A: ASSETS AT RISK

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

LIFE SAFETY:

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

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

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

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

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

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

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

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

WATERSHED:

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

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

Any given watershed contains multiple Assets At Risk:

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

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

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

- **Timber:** Approximately 920,000 acres of commercial timberland exist within the Unit. It is estimated that 58% of these timberlands have a high site index, which leads to increased timber stand productivity. The largest commercial timberland owner is Sierra Pacific Industries (~140,000 acres). Their large holdings between the North and Middle Forks of the Stanislaus river, historically known as the Standard Block, was considered the most valuable stand of virgin Sugar Pine in the world during the middle of the last century. SPI's timber harvest supports two saw mill operations; in Chinese Camp and Standard. In addition to the SPI timberland, many small landowners own commercial timberland. The USFS is the largest government owner of timberland in the Unit.

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

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

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

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

STRUCTURES:

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

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

INFRASTRUCTURE:

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

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

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

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

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

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

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

AIR QUALITY:

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

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

AGRICULTURE:

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

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

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

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

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

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

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

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

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

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

CULTURAL / HISTORICAL:

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

The discovery of gold in the late 1840's initiated a wave of European American development throughout the Sierra foothill country that continues nearly unabated to this day. As a result of its rich gold mining history the Unit includes many historic cultural sites, from the large number of abandoned mine sites, to remnants of structures and water delivery systems, to entire communities still thriving. The largest, most well known and heavily visited Gold Rush era "site" is the Columbia Historic State Park – a living community in the restored historic town of Columbia. Designated as a Community at Risk, Columbia is an important historical asset both locally and throughout the central California region. Another well known historic site of the era is the Knights Ferry Recreation Area within the SRA of eastern Stanislaus Co. Located on the Stanislaus River, adjacent to Hwy 108/120 near the Tuolumne/Stanislaus County border, the park features a 330 foot covered bridge built in 1863 and many historic buildings dating back to the later 1800's. Starting late in the 19th century, and operating for over 60 years into the 20th, logging on private and public lands, railroad based in the case of Tuolumne Co, was a significant industrial activity. Historic artifacts, camp and mill sites, railroad grades and infrastructure improvements are common throughout the eastern mid-elevation conifer forests of the Unit.

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

B: COMMUNITIES AT RISK

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

California Fire Alliance web site: Communities At Risk

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

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

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

County: TUOLUMNE **Year Listed: 2001**

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

Table 3B-1

County: Calaveras **Year Listed: 2001**

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

Table 3B-2

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

Name	Battalion
Bellota	1
Clements	1
Linden	1
Lockeford	1

Table 3B-3

County: STANISLAUS **Year Listed: 2001**

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

Table 3B-4