

FIREWISE COMMUNITIES / USA

COMMUNITY ASSESSMENT REPORT
FOR
GRAEAGLE FIRE PROTECTION DISTRICT

Plumas County, California

June 1, 2010

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FOREWORD

In December of 2009 the Board of Directors of the Graeagle Fire Protection District voted to begin the process of seeking “Firewise Community” recognition for the Graeagle Fire Protection District in Plumas County, California. Graeagle Fire Protection District lies within a wildland-urban interface (WUI), an area that figures prominently in wildland fire discussions. The Graeagle Fire Protection District consists of residential developments in a mix of tall trees and residences, with undeveloped forest land, making this a textbook example of a WUI.

The potential for catastrophic wildland fire has been recognized in the Graeagle Fire Protection District since its very inception January 16, 1967. Various efforts have been made over the years to reduce hazards on residential lots and community-owned parcels, and state laws are encouraged 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 throughout the Graeagle Fire Protection District.

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. Graeagle Fire Protection District included many communities identified as a “Community at Risk” in an August 2001 Federal Register listing. The remainder of the communities in GFPD were included during the development of Plumas County’s Fire Safe Council’s Community Wildfire Protection Plan. At the local level, Graeagle Fire Protection District has been an active participant in the development of an emergency evacuation plan and a Fire Safe Plan, as well as a part of subsequent and broader efforts including The Plumas County Community Wildfire Protection Plan (CWPP), a Plumas County wildfire fuel assessments, and the Plumas County, FEMA approved, 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 Graeagle Fire Protection District.

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 Graeagle Fire Protection District 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 an initial background and then describes the results of onsite inspections in the Graeagle Fire Protection District. 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.

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 ... (Retired U.S. Forest Service Fire Management Officer)

- Graeagle Fire Protection District Fire Department
 - Chief Ed Ward

- Graeagle Fire Protection District Board of Directors
 - Bob Anderson
 - Don Clark
 - John Sciborski
 - Terri Skutt
 - Dan West

- Graeagle Fire Protection District community
 - Fred Bechtold
 - Chuck Bowman
 - Rich Dunn
 - Jim Reynolds
 - Jay Skutt

THE HOME IGNITION ZONE

Graeagle Fire Protection District 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 Graeagle Fire Protection District. 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 spring of 2010. 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. Graeagle Fire Protection District 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 Graeagle Fire Protection District; 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 District. It will often come down to the extent of previous work accomplished in the home ignition zone to make the difference between home loss and 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 U.S. Forest Service (USFS) on National Forest lands and private lands by contractual agreement with California Department of Forestry and Fire Protection (CAL FIRE). Structure fires are generally addressed by the local fire district. 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 begin. 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. Fine fuels have the most important impact on fire intensity as measured by flame lengths. Fine fuels are considered the primary carrier of fire in fire modeling.
- 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 aspect and 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, south and southwest aspects tend to be warmer and drier; and the steeper the slope, the greater the uphill fire spread and intensity.

Graeagle Fire Protection District is situated in a forested area bounded by steep terrain with the Middle Fork of the Feather River on the northern boundary. That setting, coupled with prevailing summertime breezes from the southwest to west, suggest that the most likely spread of a wildland fire would be from the south or west. However, because Plumas County has some of the highest incidence of lightning fires in California ignitions from a lightning fire can spread in any direction under the influence of downdrafts during thunderstorms.

The forest lands immediately adjacent to Graeagle Fire Protection District have partially been treated to reduce fire hazards there. Thinning and understory cleanup actions have been taken on Plumas National Forest areas, Graeagle Land and Water Forest areas, and private land. These efforts have greatly reduced, in the treated areas, but not completely eliminated the probability of high intensity crown fires in and around a portion of the forest covered by the Graeagle Fire Protection District.

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. Torching trees both increase fire intensity and become excellent generators of embers for spotting. Thus, the preventative actions taken on those treated lands have reduced the potential intensity and ember production of an approaching fire; but the District can still anticipate a severe “ember attack” during a wildland fire event in untreated stands both adjacent and within the community. Embers or firebrands are produced from burning needles, leaves, bark, twigs and cones, when natural vegetation burns. Embers 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, there are two viable scenarios for a severe wildland fire event, a) would be a major blaze in untreated forestlands south or west of communities in the District, producing large quantities of windblown embers, and b) a lightning strike without precipitation and the rapid onset of downdrafts. Subsequent spot fires, torching trees or burning structures in the interiors of developments could produce additional quantities of embers, contributing to further ignition potential.

SITE DESCRIPTION

This portion of the report describes certain elements of the Graeagle Fire Protection District and adjacent areas, as they relate to fire issues. The illustrations supporting this discussion are all found at the back of this section. The first map (Figure 1) shows the entire Graeagle Fire Protection District. The next three pages (Figures 2 through 4) show portions of the District in a larger scale.

Overview

Graeagle Fire Protection District is a common-interest fire district in Plumas County, California. The district began in 1967. Graeagle Fire Protection District 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 recognized authority for fire prevention and fire suppression matters in such areas.

At the onset of development in the 1960s, Graeagle Fire Protection District 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 some areas that had previously been logged.

The District encompasses an area of approximately 4,878 acres (7.6 square miles). This includes 1,664 parcels of residential, commercial, and industrial areas, two 18 hole golf courses, other recreation-oriented areas, greenbelt areas, open-field areas, and the Mill Pond water area.

GRAEAGLE FIRE PROTECTION DISTRICT AREA

Area	Acres
Residential Area	4,106
Commercial Area	62
Industrial Area	42
Golf Courses	345
Other Recreation Area	285
Mill Pond	38
Total	4,878

Topography

The topography of the District varies from a low point of 4,361 feet above mean sea level (msl) and rising to 4,891 feet msl at the highest point. Major portions of the District exhibit shallow gradients while some areas in Graeagle, Whitehawk Ranch, and Valley Ranch can become relatively steep.

Protective Zones

The Graeagle Fire Protection District development enjoys some inherent fire protection from its setting. The Middle Fork of the Feather River, golf courses and the Graeagle Mill Pond serve as a fire barrier. Shaded fuel breaks and Defensive Fuel Profile Zones (DFPZs) have been established along a portion of the District perimeter. These areas on Plumas National Forest have been mechanically thinned to reduce fire hazards and permit fire suppression crews to operate in a relatively safe environment. There have been several hazardous fuel reduction projects in and near the District that included thinning trees to reduce the volume of fuel and increase vertical and horizontal separation undertaken by The Plumas County Fire Safe Council and Graeagle Land and Water Company. Similar thinning treatment has been applied to several areas within the District; lower tree limbs and understory debris have also been removed on those parcels. The well-tended grassy areas of the golf courses and the other recreation areas provide additional protective zones in the interior of the District.

Demographics

The most recent official census in 2000 indicated a population of 1,071 individuals in 517 households of the Graeagle Fire Protection District at that time. These numbers represent those who claim residency within the District, as opposed to those who may have a second home or vacation home here. This difference is further clarified by the census count of 864 total housing units within the District, versus 517 “full time” households, indicating that a large number of the homes in place at that time were only occupied on a part-time or occasional basis. Of the full time population, 52% was age 55 or older, and 32% was age 65 or older.

Community records were again reviewed in 2010 in preparation for this Firewise assessment. That review produced the following results:

Parcels

• Developed parcels	1,162 (70%)
• Undeveloped parcels	502 (30%)
Total residential and commercial parcels	1,664

Households

• Full-time households	569 (35% of total lots; 54% of households)
• Part-time households	482 (30% of total lots; 46% of households)
• Undeveloped lots	563 (35% of total lots)
Total households and vacant lots	1,614

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

Some of the developed areas of the Graeagle Fire Protection District are served by a residential fire hydrant system. The Graeagle community domestic water supply and hydrant supply system is gravity fed from five large storage tanks with a combined capacity of 1,349,000 gallons. Water can be replenished to the tanks at a rate of 900 gallons per minute in the winter and 1,900 gallons per minute in the summer. Basic flow rate at the individual hydrants typically varies from 750 to over 1,000 gallons per minute, depending on hydrant location. The Whitehawk Ranch community domestic water supply and hydrant system is gravity from storage tanks with a combined capacity of 628,000 gallons. Water can be replenished to the tanks at a rate of 370 gallons per minute with an emergency rate up to 1,000 gallons per minute by diverting flow from the golf course system. Basic flow rate at the individual hydrants typically varies from 750 to over 1,000 gallons per minute, depending on hydrant location. The Mohawk Meadows community hydrant has a flow rate of 420 gallons per minute from holding ponds and a replenish rate of 250 gallons per minute. There are several additional 2,500 gallon storage tanks on individual lots in Mohawk Meadows. The Valley Ranch community has two standpipe hydrants. One is fed by a swimming pool. The second is fed by a 5,000 gallon storage tank with a flow rate of 250 gallons per minute and a replenish rate of 95 gallons per minute from an artesian well. Even higher flow rates are available if the water is “drawn” by the fire engines.

Local Fire Department

The Graeagle Fire Protection District consists of two stations – Station One is located in Graeagle and Station Two is located in Whitehawk Ranch. The Graeagle Fire Protection District, a county-chartered entity provides fire prevention, fire suppression and emergency medical services.

Personnel

Graeagle Fire Protection District has 20 local residents who are volunteer firefighters.

Equipment

Station One – Graeagle:

1999 Ford F-550 Rescue Vehicle
2005 Freightliner Water Tender
1980 Ford Type 1 Engine
2004 Freightliner Type 1 Engine
2010 Ford Expedition Command Vehicle

Station Two – Whitehawk Ranch:

2001 Ford F-550 Rescue Vehicle
1985 GMC Type 3 Engine

Departmental resources also include up-to-date firefighter gear for all responders (i.e., protective clothing, breathing apparatus, and 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 Graeagle Fire Protection District force as required. Such support in the event of a major structural fire would typically come from the similar agencies at Plumas Eureka, Beckwourth, Quincy, C-Road, Portola, Eastern Plumas, Long Valley, Sierraville, and Sierra County.

Fire History

There is no record of any major wildland fire within or immediately adjacent to the District area since 1989. The Forest Service Fire history record for the adjacent areas contain a record of twelve fires from 1918 through 1989 totaling 27,820 acres. The largest of these fires was 11,292 acres occurring in 1934. These fires are shown in Figure 6.

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 small spot fires.

In November of 2002, the A-15 fire started within the District and spread rapidly burning about 15 acres, threatening another community outside of the District. Fortunately, the strong southwest frontal winds that helped create and spread the fire also brought rains within the first thirty minutes.

Structure fires have occurred on occasion at Graeagle Fire Protection District. There have also been other, less serious residential fires, primarily escaped yard debris burns, flue fires or ignitions due to electrical problems.

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.

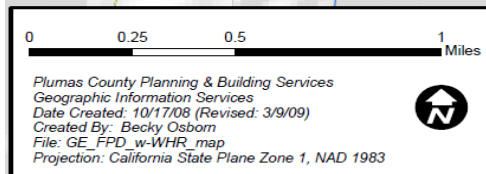
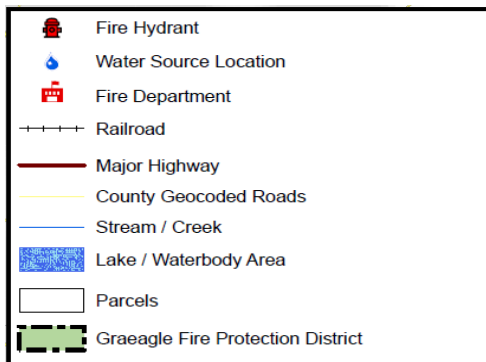
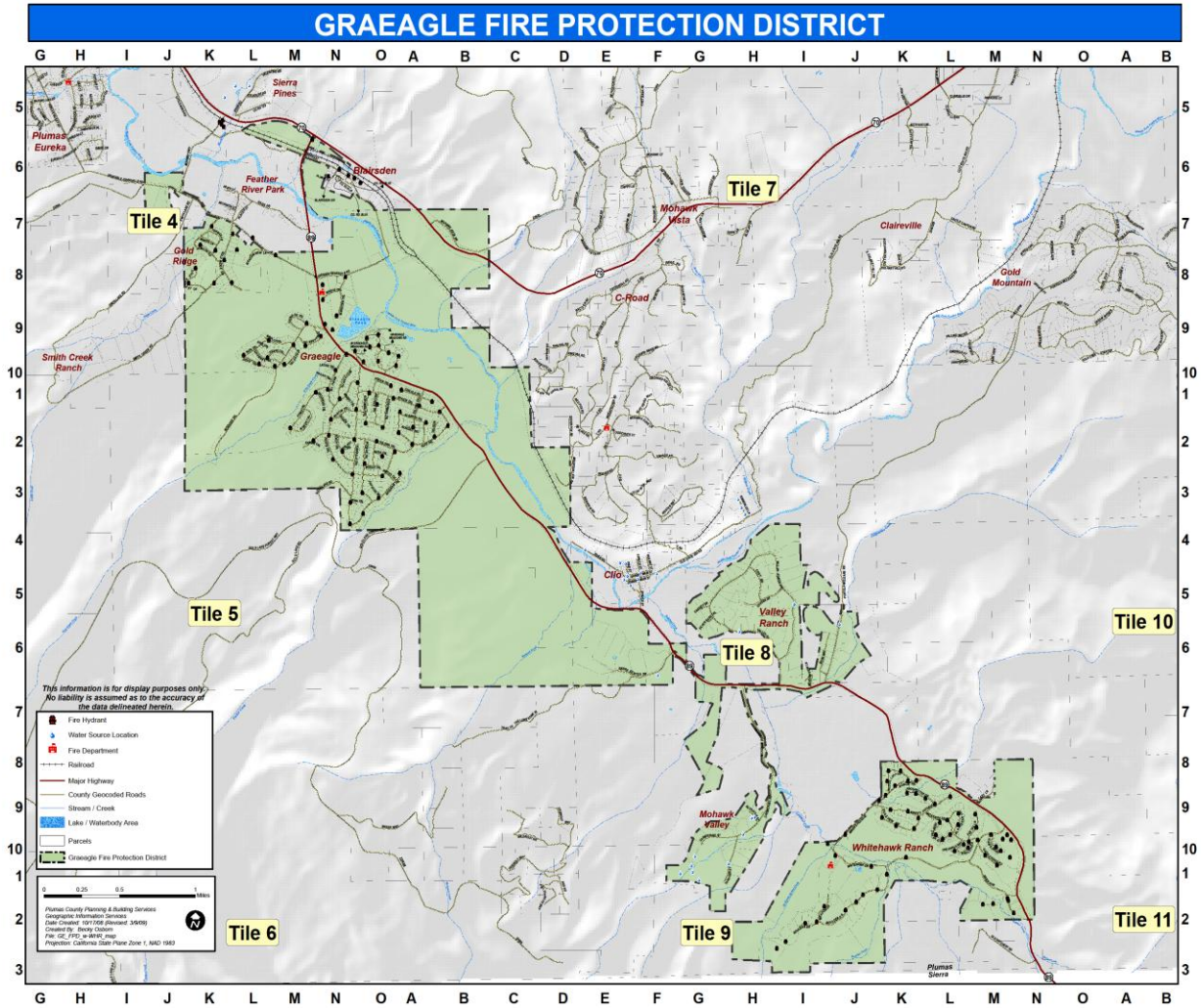
- Graeagle Fire Protection District has an ISO rating of 4 for the Graeagle and Whitehawk Ranch communities and a rating of 8B for the balance of the District.

CAL FIRE FHSZ Rating

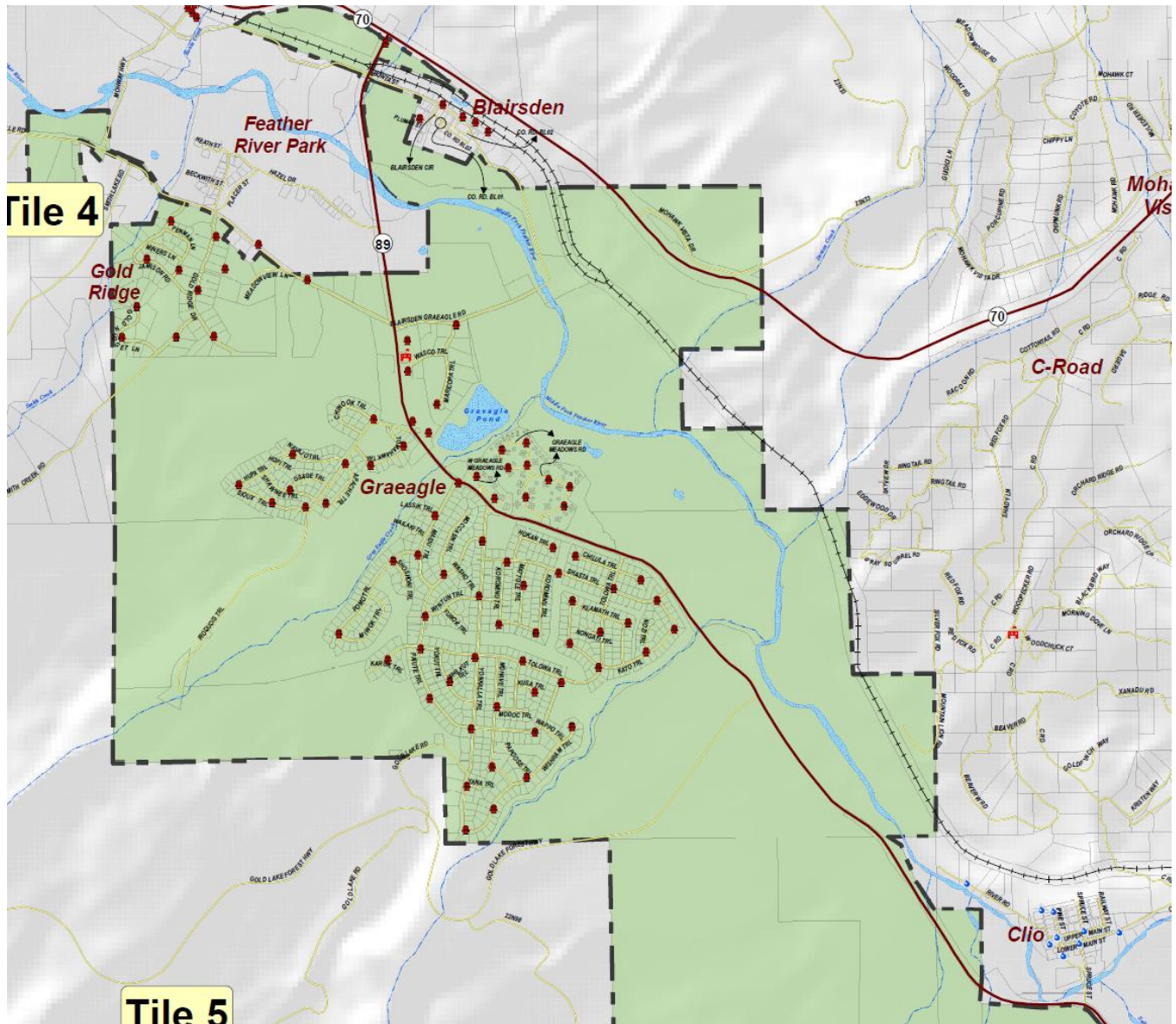
Periodically, CAL FIRE reviews and updates its statewide assessment of general fire hazards within and near the State Responsibility Areas (SRAs). The most recent update involved both a reassessment of these diverse lands and a modified methodology that improved the resolution of the findings. Nevertheless, 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 most of the Graeagle Fire Protection District as a "Very High" fire hazard area, with the exception of the golf courses and some larger meadows which are given a "High" hazard rating. The surrounding forests, which include both public and private lands, are rated "Very High" hazard areas; no distinction is made between shaded fuel breaks and untreated areas. A large portion of the next level of surrounding forests are designated Federal Responsibility Area (FRA) and not rated by Cal Fire. The Cal Fire map showing this information for the Graeagle Fire Protection District is shown in Figure 5 following the detailed maps of the District.

• Fig. 1 – Graeagle Fire Protection District Map



• Fig. 2 – Graeagle and Goldridge Estates

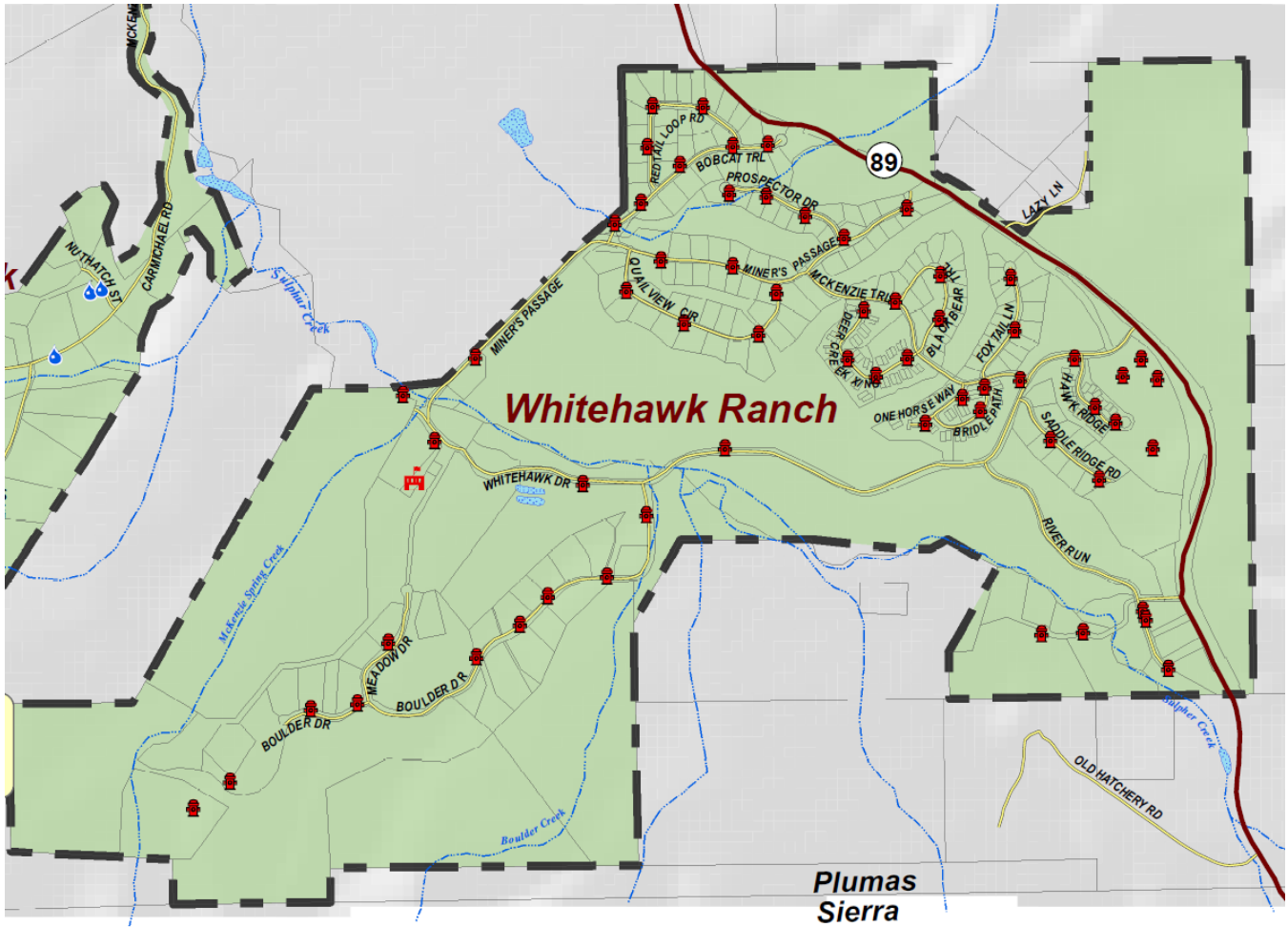


	Fire Hydrant
	Water Source Location
	Fire Department
	Railroad
	Major Highway
	County Geocoded Roads
	Stream / Creek
	Lake / Waterbody Area
	Parcels
	Graeagle Fire Protection District

0 0.25 0.5 1 Miles

Plumas County Planning & Building Services
 Geographic Information Services
 Date Created: 10/17/08 (Revised: 3/9/09)
 Created By: Becky Osborn
 File: GE_FPD_w-WHR_map
 Projection: California State Plane Zone 1, NAD 1983

• Fig. 3 – Whitehawk Ranch



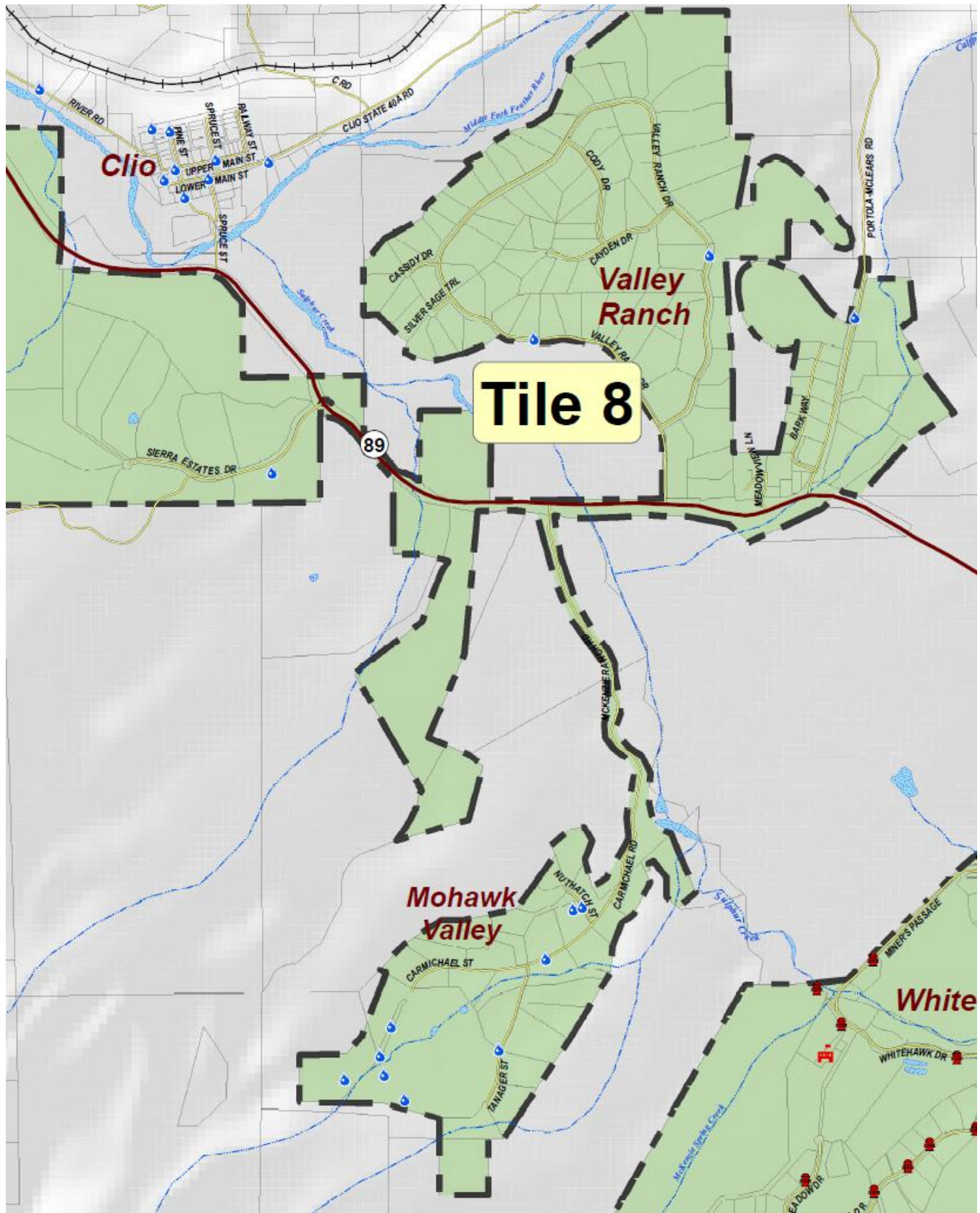
Plumas
Sierra

	Fire Hydrant
	Water Source Location
	Fire Department
	Railroad
	Major Highway
	County Geocoded Roads
	Stream / Creek
	Lake / Waterbody Area
	Parcels
	Graeagle Fire Protection District

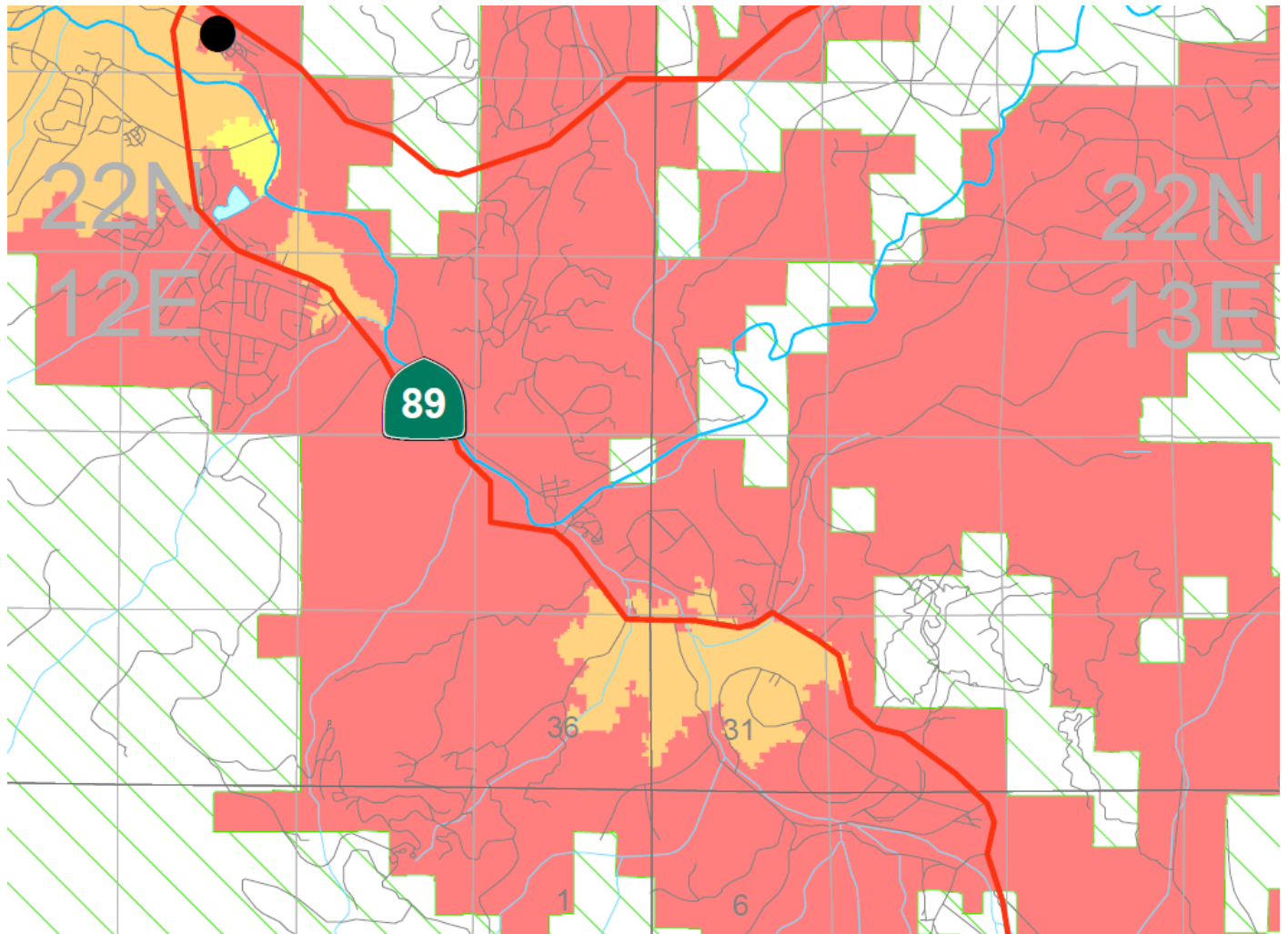
0 0.25 0.5 1 Miles

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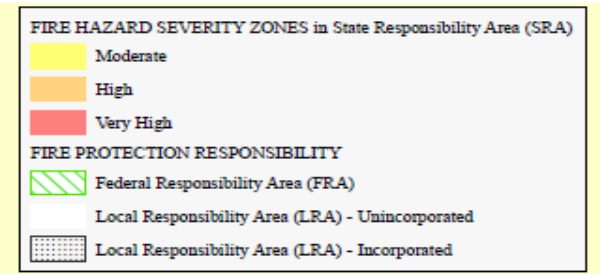
• Fig. 4 – Valley Ranch and Mohawk Valley



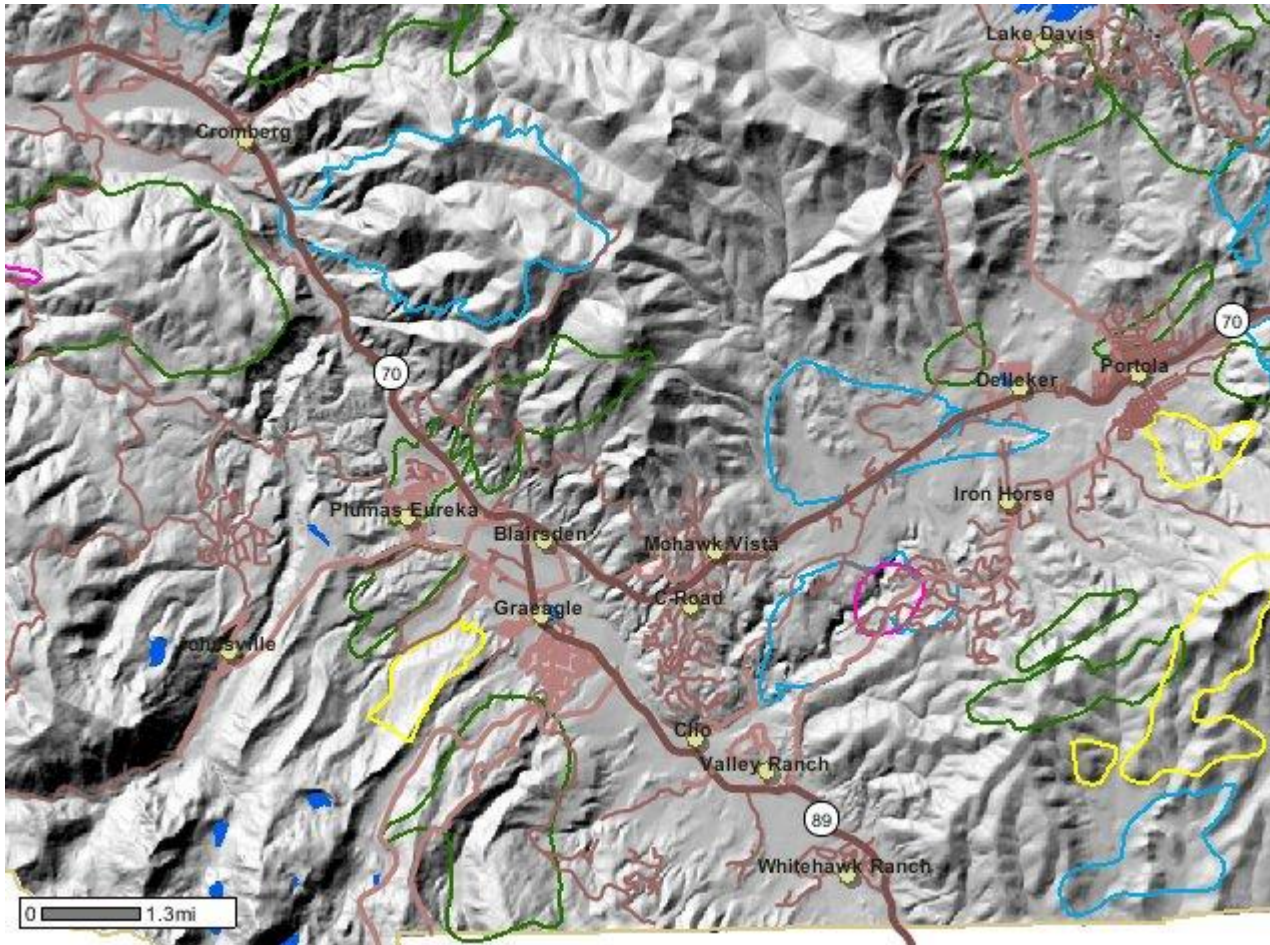
• Fig. 5 – Cal Fire Hazard Severity Zones in SRA for Graeagle Fire District



FIRE HAZARD SEVERITY ZONES IN SRA
 Adopted by CAL FIRE on November 7, 2007



• Fig. 6 – U. S. Forest Service Fire History Map for Mohawk Valley



- Communities
- Highways
- Roads and Streets
- Pavement
- FS
- AC
- Dirt
- Other
- Lakes
- Plumas Fire History 83**
- Arson
- Debris Burning
- Equipment Use
- Lightning
- Playing with Fire
- Railroad
- Smoking
- Unknown/Unidentified
- County Boundary

ASSESSMENT PROCESS

A team approach was taken in preparing this assessment of fire hazards and risks at Graeagle Fire Protection District. Relevant background data was initially collected and distributed for review by the several team members identified in the Introduction to this document. 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 sections. 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 March 22, 2010. 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, Ed Ward, Graeagle Fire Chief, John Sciborski and Bob Anderson from the Graeagle Fire Protection District Board, and Fred Bechtold, Chuck Bowman, Rich Dunn, and Jay Skutt, members of the community interested in the Firewise process.

A second follow-up inspection took place on April 13, 2010, with Cal Fire representative Jay Neuman who is the Fire Prevention Specialist for Plumas County, Jerry Hurley, Ed Ward, and Chuck Bowman. This was necessary to secure Jay's involvement in the process and he was not able to attend the earlier inspection tour.

The detailed review from Jerry Hurley of the Plumas County Fire Safe Council for the Graeagle Fire Protection District Firewise Assessment Tours on March 22, 2010, and April 13, 2010, is included in the Appendix.

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 Triangles

The March 2010 assessment inspection underscored the importance of several fundamental fire behavior matters. The starting point is the classic “fire triangle,” which points out the 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.

There is also a wildland “fire behavior triangle” with the elements of fuel, weather and topography as the factors which control the spread and intensity of a wildland fire.

Property owners have no control over the availability of atmospheric oxygen, weather or topography, 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 common element of both fire triangles.

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 dense, overstocked forest is generally recognized as a serious fire concern. The sheer volume of fuel that is available in a large, heavy stand of trees with a continuous fire ladder has the potential not only for intense heat at that location but also the production of huge quantities of embers from torching trees.

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 flammable 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. This is accomplished by removing the lower limbs of trees and smaller trees and brush under a tree to create a gap between the surface and ladder fuels that would be carrying the fire into the tree crown to prevent torching. If there are flammable 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. Avoid planting flammable shrubs directly beneath trees. Avoid planting flammable 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 Graeagle Fire Protection District.

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 previous era. 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 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 1/8 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 flammable shrubs and structures, and flammable vegetation should not be allowed under raised decks. When ornamental shrubs are planted, consider broadleaf (deciduous) varieties instead of the more flammable “evergreen” or native fire dependent (i.e. bitterbrush, Manzanita, sage) 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 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 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 District 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 District, 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 selection and placement and limbing of lower tree branches. In particular, our retention of large numbers of conifers within the District 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 Graeagle Fire Protection District.

House Numbers

- Location of House Numbers

There is considerable variability in the length of driveways within the District, which tends to add variability in where the 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 Graeagle Fire Protection District 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 District 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 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 District is not covered by the defensible space requirements of PRC-4291.

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.

The top five items needed as observed across the entire District could be summed up as:

1. Home address signs that are reflectorized and clearly visible on approach
2. Defensible space for those homes where this work has not been done
3. Clearance around propane tanks
4. Storage of firewood
5. Fuel reduction on vacant lots

The detailed review from Jerry Hurley of the Plumas County Fire Safe Council for the Graeagle Fire Protection District Firewise Assessment Tours on March 22, 2010, and April 13, 2010, is included in the Appendix.

Pictures of some of the top five items observed during The Assessment Tours are also included in the Appendix.

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 Graeagle Fire Protection District. 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:

- Good basic community infrastructure
 - The service level of the Graeagle Fire Protection District is excellent
 - The volunteer firefighters participate in constant ongoing training
 - Wide, paved roads for access to almost all of the District
 - Almost all roads were well signed with reflectorized street names
 - Primary roads were fully accessible with turnarounds on the dead ends
 - Fire hydrant system available in the more densely populated areas
 - Additional water sources are known and available for those areas without hydrants
 - Two fire stations within the District
 - Additional fire suppression resources nearby
 - Underground electrical supply lines in several areas
 - Golf courses and other open spaces serve as an interior fire breaks
- Proactive fire prevention efforts within the community
 - Active Home Ignition Zone (HIZ) Consultation program in the District
 - Community Burn Piles for yard waste trimmings and pine needles to support defensible space cleanup
- Generally favorable residential conditions
 - Mostly Class A (fire resistant) roofing materials
 - Defensible space work evident in some areas

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.

NEXT STEPS

This Assessment is a first step in a longer process leading to improved fire safety in the community

The Graeagle Fire Protection District Board will create a plan to address the areas of concern within the District. This planning activity will be coordinated with the Graeagle Fire Protection District, 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 in the Graeagle Fire Protection District. The material is presented in no particular order.

Existing Firewise Practices

- Parcel Inspections

At the onset of development in the 1960s, the area supported a mostly second growth, mixed conifer forest largely composed of pine, Douglas fir, white fir and incense cedar. Tree density was variable, reflecting the natural regrowth patterns of an area of which portions had previously been logged. At that time there were some brushy spots and 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 Graeagle Fire Protection District currently supports a voluntary Home Ignition Zone inspection program for homeowners, reviewing these parcels for compliance with state law (i.e., PRC 4291).

- Information Availability

Public education is a continuing effort of the Graeagle Fire Protection District and the local Fire Safe Council. A variety of information sheets, pamphlets, brochures and video materials are available to property owners at the Graeagle Fire Protection District fire hall. Additional fire prevention and parcel cleanup information is available on the Firewise Communities/USA website (<http://www.firewise.org>), the Plumas County Fire Safe Council website (<http://www.plumasfiresafe.org>), and the California Department of Forestry and Fire Protection (Cal Fire) website (<http://www.fire.ca.gov>). The availability of these information sources is made known via local community websites and periodic written local newspaper articles, newsletters, and other mailings sent to all Graeagle Fire Protection District property owners, and items posted on community bulletin boards. The Graeagle Fire Protection District is currently in the process of developing a website for additional distribution of information.

- 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. 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

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 (<http://www.plumasfiresafe.org>).

Fire Apparatus Access

The paved county roads within the District provide easy access for fire apparatus in the event of emergency. County crews and private development services provide snow removal 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. The US Forest Service is responsible for fire suppression on the National Forest areas, while CAL FIRE provides fire suppression services on the private timberlands. The nearest Forest Service fire crews are based in Blairsden, while the closest CAL FIRE crews are in Westwood and Susanville.

Local Climate

The Graeagle Fire Protection District 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.

Graeagle Fire Protection District is in a moderately wet region between the northern Sacramento Valley and the arid Great Basin. 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.

The Western Regional Climate Center in Reno has summarized data from Portola which is 8.17 miles from Graeagle (the closest historical record keeping) for the period from January 1, 1915 through August 31, 2009 as follows:

Month	Average Maximum Temp (°F)	Average Minimum Temp (°F)	Average Total Precipitation (inches)	Average Snowfall (inches)
January	42.7	17.1	3.65	16.0
February	46.2	20.0	3.30	13.8
March	52.2	23.6	2.84	9.7
April	59.1	27.4	1.32	2.8
May	67.9	32.7	1.01	0.6
June	76.8	37.2	0.59	0.0
July	86.1	40.8	0.31	0.0
August	84.4	38.6	0.25	0.0
September	77.8	33.7	0.40	0.1
October	67.1	28.0	1.13	0.3
November	53.5	22.9	2.18	4.3
December	44.5	18.5	3.40	11.8
<i>Annual</i>	<i>63.2</i>	<i>28.4</i>	<i>20.38</i>	<i>59.4</i>

Note that Total Precipitation includes both rainfall and the water content of melted snowfall.

Temperature variations between night and day tend to be big during summer with a difference that can reach 43 degrees Fahrenheit, and moderate during the winter with an average difference of 23 degrees Fahrenheit.

The average daily temperature spread, between daytime high and nighttime low, averages 23 degrees in the winter and averages 43 degrees during the dry (i.e., low humidity) summer period. Occasional temperature extremes can reach values that are 15 degrees higher or lower than the average figures noted above.

Graeagle Fire Protection District Firewise Assessment Tour Review

Plumas County Fire Safe Council



April 26, 2010

To: Chuck Bowman

Subject: Graeagle FPD Firewise Assessment Review

On Monday March 22, 2010, I assisted the Graeagle Fire Protection District's (FPD) Firewise application committee in a review of general community wildfire threats and hazards as part of their community assessment process in applying to become a recognized Firewise Community. I participated in this review with Ed Ward, Graeagle FPD Chief, Chuck Bowman, Jay Skutt, Fred Bechtold and Rich Dunn, of the Firewise application project team, and John Sciborski and Bob Anderson, Graeagle FPD Board members.

A follow-up review was conducted on April 13, 2010 with Jay Neuman, Cal Fire Prevention Specialist, Ed Ward, Chuck Bowman and myself. This effort was to review findings and to have Cal Fire's (responsible SRA wildland fire agency) concurrence in preparation of submitting the Firewise Application through Cal Fire.

Following are my thoughts and observations on the Community Firewise Assessment Review we conducted today.

- ❖ All communities are under the protection of Graeagle FPD. The level of service is excellent and continues to improve.
- ❖ Almost all roads were well signed with reflectorized street names. Primary roads were fully accessible with turnarounds on the dead ends.
- ❖ Fire hydrants are available in the more populated communities & water sources are known for those developments without a community water system.
- ❖ Graeagle has a community burn pile for disposing of yard waste trimmings and pine needles from efforts of those citizens who maintain their defensible space.

Because of the topography, slopes, meadows, and community fuel treatment efforts to date, there is some chance (but not as great as C Road or Mohawk Vista, for example) that a fire could run into the communities from surrounding forest vegetation. But the greater risk is a large fire in the surrounding hills raining embers into the different communities. Those embers would create spot fires, cause torching of the pockets of excessive fuels and the fire would be perpetuated from within by spotting & torching. The Community of Graeagle is most at risk due to the close proximity of homes and large pockets of untreated fuels.

Overall the following items tended to show up in most of the communities.

1. Lack of home address signing easily visible from both directions on the street/road with reflectorized numbering.
2. A lack of Defensible space especially within the first 30' from the structure. The range of compliance went from very good in Gold Ridge to almost a complete absence in the A-15 & Highway 89 intersection. Whitehawk and Valley Ranch were for the most part compliant, but could fine-tune some aspects. Some communities such as Graeagle were at an additional risk due to the ornamental vegetation (junipers) immediately next to wood siding or decks and lattice screening of many of the decks.
3. Many Propane tanks, screened or unscreened, lacked clearance of needles (mineral soil); some also had debris & firewood in close proximity. Care should be taken to insure that were tanks are screened with fencing that there is nothing stored inside of the screen (i.e. firewood, lawn furniture or construction materials).
4. While not extremely prevalent a number of homes had firewood stored immediately adjacent to the structure. Being winter this is to be expected; hopefully the residents will become educated that this is not a good summertime practice.
5. Vacant lots and common areas had fuel loads that would tend to perpetuate increased spotting and tree torching problems threatening homes, evacuation and the community.
6. Many propane tank regulators were exposed to the elements and could be subject in damage from tree snow loads. While not a wildfire issue it is a public safety concern.

Following are notes for each specific Community:

Whitehawk – Hydrants – Paved Roads, community water system with hydrants and underground electricity.

- Can improve on address signing that is easily visible from both directions on the street/road with reflectorized numbering, in some of parts of the subdivision.
- Defensible Space is mostly good some fine-tuning on pruning small trees in the 0-30 zone & limiting ornamental vegetation next to houses would enhance the current efforts.
- Extensive Reproduction (carpets) throughout much of the community in open areas. Will eventually become problematic if left untended.
- Some fuel reduction efforts needed on vacant lots, lower slopes below houses and along the golf course right of way.
- Some propane screens lacked vegetation clearance, some regulators exposed.
- May be beneficial if bridge weights were posted.

Corner of A-15 & Hwy 89 – Dirt Roads, no community water system and above ground electricity.

- Absence of address signing that is easily visible from both directions on the street/road with reflectorized numbering
- Most of the structures lacked appropriate Defensible Space.
- No posting of dead end or turnarounds on road with a chain across it. Chain would have to be cut to allow through access to emergency responders.

Valley Ranch – Paved roads, some water filling locations (un-posted), and underground electricity.

- Can improve on address signing that is easily visible from both directions on the street/road with reflectorized numbering.
- Defensible Space is mostly good for the 0-30' zone. Opportunities to expand to include the entire 100' required by law.
- Some propane screens lacked vegetation clearance to mineral soil.

Mohawk Meadows - Paved roads, some water filling locations (un-posted) and underground electricity.

- Street signs not reflectorized.
- Can improve on address signing that is easily visible from both directions on the street/road with reflectorized numbering.
- Opportunities to improve on required Defensible Space in both zones.
- Some propane screens lacked vegetation clearance to mineral soil.

Sierra Estates - Paved roads, no community water, some drafting sources, and underground electricity.

- Lack of a street or driveway address sign at the cul-de-sac makes for confusion of addresses.
- Needs address signing that is easily visible from both directions on the street/road with reflectorized numbering.
- Opportunities to improve on required Defensible Space in both zones.

Gold Ridge - Paved roads, community water, and underground electricity.

- Needs address signing that is easily visible from both directions on the street/road with reflectorized numbering.
- All homes appeared compliant with defensible space.

Mobil home Park - Paved roads and community water.

- Needs address signing that is easily visible from both directions on the street/road with reflectorized or illuminated numbering.
- Need to improve flawed hydrant system.

Graeagle –Paved Roads, community water system with hydrants, underground electricity

- Needs address signing that is easily visible from both directions on the street/road with reflectorized numbering.

- Many opportunities to improve on Defensible Space, especially in the 0-30 zone due to lot size.
- Limiting or eliminating ornamental vegetation (especially junipers) next to houses and decks would be extremely beneficial to the community.
- Many decks skirted by lattice can be easily ignited from fire creeping in pine needles.
- Firewood piles, an easy source of ignition from raining embers in a wildfire, are located adjacent to structures, on porches and in breezeways.
- Heavy fuel loads in many of the vacant lots & community areas, will tend to perpetuate increased spotting and tree torching problems threatening homes, evacuation and the community.
- Some propane tanks and screens lacked vegetation clearance, many regulators exposed.

Graeagle Meadows #1 Condos –Paved Roads, community water system with hydrants, underground electricity.

- Absence of street/road address signing will add difficulty to emergency responders.
- Needs address signing that is easily visible from both directions on the street/road with reflectorized numbering for the units.
- Absence of lighted signing on each condo, especially in clusters adds to confusion of unit addresses, adding difficulty to emergency responders.
- Limiting or eliminating ornamental vegetation (especially junipers) next to houses and fences would be extremely beneficial to the community.
- Firewood piles, an easy source of ignition from raining embers in a wildfire, are located under parking structures and should be covered to prevent ember ignition.
- A few pockets of heavy fuels loads in some of the common areas could perpetuate spotting from tree torching, threatening homes, evacuation and the community.

Chuck I appreciated the opportunity to assist you and your committee in a review of general community wildfire hazards as part of your community assessment for applying to become a recognized Firewise Community.

Respectfully,

/s/JERRY HURLEY

Jerry Hurley

PC FSC Coordinator

CC: Jay Neuman

Jay Skutt

Ed Ward

Graeagle Fire Protection District Firewise Assessment Tour Pictures

1. Home address signs that are reflectorized and clearly visible on approach



2. Defensible space for those homes where this work has not been done



3. Clearance around propane tanks



4. Storage of firewood



5. Fuel reduction on vacant lots



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

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 non-vegetative 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.