

*FIREWISE COMMUNITIES / USA*

**COMMUNITY ASSESSMENT REPORT**  
**FOR**  
**LAKE ALMANOR WEST**

Plumas County, California

2 December 2009

*Adopted by the WACC Board on 26 February 2010*

Contents:

Foreword .....	2
Introduction .....	3
The Home Ignition Zone .....	4
Severe Wildland Fire Scenario .....	5
Site Description .....	7
Assessment Process .....	16
Important Considerations .....	17
Observations & Recommendations ...	19
Successful Firewise Modifications .....	23
Next Steps .....	24
Appendixes .....	25
Existing Firewise Practices	
Prior Documentation	
Fire Apparatus Access	
Local Climate	
State Law (PRC 4291)	

## FOREWORD

In July of 2009 the Board of Directors of the West Almanor Community Club (WACC) voted to begin the process of seeking “Firewise Community” recognition for the Lake Almanor West development in northern Plumas County, California. Lake Almanor West lies within a wildland-urban interface (WUI), an area that figures prominently in wildland fire discussions. The development itself is a mix of tall trees and residences, with undeveloped forest land and a lake adjacent, making this a textbook example of a WUI.

The potential for catastrophic wildland fire has been recognized in the development since its very inception in the mid 1970s. Various efforts have been made over the years to reduce hazards on residential lots and community-owned parcels, and state laws are enforced regarding the creation and maintenance of defensible space on all lots with structures. The owners/managers of adjacent timberlands have taken steps to reduce hazards there as well, by way of thinning and general understory cleanup. Nevertheless, fire remains a priority safety concern at Lake Almanor West.

In 2001, in the wake of several years of increasingly devastating WUI fires across the nation, the federal government undertook an effort to identify those areas and communities that were threatened by wildland fire. Lake Almanor West was among the many communities identified as a “Community at Risk” in an August 2001 Federal Register listing. At the local level, Lake Almanor West has been an active participant in the development of an emergency evacuation plan and a Fire Safe Plan for the basin, as well as a part of subsequent and broader Plumas County wildfire fuel assessments, the Plumas County Community Wildfire Protection Plan (CWPP) and the Plumas County Disaster Mitigation Assistance Plan. Thus, the current *Firewise Communities / USA* initiative is simply the latest, and arguably the most comprehensive formal fire prevention activity pursued within Lake Almanor West.

## INTRODUCTION

The *Firewise Communities / USA* program is a nationwide effort to provide an effective management approach for preserving wildland living aesthetics. Its focus is on communities that exist in the midst of or in close proximity to areas that can be characterized as “wild” and undeveloped, typically containing large amounts of natural fuels such as trees, brush or heavy grass. The program is tailored to fit the circumstances of participating communities or neighborhoods, and is committed to ensuring that citizens achieve maximum protection from wildland fire. The community assessment that follows is intended as a resource to be used by Lake Almanor West residents in creating a wildfire safety action plan. The expectation is that the plan will be implemented in a collaborative manner, and updated or modified over time as needed.

This report follows the recommended outline and content for a community assessment as prescribed by the *Firewise Communities / USA* website. It provides a bit of initial background and then describes the results of onsite inspections at Lake Almanor West. The assessment points out areas where hazard reductions have already taken place and then discusses the potential for future improvements. A series of appendixes completes the report, capturing factual information that either was used during this assessment or that may prove helpful in future work. This report also serves as an educational package, describing basic wildland fire characteristics in this locale and documenting key features of the community at a particular point in time.

It is important to note that this document is not a plan for future action. Rather, it is the foundation for such planning. The decisions to conduct additional fire hazard reduction activity and to pursue formal recognition as a *Firewise Community* will be addressed by the Lake Almanor West community as a subsequent step.

The principal participants in the development of this Assessment Report included both fire professionals and community members:

- California Department of Forestry & Fire Protection (CAL FIRE)
  - Jay Neuman
- Plumas County Fire Safe Council
  - Jerry Hurley ... U.S. Forest Service firefighting background
- West Almanor Fire Department
  - Chief Randy Fluke
- West Almanor Community Club (WACC) Board of Directors
  - Don Van Alen
  - Chris Christensen
- Lake Almanor West community
  - Dick Horn ... insurance industry background
  - Dale Knutsen ... Chairman, Almanor Basin Fire Safe Council, and editor of this Assessment Report.

## THE HOME IGNITION ZONE

Lake Almanor West is located in a wildfire environment. Wildfires will happen – total fire exclusion is not a realistic choice. The only variables are (a) where the wildfire will occur, (b) when it will occur, and (c) what the relevant conditions will be at that time. It is this last variable that homeowners can influence, and influence very strongly, by their actions before fire appears.

A house burns because of its relationship with its immediate surroundings, an area called the “home ignition zone.” To avoid a home ignition, nearby fuels must be reduced or interrupted and combustible materials found on or up against the home must be protected or eliminated. Homeowners do have the ability to significantly impact their home ignition zone in either a positive or negative manner. Attention to the need and some relatively simple actions will have a positive impact; inattention, procrastination or denial will have the opposite effect.

This assessment addresses the wildfire-related characteristics of the overall Lake Almanor West development. It primarily examines the area’s exposure to wildfire as it relates to ignition potential. The assessment does not focus on specific homes, but rather on the community as a whole. In so doing, it deals with widely applicable techniques of fuel interruption that alter or eliminate the natural path that a fire might take. Changing a fuel pathway is a relatively easy-to-accomplish task that homeowners can do, and one that can prevent a tragic structure loss. This is basically a strategy of separating combustible materials from the structure and reducing the volume of vegetation to reduce fire intensity.

The assessment is based on community observations made during the autumn of 2009. It addresses the relative ease or difficulty with which home ignitions could occur under severe wildfire conditions, and how those ignitions might be avoided with prudent preventative action. Lake Almanor West residents CAN reduce their risk of home destruction during a wildfire by taking a few important steps within the home ignition zone, which includes the structure itself and an area extending outward about 100 to 150 feet. By addressing community vulnerabilities in advance, residents will be able to substantially reduce their exposure to loss. Relatively small investments of time and effort will reap large rewards in wildfire safety.

While each home ignition zone is an independent entity, managed by the owner of the individual property, the combined home ignition zones in a development can form either an invitation to wildfire or a barrier. This is further complicated by overlapping home ignition zones found in most of Lake Almanor West; our typical lot sizes result in relatively close proximity to neighboring structures. Embers produced by burning vegetation or structures on one lot can easily drift onto adjacent lots, and these can lead to new ignitions and spot fires. This is why a community approach is just as important as the need for individual property owners to protect their individual homes. It is also vital to recognize that in the event of a major fire emergency, there simply won’t be enough fire trucks and crews to protect all or even a large fraction of the homes in the development. It will often come down to the extent of previous work accomplished in the home ignition zone to make the difference between home loss or survival.

## SEVERE WILDLAND FIRE SCENARIO

Firefighters generally categorize fires into several basic types. Among those are wildland fires and structure fires, two types that are relevant to this assessment. A wildland fire is one that primarily occurs within and consumes natural vegetation, while a structure fire primarily burns structural materials and building contents. These two fire types converge in the wildland-urban interface (WUI).

Locally, wildland fires are addressed by the California Department of Forestry and Fire Protection (CAL FIRE) on private lands and the U.S. Forest Service (USFS) on National Forest lands. Structure fires are generally the responsibility of the cognizant fire district or fire department; in the case of Lake Almanor West, that would be the West Almanor Fire Department. These formal lines of responsibility sometimes become blurred in the WUI when it becomes difficult to tell where the forest ends and the residential area begins. Nevertheless, these are the primary fire suppression organizations that may respond to a nearby wildland fire.

Fire intensity and spread rate depend on the fuel type and condition (i.e., live or dead), the weather conditions prior to and during ignition, and the topography. Generally, the following relationships hold between the fire behavior and the fuel, weather and topography:

- Fine fuels such as dead grass, twigs and dry needles ignite more easily and spread faster with higher intensities than coarser fuels such as large branches. For a given fuel, the more there is and the more continuous it is, the faster the fire spreads and the higher the intensities. Fine fuels take a shorter time to burn out than coarser fuels.
- Weather conditions affect the moisture content of the dead and live vegetative fuels. Dead fine fuel moisture content is highly dependent on the relative humidity and the degree of sun exposure. The lower the relative humidity and the greater the sun exposure, the lower will be the fuel moisture content. Lower fuel moistures produce higher spread rates and fire intensities.
- Wind speed significantly influences the rate of fire spread and fire intensity. The higher the wind speed, the greater the spread rate and intensity.
- Topography influences fire behavior principally by the steepness of the slope. However, the configuration of the terrain such as narrow draws, saddles and so forth can also influence fire spread and intensity. In general, the steeper the slope, the greater the uphill fire spread and intensity.

Lake Almanor West is situated in a somewhat unique setting (further described in the next chapter), with a large body of water bordering the development on the east and north sides. That setting, coupled with prevailing summertime breezes from the southwest to west, suggest that the most likely approach of a wildland fire would be from the south or west.

The forest lands immediately adjacent to Lake Almanor West have all been treated to reduce fire hazards there. Thinning and understory cleanup actions have been taken on both the Lassen National Forest area and the Collins Almanor Forest areas. These efforts have greatly reduced, but not completely eliminated, the probability of high intensity crown fires in the portion of the forest closest to the development.

Fire modeling accomplished as part of the 2004 *Plumas County Hazardous Fuel Assessment and Strategy* indicated that fire behavior in the adjacent timber would be mostly surface fire with some pockets of torching and isolated active running crown fire. Thus, the preventative actions taken on these lands have reduced the intensity of an approaching fire, but

the development can still anticipate a severe “ember attack” during a wildland fire event. Embers or firebrands are produced when natural vegetation burns. They tend to be carried aloft by the superheated air of the blaze and can then be carried long distances in advance of the actual flame front by even light winds. It is not uncommon to find glowing embers a mile ahead of the main fire.

If the conditions are right, millions of embers can be produced in a relatively short time by even a modest wildland blaze. These tend to fly like incendiary snowflakes, eventually settling to the surface and even “drifting” to form small clumps. If they land on a combustible material, they can cause a new ignition even though the main fire is still a long distance away. This is the way that “spot fires” are ignited. This is also the primary threat to residences.

***For purposes of this assessment, the adopted scenario for a severe wildland fire event would therefore be a major blaze in the forest south or west of the development, producing large quantities of windblown embers. Subsequent spot fires in the interior of the development could produce additional quantities of embers, contributing to further ignition potential.***

## SITE DESCRIPTION

This lengthy portion of the report describes certain elements of the Lake Almanor West development and adjacent areas, as they relate to fire issues. The illustrations supporting this discussion are all found at the back of this section.

### Overview

Lake Almanor West is a common-interest development situated along the west shore of Lake Almanor in northern Plumas County, California. It lies immediately east of California State Highway 89 and is one of several developed areas around the lake (Figure 1). The development began in 1974 on what had previously been private timberland. Lake Almanor West and adjacent private lands are situated within a State Responsibility Area (SRA) for fire protection, meaning that the California Department of Forestry and Fire Protection (CAL FIRE) is the cognizant authority for fire prevention and fire suppression matters in such areas.

At the onset of development in the 1970s, Lake Almanor West supported a mostly second growth, mixed conifer forest composed primarily of pine, white fir and incense cedar. Tree density was variable, reflecting the natural regrowth patterns of an area that had previously been logged. At that time there were some brushy spots but essentially no natural grasslands.

The development encompasses an area of approximately 652 acres (1.02 square miles). This includes 695 residential parcels, a 9 hole golf course, several other recreation-oriented parcels, three greenbelt areas, a water company parcel and 8.5 miles of dedicated county roads.

### DEVELOPMENT AREA

WACC Community Areas:	
Recreation Area .....	3.1 acres
Golf Course & Related .....	87.1
Tennis Courts .....	1.7
Boat Ramp .....	2.3
Subtotal, developed .....	94.2 acres
Northwest Greenbelt .....	4.0
Osprey Loop Greenbelt .....	16.5
Front Entrance Greenbelt .....	11.1
Subtotal, undeveloped .....	<u>31.6</u>
Total WACC Areas .....	125.8
West Almanor Mutual Water Co. ....	5.0
Residential Parcels & Roads .....	<u>521.2</u>
Grand Total .....	652.0 acres

The ownership and basic utilization of the areas within and immediately adjacent to the development are illustrated in Figure 2. The lake borders most of two sides of the roughly triangular development area. To the south lie public lands administered by Lassen National Forest. Collins Pine Company owns timberlands to the west and southwest. A swath of land bordering Highway 89 is owned by the State of California.

The development area includes a 5 acre parcel (H) owned by the West Almanor Mutual Water Company, the water supplier for the development. The remaining development area is either residential parcels or community-owned parcels that are administered by the West Almanor Community Club (WACC), the local property owners' association. These latter areas include the central golf course (B), a beachfront recreation area (C), a boat ramp facility (D), and three greenbelts (E, F & G). Lake Almanor itself is owned and operated by Pacific Gas & Electric Company (PG&E). That company also owns the shoreline strip between the variable water level and an elevation of 4500 feet msl (i.e., the elevation of the dam spillway). This narrow shoreline area (J) often includes natural vegetation.

### Topography

The topography of the development is uneven (Figure 3), starting at the lakeshore elevation of approximately 4500 feet above mean sea level (msl) and rising to a central hilltop at 4860 feet msl. Major portions of the development exhibit shallow gradients while the areas on the western portion can become relatively steep.

### Protective Zones

The Lake Almanor West development enjoys some inherent fire protection from its setting. The lake itself serves as a fire barrier along 3.45 miles of the development perimeter, or 62% of the total perimeter. Shaded fuel breaks and Defensive Fuel Profile Zones (DFPZs) have been established along the remainder of the development perimeter, as shown in Figure 4. These areas on Lassen National Forest and Collins Almanor Forest have been mechanically thinned to reduce fire hazards and permit fire suppression crews to operate in a relatively safe environment. Similar thinning treatment has been applied to the three greenbelt areas within the development; lower tree limbs and understory debris have also been removed on those parcels. The well-tended grassy areas of the golf course and the recreation area provide additional protective zones in the interior of the development.

### Demographics

The most recent official census in 2000 indicated a population of 329 individuals in 165 households at Lake Almanor West at that time. These numbers represent those who claim residency within the development, as opposed to those who may have a second home or vacation home here. This difference is further clarified by the census count of 367 total housing units within the development, versus 165 "full time" households, indicating that well over half of the homes in place at that time were only occupied on a part-time or occasional basis. Of the full time population, 70% were age 55 or older, and 38% were age 65 or older.

A subsequent informal community survey in December of 2003 indicated that only 34% of the households were considered full time. Of the total WACC membership, including full time residents, part time residents and owners of undeveloped residential lots, some 47% were retired.

Community records were again reviewed in August 2009 specifically in preparation for this Firewise assessment. That review produced the following results:

Developed lots .....	500 (72%)
Undeveloped lots .....	195 (28%)
Total residential lots .....	695

Full-time households .....	168	(24% of total lots; 34% of households)
Part-time households .....	332	(87% of total lots; 67% of households)
Undeveloped lots .....	<u>195</u>	(28% of total lots)
Total .....	695	

During the winter months, the number of actual occupied residences drops even lower than what the above figures would indicate as “snow birds” migrate to warmer climates for periods of up to several months.

Fire Hydrant System

All of the developed areas at Lake Almanor West are served by a residential fire hydrant system (Figure 5). The domestic water supply and hydrant supply system is gravity fed from two large storage tanks, each with 224,000 gallon capacity and located on the hilltop area of the development. Water can be replenished to the tanks at a rate of more than 1,500 gallons per minute when all three domestic well pumps are operating. Basic flow rate at the individual hydrants typically varies from 750 to over 1,000 gallons per minute, depending on hydrant location; even higher flow rates are available if the water is “drawn” by the fire engine.

Local Fire Department

A well-equipped fire station is centrally located right within the development. The West Almanor Fire Department (WAFD) is the principal element of the West Almanor Community Services District (WACSD), a county-chartered entity providing fire prevention, fire suppression and emergency medical services to Lake Almanor West.

WAFD has one full-time employee, the Fire Chief / General Manager, and more than a dozen volunteer firefighters who are local residents. When the Chief is absent, a qualified per diem firefighter fills in at the fire hall. The department currently has five major items of equipment: a 1985 International / Superior Type II fire engine, 1993 Ford F350 quick attack truck, a 2003 Westates Type I engine, a 2002 Chevy Suburban command/tow vehicle and a 2003 Jetcraft 26 foot fire rescue boat. Departmental resources also include up-to-date firefighter gear for all responders (i.e., protective clothing, breathing apparatus, radios), necessary firefighting tools and appropriate medical response equipment and supplies found on the several vehicles.

Automatic aid and mutual aid agreements are in place with other nearby agencies to supplement the WAFD force as required. Such support in the event of a major structural fire would typically come from the similar agencies at Prattville, Chester, Peninsula and/or Hamilton Branch.

Fire History

There is no record of any major wildland fire within or immediately adjacent to the development area for approximately a century. The nearest such fire took place in the 1920s in an area approximately two miles south of the development and just west of Highway 89. That area, locally referred to as “The Plantation,” was replanted in the early 1960s and now hosts a young forest. Other significant wildland fires in the region have all been a substantial distance away from Lake Almanor West. The largest of those was the August-September 2000 “Storrie” fire, a very large (55,000 acre) blaze that burned to within about eight miles south of the development.

There have been occasional ignitions in the nearby forested areas, sometimes caused by lightning strikes and sometimes attributed to human causes. Early detection and prompt suppression action has prevented such ignitions from developing into anything more than a small spot fire.

Structure fires have occurred on occasion at Lake Almanor West. A review of the WAFD records indicates that in the thirty five years since the development began there have been two homes lost, both due to internal ignitions. There have also been other, less serious residential fires, primarily escaped yard debris burns, flue fires or ignitions due to electrical problems. One of the flue fires resulted in the ignition of a shake roof.

### Agency Ratings

#### •• ISO Fire Rating

The Insurance Services Office, Inc. (ISO) is the principal supplier of statistical, actuarial and underwriting information for the property insurance industry. ISO fire insurance ratings serve as an industry standard, a foundation upon which most insurers build their coverage programs. Their ratings are based on several factors including:

- The quality of the fire department
- The water supply and hydrant system
- Communication systems
- Building codes
- Property inspection programs.

ISO ratings range from 1 to 10, with 1 being perfect. Since the ISO ratings are used by insurance companies to set insurance premium rates, the lower the ISO fire rating, the lower the premium.

Lake Almanor West enjoys an ISO rating of 3, which is the best in Plumas County.

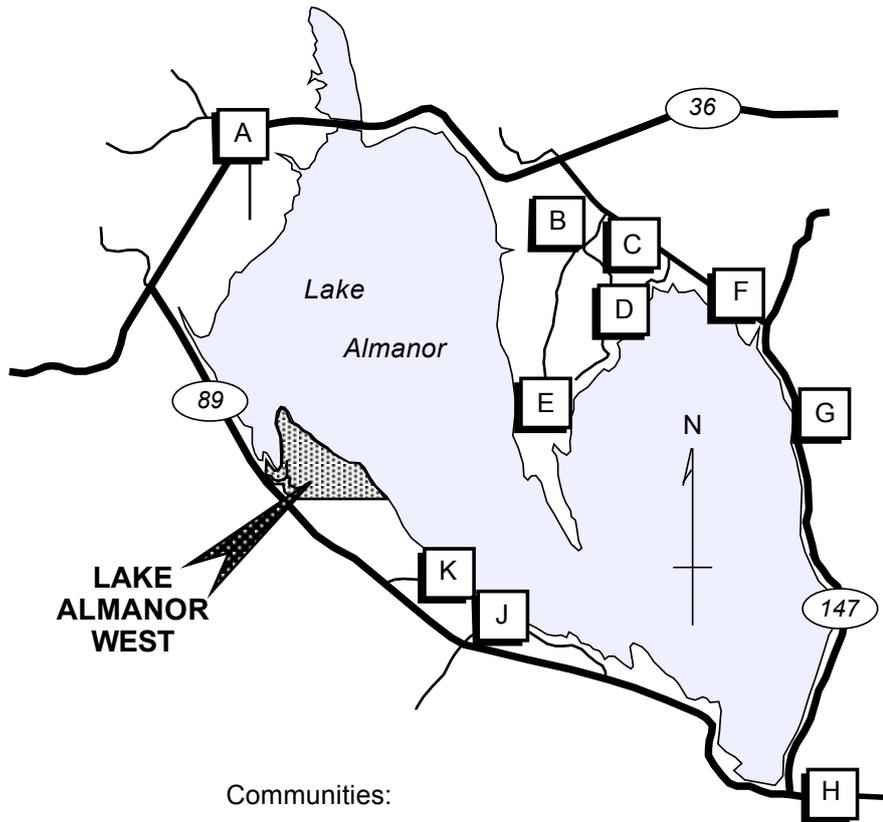
#### •• CAL FIRE FHSZ Rating

Periodically, CAL FIRE reviews and updates its statewide assessment of general fire hazards within and near the State Responsibility Areas (SRAs). The most recent update involved both a reassessment of these diverse lands and a modified methodology that improved the resolution of the findings. Nevertheless, the resulting hazard ratings still reflect large scale (i.e., coarse) modeling to produce broad averages over substantial areas and do not appear to indicate the mitigating effects of shaded fuel breaks or defensive fuel profile zones (DFPZs).

The 2007 CAL FIRE Fire Hazard Severity Zone (FHSZ) map for the region rates the Lake Almanor West development as a "High" fire hazard area, with the exception of the golf course which is given a "Moderate" hazard rating. The surrounding forests, which include both public and private lands, are all rated "Very High" hazard areas; no distinction is made between shaded fuel breaks and untreated areas

Figure 1

# ORIENTATION MAP

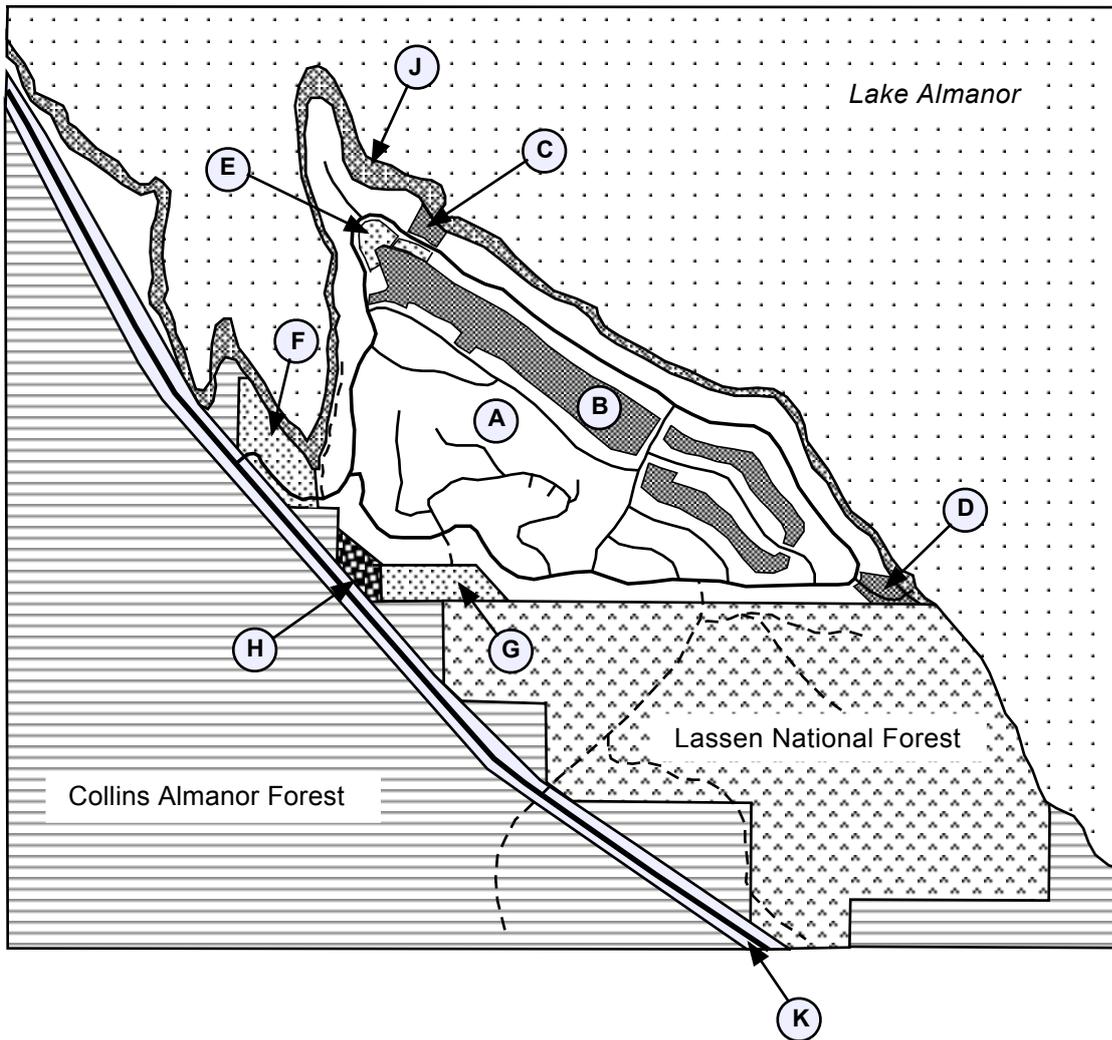


Communities:

- A -- Chester
- B -- Bailey Creek
- C -- Foxwood
- D -- Peninsula Village
- E -- Lake Almanor Country Club
- F -- Hamilton Branch
- G -- East Shore
- H -- Canyon Dam
- J -- Prattville
- K -- Almanor

Figure 2

## PARCEL OWNERSHIP & UTILIZATION



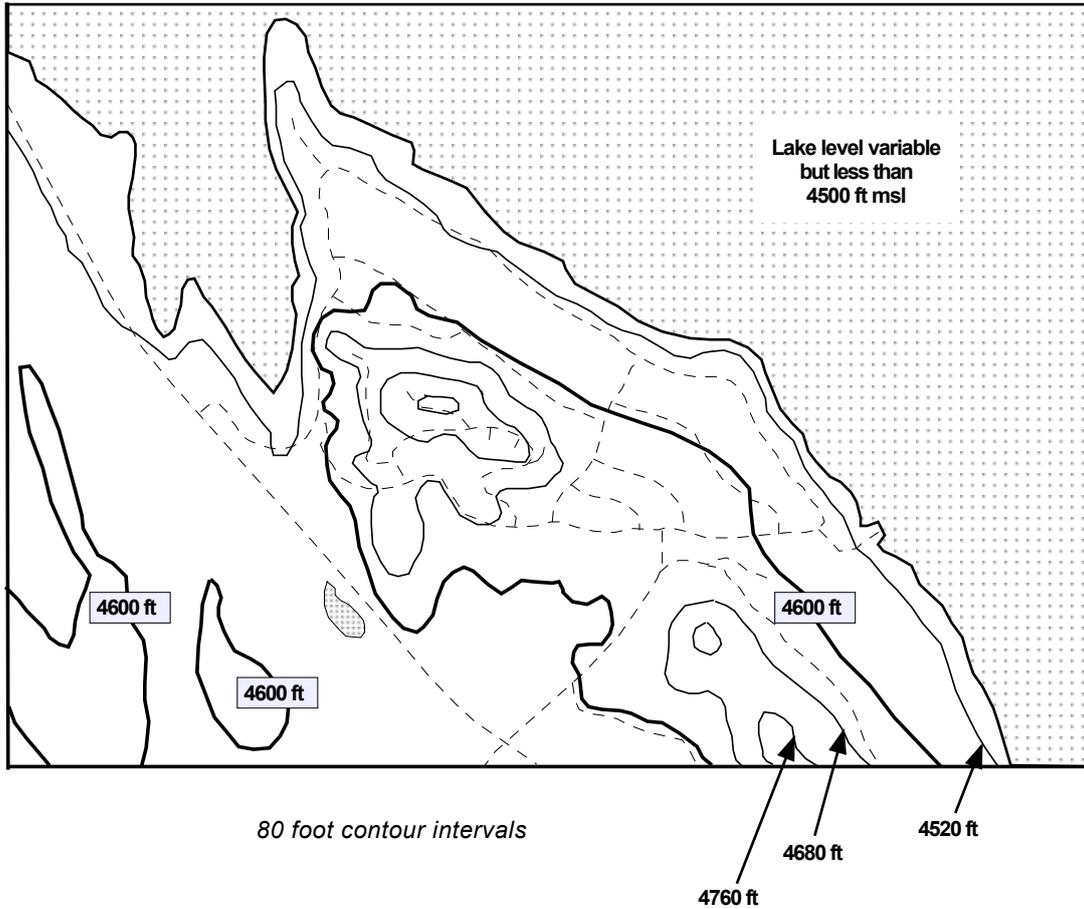
### Lake Almanor West / West Almanor Community Club:

- A - Residential parcels
- B - Golf course and related facilities
- C - Recreation area
- D - Boat ramp
- E - Greenbelt area (approx. 5 acres)
- F - Greenbelt area (approx. 11 acres)
- G - Greenbelt area (approx. 16 acres)

- H - West Almanor Mutual Water Company
- J - PG&E shoreline strip
- K - State of California (Hwy 89 right of way)

Figure 3

### TOPOGRAPHY & GEOLOCATION



#### GEOLOCATION DATA:

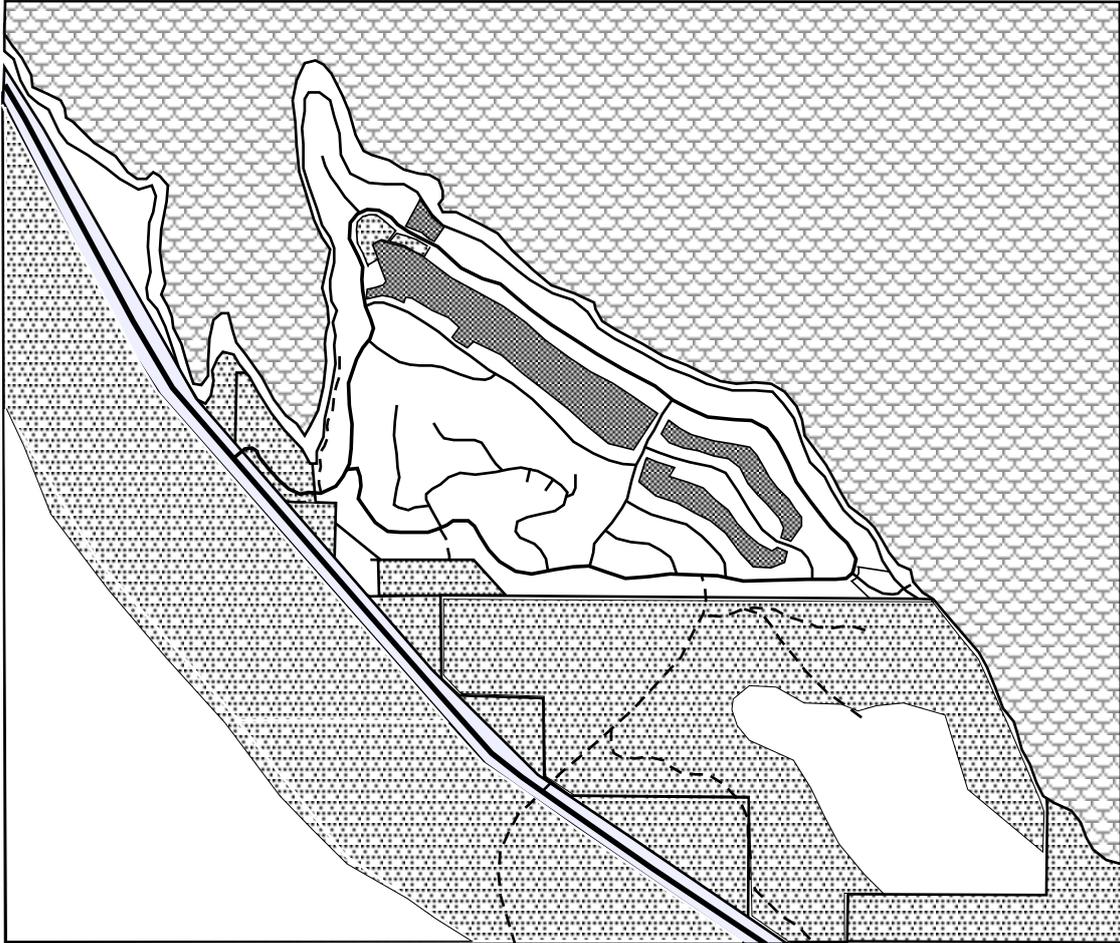
Lake Almanor West lies within portions of Sections 29, 32, 33 & 34 of Township 28 North, Range 7 East, Mt. Diablo Meridian & Baseline

The approximate centroid of the development is at:  
40 degrees, 14.4 minutes North latitude  
121 degrees, 12.5 minutes West longitude

The extreme limits of the development are bounded by:  
West ... 121° 13.34'  
East ... 121° 11.42'  
North ... 40° 15.18'  
South ... 40° 14.05'

Figure 4

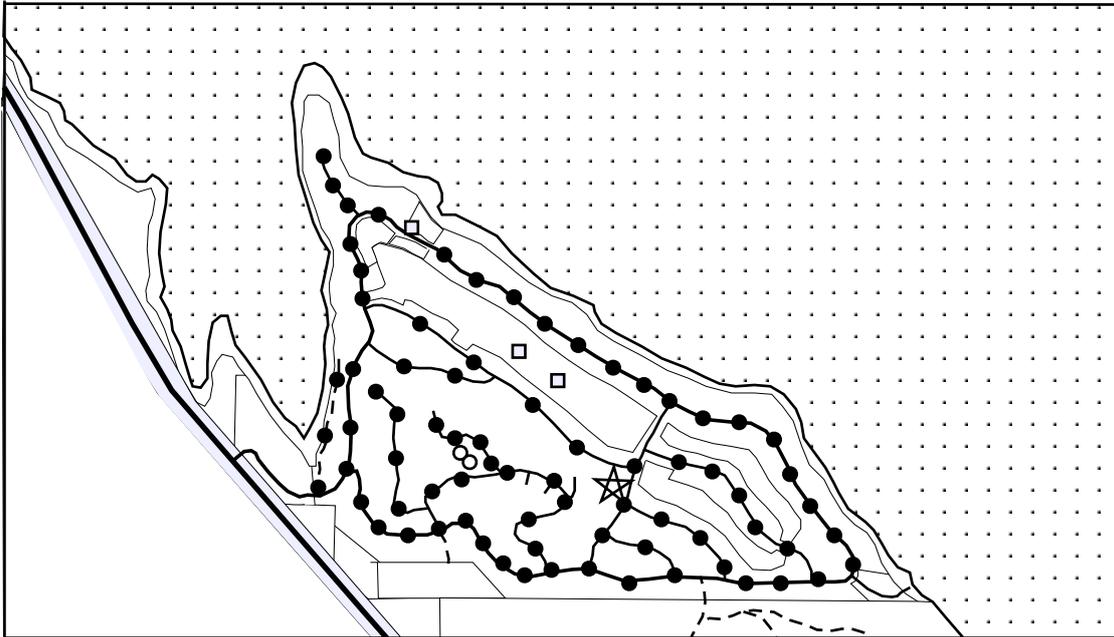
### PROTECTIVE ZONES



-  - Water (Lake Almanor)
-  - Watered grass (golf course, rec. area)
-  - Shaded fuel breaks / DFPZs
-  - No specific defensive treatment (applies to forest lands only)

Figure 5

### HYDRANT SYSTEM



- - Domestic water wells in use (3)
- - Water storage tanks (2)
- - Fire hydrants
- ★ - WAFD fire hall

## ASSESSMENT PROCESS

A team approach was taken in preparing this assessment of fire hazards and risks at Lake Almanor West. Relevant background data were initially collected and distributed for review by the several team members identified in the Introduction to this document. A subset of that group then conducted a visual review of the community from a roadside perspective. Observations were noted of both favorable and unfavorable conditions, and are found in subsequent chapters. The combined information led to the development of recommendations for mitigation actions through a collaborative process where draft materials were circulated, reviewed, revised based on inputs from the team and recirculated for follow-up review.

A key event in the process was the community inspection, which took place on the afternoon of October 14, 2009. Team members conducting that inspection were Jerry Hurley, an experienced wildland firefighter and fire management officer who is now the coordinator for the Plumas County Fire Safe Council; Don Van Alen, the current president of the WACC Board of Directors; and Dale Knutsen, community member and chairman of the Almanor Basin Fire Safe Council.

## IMPORTANT CONSIDERATIONS

The *Firewise Communities / USA* program seeks to support a sustainable balance that will allow communities to live safely while maintaining environmental harmony in a WUI setting. Homeowners already do some of this by weighing the impact of safety measures against their desire to have certain combustible elements on their properties. What is important is an understanding of the implications of the choices they are making. Many of those choices directly relate to the ignition potential of their homes during a wildfire event.

### The Fire Triangle

The October 2009 assessment inspection underscored the importance of several fundamental fire behavior matters. The starting point is the classic “fire triangle,” which points out that three basic things must be present for fire to exist: fuel, oxygen and heat. If any one of those are absent or below a critical level, fire will not occur or continue. Thus, when water is sprayed on burning wood, it cools the material below the temperature needed to maintain combustion. Or when a dry chemical is sprayed from an extinguisher on a kitchen grease fire, it smothers the fire by separating the grease from the oxygen supply in the atmosphere. Finally, if there is no combustible material available to ignite, the presence of heat and oxygen alone will not result in a sustained fire.

Property owners have no control over the availability of atmospheric oxygen, and while we take steps to reduce or eliminate accidental heat sources, there are ignitions such as lightning strikes that are beyond our control. But property owners do have the ability to influence fuels, the third element of the fire triangle.

### Recognizing Fuels

Fuel is anything combustible. It can be trees and other natural vegetation, wood products of all kinds (lumber, siding, shakes, plywood, furniture, paper), carpeting, drapes, fabrics, most synthetics and plastics, rubber products, motor vehicle and heating fuels, and on and on. Fuels are everywhere around us in our daily lives, but we seldom view them as such.

When it comes time to review our vulnerability to fire, we need to adopt a firefighter’s perspective as we look over our homes and yards. If the material is combustible, it is fuel. It may be part of something we consider to be essential to our lives, but it is still fuel to a fire. Lack of recognition of fuels, or denial of their existence, simply puts us at greater risk. It’s what we choose to do about the fuels around us that will ultimately make a difference.

### Reducing Fuel Volume

When large, uninterrupted quantities of natural fuels exist, a serious fire danger exists. For example, a large brush field is generally recognized as a serious fire concern. The sheer volume of fuel that is available in a major brush field or in a large, heavy stand of trees has the potential not only for intense heat at that location but also the production of huge quantities of embers.

Reducing the volume of fuel in an area is a recognized technique for reducing fire hazards. This is part of the thinning process used in creating shaded fuel breaks and Defensive Fuel Profile Zones (DFPZs) to offer greater protection to communities in forested areas.

## Separating Fuels

Closely associated with the reduction of overall fuel volume is the practice of separating or interrupting fuels. Aside from its application in fuel breaks, this technique is perhaps the single most important step a property owner can take in reducing vegetation fire hazards on residential parcels.

The basic principal behind fuel separation is quite simple: create gaps between fuels such that a fire burning one piece of fuel cannot easily ignite an adjacent combustible object. If a gap exists between one stand of trees and the next, there is less chance of a fire progressing from stand to stand. The same thing is true of brush or shrubs; interrupting the growth inhibits the progression of fire. A fuel gap around the perimeter of the structure is even more important, since it separates the structure from combustible materials that might otherwise be ignition sources. This is called horizontal separation, because a gap exists horizontally between fuels.

Vertical separation is also important. By removing the lower limbs of trees you create a gap between the lowest part of the tree crown and the heat that might result from a fire on the surface. If there are shrubs or brush specimens in the same area as the trees, the gap between the lower tree limbs and the top of the surface vegetation needs to be adjusted so that lower flames do not ignite the tree branches. Better yet, avoid placing shrubs directly beneath trees. Avoid planting shrubs under raised decks for the same reason.

As will be seen in the next chapter, the basic concept of fuel separation dominates much of the suggested corrective action that emerged from the assessment inspection at Lake Almanor West.

## OBSERVATIONS & RECOMMENDATIONS

Looking first at the ignition vulnerabilities observed during the community inspection, this report groups the issues into physical zones, starting at the structure and working outward from there. No attempt has been made to quantify the number of instances that such problematic issues were observed. Recommended remedial action is shown in *italic type*.

### Residential & Other Structures

- Wood Shake Roofing and/or Wood Shake Siding

Some structures were observed with wood shakes, a material that was permitted by Code during a bygone era but which is no longer allowed. Research and fire experience both show that shakes are THE most vulnerable element of a structure, generally leading to loss in the event of a major fire event. As one firefighter described it, using shakes for roofing is the equivalent of stacking kindling on your roof. *Replacing shakes with Class A (fire resistant) materials is the single most important step towards loss prevention that homeowners can take.*

- Pine Needles on Roofs or in Gutters

Accumulations of pine needles were observed on a number of roofs. Such accumulations serve as an ignition bed for flying embers and they can also promote the growth of mold at the roofing interface. When pine needles fill gutters, they not only interrupt the flow of rainwater, they too become ignition beds right at the vulnerable edge of the roof. *Regular removal of needles from both roofs and gutters will solve these issues.*

- Wood Piles Next to or Under Structures

The desire to have a handy supply of firewood causes a number of residents to stack their wood supply right up next to their home, under raised decks or in other spots that are in close to structures. Firewood stacks are excellent “ember magnets,” allowing embers to drift into small openings and eventually ignite the wood. If that stack is in close proximity to the residence or any flammable portion of it, the fire can rapidly progress to the structure.

*A more prudent practice is to keep firewood piles a safe distance from structures (a thirty foot gap is recommended). Another alternative is to screen firewood stacks with hardware cloth (openings no larger than ¼ inch) such that embers cannot reach the wood; make sure that the screening completely encloses the stack, with no gaps at the bottom and with the metal screen spaced about an inch away from the wood so that embers that land on the screen cannot ignite the outer surfaces of the wood.*

- Flammable Screening Next to or Under Structures

Wooden lattice seems to be a popular material for visual screening. Such lattice work is quite flammable. *If used, such screening should be situated at least several feet away from structures or decks.*

- Flammable Vegetation Next to or Under Structures

Natural or ornamental vegetation immediately adjacent to or under structures is a serious fire hazard, and was observed in a number of locations. Juniper bushes are a particular concern since they are popular, attractive and quite flammable. *There should always be a several foot gap between even small shrubs and structures, and flammable vegetation should not be allowed under raised decks. When planting ornamental shrubs, consider broadleaf (deciduous) varieties instead of the more flammable “evergreen” types. Regular removal of dead foliage is also important.*

- Flammable Materials Next to or Under Structures

Similarly, any kind of flammable fencing attached to the house or flammable material stacked up against or right next to a structure poses a fire hazard. Storing such material under a deck is also a concern. This applies to wood products, cardboard, fabrics, plastics or any other kind of combustible material. Pine needles up against the base of wood siding create a similar ignition vulnerability. *Regular attention to accumulated or stored materials is required to avoid this common issue. In the case of wood fences attached to the structure, the fire concern can be alleviated through the use of a short intervening section of metal fencing or some other noncombustible material such as rock, concrete or brick, to interrupt the combustible material.*

- Flammable Materials on Decks

Many items commonly found on decks are made of or contain flammable materials. Chairs, umbrellas, tables, door mats, bar-b-que propane bottles, etc., all fall into this category. It is probably not realistic to expect everyone to store such things in a safe area until they are needed on the deck, but *it is good practice to remove them to a safe area if there is an approaching fire or during the snow-free period when you will be away from home for an extended period.*

### Propane Tanks

- Flammable Screening or Materials Next to Tanks

Code requires that we keep the area right around our propane tanks free of flammable materials. Unfortunately, we sometimes forget that requirement, and a number of cases were observed where flammable screening had been used to “hide” propane tanks, and/or where flammable materials, vegetation or debris were crowded around the tank. These are invitations to disaster. *It is essential that combustible materials be removed from within ten feet (10') of propane tanks.*

- Unprotected Regulators

Most propane tanks protect the regulator under a metal “bonnet”. However, there are a number of cases within the development where the regulator is exposed, making it vulnerable to physical damage from falling limbs, ice or heavy snow, and thus leading to a gas leak. *Having the propane supplier relocate the regulator under a metal cover is the best solution.*

## Defensible Space

- Regenerating Hazards

As trees and shrubs grow, they can change what was previously an acceptable situation into one that no longer meets State requirements for residential defensible space. This appears to be happening in a number of cases within the development, where vegetation is in need of attention. *CAL FIRE guidelines for meeting the requirements of State law (PRC-4291) should be followed to ensure proper shrub placement and limbing of lower tree branches. In particular, our retention of large numbers of conifers within the development means that (a) the lower limbs of trees over eighteen feet (18') in height must be removed such that there is a MINIMUM of six feet (6') of clearance between the surface and the lowest part of the tree limb, and (b) the surface beneath such trees must be kept clear of any flammable debris or vegetation. Further specifics and alternatives can be found in the PRC-4291 guidelines, available online or at the WAFD.*

## House Numbers

- Location of House Numbers

There is considerable variability in the length of driveways within the development, which tends to add variability in where house numbers are found. Some numbers are located near the street while others may only exist on the structure some distance from the roadway. In other cases, the house number may be found in a low position, perhaps on a boulder or some low structure; during winter, with our typical deep snow berms along the road, such numbers are generally covered up. This lack of consistency in location, or disappearance of signs in the snow, creates a serious issue for emergency responders and can cause critical delays in the arrival of assistance.

Plumas County and the West Almanor Fire Department have both adopted the Uniform Fire Code, which requires residences to *post house number signs in a visible location at or very near the driveway entrance. House numbers that don't meet this requirement should be relocated accordingly.*

- Visibility of House Number Signs

For similar reasons, there are concerns regarding the poor visibility of some house number signs that are located properly but lack prominence. Black numbers on a brown background simply don't stand out, especially on a rainy night. *The Uniform Fire Code requires house numbers to be highly visible (i.e., large, contrasting color, reflectorized) and easily read from the street. House number signs that fail this visibility requirement should be replaced.*

## Driveways

- Vegetation Encroachment

Over time, trees and shrubs adjacent to some driveways have been allowed to encroach on the usable driveway width and height. Given the large cross-sectional dimensions of most emergency vehicles, such encroachment adds to the risk of vehicle damage and delayed response. Furthermore, if the encroaching vegetation should catch fire, an emergency vehicle is not likely to even enter the driveway. *The Uniform Fire Code requires that driveway clearances*

*be maintained to a minimum of ten feet (10') wide by fifteen feet (15') high. Where necessary, vegetation should be cleared to meet that basic standard.*

- Steepness & Turns

Some driveways in the development are quite steep, and a few have “switchback turns” as well. These can pose difficulties for large emergency vehicles, especially during the hours of darkness. *Property owners can assist emergency responders by placing flexible edge markers (e.g., tall “snow sticks”) along both sides of such driveways to help guide drivers.*

- Length, Pullouts & Turnarounds

A very few driveways are sufficiently long to raise concerns about simultaneous vehicle ingress and egress during an emergency. Code requires a turnout area, allowing vehicles to pass, at various points on very long driveways (i.e., those that are more than 150 feet in length). A turnaround area at the end of the driveway, large enough to allow a fire truck to reverse direction, is also required on very long driveways. *In the interests of their personal safety, property owners with such driveways should explore ways of accommodating these needs.*

### Vegetation Beyond the Home Ignition Zone

- Reduction of Fuel Volume and Ladder Fuels

Vegetation on undeveloped lots and common areas within the development is not covered by the defensible space requirements of PRC-4291. However, local CC&Rs do require that the trees on ALL lots have their lower limbs removed and be maintained to encourage healthy conditions. The assessment inspection found that while the majority of parcels within the development were in compliance with such requirements, there were some cases where the natural accumulation of surface litter or regeneration of trees or brush had progressed to the point where there was a need for additional cleanup activity. *Corrective action would be relatively straightforward, and should focus on:*

- *Elimination of “fuel ladders” (i.e., fuels bridging the gap between the surface and lower tree limbs)*
- *Removal of additional lower branches, as needed*
- *General tree thinning where appropriate to reduce fuel volume*
- *Thinning or removal of new brush growth*
- *Thinning or removal of new seedlings/saplings*
- *Removal of accumulating surface litter or debris.*

### Summation

The multiple concerns just discussed may, at first glance, leave a negative impression on the reader. However, it is important to note that except for issues dealing with driveways or shakes, all of the concerns are easily correctable without large expenditures or extraordinary efforts. For the most part, these are matters that the average homeowner can address on a do-it-yourself basis. Issues related to common areas can similarly be dealt with using in-house and/or volunteer labor.

## SUCCESSFUL FIREWISE MODIFICATIONS

When adequately prepared, a house can likely withstand a wildfire without the intervention of fire suppression services. Furthermore, a house and its surroundings can be both Firewise and compatible with the local ecosystem. Clear cuts and bare earth moonscapes are NOT necessary. The *Firewise Communities / USA* program is intended to enable communities to achieve a high level of protection against WUI fire loss while simultaneously maintaining an aesthetic and sustainable ecosystem balance.

Homeowners need to focus attention on the home ignition zone and get rid of easy pathways for a fire to attack the structure. This can be accomplished by “disconnecting” the house from high and low intensity fire that could occur around it. Interrupting fuels is the number one technique that can lead to reduced fire vulnerabilities.

Numerous examples of such positive actions were observed during the assessment inspection at Lake Almanor West. Indeed, the community is starting from a position of strength as it moves forward in this improvement process. A brief summary of some of the positive indicators that were noted would include the following:

- Protective boundary conditions
  - Water boundary along most of the perimeter
  - Shaded fuel breaks / DFPZs along the remainder
  - No adverse topographical features on or near boundaries
- Good basic community infrastructure
  - Wide, paved roads for access
  - Roads properly signed
  - Capable hydrant system throughout
  - Fire station right within the development
  - Additional fire suppression resources nearby
  - Underground electrical supply lines
  - Golf course serves as an interior fire break
- Proactive fire prevention efforts within the community
  - Annual parcel inspections per PRC-4291
  - Undeveloped lots required by CC&Rs to be limbed up
- Generally favorable residential conditions
  - Mostly Class A (fire resistant) roofing materials
  - Major fuels generally interrupted
  - Primary tree limbing generally accomplished

Also noted were individual examples of good practices that help make a home less vulnerable to fire. These included such things as use of non-combustible exterior finishes (stucco, rock, cement siding, etc.), especially near the surface; use of gravel or rock as a border immediately adjacent to the house; covered firewood stacks some distance from structures; and park-like yards with separated vegetation and well-watered ground cover or gravel between. What remains to be done in the community is largely in the category of “finishing touches”, to complete a process that has clearly been in work for quite some time.

## NEXT STEPS

This Assessment is a first step in a longer process leading to improved fire safety in the community. After reviewing this document, the Lake Almanor West Firewise Board will determine whether or not it wishes to continue seeking *Firewise Communities / USA* recognition.

Presuming that this site assessment and related recommendations are accepted, and that *Firewise Communities / USA* recognition will be sought, the Lake Almanor West Firewise Board will create a plan to address the areas of concern within the development. This planning activity will be coordinated with the West Almanor Fire Department, CAL FIRE and the local Fire Safe Council. The resulting plan will address the following items specifically required by *Firewise Communities / USA* to achieve recognition status:

- Sponsor a local Firewise Board, task force, committee, commission or department to maintain the Firewise Community program and status;
- Enlist support from WUI specialists to draft a plan of action that identifies achievable local solutions;
- Adopt an agreed-upon action plan, and periodically revise it as needed;
- Invest a minimum of \$2.00 annually per capita in the local *Firewise Communities / USA* program (such investment to be focused on improvement efforts within the community, and to include the value of volunteer labor or donated resources);
- Observe a *Firewise Communities / USA* Day each year that is dedicated to a local, self-designated Firewise project;
- Submit an annual report to *Firewise Communities / USA*, documenting continuing participation in the program.

## APPENDIXES

This portion of the report collects information that was not specifically called for by the *Firewise Communities / USA* outline but that seems relevant nonetheless to the overall subject of fire prevention and suppression at Lake Almanor West. The material is presented in no particular order.

### Existing Firewise Practices

#### •• Parcel Inspections

At the onset of development in the 1970s, Lake Almanor West supported a mostly second growth, mixed conifer forest largely composed of pine, white fir and incense cedar. Tree density was variable, reflecting the natural regrowth patterns of an area that had previously been logged. At that time there were a few brushy spots but essentially no natural grasslands.

As development progressed and facilities and homes were constructed, a great many trees were removed and most of the brushy spots were eliminated. Nevertheless, the developed area still retains a large number of trees that, if left untended, would clearly increase fire risks. Property owner landscaping, natural regrowth and the accumulation of combustible debris are additional important factors when assessing hazards. It is therefore important that regular attention be given to the current condition of parcels.

The WAFD Fire Chief performs annual parcel inspections within Lake Almanor West, reviewing all parcels for compliance with state law (i.e, PRC 4291) as well as local CC&Rs. When conditions are noted that fail to meet those requirements, written notices are sent to the affected property owners. In most cases, corrective action is taken promptly. In the few situations where follow-up inspections reveal inadequate corrective actions, second notices are mailed. Occasionally it becomes necessary to take further action, at which point the required work is performed under contract and the property owner is billed for the work.

While PRC 4291 addresses parcels with structures, the local WACC CC&R (Sect. 3.19) applies to both developed and undeveloped parcels and requires property owners to (a) remove combustible materials from a setback area around the parcel perimeter, (b) maintain vegetation by trimming, cultivating and managing to encourage healthy conditions, and (c) remove lower limbs on all trees. For large trees, the lower limbs must be pruned up six feet from ground level, while the lower 1/3 of the branches are to be removed from trees that are less than 18 feet tall.

#### •• Information Availability

Public education is a continuing effort of the WAFD and the local Fire Safe Council. A variety of information sheets, pamphlets, brochures and video materials are available to property owners at the WAFD fire hall. Additional fire prevention and parcel cleanup information is available on a dedicated WAFD website (<http://www.citlink.net/~westalmanorfd>) as well as the Plumas County Fire Safe Council website (<http://www.plumasfiresafe.org>). The availability of these information sources is made known via periodic written WACC newsletters sent to all Lake Almanor West property owners, a local electronic bulletin board (the "Pinecone Telegraph" at <http://www.pineconetelegraph.com>) and items posted on community bulletin boards. Special announcements, such as the suspension of open burning, etc., are also made using these same resources.

## •• Forest Restrictions

The adjacent forested areas are subject to certain restrictions, aimed in large part at reducing ignition hazards there. Campfires and camping are prohibited except in designated campgrounds; the nearest such sites are more than a mile south of the development. Motor vehicle travel is restricted to designated roads only; off road travel is not allowed. During the driest portion of the annual fire season, wood cutting and smoking are severely limited.

## Prior Documentation

The Almanor Basin Fire Safe Council was formed in the wake of the calendar year 2000 “Storrie” fire and promptly set about to generate some needed documentation for local residents and emergency responders. These included:

- 2001 *“Wildland Fire Preparation & Evacuation Plan for Lake Almanor Basin”*
- 2002 *“Almanor Basin Fire Safe Plan”* .

Subsequent formal documentation for the area was addressed by the larger Plumas County Fire Safe Council, which published the more comprehensive:

- 2004 *“Plumas County Hazardous Fuel Assessment and Strategy”*
- 2005 *“Plumas County Community Wildfire Protection Plan”* (CWPP) .

The latter two items are available online at the Plumas County Fire Safe Council website.

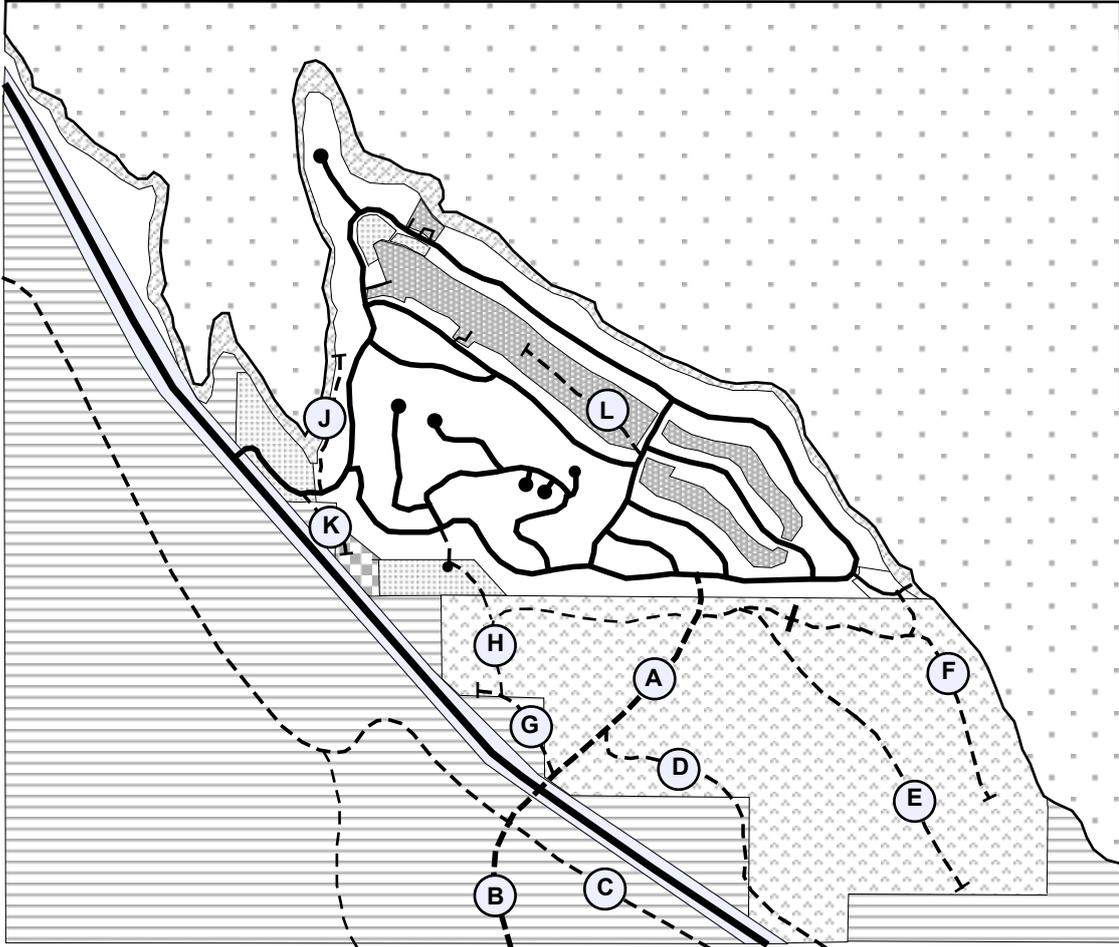
## Fire Apparatus Access

The paved county roads within the development provide easy access for fire apparatus in the event of emergency. County crews provide snow removal service during the winter months, maintaining reliable street access year round.

The adjacent forested areas are accessible during the snow-free months via a network of other routes, mostly unpaved (Figure 6). The US Forest Service is responsible for fire suppression on the National Forest area immediately south of the development, while CAL FIRE provides fire suppression services on the private timberlands. The nearest Forest Service fire crews are based in Chester, while the closest CAL FIRE crews are in nearby Westwood.

Figure 6

## FIRE APPARATUS ACCESS



- A - Forest Road 27N52
- B - Humbug-Humboldt Road
- C - Forest Road 27N03
- D - Forest Road 27N52A
- E - Forest Road 27N52, continued
- F - Logging road (behind locked gate)
- G - Old state highway
- H - Primitive route (4WD in some spots)
- J - Private driveway
- K - Water company access road
- L - Golf course service road

## Local Climate

The Lake Almanor basin lies within a climatic region characterized by cool wet winters and warm dry summers. The region has four distinct seasons but only rarely experiences either extreme winter cold or extreme summer heat. Regional weather patterns are dominated by western Pacific influences with its nominal west to east flow pattern. Local topography tends to modify some of the more generalized surface and low altitude zonal weather patterns, introducing the influences of rising terrain, mountain peaks and canyons.

Lake Almanor West is in a moderately wet region between the northern Sacramento Valley and the arid Great Basin. According to Lassen National Forest data, Lake Almanor West, Chester, Prattville and the general west shore area all receive about the same amount of annual moisture. As you move further east, precipitation tends to diminish somewhat. Locations to the northwest towards Lassen Peak tend to receive greater precipitation. Most of the local precipitation falls in the November through March period. Summers are characteristically dry, creating what amounts to be an annual drought period during the warm months. Climatologists sometimes refer to this as a "brittle climate." This annual cyclic pattern leads to significant fire concerns during those dry months.

Authoritative climate data for the Lake Almanor basin is relatively recent, with accurate and consistent record keeping apparently only beginning in the 1940s. Prior to that time, records tended to be fragmentary, of uncertain accuracy, and from differing locations. However, the Western Regional Climate Center in Reno has summarized data from Chester for the period from July of 1948 through December of 2005 as follows:

	Average Maximum Temp. ( °F )	Average Minimum Temp. ( °F )	Average Total Precipitation (inches)	Average Snowfall (inches)
January	41.6	19.6	6.26	36.6
February	45.9	22.3	5.48	28.0
March	51.0	25.2	4.44	20.5
April	58.5	28.3	2.08	7.3
May	67.7	34.3	1.56	1.3
June	76.7	40.5	0.85	0.1
July	85.1	44.4	0.29	0.0
August	84.2	42.9	0.35	0.0
September	78.0	37.7	0.72	0.0
October	66.7	31.2	1.97	0.8
November	50.2	25.6	4.04	11.6
December	42.2	20.6	5.49	27.5
<i>Annual</i>	<i>62.3</i>	<i>31.1</i>	<i>33.54</i>	<i>133.7</i>

Note that Total Precipitation includes both rainfall and the water content of melted snowfall. Average snowfall would typically account for 13 to 14 inches of total precip. Note also that annual total precipitation can vary widely, from roughly 10 to 60 inches.

The average daily temperature spread, between daytime high and nighttime low, tends to run greater than 20 degrees in the winter and increases to 30 degrees or more during the dry (i.e., low humidity) summer period. Occasional temperature extremes can easily reach values that are 20 degrees higher or lower than the average figures noted above.

### State Law

California state law regarding the establishment and maintenance of “defensible space” is found in Public Resources Code (PRC) Section 4291. The actual text of that section, which was updated in 2005, is found below. The California Department of Forestry and Fire Protection (CAL FIRE) is responsible for enforcement of PRC 4291. CAL FIRE has also prepared practical guidelines for implementation of “defensible space” in various kinds of settings; these are summarized in a brochure that is found online at:

[http://www.fire.ca.gov/CDFBOFDB/pdfs/Copyof4291finalguidelines9\\_29\\_06.pdf](http://www.fire.ca.gov/CDFBOFDB/pdfs/Copyof4291finalguidelines9_29_06.pdf)

### **CALIFORNIA PUBLIC RESOURCES CODE SECTION 4291**

**4291.** (a) A person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material, shall at all times do all of the following:

(1) Maintain defensible space no greater than 100 feet from each side of the structure, but not beyond the property line unless allowed by state law, local ordinance, or regulation and as provided in paragraph (2). The amount of fuel modification necessary shall take into account the flammability of the structure as affected by building material, building standards, location, and type of vegetation. Fuels shall be maintained in a condition so that a wildfire burning under average weather conditions would be unlikely to ignite the structure. This paragraph does not apply to single specimens of trees or other vegetation that are well-pruned and maintained so as to effectively manage fuels and not form a means of rapidly transmitting fire from other nearby vegetation to a structure or from a structure to other nearby vegetation. The intensity of fuels management may vary within the 100-foot perimeter of the structure, the most intense being within the first 30 feet around the structure. Consistent with fuels management objectives, steps should be taken to minimize erosion.

(2) A greater distance than that required under paragraph (1) may be required by state law, local ordinance, rule, or regulation. Clearance beyond the property line may only be required if the state law, local ordinance, rule, or regulation includes findings that such a clearing is necessary to significantly reduce the risk of transmission of flame or heat sufficient to ignite the structure, and there is no other feasible mitigation measure possible to reduce the risk of ignition or spread of wildfire to the structure. Clearance on adjacent property shall only be conducted following written consent by the adjacent landowner.

(3) An insurance company that insures an occupied dwelling or occupied structure may require a greater distance than that required under paragraph (1) if a fire expert, designated by the director, provides findings that such a clearing is necessary to significantly reduce the risk of transmission of flame or heat sufficient to ignite the structure, and there is no other feasible mitigation measure possible to reduce the risk of ignition or spread of wildfire to the structure. The greater distance may not be beyond the property line unless allowed by state law, local ordinance, rule, or regulation.

(4) Remove that portion of any tree that extends within 10 feet of the outlet of a chimney or stovepipe.

(5) Maintain any tree, shrub, or other plant adjacent to or overhanging a building free of dead or dying wood.

(6) Maintain the roof of a structure free of leaves, needles, or other vegetative materials.

(7) (a) Prior to constructing a new building or structure or rebuilding a building or structure damaged by a fire in an area subject to this section, the construction or rebuilding of which requires a building permit, the owner shall obtain a certification from the local building official that the dwelling or structure, as proposed to be built, complies with all applicable state and local building standards, including those described in subdivision (b) of Section 51189 of the Government **Code**, and shall provide a copy of the certification, upon request, to the insurer providing course of construction insurance coverage for the building or structure. Upon completion of the construction or rebuilding, the owner shall obtain from the local building official, a copy of the final inspection report that demonstrates that the dwelling or structure was constructed in compliance with all applicable state and local building standards, including those described in subdivision (b) of Section 51189 of the Government **Code**, and shall provide a copy of the report, upon request, to the property insurance carrier that insures the dwelling or structure.

(b) A person is not required under this section to manage fuels on land if that person does not have the legal right to manage fuels, nor is a person required to enter upon or to alter property that is owned by any other person without the consent of the owner of the property.

(c) (1) Except as provided in Section 18930 of the Health and Safety **Code**, the director may adopt regulations exempting a structure with an exterior constructed entirely of nonflammable materials, or, conditioned upon the contents and composition of the structure, the director may vary the requirements respecting the removing or clearing away of flammable vegetation or other combustible growth with respect to the area surrounding those structures.

(2) An exemption or variance under paragraph (1) shall not apply unless and until the occupant of the structure, or if there is not an occupant, the owner of the structure, files with the department, in a form as the director shall prescribe, a written consent to the inspection of the interior and contents of the structure to ascertain whether this section and the regulations adopted under this section are complied with at all times.

(d) The director may authorize the removal of vegetation that is not consistent with the standards of this section. The director may prescribe a procedure for the removal of that vegetation and make the expense a lien upon the building, structure, or grounds, in the same manner that is applicable to a legislative body under Section 51186 of the Government **Code**.

(e) The Department of Forestry and Fire Protection shall develop, periodically update, and post on its Internet Web site a guidance document on fuels management pursuant to this chapter. Guidance shall include, but not be limited to, regionally appropriate vegetation management suggestions that preserve and restore native species, minimize erosion, minimize water consumption, and permit trees near homes for shade, aesthetics, and habitat; and suggestions to minimize or eliminate the risk of flammability of nonvegetative sources of combustion such as woodpiles, propane tanks, wood decks, and outdoor lawn furniture.

(f) As used in this section, "person" means a private individual, organization, partnership, limited liability company, or corporation.

**4291.1.** (a) Notwithstanding Section 4021, a violation of Section **4291** is an infraction punishable by a fine of not less than one hundred dollars (\$100), nor more than five hundred dollars (\$500). If a person is convicted of a second violation of Section **4291** within five years, that person shall be punished by a fine of not less than two hundred fifty dollars (\$250), nor more than five hundred dollars (\$500). If a person is convicted of a third violation of Section **4291** within five years, that person is guilty of a misdemeanor and shall be punished by a fine of not less than five hundred dollars (\$500). If a person is convicted of a third violation of Section **4291** within five years, the department may perform or contract for the performance of work necessary to comply with Section **4291** and may bill the person convicted for the costs incurred, in which case the person convicted, upon payment of those costs, shall not be required to pay the fine. If a person convicted of a violation of Section **4291** is granted probation, the court shall impose as a term or

condition of probation, in addition to any other term or condition of probation, that the person pay at least the minimum fine prescribed in this section.

(b) If a person convicted of a violation of Section **4291** produces in court verification prior to imposition of a fine by the court, that the condition resulting in the citation no longer exists, the court may reduce the fine imposed for the violation of Section **4291** to fifty dollars (\$50).

**4291.3.** Subject to any other applicable provision of law, a state or local fire official, at his or her discretion, may authorize an owner of property, or his or her agent, to construct a firebreak, or implement appropriate vegetation management techniques, to ensure that defensible space is adequate for the protection of a hospital, adult residential care facility, school, aboveground storage tank, hazardous materials facility, or similar facility on the property. The firebreak may be for a radius of up to 300 feet from the facility, or to the property line, whichever distance is shorter.