACTICAL NET	
1st Choice	CDF Tac 8	151.3700
2nd Choice	CDF Tac 2	151.1600
3rd Choice	CDF Tac 5	151.2500
4th Choice	VFIRE 22	154.2650
5th Choice	VFIRE 23	154.2950
6th Choice	VTAC 11	151.1375
7th Choice	VTAC 13	158.7375
VTAC 11 and VTAC 13 are in Grp. 3 Chan. 138 and 140 on the Kenwood		
Local Use Only	Cal Tac	153.8150
Cal Tac can only be used in Calaveras County and only by TCU and Local Agency Equipment. No out of unit equipment has this frequency.		

TUOLUMNE COUNTY		
	COMMAND NET	
CDF Command 1	Telegraph Tone 6	North County
CDF Command 2	Telegraph Tone 6	North County
CDF Command 2	Penon Blanco Tone 8	South/Blanchard
TLU Command	Fowler Tone 3	North County
TLU Command	Telegragh Tone 7	North County
TLU Command	Mt Lewis Tone 8	East/Hwy 108
	TACTICAL NET	
1st Choice	CDF Tac 2	151.1600
2nd Choice	CDF Tac 8	151.3700
3rd Choice	CDF Tac 5	151.2500
4th Choice	VFIRE 23	154.2950
5th Choice	VFIRE 22	154.2650
6th Choice	VTAC 11	151.1375
7th Coice	VTAC 13	158.7373
VTAC 11 and VTAC 13 are in Grp. 3 Chan. 138 and 140 on the Kenwood		
Local Use Only	TLU Tac	155.4900
Tuolumne Tac can only be used in Tuolumne County and only by TCU and Local Agency Equipment. No out of unit equipment has this frequency.		

San Joaquin Co		
1st Choice	CDF Tac 8	151.370
2nd Choice	CDF Tac 2	151.160
3rd Choice	VFIRE 23	154.295
4th Choice	VFIRE 22	154.265

Stanislaus County		
1st Choice	CDF Tac 2	151.160
2nd Choice	CDF Tac 8	151.370
3rd Choice	VFIRE 22	154.265
4th Choice	VFIRE 23	154.295

Attachment C

Clear Text

The following are commonly used clear text terminology and phrases used by TCU.

Affirmative	Dispatch Frequency	Person Down
Air Ambulance	Disregard last message	Possible Suicide
All Clear	Emergency Traffic	Reduce the Assignment
At Scene	Emergency Traffic Only	Repeat
Automatic Aid	En Route	Report on Conditions
Available	Extrication	Return to _____
Available at Scene	Fire Contained	Respond or Responding
Available in Quarters	Fire Out on Arrival	Respond PD/Respond SO
Available in Residence	Fire Reported Out	Resume Normal Traffic
Available in Response Area	Fire Controlled	Routine Traffic
Burning Operations	Helispot Manager	Stand-by
Call _____ by Phone	In Service	Stop Transmitting
Can Handle	In Quarters	Structure Fire
Cancel	Loud and Clear	Tactical Frequency
Check for Extension	Medic	Uncovered
Command Frequency	Mutual Aid	Unreadable
Copy	Negative	Upgrade the Assignment
Coroner Case (1144)	No Sign of Extension	Vegetation Fire
Delayed Response	Out of Service	Weather
		What is your location?

Approved Abbreviations for "Clear Text"

ALOC	Altered Level of Consciousness
DPA	Direct Protection Area
HBD	Has Been Drinking
ETOH	Ethanol Alcohol (Intoxicated)
FRA	Federal Responsibility Area
LRA	Local Response Area
MCI	Multi-Casualty Incident
MTZ	Mutual Threat Zone
PD	Police Department
SO	Sheriff's Office
SRA	State Response Area
UTL	Unable to Locate
1144	Confirmed Coroner's Case

The following are commonly used radio identifiers of Fire resources or overhead used in the Incident Command System (ICS), which is adopted statewide:

Air Attack	Division	Logistics	Strike Team
Air Ambulance	Dozer	Medic	Supply
Air Unit	Dozer Tender	Operations	Tanker
Ambulance	Engines	Patrol	Task Force
Battalion	Group	Plans	Training
Branch	Finance	Prevention	Transport
Chief	Hazmat	Recon	Truck
Copter	Helitack	Repair	Utility
Crew	Helitender	Rescue	Water Tender
Decon	IC	Safety	
Dispatch	Lead Plane	Staging	

The following is the phonetic alphabet adopted for Fire Service use:

A-Alpha	G-Golf	M-Mike	S-Sierra	Y-Yankee
B-Bravo	H-Hotel	N-November	T-Tango	Z-Zulu
C-Charlie	I-India	O-Oscar	U-Uniform	
D-Delta	J-Juliet	P-Papa	V-Victor	
E-Echo	K-Kilo	Q-Quebec	W-Whiskey	
F-Foxtrot	L-Lima	R-Romeo	X-X-Ray	

This Will Be The Unit Map

Figure A: Unit Map

This Will Be The Batt 1 Map

Figure B: Battalion 1

This Will Be the Battaion 2 map

Figure C: Battalion 2

This will be The Batt. 3 Map

Figure D: Battalion 3

This Will be the Batt 4 map

Figure E: Battalion 4

This will be the Batt 5 Map

Figure F: Battalion 5

This will be the Batt 6 Map

Figure G: Battalion 6

Figure H: Radio Repeater System

ADDENDUM: 2012

Figure A T/C Unit Map

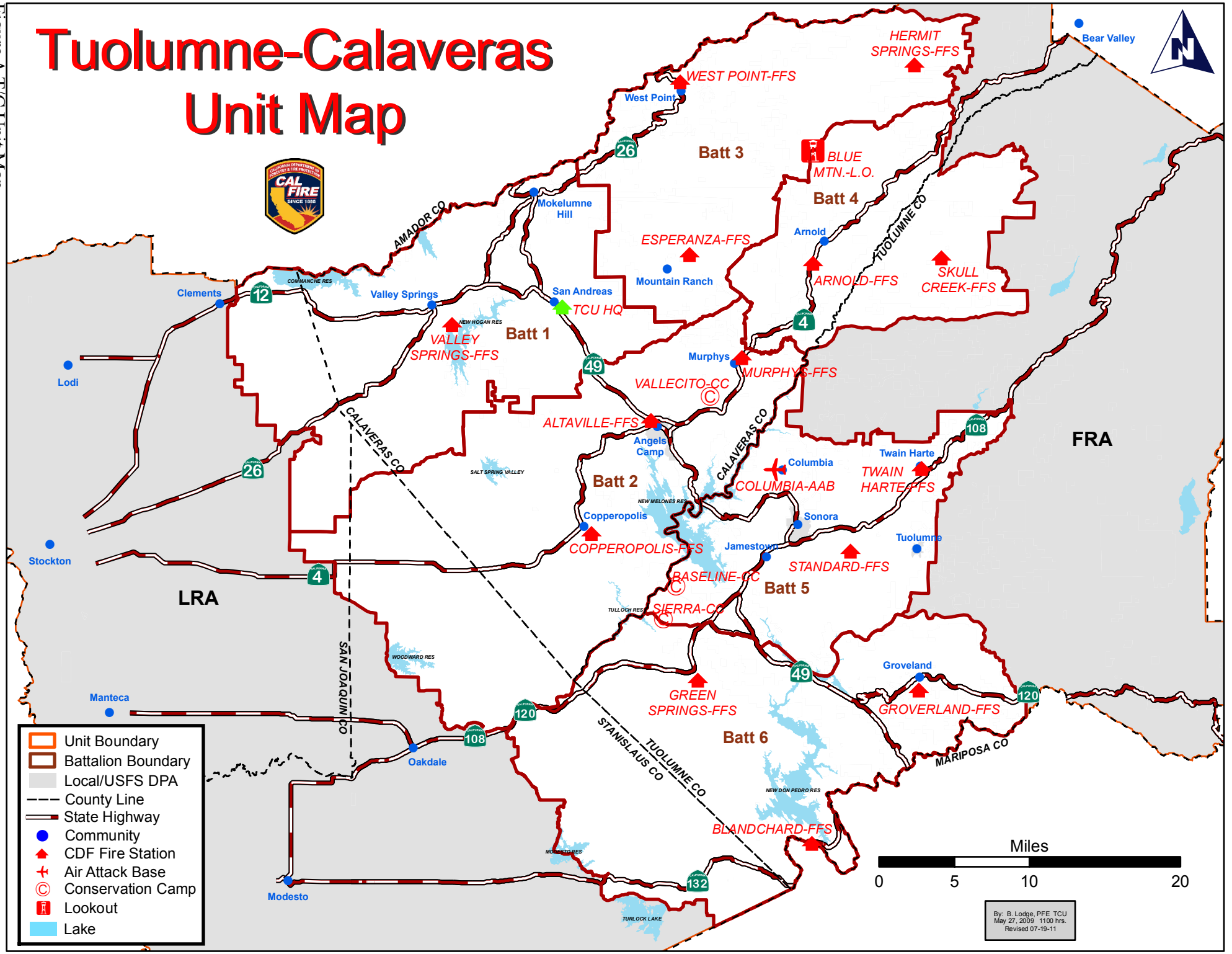


Figure B Battalion 1

Tuolumne-Calaveras Battalion 1

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
CAL FIRE
SINCE 1885

AMADOR CO

Mokelumne Hill

Batt 3

ESPERANZA-FFS

Mountain Ranch

COMANCHE RES

Clements

CALIFORNIA 12

Valley Springs

San Andreas

TCU HQ

SAN JOAQUIN CO

VALLEY SPRINGS-FFS

NEW HOGAN RES

Batt 1

CALIFORNIA 26

CALIFORNIA 49

ALTAVILLE-FFS

Angels Camp

Batt 2

CALIFORNIA 4

SALT SPRING VALLEY

CALAVERAS CO

STANISLAUS CO

NEW MELONES RES

Copperopolis

CALIFORNIA 26

Unit Boundary
Battalion Boundary
Local/USFS DPA
Fire History 1950-2010
100 plus acres minimum
County Line
State Highway
Community
CDF Fire Station
Air Attack Base
Conservation Camp
Lookout
Lake

Miles
0 1 2 4

By: B. Lodge, PFE TCU
July 21, 2011
1543 Hours

Figure C Battalion 2

Tuolumne-Calaveras Battalion 2

Batt 1

Batt 2

Batt 3

Batt 5

Batt 6

LRA

TCU HQ

Murphys

MURPHYS-FFS

VALLECITO-CC

ALTAVILLE-FFS

Angels Camp

CALAVERAS CO

Columbia

COLUMBIA-AAB

SALT SPRING VALLEY

NEW MELONES RES

Copperopolis

COPPEROPOLIS-FFS

Sonora

Jamestown

STANDARD-FFS

BASELINE-CC

SIERRA-CC

TULLOCH RES

WOODWARD RES

GREEN SPRINGS-FFS

STANISLAUS CO

TUOLUMNE CO

SAN JOAQUIN CO

CALIFORNIA 4

CALIFORNIA 49

CALIFORNIA 26

CALIFORNIA 120

CALIFORNIA 108

Unit Boundary
Battalion Boundary
Local/USFS DPA
Fire History 1950-2010
100 plus acres minimum
County Line
State Highway
Community
CDF Fire Station
Air Attack Base
Conservation Camp
Lookout
Lake

By: B. Lodge, PFE TCU
July 21, 2011
1543 Hours

1:175,000

Miles
0 1 2 4

Figure D Battalion 3

Tuolumne-Calaveras Battalion 3

Unit Boundary
Battalion Boundary
Local/USFS DPA
Fire History 1950-2010
100 plus acres minimum
County Line
State Highway
Community
CDF Fire Station
Air Attack Base
Conservation Camp
Lookout
Lake
1:150,000

Miles
0 1 2 4

WEST POINT-FFS
West Point
HERMIT SPRINGS-FFS
AMADOR CO
BLUE MTN.-L.O.
Batt 3
Batt 4
Mokelumne Hill
TUOLUMNE CO
Arnold
ESPERANZA-FFS
Batt 1
ARNOLD-FFS
SKULL CREEK-FFS
Mountain Ranch
San Andreas
TCU HQ
VALLEY SPRINGS-FFS
NEW HOGAN RES
Batt 2
Murphys

By: B. Lodge, PFE TCU
July 22, 2011
1008 Hours

Figure E Battalion 4

Tuolumne-Calaveras Battalion 4

Batt 3

Batt 4

Batt 2

BLUE MTN.-L.O.

Arnold

ARNOLD-FFS

ESPERANZA-FFS

Mountain Ranch

Murphys

MURPHYS-FFS

SKULL CREEK-FFS

FRA

TUOLUMNE CO

CALAVERAS CO

CALIFORNIA 4

CALIFORNIA 108

Unit Boundary
Battalion Boundary
Local/USFS DPA
Fire History 1950-2010
100 plus acres minimum
County Line
State Highway
Community
CDF Fire Station
Air Attack Base
Conservation Camp
Lookout
Lake

1:125,000

Miles
0 1 2 4

By: B. Lodge, PFE TCU
July 22, 2011
1016 Hours

Figure F Battalion 5

Tuolumne-Calaveras Battalion 5

MURPHYS-FFS

VALLECITO-CC

ALTAVILLE-FFS

Angels Camp

Batt 2

TUOLUMNE CO

Columbia

COLUMBIA-AAB

Batt 5

Twain Harte

TWAIN HARTE-FFS

FRA

CALIFORNIA 49

Sonora

CALIFORNIA 108

COPPEROPOLIS-FFS

CALAVERAS CO

Jamestown

NEW MELONES RES

STANDARD-FFS

Tuolumne

BASELINE-CC

TULLOCH RES

SIERRA-CC

Batt 6

Groveland

Miles

0 1 2 4

Unit Boundary
Battalion Boundary
Local/USFS DPA
Fire History 1950-2010
100 plus acres minimum
County Line
State Highway
Community
CDF Fire Station
Air Attack Base
Conservation Camp
Lookout
Lake

1:125,000

By: B. Lodge, PFE TCU
July 22, 2011
1044 Hours

Figure G Battalion 6

Tuolumne-Calaveras Battalion 6

Jamestown

STANDARD-FFS

Tuolumne

FRA

S RES

BASELINE-CC

TULLOCH RES

Batt 5

Batt 2

SIERRA-CC

CALIFORNIA 120

CALIFORNIA 108

GREEN SPRINGS-FFS

Groveland

CALIFORNIA 120

GROVERLAND-FFS

TUOLUMNE CO

STANISLAUS CO

CALIFORNIA 49

Batt 6

NEW DON PEDRO RES

MARIPOSA CO

LRA

BLANDCHARD-FFS

MODESTO RES

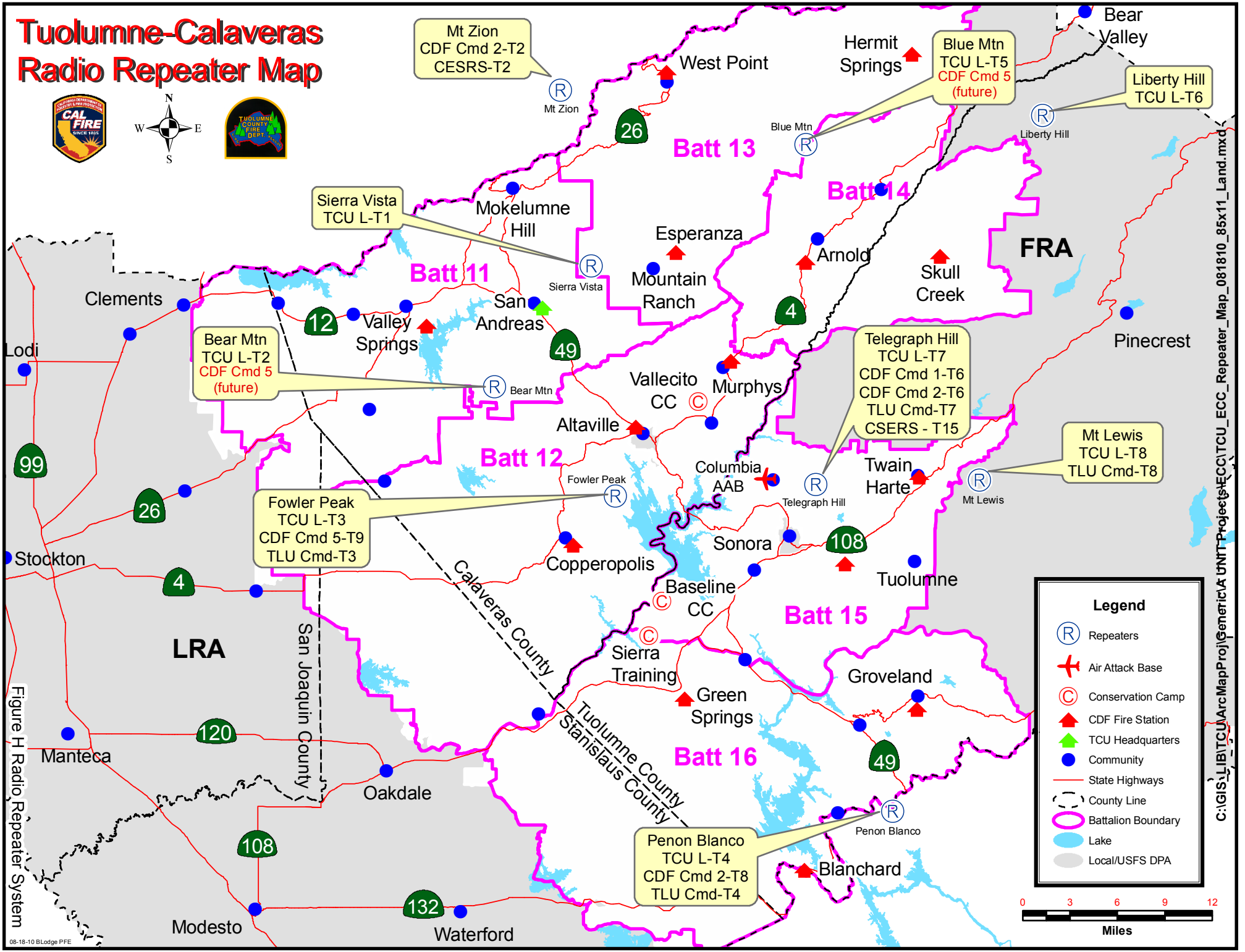
CALIFORNIA 132

By: B. Lodge, PFE TCU
July 22, 2011
1058 Hours

Miles
0 1.25 2.5 5

Unit Boundary
Battalion Boundary
Local/USFS DPA
Fire History 1950-2010
100 plus acres minimum
County Line
State Highway
Community
CDF Fire Station
Air Attack Base
Conservation Camp
Lookout
Lake

1:150,000


Tuolumne-Calaveras
Radio Repeater Map
Mt Zion
CDF Cmd 2-T2
CESRS-T2
Mt Zion
West Point
Hermit Springs
Blue Mtn
TCU L-T5
CDF Cmd 5
(future)
Blue Mtn
Bear Valley
Liberty Hill
TCU L-T6
Liberty Hill
Batt 13
Batt 14
Sierra Vista
TCU L-T1
Sierra Vista
Mokelumne Hill
Esperanza
Mountain Ranch
Arnold
Skull Creek
FRA
Batt 11
Clements
Valley Springs
San Andreas
Pinecrest
Lodi
Bear Mtn
TCU L-T2
CDF Cmd 5
(future)
Bear Mtn
Vallecito
CC
Murphys
Telegraph Hill
TCU L-T7
CDF Cmd 1-T6
CDF Cmd 2-T6
TLU Cmd-T7
CSERS - T15
Altaville
Batt 12
Columbia
AAB
Twain Harte
Mt Lewis
TCU L-T8
TLU Cmd-T8
Mt Lewis
Fowler Peak
Fowler Peak
TCU L-T3
CDF Cmd 5-T9
TLU Cmd-T3
Telegraph Hill
Stockton
Sonora
Copperopolis
Tuolumne
Baseline
CC
Batt 15
Calaveras County
LRA
San Joaquin County
Sierra
Training
Groveland
Green Springs
Tuolumne County
Stanislaus County
Batt 16
Figure H Radio Repeater System
Manteca
Oakdale
Penon Blanco
TCU L-T4
CDF Cmd 2-T8
TLU Cmd-T4
Penon Blanco
Blanchard
Modesto
Waterford
08-18-10 BLodge PFE
Legend
Repeaters
Air Attack Base
Conservation Camp
CDF Fire Station
TCU Headquarters
Community
State Highways
County Line
Battalion Boundary
Lake
Local/USFS DPA
0 3 6 9 12
Miles
C:\GIS\LIB\TCU\ArcMapProj\Generic\ATUNTT Projects\ECC\TCU_ECC_Repeater_Map_081810_85x11_Land.mxd