# *STRATEGIC FIRE PLAN*
# *TUOLUMNE-CALAVERAS UNIT*

## CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

**Edited By: J. Read FC**
**Pre-Fire Engineer**
**April 2014**

## UNIT STRATEGIC FIRE
## PLAN AMENDMENTS

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## SIGNATURE PAGE

**Unit Strategic Fire Plan developed for 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.

4/30/2014

**Unit Chief** **Date**

**Josh White**

4/30/2014

**Pre-Fire Engineer** **Date**

**Jake Read**

# Executive Summary

Through a collaboration of our internal and external stakeholders, the CAL FIRE Tuolumne – Calaveras Unit initially developed and continues to update the Unit's Strategic Fire Plan. This methodology allows for a fire plan that will be successful in reducing the loss of life, property and natural resources from wildland fire.

The plan is designed to provide a comprehensive framework of how the Tuolumne-Calaveras Unit will assess our current and anticipated hazards/risks, develop objectives to mitigate those hazards/risks, establish benchmarks for success, develop strategies to meet our objectives, implement those strategies, and facilitate a monitoring system to insure the plan remains connected to the needs of the Unit and stakeholders.

The Tuolumne-Calaveras Unit is committed to the following goals:

- Continually assess values at risk; including life, property and our natural resources.

- Actively partner in the promotion and support of fire wise land use planning.

- Seek opportunities for contribution and collaboration with local, county and regional leaders in developing of fire protection plans.

- Maintain an active Public Information team committed to the promotion of current and future projects/actions which reduce or have reduced our identified hazards and risks.

- Continue integration with all stakeholders to develop a seamless implementation of our plan across the Unit.

- Continually evaluate and mitigate strategy for all of our resources (personnel, equipment and facilities) to provide for the best possible level of service related to the hazards and risks identified.

- Adopt site-specific plans to address post-fire recovery.

Through the implementation of the Tuolumne – Calaveras Unit's Strategic Fire Plan, CAL FIRE will be a partner in reducing the cost of fire suppression, property loss, and damage to our ecosystem. Most importantly, the plan will provide for a safer community, thereby reducing injuries and the loss of life to both the public and firefighters.

## SECTION I: UNIT OVERVIEW

### Geographic

The Tuolumne-Calaveras Unit is located in Central California, an hour east of Modesto and 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 County, and 6,000' feet in central Calaveras County. 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.

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: Comanche Reservoir, Hogan Lake, Pardee Reservoir, Tiger Creek Reservoir, New Melones Reservoir, Tulloch Lake, and Don Pedro Reservoir. These hydrologic resources in turn support major local and regional communities and industries.

Five highways run east-west in the Unit: 12, 26 and 4 in Calaveras County; 108 and 120 in Tuolumne County. State Highway 49 bisects the Unit from north to south. 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 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. Sierra Pacific Industries operates sawmills at Standard and Chinese Camp in Tuolumne County. American Wood Fibers operates a facility on J59 west of Jamestown. These facilities provide an important outlet for forest products in Tuolumne and Calaveras Counties.

**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 have a great deal of influence on the nature of wildland fires within its boundaries. An expanding population increases the potential for large and 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. Routine summer temperatures can be extreme, while the topography makes access 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 DPA land is 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. Temperatures are routinely moderated due to

the elevation; however, wind events in the fall can contribute to potentially challenging fire conditions.

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 the Unit. Evidence of this is depicted in the Battalion maps found in the Exhibits section toward the end of this document.

# 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). The federal government (USFS, BLM etc.) is responsible for wildland fire protection on Federal Responsibility Area lands (FRA). Local government entities (city, county, district) are responsible for fire protection 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. Therefore 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 its proximity to CAL FIRE resources. 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 California Master Cooperative Wildland Fire Management Agreement (CFMA) (aka "Balancing of Acres") in effect among multiple agencies. Through this agreement, the CAL FIRE Tuolumne-Calaveras Unit and the Stanislaus National Forest provide direct wildland fire protection on portions 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 are combined and shown as FRA in the following table.

| TUOLUMNE - CALAVERAS UNIT<br>CAL FIRE DIRECT PROTECTION ACRES<br>2012 | |
|---|---|
| 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 CAL FIRE 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 stations, 2 inmate conservation camps, 1 inmate conservation camp training center, an air attack base, an emergency command center (dispatch) and 2 fire lookout towers. 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 firefighters, 10 17-person inmate fire crews, 2 bulldozers, 1 air attack plane, 2 air tanker planes, 1helicopter with 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 County). Staffing and administration is provided by the State (CAL FIRE) under a contractual agreement. In Tuolumne County, CAL FIRE provides year-around staffing for 3 “Schedule A” facilities.

TCU is administered by the Unit Chief and a Deputy Chief for Operations, headquartered in San Andreas, Calaveras County. The fire control portion of the Unit is divided into North and South Divisions. The North Division is most easily thought of as being Calaveras County; but also includes eastern San Joaquin County, a small portion of northeastern Stanislaus County, and a swath of private timber land north of the Middle Fork Stanislaus River in northeastern Tuolumne County. The South Division includes the majority of Tuolumne County and southeastern Stanislaus County.

The North Division is administered by a Division Chief. It includes Vallecito Conservation Camp and is divided into four Battalions. 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 CAL FIRE Station’s. Battalion 2 covers the lower Highway 4 corridor from Eastern Stanislaus County to Murphys, and includes the Copperopolis, Altaville and Murphys CAL FIRE Stations. Battalion 3 is the upper Highway 26 area including the communities of Glencoe, West Point, Wilseyville, Railroad Flat and Mountain Ranch, and includes the West Point, Esperanza and Hermit Springs CAL 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 CAL FIRE Stations and Blue Mountain Lookout.

The South Division is administered by the South Division Assistant Chief/Tuolumne County Fire Warden and is divided into two Battalions. Battalion 5 covers the Tuolumne County area north of the Tuolumne river and includes the Standard CAL FIRE Station (this station operation relocated from the old Sonora Station in 2008), the Twain Harte CAL FIRE Station (rebuilt in 2008-09 on the same site) and two “Schedule A” stations; Station 51 in Mono Village and Station 76 in Jamestown. Battalion 6 covers the area south of the Tuolumne River including the Groveland, Blanchard and Green Springs CAL FIRE Stations, and “Schedule A” Station 78, located in Groveland.
Columbia Air Attack base (fixed wing and helicopter), Baseline Conservation Camp and the Fire Training Program are administered by a Division Chief.

**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 aid agreements, in order to assure the appropriate numbers and types of emergency resources are utilized 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, TCUs 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 9 fire districts and one city department in Calaveras County: West Point, Mokelumne Hill, Calaveras County Consolidated, San Andreas, Central Calaveras, Copperopolis, Altaville-Melones, Murphys, and Ebbetts Pass Fire Districts; and Angels Camp City Fire Department. The district boundaries combine to cover the entire county. The district boundaries encompass large areas surrounding the communities they are named after (the Calaveras Consolidated District includes the Highway. 12 corridor from Valley Springs to Wallace and Highway 26 corridor from Valley Springs to The San Joaquin County line; the Central Calaveras Fire District covers the Mountain Ranch and Railroad Flat areas).

- **Tuolumne County:** There are six fire districts and one city department in Tuolumne County: Columbia; Jamestown; Tuolumne; Twain Harte; Mi Wuk-Sugarpine; Strawberry Districts; and Sonora City Fire Department. 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:** The majority of unincorporated Tuolumne County falls outside a fire district boundary and is protected by the Tuolumne County Fire Department, administered by CAL FIRE under a contractual agreement with the County since 1975. There are 13 Stations in the County Fire Department: 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 63 - Smith Station, Station 64 - Don Pedro, Station 76 – Jamestown, Station 78 – Groveland, and Station 79 - Columbia College. All but three are staffed by volunteer firefighters, the exceptions being Groveland Station 78, Jamestown Station 76, and Mono Village Station 51, staffed with a minimum of two full time

CAL FIRE personnel 24 hours a day, 7 days a week, supplemented by volunteer, resident and reserve firefighters. The remaining stations are staffed by volunteers from throughout the community. The contract includes a CAL FIRE Training Officer for the nearly 80 volunteers who continue to provide dedicated service to their respective communities; responding in 33 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 are 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 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 Department:** Tuolumne County Fire Department (TCFD) 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. The fire station is staffed with one Type 1 fire engine with minimum staffing of two paid personnel supported by TCFD volunteer firefighters.

- **Groveland Community Services District:** In April of 2013 the Groveland Community Services District (GCSD), entered into a cooperative fire protection agreement with CAL FIRE and Tuolumne County. The agreement blanketed in 5 former GCSD employees. The station (TCFD Station 78) is staffed with a minimum of 2 paid personnel supported by the

districts reserve firefighter program. Administrative duties and chief officer coverage is provided by TCFD/CAL FIRE with primary responsibilities assigned to the Groveland Battalion Chief.

- **Amador Program:** As set forth in Public Resources Code sect 4144, Tuolumne County, part of the cooperative agreement with CAL FIRE also contracts to provide fire protection services at the Blanchard and Twain Harte CAL FIRE stations during the winter. Known commonly as the "Amador Plan" (named for the county where the program began), this arrangement provides the use of State owned facilities, equipment and personnel to the contracting entity that would otherwise be unavailable. The state provides one company officer and the contracting entity provides a minimum of one firefighter per day to meet the minimum staffing standard required by CAL FIRE of two personnel on duty.

## SECTION II: COLLABORATION

### 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*

| Organization | Title |
|---|---|
| CAL FIRE | Unit Chief – Tuolumne-Calaveras |
| CAL FIRE | Deputy Chief – Tuolumne-Calaveras |
| CAL FIRE | Division Chief – Admin./Prevention/Resources |
| CAL FIRE | Division Chief / Asst. Co. Fire Warden - TCFD |
| CAL FIRE | Battalion Chief – Batt. 1 |
| CAL FIRE | Battalion Chief – Batt. 2 |
| CAL FIRE | Battalion Chief – Batt. 3 |
| CAL FIRE | Battalion Chief – Batt. 4 |
| CAL FIRE | Battalion Chief – Batt. 5 |
| CAL FIRE | Battalion Chief – Batt. 6 |
| CAL FIRE | Battalion Chief – Emergency Command Center |
| CAL FIRE | Battalion Chief – Prevention Bureau |
| CAL FIRE | Forester I - Area Forester / VMP Coordinator |
| CAL FIRE | Fire Prevention Specialist II |
| CAL FIRE | Captain – Pre-Fire Engineer |
| Calaveras Foothills Fire Safe Council | Project Coordinator |
| Hwy 108 Fire Safe Council | President |
| Yosemite Foothills Fire Safe Council | Project Coordinator |
| | |
| | |

Table 2A-1

## SECTION III: VALUES

### A: VALUES

Life safety is always the first priority during fire control and other emergency operations. There are numerous other values, resources, and interests 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 46,731 in Calaveras County, an increase of 15.2% since 2000; and 55,175 in Tuolumne County, an increase of 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.

In Tuolumne County, the highest population density is found along the Highway 108 corridor from Jamestown to Twain Harte. Tuolumne (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.

High density population areas in Calaveras County are found along 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 by the criteria set forth in the National Fire Plan. (See Sect. III part B)

Outside these concentrations, the population west of Hwy 49, including CAL FIRE DPA in the eastern margins of Stanislaus and San Joaquin counties, is widely scattered, mostly in the form of ranch and farm development. The area east of Highway 49 also includes scattered residential development.

The population within the Unit increases significantly at specific times of year, including the summer fire season. The greater Arnold area in Calaveras County and the greater Twain Harte area in Tuolumne County include large numbers of vacation homes, providing destinations for significant numbers of tourists. The greater Groveland area also experiences population growth during the summer due to the abundance of vacation homes and its status as a gateway to Yosemite National Park. 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 for residents to evacuate quickly and safely. The topographically rugged terrain and narrow public and private roads creates potentially hazardous access/egress routes for much of the residential development throughout the Unit. Quick and organized evacuation is crucial to assuring life safety.

**WATERSHED:**

The recognition that runoff from 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. To this day 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 County, the Stanislaus, which lays over southern Calaveras and northern Tuolumne Counties, and the Tuolumne River in southern Tuolumne County. A smaller river system, the Calaveras, runs through the center of Calaveras County.

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 harvesting 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:** In the Federal DPA camping, fishing, hunting, off-road motor sports, hiking, bicycling, motorcycle touring, lake and river water sports, skiing, 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 with the intention of enjoying these recreational opportunities, especially on the holiday weekends. All of these recreational activities can be negatively impacted in the event of significant wildland fire.

  Within the Unit's State 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, local outdoor music festivals, and rodeos are just a few of the popular activities. All are important to the economy, and all are easily disrupted by wildland fire.

- **Wildlife:** Wildlife contributes 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 a designated 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, one's house or place of business is likely to be their most valuable material possession. More often than not, one of the first things on the minds of our initial attack firefighters is the question of whether structures are threatened. 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 keeping fires as small as possible.

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 is likely that the majority of these housing units face the risk of wildfire.

## INFRASTRUCTURE:

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

The watershed is the core asset that CAL FIRE is mandated to protect. Within the Unit several water delivery systems face significant risk from wildland fire including: open water convergence ditches, 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 widespread throughout the Unit. It is often located in remote locations, such as mountaintops, resulting in a significant threat from wildfire. Towers, vaults, antennas and their associated support equipment, such as propane tanks and generators, are threatened by fires. Cell phone towers and equipment have become more common in the lower foothills, often in close proximity to highways and major county roads.

Power lines are located throughout the SRA – along every highway, county road and private driveway, traversing pastures, crossing lakes and river canyons, and cutting long swaths through remote forests. Power delivery systems have been responsible for a decreasing number of fires in recent years due to increased maintenance and adherence to Public Resource Code regulations. Power lines often are often threatened by wildfires.

[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.

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, signage, and the occasional superficial damage done by tracked firefighting equipment; however, even a small fire lasting an afternoon can significantly disrupt transportation and the delivery of goods and services, due to road and highway closures. Upper Hwy 4 in Calaveras County has gained designation as a Scenic Byway due to the 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 contains portions of the San Joaquin Valley and Mountain Counties Air Basins within its boundaries. The Mountain Counties Air Basin makes up 81% of CAL FIRE DPA within the Unit. Air Quality is 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 areas 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 potential for unhealthy air quality designations within the Unit is quite high throughout the summer.

**AGRICULTURE:**

- **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. Several poultry raising facilities dot the low elevation rolling grasslands of western Battalions 1 and 2 in Calaveras County.

- **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.

  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 the western grasslands of Battalion 6, with some additional production in Battalion 5.

  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 6.

  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 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 graze 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 fuels/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 fast running low country grass fires or mid-elevation brush fires.

## CULTURAL / HISTORICAL:

Native American cultures thrived within what is now 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, making it difficult to identify and protect them ahead of time. Unfortunately they are often more 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 to this day. As a result of its rich gold mining history the Unit includes many historic 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 County. 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 late 1800's. Starting late in the 19th century, and still today, logging continues to be a significant industrial activity. Historic artifacts; camp and mill sites, railroad grades and infrastructure improvements are common throughout the foothills.

**B: COMMUNITIES**

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 includes 35 communities in Calaveras County (Table 3B-2), 32 in Tuolumne County (Table 3B-1), 5 in Stanislaus County (Table 3B-4), and 4 in San Joaquin County (Table 3B-3).

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.

**County: SAN JOAQUIN**
**Year Listed: 2001**

| Name | Battalion |
|---|---|
| Bellota | 1 |
| Clements | 1 |
| Linden | 1 |
| Lockeford | 1 |

Table 3B-1

**County: STANISLAUS**
**Year Listed: 2001**

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

Table 3B-2

**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 | 5 |
| Jupiter | USFS DPA | Tuolumne Rancheria | 5 |
| Kennedy Meadow | USFS DPA | Tuttletown | 5 |
| Lake Don Pedro | 6 | Twain Harte | 5 |

Table 3B-3

**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-4

## SECTION IV: PRE-FIRE MANAGEMENT STRATEGIES

### A: FIRE PREVENTION *(rev 4-2014)*

TCU's Fire Prevention Bureau works to protect lives, property and natural resources from unwanted fires by proactively investigating all wildland fires in CAL FIRE's DPA and utilizing appropriate criminal, code enforcement, civil and administrative procedures to deter activities that lead to unwanted human caused fires. TCU's Fire Prevention Bureau also coordinates law enforcement activities with public education and information activities to educate the general public, as well as other public safety officials, of specific activities that increase fire risk and preventative measures that can be taken to eliminate or lessen the risk.

### B: 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 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.

Fire control personnel recognize ignition can quickly result in a fire that immediately threatens structures. CAL FIRE's entire fire control system utilizes a rapid initial attack capable of extinguishing the threat in the early stages of development. 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. 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 fires, a primary means of ignition is airborne embers. The larger the fire, the higher the likelihood 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 four 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: **1**) Fire Hazard Severity Zones and Building Standards and Materials for Building Code Chapter 7A, 2007 Building Code. **2**) Defensible Space. **3**) Fuel Reduction Program. **4**) Community Wildfire Protection Plans (CWPP).

## 1. 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

## 2. Defensible Space

Property owners living in State Responsibility Areas (SRA) are required by Public Resources 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. CAL FIRE Tuolumne-Calaveras Unit is committed to helping the population comply 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 Fire 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

## 3. Fuel Reduction Program

The Fire 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 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 or otherwise reduce fuel loads 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 is crucial to the success of fuel reduction efforts in the Unit. The majority of fuel reduction projects within the Unit involve representatives from the local Fire Safe Council. Without their involvement few projects over the past decade would have come to fruition.

**4. Community Wildfire Protection Plans**

In early 2011 the Calaveras County Board of Supervisors approved and adopted a new Community Wildfire Protection Plan. This (CWPP) remains current and reflects the collaboration between the Calaveras Foothills Fire Safe Council, CAL FIRE, private industry, Federal land management agencies, non-profit organizations and the general public. 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 continues to anticipate an effort in Tuolumne County to update its Community Wildfire Protection Plan. Preliminary discussions have included a suggestion for splitting the existing, outdated Tuolumne County CWPP into separate documents; a north and south county CWPP, each reflective of the unique conditions and geographic separation of the those areas.

## C: INFORMATION AND EDUCATION

### *CalMAPPER Program*

The CalMAPPER program is a Geographic Information System (GIS) database that is used to collect, manage and distribute information across its fire plan, forest improvement and other wildland fuels reduction programs.

### *Fire Prevention Specialist Programs*

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 the position was later reestablished 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 Departments 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 volunteers 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 supports fire prevention education efforts in hundreds of school programs, community events, and the Unit's 4291 inspection program, among others.

The VIP group also includes about 20 Amateur Radio Operators (Hams) who stand ready to supplement CAL FIRE's communications with their sophisticated equipment, or assist in other ways during a major incident.

**Three Part Prevention and Education Program:** 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. 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:** TCUs 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 VIPs 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 VIPs 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:** The Twain Harte Community Services District Fire and Rescue Division had been doing inspections for several 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 increased. CAL FIRE and THCSD-FD also put on a training program for lot cleaners.

- **Pine Mountain Lake Association:** The Pine Mountain Lake Association (PMLA) located within the Groveland Community Services/Fire District is another key player. In recent 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. PMLA 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 ineffective. In 2008 PMLA, 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. 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.

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 corridors 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, within the jurisdiction of the Sonora Fire Department. 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 four years.

  In 2011, defensible space was extended to the perimeter of Sonora Community Estates' property boundaries. Due to the dramatic differences between the condition of the SCE property and that of its neighbors, those boundaries are now clearly visible on the ground.

- **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:** Prior to 2006, there existed a significant problem with fireworks in the Pine Mountain Lakes (PML) area, despite a ban on all fireworks in Tuolumne County. 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, and only one was issued in 2011 (in PML). 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.

The 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 4$^{th}$ 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 letter explains the program to school officials and invites them to participate. Nearly 100% of the schools invited elected to take advantage of the program.

The program targets kindergarten through 3rd grade students, aged 5 to 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 youngsters 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, even years, 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 was completed in 2011.

Tired of using twenty or thirty year old teaching aides to teach 911 use, 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 during the 2011-12 school year the first-ever Interactive 911 Training Video was put to use locally and state-wide. CAL FIRE is a proud supporting partner and participant in this project.

**Public Information:** While the Unit Fire Prevention Specialist is technically the Units Public Information Officer (PIO), since 2007 the Unit Resources Secretary has carried

out the majority of the PIO work. The Resources Secretary is the person the media calls first when they hear emergency traffic on their scanners. The Resources Secretary 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 Units 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:** VIPs 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.

#### D. VEGETATION MANAGEMENT

## Resource Management *(rev. 4-2014)*

Adam Frese – Unit 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 Wildlife, Regional Water Quality Control Board, and California Geological Survey to evaluate timber harvest plans when they are in the review process. Once the harvest 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. Tuolumne County has two sawmills, a shavings mill, bark plant, and biomass plant. The presence of this infrastructure encourages forest management on private property, which creates a steady forest practice workload for resource management staff in TCU.

## Hazard Fuel Reduction / Risk Mitigation

Resource Management staff works with Battalion Chiefs, Conservation Camps Fire Safe Councils, landowners and private contractors and other cooperators to complete fuel reduction projects throughout the Unit. CAL FIRE has used several mechanisms to fund and perform strategic fuel reduction work in the Tuolumne-Calaveras Unit.

- **Community Assistance Grants (CAG):** Proposition 40 provided funds for community assistance grants to protect watersheds. CAL FIRE Foresters work with community Fire Safe Councils, Resource Conservation Districts, CAL FIRE Conservation Camps, private foresters, and contractors to complete fuel reduction projects in the Unit in order to protect watersheds from large, damaging fires. Battalion Chiefs provide project strategic validation and input during the planning phases of projects. Since 2005, the Tuolumne-Calaveras Unit has treated approximately 2,150 acres under this program. 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):** This program 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 Tuolumne-Calaveras Unit, the CFIP program has been successful in improving forest health, restoring areas to timber production, reducing surface and ladder fuels, and creating shaded fuel breaks.

- **The Vegetation Management Program (VMP):** 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. VMPs have been successful in reducing fuels, as well as providing live fire and line cutting training for CAL FIRE engines, crews and dozers.

- **Federal Fuels Grant Program (HFT):** is the working name of the Cooperative Fire Assistance Grant - Northern California Disaster Supplemental. This program was implemented in early 2010. The Tuolumne-Calaveras Unit applied for 10 projects under this program, which reimbursed CAL FIRE camp program hand crews $200.00 per day to perform hazard fuel reduction and timber stand improvement work. The TCU Area Forester coordinated the projects and, 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. TCU completed 10 projects for a total of 461 acres under this program.

- **Fire Severity Treatment Education Prevention Planning (STEPP):** The STEPP program is the mechanism to put SRA fee money to work on the ground. Projects funded through the STEPP program include fire prevention signs, public information flyers, defensible space inspectors, and fuel reduction projects. In the Tuolumne-Calaveras Unit, this funding source will be used maintain fuel breaks identified in the Fire Plan.

**DIVISION / BATTALION / PROGRAM PLANS**

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

Nick Casci - 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. See the map, in the Exhibits section, page M2.

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 three Fire Protection Districts: Calaveras County Consolidated (greater Valley Springs Area), San Andreas and Mokelumne Hill; along with a small contingent of fire control personnel with the East Bay Municipal Utilities District at Lake Camanche.

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 Camanche 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 Camanche 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, Camanche 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 CAL FIRE 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 (FDRA), while the eastern third (upper) falls within the *Foothills East* FDRA.

*Battalion 1 Assessment Summaries:*

**Assets At Risk, Fuels, Weather 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 to increase in 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, outdated 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 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 run through the center of the Battalion and constitute 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 mountain bike 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 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.

- 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 installations 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. 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, chamise, toyon, oak, gray 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 exhibit potential for large and damaging fires. The lower elevations of this Battalion have a combination of chaparral brush, oak woodland, bull pine, and grass. Though the fuel loading is generally lower here, the population density is greater, thus increasing the threat to life and property. Much of the fuel bed in the lower elevations is broken up by the road system and grasslands found throughout this area.

**Weather:** Typical fire season temperature patterns range from lows in the upper 50's to highs in the 90's. Periods of triple digit highs, 100-110 degrees, are not uncommon, and can last from a couple days to a couple weeks. Relative humidity runs in the mid teens to mid twenties during daylight hours, often with poor overnight recovery. Periods of extreme heat are occasionally accompanied by single digit humidity. Prevailing wind is generally from the north along the Hwy 49 corridor, from west to northwest out west of Hogback Mountain on the western plains and west/up canyon during the day in the drainages of the eastern portion of the Battalion. Overnight, a strong down-canyon wind across the ridge tops 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 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 2,483 acres.

## 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. See the map, near the end of this document, in the Exhibits section, page M3.

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 Tulloch; Angels Camp (the only incorporated city); Vallecito; Douglas Flat; Murphys and its adjacent subdivisions. The communities of Murphys, Angels Camp and the Tulloch/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 Tulloch 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 Tulloch 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 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 Battalion 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 Gulch, Copper Cove and the "XX" subdivisions. Several of the older developments date back to the 1940's through 1960's. As a result, outdated 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 expensive 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 mountain bike 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 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 affected 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 gray 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 Mountain Range and Gopher Ridge. These natural ignition causes mixed with high temperatures and low humidity’s can produce large late season fire incidents.

**Fire History:**

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 3 (West Point Battalion) Pre-Fire Management Plan

Mike Blankenheim – 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. See the map, near the end of this document, in the Exhibits section, page M4.

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.

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 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 historic and pre-historic 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, outdated 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 Utilities 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 expensive 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 valuable 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**: Historic and prehistoric archaeological sites are 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 range 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.

At the lowest elevations of the Battalion, there is an mix 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 gray 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 History:**

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 (aka Lightning #31) (1999) 6 miles east of West Point 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 4 (Arnold Battalion) Pre-Fire Management Plan

Eric Kurtz – 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. 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 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). 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 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 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 outdated 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 Highway. 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. 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.

- **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 History:**

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. In prior years their acreages were not included in the statistics provided in the analysis. Recent changes to reporting policy and procedures have allowed us to capture these “off season” fires in our records and statistical analysis. The “Blue” complex of December 2011 is an example of one of these “off season” fires.

## 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. See the map, near the end of this document, in the Exhibits section, page M6.

The Battalion's fire control organization consists of two CAL 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 51, and Jamestown Station 76 – both are single-engine stations 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 12-13)

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 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, 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 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 railroad 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, 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 outdated 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 cannot 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 mountain bike 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 tourist's traveling 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 expensive 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 firefighting 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 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.

**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 ridge tops 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 History:**

The Battalion has a long history of large damaging fires that occurred before accurate records began being collected 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 for example 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 | 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 | Parrott's 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 | Parrott's | 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 |
| 2013 | 6/23 | Murphy | 154 |

Table 5A-5

## 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 cross the Battalion. Hwy 120 is a major access route for Yosemite National Park. See the map, near the end of this document, in the Exhibits section, page M5.

Also operating within the Battalion 6 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 Station 78 located in Groveland, is a single engine station staffed 24/7 by CAL FIRE company officers, supported by TCFD volunteers. (See TCFD, pages 12-13)

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.

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 traveling 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 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 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 2/3 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 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, businesses, watersheds, water collection and distribution infrastructure, electric power generation and distribution infrastructure, recreational resources and infrastructure, 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. 3B, page 3-7 for official C.A.R. lists.) 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.

  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 Mountain Lake subdivision, it also fills Pine Mountain 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 Moccasin community, another designated Community At Risk.

- **Timber resources:** The majority of timber in the Battalion is in the hands of small private land owners. 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 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 time, orchard development and expansion has caused the SRA line to be moved eastward.

**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 chemise 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 gray 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 feet 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 History:**

The Battalion does have a history of large fires: Moccasin 1992, Rogge and Ackerson fires 1996, Creek 2001, Serpentine 2008, and Rim 2013 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 9 - Emergency Command Center *(rev 3-2014)*

Mike Blankenhiem – 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 OES operational area dispatch center for Tuolumne and Calaveras Counties.

The TCU ECC is staffed by 5 Fire Captains (FC), 4 Communication Operators (CO) and 1 Battalion Chief. During Fire Season, there are at least three personnel on the Command floor during the day. During the Winter Preparedness period, there are at least 2 personnel on the Command floor. There is one Fire Captain, filling the role of the Unit Duty Officer, on duty in the ECC 24/7/365.

The TCU ECC monitors weather and fire danger conditions 365 days a year with the Weather Information Management System (WIMS). WIMS uses data from 2 Remote Automated Weather Stations (RAWS) to calculate National Fire Danger Rating System (NFDRS) indices. These indices are used to set dispatch levels in the Unit. 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 hours each day.

In 2009 a working group was established, consisting of the ECC Chief, the Relief/Admin Battalion Chief, the Pre Fire Engineer and a Station Captain, and tasked with writing and verifying the Fire Danger Operating Plan (FDOP). The FDOP will use the data collected in WIMS and perform statistical analyses to identify relationships between weather and fuel conditions, and fire occurrence in the Unit. Upon completion, this plan will be a tool Unit Management can use to make fire business decisions, such as staffing levels, staffing pattern initiation/cancelation and burn restrictions.

The TCU ECC, with assistance from the Unit Hired Equipment Coordinator and the Unit Training Bureau, 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 annually in the early spring. The Unit ERD supports the use of the Hired Equipment Management System (HEMS) and the Resource Ordering and Status System (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 similar communication and computer capabilities as the primary Command floor. Expanded Dispatch can be staffed with trained personnel from the Unit or an ECC Support Team can be ordered through South Ops.

## *APPENDIX A: PRE- FIRE PROJECTS*

| Batt. | Project Number | Project Name | Planning Area | Status | Project Type | Activity Acres | Project Acres |
|---|---|---|---|---|---|---|---|
| | 4400-2005-FPL-994 | Calaveras County Roadways Road Clearance | SRA | C | FPL | | 2047 |
| | 4400-2006-CFP-001 | Mauzy CFIP | SRA | C | CFIP | | 78 |
| | 4400-2006-FPL-006 | Cattle Drive Fuel Break | SRA | M | FPL | | 222 |
| | 4400-2006-FPL-995 | Sierra OutdoorSchool to Cedar Ridge SFB | SRA | M | FPL | | 131 |
| | 4400-2006-FPL-997 | Mt. Havalia Shaded Fuel Break | SRA | M | FPL | | 486 |
| | 4400-2006-VMP-001 | Crook Ranch VMP | SRA | A | VMP | | 5111 |
| | 4400-2007-FPL-996 | Turnback Creek Shaded Fuel Break Phase 2 | SRA | M | FPL | | 297 |
| | 4400-2008-CFP-001 | Penning CFIP | SRA | C | CFIP | | 24 |
| | 4400-2008-CFP-002 | Swartzell CFIP | SRA | C | CFIP | | 26 |
| | 4400-2008-CFP-003 | Crook Property CFIP | SRA | C | CFIP | | 481 |
| | 4400-2008-CFP-004 | Fort Mountain Ranch CFIP | SRA | C | CFIP | | 1043 |
| | 4400-2008-CFP-005 | Taylor CFIP | SRA | C | CFIP | | 59 |
| | 4400-2008-CFP-006 | Bader CFIP | SRA | C | CFIP | | 79 |
| | 4400-2008-CFP-007 | Wagner NTMP | SRA | C | CFIP | | 601 |
| | 4400-2008-CFP-009 | Seastrom Property CFIP | SRA | C | CFIP | | 167 |

| Batt. | Project Number | Project Name | Planning Area | Status | Project Type | Activity Acres | Project Acres |
|---|---|---|---|---|---|---|---|
| | 4400-2008-CFP-998 | 08-TCA-TUO-1099 | SRA | C | CFIP | | 70 |
| | 4400-2008-CFP-999 | 8CA04508 | SRA | C | CFIP | | 83 |
| | 4400-2009-CFP-006 | Lane CFIP | SRA | C | CFIP | | 2159 |
| | 4400-2010-FPL-006 | Winton Schaads VMP | SRA | M | VMP | | 6312 |
| | 4400-2011-FPL-001 | Gold Strike Fuels Reduction | SRA | M | FPL | | 199 |
| | 4400-2011-FPL-002 | BTV-Home Owners Asso. Fuel Reduction | SRA | C | FPL | | 38 |
| | 4400-2011-FPL-003 | Union P.U.D. - Sheep Ranch Rd Fuel Reduction | SRA | M | FPL | | 34 |
| | 4400-2012-FPL-004 | Murphys Pines Subdivision Fire Defense - Phase II | SRA | C | FPL | | 2162 |
| | 4400-2012-FPL-005 | Bar XX Fire Defense Project | SRA | A | FPL | | 16777 |
| | 4400-2012-FPL-006 | Mokelumne Hill Fuel Break | SRA | A | FPL | | 1076 |
| | 4400-2013-FPL-001 | North Bald Mountain Road Fuels Reduction Project | SRA | M | FPL | | 494 |
| | | | | | | | |

*Project Number: Cal MAPPER ID* *Project Name: Project Name as in Cal MAPPER*

*Planning Area: SRA or LRA*

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

*Project Type: VMP, CFIP, FPL = Fire Plan, PREV = Prevention, and FI = Forest Improvement, Other = identify at the bottom of the table.*

# TCU Fire Plan
## Appendix B - Goals and Objectives

Goals

In collaboration with the community, the focus of these goals is protection of life, property and natural resources from wildland fire, as well as the improvement of environmental resilience to wildland fire. Each goal is meant to build upon the previous. Though full attainment of any goal is ultimately dependent upon the success of those previous, each can be worked on at any given time based upon available funding and/or other opportunities. The Tuolumne-Calaveras Unit's goals are to:

1. Continue assessment of values at risk including life, property and our natural resources.
2. Actively partner in the promotion and support of fire wise land use planning.
3. Look for opportunities to contribute and collaborate with local, county and regional leaders in the development of fire protection plans.
4. Maintain an active Public Information team committed to the promotion of current and future projects/actions that reduce or have reduced our identified hazards and risks.
5. Continue integration with all stakeholders to develop a seamless implementation of our plan across the unit.
6. Provide for a continued evaluation and mitigation strategy for all of our resources (personnel, equipment and facilities) so as to provide the best possible level of service for the hazards and risks identified.
7. Adopt site-specific plans to address post-fire recovery.

Objectives

For the purpose of implementing each goal, specific objectives are identified but are not meant to be all-inclusive. The Board of Forestry, CAL FIRE or other cooperators may identify and utilize additional objectives to achieve primary goals (those in bold with measurement criteria).

Goal 1 - Continue assessment of values at risk including life, property and our natural resources.

**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.*

b) Update and maintain consistent, detailed vegetation and fuels maps across all ownerships in an efficient and cost-effective manner.

c) Provide regular updates to the Department's Very High Fire Hazard Severity Zone maps.

d) Develop and validate weather and climatology information for use in predicting fire behavior.

e) Update fire history information and re-evaluate existing fire prediction models to obtain composite fire threat across all ownerships.

f) Update existing data for values and assets at risk utilizing geographic information systems (GIS) data layers and other mapping solutions, including fire behavior-specific effects.

g) Use science-based approaches to evaluate, understand and protect against the negative impacts of new and emerging threats such as climate change, insect and disease outbreaks or land use changes on forest health and public safety, including the buildup of hazardous fuel conditions and resulting fire behavior.

h) 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 - Actively partner in the promotion and support of fire wise land use planning.

**Objectives:**

a) 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.*

b) 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.*

c) Engage in the development, review and adoption of local land use plans to ensure compliance with fire safe regulations and current building standards.

d) Promote the consolidation and broad availability of project-level land use planning, project implementation and wildland fire occurrence data developed throughout each county for use by all cooperating agencies.

Goal 3 - Look for opportunities to contribute and collaborate with local, county and regional leaders in the development of fire protection plans.

**Objectives:**

a) Establish a working group, consisting of Board members and Department 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.*

d) Collaborate with federal and local governments, other state agencies, fire service and other organizations, to maintain and improve emergency response plans.

e) Ensure planning efforts are consistent with the National Fire Plan, the Healthy Forest Restoration Act, the Statewide Hazard Mitigation Plan, as well as local hazard mitigation plans and other relevant statewide strategic planning documents.

f) Maximize available resources to strengthen planning efforts through the development of public/private partnerships.

g) Develop fire risk mitigation treatment decision support tools to assist in project design, implementation and validation.

Goal 4 - Maintain an active Public Information team committed to the promotion of current and future projects/actions that reduce or have reduced our identified hazards and risks.

**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.*

b) Educate landowners, residents, fire safe councils and business owners to understand that fire prevention is more than defensible space, including why structures ignite, the role embers play in such ignitions and the importance of fire safe building designs and retrofits.

c) Facilitate activities with individuals and organizations, as appropriate, to assist individual property owners in complying with fire safe regulations. d) Improve regulatory effectiveness, compliance monitoring and reporting pursuant to Public Resources Code (PRC) 4291.

e) 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.*

f) Promote the consolidation of Fire Safe Regulations contained in California Code of Regulations (CCR) Title 14, with CCR Titles 19 and 24, to achieve uniform application of building standards. g) Continue to evaluate new, ignition-resistant construction technologies and materials, and promote the strengthening of California building standards. h) Seek out incentives to promote the retrofit of existing structures to meet ignition-resistant building codes. i) Actively enforce and seek updates as necessary to fire prevention codes and statutes, including those regulating utilities, railroads, small engines and other categories of equipment use that contribute to fire ignition. j) Actively investigate all wildland fire causes. For those resulting from negligent acts, pursue appropriate civil and/or criminal actions, including cost recovery. k) Analyze trends in fire cause and focus prevention and education efforts to modify behavior and effect change.

Goal 5 - Continue integration with all stakeholders to develop a seamless implementation of our plan across the unit.

**Objectives:**

a) Increase support of landowner-initiated hazardous fuels reduction using all available authorities, including the Vegetation Management Program.

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 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.*

c) Promote and enhance programmatic documents that assist and streamline regulatory processes.

d) Assist collaborative partners by educating, improving grant capacity and other means that provide tools to achieve fuels reduction work on the landscape.

e) Promote forest and rangeland health and hazardous fuels reduction. Improve utilization of all forest products, including small logs, urban green waste and biomass.

f) Increase public education and awareness in support of ecologically sensitive and economically efficient vegetation management activities, including prescribed fire, forest thinning and other fuels treatment projects.

g) Promote the development of multi-agency/landowner fuels reduction policies and activities at the watershed and fire shed level.

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.*

i) Support efforts to restore the ecological role of fire in areas and upon jurisdictions where doing so is consistent with local land management objectives and does not present an unacceptable risk to human health and safety or security of adjacent ownerships.

Goal 6 - Provide for a continued evaluation and mitigation strategy for all of our resources (personnel, equipment and facilities) so as to provide the best possible level of service for the hazards and risks identified.

**Objectives:**

a) Maintain an aggressive wildland fire initial attack policy that places a priority on protecting lives, property and natural resources. At the same time consider suppression strategies that incorporate values and assets at risk, as well as cost factors wherever possible.

b) Develop criteria for determining suppression resource allocation based on elements such as identified values and assets at risk, ignition density, vegetation type and condition, as well as local weather and topography.

c) Initiate studies and analyses to identify appropriate staffing levels and equipment needs commensurate with the current and projected emergency response environment.

d) Seek to increase the number of CAL FIRE hand crews for use in fighting wildland fires and other emergency response activities.

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.*

f) Improve policies and strategies to minimize injuries or loss of life to the public and emergency responders during emergency response activities throughout the state.

g) Ensure all firefighters are provided the appropriate training, equipment and facilities necessary to successfully and safely meet the increasingly complicated and challenging fire and emergency response environment.

h) Continue to evaluate and implement new technologies to improve firefighter safety, situational awareness and emergency response effectiveness.

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.*

j) Effectively engage and train employees across all disciplines to address both planning and emergency response utilizing a "total force" approach.

Goal 7 - Adopt site-specific plans to address post-fire recovery.

**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.*

b) Work with landowners, land management agencies and other stakeholders across the state to design burned area rehabilitation actions that encourage salvage and reforestation activities, create resilient and sustainable landscapes, and restore functioning ecosystems.

c) Effectively utilize available resources, including CAL FIRE hand crews, to accomplish restoration and protection activities.

d) Assess the effects of pre- and post-fire treatments to refine best management practices.

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 Management 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 management teams may conduct this post fire Assessment, under the direction of the Unit Chief.*

f) Aid landowners in recently burned areas in developing and implementing vegetation treatment plans to manage the re-growth of fuels to maintain reduced hazardous conditions.

g) Promote the maintenance of a native species seed bank and seedling production capacity to provide the availability of appropriate tree species for reforestation within all of the state's diverse seed zones.

h) Use after-action reports to evaluate and implement new technologies and practices to improve future firefighting efforts.

## APPENDIX C: Battalion Pre Fire Project Descriptions

### *a) Battalion 1 Mitigation Efforts* *(rev 4-2014)*

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 over story model.

- **Upper Battalion Projects:**

  - **Mokelumne Hill Fire Defense Project - Fuel Break:**
    The town of Mokelumne Hill sits on the rim of the Mokelumne River canyon above Hwy 49 where it crosses the river. In addition to Hwy traffic an increase in recreational activities in the canyon and along the river has added to the likelihood of human caused fires below the town. Heavy brush and a mix of oaks and pines make up the threatening fuels on the slopes of the canyon. The Moke Hill Fuel Break, has been constructed along the canyon rim adjacent to the town, providing a measure of protection from wildland fire starting below.

    Initiated in early 2011 the project has won approval for a Western States W.U.I. grant. Landowner release/participation forms have been returned at a nearly 100% rate of approval. Work on the ground started in Late

2012. The work completed includes approximately 30 acres of treated fuels, creating a shaded fuel break below the community of Mokelumne Hill.

- **Lower Battalion Projects:**
  - **McNider Road Maintenance Project:** The only north-south through-road access immediately adjacent to the south shore of east Hogan Lake and the north and 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.

**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.

- **Wildfire & Evacuation Planning Brochure:** With coordination from the Calaveras County Sheriff's Department, as well as the Calaveras Foothills Fire Safe Council, a Wildfire and Evacuation Planning Brochure was developed to aid residents in what measures to take in the event they are threatened by an approaching wildland fire. Following CAL FIRE's "Ready Set Go" information, residents are provided information on what to do prior to, during and after the threat of wildland fire and evacuations take place.

- **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 successful county-wide fuel reduction and public education efforts, including: the production and distribution of Public Education materials, and programs; identification, planning and implementation of numerous on-the-ground fuel reduction projects; and the rewrite of the Community Wildfire Protection Plan. 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 June of 2011. In 2012 the FSC was unable to secure funding for the continuing activation of the following three projects; however applications for 2013 funding for these projects have been submitted to the California Fire Safe Council Clearinghouse.

- **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 PRC 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.

**East Bay Municipal Utility District: Pardee and Camanche 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.

### *b) 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.
  - 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.

- **Bar XX Fire Defense Project:** an "Active" project as of early 2012, this Project consists of 3 Treatments:

  - **Whittle VMP:** 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 through the CEQA process. The Project is in active Status. The property owner as indicated an interest in maintaining this treatment area well into the future.

  - **Bar XX Safe Access / Egress Enhancement:** To improve the safety of responding emergency personnel and retreating residents, CAL FIRE Hand Crews will brush 25' per side off the center line of the road system throughout the subdivision. In addition to improved access/egress, these treated roads may serve as control lines or aid the development of anchor points from which fire line construction can begin. This project was completed in early 2013

  - **Bear Mountain Shaded Fuel Break:** Construction of a Shaded Fuel Break along the ridge line of Bear Mountain in the vicinity of the Fowler Lookout. This fuel break will provide direct protection to multiple high-value communications installations including public safety repeaters mounted on the lookout, an FAA radar site and numerous privately owned telephone and misc. communications service repeaters. This treatment

will also provide a temporary refuge site for residents of Stallion Rd who have just the one access/egress option and could be prevented from evacuating to highway 4 due to fire activity and/or incoming emergency resources.

- **Cooperative Fire Assistance Grant - Northern California Disaster Supplemental (aka HFT):** CAL FIRE received a Northern California Disaster Supplemental (aka "Federal Fuels") grant in 2011. A portion of the funds were earmarked for the maintenance or expansion of two existing fuels reduction projects and one new project within Battalion 2.

  - **Union Public Utilities District Fuel Reduction Project**: Proposed by Chief Kovacs of the Murphy's Fire protection District; 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 due to its highly visible location and the protection it offers to a critical public utility facility and the adjacent neighborhood

  - **Murphys Pines Subdivision Fire Defense Project Phase II - Roads Fuel Reduction Project:** This new Treatment expanded on Proposition 40 work done previously within the subdivision for the purpose of "opening" access / egress routes. Intended to enhance public and responder safety, while providing fire control points within the subdivision; the Treatment outcome is a road system featuring the characteristics of a "shaded fuel break" straddling the roads. Activities included Cal Fire hand crews cutting and chipping or burning brush along designated roads within the Murphy's Pines subdivision.

  - **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.

**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 County, 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.

    - CAL FIRE applied for a Cal Trans permit to install a new sign on Hwy 4 at the county line; it was denied in May 2012. This remains a goal of the Battalion.

- **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; participating with Smokey The Bear; static engine displays etc. This is an annual event.

- **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 successful county-wide fuel reduction and public education efforts, including: the production and distribution of Public Education materials, and programs; identification, planning and implementation of numerous on-the-ground fuel reduction projects; and the rewrite of the Community

Wildfire Protection Plan. 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 June of 2011. In 2012 the FSC was unable to secure funding for the continuing activation of the following three projects; however applications for 2013 funding for these projects have been submitted to the Calaifornia Fire Safe Council Clearinghouse.

- **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.

    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.

**Ebbetts Pass Fire Protection District:** A Weed Abatement ordinance is in place targeting unimproved lots ¼ acre or less. Their Prevention Officer typically responds to referrals and/or citizen complaints. Their LE-100 style inspection program completes the fire prevention effort within the confines of the town of the EPFPD.

**City of Angels Camp:** The Angels Camp Fire Dept. has a "Fire Hazard Abatement Plan" similar to the State's 4291 requirements, concerning defensible space clearances around structures. Their inspection and enforcement efforts are completed each year by the end of May. Residents are subject to a citation for non-compliance after June 1st. In June of 2012 the City adopted a Residential Debris Burning ordinance requiring residents to obtain a "door yard" burning permit from May through the end of the declared fire season. Burn procedural and safety rules and regulations continue in effect after fire season, however no permit is required. The City also has a Fireworks ordinance outlining the proper use of Safe and Sane fireworks within the City.

The city also has an ordinance regulating the use of fireworks within the city limits.

The specifics of the City's weed abatement and fireworks regulations can be found here, under Title 8 Health and Safety:

http://www.codepublishing.com/CA/angels/

### *c) 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 2013 continue through the LE-100 inspection process.

- The goal for the future continues to be 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 is working closely with our forest agency cooperators in the West Point Battalion, including BLM and the Stanislaus National Forest, and has determined 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. BLM is currently in the NEPA process for several near-future collaborative fuels reduction projects.

- **Maintenance:** As additional sections of fuel breaks and fuels treatment areas are proposed and then completed in the future, those portions completed previously will require maintenance. Continued maintenance is critical in order to 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, and 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" (aka "HFT") project; roadside brushing project began in late 2012 in cooperation with Calaveras County to treat approximately 40 miles of roadway within Battalion 3.

    This project will maintain work that was done under the original Proposition 40 program, as well as extend treatment to some additional roads. CAL FIRE hand crews are working 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.

### *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 Lily 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:** Elements of this project date back more than ten years. This project has consisted of fuel reduction treatments on SPI property along Winton Road, and around the Lily Valley Estates subdivision. The original project was 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, 2012, a total of 200 acres were treated within the VMP; including 40+ acres completed in 2012 with funding provided through the "Fed Fuels Grant Program" (aka "HFT"); around the Lily Valley Estates subdivision and along Winton Rd.

- In 2013 an approximately 110 acre training burn site was established under the umbrella of the Winton VMP. To date approximately 40 acres have been burned.

- **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. Maintenance is 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.

**Bureau of Land Management (BLM):** A strong partnership exists between CAL FIRE in the West Point Battalion and the Bureau of Land Management (BLM) - Mother lode Field Office fuels management personnel in support of fuels reduction efforts in Battalion 3. Our mutual goal is the creation and maintenance of 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 Fuel Break:** Provides an anchor point on the west end of the Winton Schaads VMP, connecting it to the Mokelumne River, providing landscape scale integration by connecting to the Antelope/Doakes Ridge Fuel Break in Amador County in AEU to the north. Currently in the N.E.P.A. review process, with a target start date of 2014.

- **Alabama Hill Fuel Break:** Dominant ridge fuel break above the Mokelumne River, intended to protect the community of Glencoe. Currently in the N.E.P.A. review process, with a target start date of 2014.

- **Red Corral Fuel Break:** Ridgeline protection for the residential areas east of West Point on the north end of the Battalion in an area of historic fire starts, on the Mokelumne River at the Amador county line. Currently in the N.E.P.A. review process, with a target start date of 2015.

- **Bald Mountain Fuel Break:** Connects VMP and Lily Gap projects to points south of West Point and east of Wilseyville to complete community fuel break. Currently in the N.E.P.A. review process, with a target start date of 2014.

- **Lily Gap Biomass Project:** This 400 acre demonstration project for harvesting woody biomass material as an alternate means of fuels reduction in lieu of burning was completed in 2012. This project 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 Fuel Break

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

- **Silver Mountain/Road 6N04 Access / Egress Enhancement:** In early 2012 BLM conducted hazardous fuels removal along the Silver Mountain Rd. right of way to a depth of approximately 25' off centerline. Cal Fire will be contributing road grader work to improve access for fire fighting resources to the Skunk Hollow area. This project connects to previous SPI road clearance work opening access to the greater Blue Mountain area.

**Calaveras Foothills Fire Safe Council:** Since 2001 the Fire Safe Council has been fully engaged in the planning and implementation of several successful county-wide fuel reduction and public education efforts, including: the production and distribution of Public Education materials, and programs; identification, planning and implementation of numerous on-the-ground fuel reduction projects; and the rewrite of the Community Wildfire Protection Plan. 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 June of 2011. In 2012 the FSC was unable to secure funding for the continuing activation of the following three projects; however applications for 2013 funding for these projects have been submitted to the Calaifornia Fire Safe Council Clearinghouse.

- **Public Roadways Fire Break Phase 4:** The Fire Safe Council has been reducing brush, small trees and hanging ladder fuels along identified roadways within Calaveras County. Clearing of brush along easements will be to the property line or approximately 30 feet. Treatment activities are being done by crews utilizing hand and power tools. The brush is being immediately chipped in a mechanical chipper, and the chips are being redistributed back onto the roadway easement. This will provide ground cover that will temporarily inhibit growth of new fuel.

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 increased sightlines and wider fields of driver vision along the roadway enhancing safety for first responders and citizens alike.

- **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.

In addition to County wide projects, CAL FIRE in the West Point Battalion has established a strong partnership with the Calaveras Foothills Fire Safe Council on these projects:

- **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 fuel break construction on private parcels and road grading improvements to enhance access and egress.

**Stanislaus National Forest:** A strong partnership has been forged between CAL FIRE in the West Point Battalion and the Stanislaus National Forest (STF) Calaveras Ranger District fire and fuels 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 Fuel break.

**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 PRC 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 PRC 4291 changes requiring up to 100 foot of clearance.

### *d) 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: PRC 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. From 2009 - 2011 the Battalion 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.

**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.

**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.

**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.

**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 long-time supporter of CAL FIRE's fuel reduction plans. Their Weed Abatement ordinance targets unimproved lots ¼ acre or less. An EPFPD Prevention Officer typically responds to referrals and/or citizen complaints. Using an LE-100 style inspection process, the ordinance is enforced year-round. This ordinance is especially important to CAL FIRE, as we have no legal authority to apply 4291 fuel reduction and defensible space regulations to unimproved parcels. CAL FIRE supports the efforts of EPFPD by providing technical assistance to the district upon request, and through an aggressive 4291 inspection program on improved lots.

**Blue Lake Springs HOA Perimeter Fire Safety Project:** The Homeowners Association, in collaboration with CAL FIRE, the Ebbetts Pass Fire Protection District, U.S. Forest Service, Sierra Pacific Industries, Calaveras Big Trees State Park, Calaveras Foothills Fire Safe Council, adjacent Home Owners Associations and other private property owners, has designed a project with the goal of creating a shaded fuel break around the subdivision's perimeter. The intent is to prevent wildland fire from leaving or entering the 1500-lot subdivision; provide fire control resources access and anchor points; and to support ongoing efforts within the subdivision to motivate compliance with PRC 4291 requirements. Approximately 45 acres are targeted for treatment.

**Big Trees Village/Snowshoe Springs HOA's:** 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 HOA's continue to work collaboratively with these land managers to enhance wildland fire safety,

- **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

- **Big Trees Village Fuel Reduction Project:** Fuels reduction on 20 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 cut, piled and burned brush and small trees on approximately 20 acres owned by the Big Trees Village Homeowner's Association. This project is complete.

**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.

- Pistole Hazardous Fuel Reduction and Commercial Thinning: Designed to supplement existing protective measures within the Forest Meadows subdivision, this 40 acre Treatment Area is located a short distance west of the subdivision. An additional benefit will be improved forest health within the parcel. Plans call for mechanical mastication to remove brush, poison oak and mixed conifer and black oak 2$^{nd}$ growth, followed by hand pruning, to create a shaded fuel break. Following the removal of hazardous fuels, commercial sized understory will be removed according to CAL FIRE Fire Prevention Exemption rules, to reduce canopy cover and lessen the threat of crown fire. This project commenced in May of 2012. Calaveras Foothills Fire Safe Council provided the funding mechanism and project administration within the framework of the Calaveras County C.W.P.P.

**Calaveras Foothills Fire Safe Council:** Since 2001 this FSC has been fully engaged in the success of several fuel reduction efforts, including: the production and implementation of the Calaveras County Community Wildfire Protection Plan; production and distribution of Public Education materials, and programs; identification, planning and implementation of numerous on-the-ground fuel reduction projects. In 2012 the FSC was unable to secure funding for the following three projects; however applications for 2013 funding for these projects have been submitted to the Calaifornia Fire Safe Council Clearinghouse.

- **Seniors and Disabled Defensible Space Program:** A program designed to aid seniors and the disabled in attaining compliance with PRC 4291 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 PRC 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. Clearing of brush along easements will be to the property line or approximately 30 feet. Treatment activities will be done by a crew utilizing hand and power tools. The brush will be immediately chipped in a mechanical chipper, and the chips redistributed back onto the roadway easement. This will provide ground cover that will temporarily inhibit growth of new fuel.

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  - 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 increased sightlines and wider fields of driver vision along the roadway enhancing safety for first responders and citizens alike.

**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.

### *e) Battalion 5 Mitigation Efforts* *(rev 4-2014)*

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 PRC 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.

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

  - **Lower Yankee Hill Shaded Fuel Break:** This project was completed in the spring of 2012 providing 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 was completed in spring 2011 and constructed a 400 foot wide treatment 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 project reduced fuels along the roadway, providing a secondary escape route for the communities of Cedar Ridge and Comstock Ranch, to support the only other roadway (Kewin Mill Road) into this area; reducing the likelihood of the public becoming trapped in the event of a large wildland fire. This fuel reduction project improves 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 is currently in process and 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. On December 1, 2011 this area was subjected to a severe Mono Wind event with winds in excess of 90 MPH. This wind event caused major damage to standing timber and resulted in heavy amounts of debris. This road provides a secondary route into / out of the communities of Cedar Ridge and Comstock Ranch (Kewin Mill Road). CAL FIRE officials desire to construct this evacuation route for use should a wildland fire occur blocking the only current ingress and egress route on Kewin Mill Road. 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 treated approximately 64 acres along Wheeler Road and Long Barn-Sugar Pine Road East. Buildup of brush and trees has been reduced through mechanical and hand treatments. The fuel reduction has improved 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**)**:** This project is currently active as of June 2012 and is extending 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.

- **Rim Fire Contingency:** During the 2013 Rim Fire, a contingency line was built from Apple Colony Road in Tuolumne to the Aspen Meadows Pack Station near Pinecrest. The Fuel Break opened up several existing fuel breaks, VMPS's, THP's and fuel reduction projects including: Mount Havalia, Ponderosa Hills, Rude, Mount Provo, Williams, Shiloh and Xerogeanes. Tuolumne-Calaveras Unit will be actively seeking funding to maintain this contingency line as a single fuel break.

- **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 and was completed in April 2012. The reduction of fuels along this road assures 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 in 2005. The upper portion of Yankee Hill Road was heavily overgrown with brush and trees and while the roadway remained narrow and one lane in many sections, sightlines and blind spots have been reduced through the fuel treatments and pile burning. 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.

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

- **Cattle Drive Fuel Break - Maintenance:** This project included 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 in 2005. The project area is approximately 37 acres in size. 40 crew days were allotted for this project which was completed in April of 2013.

- **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. Cal Fire hand crews cut, pile and burn brush that has re-grown in the fuel break.

- **Mt. Havalia Fuel Break - Maintenance:** The original Treatment Area is approximately 106 acres in size. And was funded in 2007 via Proposition 40. Cal Fire hand crews treated approximately 34 acres by cutting, piling and burning brush in 2011-12. Maintenance will be required at least every three years on this fuel break. This project is complete.

- **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 were allotted for this fuel break maintenance project. This fuel break was originally established under the Proposition 40 program. This project is complete.

- **2013/14 Planned Projects to be submitted for funding**

  - **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 75 acre 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 has been awarded funding through the California Firesafe Council and Pacific Gas and Electric and individual landowners inside the project area.

- **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 and was completed in 2011. 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: I**n 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 Highway 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.

- 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 is 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 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 PRC 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 saw the addition of two new roadside fire prevention signs. These two-sided signs have been 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 have enabled 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.

  Major 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:** 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. Education 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.

### *f) 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 many residential structures survived due to the efforts of the homeowners subsequent to 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:** 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 Fuel Break:** From Indian Creek west and southwest to a tie-in 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. A portion of the Crook Ranch VMP (see below) project, intended as a maintenance activity on this section R.T.T., is planned for 6/25/12.

- **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 final review stages and may be under contract to burn as early as the fall of 2012, or in the early spring 2013. 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.

- **Crook Ranch VMP:** This project is now under a three year VMP contract consisting of 793 acres, plus an additional 100 acres under a Notice of Exemption. The site will be used for a Region C-234 class in June of 2012 and burning will also be conducted in the fall of 2012. This is a multi faceted project as it ties in with the Rim Truck Trail Fuel Break protecting the Community of Groveland and the Pine Mountain Lake subdivision. An additional resource benefit is eradication of the noxious weed known as Medusa head.

**Strategic Planning:** Since 1999 Battalion 6 communities have benefitted from the efforts of the South West 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 slash throughout the region. The program began in 2007 and was funded through 2011. During the life of this project to date 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 California Fire Safe Council totaling over

$151,000. An effort is currently underway in 2012 seeking funding to ensure this program will continue.

**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:** This project is currently in the environmental review stage and could be signed as early as fall 2012. The goal is re-implement the original burn plan designed to enhance the protection of high value watershed and storage in the Moccasin area. The project would encompass the roughly 650 acres that were last burned in the fall of 2002.

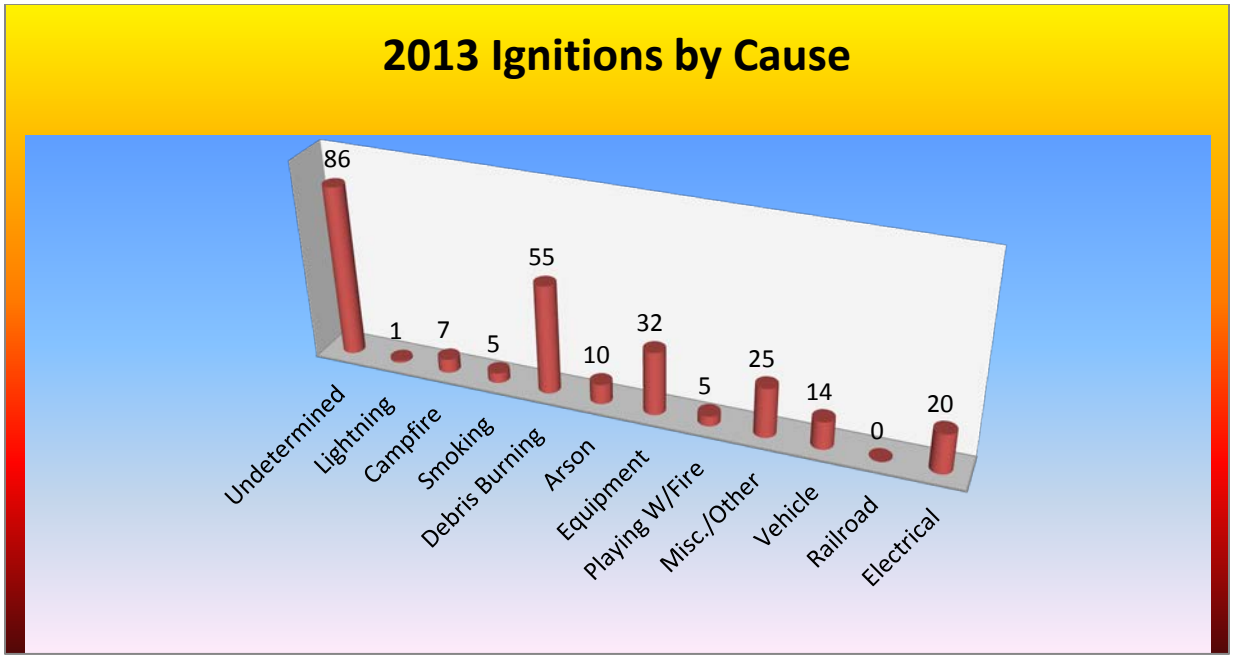
- **Priest Reservoir Water Quality Protection:** Continued fuel treatment work around Priest Reservoir to protect water quality and provide wildfire protection to water and power infrastructure.

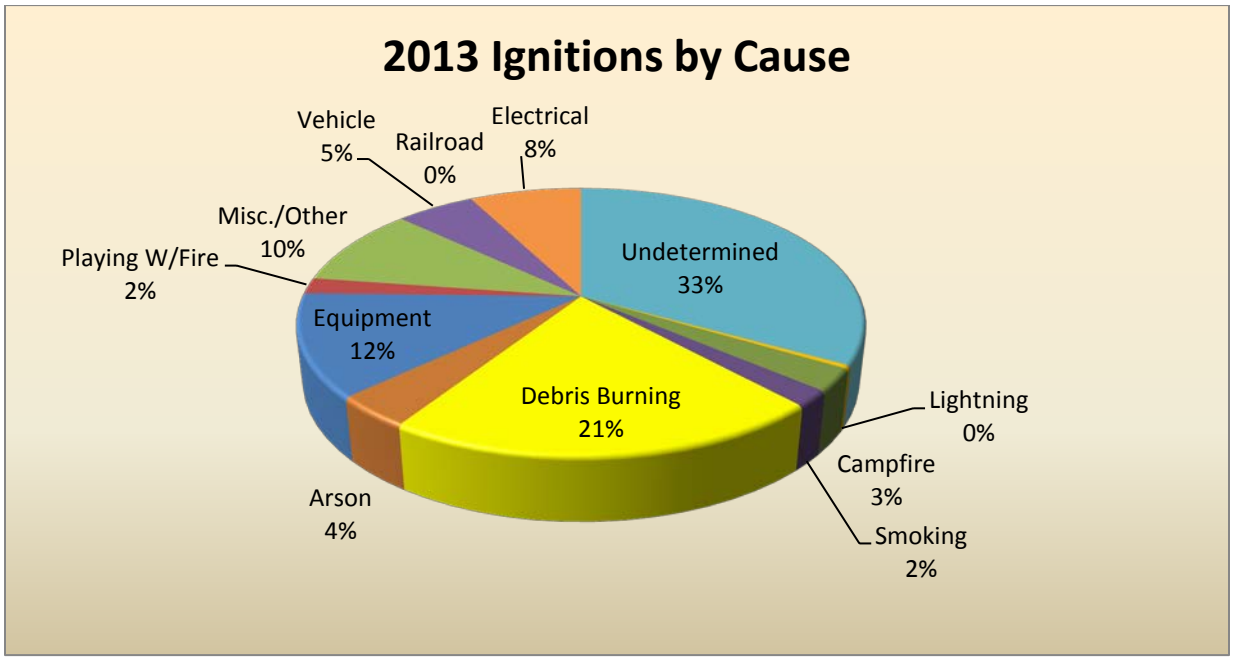
- **HHW&P Transmission Line Hazard Reduction:** On going work to reduce fuels under various power lines for both power line protection during a wildfire incident, and reduce the potential of fire start from line contacts; approximately 13 miles with an average width of 100' from Moccasin to the South Fork of the Tuolumne River

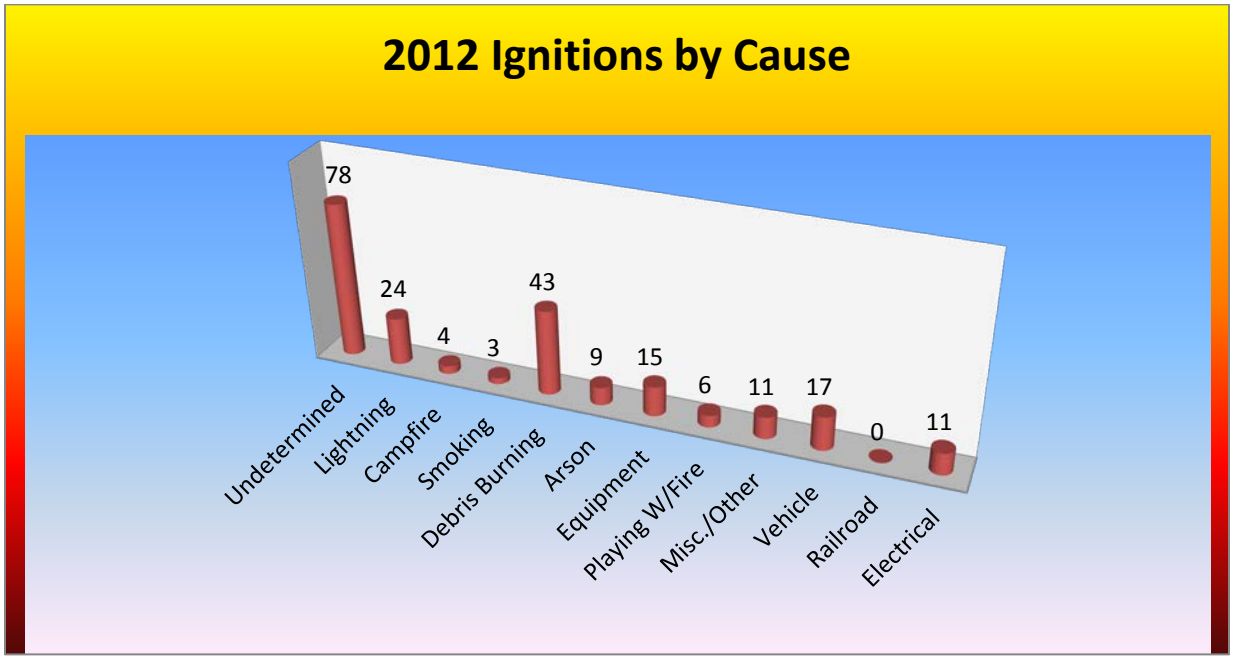
**Pine Mountain Lake Association:** Is a densely populated residential development consisting of 3,564 lots, 739 of which are unimproved. In the last 5 years they have become increasingly pro-active with their fire prevention activities. PML requires corner-to-corner clearance on ALL lots, including vacant lots; stricter 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.

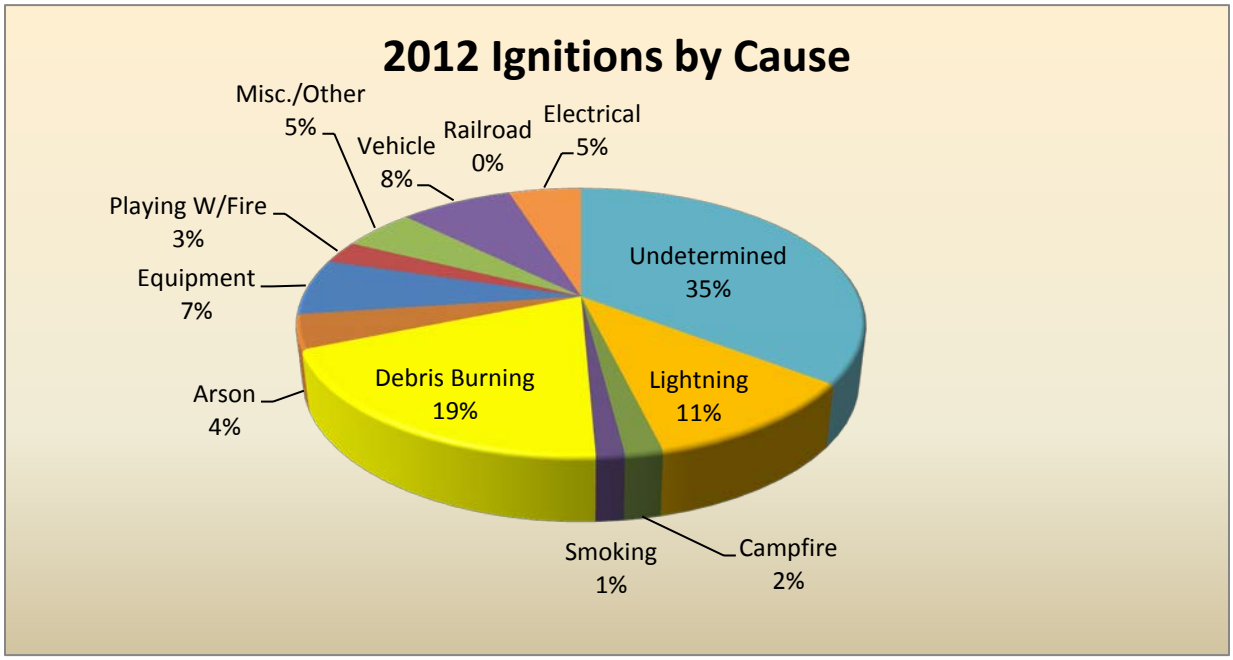
The Association is also engaged in fuel reduction efforts on community greenbelt lands in cooperation with the local Fire Safe Council, in its effort to gain Firewise Community certification. Of 1,207 acres of green belt, common areas, wildlife refuge and stream beds, 475 acres have been treated as of 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.

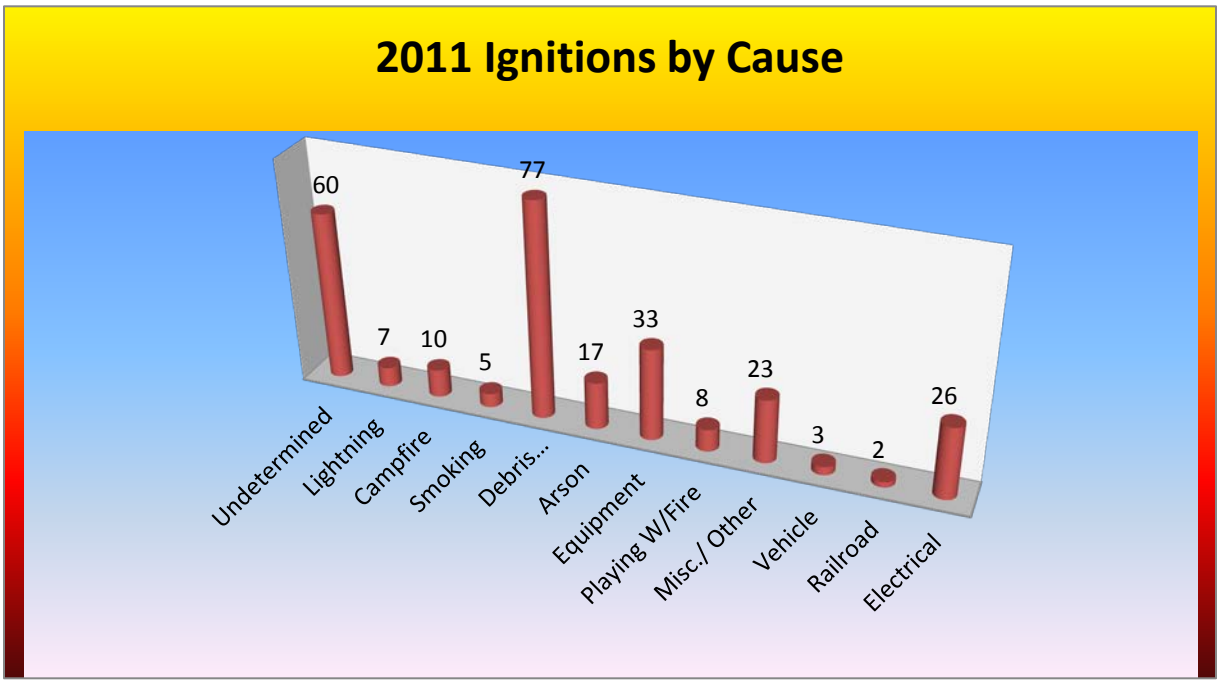
## APPENDIX D: Ignitions/Prevention Tables

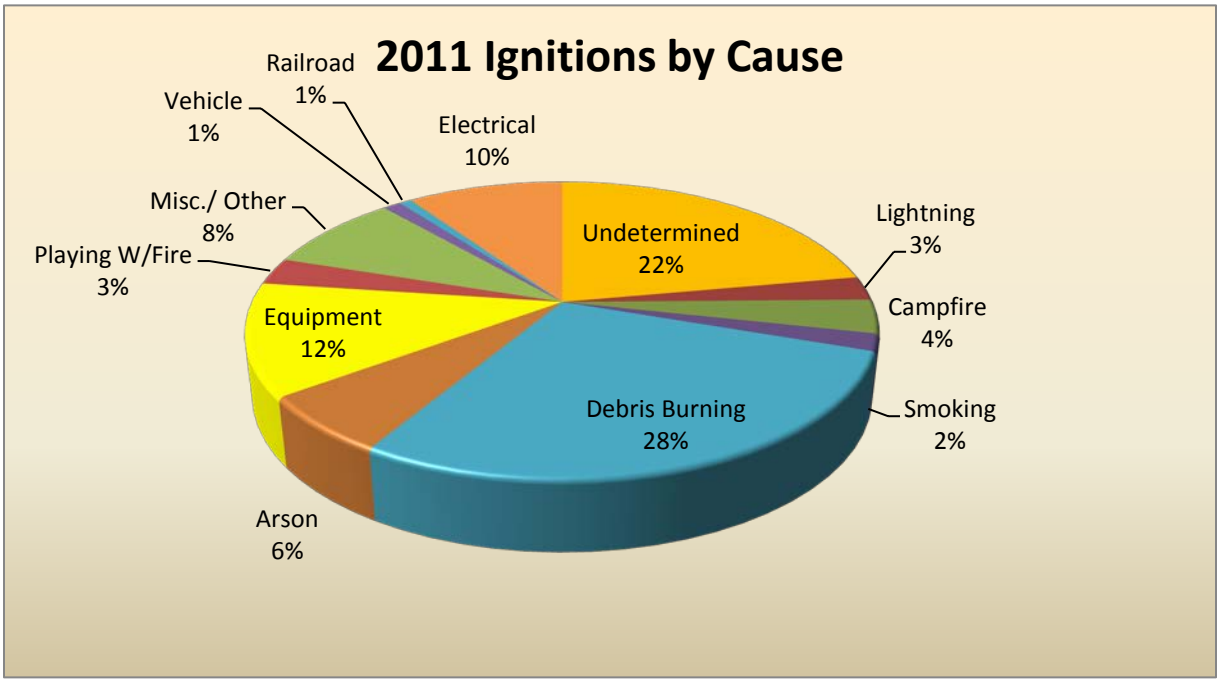


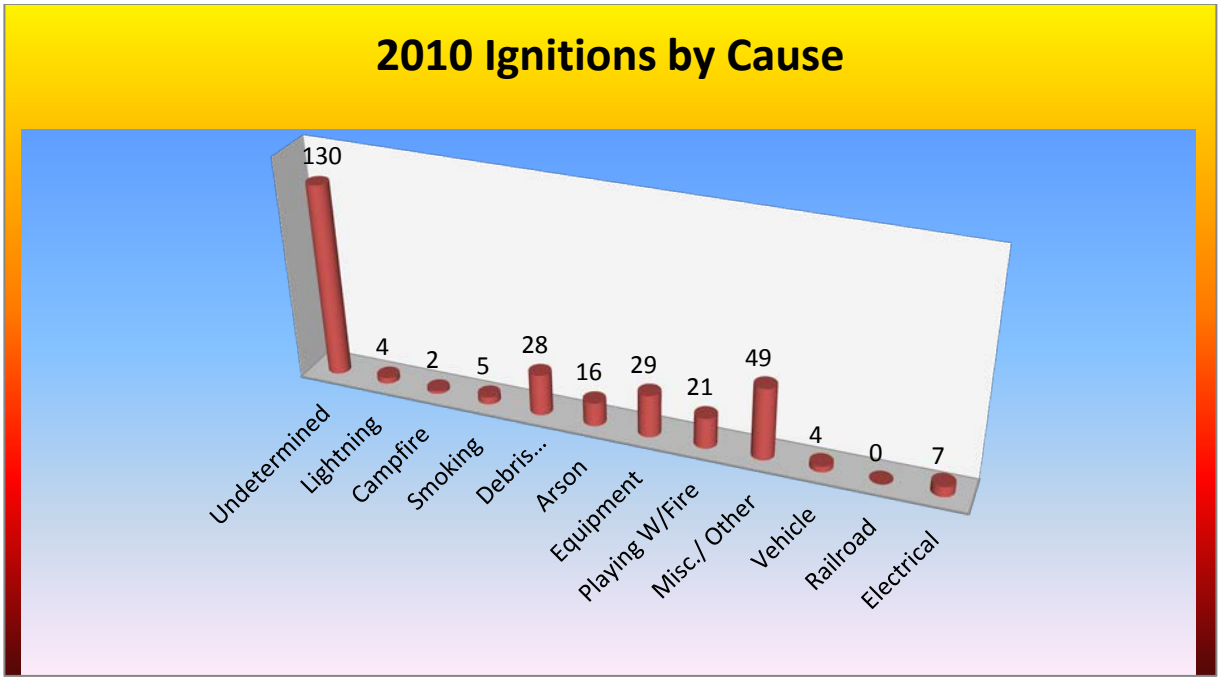



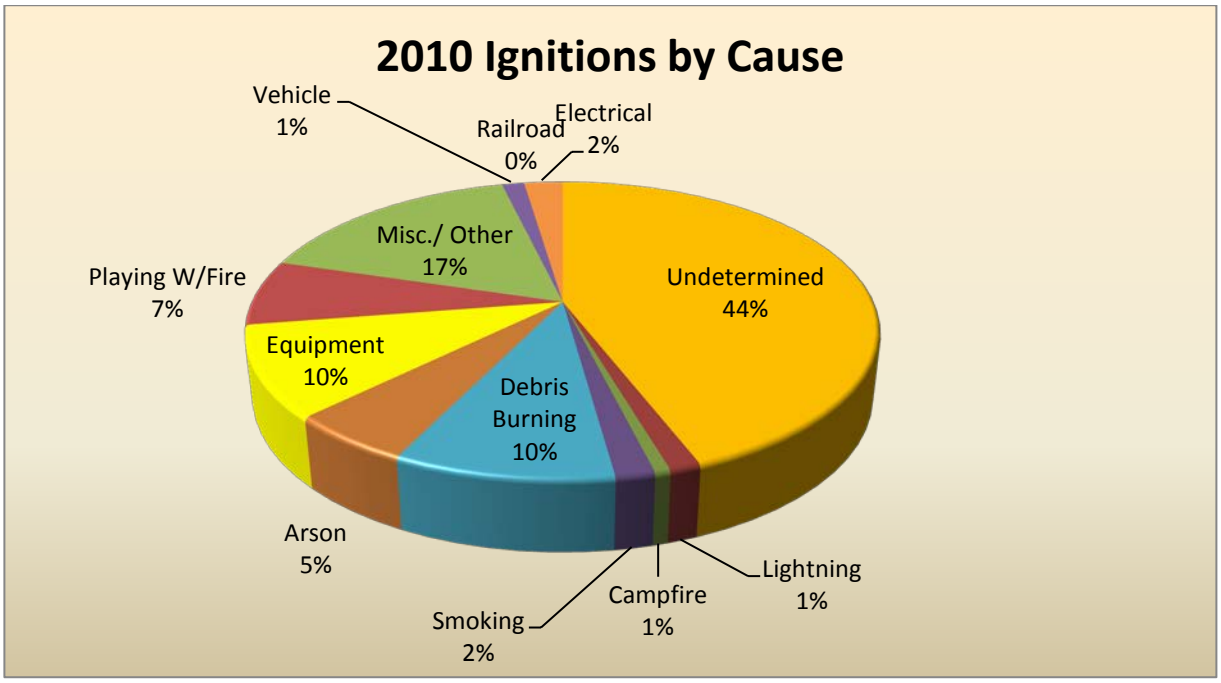

2012 Ignitions by Cause
78
24
4
3
43
9
15
6
11
17
0
11
Undetermined
Lightning
Campfire
Smoking
Debris Burning
Arson
Equipment
Playing W/Fire
Misc./Other
Vehicle
Railroad
Electrical


2012 Ignitions by Cause
Misc./Other 5%
Vehicle 8%
Railroad 0%
Electrical 5%
Playing W/Fire 3%
Equipment 7%
Arson 4%
Undetermined 35%
Debris Burning 19%
Lightning 11%
Smoking 1%
Campfire 2%


2011 Ignitions by Cause
60
7
10
5
77
17
33
8
23
3
2
26
Undetermined
Lightning
Campfire
Smoking
Debris...
Arson
Equipment
Playing W/Fire
Misc./ Other
Vehicle
Railroad
Electrical


2011 Ignitions by Cause
Railroad 1%
Vehicle 1%
Electrical 10%
Misc./ Other 8%
Playing W/Fire 3%
Undetermined 22%
Lightning 3%
Campfire 4%
Equipment 12%
Debris Burning 28%
Smoking 2%
Arson 6%


2010 Ignitions by Cause
130
4
2
5
28
16
29
21
49
4
0
7
Undetermined
Lightning
Campfire
Smoking
Debris...
Arson
Equipment
Playing W/Fire
Misc./ Other
Vehicle
Railroad
Electrical


2010 Ignitions by Cause
Vehicle 1%
Railroad 0%
Electrical 2%
Misc./ Other 17%
Playing W/Fire 7%
Undetermined 44%
Equipment 10%
Debris Burning 10%
Arson 5%
Lightning 1%
Campfire 1%
Smoking 2%

## EXHIBITS: MAPS

**Continued on following pages**

Figure A T/C Unit Map

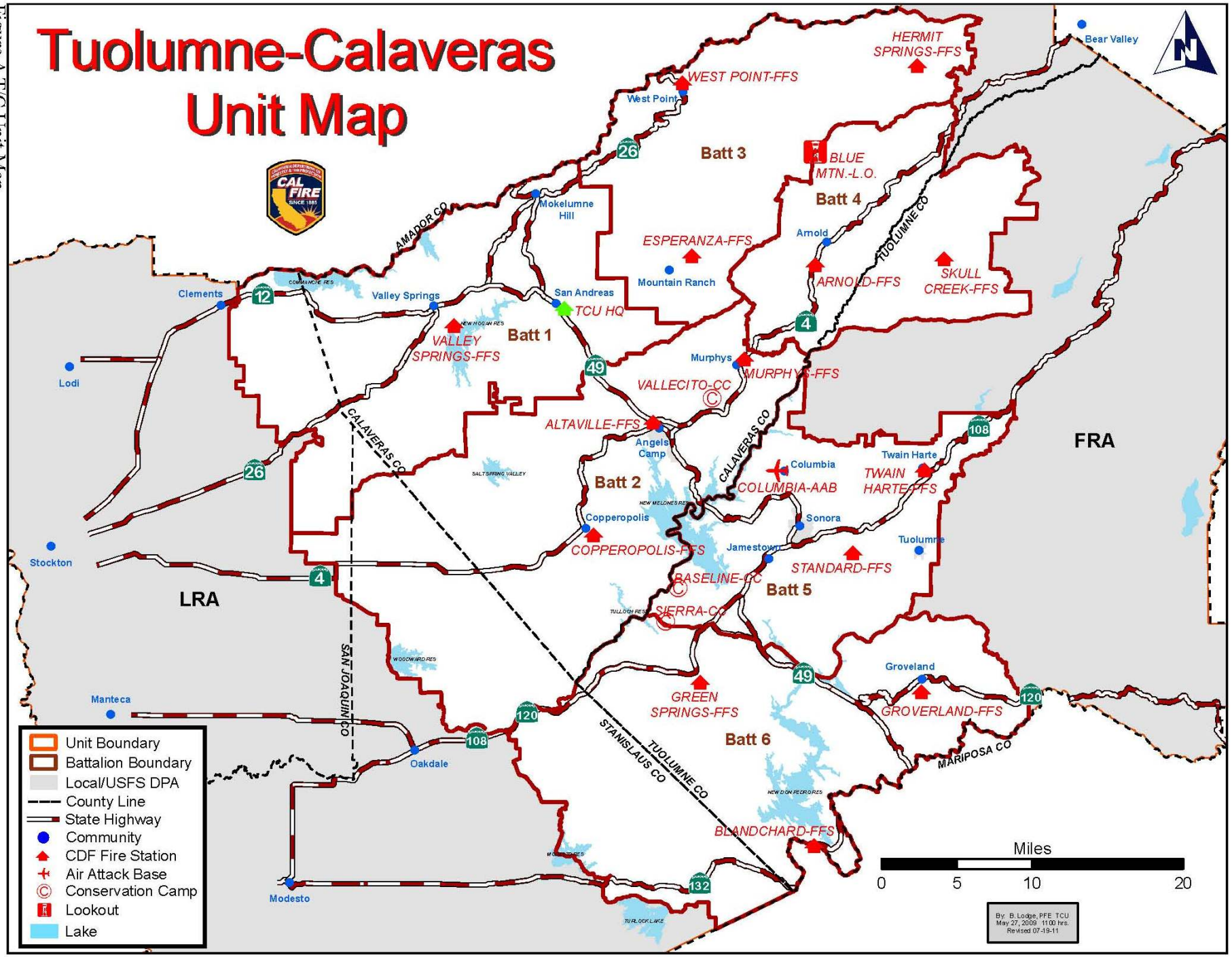



**Figure A: TCU Unit Map**

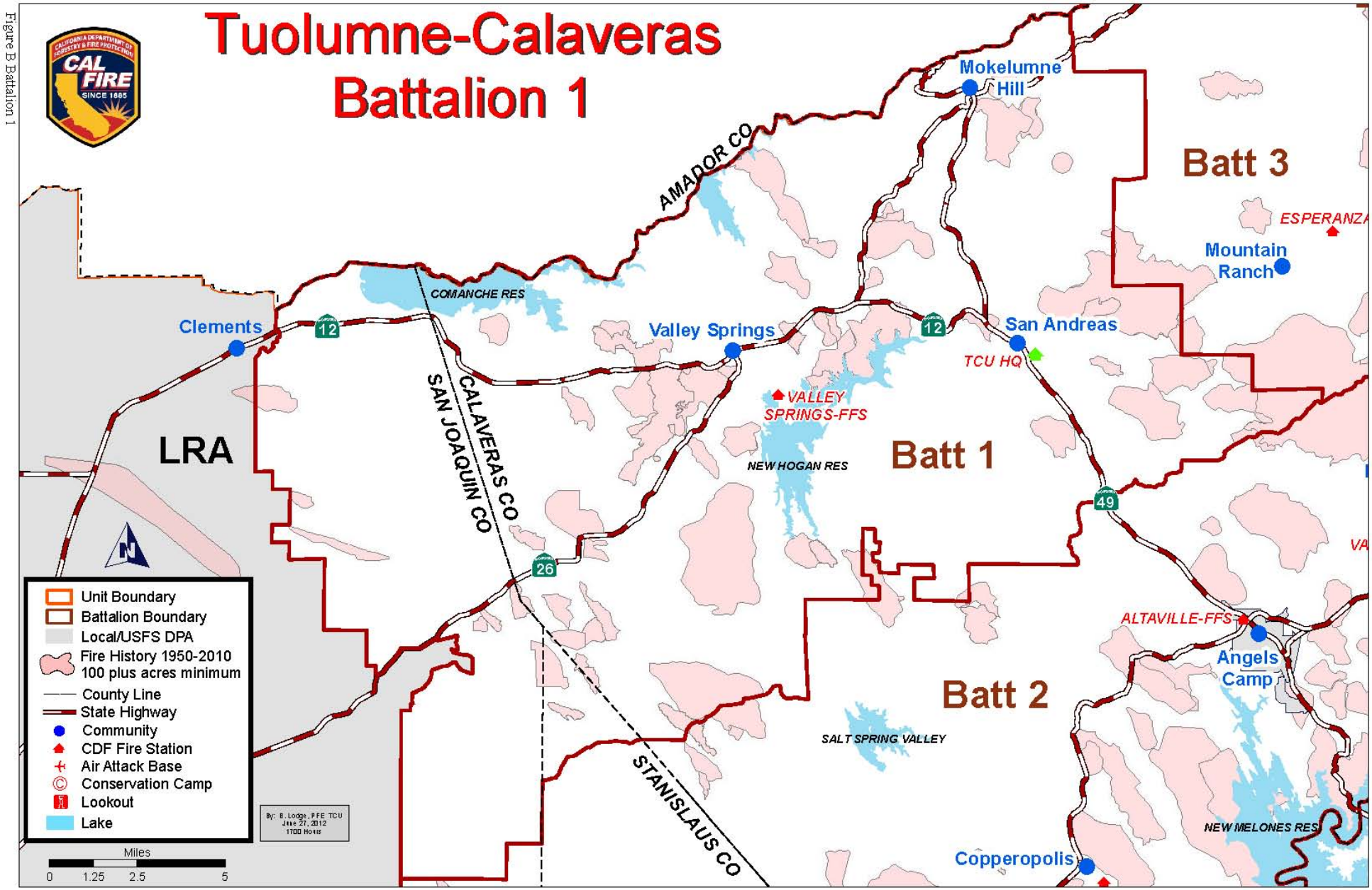



Figure B: Battalion 1

**Figure B: TCU Battalion 1**

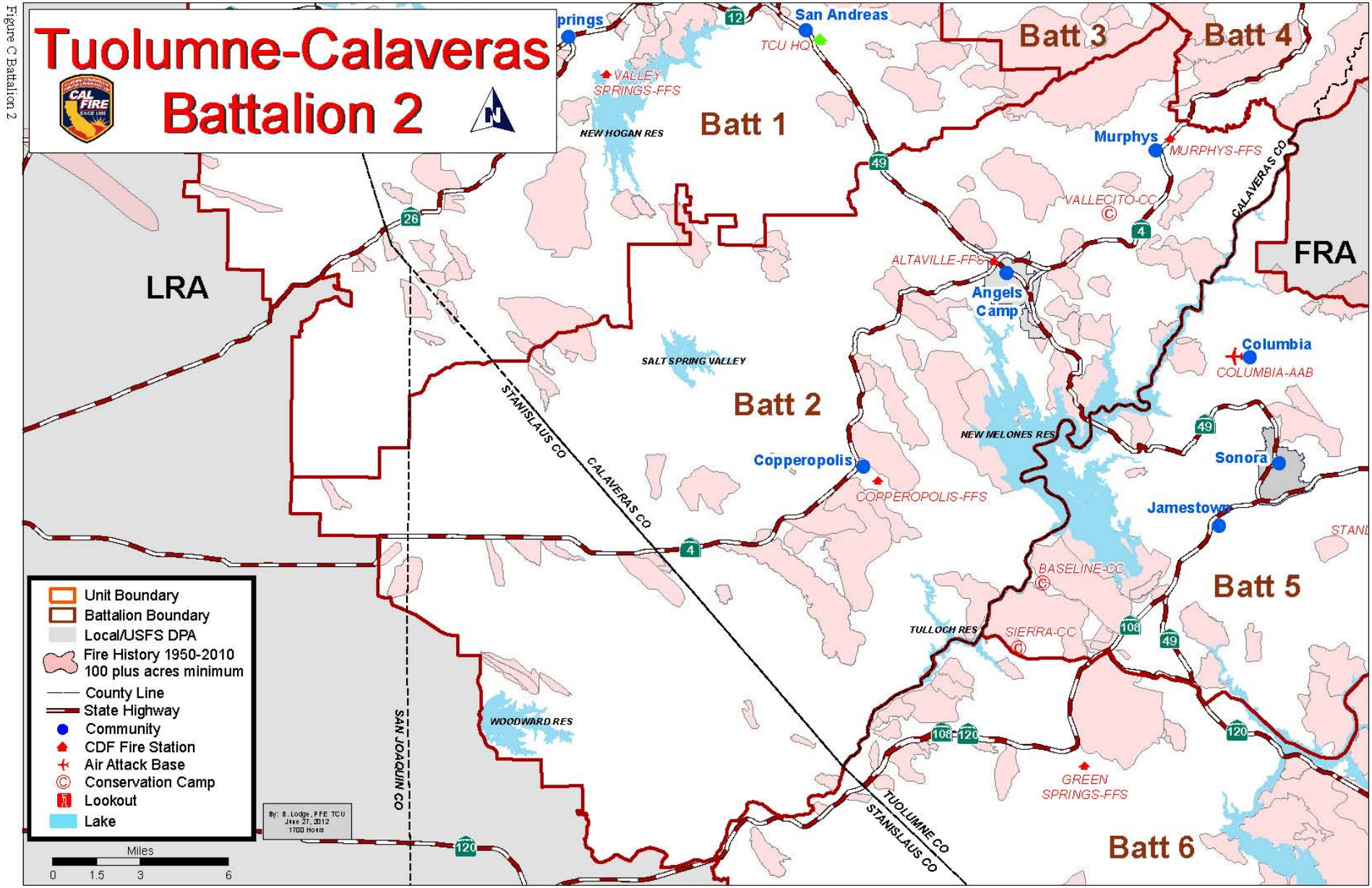



**Figure C: TCU Battalion 2**

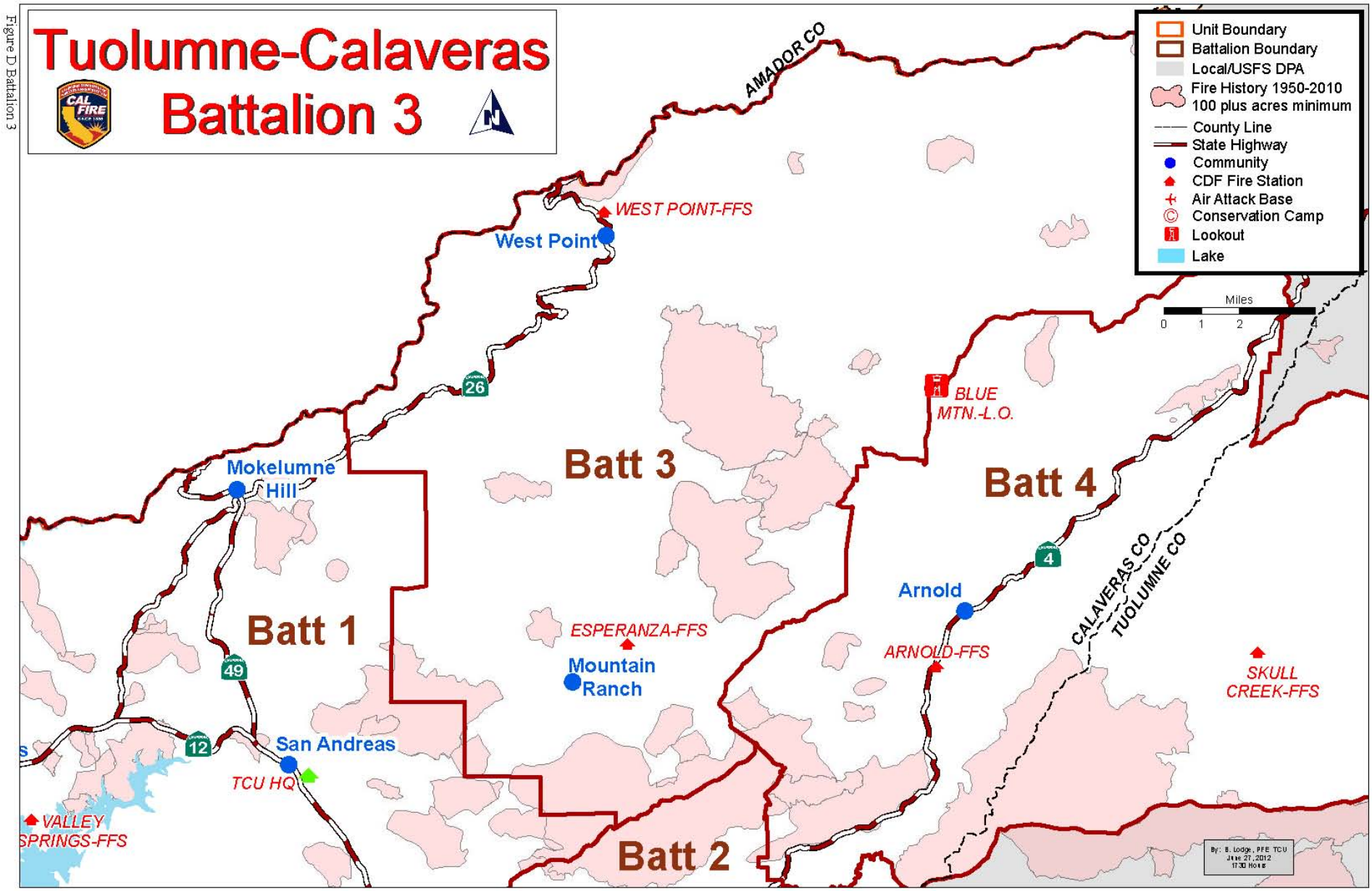



**Figure D: TCU Battalion 3**

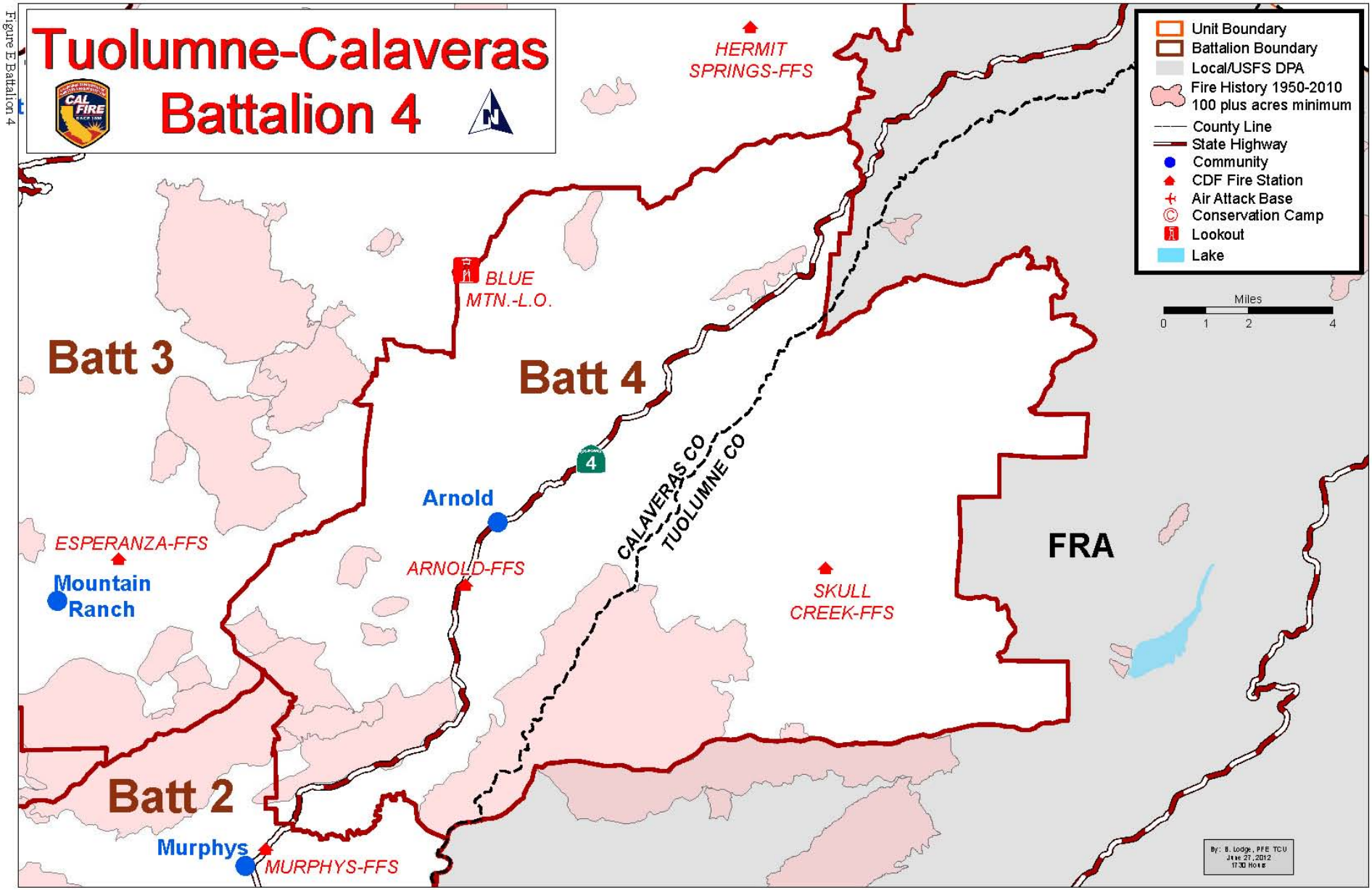



**Figure E: TCU Battalion 4**

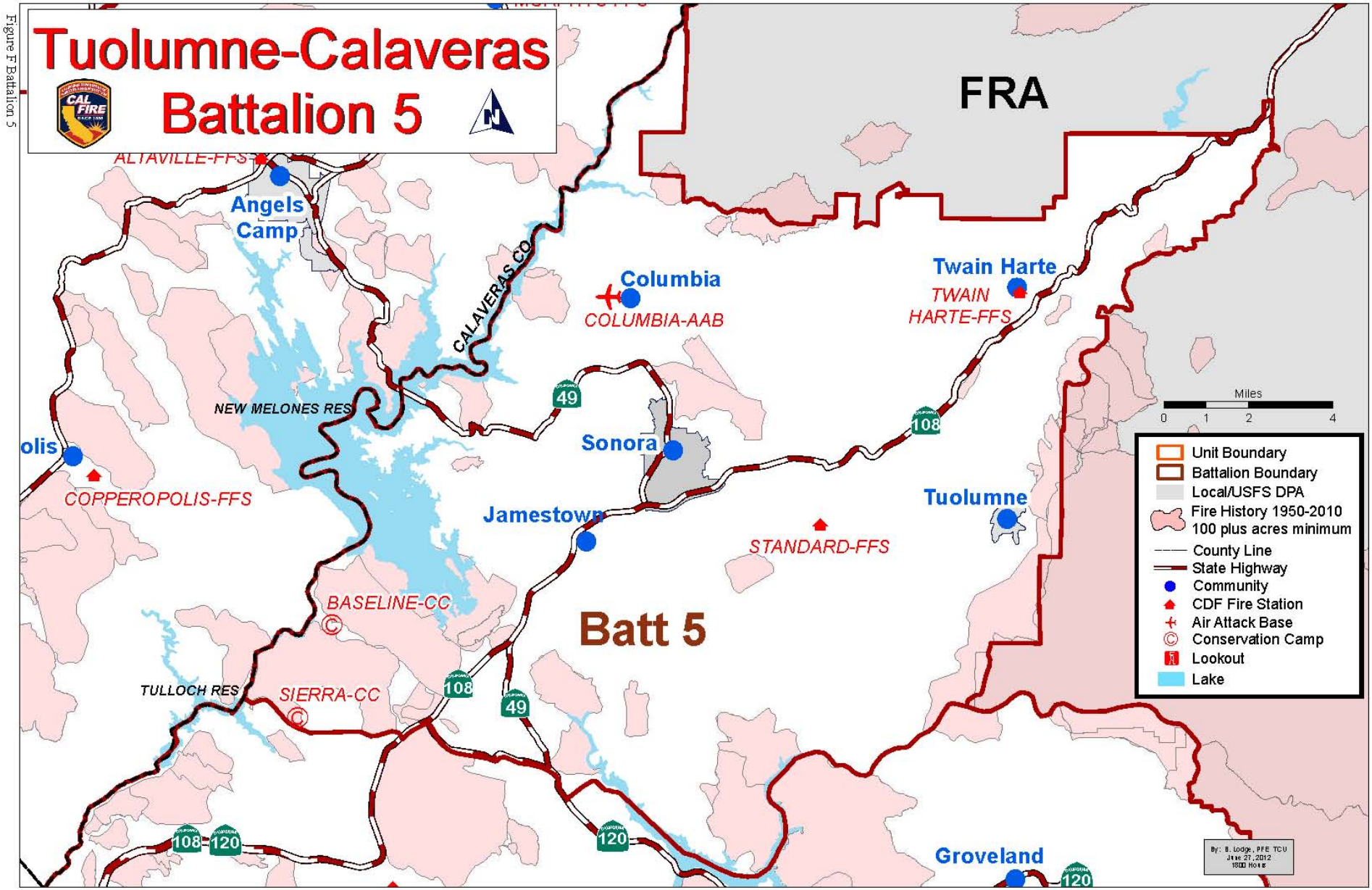



Figure F Battalion 5

**Figure F: TCU Battalion 5**

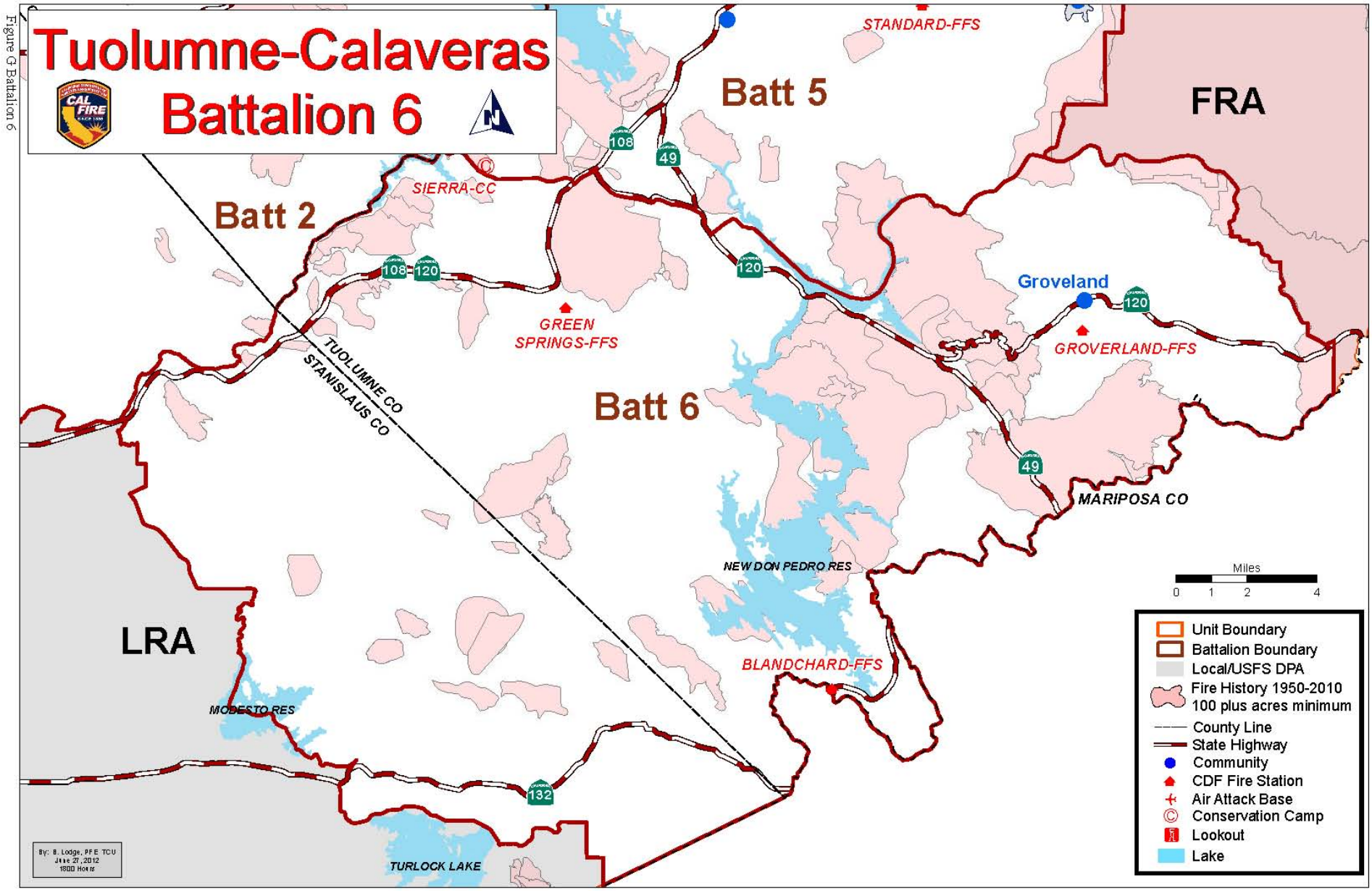



**Figure G: TCU Battalion 6**

## SUPPLEMENT: 2013

**Annual Report of Unit Accomplishments**

Battalion 1

- The Mokelumne Hill Fuel Break was completed. The Community of Mokelumne Hill has been highly receptive and appreciative of the project.
- Fire Prevention Road signs have been placed on Highway 49 and Highway 26.
- PRC 4291 Inspections are still ongoing in the Battalion.

Battalion 2

- There has been significant progress in the Bar XX Fire Defense Project.
- There has been significant progress on the Whittle VMP.

Battalion 3

- A training burn site has been established on SPI land, just west of Hermit Springs Station.

Battalion 4

- PRC 4291 inspections have been the main priority in the Battalion.

Battalion 5

- Completed work on the Yerba Santa Fuel Reduction Project.
- Cattle Drive Maintenance Project completed at 37 acres.
- Sierra Outdoor School Project completed at 36 acres.

Battalion 6

- 82 acres burned at Kistler Ranch under NOE, VMP still pending.
- 65 acres burned on Crook Ranch Ponderosa Road / Rim Truck Trail Fuel Break.
- Hetch Hetchy / Anker VMP nearing completion of the agreement. Baseline crews constructing fuel break beneath high tension lines south of pen stock.
- Many other collaborative projects with USFS/BLM under way in the SWIFT area.