# The Chiloquin-Agency Lake Rural Fire Protection District

# Community Wildfire Protection Plan

***Prepared for:***

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# Signatures:

As required by the HFRA, the undersigned representatives of the Klamath County Commissioners, the C-ALRFPD Board of Directors, and Oregon Department of Forestry acknowledge that they have reviewed and approve of the contents of this plan.

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Bill Brown, Chairman

## Oregon Department of Forestry

Bill Hunt, District Forester, Klamath-Lake District

## Chiloquin-Agency Lake RFPD, Board of Directors

Mike Bureau, President

Ted MacConell, Vice President

Norm Fowler, Secretary/Treasurer

Fritz Winter, Board Member

Phil MacArthur, Board Member

# Chiloquin-Agency Lake RFPD
# Community Wildfire Protection Plan
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# Executive Summary

Fire was an important disturbance mechanism in many of the ecosystems of the Chiloquin-Agency Lake Rural Fire Protection District (C-ALRFPD). Intervention in this disturbance cycle through the suppression of unwanted fires has been a predominant policy of the wildland firefighting agencies over the last 80 years. Numerous large and devastating wildfires have burned historically within the current C-ALRFPD boundaries. These past wildfires have resulted in the expenditure of millions of fire suppression dollars and have injured or killed firefighters, damaged or destroyed numerous homes, and have caused enormous amounts of resource damage. This significant fire frequency, large fire potential, resource damage potential, economic cost, and risk to public safety has caused the communities of the C-ALRFPD to initiate the development of this Community Wildfire Protection Plan (CWPP).

The primary goal of this community fire plan is to help create communities within the C-ALRFPD that are fire safe and at low risk to damage from wildland fires.

This plan essentially follows the outline developed by Resource Innovations, Institute for a Sustainable Environment, University of Oregon, which is included in the document "A Framework for Community Fire Plans" (Resource Innovations, 2004).

**The major outputs from this plan include:**

- ✓ Development and approval of the Wildland Urban Interface (WUI) boundary for the lands surrounding the C-ALRFPD.
- ✓ Documentation of the Community Wildfire Committee (CWC) activities and collaboration with the community and Inter-Agency partners.
- ✓ An analysis of the community profile and economic values of the C-ALRFPD.
- ✓ An analysis of the critical infrastructure found within the C-ALRFPD that needs to be protected from fire.
- ✓ Analysis of the historic fire occurrence, large fire history, fuels, vegetation types, weather, and topography of the C-ALRFPD area as related to wildland fire behavior and suppression.
- ✓ Analysis of the protection capabilities of the C-ALRFPD and other mutual aid resources within the County.

- ✓ Identification of ‘high’, ‘moderate’ and ‘low’ fire danger areas within the private lands of the C-ALRFPD.
- ✓ Discussion of different fire hazard reduction treatment methods that are effective in the fuel types of the C-ALRFPD.
- ✓ Prioritization of fire hazard treatment areas within the C-ALRFPD WUI boundary.
- ✓ Identification of steps that homeowners and the community can take to reduce the ignitability of structures within the C-ALRFPD.
- ✓ Analysis of the current public education and outreach programs of the C-ALRFPD and recommendations for improvement.
- ✓ Development of a monitoring and evaluation plan for the C-ALRFPD CWPP.

## Mission Statement

The development and completion of this CWPP has been a valuable step in helping the C-ALRFPD to meet their primary mission. The Mission Statement for the Chiloquin-Agency Lake Rural Fire Protection District is very simple and direct:

PROTECT LIFE, PROPERTY, THE ENVIRONMENT, HAVING PROVIDED FOR SAFETY FIRST

# Chapter I. Introduction

## 1.1 Background and History

On August 8, 2000, President Clinton asked the Secretaries of Agriculture and Interior to prepare a report recommending how best to respond to the severe fires of 2000, reduce the impacts of those fires on rural communities, and ensure sufficient firefighting resources in the future. On September 8, 2000, the President accepted their report, *Managing Impacts of Wildfires on Communities and the Environment-A Report to the President*. This report provided the initial framework for implementing fire management and forest health programs known as the National Fire Plan.

*Protecting People and Sustaining Resources in Fire-Adapted Ecosystems, A Cohesive Strategy* (2000) is a report providing the strategic framework for reducing hazardous fuels buildup within wildland-urban interface communities, municipal watersheds, threatened and endangered species habitat, and other important local features. The objective of this strategy is to describe actions that could restore healthy, diverse, and resilient ecosystems to conditions that minimize the potential for uncharacteristically intense fires. Methods recommended include removal of excessive vegetation and dead fuels through thinning, prescribed fire, and other treatments. *A Cohesive Strategy* responds to Congressional direction to provide guidance on reducing wildfire hazard and restoring ecosystem health as part of the National Fire Plan. Companion publications to the *Cohesive Strategy* include *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment – 10-Year Comprehensive Strategy* (2001) and the *Strategy Implementation Plan* (2002).

As part of the effort to implement the strategies of the National Fire Plan, the *Healthy Forests Restoration Act of 2003* (HFRA) was signed into law on December 3, 2003 by President George W. Bush. It is designed to improve the capacity of the Departments of Interior and Agriculture to conduct hazardous fuels reduction projects to protect communities, watersheds, and other at-risk lands from catastrophic wildfire. This landmark legislation includes the first meaningful statutory incentives for the US Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects.

In order for a community to take full advantage of this new opportunity, it must first prepare a Community Wildfire Protection Plan (CWPP). Local wildfire protection plans can take a variety of forms, based on the needs of the people involved in their development. Community Wildfire Protection Plans may address issues such as wildfire response, hazard mitigation, community preparedness, or structure protection—or all of the above.

The process of developing a CWPP can help a community clarify and refine its priorities for the protection of life, property, and critical infrastructure in the wildland–urban

interface. It also can lead community members through valuable discussions regarding management options and implications for the surrounding watershed. The language in the HFRA provides maximum flexibility for communities to determine the substance and detail of their plans and the procedures they use to develop them.

The Chiloquin-Agency Lake Rural Fire Protection District (C-ALRFPD) began preparation of a CWPP in the spring of 2004 with Fire Chief Dewaine Holster initiating several comprehensive data collection efforts and hiring a Program Coordinator to oversee timely completion of the plan.

Doug Miller, a Chiloquin resident, was selected by Chief Holster and the Fire District's Board of Directors to coordinate and manage preparation of the CWPP.

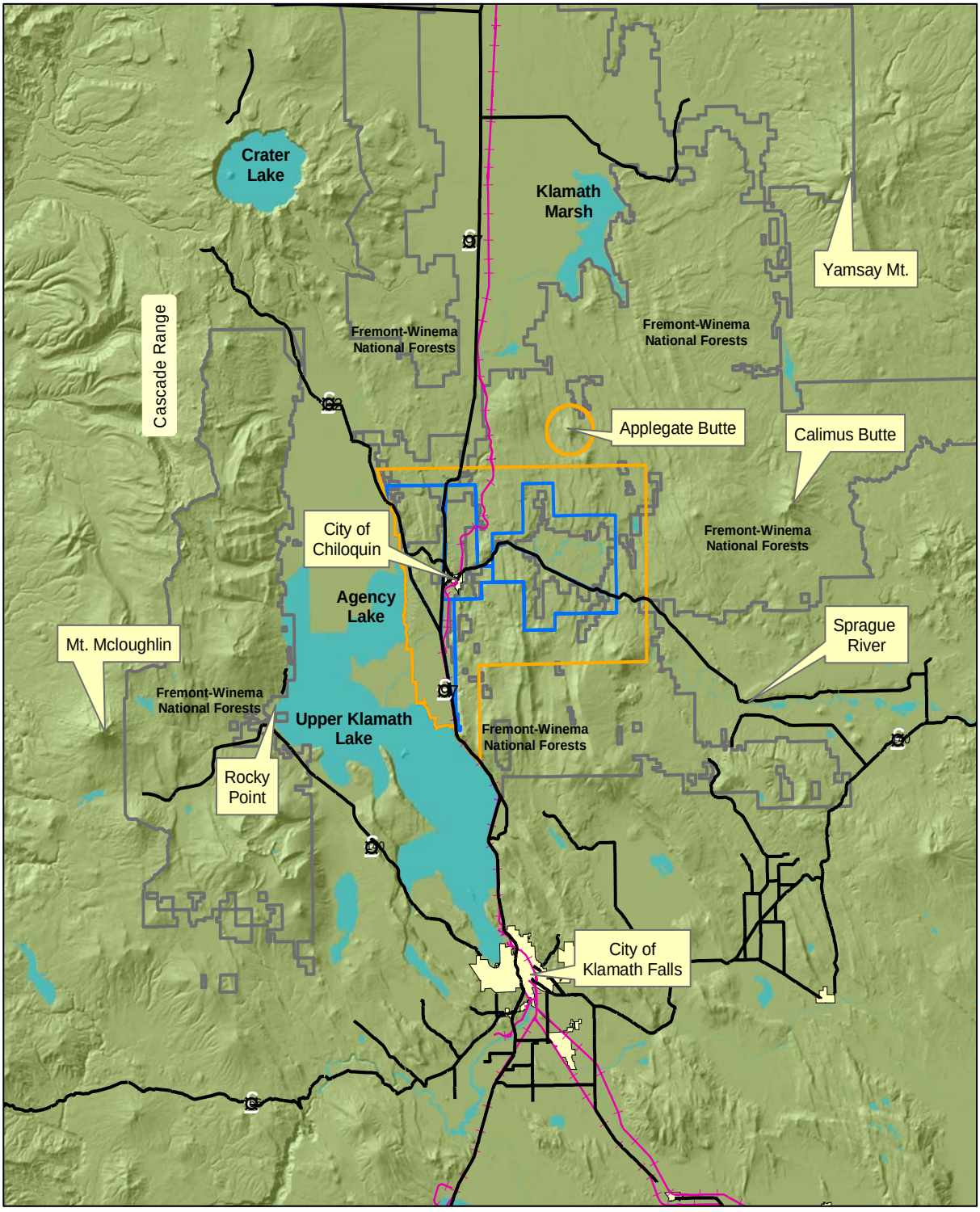
One of the earliest decisions made by the Chief and the Coordinator was to use the process and plan outline found in "*A Framework for Community Fire Plans*" developed by the University of Oregon with contributions from County, State and Federal agencies. The comprehensive nature of this outline best fits the needs of the District; however modifications and exclusions from the original were made to more accurately reflect Chiloquin's size, capabilities and specific environment. A copy of the outline used is available on the Chiloquin RFPD website, www.chiloquinfire.com and in the appendix.

> The *minimum requirements* for a CWPP as described in the HFRA are:
> (1) **Collaboration:** A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.
> (2) **Prioritized Fuel Reduction:** A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.
> (3) **Treatment of Structural Ignitability:** A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.

The planning process emphasized formation of a broadly represented community steering committee. A Chiloquin Community Wildfire Committee was assembled and held its initial meeting to become familiar with the Plan, and the Committee's responsibilities within the Plan, on June 30, 2004. The Committee meets as necessary, determined by Chief Holster and Coordinator Miller. This Committee consists of individuals representing the following:

- Woodland Park, Rainbow Park, Oregon Shores subdivisions and the Sprague River Road's Nine Mile area
- Jeld-Wen, Inc.
- Train Mountain
- Klamath Tribes
- Oregon Department of Forestry, Klamath/Lake District
- Klamath County Emergency Services
- US Forest Service, Chiloquin Ranger District
- City of Chiloquin
- Chiloquin Fire District Board of Directors
- Klamath County Commissioners

The minutes from these meetings are available in the appendices and on the Fire District's web site.



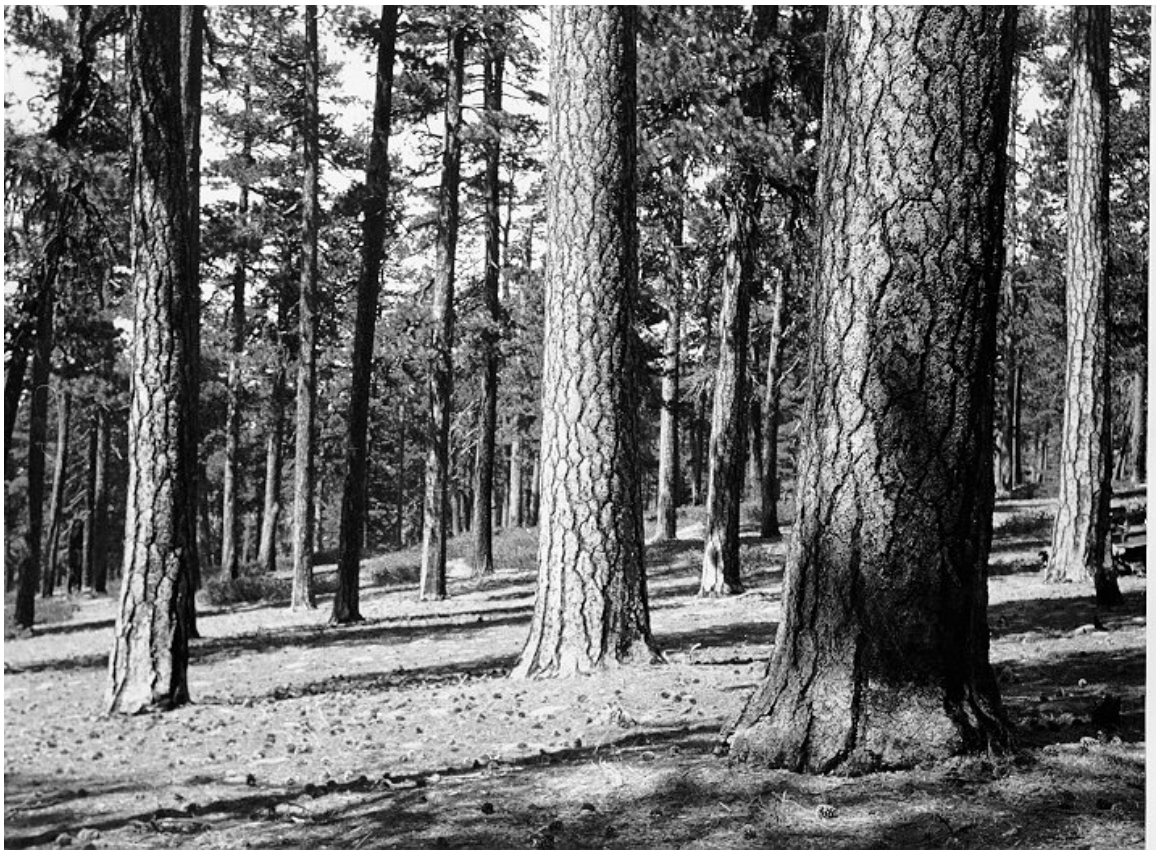

# Vicinity Map

**Chiloquin-Agency Lake Rural Fire Protection District**

### 1.1.1 History of significant wildfires/community impact

Wildfires have played a significant role in developing and maintaining the natural ecosystems around Chiloquin. The wildland areas within the C-ALRFPD area are predominantly covered with Ponderosa Pine overstory with varying levels of bitterbrush understory. The natural historic fire regime for the Fire District was mainly "low severity". Based on the plant communities and fuel types of our area, three historic fire regimes (Agee, 1993) are thought to have existed in the C-ALRFPD area; low severity, mixed severity, and areas of minimal influence.

Stand development within the ponderosa pine types was associated with frequent, light surface fire (5-15 year fire-free intervals) that is referred to as the low severity fire regime. Historically, these frequent, low-severity wildfires did an excellent job of cleaning up the fuels in the understory of these stands. Continual surface fires scorched lower limbs and consumed the small brush and trees, effectively eliminating "ladder fuels" from the stands, allowing wildfires to burn freely on the forest floor with a significantly reduced chance of the fire climbing into the overstory crowns.



Open park-like stands of ponderosa pine in the Chiloquin area, 1930's.

Historically, the ponderosa pine ecosystem had frequent, low-intensity, surface fires that perpetuated park-like stands with grassy undergrowth (Barrett, 1980). For decades, humans have attempted to exclude fire from these stands, mainly through aggressive

fire suppression. Fifty years ago, Harold Weaver (Weaver, 1943), who conducted studies in the C-ALRFPD area, stated that complete prevention of forest fires in the ponderosa pine region had undesirable ecological effects and that already-deplorable conditions were becoming increasingly serious. Today, many ponderosa pine forests are overstocked, plagued by epidemics of insects and diseases, and subject to severe stand-destroying fires (Mutch et al. 1993).

Stand development within the lodgepole pine and mixed conifer plant associations were historically associated with both crown fire and mixed severity surface fires with relatively short fire-free return intervals (5-50 years). This scenario is similar to the moderate severity fire regime described by James Agee (1993). Meadows, shrub-scablands, and non-forest areas are classified as having little or no influence and are referred to as areas of minimal influence.

Ponderosa pine/bitterbrush stand within the city of Chiloquin

Currently, much of the forested and brush covered lands within the C-ALRFPD would likely contribute to high severity fire, due to the current stand structure, brush growth, and fuel loadings. Chapter 1 of the *Chiloquin Community Fuels Reduction Project, Environmental Assessment (USFS, 2002)* does a good job of describing the past and present condition of the stands in the Chiloquin area.

*"Historically the Chiloquin Community Fuels Reduction Project (CCFRP) area was largely dominated by single-storied, open park-like stands with an abundance of large diameter, fire resistant trees. The landscape generally provided some quality forage and a moderate to low fire hazard. Frequent low intensity fires maintained the open stand structures by killing brush, small trees, and seedlings, and consuming fuels before they accumulated to the level where the entire stand was threatened.*

*Past management activities, in particular timber harvest and fire suppression, have changed stand structure, composition, and landscape pattern. Currently, the CCFRP is composed of well-stocked, multi-storied ponderosa pine stands, with minor amounts of lodgepole and pine associated stands. Today's stands have less of a large tree component and many more small trees than existed historically, creating a continuous fuel ladder from the ground to the crowns of the larger trees. Fuels have accumulated from needle fall and other conifer litter. Brush species have become thick and decadent, with a large component of dead stems. The mule deer forage present (mainly bitterbrush) is predominately in a mature/over-mature condition. Given current stand structures and fuel loadings, about 95% of the Chiloquin Community Fuels Reduction Project Area rated as a high fire hazard and is now susceptible to a stand replacement fire. A stand replacement or catastrophic fire is one that kills at least 80% of the existing vegetation. These fires have the potential to cause significant damage to public lands, and to private lands and structures.*

*Private lands in and around the CCFRP consist of ponderosa pine stands with a brush understory. Much of the private lands have excessive vegetation and dead woody material. Improvements range from city houses on small lots to small acreages and ranches with homes, outbuildings, and other structures."*

Over the last 100 years, numerous large and devastating wildfires have occurred in the Chiloquin, Agency Lake and Sprague River Valley areas. Large wildfire scars are easily visible from many locations in the district, and vast brush fields and plantations are evidence of the significant role that wildfires have played in this area. The table below displays some of the largest historic wildfires in the C-ALRFPD area, along with the year of occurrence, forward spread distance and acres burned.

## A Sampling of Historic Large Wildfires in the C-ALRFPD Area

## 1939 to 1992

| Fire Name | Year | Approximate Acres Burned | Spread Distance |
|---|---|---|---|
| Pine Ridge | 1939 | 10,000 | 5.0 Miles |
| Cave Mountain | 1959 | 15,000 | 11.0 Miles |
| Corbell Butte | 1964 | 100 | 0.75 Miles |
| Powerline | 1970 | 126 | 0.5 Miles |
| Chiloquin | 1973 | 120 | 0.6 Miles |
| Bend of the River | 1976 | 105 | 1.0 Miles |
| Agency | 1979 | 1,000 | 2.5 Miles |
| Crossover | 1981 | 50 | 0.5 Miles |
| Cowboy | 1987 | 3,000 | 3.5 Miles |
| Williamson | 1988 | 130 | 0.6 Miles |
| Lone Pine | 1992 | 30,000 | 15.0 Miles |

It is important to note that all of these fires burned with very high severity, killing the vegetation at almost every level and causing severe environmental damage (stand replacement fire).

The Cave Mountain fire of 1959 started at the current Chiloquin landfill site. This fire burned with extreme severity and high rates of spread, spreading from the town of Chiloquin north to Solomon Butte in one afternoon, a forward spread distance of over 10 miles. The fire killed one dozer operator who was attempting to control the wildfire, and burned 15,000 acres of forestland.

While the Cave Mountain fire burned from South to North, the Pine Ridge fire of 1939 burned in the same area, but spread from the East to West, crossing present day Highway 97 and spreading westward to the shores of Agency Lake. This high variation in wind direction (thus fire spread direction) was noted in the weather analysis and further requires the WUI boundaries for the C-ALRFPD area to be of sufficient size in almost every direction to ensure that structures and other improvements are protected regardless of the direction that a future wildfire spreads.

Harold Weaver

Photo #1. Earle R. Wilcox and Victor Sisson discussing fire-killed timber in SW/4, Section 24, T. 34 S., R. 7 E., on the northwest slope of Cave Mountain. Every tree in this photo is fire killed. Note remnants of manzanita and bitterbrush on the ground. Clifford E. Daw, a tractor driver, was overtaken and killed by the fire a short distance northeast of this scene on the afternoon of September 10. This is within the Chiloquin Sustained Yield Unit.

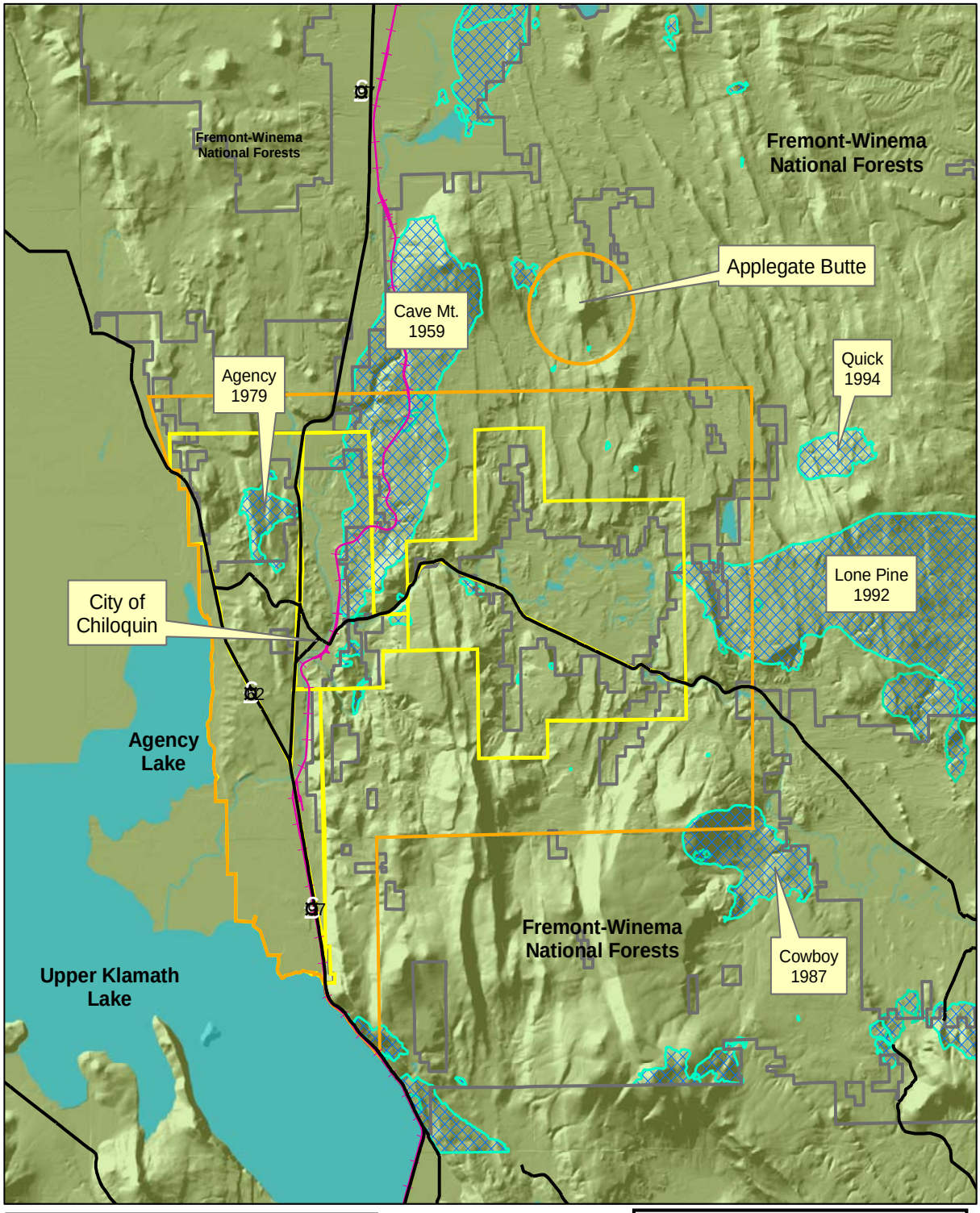
In August of 1992, the largest wildfire in recent history occurred on the C-ALRFPD. The Lone Pine Fire burned approximately 31,000 acres over 5 days and destroyed 3 structures before it was finally contained. This human caused fire started near some homes, with the most likely cause being children. Spreading from West to East and threatening dozens of homes, this huge and devastating wildfire was a wake up call for the local land managers. Suppression costs were in the ten's of millions of dollars, and the loss of natural resources were enormous. Approximately 100 million board feet of timber was killed, and the damage to the soils and wildlife habitat was significant.

Another wildfire, the Pine Ridge Fire of 1939, originated at the old Pine Ridge Mill site on the north side of Chiloquin. During the fire, the mill burned down, along with many of the nearby structures before the fire spread west to the shores of Agency Lake.

Currently, many dozens of homes are located within the historic perimeter of the Pine Ridge Fire.

Historic wildfires burning in the C-ALRFPD area have displayed extreme fire behavior, rapid rates of spread, long rang spotting distances, and spread in almost any direction given the constantly changing weather patterns of our area. Past wildfires have caused severe damage to improvements, structures, the environment, and the economy of the C-ALRFPD area.

Wildfires continue to play a significant role in the C-ALRFPD area, with several wildfires burning in or near the communities every fire season. Large wildfires are, and will always be a constant threat to the Chiloquin community; it is only a matter of time until another large wildfire again threatens the community.




**Legend**

- Roads
- Railroad
- Chiloquin_wui_bdy
- C-ALRFPD_bdy
- Historic Large Wildfires
- F-WNF_bdy

## Historic Large Wildfires

**Chiloquin-Agency Lake Rural Fire Protection District**

0 1 2 3

Miles

### 1.1.2 Activities for community fire protection

Over the last 50 years, many different community fire protection activities have been implemented. Prescribed burning, commercial and pre-commercial thinning, brush cutting, grass mowing and many other fuels reduction activities have occurred in the C-ALRFPD area.

***Private Lands***

Landowners in the C-ALRFPD area have been actively reducing the fire hazard on their properties for many years. Through National Fire Plan grants and other funding, fire department personnel have made risk assessments and personal contacts at thousands of homes in the C-ALRFPD. Numerous homes were rated as 'moderate' to 'high' potential for damage from wildfires. Defensible space clean up has been completed on nearly 100 of them. Over 800 acres of private land has benefited from hazard reduction treatments through cost share agreements.

Numerous public information presentations have been made by the Fire District to groups like the Chiloquin Lions Club, Community Action Team, elementary school, and the OSU extension service, with several other presentations planned for other groups.

Past hazard reduction treatments were implemented in two ways, defensible space and landscape treatments. One of the primary fire hazard concerns in this area is ladder fuel. Numerous stands are overstocked and have continuous needle draped bitterbrush in the understory. Hazard reduction treatments completed and proposed include mechanical mowing/chipping and/or hand cutting of brush and small trees in the understory, limbing or pruning of overstory trees, chipping, removal or piling of slash, understory or pile burning, and defensible space clearing. Defensible space treatments are the first priority and these treatments will continue as the highest priority. Landscape treatments on private lands are the second priority and will continue to be implemented as funds become available (normally cost share funds). The CWPP mitigation plan will guide future treatment priorities.

***Public Lands***

The C-ALRFPD is almost entirely surrounded by wildland urban interface (timber and brush) much of which is Fremont-Winema National Forest (FWNF), managed by the Chiloquin Ranger District.

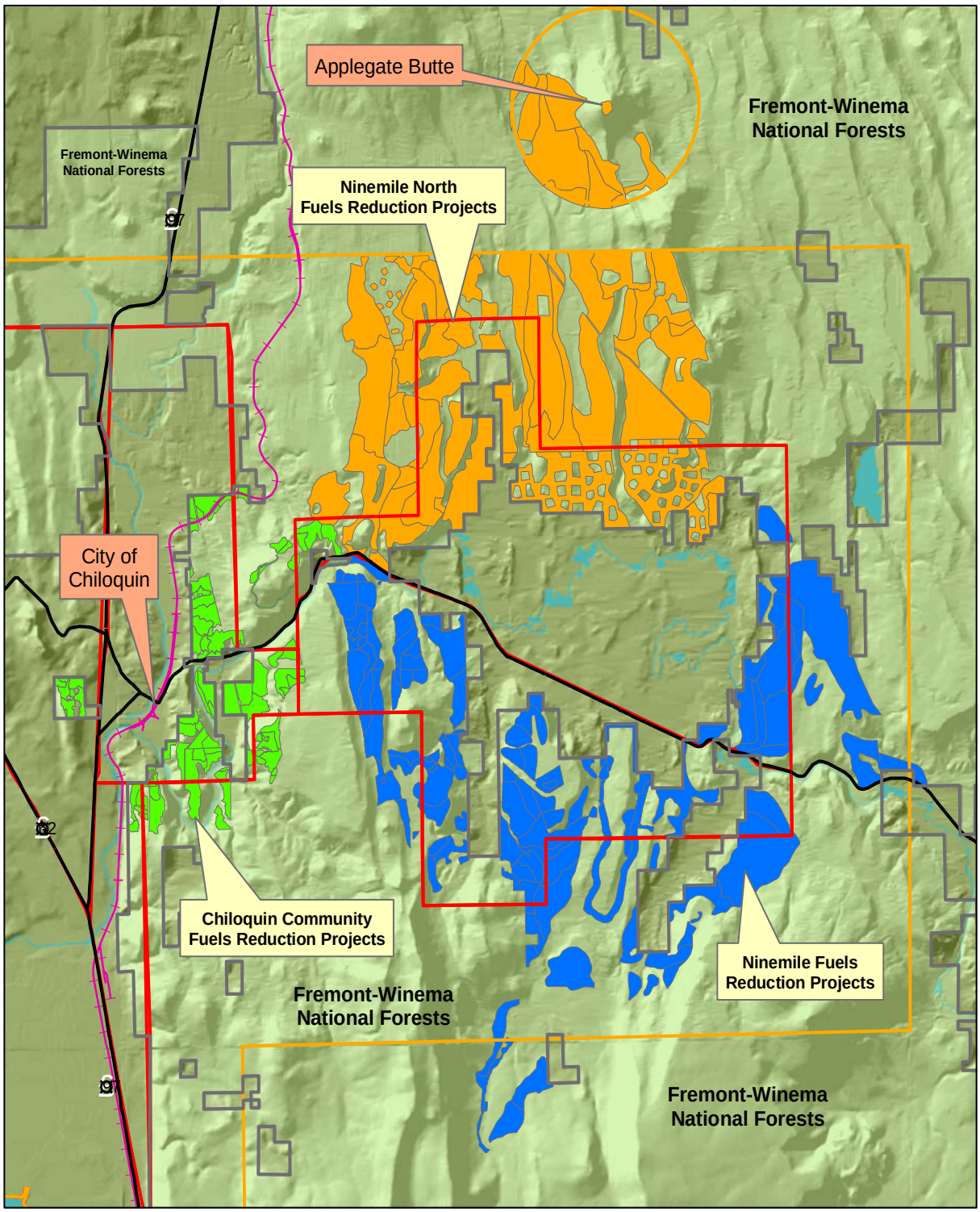
The FWNF has implemented many different fuels reduction projects on the Chiloquin Ranger District. These on-going projects have helped to reduce the overall fire hazard on the public lands surrounding the C-ALRFPD.

Stand near Chiloquin that was thinned and underburned by USFS.

Close public involvement and cooperation between the US Forest Service and C-ALRFPD has allowed completion of the Chiloquin Community Fuels Reduction Project (CCFRP) Environmental Assessment (EA), (USFS, 2002) and its associated projects to reduce fire hazard on the FS lands surrounding Chiloquin. Chapter 1 of the EA states the primary purpose of the project. Projects from this EA are currently in various stages of implementation.

*"The Chiloquin Community Fuels Reduction Project proposes to reduce fire hazard by thinning dense conifer stands with timber sales and/or silvicultural treatments and reducing natural fuel accumulations by mechanical brush treatments and prescribed fire. This will reduce wildland fire spread and improve the ability to suppress fires and protect both public lands and private property."*

Projects from the Nine-Mile EA, which are currently in process, will help to reduce the fire hazard around the homes along the Sprague River Highway. Treatments on private lands will be coordinated to complement the treatments completed and proposed on FWNF lands. Projects from the Nine-Mile North EA propose similar hazard reduction treatments for the National Forest lands north of the Nine-mile area. The map on the next page displays the most current fuels reduction projects by the Fremont-Winema National Forest's.




**Fremont-Winema NF's Fuels Reduction Projects**

**Chiloquin-Agency Lake Rural Fire Protection District**

0 1 2 3
Miles

## 1.2 Planning Area Boundaries

### *Planning Area Boundary*

For the purposes of this plan, the planning area boundary includes all of the lands within the C-ALRFPD boundary, adjacent federal lands within about 5 miles of the C-ALRFPD boundary, and lands surrounding important community infrastructure (Applegate Butte). Within this larger planning area, numerous variables were assessed during the development of the CWPP, including fire hazards, fire occurrence, values at risk, travel routes, structure and infrastructure protection, and any other values related to wildland fire.

### *C-ALRFPD Boundary*

The C-AL Rural Fire Protection District was established in 1980, with the boundary and Protection District being approved and adopted by the Klamath County Commissioners. At that time, the district was approximately 56 square miles. In 1998, the Ninemile area was added to the fire protection district, which brought the area up to 105 square miles. The C-ALRFPD Board of Directors and the Klamath County Commisioners approved this annexation of the Ninemile area.

The current Fire District boundary is displayed later in this chapter. The fire district boundary outlines the area where the C-ALRFPD has protection responsibility, primarily for structure protection, and secondarily for wildland fire suppression, medical aid, rescue operations and other emergency services. During the mid 1980's, the Klamath County Fire Defense Board (all fire districts within the county) identified the areas where each protection district is responsible for responding to incidents. The original reason for designated response areas was to ensure that every portion of the county had some type of fire district resources that could respond in the event of an emergency.

### *Wildland Urban Interface Boundary*

One of the key outcomes of the CWPP process is the establishment of the Wildland Urban Interface (WUI) boundary. The WUI boundary provides local land management agencies (primarily the US Forest Service in the C-ALRFPD area) with an area defined by the local community as the area where hazardous fuels should be treated in order to reduce the risk of catastrophic wildfire burning into or out of the communities that are included. Fire hazard reduction treatments on private lands are the choice of the landowner, and the decision to implement fire hazard reduction projects lies solely with the landowner.

On the federal lands that surround the C-ALRFPD, all fire hazard reduction projects must be analyzed for their potential effects to the environment. HFRA (Title 1 Section 103) states that in the case of an authorized hazardous fuel reduction project for which a decision notice is issued during the one-year period beginning on the date of enactment of the Act (December 3, 2003), the existing definition (Federal Register Vol. 66 No. 3 January 4, 2001) of wildland-urban interface shall be used. The C-ALRFPD project area qualifies as Category 2, Intermix Community. This definition states there is

no clear line of demarcation between wildland fuels and structures. A distance of 1-1/2 miles of interface area was used so as to address all of the private property areas containing both structures and fuels, as this fits the definition of an intermix community. Up till the completion of this CWPP, the US Forest Service has used the default distance of 1-½ miles from private land as the WUI boundary for recent projects they have analyzed (such as Ninemile EA).

A meeting was held on September 13, 2004 at the Chiloquin Ranger Station, where different WUI boundary placement criteria were discussed to help the CWC determine the Wildland Urban Interface boundary for the C-ALRFPD CWPP, and possibly other CWPP's in the county. The group decided that the criteria for establishment of the boundary were as follows:

Attendees:
Rick Ragan (USFS), Danny Benson (ODF), Loren Head (Harriman RFPD), Joy Augustine (USFS), Dewaine Holster (Chiloquin-Agency Lake RFPD), John Ketchum (Keno RFPD), Cam Richey (USFS), Ken Paul (USFS), John Giller (Klamath Fire, Inc.), Kevin Moore (USFS), Doug Miller (Chiloquin-Agency Lake RFPD)

1) Group agreed that the placement of the WUI boundary should be determined by looking at historical weather data, and using the $90^{th}$ or $95^{th}$ percentile outputs ("worst case scenario") and current fuel models (insert definition link) into the fire behavior computer model BEHAVE (insert definition link) or FARSITE to determine rates of spread and flame lengths of fires burning in surface fuels.
2) One burning period (10 am to sundown, or approximately 10 hours) will be used as the time period for fire spread calculations when determining spread distances of surface fires.
3) When "worst case" fire behavior outputs and fuel conditions indicate fires will burn with extreme characteristics (torching, crowning, long range spotting) (insert definition link), rates of spread and flame lengths predicted in BEHAVE are unusable due to limitations of the spread model. Crown fire spread models such as Flammap (insert reference link) or fire behavior observations from actual historic wildfires must then be used to determine potential spread distances for future wildfires when determining the appropriate WUI boundary placement.
4) It will be assumed that all USFS and private lands within the C-ALRFPD area are in a Condition Class 3, based on the recently completed fuels analysis for private lands, and consultation with the Chiloquin Ranger District personnel for USFS lands.

After data gathering and analysis, on February 5, 2005 a meeting was held to determine the best placement of the WUI boundary for the C-ALRFPD based on the criteria established at the September 2004 meeting discussed above. Fire Chief Dewaine Holster and Coordinator Doug Miller from the Fire District, contractor John Giller from Klamath Fire, Inc., Chiloquin District Ranger Rick Ragan, Fire Management Officer (FMO) Ken Paul, Fuels Specialist Cam Richey, and Forester, Kevin Moore attended the meeting. It was felt that these persons had the most local wildland fire expertise in the community and that their input would be most beneficial. Since most of the WUI

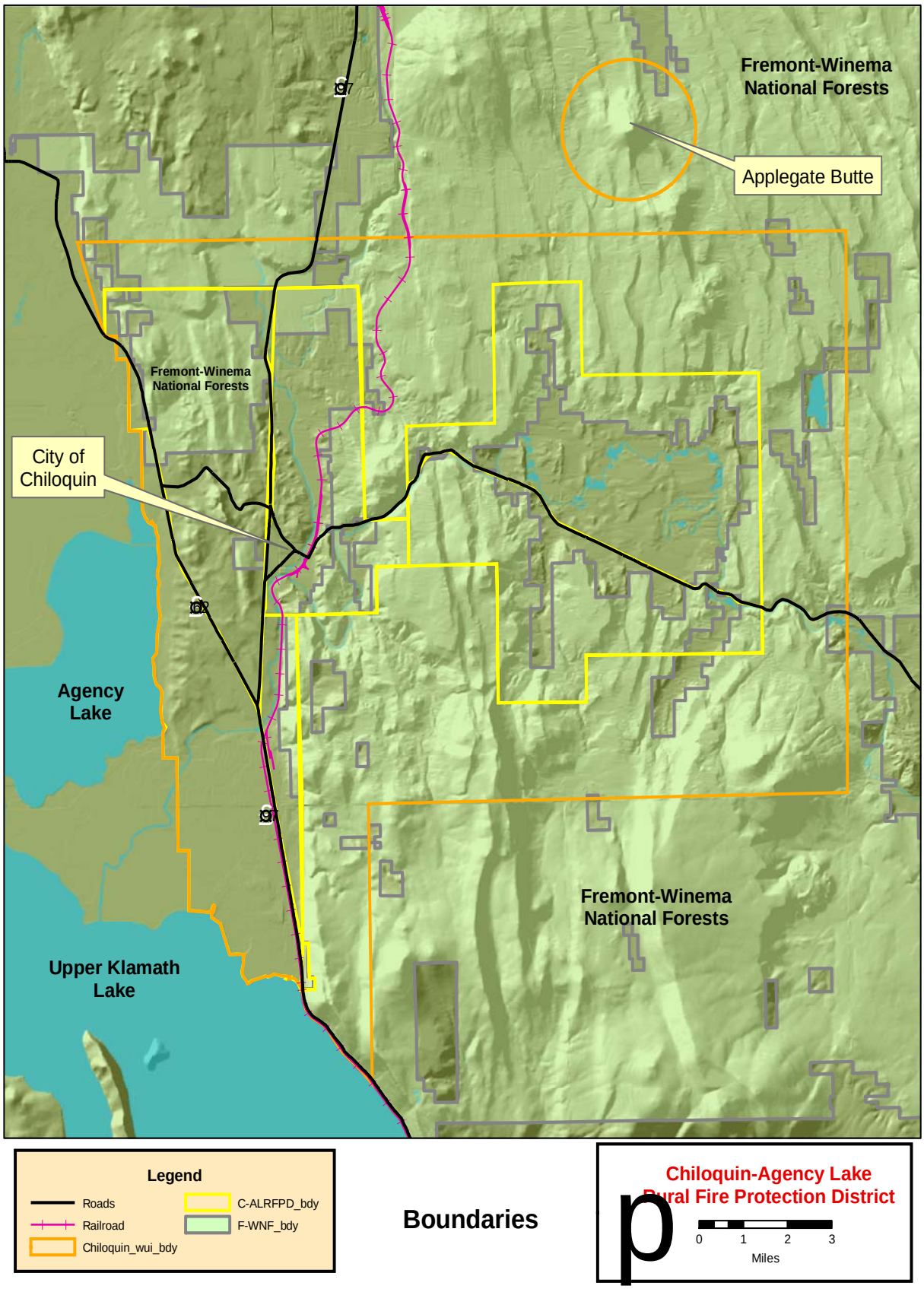
boundary would be drawn through surrounding National Forest lands, it was felt that input from the local Forest Service employees was vital to the proper establishment of the boundary. They knew what projects had been completed and planned, what the current forest stand conditions were like, and they best understood their agency's wildland fire suppression capabilities and limitations.

For the C-ALRFPD area, maps of current condition class, fuel models, cover types, fire history, transportation, water sources, vegetation types, slope, aspect, infrastructure and structures were analyzed during the meeting. General weather patterns and 95th percentile weather data was combined with fuel model information to determine predicted rates and direction of spread and flame lengths (insert definition link) for wildland fires burning in the different fuel types.

The probability of fires burning with extreme characteristics was also assessed, and it was determined that most wildfires burning on 95th percentile weather days would normally burn with characteristics that are not able to be modeled by fire behavior prediction programs such as BEHAVE (torching, crowning, and spotting fire behavior) due to the current fuel loadings and arrangements. Since the best information about how future wildfire might burn is found by looking at historic fires, forward spread distances for large historic wildfires within the C-ALRFPD were finally used as the measurement of how far a wildfire might spread in a single burn period. With forward spread rates on historic C-ALRFPD wildfires exceeding 10 miles in one day, it was clear to the group that the WUI boundary needed to be far enough out from the community so that fire hazards could be mitigated on a landscape level. A fuel break around the community or blocks of fuel treatments in strategic areas would not be effective in protecting the communities of the C-ALRFPD because observed spotting distances for past large wildfires have been measured at ¼ to ½ mile and greater, and the burning characteristics of these past wildfires provided very little chance for firefighters to contain the fires until later in the evening when burning conditions were much less severe.

After long discussions and analysis, the group identified where the approximate location of the boundary should be. Potential WUI boundary locations were drawn on maps that were overlaid with fuel types, topography, private lands, improvements, and travel routes. General weather patterns, local protection capabilities, and past experience were combined with the GIS information to help the group see all the important variables that needed to be considered.

The group agreed that the infrastructure around Applegate Butte were also values that needed to be protected from wildfire, as these facilities provide vital communication links for the C-ALRFPD and other local agencies, including the US Forest Service. Chief Holster wanted the WUI boundary to be easily identified on maps and requested that the boundary lines be made as straight as possible, following known landmarks such as roads or section lines. The final WUI boundary line was drawn on a map and digitized into GIS. Following a presentation by Chief Dewaine Holster and contractor, John Giller, the C-ALRFPD Board of Directors signed RESOLUTION 05-015, on March 8, 2005, establishing the official WUI boundary for the C-ALRFPD.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Roads
Railroad
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Boundaries
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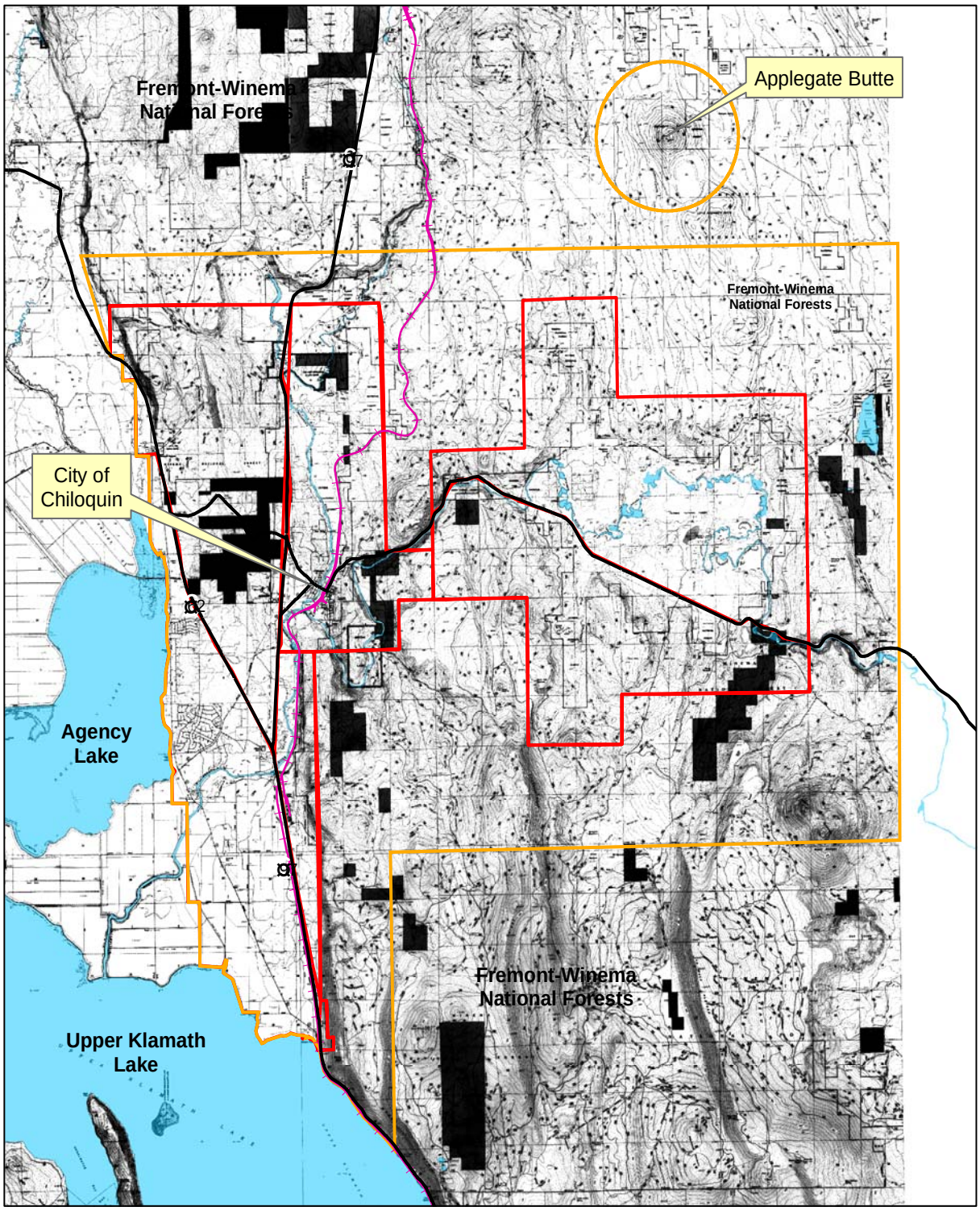
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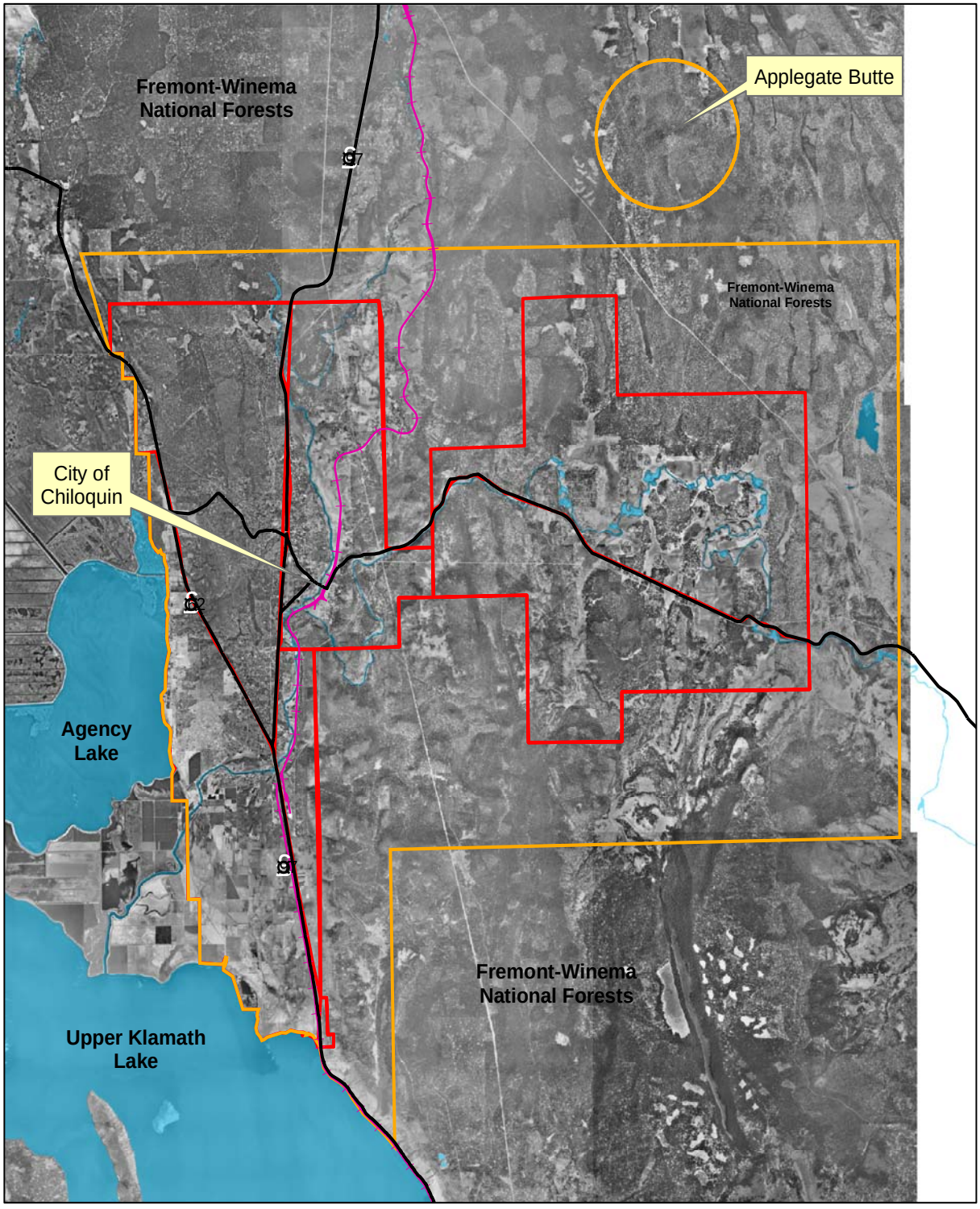
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Railroad
Chiloquin_wui_bdy
C-ALRFPD_bdy
Digital Ortho Quad
Chiloquin-Agency Lake
Rural Fire Protection District
0
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Miles

Many other boundaries and jurisdictions were used during the completion of this plan. A Geographic Information System (GIS) database has been created that contains all of the CWPP maps and associated GIS boundaries used during the planning process.

**Pre-existing boundaries:**

C-ALRFPD Boundary – (c-alrfpd_bdy.shp)

Fremont-Winema National Forests – (f-wnf_bdy.shp)

Klamath County Tax Lots – (chiloquin_parcels.shp)

City of Chiloquin – (chil_township.shp)

Chiloquin Community Fuels Reduction Project Boundary – (ccfr_units.shp)

Ninemile Project Boundary – (ninemile.shp)

Ninemile North Project Boundary – (Ninemile_north.shp)

**Created GIS boundaries:**

C-ALRFPD Wildland Urban Interface Boundary – (chiloquin_wui_bdy.shp) The official Wildland Urban Interface boundary for the C-ALRFPD, RESOLUTION 05-015, Signed by the C-ALRFPD Board of Directors on March 8, 2005.

Fuel Model – (chiloquin_fuels.shp, query for fuel_model) the field collected NFFL fuel model data.

Condition Class - (chiloquin_fuels.shp, query for cond_class) the field collected stand condition class data.

Cover Type - (chiloquin_fuels.shp, query for cover_type) the field collected cover type data.

Community Boundaries – (community.shp) Boundaries for the different community zones.

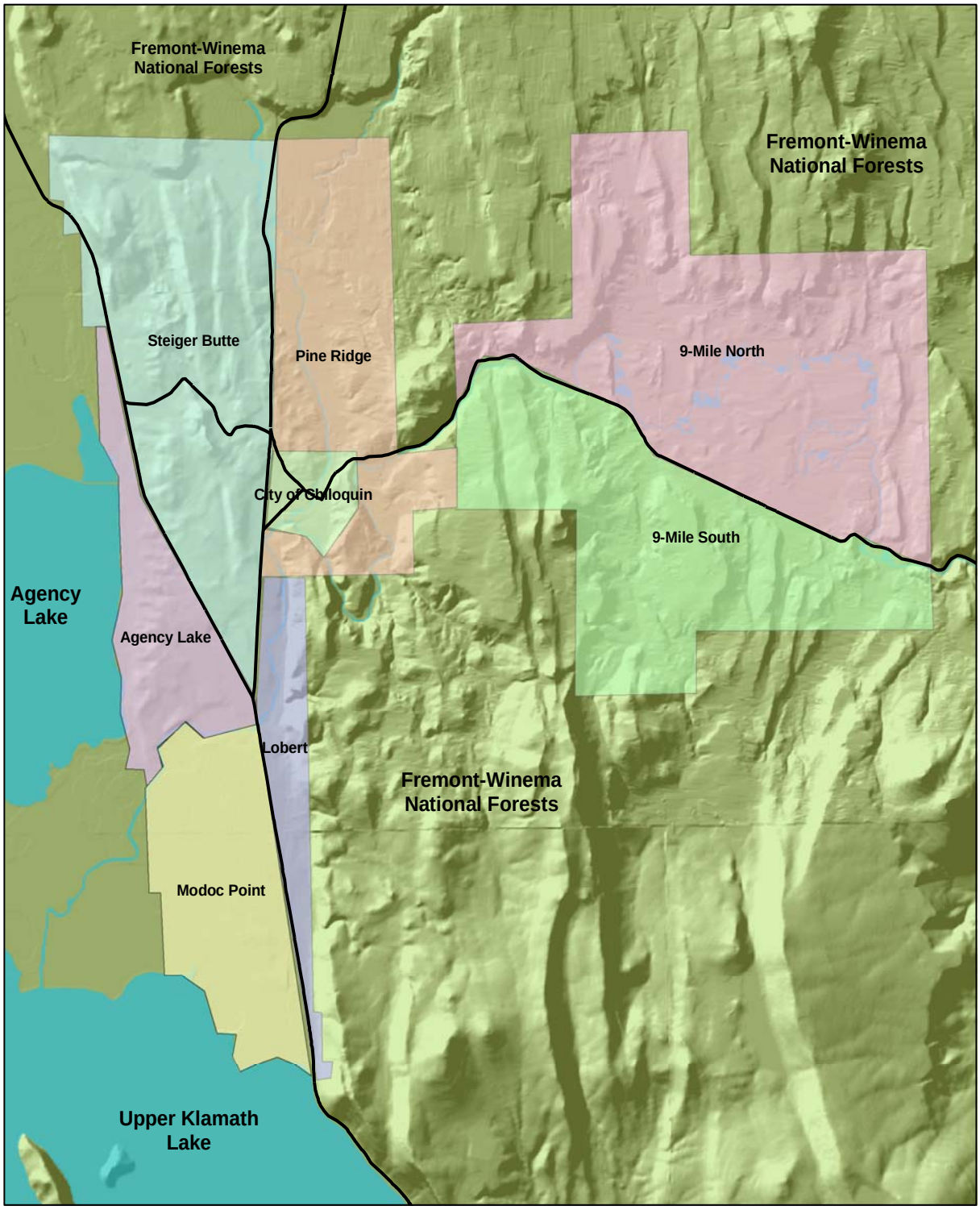
Treatment Priorities – (priority.shp) Boundaries for the different fuel treatment priority areas.

### 1.2.1 Communities and neighborhoods, fire districts, unprotected areas

#### *Communities and Neighborhoods*

The primary community that this plan covers is the City of Chiloquin, but it also encompasses several smaller dispersed communities. For the purposes of this plan, the planning area was broken up into eight different zones. The table below describes the area covered by each zone.

| Zone | Name | Description |
|---|---|---|
| 1 | Steiger Butte | Area North of Hwy 62 and West of Hwy 97. |
| 2 | Pine Ridge | Area East of Hwy 97 and North of Chiloquin. |
| 3 | City of Chiloquin | Area within City of Chiloquin boundary. |
| 4 | Agency Lake | Area South and West of Hwy 62, and North of the Williamson River. |
| 5 | Modoc Point | Area West of Hwy 97 and South of the Williamson River. |
| 6 | Lobert | Area East of Hwy 97 and South of Chiloquin. |
| 7 | 9-Mile North | Area North of Sprague River Hwy to Forest boundary. |
| 8 | 9-Mile South | Area South of Sprague River Hwy to Forest boundary. |


Fremont-Winema
National Forests
Fremont-Winema
National Forests
Steiger Butte
Pine Ridge
9-Mile North
City of Chiloquin
9-Mile South
Agency
Lake
Agency Lake
Lobert
Fremont-Winema
National Forests
Modoc Point
Upper Klamath
Lake
Legend
Community
Name
9-Mile North
9-Mile South
Agency Lake
City of Chiloquin
Lobert
Modoc Point
Pine Ridge
Steiger Butte
Communities
Chiloquin-Agency Lake
Rural Fire Protection District
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3
Miles

### *Fire Districts*

The Chiloquin-Agency Lake Rural Fire Protection District is the primary fire protection district for the planning area. Klamath County Fire District 1, northern boundary lies 5 miles south of the C-ALRFPD southern most boundary, and the Chemult RFPD boundary is 29 miles north of the C-ALRFPD northern most boundary. The nearest fire protection district to the east is the Bly RFPD or Klamath County Fire District #5. The Sprague River VFD boundary is east of the C-ALRFPD is not a legal fire district as it does not meet the minimum requirements of a fire district based on equipment, and the training and qualifications of personnel.

The C-ALRFPD is located within the Fremont-Winema National Forests, Chiloquin Ranger District boundaries. The U.S. Forest Service, Chiloquin Ranger Station located along Highway 97 is the home station for the equipment and personnel charged with managing the 460,000-acre, Chiloquin Ranger District. Three wildland fire engines, one water tender, one bulldozer, and numerous firefighting personnel are available during the fire season to aid in the suppression of wildland fires and to assist with other emergencies within the C-ALRFPD. The Klamath Ranger District to the south, and the Chemult Ranger District to the north also have wildland fire suppression resources that respond to incidents in the C-ALRFPD as needed.

The Oregon Department of Forestry, Klamath–Lake District also has primary responsibility for wildland fire suppression on private lands that are assessed and classified as timber, grazing or timber-grazing lands within the C-ALRFPD. According to the ODF, these land classifications for the C-ALRFPD have not been updated since approximately 1968. ODF provides one type 6 wildland fire engine that is stationed in the Chiloquin area each summer to respond to wildfires that start in this area, and to enforce ORS 477 during the fire season (insert document link). The ODF also has several engines stationed in Klamath Falls, and two at Sand Creek that also respond to the Chiloquin area.

Almost every firefighting agency within Klamath County has a representative on the Klamath County Fire Defense Board and all firefighting agencies are a party to the Klamath County Mutual Aid Agreement. As described in the document, this agreement is entered into *"among and between the participating agencies for the purpose of securing to each periodic emergency assistance for the protection of life and property."* The agreement identifies the equipment and personnel available from all of the parties, dispatching procedures, supervision and incident command protocol, and compensation. The current Klamath County Mutual Aid Agreement is included in the appendix and is discussed in Chapter 5, along with a complete listing of fire suppression resources available in the County.

### *Unprotected Areas*

The Fire District and the ODF protect all of the private lands within the C-ALRFPD, even though some properties may not pay property taxes to the fire district for protection, or assessments. Due to the intermix of these lands (paying vs. non-paying), if a wildfire is

burning and poses a risk to surrounding land or improvements, it must be suppressed regardless of who's land the fire is burning on.

From a structure fire standpoint however, there are numerous homes or groups of homes that are located in areas that fall outside of any established fire protection district. Structure firefighting or rescue resources would still respond to these areas in the event of an emergency, but the property owner or occupant could be billed for services rendered and the response times may be long due to increased travel time for the responding resources. The homeowners in these unprotected areas must make an extra effort to create defensible space around their home to improve the chance of survivability in the event of a wildfire, and to reduce the chance of fire spreading to the wildland in the event of a structure fire. The countywide CWPP will address the wildfire and structure protection plan for the unprotected areas in Klamath County, including those that fall outside of the C-ALRFPD.

## 1.3 Fire Policies and Programs

There are various local, state and federal programs and policies related to community fire planning and fire protection. Most recently, the Healthy Forests Restoration Act, signed into law by President Bush in 2003, calls for the development of Community Wildfire Protection Plans for all communities at risk from forest fire. This section describes these requirements, as well as related County, state and federal programs.

### *Healthy Forest Restoration Act (HFRA) / Healthy Forest Initiative (HFI)*

In 2002, the President announced the (HFI) designed to identify and remove barriers to the implementation of projects that were developed to restore the health of the national forests. HFI focuses on efforts to be more effective and efficient in carrying out restoration projects. It also set the stage for extensive discussion between the administration and Congress that resulted in new legislation addressing forest health.

Congress enacted the Healthy Forest Restoration Act in November 2003. It provides new tools and additional authorities to treat federally managed acres more quickly to expedite ecosystem restoration goals. It encourages more local public participation and provides incentives for communities to develop community wildfire protection plans. HFRA provides a more effective appeals process and instructs the Courts to weigh short-term impacts with long-term benefits in restoring healthy forests. It also recommends that judges' decisions consider the economic and environmental effects of undue delay in implementing projects.

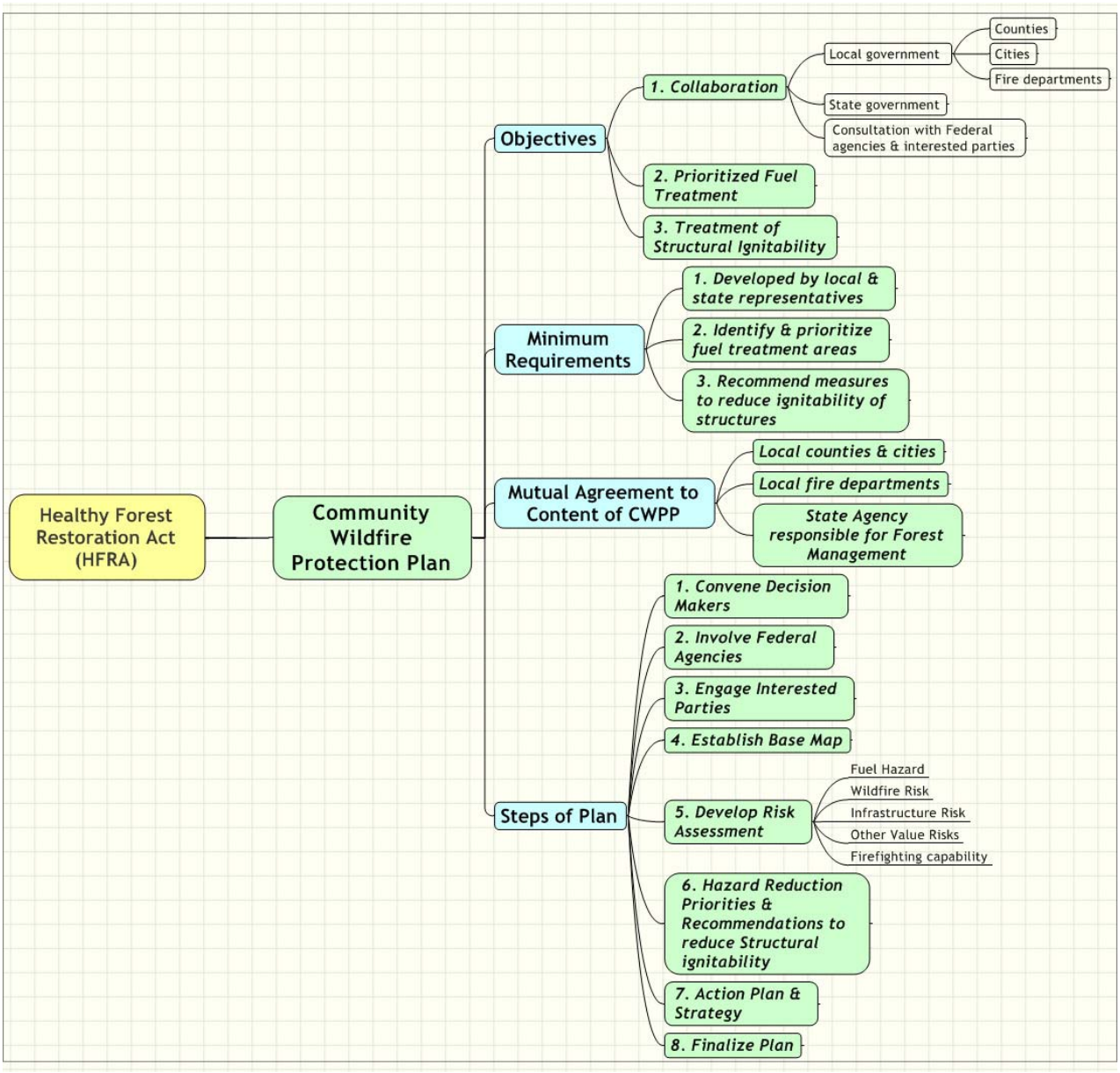
Title I of the HFRA addresses vegetation treatments on certain types of National Forest System and Bureau of Land Management lands that are at risk of forest fire or insect and disease epidemics.

This title:

- Encourages streamlined environmental analysis of HFRA projects;
- Provides for administrative review of proposed HFRA projects on National Forest System lands before decisions are issued;

- Contains requirements governing the maintenance and restoration of old-growth forest stands when the Forest Service and BLM conduct HFRA projects in such stands;
- Requires HFRA projects in the Forest Service and BLM to maximize retention of larger trees in areas other than old-growth stands, consistent with the objective of restoring fire-resilient stands and protecting at-risk communities and Federal lands;
- Encourages collaboration between Federal agencies and local communities when community forest fire protection plans are prepared;
- Requires using at least 50% of the dollars allocated to HFRA projects to protect communities at risk of forest fire;
- Requires performance to be monitored when agencies conduct hazardous-fuel reduction projects and encourages multiparty monitoring that includes communities and other stakeholders; and
- Encourages courts that consider a request for an injunction on an HFRA-authorized project to balance environmental effects of undertaking the project against the effects of failing to do so.

Title I of the Act also encourages the development of Community Wildfire Protection Plans under which communities will designate their Wildland Urban Interface (WUI), where HFRA projects may take place. Half of all fuel reduction projects under the HFRA will occur in the community protection zone as defined by HFRA. HFRA also encourages biomass energy production through grants and assistance to local communities to create market incentives for removal of otherwise valueless forest material.




### *National Fire Plan and 10-Year Comprehensive Strategy*

The National Fire Plan (NFP) was established following a landmark fire season in 2000 with the intent of actively responding to severe forest fires and their impacts to communities while assuring sufficient firefighting capacity for the future. The NFP is a long-term commitment intended to help protect human lives, communities and natural resources, while fostering cooperation and communication among federal agencies, states, local governments, tribes and interested publics. The NFP focuses on 1) fire suppression and protection, 2) restoration/rehabilitation, 3) hazardous fuels reduction, 4) community assistance, and 5) accountability. The Oregon and Washington NFP Strategy Team sees reduction of unnatural hazardous fuel levels that threaten communities and forest ecosystems as the principle foundation for dealing with fire risks

(NFP Strategy Team 2002). Most NFP funding in Oregon goes to forest fire preparedness and hazardous fuel treatment (USDI and USDA 2003).

The federal forest fire management agencies worked closely with these partners to prepare a 10-Year Comprehensive Strategy, completed in August 2001. The National Fire Plan calls for the development of Community Fire Plans, such as this one, to aid in effectively implementing NFP goals.

### *Senate Bill 360: Oregon Forestland-Urban Fire Protection Act*

The Oregon Forestland-Urban Fire Protection Act of 1997 (SB360) is intended to facilitate development of an effective WUI protection system in Oregon by, 1) establishing policies regarding WUI protection, 2) defining the WUI in Oregon and establishing a process and system for classifying the interface, 3) establishing standards for WUI property owners so they can manage or minimize fire hazards and risks, and 4) providing the means for establishing adequate, integrated fire protections systems in WUI areas, including information and prevention efforts.

### *Oregon Statewide Land Use Planning Goal 7*

The intent of Oregon Statewide Land Use Planning Goal 7 for Areas Subject to Natural Hazards is to protect people and property from natural hazards. Goal 7 directs local governments to adopt comprehensive plans (inventories, policies and implementing measures) to reduce risk to people and property from natural hazards. Goal 7 also indicates that new hazard inventory information provided by federal and state agencies shall be reviewed by the Oregon Department of Land Conservation and Development (DLCD) in consultation with affected state and local government representatives. After such consultation, the DLCD shall notify local governments if the new hazard information requires a local response. Local governments shall respond to new inventory information on natural hazards within 36 months after being notified by the DLCD, unless extended by the Department. – http://egov.oregon.gov/LCD/docs/goals/goal7.pdf

### *Federal Emergency Management Agency Disaster Mitigation Act of 2000*

Federal Emergency Management Agency (FEMA) requirements under Title 44 CFR Part 201 of the Disaster Mitigation Act of 2000 specifies criteria for state and local hazard mitigation planning which require local and Indian tribal governments applying for Pre-Disaster Mitigation (PDM) funds to have an approved local mitigation plan. These may include countywide or multi-jurisdictional plans as long as all jurisdictions adopt the plan. Activities eligible for funding include management costs, information dissemination, planning, technical assistance and mitigation projects.

# Chapter 2 - Community Profile

## 2.1 Environment and Natural Resources –

***Overview –***

The Chiloquin-Agency Lake Rural Fire Protection District (C-ALRFPD) comprises a widely varied and diverse landscape. The environment within the District includes mainly forested ecosystems, significant riparian areas (both natural and heavily impacted), several communities, and numerous farm/ranch properties in various stages of use.

***Forest Land (including brush fields) -***

The forested areas can be found both on public property (Fremont-Winema National Forest), and large areas of private land as well. The most predominant tree species throughout the area is ponderosa pine (*Pinus ponderosa)*. There are other tree species present, but their importance (especially in wildfire protection) is quite limited. The other trees include lodgepole pine (*Pinus contorta),* quaking aspen (*Populus tremuloides*), white fir (*Abies concolor*), Douglas Fir (*Pseudotsuga menziesii*) and very limited amounts of black cottonwood (*Populus balsamifera ssp. trichocarpa*).

Historically this area was known as one of the prime sites for large-diameter Ponderosa Pine logging. Extensive timber harvest occurred during the time when the lands now within the Chiloquin Ranger District were controlled by the BIA and included in the Klamath Indian Reservation. Beginning in 1956 when the Klamath Tribe was terminated, and continuing through the establishment of the Winema National Forest in 1961, significant timber harvest continued until the late 1980's when environmental concerns about timber harvesting began to seriously affect the timber industry. The private lands in the Fire District were harvested more gradually, mainly for clearance around home sites, and to expand grazing/farming areas. There are some small tracts of land within the Fire District owned by wood products companies, but they are relatively isolated and scattered.

The woodlands now are beginning to receive significant fuels treatments, both on private lands, and the USFS lands. Numerous private landowners have taken advantage of the WUI (Wildland Urban Interface) program that was administered by C-ALRFPD and ODF. That program allowed landowners up to $400 to assist in cleanup of their property during the years, 2000-2003. The use of the slashbuster or other mechanical mastication methods on private lands has also extensively modified the fuels profile, in many areas connecting with the fuels treatments on National Forest lands, creating significant treated areas that are very useful in control operations. These treatments combined with the 30' to 100' defensible space treatments surrounding structures will greatly aid firefighters working in the urban-interface.

The Chiloquin Community Fuels Reduction Project, Environmental Analysis states as its primary need for the project "Reduce fuel loadings and ladder fuels to lower the fire hazard on Forest Service lands adjacent to the Chiloquin community and on the District compound to reduce the chance for catastrophic fire."

The fact that the vast majority of these woodlands are Ponderosa, presents the problem of extreme fire behavior associated with the needle-draped bitterbrush (*Purshia tridentata*). Couple that with the increased second growth in the understory, these conditions have made for explosive fire behavior in the past. Due to the aggressive fuels treatments in the past few years, notably mowing with the slashbuster and prescribed burning, the forested areas around Chiloquin are becoming more resilient to wildfires and much safer. But the work has only begun.

***Riparian Areas –***

The Fire District has large riparian areas that provide habitat for numerous species of plants and animals. The site of the City of Chiloquin was originally settled by Native Americans at the confluence of the Sprague and Williamson rivers, near the old mill site.

Aside from the Sprague and Williamson Rivers, there are additional wetlands included within the District. The Wood River and Crooked Creek are located in the northwest corner. Spring Creek is a major tributary of the Williamson joining that river near Collier Park. The lakeshore of Agency Lake forms the western boundary of the Fire District for five miles.

The effects of these riparian areas on fire protection and the area as a whole are very significant. The most obvious effect is that water is not as scarce as in most areas of Eastern Oregon. The rivers are easy to draft from, and except in times of extreme drought, water for fire suppression operations is not limited. The rivers, streams, and lake offer firefighters a solid anchor point to begin their operations when a fire is adjacent to any of these features, and they often provide a close source of water for firefighting helicopters. Some riparian areas may also provide a natural barrier to fire spread if wet conditions or green vegetation is present.

Indirect effects of the presence of these riparian areas are much harder to quantify, but can be extremely important to the fire protection of the area. One of the largest effects is the increased presence of the public that is drawn to this area. The lower Williamson is a world-class fly-fishing river, the Sprague, Williamson, Wood River, Spring Creek, as well as Agency Lake draws many people to the area for canoeing, fishing, bird watching, and general sightseeing.

Another impact that occurs is the increased development, especially along the rivers, of new home sites. This further extends the urban interface area along these riparian areas.

***Pasture/Grasslands –***

The pasture/grasslands of the District have been shrinking steadily. The era of unhindered development of new subdivisions is beginning to slow down, but Klamath County is still processing numerous conditional use permits (CUP) every year in this area for new home construction on what was formerly exclusive farm use or forestland.

Normally, there is little to no treatment of the former pastureland that surrounds the homes in some of these developments. During the green-up in the spring, and while the grass is still green, the fire danger in these areas is relatively low. Before and after green-up, when the grasses are cured out, wildfires can exhibit extremely fast moving fire behavior.

***Urban Area –***

Virtually all of the residential areas in the Fire District occur in the wildland/urban interface, including most of the town of Chiloquin and subdivisions. The small (less than 1 sq. mile) urban area of the City of Chiloquin should all be considered wildland/urban interface from a fire protection standpoint. There are numerous vacant lots within the City, and most of them are un-cleared, or minimally cleared. Many vacant lots in the City are covered in needle-draped bitterbrush with an overstory of Ponderosa pines, providing a very receptive fuel bed for fire starts. A structure fire within the City generally can become a wildland fire within minutes, and a wildfire starting in one of the vacant lots can quickly threaten numerous homes and structures.

Within the C-ALRFPD, there are currently 24 subdivisions where homes are dispersed throughout the Wildland Urban Interface. The improvements and infrastructure of these subdivisions vary greatly, from communities with fire hydrants and paved city streets, to those with unimproved dirt roads and limited access for firefighting resources.

## Chiloquin-Agency Lake Rural Fire Protection District, Board of Directors, 2005-2006

| | |
|---|---|
| President | Mike Bureau |
| Vice President | Ted MacConell |
| Secretary/Treasurer | Norm Fowler |
| Board Member | Fritz Winter |
| Board Member | Phil MacArthur |

### 2.2 Population, Demographics, Socio-Economic Data –

**Historic Populations, Demographics, and Socio-Economics**

A discussion about the population of the Chiloquin area must start with the Klamath people, who occupied this land for centuries before white settlement. The Klamath people, as described by ethnologist Albert Gatschet of the Smithsonian in 1890, occupied "from time immemorial a country upon the eastern slope of the Cascade Range, in the southwestern part of the territory now forming the State of Oregon." The soil was productive, the waters full of fish and fowl, and game was plentiful. The Klamath people had a well-developed subsistence economy, living in winter villages scattered along the shores of the various lakes and rivers in snug, semi-subterranean earth lodges. In the early spring, the families left to fish for mullet, trout, and salmon, which were plentiful in the streams. Later they moved to the prairies and marshes where they dug camas and ipos, the women baking and drying them while the men hunted for deer, small game, and waterfowl. Wokas (pond-lily seeds) ripened in August and were the most important food staple, with as much as 350 to 500 pounds per person collected at the Klamath Marsh. In the early fall, the people moved to the Cascade lowlands to gather berries and other wild fruits, and by October the families returned to the winter village sites to store the food supplies and rebuild the lodges.

Although sharing a common language, the Klamath were never united, and had no "chiefs" as such until after contact with whites. The Klamath's had a very individualistic nature, and stressed individual achievement, work and production. By 1860, the area of the Klamath Basin was beginning to be settled by white people, Fort Klamath was built in 1863, and on October 14$^{th}$, 1864 a treaty of cession was signed by 27 "chiefs and headmen of the Klamath and Modoc tribes, and Yahooskin band of Snake Indians". The area that they jointly ceded extended from the 44$^{th}$ parallel on the north, west to the Cascades, south to Mount Shasta, and to Harney Lake on the east. The treaty also secured exclusive hunting and fishing rights to the tribes.

From 1864 to 1954 the Klamath people lived on the reservation, along with the Modoc tribe and Yahooskin band of the Snake Indians. The reservation included the heart of the Klamath territory, but excluded all of the area occupied by the Modoc and Yahooskins. The area was superb ponderosa pine timberland, regarded as a hindrance to cultivation at that time. In 1954, the Klamath Tribes were terminated from federal recognition as a tribe by an act of congress. In 1961, the Winema National Forest was created primarily from former Klamath Indian Reservation lands.

A summary of the history of the City of Chiloquin is available online, at: http://www.chiloquin.com/History.html


Downtown Chiloquin, circa 1940

## Current Populations, Demographics, and Socio-Economics

The 2000 census puts the total population of the fire district at approximately 2,800 people. The bulk of this population is within 5 miles of the town of Chiloquin, population 716. The structural vulnerability surveys that were completed in 2002, 2003, 2004 and 2005 put the population of the fire district at over 3,000.

There are 1,322 taxable addresses within the fire district. This includes all properties with street addresses. There are 1,440 registered voters.

In the general area of the fire district, a rough approximation of the number of electric service meters is 2,000.

The “783” telephone prefix has approximately 435 business connections and approximately 1,370 residential customers. The “783” telephone prefix includes

numerous customers that are not residing in the Fire District, and does not include the households that rely on cellular phones as their primary telephone.

***All of the following statistics are from the US Census – 2000***

In trying to glean demographic information regarding the district, attempting to use census data can be misleading, considering the population dispersal from the actual city of Chiloquin. For the purposes of this report, the data used will be the census data that is linked to the zip code 97624. The total population of the zip code 97624 as of the 2000 census is 3,218. This compares closely to the estimated population based on the risk assessments done by the Fire District.

The profile of the population in the Fire District is significantly different from that of the US, as a whole, or the state of Oregon. The biggest difference is the presence of the Klamath Tribe. In the US, the percentage of Native Americans is 0.9%, whereas in the 97624 area it is 19.2%. Most Native Americans in the Chiloquin area are Klamath, Modoc, or Yahooskin bands of the Paiute Snake people.

The presence of the Klamath Tribe has had a profound effect upon the population trends, land-use, and the socio-economic fabric of this area.

The Klamath Tribe has always had a strong tradition of wildland firefighting within its modern culture. Over the last thirty years, there were numerous tribal members employed by the US Forest Service at Chiloquin RD, as wildland firefighters. This was a huge boon to the area, in both augmenting the firefighting resources based here, as well as providing local employment.

Traditionally Chiloquin has been one of the poorest municipalities in the state of Oregon. This is still the case for the overall area.

***Per Capita Income*** USA - $21,587, Oregon - $20,940, **97624 - $13,750**

***Families below poverty level*** USA – 9.2%, Oregon – 7.9**%, 97624** – **12.8%**

During the reservation days, however, the area had achieved a significant degree of self-sufficiency. The wood products industry was in full swing, employing many workers in the Chiloquin Mill, and in the woods. Ranching and farming began to expand to virtually all the suitable lands, and prices were high enough to let the family farm/ranch be a viable option. This situation began to degrade over the last 50 years. Lower prices for beef, alfalfa, and other agricultural products began to negatively impact the small farms/ranches, and the virtual cessation of logging in the late 80's and early 90's caused the mill to close, and numerous jobs were lost.

As is the case in nature, change is the only constant. During the early 90's, this area was discovered by large numbers of people trying to escape the densely populated

areas of the west coast, usually California. Since there are very few local jobs (a problem that exists to this day), when people began the massive migration, it started with the retired people.

The transition that is occurring now will have a tremendous effect on the future of the area. The population is aging.

*Median Age* **USA - 35.3 years, Oregon – 36.3 years,** 97624 – 43.9 years

That is a huge difference demographically from the state and national numbers. Another telling statistic that correlates with this premise follows:

***Population 65 years and older*** USA - 12.4%, Oregon – 12.8%, **97624** – **17**%

***Households with people 65 yrs plus*** USA – 23.4%, Oregon – 22.9%, **97624 – 30.6**%

The aging of the population in this area is NOT from a stable aging population, but from older people moving into the area.

***Residence in 1995 (different state)*** USA – 8.5%, Oregon – 12.5%, **97624 – 21.5**%

In general this trend can be described as older, married couples, usually retired, moving in from other states. These people usually have more formal education than the original population.

***Households with Social Security income*** USA – 25.7%, Oregon – 25.8%, **97624 – 37.6**%

***Households with retirement income*** USA – 16.7%, Oregon – 17.2%, **97624 – 29.1**%

Another effect of the aging of the population is the fact that a much higher percentage of these people are NOT in the workforce.

| | USA | Oregon | 97624 |
|---|---|---|---|
| ***In Labor Force*** | 63.9% | 65.2% | **47.3%** |
| **Employed** | 59.7% | 60.9% | **38.4%** |
| **Not employed** | 3.7% | 4.2% | **8.5%** |
| **Not in Labor Force** | 36.1% | 34.8% | **52.7%** |

Another trend that appears in the census data is the emigration of 25-44 year old people away from the area.

| Ages | USA | Oregon | 97624 |
|---|---|---|---|
| **20-24** | 6.7% | 6.7% | **3.1**% |
| **25-34** | 14.2% | 13.8% | **8.7**% |
| **35-44** | 16% | 15.4% | **12.6**% |
| **45-54** | 13.4% | 14.8% | **17.2**% |
| **55-59** | 4.8% | 5.1% | **7.7**% |
| **60-64** | 3.8% | 3.8% | **6.6**% |
| **65-74** | 6.5% | 6.4% | **11.2**% |

Even up to the ages 35-44 we see a significantly lower percentage of the population in that category in 97624 compared to the US and to Oregon. This shows a demographic reaction to the dearth of jobs in the area. Young people who graduate from Chiloquin High School are leaving the area, not only to attend college, but also to begin their careers.

### 2.3 Housing and Development Trends –

Probably the biggest trend within the Fire District boundary is the increase in wealthier, older, higher-educated people immigrating from the population centers of California, and to a certain extent the rest of the west coast. This trend is well reflected by census statistics from the 2000 census.

These trends are beginning to affect the type of housing being built, as well as the attitudes of the public towards development, support of the infrastructure, and the whole socio-economic fabric of the community. A significant portion of these people have came from fire-prone areas (i.e. Southern California, Bay Area), and have a long experience with wildland-urban interface issues. This group is often active in their support of fuels treatments.

***Owner Occupied Housing Units*** USA – 66.2%, Oregon – 64.3%, **97624 – 78.3%**

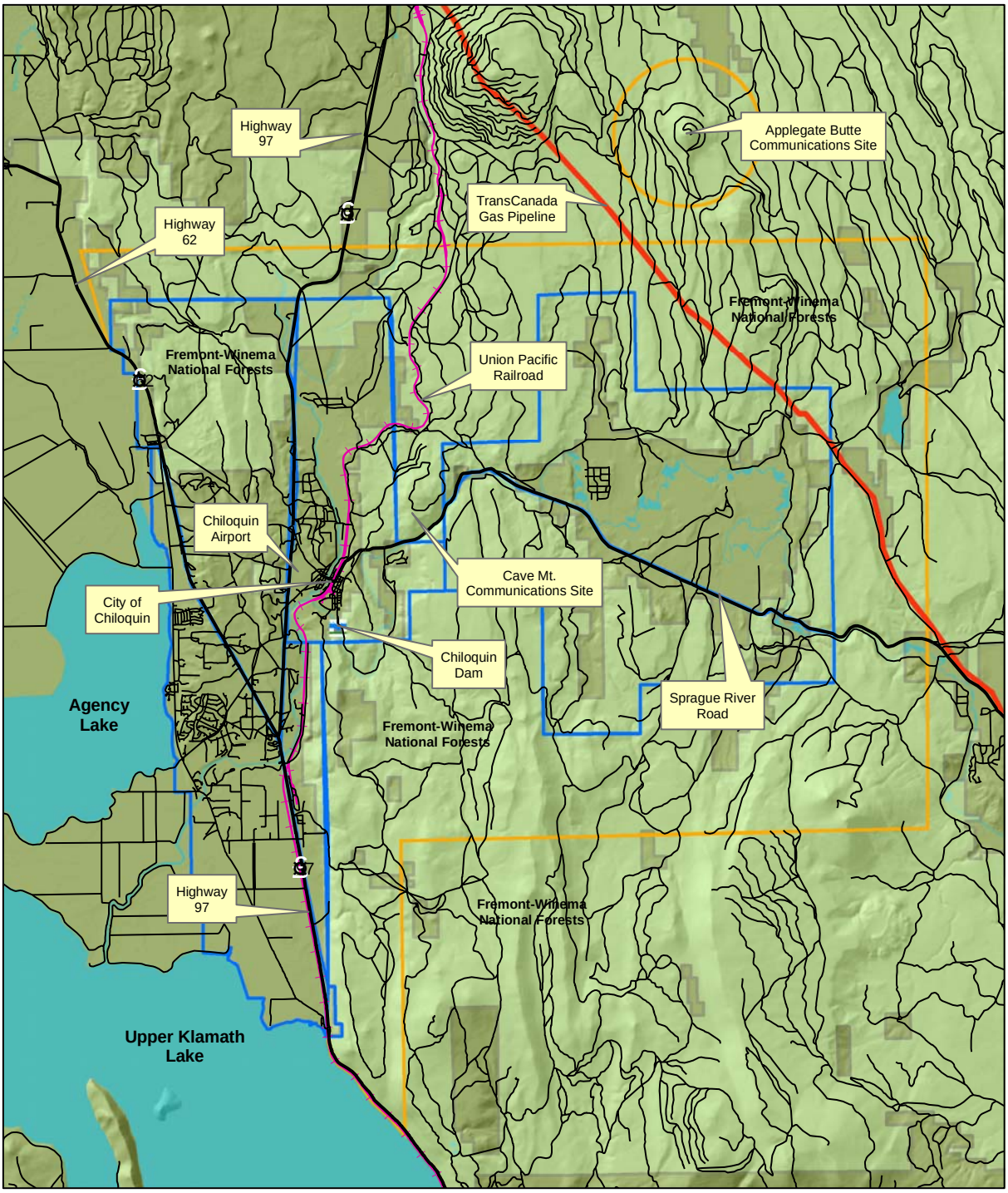
The above statistic illustrates a few different points. With very few 20 –30 year old people present in the community, that fact in itself implies fewer rentals and hence more owner occupied homes, as it is less likely for 20-30 year olds to own their own homes. Along with that concept, there are many less rental properties in the area than the national or state average.

***Renter Occupied Housing Units*** USA – 33.8%, Oregon – 35.7%, **97624 – 21.7%**

The property values in the area have been extremely low for many years, due to numerous factors. This fact has been a large stimulus to the influx of new people into the area. New building has focused mainly on the high end dispersed homes. Although this factor has been present for many years, the statistics still show that the average property values are significantly lower than the rest of the country, or the rest of the state.

***Value - Owner-occupied Homes*** USA - $119,600, Oregon - $152,100, **97624 –** $**90,200**

## 2.4 Transportation, Infrastructure, and Land-Use –



With mountainous country to the east, the Cascades and Klamath Lake to the west, the Chiloquin area has been a funnel for many different transportation routes over the centuries. Highway 97 & 422, the railroad, Chiloquin Airport, and the confluence of the Williamson and Sprague Rivers are all situated within one square mile.

***Highways and Roads –***

Traffic volumes on State Highway 97, the major north-south artery through the Fire District, averages 4,000 to 5,000 vehicles per day. This highway is a major transportation route for trucks and many other travelers. Highway 97 is the second most traveled highway in Oregon for transportation of Hazardous Materials. Over the years, there have been several roadside fires started as a result of vehicles, vehicle occupants, and arsonists.

In 1995 traffic volume on the county road known as Old Modoc Point Road averaged 617 per day. This is also a north-south route serving a number of farms, individual homes and several sub-divisions in the western portion of the Fire District.

Another county maintained road, the Sprague River Road, serves to connect Chiloquin and the eastern portion of the district to communities to the east such as Sprague River, Bly, and on to Lakeview. A survey in 1984 measured 684 vehicles per day and another in 1996 measured 362 vehicles per day. The reduction may well be related to a drop in commercial logging activities, but recent estimates place the number of vehicles per day closer to the 1984 figures. This road is gradually becoming an alternate transportation route to connect the Pacific Northwest to and from Reno, Nevada and other areas to the southeast.

There are no forms of public transportation available in the Fire District. The Klamath Tribe maintains a shuttle service for tribal members, concentrating mainly on the elderly, and disabled. As far as the public in general, private vehicles are the only option to travel into Klamath Falls, the nearest full-service community.

Due to extensive railroad logging in the early 1900's, numerous railroad tracks were laid throughout the former Klamath Indian Reservation area. Over time, these railroad grades were converted to logging roads with the advent of modern log trucks. Consequently the lands around the community of Chiloquin are very well roaded, with over 6,000 miles of roads on the Winema National Forest alone. These roads typically have a natural (pumice) or cindered surface and are normally useable year around, except when the snow is too deep.

This extensive road network provides excellent access to almost every portion of the C-ALRFPD, and the roads are often used by fire suppression personnel for access to fires and as pre-existing control lines. A GIS layer (*kbroads)* contains most of the roads in the C-ALRFPD area and provides information such as type of road, name and length of segments.

### *Railroad –*

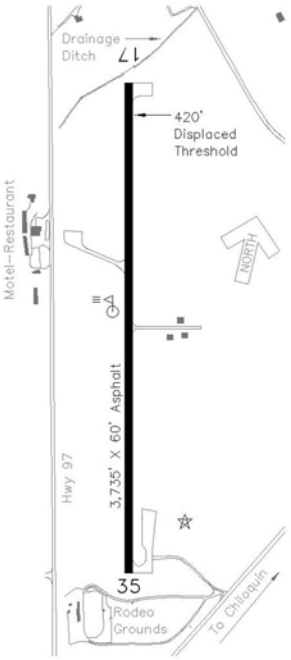
A major north-south railroad line, operated and maintained by Union Pacific Railroad, bisects the C-ALRFPD, running nearly parallel with Highway 97. Union Pacific, Burlington Northern, Amtrak, and other railroad companies use the railroad line to transport freight and passengers up and down the west coast. This rail line is the major line for the Pacific Northwest. Trains on the railroad line, through the middle of Chiloquin, have been known to start numerous wildfires in the past. Thousands of rail cars filled with different types of hazardous materials travel up and down the rail line each year, adding another potential hazardous situation in the event of a railroad mishap.

### *Airport –*

The Federal Aviation Administration (FAA) location identifier for the Chiloquin State Airport is **2S7**. The Chiloquin State airport is owned and maintained by the State of Oregon and is suitable for light aircraft use. Small jets, multi and single engine airplanes, and helicopters frequently use the asphalt airstrip. Several small aircraft hangers are located on the east side of the airport, but there are no fueling facilities available at the airport, so most airport traffic is transient. The table below displays the basic information about the airport.

**CHILOQUIN STATE AIRPORT**

| | |
|---|---|
| ***CHILOQUIN, OREGON*** | ***USA*** |
| Latitude: **42° 34' 59.49" North** | Longitude: **121° 52' 34.05" West** |
| Elevation: **4217' (1285m)** | Max. Runway Length: **3735' (1138m)** |
| Comments: | |
| **Airport Manager:**<br>**STATE AIRPORTS MGR**<br>**3040 25TH ST, SE**<br>**SALEM, OR 97302-1125**<br>**PHONE: 503-378-4880** | |
| **CTAF: 122.900** | |
| **Runway 17/35 (3735' x 60'), Surface: Asphalt (Good condition)** | |




***Utilities –***

There is no natural gas system in place in the Chiloquin area, but a high-pressure, high volume gas line operated by TransCanada does cross the northeastern portion of the Fire District. This high-pressure gas line is buried underground and is monitored continually by the TransCanada Gas Company employees (Formerly Pacific Gas Transmission Co.) to quickly detect leaks or damage to the system. If a wildfire or other incident threatens the gas line, the personnel from TransCanada must be notified immediately as the consequences of a gas line explosion can be significant. The contact information for TransCanada is available from the C-ALRFPD.

The vast majority of heating in the C-ALRFPD is done with fuel oil, and wood-stoves, heating sources that are often associated with structure fires. This also has an impact upon the air quality, as during any inversion, the smoke settles in, concentrating mainly in the City. The impact to public health can be significant during periods of stagnant air.

The City of Chiloquin has a water and sewer system that is quite old but functional for residential use, however it is questionable if the water system can meet the needed fire flow requirements for structure fire suppression. The water system consists of a deep well that supplies water to City residents. Outside of the City limits, septic systems are the rule for waste disposal, and smaller private wells provide water. Two of the subdivisions have their own water system (Oregon Shores I and II), but most of the Fire District area uses individual wells for each residence.

The Modoc Point Sanitary District has received, and will receive in the future, grant monies to redo their antiquated sewer system. This will enable additional development to occur in that area. Up until the Sanitary District was revived, there had been a freeze on any new building or development by Klamath County, as the sewer system was not functional.

***Electricity-***

Pacific Power and Light (PP&L) is the electricity provider for the C-ALRFPD area. If a wildfire threatens power lines, substations, or other electricity infrastructure, PP&L is the company to contact. PP&L has been very cooperative in the past with shutting down power lines that are in a fire area for firefighter and public safety reasons.

***Telephones-***

CenturyTel is the primary landline telephone service provider in the C-ALRFPD area. Numerous residents prefer to use cellular telephones as their primary phone service or as an alternate service. Unicell and United States Cellular have several cellular towers spread out across the Fire District, providing fairly reliable cellular telephone service in many parts of the Fire District.

***Applegate Butte, Steiger Butte, and Cave Mountain Communication Sites***

Within the C-ALRFPD, there are two primary communications sites, one at the top of Applegate Butte, and one at the top of Cave Mountain.

Cave Mountain is located just east of the town of Chiloquin on USFS land, and is included in the WUI boundary by default because it is so close to the community of Chiloquin. A microwave communications tower is located on the top of the mountain and provides vital communication links for numerous local users.

Steiger Butte is located on private land west of Chiloquin, and contains some radio communication equipment used by local residents.

Applegate Butte, located on USFS land, is a major communications site due to the ideal location and elevation of its communications tower, and is included in the C-ALRFPD WUI boundary because of its economic value and importance as a vital communication link to the community of Chiloquin and several other entities. The list below describes which entities have an easement, special use permit or lease with the US Forest Service for various uses on Applegate Butte, and what they currently have located there.

| Applegate Butte Communications Site<br>Current User Inventory | | |
|---|---|---|
| **Who** | **USFS Use Agreement** | **What's there** |
| TransCanada (formerly PGT) | Easement | UHF and microwave radio system, building and two towers |
| Bonneville Power Administration (BPA) | Easement | Microwave radio system, building and tower |
| Pacific Power & Light (PP&L) | Easement | Electrical transmission lines |
| Southern Pacific Railroad | Easement | Microwave repeater, building and tower. |
| Paul & Robert Wampler, Inc. | License agreement | Private mobile radio system, building and pole. |
| CenturyTel | Special Use Permit | Portable microwave repeater trailer for telephone communications. |
| Cascade Timber Co. | Use Lease | Building for commercial mobile radio service. |
| Fremont-Winema National Forest's | Owner | Forest Service lookout tower (used by most of the companies listed above to mount antennas), radio and microwave systems, and an old guard house. |

## 2.5 Insurance Services Office fire hazard rating and local insurance information

The Insurance Services Office (ISO) is one of several fire hazard rating companies that have systems to rate the fire hazard of a particular home or structure. Numerous factors are considered in the rating systems, including distance to fire hydrants and fire stations, type of firefighting equipment and personnel available, and fire department organization. As a minimum, a community must meet the requirements described on the ISO Mitigation Online website, where the excerpt below was taken from:

**ISO Mitigation Online**

ISO Mitigation Online is your source for up-to-date information on community efforts to mitigate the risk of losses from fire and natural hazards.

**Minimum Facilities and Practices to Get a PPCTM Rating**

Before a community can receive an ISO Public Protection Classification (PPCTM), the community must have at least these minimum facilities and practices:

**Organization**
The community must have a fire department, organized permanently under applicable state or local laws. The organization must include one person responsible for the operation of the department, usually with the title of "chief."

The fire department must serve an area with definite boundaries. If a community does not have a fire department operated solely by or for the governing body of that community, the fire department providing such service must do so under legal contract or resolution. When a fire department's service area involves more than one community, each of the communities served should have a contract.

**Membership**
The department must have sufficient membership to assure the response of at least four members to fires in structures. The chief may be one of the responding members.

**Training**
The fire department must conduct training for active members, at least two hours every two months.

**Alarm notification**
Alarm facilities and arrangements must be such that there is no delay in the receipt of alarms and the dispatch of firefighters and apparatus.

**Apparatus**
The department must have at least one piece of apparatus meeting the general criteria of National Fire Protection Association (NFPA) Standard 1901, Automotive Fire Apparatus.

**Housing**
The department must house apparatus to provide protection from the weather.

If the community does not meet these minimum criteria, ISO will assign the community a Class 10.

**Other criteria**
ISO's Fire Suppression Rating Schedule (FSRS) — the manual ISO uses in reviewing the firefighting capabilities of individual communities — lists other minimum criteria for receiving particular PPC ratings:

- Minimum criteria for Class 9
- Minimum criteria for Class 8B
- Minimum criteria for Class 8 or better

The homes and businesses around the City of Chiloquin and outlying areas that are within 500' of a fire hydrant receive an ISO PPC rating of 6. Most of the homes and improvements that are located away from fire hydrants are rated an 8, 8b or 9 depending on several criteria. If a structure does not meet the minimum criteria for a 9, then they are assigned an ISO PPC rating of 10, the highest rating in the system.

Maintaining the C-ALRFPD Fire Department at a level that meets and exceeds the ISO personnel and equipment criteria for higher ratings is very important for both community fire protection as well as helping to control the insurance costs for the local homeowners. Criteria for lower ISO ratings are often directly associated with the protection capability of the local fire protection district, including factors such as the actual pumping capabilities of the fire department engines and tenders, what type of fire station facilities are available and their locations, types of training that fire department personnel attend, distance of structures to nearest fire hydrants, or distance of structures to nearest structural firefighting engine with large capacity, water tender support. All of these criteria are important for effective community fire protection and with the continued efforts of dedicated community volunteers, the C-ALRFPD will continue to maintain and improve the services that they can offer.

# Chapter 3, Planning Process

## 3.1 Description of Community Fire Committee/Partners

As discussed in Chapter I of this report, a Chiloquin Community Wildfire Committee (CWC) was assembled, and first met on June 30, 2004. The Committee meets as necessary, determined by Fire Chief, Dewaine Holster and Coordinator, Doug Miller. This Committee consists of individuals representing the following entities:

| C-ALRFPD Community Wildfire Committee | |
|---|---|
| **REPRESENTING** | **NAME** |
| Chiloquin Fire District - Board of Directors | Fritz Winter |
| City of Chiloquin | Mark Cobb |
| Klamath County Emergency Services | George Buckingham |
| Oregon Department of Forestry | Dennis Lee |
| U.S. Forest Service | Ken Paul |
| Klamath Tribes | Carl White |
| Oregon Shores subdivision | Kevin Moore |
| Rainbow Park subdivision | Angie Trainor |
| Woodland Park subdivision | Betty Meyers, JoAnne McCauley |
| Train Mountain | Ross Perrin |
| Chiloquin Community Action Team | William Wilkins |
| Jeld Wen, Inc. | Craig Ditman, Brett Johnson |
| Fire Chief | Dewaine Holster |
| Contractor, Klamath Fire Inc. | John Giller |
| Facilitator / Project Coordinator | Doug Miller |
| Note taker | Sue Holster |

Notes from the past meetings are contained in the appendix, and discussed in section 3.2.2. Numerous other partners attended the different CWC meetings when they were available to make it. Klamath County Commissioner Bill Brown attended two meeting and acts as our liaison to the County Commissioners. Fire and land management personnel from the different local agencies have also attended the CWC meetings, many times offering valuable insight and input to our planning process. Local landowners and other community leaders have also attended the CWC meetings in the past.

## 3.2 Collaboration and Community Outreach

Excellent collaboration has been one of the immediate success stories of this planning process. The local fire and land management entities were extremely helpful and

supportive of the CWC. US Forest Service personnel offered valuable technical support and advice, and provided maps, documents, GIS data, and environmental expertise. Fire Chief Holster has stated several times that the personnel from the Chiloquin Ranger District have been one of our most valuable and dependable partners in the CWPP process, providing assistance in numerous areas that helped to with the planning and fuel reduction projects that have been completed to date. The Klamath Tribes employees have also provided environmental expertise along with GIS support.

Getting the community involved in our planning process has been a challenge. In an effort to involve the public more in the planning process, community representatives were selected that could serve as a conduit for information flow to and from the CWC. These community volunteers were invited to attend all C-ALRFPD CWC meetings where presentations on the current status of the planning process were reviewed. At the CWC meetings, the community representatives were highly encouraged to ask any question that they had for us, as we wanted them to be well prepared for similar questions from their constituents. Each community representative presented information that was of importance to his or her community, and provided a voice for the people of their community, providing valuable input to the planning process. Community representatives were given information, maps, and handouts to use when discussing the CWPP with their community members.

At one of the first C-ALRFPD CWC meetings, a list of the committee member roles and responsibilities was developed and is displayed below.

**CHILOQUIN-AGENCY LAKE COMMUNITY WILDFIRE COMMITTEE**

**Committee Member Roles and Responsibilities**

Work in a team environment to guide accomplishment of the goals and objectives of the Chiloquin-Agency Lake Community Fire and Mitigation Plan.

Act as representative to the Committee for your particular area/group, maintaining a consistent reciprocal flow of information between the two.

Make decisions, along with other Committee members, on recommended changes to the Plan or the planning process.

Provide assistance in acquiring data for the Plan from your represented area/group as described in the “Community Fire Plan Outline” document.

Recommend actions to be implemented through the Plan such as fuels reduction, community outreach and education, and monitoring and evaluation.

The primary cooperating partners in our community efforts are the C-ALRFPD, Fremont-Winema NF's (FWNF), The Klamath Tribes, Chiloquin Community Action

Team (CAT), Jeld-Wen Inc., Train Mountain Inc., neighborhood representatives, and the Oregon Department of Forestry (ODF). The Chiloquin RD of the FWNF is working in close cooperation with the C-ALRFPD and the Chiloquin Community Wildfire Committee (CWC) to maximize the effectiveness of fuel reduction treatments across the Wildland Urban Interface. The Forest role is to continue providing information sharing, coordination and fuels management expertise. The ODF has provided support to the CWPP process similar to the USFS, but at a reduced level. The Chiloquin CAT, Klamath Tribes, private landowners and neighborhood representatives are some of the community partners involved in information sharing and community education. All of our community partners have a representative that is a member of our C-ALRFPD Community Wildfire Committee (CWC). This committee is very active and enthusiastic about the work being accomplished in our community and the community risk and mitigation plan.

Several public meetings have been held at various locations around Chiloquin so that the general public would have a chance to see a presentation on the CWPP process, learn about the actions that homeowners can take to build “defensible space” around their homes, learn about the fire hazard reduction programs that may be available to assist them in reducing fire hazards, and the meetings provide an opportunity for people to ask questions or provide input. Public information presentations about wildfire hazard reduction have been made to groups like the Chiloquin Lions Club, Community Action Team, elementary school, OSU extension service, and Fire District personnel with several other presentations planned for other groups such as the Klamath Tribes. Fire Chief Holster is planning an annual “fire day” for the C-ALRFPD residents each year where the firefighting agencies and community members join for an afternoon of food, fun, and public education about wildfire prevention. This event will be an excellent way to annually remind the C-ALRFPD residents of the importance of wildfire prevention and fire hazard reduction activities.

The C-ALRFPD has made many efforts to improve our interagency cooperation with our local partners, but there are some areas that still need improvement in the future. There are concerns from local citizens in regards to lack of coordination between the Wildland and Structural Agencies in determining when fire season should start and when the fire season should end. There is also concern that there is a lack of collaboration between the federal and state agencies on what the local fire danger should be on a given day. ODF and FS fire danger signs often display different fire danger levels in the same geographic area and are confusing to local residents. Another area of concern of the community from a collaboration standpoint has to do with the management of the smoke produced from fuels reduction projects on days of poor smoke dispersion. Many times during the year, smoke can become quite dense in the C-ALRFPD area, with little coordination between the different entities that are doing the burning. The community understands that prescribed burning is an important part of the hazard reduction programs, but the amount of smoke put into the air shed at any one time must be managed so that the air remains healthy for the public to breath. The different agencies around the C-ALRFPD must improve their coordination of burning and their notification process so that everyone affected by the burning is notified in a timely manner.

Overall, the community is in strong support of the wildland fire hazard reduction accomplishments to date, and are encouraged to know that these types of treatments are likely to increase in the future. The vision of healthy and fire safe forests across the fire district will only become reality with strong community support and collaboration between all of the entities involved.

ODF personnel also attended most meetings and provided guidance to our planning process through their employees and the monthly Klamath County Community Wildfire Protection Plan (KCCWPP) meetings that they coordinate.

The KCCWPP group meets on a monthly basis to coordinate and eventually complete a Klamath County CWPP, a plan that will be a collection of many smaller community plans such as this one. Members of the C-ALRFPD attend the KCCWPP meetings regularly, as they have become an excellent way to collaborate with our county partners while supporting the completion of the County plan. Below is a list of persons who regularly attend these meetings:

John Ketchum, Keno Fire Chief
Gene Rogers, Wildland Fire Technologies, Inc.
Doug Miller, C-ALRFPD
Loren Head, Harriman Fire Chief
Michelle Jones, US Forest Service
Lani Hickey, Klamath County Natural Resources
Dennis Lee, Oregon Department of Forestry
Dewaine Holster, C-ALRFPD Fire Chief
John Giller, Klamath Fire, Inc.
Joe Foran, Bureau of Land Management
David Hard, Klamath County Fire District 1 Fire Chief
Heather Shaffer, Bureau of Land Management
Matt Webb, US Forest Service
Dave Goheen, US Fish & Wildlife,
and other representatives as they were available.


### 3.2.1 Description of community meetings and community social services and agency stakeholders

Within the C-ALRFPD, there are several agency stakeholders that play an important role in the community, and the members of the CWC represent most of these stakeholders. Key groups within the C-ALRFPD area include:

The Klamath Tribes
US Forest Service

Oregon Department of Forestry
Chiloquin Community Action Team (CAT)
Oregon Department of Transportation
Klamath County Emergency Services
Chiloquin – Agency Lake RFPD
City of Chiloquin
Jeld-Wen
Train Mountain

### 3.2.2 Documentation of community meetings

The minutes of the different community meetings are included in the appendix. A note taker was assigned to each community meeting, providing documentation of decisions made, questions asked, input given, and information that was presented to the public. All meetings were ran in an informal fashion, with everyone being encouraged to ask questions or stop a presenter if they do not understand any information.

Overall, the meetings went very smoothly, with excellent interaction between the members. The members of the committee were very supportive of the efforts by the fire district and appreciative of the progress updates. Powerpoint presentations were used for presentations about the planning process and to display GIS maps used for analysis. Many questions from the members revolved around fire hazard and firefighting terminology, which prompted the creation of a "Definitions" and "Glossary" section in the appendix of this plan.

Meetings were normally no longer than 2 hours each, with breaks scheduled as necessary. Most members attended the CWC meetings regularly, and meetings were only held when there was significant new information to share with the committee or if we were at a important decision or input point.

## 3.3 Review of Community Studies and Reports

Several local studies and reports were reviewed during the development of the C-ALRFPD CWPP. Below is a listing of some of the resources used, along with a brief explanation.

**Klamath/Lake Forest Health Management Guide (Burns, 1999)** - A guide that encourages woodland owners to think in terms of forest health and watershed improvements as they manage their woodlands.

**A Plan for the Klamath Tribe's Management of the Klamath Reservation Forest (Johnson, Franklin, Johnson, 2003)** – Describes the Klamath Tribe's plan on how to best manage the lands within the Fremont-Winema National Forest's that were formerly parts of the Klamath Indian Reservation.

**A Brief Survey of the Klamath Indian Agency, 1866-1960, (Justice, 1981)** – A historical study of the Klamath Indian Agency.

**Upper Klamath Basin Science Workshop (Feb 3-6, 2004)** – A collection of notes from presentations by environmental specialists at the Upper Klamath Basin Science Workshop held in Klamath Falls.

**C-ALRFPD Wildland-Urban Interface Hazardous Fuels Survey (Klamath Fire, Inc., 2005)** - A landscape level fuel modeling and fire hazard assessment completed by Klamath Fire Inc., for Chiloquin-Agency Lake Rural Fire Protection District -- 2005

**A Community Protection Strategy for Chiloquin-Agency Lake Rural Fire Protection District (C-ALRFPD, 2004)** – A strategy compiled by the C-ALRFPD for community protection.

**Central Klamath County Community Action Plan (The Central Klamath County Community Action Team, 1995) –** A community plan created by the Central Klamath County Community Action Team.

**Strategic Community Planning for the Chiloquin Area, Klamath County, Oregon (Rural Development Initiatives, Inc., 2004) –** Strategy for community planning in Chiloquin.

**Winema National Forest, Initial Attack Analysis** – The initial attack analysis for the Winema National Forest, National Fire Management Analysis System (NFMAS) package documenting the most efficient mix of firefighting resources to initial attack wildfires on the Winema National Forest.

### 3.3.1 Planning and Land Use

From a land management perspective, the recent Environmental Assessments (EA's) completed by the US Forest Service offer the most complete analysis of the ecosystems around the C-ALRFPD. The Chiloquin Community Fuels Reduction Project EA of 2002 and the Ninemile EA of 2004 are the two most recent EA's completed by the US Forest Service in the C-ALRFPD area, and both documents were reviewed extensively during the completion of this CWPP.

#### Ninemile Environmental Assessment

On page 9 of Chapter 1, the Ninemile Environmental Assessment provides a good summary of the purpose and need for the Ninemile fuels reduction project, and how this CWPP plan ties in with the planning process used by the Forest Service.

*"To meet current direction and the intent of the HFRA and the National Fire Plan, the Ninemile Fuels Reduction Project was initiated by the US Forest Service to move the current conditions on federal lands in the wildland urban interface closer to the desired future condition of a more open, large-tree dominated structure that is less susceptible to large-scale, stand replacing fire events. After treatment, fire should function as a stand maintenance process rather than a stand replacement mechanism within treated areas. The Ninemile Project proposes to reduce fire hazard and increase stand vigor by thinning dense conifer stands with timber sales and/or other stocking reduction treatments, and to reduce natural fuel accumulations by using mechanical brush treatments and prescribed fire. This will reduce wildland fire spread and improve the ability to suppress fires and protect both public lands and private property. Fire hazard will be reduced and the condition class will be changed through the application of these treatments. Complementary efforts to change conditions and reduce fire hazard on private property within the Ninemile area is planned through the combined efforts of the Chiloquin-Agency Lake Fire District and the Oregon Department of Forestry. Chief*

*Dewaine Holster of the Chiloquin Agency Lake Fire District is currently working on a Community Wildfire Protection Plan for the area. This plan is expected to be completed in 2005."*

The Ninemile EA provided comprehensive information related to the ecosystems in the southern portion of the Ninemile area (area south of Sprague River Highway).

**Chiloquin Community Fuels Reduction Project (CCFRP) Environmental Assessment**

On page 1 of Chapter 1, the CCFRP Environmental Assessment provides a short statement as to why the CCFRP was initiated by the US Forest Service, again tying the primary reasons to reducing the chance of large and devastating wildfires.

*"To meet current direction and the intent of the National Fire Plan, the Chiloquin Community Fuels Reduction Project was initiated to move conditions closer to a more open, large tree dominated structure that is less susceptible to large scale, stand replacing fire events."*

The CCFRP EA provided an excellent analysis of the lands surrounding the community of Chiloquin and the associated wildlife and plant species found in our local ecosystems.

The information from these EA's has proved to be extremely valuable in the development of this CWPP for the C-ALRFPD. The amount of information available in these EA's is astounding, providing information on current conditions, desired future conditions, and any other relevant ecological information related to proposed FS projects. Reports by local foresters, biologists, specialists, and fire managers provide a comprehensive analysis of the proposed Forest Service projects within the project area to minimize or eliminate the negative impacts of project activities on the affected environments.

Within the C-ALRFPD, numerous hazard reduction projects have been planned or completed in recent years. The completed hazard reduction treatments from the CCFRP EA have proven to be very effective at reducing the fire danger around the Chiloquin area. Current and future projects are planned in a way that the treatments on private and federal lands will compliment each other, helping to build a future WUI area that has significantly less risk of catastrophic wildfires.

# Chapter 4, Wildfire Risk Assessment

## 4.1 Fire Hazard

An analysis of wildland fire hazard for a given landscape must consider the three primary legs of the fire environment; fuels, weather and topography. This portion of the CWPP provides technical data and analysis of the wildfire hazards found within the C-ALRFPD area. Some information may be difficult for the layperson to understand, but the analysis is important from a risk assessment standpoint. A simplified hazard rating summary is included at the end of this section, and should assist the layperson in understanding this assessment.

### Fuels

Fire hazard is the fuel, topography, and weather conditions that affect fire spread and intensity. Since we cannot change weather or topography very easily, fuel is the only parameter that can be directly manipulated to reduce or increase the amount of fire spread and intensity. In wildland fire environment, fuels are typically the grass, brush, timber litter and over-story trees that are present in a wildland area.

The Chiloquin–Agency Lake Rural Fire Protection District (C-ALRFPD) consists of approximately 40,000 acres of private property, which is almost completely surrounded on three sides by US Forest Service lands (Fremont-Winema National Forests). The wildland fuels on these private and Forest Service lands consist primarily of timber, brush and/or grasses.

Prescribed burning of bitterbrush fuels on private land near Chiloquin, 2003.

Klamath Fire Inc. was contracted by the C-ALRFPD to provide a survey and assessment of the fuel hazards and classifications of the fuels found on the private lands located within the C-ALRFPD boundaries. The data collected during the survey provides an assessment of the current landscape level wildland fire hazard found on fire protection district lands. The ground surveyed fuel model data, combined with onsite weather parameters, will allow fire managers to predict valuable fire behavior outputs, such as rates of spread and flame lengths, for almost any given wildfire situation occurring within the protection district. The data was also extremely valuable in the developing the Community Risk Assessment and Mitigation Plan for the C-ALRFPD. An ArcView GIS layer (Chiloquin_fuels.shp) was created from the survey data and is available on the CWPP CD.

During the survey, all private lands within the C-ALRFPD were surveyed by Klamath Fire Inc. personnel to determine three values; Fire Behavior Fuel Model (Anderson, 1982), Fire Regime Condition Class (FRCC), and primary cover type.

The fuel model describes what fuels would be the primary carrier of a wildfire burning in surface fuels, whether it's the brush, grass or timber litter/slash. The fuel model typically describes the understory vegetation of a stand.

The primary cover type describes what type of vegetation is in the overstory of a stand. For an open grass meadow, the overstory and understory vegetation is grass, but in a wooded area the overstory can be timber with grass in the understory. Identification of the overstory vegetation helps fire managers to have a better understanding of the crown fire potential and extreme fire behavior potential (crowning, torching, spotting) of a certain stand.

The fire regime condition class of a stand is helpful in determining how far from "natural" conditions the area is. Historically, wildfires burned through our fuel types every 10 to 15 years, but after a century of fire suppression, many stands have missed several fire return intervals and have accumulated fuels and vegetation that has allowed them to change condition class. Although FRCC is a landscape level rating, although each stand within the C-ALRFPD was individually rated as to their current FRCC.

Condition class 1 stands are at or near historical fire return intervals and display conditions that are the same or nearly the same as they would have been historically. Condition class 2 stands have moderately departed from the historic fire return intervals. Condition class 3 stands are in the worst condition from a forest health standpoint and have missed several fire return intervals. Wildfires burning in condition class 3 stands will typically exhibit the most extreme fire behavior and cause the most severe resource damage.

Complete descriptions of each of all these values are described in the C-ALRFPD Wildland-Urban Interface Hazardous Fuels Survey.

## Fuel Models

Wildland fire behavior for a given area can be characterized by assigning one of the thirteen standardized fire behavior fuel models as described by Anderson, (1982). These fuel models display varying levels of flame lengths and rates of spread for surface fires, given on-site weather and fuel conditions.

The fuel model provides descriptions of fuel properties for input into fire behavior prediction computer programs such as BEHAVE and FARSITE which utilize the mathematical fire spread model created by Rothermel (1972). Fire behavior predictions using fuel models provides valuable predictions for the spread and intensity of surface fires burning in these wildland fuel types, but the outputs do not take in to consideration the situations where fire spread is increased by spotting, torching, or crown fires. This limitation of the fire spread model used in BEHAVE is of significant importance to the C-ALRFPD because much of the forest lands within the distrcit are at a very high risk to torching, crowning and spotting fire behavior due to the vertical and horizontal arrangement of the fuels (needle draped bitterbrush growing underneath dense, overstocked stands of second growth trees).

Fuels have been classified into four fuel model groups – grass, brush, timber, and slash. The fuel models are based on the fuel type that is the *primary* carrier of the surface fire. Experienced firefighters and fire managers who have seen numerous wildfires burning in many different fuel types are typically best suited for the task of fuel modeling, as the person classifying fuel models for an area must rely on their past experiences to imagine a wildfire burning through the fuel type they are obseving. A fuel model is assigned to the area based on what fuel the evaluator believes would be the primary carrier of the fire at the flaming front.

Fuel models 1, 2 & 3 are grass models, 4 through 7 are brush models, 8 through 10 are timber models, and 11 through 13 are the slash fuel models. Within the C-ALRFPD, 6 of the 13 fire behavior fuel models were determined to be present, fuel models 1, 2, 6, 8, 9 & 10. A full description of these fuel models and associated fire behavior characteristics can be found in the USDA Forest Service publication "Aids to Determining Fuel Models for Estimating Fire Behavior" (Anderson, Hal E, 1982).

The table below displays the fuel models found on private lands within the C-ALRFPD. As you can see from the table below, the primary fuel type on approximately 50% of the fire district is fuel model 1 (short grass), or 2 (short grass with light timber or brush overstory). Most of the grass fuel model areas on the C-ALRFPD are associated with agricultural fields, natural meadows or grazing areas. Fires burning in grass can exhibit high rates of spread, especially with a high windspeed, but are often easily suppressed due to the light fuels and ease of extinguishment. Burning out from roads or other barriers is a very effective firefighting tactic during grass fires due to the minimal amount of torching and spotting normally associated with grass fuels.

| Fire Behavior Fuel Models | | |
|---|---|---|
| **Fuel Model** | **Acres** | **% of C-ALRFPD** |
| 1 | 14572 | 37.1% |
| 2 | 4513 | 11.5% |
| 6 | 17031 | 43.4% |
| 8 | 536 | 1.4% |
| 9 | 2512 | 6.4% |
| 10 | 94 | 0.2% |
| **Total** | **39258** | **100.0%** |

On the other 50% of the fire district, brush and timber are the *primary* fuel type for a fire burning in surface fuels. Of the timbered and brush covered areas of the C-ALRFPD, over 85% of this area was found to have fuel model 6 (dormant brush) as the primary fuel type for a fire burning on the surface. The fuel model 6 found on the C-ALRFPD primarily consists of bitterbrush, sagebrush, manzanita or snowbrush, or a combination of different brush species.

The photos on the next few pages were taken within the C-ALRFPD. Each picture shows what types of areas were typically assigned to each fuel model. These photos are only examples, as actual fuel conditions within the fire district vary greatly.

**Fuel Model 1 - Short Grass**
**14,572 acres, 37% of C-ALRFPD**

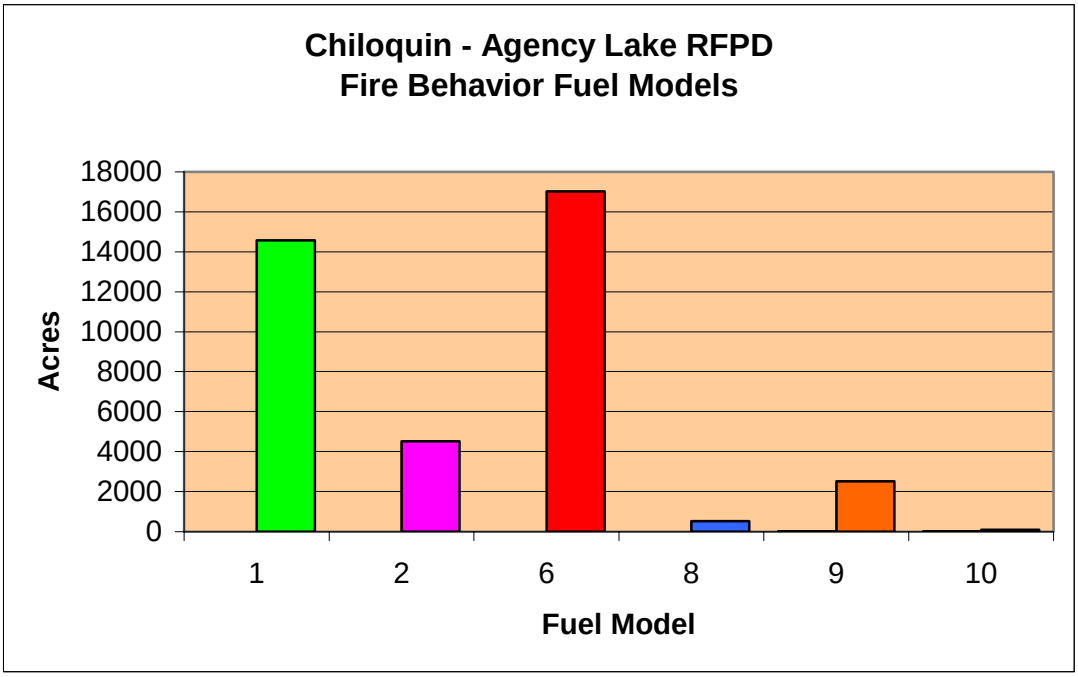
**Fuel Model 2 – Timber w/ grass understory**
**4,513 acres, 12% of C-ALRFPD**

**Fuel Model 6 – Dormant Brush**
**17,031 acres, 43% of C-ALRFPD**

**Fuel Model 8 – Closed Timber Litter**
**536 acres, 1% of C-ALRFPD**

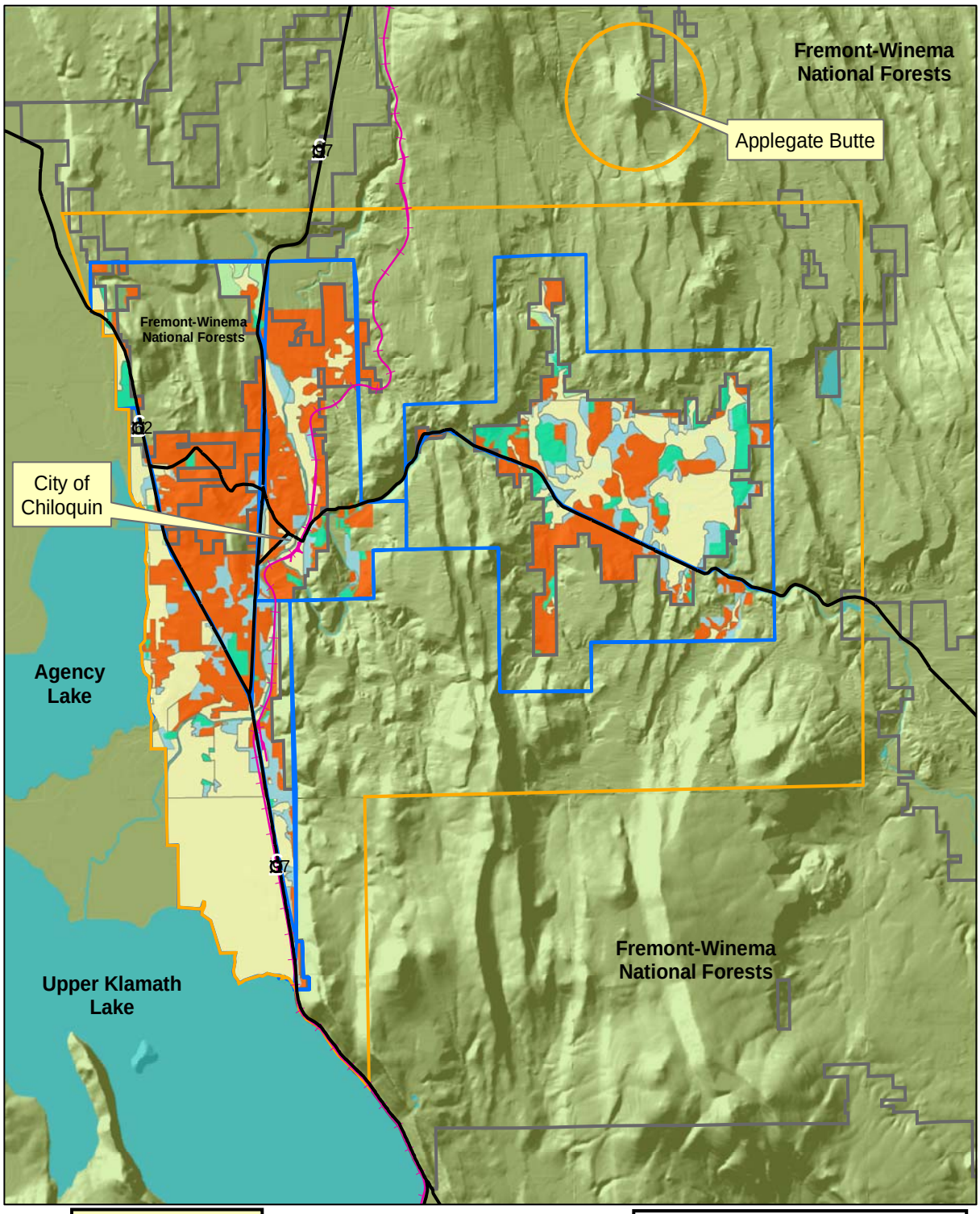
**Fuel Model 9 – Long Needle Pine Litter**
**2,512 acres, 6% of C-ALRFPD**

**Fuel Model 10 – Timber w/ understory**
**94 acres, <1% of C-ALRFPD**




The brush-covered areas of the fire district normally have a ponderosa pine overstory, which contribute to the flammability of the brush species by continually adding a scattering of pine needles throughout the year. Pine needle cast in understory vegetation is commonly referred to as “needle drape.

Most of the areas that were classified as a fuel model 6 in the C-ALRFPD also had a timber overstory of pine trees that would normally be classified as a fuel model 9 (long needle timber litter), but the bitterbrush understory is so dense that the brush becomes the primary carrier of the surface fire.


Fremont-Winema
National Forests
Applegate Butte
Fremont-Winema
National Forests
City of
Chiloquin
Agency
Lake
Upper Klamath
Lake
Fremont-Winema
National Forests
Legend
Chiloquin_wui_bdy
C-ALRFPD_bdy
Fuel_Model
1
2
6
8
9
10
Private Property
Fuel Models
Chiloquin-Agency Lake
Rural Fire Protection District
0
1
2
3
Miles

**Fire Regime/Condition Class (FRCC) –**

During the field surveys of the C-ALRFPD lands, it became evident that some measure of the overall condition of the lands within the district would be valuable. Fire behavior fuel models alone do not describe the overall condition of the landscape very well. Fire regime condition class (FRCC) is not a specific wildfire resistance to control variable, but it infers a relative departure from the natural fire regime's vegetation composition and structure, fuels, and fire frequency and severity.

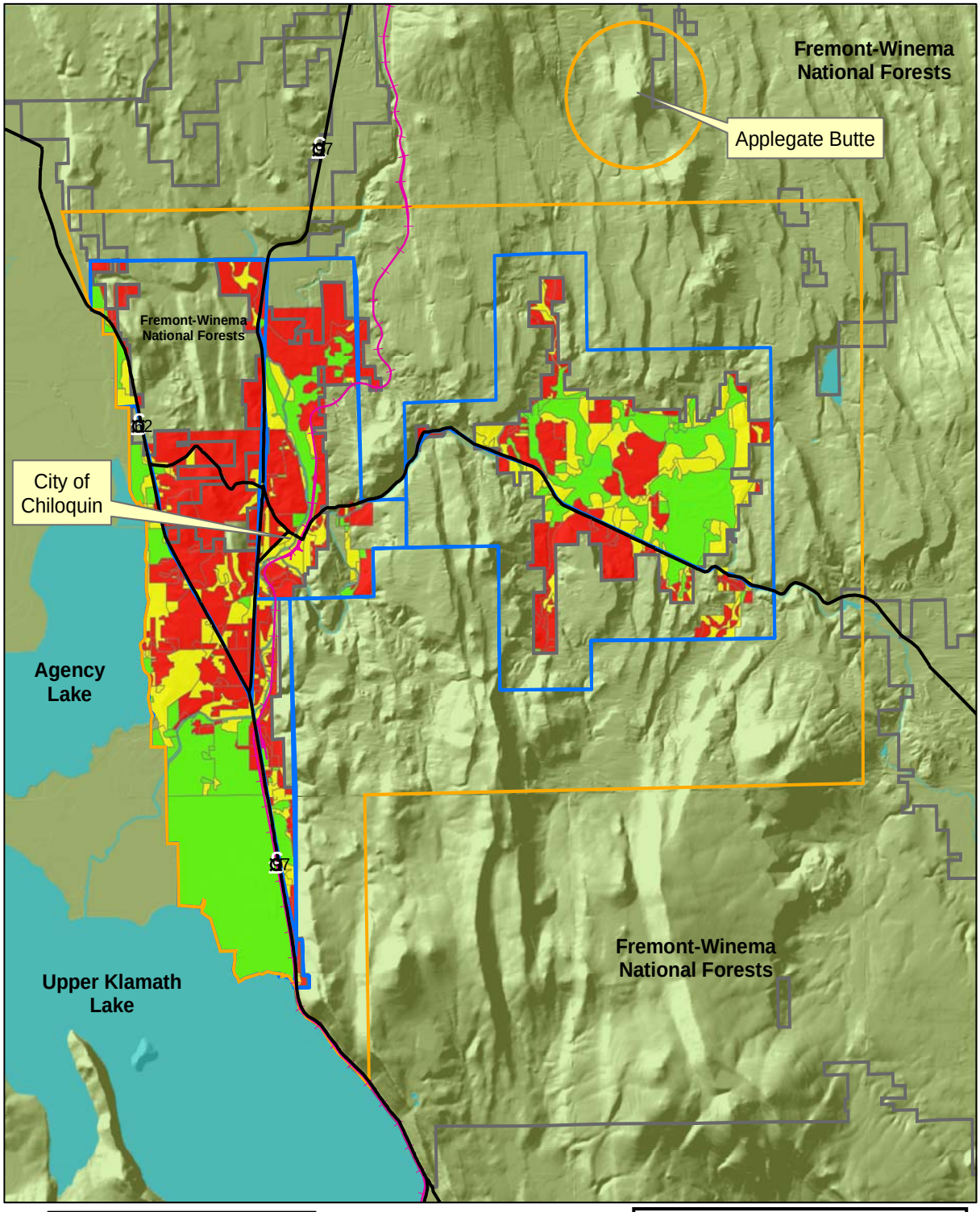
As discussed earlier in this Chapter, FRCC is broken into three classes, numbered 1 to 3. FRCC 3 stands are those with the farthest departure from the natural historic fire regimes conditions and FRCC 1 stands are those that have departed the least from historic fire regime conditions.

| Condition Class (all acres within C-ALRFPD) | | |
|---|---|---|
| **Condition Class** | **Acres** | **% of C-ALRFPD** |
| **1** | 13141 | 33.5% |
| **2** | 8412 | 21.4% |
| **3** | 17705 | 45.1% |
| **Total** | **39258** | **100.0%** |

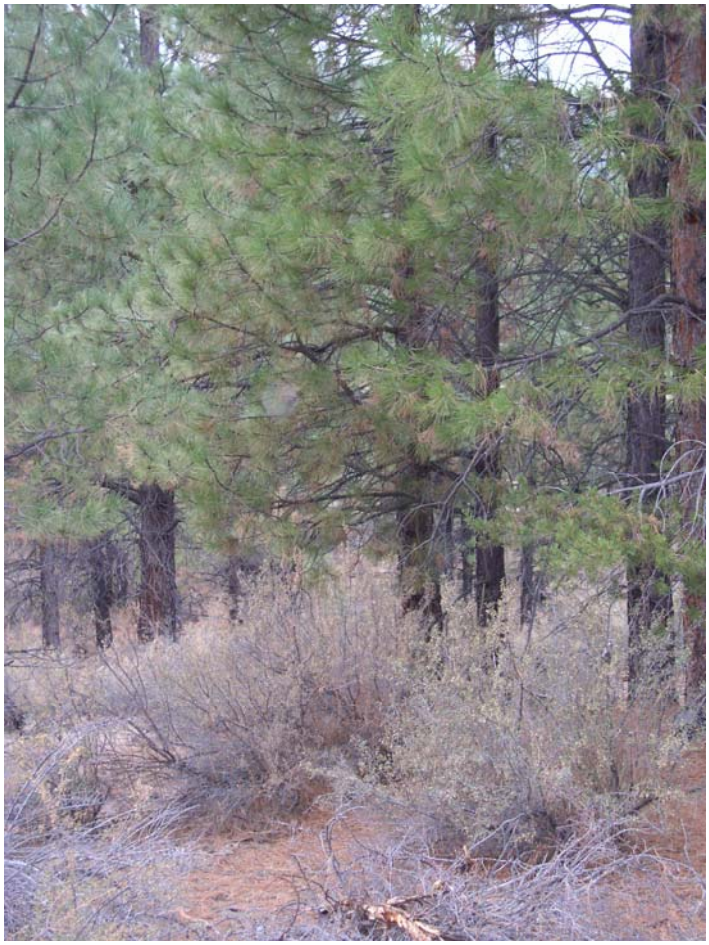
The total acreage of private lands within the C-ALRFPD includes over 14,000 acres of fuel model 1 (short grass) that is primarily farming or grazing land. When the fuel model 1 acres are removed from the total acreage, we can then see the overall condition class for the lands within C-ALRFPD that are brush and/or timber (areas where severe wildfires are most likely to occur). The table below displays the "Stand" condition class for only the forested or brush covered areas of the C-ALRFPD.

| Condition Class (timbered and brush acres only) | | |
|---|---|---|
| **Condition Class** | **Acres** | **% of C-ALRFPD** |
| **1** | 518 | 2.1% |
| **2** | 6463 | 26.2% |
| **3** | 17705 | 71.8% |
| **Total** | **24668** | **100.00%** |

When the short grass (fuel model 1) areas are removed from the total acreage, we can see that over 70% of the lands within the C-ALRFPD is in condition class 3. Using the landscape approach to determine an overall condition class, it becomes fairly obvious that the landscape condition class of the forested and/or brush covered lands within the C-ALRFPD are currently in a Condition Class 3. During the field surveys, the major contributors to stands receiving a CC 3 rating are stand densities (overstocked timber stands), dense and decadent bitterbrush in the understory (often needle draped from overstory pines), and a lack of stand maintenance fires (thick vegetation undergrowth and deep duff).


Fremont-Winema
National Forests
Applegate Butte
Fremont-Winema
National Forests
City of
Chiloquin
Agency
Lake
Upper Klamath
Lake
Fremont-Winema
National Forests
Legend
Chiloquin_wui_bdy
C-ALRFPD_bdy
Condition Class
1
2
3
Private Property
Fire Regime
Condition Class
Chiloquin-Agency Lake
Rural Fire Protection District
0
1
2
3
Miles

## Cover Type



Another factor to consider when describing fuels for wildland fire behavior is how the fuels are arranged, both horizontally and vertically. Fuels that create a "ladder" for fire to climb into the crowns of overstory trees are called "ladder fuels".

In an effort to capture the "crown fire" potential of the stands, some information about the overstory stand is needed. Two stands may both be a fuel model 6 (dormant brush), but one may only have brush as the overstory and the second stand might have ponderosa pine trees in the overstory. A fire burning in the brush underneath a ponderosa pine overstory has the potential to climb into the overstory crowns and burn completely different from a brush fuel type, often displaying extreme fire behavior characteristics.

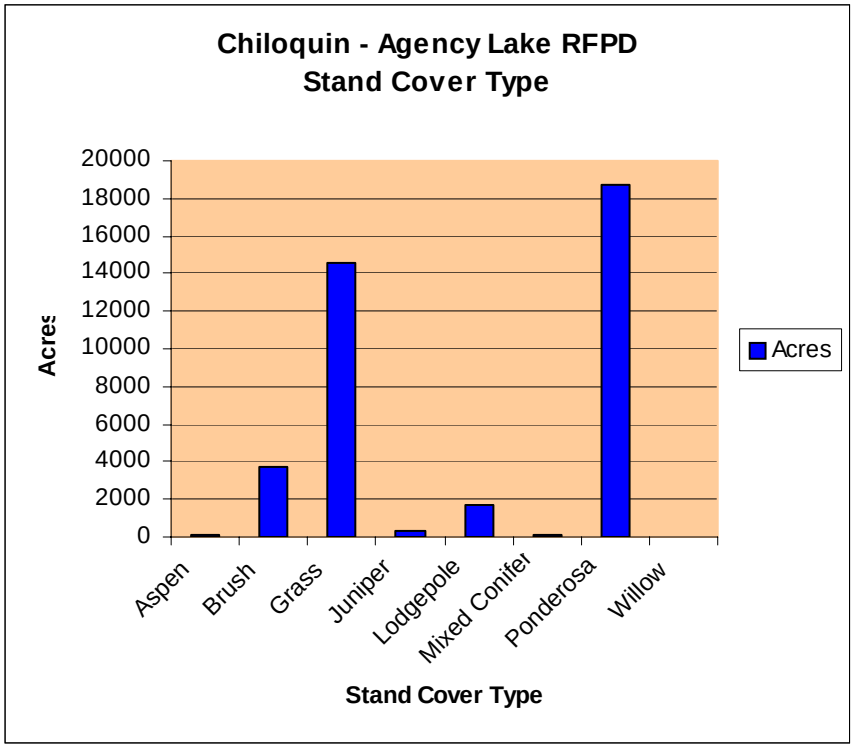
Bitterbrush under pine overstory, "ladder fuels".

This vertical arrangement of fuels, also known as the "ladder fuels", will greatly increase the chances of wildfire exhibiting fire behavior characteristics such as "torching", "crowning", and "spotting". Fires burning with these extreme characteristics are normally very difficult to suppress and put firefighters at much greater risk. Spot fires ahead of a wildfire can significantly increase the rate at which a wildfire spreads and can quickly place people and structures at serious risk. These types of fires often cause significant resource damage, killing the vegetation at all levels (stand replacement fire). For the reasons explained above, it is important to know what the overstory vegetation type is for each stand.

Cover type is the stand value that was surveyed for during the fuels analysis, indicating what the primary overstory vegetation is. Cover types used for the C-ALRFPD included different tree species, brush, or grass. The table below displays the number of acres of each cover type found on the C-ALRFPD.

| Stand Cover Type | | |
|---|---|---|
| **Cover Type** | **Acres** | **% of C-ALRFPD** |
| Aspen | 98 | 0.2% |
| Brush | 3752 | 9.6% |
| Grass | 14551 | 37.1% |
| Juniper | 300 | 0.8% |
| Lodgepole | 1658 | 4.2% |
| Mixed Conifer | 94 | 0.2% |
| Ponderosa | 18771 | 47.8% |
| Willow | 34 | 0.1% |
| **Total** | **39258** | **100.0%** |

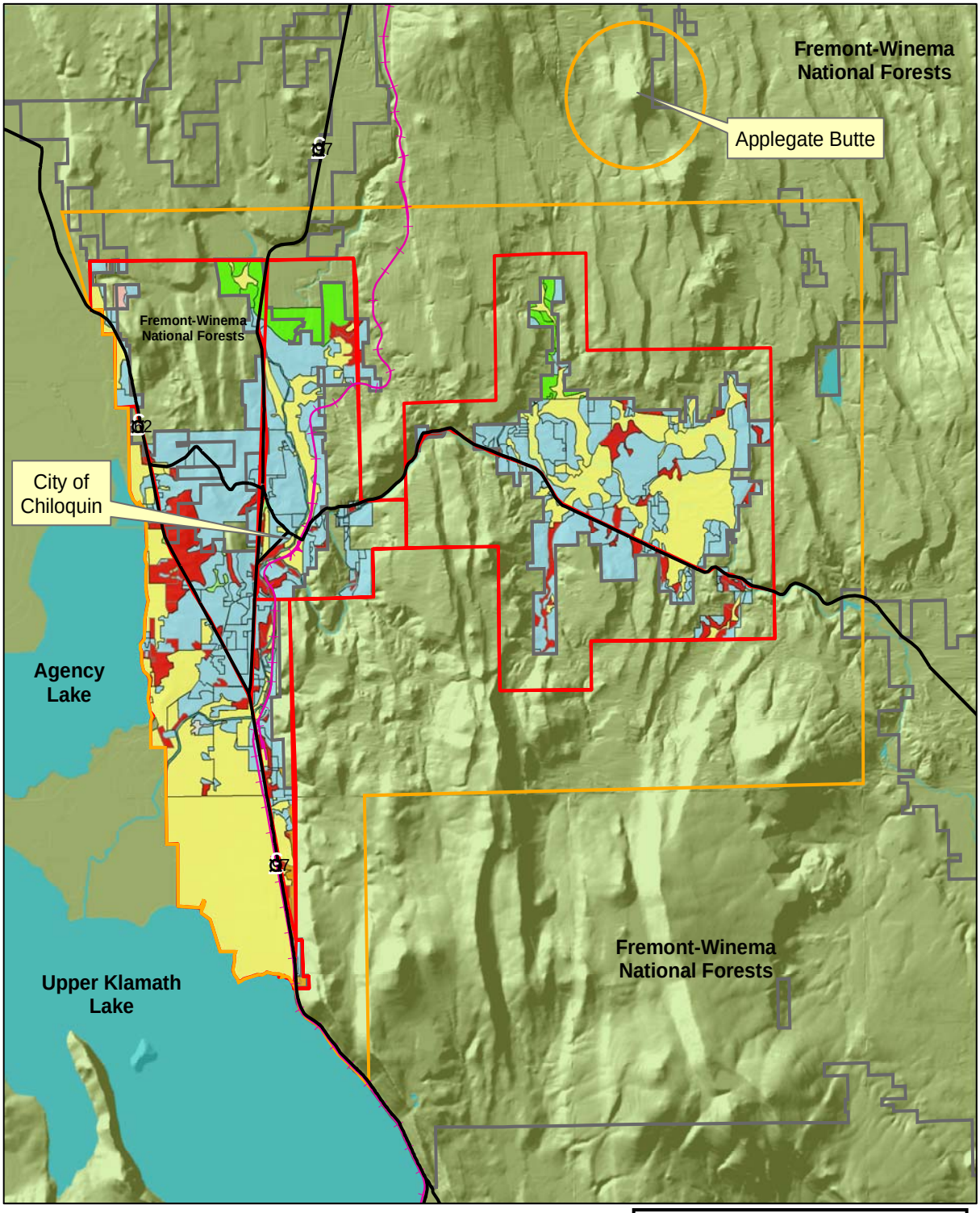
Given the same weather and fuel moistures, surface fires burning underneath a mixed conifer or lodge pole stand will normally burn cooler and slower than those underneath a ponderosa pine stand due to the compactness and arrangement of the needles and timber litter as they accumulate on the surface below. But a mixed conifer or lodgepole stand will burn with equal severity if the stand has a lot of dead and down material in the understory (fuel model 10), if significant ladder fuels are present, or if weather conditions are more extreme. Willow and Aspen stands are normally areas that are somewhat resistant to extreme fire behavior due to the low flammability of their timber litter and leaves.




As displayed in the table above, the primary overstory cover type on the private lands within the C-ALRFPD is ponderosa pine. By analyzing the cover type and fuel model, a user can visualize a multi-layered fuel profile and better determine which areas have the highest probability of a wildfire burning with extreme characteristics.

Using the field survey variables (fuel model, condition class, and cover type) in GIS, we can query for the highest fire hazard variables (for example, Fuel model 6, condition class 3, with cover type P) to determine the areas within the C-ALRFPD that present the highest fire hazard due to fuel types and arrangement. The stands identified by the queries indicate areas where a very high potential currently exists for a wildfire to exhibit extreme fire behavior characteristics due to the fuel types and arrangement. A ranking of fire hazard based on these variables is discussed later in this chapter.

Fuels burning on the Lone Pine Fire, 1992. (fuel model 6, cover type Ponderosa pine)




**Private Property Overstory Cover Type**

**Weather**

The next factor in the fire environment triangle that we must consider is weather.

A Remote Automated Weather Station (RAWS) is located west of the USFS Chiloquin Ranger District office (near the center of the C-ALRFPD), and provides excellent fire weather data for the C-ALRFPD lands. When we combine weather information with the fuel model data, some basic fire behavior predictions can be made about how fast a fire will spread and how intensely it will burn. Flame lengths (measurement of fire intensity) and Rates of Spread (measurement of speed) for the different fuel models found on the C-ALRFPD have been calculated using the BEHAVE computer program and the historical weather from the Chiloquin RAWS station. Historical weather data from 1982 to 2001, June 1st to October 1st, was used to determine the 95th percentile weather values for the BEHAVE runs displayed below. The 95th percentile weather values were used because we are interested in displaying the predicted fire behavior for a very high to extreme fire danger day. The values used are displayed below, along with the predicted outputs for fires burning on level ground and a 20% slope in the given fuel types.

**Chiloquin RAWS 95th Percentile Historical Weather Values**

***June 1st to October 1st, 1982 to 2001***

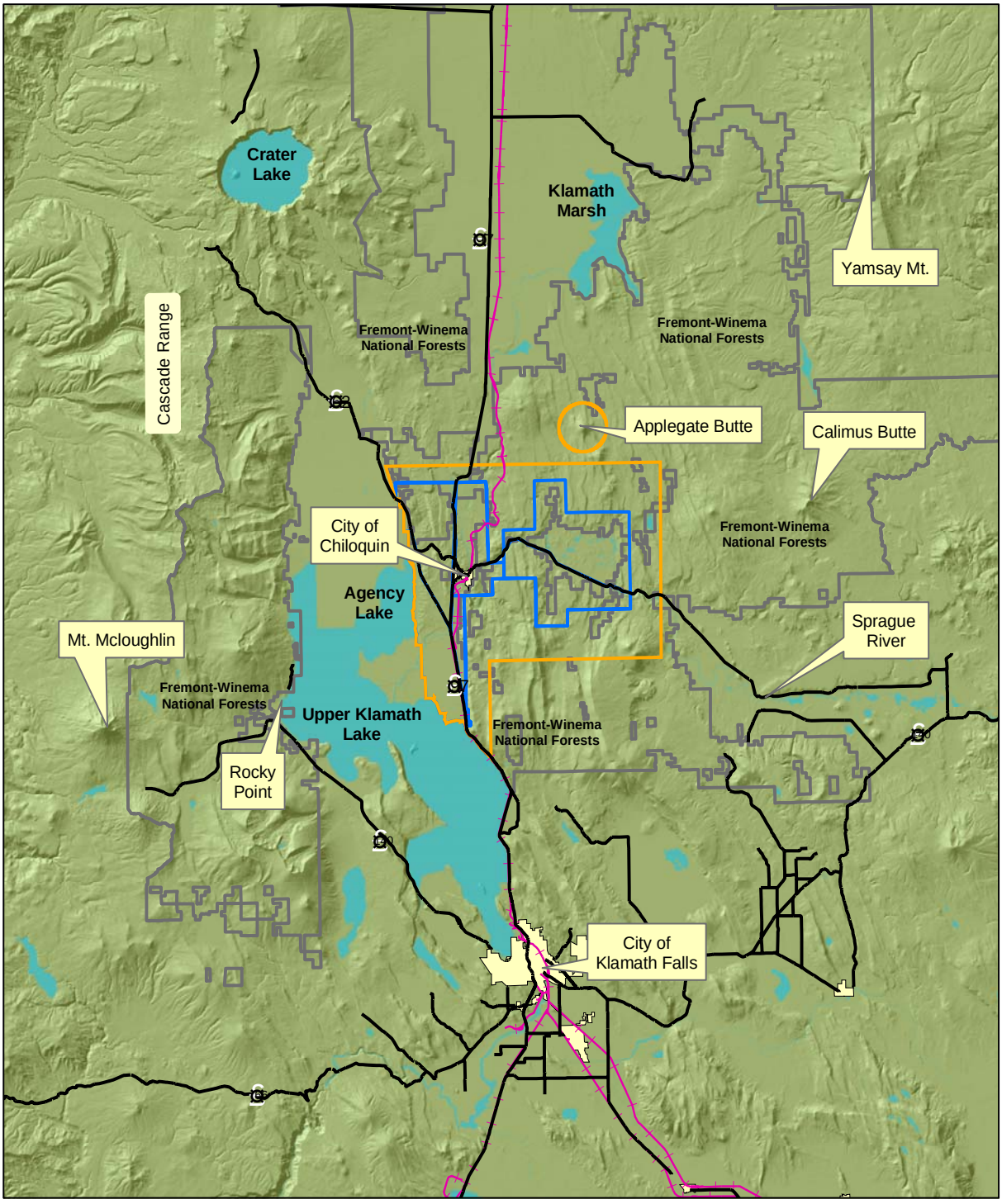
| Weather/Fuel Inputs | 95% Condition |
|---|---|
| Dry Bulb Temperature | **94** |
| Relative Humidity % | **12** |
| 20 foot wind speed | **13** |
| Midflame windspeed (Unsheltered) | **5** |
| 1 Hour Fuel Moisture % | **3** |
| 10 Hour Fuel Moisture % | **4** |
| 100 Hour Fuel Moisture % | **7** |
| 1000 Hour Fuel Moisture % | **10** |
| Herbaceous Fuel Moisture % | **36** |
| Woody Fuel Moisture % | **73** |

| NFFL Fuel Model | Flame Length (ft) | | Rate of Spread (ch/hr) | |
|---|---|---|---|---|
| | 0% slope | 20% slope | 0% slope | 20% slope |
| **1** | 5.4 | 5.6 | 119 | 128 |
| **2** | 8.3 | 8.6 | 55 | 59 |
| **6** | 7.6 | 7.8 | 46 | 48 |
| **8** | 1.4 | 1.4 | 3 | 3 |
| **9** | 3.7 | 3.8 | 12 | 13 |
| **10** | 6.5 | 6.7 | 12 | 13 |

Fire suppression tactics available for use by wildland fire fighters are limited by the intensity and rate of spread of a particular fire. Fires burning with flame lengths of less than 4 feet can usually be safely attacked by firefighters with hand tools. Flame lengths of 4 to 8 feet normally require heavy equipment such as dozers and aircraft. Flame lengths of 8 feet and greater are usually too intense for direct attack by equipment or personnel, and indirect attack methods are normally required (burning out or backfiring from roads or other fuel breaks ahead of a wildfire). As described previously, intense fire behavior such as crowning and spotting are not considered by the BEHAVE program. Fires burning under these extreme situations will produce flame lengths and rates of spread that are dramatically more extreme than the BEHAVE predictions.

Several fire behavior data analysis programs exist to help correlate fire history for a given area along with the actual observed weather parameters for the fire day. FireFamily Plus is a software system for summarizing and analyzing historical daily fire weather observations and computing fire danger indices based on the National Fire Danger Rating System (NFDRS). Fire occurrence data can also be analyzed and cross referenced with the weather data to help determine the critical levels for staffing and fire danger for an area.

## Topography


Crater Lake
Klamath Marsh
Yamsay Mt.
Cascade Range
Fremont-Winema National Forests
Fremont-Winema National Forests
Applegate Butte
Calimus Butte
City of Chiloquin
Fremont-Winema National Forests
Agency Lake
Sprague River
Mt. Mcloughlin
Fremont-Winema National Forests
Upper Klamath Lake
Fremont-Winema National Forests
Rocky Point
City of Klamath Falls
Legend
Roads
Railroad
Chiloquin_citylimits
Chiloquin_wui_bdy
C-ALRFPD_bdy
F-WNF_bdy
Topography
Chiloquin-Agency Lake Rural Fire Protection District
0 2.5 5 7.5
Miles

The topography of the C-ALRFPD reflects the results of its volcanic history, gentle slopes and large areas of relatively level ground, broken up by buttes, mountain ridges, and drainages.

Fires typically burn on slopes of less than 20%, with most of the fire spread being either due to wind or plume dominated spotting, rather than slope influenced (fire runs to the top of the hill). Some steep slopes are present within the C-ALRFPD (20% to 70% slope), including areas around Hagelstein Rim, Modoc Point, Steiger Butte, Cave Mountain, Chiloquin Ridge, and the canyons near the Williamson and Sprague River.

The C-ALRFPD lies on the east side of the Cascade Range. With our typical west to east flowing weather patterns, these mountains to our west do an excellent job of extracting a lot of moisture out of the air masses that travel over our area. Consequently the fire district enjoys long dry summers, often combined with warm temperatures and low relative humidity.

Klamath and Agency Lakes lie to the west of the fire district, covering many square miles with water. Klamath Lake is the largest lake in the state of Oregon, and together with Agency Lake, the lakes cover over 100 square miles. These large bodies of water adjacent to the fire district have an influence on the local winds and air mass stability. Different heating and cooling rates of the air mass above the water and the land create winds and unstable air conditions that can increase fire behavior.

**Fire Hazard Summary**

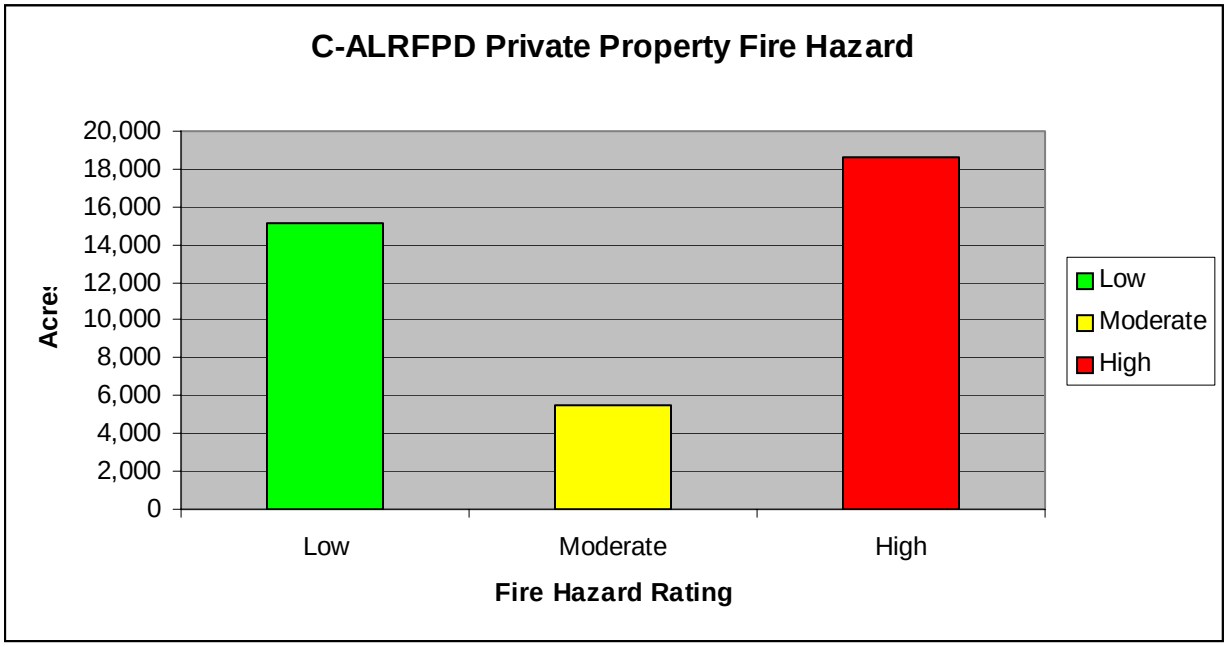
In order to identify the highest hazard areas within the Fire District, we have queried the fire hazard inventory data and divided the lands in to three groups; 'high' fire hazard, 'moderate' fire hazard, and 'low' fire hazard. It is important to understand that the fire hazard ratings for the C-ALRFPD private lands were identified in order to help set priorities for future hazard reduction treatments, and not to single out different property owners. The ratings are relative to the C-ALRFPD area only, and cannot be compared to hazard ratings of other areas outside of the Fire District. An area that is identified as "low" or "moderate" fire hazard in Chiloquin, may equate to a "high" fire hazard area for another nearby community.

Fuel Model 6 with ponderosa pine overstory on the C-ALRFPD (High Fire Hazard)

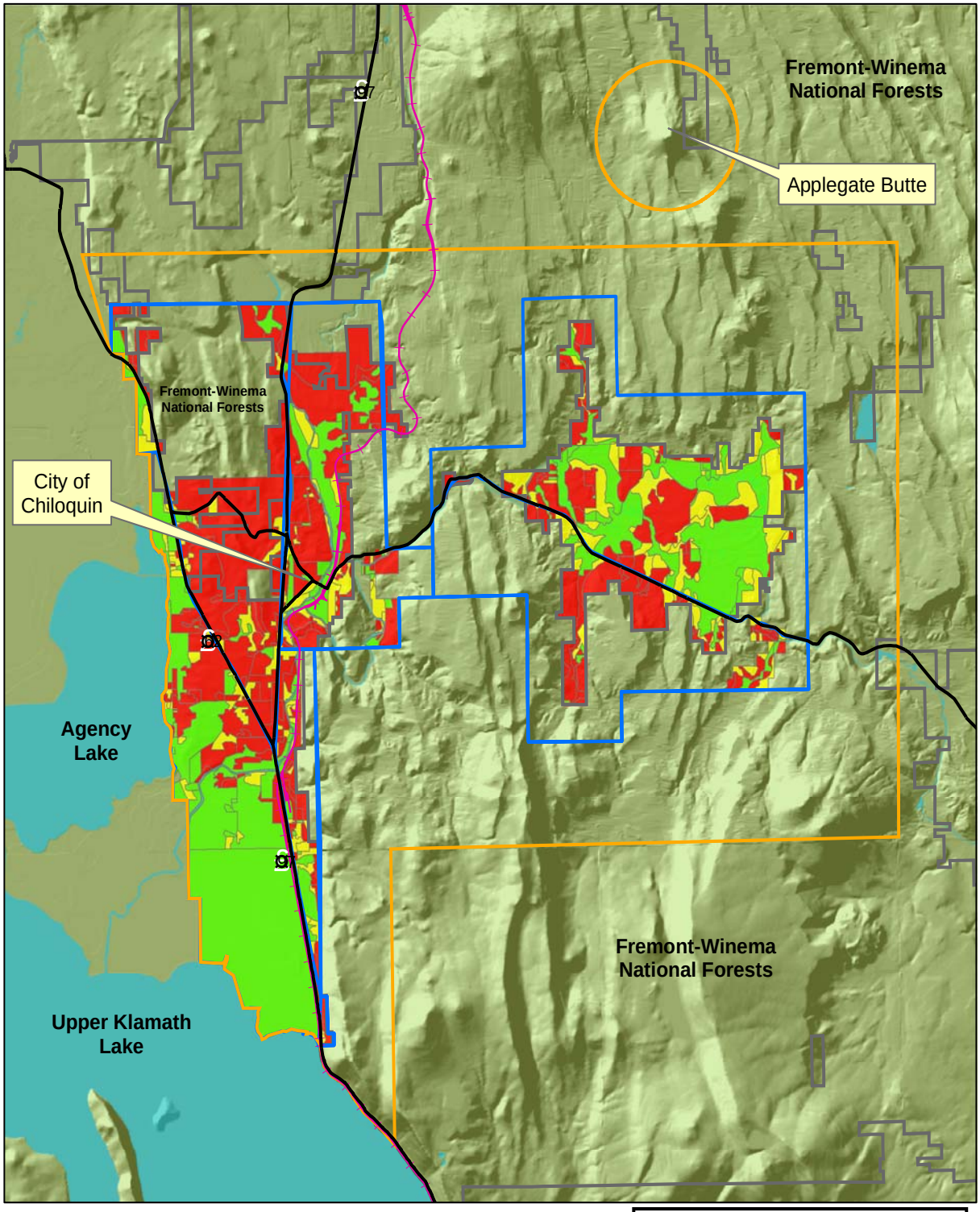
Local knowledge and experience with wildland fires and hazardous fuels was used in determining the criteria for each fire hazard ranking. Based on the cover type, fuel model, and condition class of each area, a 'high', 'moderate' or 'low' fire hazard rating was assigned. The fire hazard ratings identified are based entirely upon the fuel model, cover type, and condition class of a particular area, and does not consider other factors such as fire occurrence, topography, and weather. While these other variables are important factors to consider, this fire hazard rating was intended only to rate the fire hazard relative to the composition and arrangement of the fuels in a given area.

The table below identifies the number of acres of private lands that fall within each fire hazard category.

| Fire Hazard Ratings of Private Lands w/in C-ALRFPD | | |
|---|---|---|
| **Hazard Rating** | **# of Acres** | **% of Area** |
| **Low** | **15,120** | **38%** |
| **Moderate** | **5,478** | **14%** |
| **High** | **18,660** | **48%** |




The GIS map below displays the areas of high, moderate and low fire hazard on the private lands within the C-ALRFPD.


Fremont-Winema
National Forests
Applegate Butte
Fremont-Winema
National Forests
City of
Chiloquin
Agency
Lake
Fremont-Winema
National Forests
Upper Klamath
Lake
Legend
Roads
Railroad
Chiloquin_wui_bdy
C-ALRFPD_bdy
Low Fire Hazard
Moderate Fire Hazard
High Fire Hazard
Fire Hazard
Chiloquin-Agency Lake
Rural Fire Protection District
0
1
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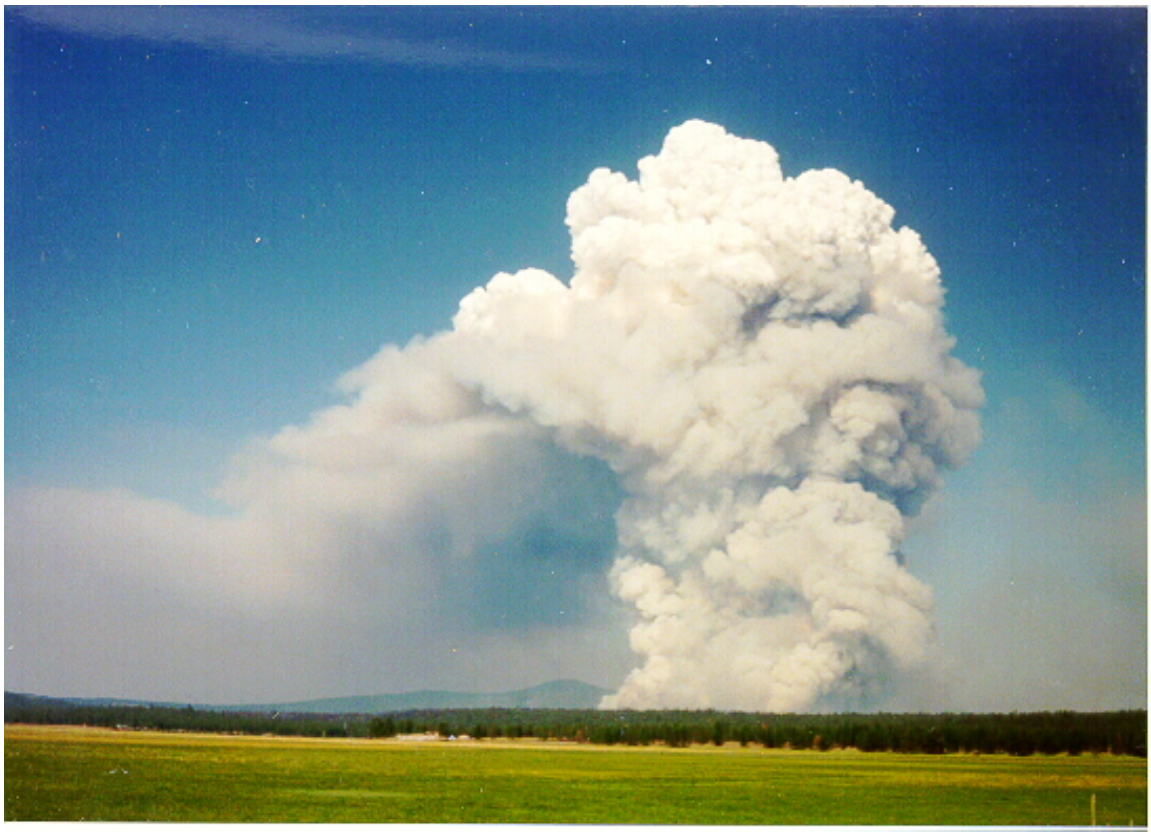
Miles

### 4.1.1 Description of community fire conditions, history of fire within the community, seasonal weather patterns affecting fire behavior



Lone Pine Fire from Sprague River Road, 1992.

As discussed in Chapter 1, large, devastating wildfires have played a significant role in the history of the C-ALRFPD area. Wildfires burning in the C-ALRFPD area have gown to as large as 30,000 acres, killing almost every living thing at all levels. Wildfires that have burned in the past consistently display severe burning conditions and severe damage over the majority of acres burned. The Lone Pine fire in 1992 burned 31,000 acres with majority of the burn being a stand replacement fire with very high severity. A complete discussion of large historic wildfires can be found in Chapter 1.

Fire season in the C-ALRFPD area typically begins in June or July, and runs through September or October. Within the C-ALRFPD WUI boundary, an average of 22 wildfires occur each year with most being suppressed at less than 1 acre. This is a significant number of wildfire starts given that the C-ALRFPD WUI boundary only covers about 140,000 acres.

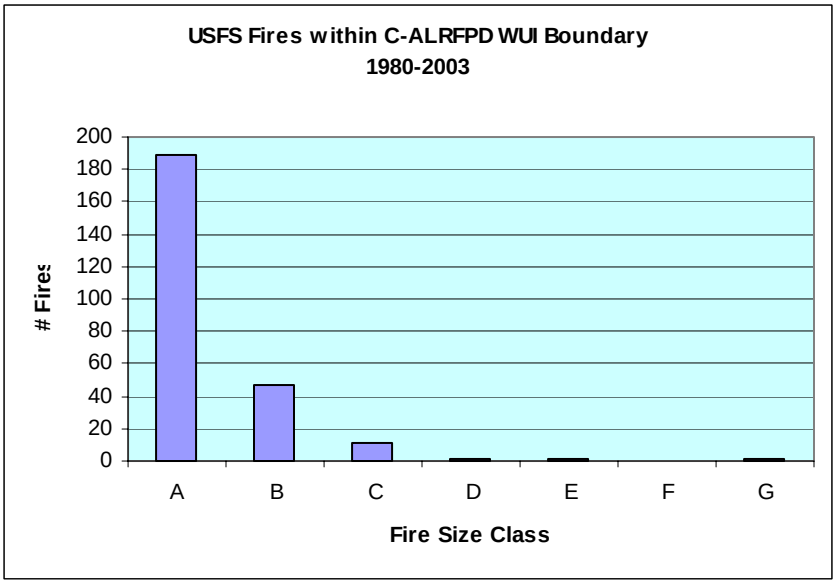
Numerous protection resources are available in the area, so wildfires that burn on a low to high fire danger day are normally suppressed with little difficulty. Wildfires that start on Very High or Extreme fire danger days can be very difficult to contain, depending on the fuels, weather and topography at the wildfire location.

## 4.2 Fire Occurrence

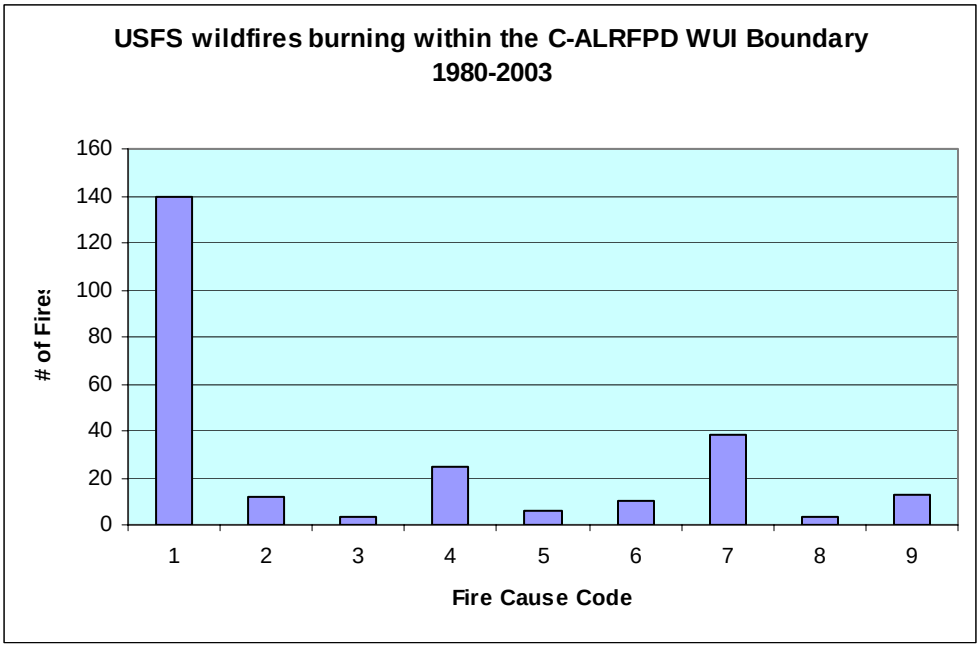
Fire occurrence data is available for both the private lands and the US Forest Service (USFS) lands within the C-ALRFPD in two separate databases. The Forest Service fire occurrence data is available on the CWPP CD in point and polygon layers. Oregon Department of Forestry (ODF) fire occurrence information for the C-ALRFPD area is also available in GIS format, but only in a point layer (no polygons of fire perimeters) that places the origin of all fires in the center of the section. Due to the differences in fire occurrence data, the fire statistics below are based only on USFS fires that have occurred within the C-ALRFPD WUI boundary.

A look at the historic wildfire occurrence data for the C-ALRFPD area reveals some important information. There have been 519 wildfires that have burned within the C-ALRFPD WUI boundaries from 1980 to 2003 (24 years). About one half of the fires occurred on Forest Service lands, with the other half occurring on private lands. The tables and graphs below display fire occurrence information for the USFS fires only, because of the availability of fire occurrence data as described above.

**Historic USFS Wildfires**
**Within the Current C-ALRFPD WUI Boundary**
**1980 to 2003**



| Size Class | Acres | % of Fires |
|---|---|---|
| A | 0 to 0.25 | 76% |
| B | .25 to 10 | 19% |
| C | 10 to 100 | 4% |
| D | 100 to 300 | < 1% |
| E | 300 to 1000 | < 1% |
| F | 1000 to 5000 | 0 |
| G | 5000+ | < 1% |




| *Cause of USFS Wildfires burning w/in the C-ALRFPD WUI Boundary* | | |
|---|---|---|
| **Fire Cause Code** | **Description** | **% of fires** |
| **1** | Lightning | 56% |
| **2** | Equipment Use | 5% |
| **3** | Smoking | 1% |
| **4** | Campfire | 10% |
| **5** | Debris Burning | 2% |
| **6** | Railroad | 4% |
| **7** | Arson | 15% |
| **8** | Children | 1% |
| **9** | Miscellaneous | 5% |

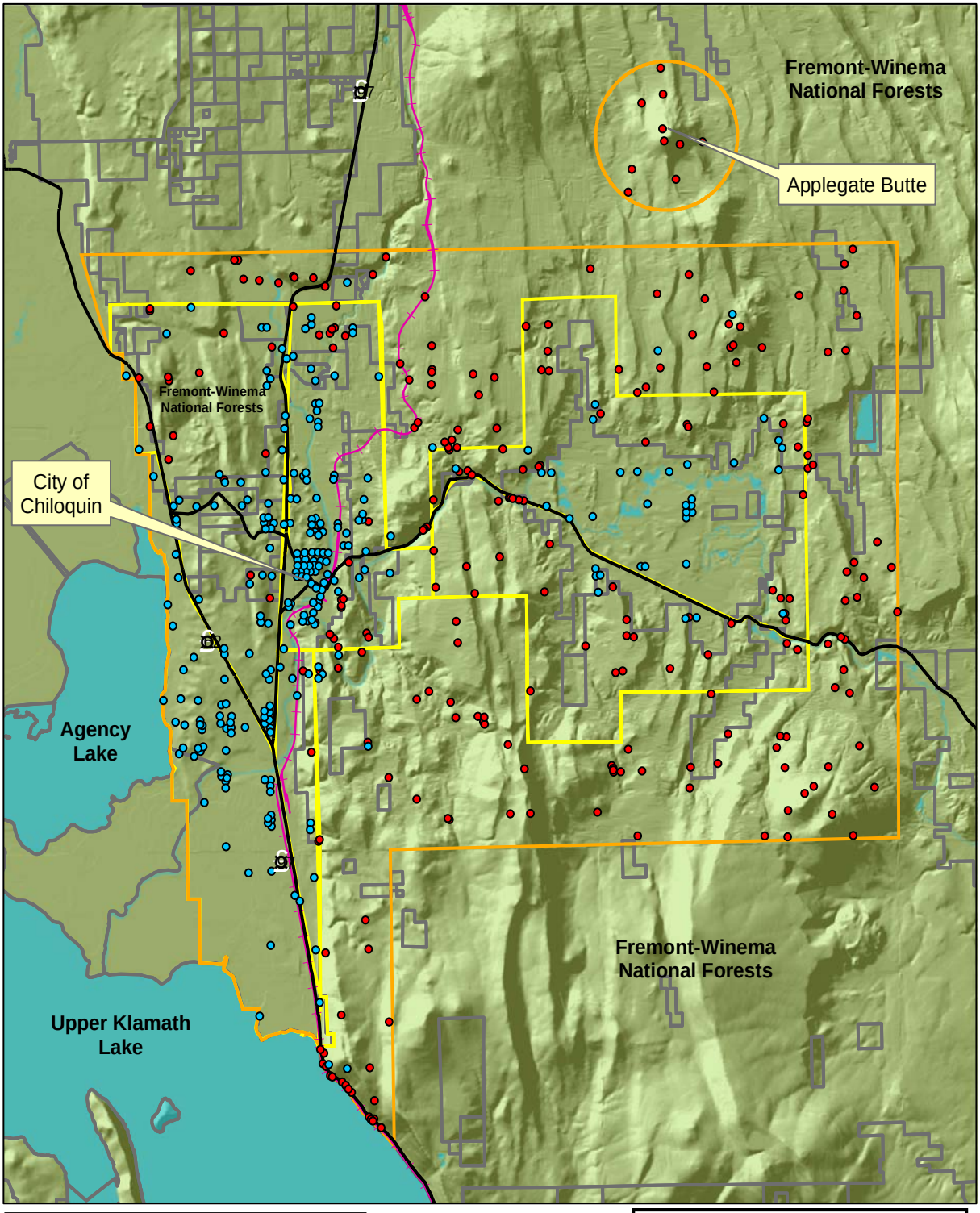
From the fire occurrence data displayed above, we can see that most wildfires starting on Forest Service lands within the C-ALRFPD WUI boundary are caused by lightning

(56%). The other 44% of wildfires started from human activity, with arson being the most prevalent cause (15%). The actual occurrence for all fires within the C-ALRFPD WUI boundary (including private lands) would be similar to those on the Forest Service lands, but human caused fires would likely account for the majority of wildfire starts, rather than lightning (more human activity on private lands). Human caused fires are normally more of concern for fire managers, as they typically occur near homes or other improvements, and are not normally associated with thunderstorms like the lightning caused fires. Lightning fires are often accompanied with rain or cool, moist weather at the time of ignition, normally giving the wildland suppression resources a chance to suppress the fires before they become active or out of control.

A closer analysis of the wildfire occurrence shows that almost all of the larger wildfires occurring within the C-ALRFPD WUI boundaries were human caused, with arson being the most prevalent fire cause. Arson has been a significant problem for wildland fire managers in the Central and Southern Oregon areas, with the C-ALRFPD being no exception. Arson fires are of greatest concern to fire managers as the arsonist will normally try to start fires on extreme fire danger days, in locations that are not easily detectable, and where the fires have the potential to become very large and exhibit extreme fire behavior (bottom of steep hills or in areas with continuous hazardous fuels for fire spread).

The fire occurrence rate for the C-ALRFPD is higher than most other small communities in Southern Oregon, and the fire behavior displayed by the wildfires is above average in terms of intensity and rates of spread. On a high to extreme fire danger day, wildfires burning in the C-ALRFPD area can exhibit extreme fire behavior within minutes of ignition and can quickly overwhelm the suppression capabilities of the local wildland fire suppression resources. Numerous vacant lots and forested areas with high fire hazard fuels are located in and around most all of the communities of the district. When fires start in these areas, quick response is necessary to reduce the threat to homes and people.

As displayed by the map on the following page, numerous wildfires start within the C-ALRFPD WUI boundary each year with the locations concentrated around homes and the major transportation routes.


Fremont-Winema
National Forests
Applegate Butte
Fremont-Winema
National Forests
City of
Chiloquin
Agency
Lake
Fremont-Winema
National Forests
Upper Klamath
Lake
Legend
Roads
Railroad
Chiloquin_wui_bdy
C-ALRFPD_bdy
ODF_wildfires_80-03
FS_wldfires_80-03
Wildfire Occurrence
1980 to 2003
Chiloquin-Agency Lake
Rural Fire Protection District
0
1
2
3
Miles

## 4.3 Protection Capabilities

Protection capabilities for the C-ALRFPD are discussed in detail in Chapter 5. Several firefighting entities are available in and around the Chiloquin area during the normal wildland fire season (June to October). During the fire season, the C-ALRFPD is the home to one ODF fire engine, four USFS fire engines, one USFS D-4 dozer, and one USFS water tender in addition to the resources staffed by the fire district. Several private individuals own firefighting equipment in the Chiloquin area, including dozers, water tenders and other equipment that is useful during suppression operations.

The Klamath County Mutual Aid agreement allows for the quick and efficient dispatching of the closest resources to any wildfire, regardless of which agency the resource works for. USFS air tankers and helicopters are also dispatched to wildfire incidents when needed, regardless of the jurisdiction.

## 4.4 Structural Vulnerabilities

Chiloquin Agency-Lake Fire District employees and volunteers have conducted a house-to-house inventory, contacting homeowners during 2001 to 2005 fire seasons and completing 1,692 surveys to date. Fire district personnel conduct an evaluation of the property, provide advice and recommendations to the landowner, and schedules assistance in fuels reduction treatments. One of the primary benefits to completing the structural vulnerability surveys is that the local Fire District personnel are allowed to spend valuable time meeting and getting to know the residents of the Fire District. This interaction with local residents is vital to our community education and outreach program and has proven to be one of the best public relations opportunities for the Fire District. There have been remarkable positive changes in building practices and fuel profiles surrounding homes in the last three years due to the outreach programs and interaction with local homeowners. The following standards for home survivability in the event of a wildfire are evaluated and discussed with the homeowners:

**Roofs:** Whether they are constructed with Class C or better fire resistant material. The amount of branches (especially dead) hanging over the roof and within 15 feet of the chimney and if dead leaves and needles have accumulated in the roof and gutters. Inspect chimney outlets and stovepipes and cover with a non-flammable screen of one half inch and smaller.

**Landscape:** Homeowners are advised on how to create a defensible space by increasing the moisture content of surrounding vegetation while decreasing the flammable species. Plant height, arrangement and continuity are also evaluated.

**Yards:** Whether woodpiles and combustible gas containers are placed at least 30 feet away from structures, with flammable vegetation cleared within 10 feet surrounding the hazard. Also, removal of hazards such as stacks of construction material and debris from the yard.

**Surrounding Forested Conditions**

For undeveloped lands adjacent to communities or neighborhoods, the following prescriptions have been adopted for this community to provide for safety and protection in the event of a wildfire:

**Within 500 feet of property lines:**

- Flame lengths are managed for < 2 ft under 90$^{th}$ percentile weather conditions. The surface fuels will measure less than 5 tons per acre of 0-3 inch material, and shrubs will be maintained no higher than 9 to 12 inches.
- Generally, except in areas where remnant stands do not pose a threat to the homes, tree canopies are separated and do not touch one another, and tree spacing will be at least 15 feet apart (*varied by species and size classes on a site-specific basis*) to discourage the spread of crown fire.
- To inhibit crown fire initiation, ladder fuels (those branches and small trees between the surface and about 8 feet in height) will not be found on more than 10% of the stand.

To facilitate the structure vulnerability surveys, a comprehensive form was developed and used by the fire district personnel in both the Keno and Chiloquin-Agency Lake RFPD's home surveys. The structure surveys will be very useful from a wildfire protection standpoint, but the data will also be extremely valuable for all risk situations and in rescue and evacuation situations.

Structural vulnerability surveys have been completed on 1,692 homes in the C-ALRFPD, accounting for over 99% of the homes in the fire district.

Updated tax lot data from the county each year will help to identify additional structures that will need to be surveyed or re-surveyed each year due to new construction, changes in ownership, or other significant changes. As you can tell from the survey form below, the amount of data collected is very substantial and the information will be very useful to the local fire district personnel for future incidents and pre-attack planning.

The structural surveys are being input into a GIS database at the C-ALRFPD office and will be available for the Fire District use in the fire season of 2006. The GIS database will contain the exact location of every home in the fire district, and each property will be linked directly to the information gathered from the structural vulnerability survey. Based on the findings from the database, homes will be rated as to their defensibility in the event of a wildfire. If a future wildfire is burning within the C-ALRFPD, firefighters will be able to quickly pull up a map of the fire area and determine which homes are able to stand alone, which homes should be defended aggressively, and which homes should be defended cautiously. The database will also identify homes that are not defendable from a firefighter safety standpoint (typically colored in red).

The form used by the Fire District personnel is displayed on the pages below:

## *CHILOQUIN-AGENCY LAKE RFPD*

## Structural Vulnerability Survey

Structure ID:_____

Recorded Date:_____

Input Date:_____

Personal interview conducted? Yes No

1. Does the owner reside at the address? Yes No
2. Do any residents have special needs? Yes No
3. What is the total number of occupants? _____
4. Are there large animals on the lot? Yes No
5. For each adult occupant:

   Last name_____ First name_____

   Home phone_____ Work phone_____

   Cell phone_____ Mailing Address_____

6. What is the actual address of the structure?_____
   (to include street direction, street no., street name, street type, street suffix direction)
7. Note any of the following info:
   1. Local address
   2. Owner
   3. Owner address
   4. Owner phone number
8. What is the principle use of the addressable structure?
   a. Primary residence
   b. Seasonal residence
   c. Commercial/Industrial facility (public access)
   d. Residential care facility
   e. Other – rental

9. GPS Data
Record the degree of latitude for the structure_____

Record the degree of longitude for the structure_____

Lat. & Long. photo point for structure _____

10. Is there an accessible/useable water source on the lot? Yes No

Water source
Is the water source…
i: a well?
1. what is the estimated rate of delivery? _____
ii: a pool or pond?
1. what is the estimated volume? _____
iii: river? _____

11. GPS Data
Record the degree of latitude for the water source_____

Record the degree of longitude for the water source_____

12. Is the address visible from the road? Yes No

Fire Dist. Sign installed? Yes No

13. Are the roof and gutters clear? Yes No

14. Is the 30ft radius from the structure clear of combustibles (e.g.: other structures, firewood, lumber piles, LPG tanks, etc.)? Yes No

15. Select the fuel model that best represents the 30ft radius from the structure:

1. Fuel model 1 or 2 - Is it mowed? Yes No

2. Fuel model 5 or 6 – Is the fuel in the 30 ft radius from the structure currently non-decadent (ie, not old; free from lots of dead limbs and litter) Yes No

3. Fuel model 9+ - Is the surface layer of the fuel in this region less than 1” deep? Yes No

4. Fuel model 10 or 11.

5. Not combustible – lawns, open dirt, paved, pasture-irrigated/grazed.

16. Do tree canopies dominate the 30ft radius from the structure (greater than ½ the area)? Yes No

1. If “Yes”, then:
a. Do conifers dominate the canopy in the 30ft radius from the structure(greater than ½ the area)? Yes No

b. Is the canopy open (ie., not touching tree-to-tree with spacing greater than 15’)? Yes No

c. Is the vertical distance to the canopy free from ladder fuels for greater than 1/3 of the area? Yes No

d. Is the roof and chimney free from canopy over-hang? Yes No

e. What is the average height (ft) to live crown within the 30ft radius?_____

0 – 3 ft, 15pts: 4 – 6 ft, 10pts: 7 – 12 ft, 5pts, 12+ft, 0pts

17. Is the 31 – 100ft radius from the structure clear of combustibles (e.g., other structures, firewood, lumber piles, LPG tanks, etc)? Yes No

18. Define the fuel model within 31 – 100ft of the structure.

1. Fuel model 1 or 2 - Is it mowed? Yes No

2. Fuel model 5 or 6 – Is the fuel in the 30 ft radius from the structure currently non-decadent (ie, not old; free from lots of dead limbs and litter) Yes No

3. Fuel model 9+ - Is the surface layer of the fuel in this region less than 1" deep? Yes No

4. Fuel model 10 or 11.

5. Not combustible – lawns, open dirt, paved, pasture-irrigated/grazed.

19. Do tree canopies dominate the 31 – 100ft radius from the structure(greater than ½ area)? Yes No

1. If "Yes", then:
   a. Do conifers dominate the canopy in the 30ft radius from the structure(greater than ½ the area)? Yes No

   b. Is the canopy open (ie., not touching tree-to-tree with spacing greater than 15')? Yes No

   c. Is the vertical distance to the canopy free from ladder fuels for greater than 1/3 of the area? Yes No

   d. Is the roof and chimney free from canopy over-hang? Yes No

   e. What is the average height (ft) to live crown within the 30ft radius?_____

   0 – 3 ft, 15pts: 4 – 6 ft, 10pts: 7 – 12 ft, 5pts, 12+ft, 0pts

20. Is this property likely to retard (i.e., not promote) the spread fire onto adjacent properties and beyond (i.e., the surface fuel does not provide a continuous fire path to wildland fuels)? Yes No

21. Is the structure's exterior non-combustible? Yes No

22. Is the structure's roof non-combustible? Yes No

23. Are the structure's eaves closed? Yes No

24. Is the structure on the ground? Yes No

a. Is the underside of the structure clear of combustible materials? Yes No

b. Is the underside of the structure closed? Yes No

25. Does the structure have a deck(s)? Yes No

1. If "Yes"
   a. Is the underside of the deck closed? Yes No

   b. Is the underside of the deck clear of combustible materials? Yes No

   c. Is the deck non-combustible? Yes No

26. Does the structure have a turn-around area? Yes No

27. What is the estimated range of slope in the area of the structure?

a. 0-5% b. 6-20% c. 21-40% d. 41+%

28. What is the estimated position of the structure on the slope?

a. On flat b. Lower 1/3 c. Middle 1/3 d. Upper 1/3

29. What is the estimated aspect in the area of the structure?

a. W, SW or S b. E or SE c. NW, N or NE d. No Aspect

30. Are there access restrictions from the drive-way to the structure? Yes No

1. Stairs
2. Brush
3. Animals
4. Clutter
5. Fences
6. Locked Gate
7. Other

31. Are there non-addressable structures on the lot? Yes No

Non-addressable structure ID_____

a. What kind of structure? 1. Commercial facility (restricted access)
   2. Garage/shop
   3. Storage/shed
   4. Barn
   5. Unused/ill repair

GPS Data:

Record the latitude for the NA-structure_____

Record the longitude for the NA-structure_____

32. Access to structures on the lot are free from any weight limiting features that would restrict roadway access. Yes No

i. What is the weight limit (tons)?
ii. Record structure ID's for structures impacted by the limitation.

Weight limit ID_____

GPS Data
Record the degree of latitude for the weight limiting feature_____

Record the degree of longitude for the weight limiting feature_____

33. Access to the structure is free from any width limiting features that would restrict roadway access to less than 15ft. Yes No

Width limit ID_____

i. What is the width limit?_____

ii. Is the width limitation alterable? Yes No

iii. Record structure ID's for structures impacted by the limitation.

GPS Data
Record the degree of latitude for the width limiting feature_____

Record the degree of longitude for the width limiting feature_____

34. Access to the structure is free from any height limiting features that would restrict roadway access to less than 12ft height clearance. Yes No

Height Limit ID_____

i. What is the limit?_____

ii. Is the height limitation alterable? Yes No

GPS Data
Record the degree of latitude for the height limiting feature_____

Record the degree of longitude for the height limiting feature_____

35. Record the date of this survey_____

36. Record the time of this survey_____

37. Record the ID and name of the examiner_____

38. Is there an access point for the structure? Yes No

GPS Data
Record the degree of latitude for the access point_____

Record the degree of longitude for the access point_____

39. What is the length of access road/drive-way to structure?_____
(in feet)

## Defensible Space

In Chapter 6.3.2, numerous publications and guides are listed that can provide assistance to landowners on the steps that they should take to make there home more "survivable" in the event of a wildfire. The graphic below points out the key guidelines that homeowners can use to build defensible space around their home.

*Because of the fuel types of our area and the fire behavior exhibited by wildfires burning in our fuel types, the single most important thing that a homeowner can do to protect their home from wildfire is to build defensible space.*

When wildfires become very large and burn with extreme behavior, firefighters may stand little chance of containing the fire itself, but they can be very effective at saving individual structures that have adequate defensible space for the firefighters to safely work in.

Jack Cohen, a research scientist at the Fire Sciences Laboratory in the Forest Service's Rocky Mountain Research Station, presented a paper at the Fire Economics Symposium in San Diego, California on April 12, 1999 (insert reference link). The paper was titled *"Reducing the Wildland Fire Threat to Homes: Where and How Much?"* His research studied the ignitability of homes in wildland/urban interface fire situations.

## Some Key Points of Jack Cohen's Research Paper

- Home ignitability, is the principal cause of home losses during wildland/urban interface fires. Key items are flammable roofing materials (e.g. cedar shingles) and the presence of burnable vegetation (e.g. ornamental trees, shrubs, wood piles) immediately adjacent to homes.
- Cohen's Structure Ignition Assessment Model indicates that intense flame fronts will not ignite wooden walls at distances greater than 40 meters (approx. 130 feet) away. Field tests of experimental crown fires revealed that wooden walls can successfully survive intense flame fronts from as close as 10 meters (approx. 30 feet) away.
- Given nonflammable roofs, Stanford Research Institute found that 95 percent of homes survived where vegetation clearance of 10 to 18 meters was maintained around the homes.
- To be effective, given no modification of home ignition characteristics, wildland vegetation management would have to significantly reduce firebrand production and potentially extend for several kilometers away from homes.

Although some of Jack Cohen's conclusions are controversial (such as whether or not landscape treatments are effective in reducing threats to communities), his work on structure ignitability has been widely accepted as the standard for "defensible space" guidelines.


The area between 0 and 30 feet away from a structure should be completely free of flammable material, with trees and other vegetation being neatly trimmed and pruned or being a species of non-flammable type vegetation. Homes should be built with less flammable building materials, and needle accumulations on roofs should be cleaned annually. Roofs should be constructed of metal or other non-flammable material.

In the area between 30 to 100 feet away from a structure, natural vegetation can be present, but “ladder fuels”, such as brush under low hanging tree limbs, should be removed so that any wildfire burning in the area will stay on the surface and not be able to spread into the crowns of trees. All light, flashy fuels such as dead grass and weeds should be trimmed or mowed and disposed of prior to the start of fire season each year.

Other considerations when building defensible space include driveway access. Can large fire trucks pull into the driveway and turnaround at the end? If driveway access is limited, fire trucks will not be able to get to your home and will have a more difficult time defending the home.

## Values at Risk

### 4.4.1 Economic values (business, industry)

From a wildland fire protection standpoint, numerous economic values are at risk within the C-ALRFPD. The current assessed value of the structures and lands up to 5 acres within the Fire District is valued approximately $170,000,000 with the total value of all lands and improvements being well in excess of $210,000,000.

As discussed in Chapter 2, the average income of families in the fire district is one of the lowest in the state, with almost 13% of the families living below poverty level.

**Timber** – Large, historic wildfires that have burned on the fire district are normally stand-replacing events. The fire kills almost all of the trees within the fire perimeter, leaving a moonscape of black trees and ash. Millions of board feet of timber have been lost due to past wildfires, although many trees were salvaged at a reduced value. Loss of future timber stands often equates to less timber jobs and normally requires extensive restoration activities that can be very expensive (replanting of timber stands, erosion control, thinning and maintenance of plantations) and take decades.

From an economic perspective, timber values normally account for the largest portion of the final fire cost. High value timber stands such as large diameter Ponderosa pine and Douglas fir can be worth thousands of dollars per acre. The economic loss from the loss of timber is long term also, as it may be decades before the stand is mature enough to generate revenue again.

After a wildfire event, there is often a short-term economic boost due to restoration and salvage operations. After the Lone Pine Fire of 1992, up to 200-log truck loads of burned timber was hauled to local mills each day, generating hundreds of jobs for the southern Oregon and northern California area. The number of employees at the Chiloquin Ranger Station more than doubled, and forestry workers were brought in from around the nation to help with the salvage and restoration activities. But today the mills are closing, loggers are out of work, the Ranger Station has fewer employees, and there is 30,000 acres of plantations and brush fields where there used to be a viable and productive forest.

**Tourism** – There are many recreational activities that are available in the C-ALRFPD area that draw tourists and outdoors enthusiasts. Some local attractions include Kla-Mo-Ya Casino, Train Mountain, Crater Lake, Williamson River, and Collier Park and Logging Museum. Fisherman, hunters, hikers, mountain bicyclists, and many other types of recreationists travel to the C-ALRFPD area to enjoy the beautiful natural settings that the fire district offers. Large wildfires often make the evening news, which can discourage travelers from an area due to concerns over forest closures, health risks, and smoke limiting visibility. A large wildfire burning in the C-ALRFPD area could send smoke and ash into the basin's air shed, affecting visibility at pristine sites like Crater Lake as well as downtown in Klamath Falls. Businesses such as local

restaurants, motels and stores would likely see a decrease in customers and reduced income if a large wildfire were burning nearby.

**Transportation –** Highway 97 and the railroad line that runs north south through the fire district are major travel routes for the west coast. Highway 62 is the main route to Crater Lake from the east side of the cascades. Large wildfires in the past have required that highways and the railroad line be closed due to concerns for public safety. All traffic was stopped, diverted, or delayed, sometimes for several days. With over 4,000 vehicles driving along Highway 97 on an average day, the economic impact of a highway closure alone is significant. The loss of revenue and impacts to the transportation industry due to delays and re-routing of trains and trucks is a significant consideration in the event of a wildfire near these travel routes.

**Businesses** – A large and devastating wildfire will burn a business down just as fast as a home, and numerous businesses in the C-ALRFPD are at risk to damage from wildfire due to their proximity to surrounding fuels. Melitta's restaurant, the Chiloquin Ranger Station, and several other businesses have been evacuated in the past due to threat from wildfires. When businesses are damaged or destroyed by wildfire, the effect on a community can be significant due to the loss of jobs and income associated with the business. In a community like Chiloquin, where there are very few local jobs, the loss of a few jobs can be significant.

### 4.4.2 Ecological values (biological diversity, habitat, T&E, endemic species, soil, air, water quality, ecosystem health)

One of the major draws to the C-ALRFPD is the natural beauty and biological diversity of the area. Being located along the Pacific Flyway, waterfowl populations in the area are incredible. The natural ecosystems found in the fire district range from marshlands to dense timber stands, brush fields to grassy meadows, but all are susceptible to damage from wildfires.

Over the last few years, the Chiloquin Ranger District of the Fremont-Winema National Forests has completed two environmental assessments (EA's) for proposed forest health and hazard reduction treatments, the Ninemile and Chiloquin Community Fuels EA's. The Ninemile EA is the most recent Environmental Assessment completed for any of the lands within the C-ALRFPD, and covers the area south of the Sprague River Highway in the Ninemile area. Although the EA's are written to analyze Forest Service lands, both of the planning areas for these EA's covers a large portion of the C-ALRFPD, so the environmental information is applicable to the private lands within the fire district also. Local Forest Service experts such as foresters, wildlife biologists, and archaeologists were brought together to form the Interdisciplinary Teams (IDT) that analyzed the different ecological values that were present in each planning area. The analysis that was completed for the specialist reports and the completed EA documents provided the best local information for the following discussions on ecological values.

## Wildlife Species

The area surrounding the C-ALRFPD provides excellent habitat to a wide variety of wildlife species, including several that are threatened or endangered.

The information for the table below is found in the Ninemile Environmental Assessment, Wildlife Specialist Report, listing the Federally Endangered, Threatened or Candidate Terrestrial animals. Although other animal species may be listed as sensitive or important, these are the species that are federally listed and found in the C-ALRFPD area.

| Species | Species and Habitat Attributes |
|---|---|
| Bald eagle **(*Haliaeetus leucocephalus*) (Threatened species)** | Feed on fish, small mammals, waterfowl and carrion. Nests are usually in multi-storied stands with old growth components, near the water, and are in the largest live trees in the area with tree canopy covering the nests to varying degrees (USFWS, 1986). |
| Northern spotted owl **(*Strix occidentalis*) Threatened species** | Late-successional and old-growth Douglas fir forests with multiple canopy layers, canopy gaps, and patchy understory (USDA, 1994). Predominant prey species are northern flying squirrels and dusky-footed woodrats (Gutierrez, et al., 1995). |
| Oregon spotted frog **(*Rana pretiosa*) Candidate species)** | Oregon spotted frogs are found in marshy areas with permanent sources of water (Stebbins, 1985). They are also most often associated with non-woody, wetland plant communities with species such as sedges, rushes and grasses (Leonard et al., 1993), usually where there is abundant aquatic vegetation (Corkran and Thoms, 1996). |

The Bald Eagle and the Northern Spotted Owl are the most recognizable endangered wildife species that live in the C-ALRFPD area. Both species are protected from disturbance during nesting periods, and federal agencies are mandated to manage these species and their habitat to insure their futrure vaibility. In general, efforts to reduce fire hazard and the threat of stand replacing wildfires will help to minimize the potential loss of the critical habitat of these endangered species.

The area around the C-ALRFPD is home to many different wildlife species that are typically found in these forest types. In general, forest fires can significantly damage wildlife habitat in the short term but many ecological benefits may be realized in the long term, such as regeneration of forbs and brush species, creation of new snags, and the

removal of competing vegetation. Before the advent of modern fire suppression, frequent low intensity fires were started by lightning and did an excellent job of maintaining widlife forage and habitat. The large and devastating wildfires of recent history cause enormous resource damage with very little benefit from an ecological standpoint. The use of prescribed burning can be an excellent way to mimmic the natural historic fire occurrence, helping to maintain and restore wildlife habitat while reducing the fire hazard at the same time.

Mule Deer and Rocky Mountain Elk are the primary big game species in the area. They both browse on grasses, forbs and woody plants, depending on the time of year and utilize brush and smaller trees as hiding cover. Wildfires will typically degrade the deer hiding cover in an area and can impact the amount of available forage for both deer and elk in the short term. When large areas are burned by wildfire, deer and elk habitat may be greatly reduced. Deer and elk are an important treaty resource for many Klamath Tribes members, and hunters bring a large economic boost to the area during hunting seasons.

**Aquatic Species**

The information for the section below was found in the Ninemile Environmental Assessment, Aquatic Specialist Report. The table below is a listing the Federally Endangered, Threatened or Candidate fish found on the Winema National Forest. Although other fish species may be listed as sensitive or important, these are the species that are federally listed.

**Federally Listed Fish Species - Winema National Forest**

| Common Name | Scientific Name |
|---|---|
| Shortnose sucker | *Chasmistes brevirostris* |
| Lost River sucker | *Deltistes luxatus* |
| Bull trout | *Salvelinus confluentus* |

Lost River and Shortnose suckers were listed under the Endangered Species Act because it was determined that they were endangered by the following threats: significant population declines with continued downward trends, reduction of range, habitat loss and fragmentation, poor water quality, potential hybridization, competition and predation by exotic fishes, as well as other factors.

Bull trout have also been listed by the USDI Fish and Wildlife Service as a threatened species, and is present in some streams of the Winema National Forest.

World-class trout fishing is found in the Williamson River and many fishing enthusiasts travel to the area each year to try their luck in the local waters. The revenue that these recreationists bring to the businesses of the Chiloquin area is significant.

Wildfires that burn in watersheds or adjacent to the local waterways can have a significant effect on the local fish species. Ash and sediment from wildfires can drain into the local waterways, killing fish and damaging their habitat. Fire retardant is toxic to fish and can sometimes make its way into waterways during fire suppression activities. Depending on the amount of retardant entering the water, many fish can be killed almost immediately. When riparian vegetation is burned during a fire, banks become unstable and shading of the water is greatly reduced, increasing water temperature and degrading water quality.

**Soil, Air and Water Quality**

**Soils**

When Mt. Mazama (Crater Lake today) erupted centuries ago, a blanket of pumice was cast over the entire C-ALRFPD area. The soils in the C-ALRFPD area today are typically a loamy pumice type with timber litter or grass as ground cover. These soils are susceptible to damage from wildfire when fuel loadings are high, because the increased fuels burn more intensely and for longer durations. Existing fuel loadings on many acres of the fire district put the soils at risk because current fuel loads are sufficient to heat the soil and burn off nitrogen, an essential nutrient. Again the benefits of frequent low intensity fires can be observed, the historic natural fires kept fuel loadings at a level that allowed fires to burn freely without damage to the soils.

**Air Quality**

The air quality in the Klamath Basin is normally excellent, except during periods of persistent high pressure that often occur during the winter and summer months. Large wildfires burning in the Klamath Basin can cause smoke to pool in the basin during these high-pressure events. Depending on the amount of smoke produced and weather conditions at the time, the amount of particulate matter in the airshed can reach levels that pose a serious health risk to humans, and can create visibility problems that are a hazard to local drivers and may even force airport closures.

Managing air quality is important to the people of the Klamath Basin, as it can get pretty miserable when the air quality is poor. The air quality program in the state of Oregon is administered by the Oregon Department of Forestry. The Salem Forestry Weather Center office issues a daily smoke management forecast (http://www.odf.state.or.us/DIVISIONS/protection/fire_protection/daily/lmt.asp) for the Klamath Falls area each day during burning season. All outdoor burning is banned on private lands during the Oregon Department of Forestry Fire Season, which normally starts on June 1st and ends around the first part of October. Special burn permits can be issued by the local fire departments, and these regulations may not apply to federal land managers. In Klamath County, the County Environmental Health Department determines when and what types of burning is allowed, and posts a

telephone recording each day (541-882-BURN) that informs the caller of the current burning regulations.

**Water Quality**

Water is an abundant resource in the Klamath Basin, but it is vital to the health of the local ecosystems. Farmers and ranchers depend on water also, as do the people and wildlife downstream from us. Wildfires that burn with high severity can cause significant damage to local watersheds, and water quality. As discussed in the fisheries section, ash and other sediments that are created after wildfire events can cause significant degradation of water quality.

The Aquatics Report for the Ninemile Environmental Assessment addresses the current fire hazard conditions and potential consequences of no treatment:

**Cumulative Effects-No Action Alternative**
*The no action alternative will have some cumulative effects. The condition of the forest within the project area under this alternative will leave it in a condition that is more susceptible to catastrophic wildfire occurrence. The occurrence of a catastrophic wildfire in the area would negatively affect water quality.*

### 4.4.3 Social Values (lives at risk, home/property, view, livestock/pets, livelihood, cultural, historical sites/features)

**People and Homes**

Approximately 3,000 people live within the C-ALRFPD. From a fire management standpoint, it is probably more important to know where the people live, rather than how many there are. Within the fire district, only 716 people live in the city limits of Chiloquin with the other 2,300 living dispersed throughout the rest of the district. Due to the high number of smaller dispersed communities and homeowners living in remote locations, the Wildland-Urban Interface (WUI) area of the fire district is very large compared to the size of the city. Most homeowners in the WUI areas live on lots that are ½ to 20 acres in size. The private lands in and around these smaller communities are often left unmanaged and can pose a serious fire hazard risk to the community.

With the large number of private landowners in the C-ALRFPD, effective outreach to them about the importance of fire hazard reduction treatments will be vitally important. The majority of landowners in an area must participate in the fire hazard reduction treatments to ensure an effective landscape level treatment. Every acre of fire hazard treated is better, but large continuous blocks of treatments are much more effective than individual islands of treated areas.

Homeowners within the fire district that are surrounded by high to extreme fire hazard areas need to become educated about creating defensible space around their home and in the use of non-flammable building materials and landscaping.

**Livestock and Pets**

Most families living within the fire district have some kind of pets or livestock. People owning livestock and pets should develop an evacuation plan that details the plan for transporting or securing your animals. Some fields that are green and irrigated may be suitable for livestock to remain in as a wildfire burns past, where other fields may be dry and full of dead grass that will burn hot and fast. Pets such as cats and dogs should be transported to safe areas along with their owners if possible.

**Naturally Appearing Landscape**

One of the first order effects of a wildfire is a dramatically changed landscape. Stands that were once thick with green trees and brush are left with black tree boles and ash. If the fire burned with much severity, most of the trees will be killed and would likely be salvaged. Brush and forbs species may return within a few years, but it may be many decades before the timber stand is re-established.

Beautiful forests and stunning landscapes are one of the primary attractions of the C-ALRFPD area. Giant ponderosa pines growing in stately groves, or riparian areas alive with colorful Aspens and Willows, the C-ALRFPD is blessed with many beautiful landscapes. A drive through the Lone Pine Fire area is a reminder of how a landscape can be changed so significantly in a few hours by a severe wildfire. Because of the fuel types and current fire hazards in the C-ALRFPD area, the beautiful natural landscapes of the C-ALRFPD are constantly threatened each fire season by wildfire.

**Cultural and Historical Sites and Features**

The C-ALRFPD area is found within the former reservation boundaries of the Klamath Tribes. As discussed in Chapter 2, the Klamath Tribes have a long history of living in this area. Most of the lands that made up the former reservation are now part of the Fremont-Winema National Forests. Although most of the former reservation is now Forest Service land, the Klamath Tribes still have an important voice in the management of these lands. To facilitate the management of natural resources within the former reservation lands, the Consent Decree of 1981 was negotiated between the Klamath Tribes, the state of Oregon, and the United States of America. The agreement promotes sound and efficient management and conservation of fish and wildlife resources within the former reservation to ensure the future use of resources by both

the Klamath Tribes and other publics. In accordance with the 1981 Consent Decree, the Forest Service has a legal responsibility to consult with the Klamath Tribes regarding land management activities on National Forest lands.

Due to the rich history of the C-ALRFPD area, historic and pre-historic archaeological sites are abundant in throughout the entire district. Listed below are some examples of historic and prehistoric sites that are found in the area.

| Pre-Historic Sites | Historic Sites |
|---|---|
| **Winter and Summer Camps** | **Logging Camps** |
| **Vision Quest Sites (rock cairns)** | **Railroad Grades** |
| **Cambium Scraped Trees** | **Historic Buildings** |
| **Lithic Scatters (arrowheads and chips)** | **Can Dumps (Historic garbage piles)** |
| **Burial Sites** | **Logging Equipment** |

Cultural sites such as the ones listed above can be damaged by wildfires and/or the fire suppression activities. Fires can consume any old wooden structures such as cellars, cabins, or old railroad ties. Cambium scraped trees can be killed by fire and intense heat may damage obsidian or rock features. Firefighters, bulldozers, and other firefighting equipment can damage or destroy cultural sites without even knowing that the site was there. The use of trained cultural resource technicians (CRT) or other resource advisors to scout ahead of firefighting efforts will help to ensure that fire suppression efforts do not damage archaeological sites unnecessarily.

## Wildfire Risk Assessment Findings

This Chapter covers a lot of information, so we have summarized some of the key findings that were discovered during the assessment process.

1) The lands within the C-ALRFPD have experienced many wildfires in the past, and will continue to have wildfires start by lightning and humans each and every year. The fire occurrence for rate for the C-ALRFPD area is one of the highest in Klamath County.

2) Human caused wildfires often burn on the highest fire danger days as compared to lightning fires, which are often associated with thunderstorms and cool, damp weather. Most of the largest fires in the fire history records for the C-ALRFPD have been human caused, emphasizing the importance of public education, fire prevention activities, and arson investigations.

3) Wildfires within the C-ALRFPD that have burned in the last 50 years grew to be as large as 30,000 acres and burned with such intensity that they spread as far as 10 miles in one day, killing a large majority of the trees and vegetation (stand replacement fire). ***The wildland urban interface area for the C-ALRFPD must be of sufficient area to affect fire behavior on a landscape level, especially in the upwind direction from the community and essential infrastructure.*** A large-scale wildfire burning with extreme fire behavior characteristics in the fuels around Chiloquin will not be stopped by a “fuel break” (definition link) around the community.

4) Homes and other structures have been damaged or destroyed during past wildfire events within the district, and based on current fire hazard conditions and historic fire occurrence rates, the probability of it happening again in the future is high.

5) Firefighters have been injured or killed while fighting wildfires that have occurred in the C-ALRFPD area.

6) The combination of needle-draped bitterbrush in the understory and overstocked ponderosa pines in the overstory is a recipe for disaster, allowing wildfires to quickly climb into the crowns of overstory trees. Areas within the fire district that have dense brush in the understory with ponderosa pines in the overstory are the most extreme fire hazard areas.

7) Wildfires that burn in the surface fuels only, unable to climb into the overstory, are much easier for firefighters to contain, resource damage is significantly less, and the risk to firefighter and public safety is greatly minimized.

8) Within the C-ALRFPD, large wildfires that are not contained during the first burn period can cause significant control problems on the subsequent days (Lone Pine Fire, 1992).

9) Quick and effective initial attack of all wildland fires is key to limiting the potential damage of wildfires that start within the C-ALRFPD area. The effectiveness of the local firefighting resources can be greatly increased by treating the hazardous fuels within the fire district prior to wildfire ignitions.

10) The landowners in the C-ALRFPD can significantly reduce the probability of large and devastating wildfires by creating defensible space around homes and continuing to increase the implementation of proven hazard reduction treatments across the landscape.

# Chapter 5, Emergency Operations

## 5.1 Protection Capabilities and Infrastructure Protection

### 5.1.1 Wildfire suppression capabilities

While it is important for wildland firefighting resources to arrive at fires in a timely manner, even resources that arrive an hour or two after the fire starts can be of significant value to the suppression efforts on wildland fires. Therefore the wildland fire suppression capabilities for an area like the C-ALRFPD would include all of the wildland firefighting resources that are available in the county, and even farther for firefighting aircraft.

It is important to note that wildland firefighting resources may have long response times or limited availability during certain times of the year, especially pre and post-fire season. Most wildland firefighting resources are typically unavailable or have a significantly delayed response time in the evenings or after normal working hours (normal times for availability of wildland resources is 0900 to 1900 daily, from June through September). Lookouts and other wildfire detection resources are also unavailable during much of the year.

**Inventory of Fire Protection Resources**

The list below displays the wildland firefighting resources that are available throughout Klamath County as of 2005. In addition to the resources listed below, numerous private contractor and cooperator fire engines, water tenders, and dozers are also available within the Klamath Basin.

**Oregon Department of Forestry, Klamath Protection Unit, Klamath Falls, Oregon**

**Klamath Falls, Headquarters**
3 – Wildland Engines, 200 to 300-gallon
1 – Water Tender, 3500-gallon
1 – Dozer, D-6H
1 – 5-person Handcrew
1 – Light Helicopter
1 – Lookout, Parker Mountain
1 – Lookout, Chase Mountain
1 – Lookout, Bly Mountain
1 – Lookout, Hogback Mountain

**Keno**
1 – Wildland Engine, 600-gallon

**Bly Mountain**
1 – Wildland Engine, 600-gallon

**Camp 4**
1 – Wildland Engine, 200-gallon

**Chiloquin, Crooked Creek**
1 – Wildland Engine, 300-gallon

**Sand Creek**
2 – Wildland Engines, 200-gallon

## USDA Forest Service, Fremont-Winema National Forests

**Klamath Ranger District, Klamath Falls**
2 – Wildland Engines, 300-gallon
1 – Wildland Engine, 500-gallon
1 – 20-Person Hotshot Handcrew

**Chiloquin Ranger District, Chiloquin**
2 – Wildland Engines, 300-gallon
1 - Wildland Engine, 500-gallon
1 – Water Tender, 2800-gallon
1 – Dozer, D-4H
1 – 10-person Handcrew
1 – Lookout, Calimus Butte

**Chemult Ranger District, Chemult**
1 – Wildland Engines, 300-gallon
1 – Wildland Engines, 500-gallon
1 – Lookout, Sugar Pine Mt.

**Bly Ranger District, Bly**
4 – Wildland Engines, 300-gallon
1 – Wildland Engine, 500-gallon
1 – 10-person Handcrew

## US Department of Interior, Bureau of Land Management, Lakeview District,

**Klamath Falls Resource Area Headquarters, Klamath Falls**

1 – 20-person Handcrew

**Gerber Guard Station, Gerber Reservoir**

2 – Wildland Engines, 850-gallon
1 - Wildland Engine, 200-gallon

## Department of the Interior, National Park Service, Crater Lake National Park

**Crater Lake National Park Headquarters**

1 – Wildland Engine, 200 gallon
2 – Lookouts, Mt. Scott & Mt. Watchman

Tanker 60, Type 1 Air Tanker at Klamath Falls in 2005

**Aircraft and Aerial Delivered Fire Suppression Resources –**

It is widely accepted that Air Tankers are the single most effective initial attack firefighting resources that we have available for our use today. Air tankers and Type 1 helicopters are some of the most powerful wildland firefighting tools, and can respond to distant locations in a very short time period. During extreme burning conditions, the availability of aircraft can mean the difference between a fire contained at a few acres and a fire that becomes hundreds, or thousands of acres.

In December of 2002, a panel of aviation experts was convened to assess the safety and effectiveness of the federal aerial firefighting resources. The report was titled "*Federal Aerial Firefighting: Assessing Safety and Effectiveness, Blue Ribbon Panel Report to the Chief, USDA Forest Service and Director, USDI Bureau of Land Management".* The document described many different recommendations on safety, missions, training, contracts and different aircraft types.
After the release of the Blue Ribbon Panel Report, the USFS sent out a press release (insert reference link) that made two significant statements:

- The Forest Service and the BLM will no longer contract for the C-130A or PB4-Y aircraft as airtankers. The agencies will be consulting with the Federal Aviation Administration to develop a rigorous inspection and maintenance program for the other models of heavy airtankers to provide a greater margin of safety. Aircraft that pass the inspection and follow the maintenance program will continue to be used.

- In Addition the Forest Service is suspending fire mission operations of 19 government owned P-58 Barons that are used as Lead Planes for Airtankers and

4 Sherpa (Shorts 330) smokejumper aircraft pending evaluations of safety issues identified in the Blue Ribbon panel's report.

Due to the findings and recommendations from these reports, the availability of large air tankers and lead planes in the United States is very limited. Many airtankers that were available for decades are now grounded due to the new requirements. This limited availability of firefighting aircraft can play a significant role in the success or failure of future wildfire suppression efforts within the C-ALRFPD.

Klamath Falls Air Tanker Base has historically been the home to two air tankers each fire season, one Type 1 and one Type 2, and one lead plane. From 2003 to present, the tanker base at Klamath Falls has only had one Type 1 air tanker, one Type 1 Air Tactical Plane, and at times a Type 1 helicopter.

The resources listed below are either aircraft or aerial delivered firefighters such as smokejumpers or rappellers that are typically based in the Southern Oregon and Northern California area during each fire season. The actual resources may change from year to year, and may be moved to different locations during the fire season.

***Klamath Falls Interagency Fire Center, Klamath Falls***

1 - Type 1 Air Tanker
1 – Type 1 Helicopter
1 – Type 1 Air Tactical Group Supervisor Aircraft

***Oregon Department of Forestry, Klamath Falls***

1 – Type 3 Helicopter

***Redmond Air Tanker Base, Redmond***

2 - Type 1 Air Tankers
1 - Lead Planes – Lead plane with Forest Service Pilot
1 - Type 1 Air Tactical Group Supervisor Aircraft
20+ Smokejumpers with smokejumper plane

***Lakeview Interagency Fire Center***

1 – Type 3 helicopter

***Grants Pass Interagency Fire Center***

1 - Type 3 helicopter with 10+ rappellers

***Medford Interagency Fire Center, Medford***

1 - Type 1 Air Tanker

***Redding Interagency Fire Center, Redding***

1 - Type 1 Air tanker
1 - Type 3 Air Tanker
20+ Smokejumpers with smokejumper plane

1 – Lead plane with Forest Service Pilot
1 – Type 1 Air Tactical Group Supervisor Aircraft

Because of limited numbers and high demand at certain times of the fire season, aircraft are dispatched to incidents depending on the priorities established by the wildland firefighting agencies. Initial attack fires that threaten life or property are always the number one priority for fire suppression aircraft use. If aircraft are limited and you are not on a priority fire, aircraft may not be available for a particular incident. Aircraft can be staged at different locations throughout the western US, so the exact location of any particular aircraft is constantly subject to change.

**Wildfire Detection Capabilities –**

Quick detection and reporting of wildfire ignitions is the key to a successful wildfire suppression program. Wildfire are often turned in by private citizens and reported to 911 or other emergency response agencies, but these private individuals are not always present and cannot be depended on for continuous wildfire detection services. Wildfires in the Klamath Basin are also detected by the use of aerial patrol aircraft or lookout personnel stationed on mountaintops. Aerial detection aircraft are often used after a lightning storm or during periods of extreme fire danger, but only on an as needed basis. The primary method of wildfire detection in the Klamath Basin is by the use of lookouts. For the C-ALRFPD area, the primary lookout tower is located on Calimus Butte, approximately 15 miles to the Northeast of Chiloquin. Calimus lookout provides excellent detection services for the Sprague River valley area and most of the Chiloquin Ranger District lands, but wildfires starting near the City of Chiloquin are very difficult to see due to the Cities location. Several small ridges and Cave Mountain block the view of Calimus into the Chiloquin area. Wildfires starting in the Chiloquin area are usually not detected by Calimus lookout until the fire becomes fairly large, lofting a smoke column that rises above the nearby ridges and Cave Mountain. For this reason, private citizens typically provide the initial reports of wildfires in the Chiloquin area and they are encouraged to continue their diligent reporting of all smoke columns during the wildland fire season.

### 5.1.2 Structural fire/rescue capabilities

Structure fires and rescue dispatches require a rapid response by firefighting resources if they hope to have success at saving structures and preserving life. The local structural firefighting equipment and personnel from the C-ALRFPD will be the primary fire agency responding to structure fires/rescue dispatches within the Fire District. The C-ALRFPD currently has two main fire stations (Station 1 and 2) that house firefighting equipment and vehicles, and an annex building (Station 1 annex) that provides office, training, and meeting space. A separate facility near station 1 houses the Chiloquin Ambulance. Due to increasing populations in the Ninemile area, the C-ALRFPD has secured funding and is in the planning process of building a third fire station on Sprague River Road (Station 3). This station is scheduled for construction in the spring of 2006.

The training, skills, and experience of the C-ALRFPD personnel have allowed them to provide safe and effective fire/rescue services for many years. The continued recruitment and training of new volunteer firefighters is vital to the future of the fire department. As discussed in section 5.1.4, the firefighters of the C-ALRFPD all meet or exceed the training, fitness and qualifications required for both wildland and structural firefighting duties.

Water sources such as fire hydrants, lakes, rivers, canals, etc. are an important resource for fire fighting agencies. Fire hydrants and other water sources in the C-ALRFPD have all been mapped and are easily located in a water source GIS layer that the District has created. All fire hydrants and other water sources are surveyed for flow, vehicle or aircraft access, total gallons, and seasonal availability.

The C-ALRFPD has also assembled an All-Risk, Incident Management Team (IMT) utilizing local personnel who have incident management qualifications and experience. The local Chiloquin IMT members meet on a regular basis in order to be better prepared to respond to an Incident within the C-ALRFPD. The group conducts training and planning for potential disasters that may occur within the Fire District.

Dependable and effective structural firefighting and rescue equipment is a key requirement for safe and efficient firefighting and rescue operations. The C-ALRFPD has a good inventory of engines and vehicles, and they continually strive to update and maintain the equipment so that it is safe and always ready to go. The table below displays the equipment inventory that is available within the C-ALRFPD.

## C-ALRFPD STATION AND EQUIPMENT INVENTORY

as of
December 8, 2005

| | | | | | |
|---|---|---|---|---|---|
| **Station 1 Annex** | | | **127 S. First Ave.** | | **Chiloquin** |
| Office and Training Room | | | | | |
| 2201 | 2004 | Ford 4X4 | 1-Ton Pickup | | Command Vehicle |
| **Station 1** | | | **156 S. Second Ave** | | **Chiloquin** |
| 2211 | 1999 | H & W | Engine | 1250 gpm | 750 gallons w/foam |
| 2221 | 1978 | E – One | Engine | 1000 gpm | 500 gallons |
| 2251 | 1993 | Ford 4X4 | Wildland Engine | 120 gpm | 200 gallons w/foam |
| 2261 | 1976 | International | Tender | 750 gpm | 4000 gallons |
| **Station 2** | | | **35701 Modoc Point Rd** | | **Agency Lake** |
| 2212 | 1992 | H & W | Engine | 1250 gpm | 1000 gallons |
| 2252 | 1990 | Dodge 4X4 | Wildland Engine | 120 gpm | 200 gallons |
| 2262 | 1987 | International | Tender | 500 gpm | 4500 gallons |
| **Station 3** (construction spring 2006) | | | **9201 Sprague River Rd** | | **9-Mile Area** |
| 2253 | 1995 | Ford 4X4 | Wildland Engine | 120 gpm | 200 gallons |
| FEPPS | | International | Tractor Trailer Tender | | 2500 gallons |

The table below is a summary of the Structural firefighting resources that were available in Klamath County as of 2005.

**Klamath County Structural Fire/Rescue/Medical Resources**

| | Klamath County TOTALS* |
|---|---|
| **Structure Engines** | **45** |
| **Rescue Vehicles** | **10** |
| **Medical Ambulance** | **19** |
| **Water Tender** | **24** |
| **Wildland Engine** | **26** |
| **Utility/Truck** | **6** |

* Totals are approximate due to periodic changes.

### 5.1.3 Mutual aid agreements

The most current Klamath County Fire Defense Board, Mutual Aid Agreement is included in the appendix. The purpose of the mutual aid agreement as stated in document Introduction:

*"This Agreement entered into the 24th day of April 2003, among and between the participating agencies for the purpose of securing to each periodic emergency assistance for the protection of life and property."*

The mutual aid agreement outlines the types and kinds of mutual aid assistance, and operating terms and conditions for the participating agencies. Parties to the mutual aid agreement include the Oregon Department of Forestry, US Forest Service, and almost all of the county fire protection districts including the C-ALRFPD. The mutual aid agreement allows firefighting resources within the county to be utilized in a timely and expedient manner when incidents occur. The agreement outlines the resources available, payment procedures, and other agreements that allow the different agencies in the county to work on incidents regardless of the jurisdiction. Utilizing the closest and best emergency response resources for every incident is in the best interest of the public and agencies involved.

In the event of a large wildfire that threatens homes, structure protection task forces may be mobilized from within Klamath County. If the fire exceeds the capabilities of the local resources, a request can be made to invoke the State Conflagration Act so that resources can be mobilized from throughout the State. According to the Oregon State Fire Marshals Office website:

*The Office of State Fire Marshal assists and supports the Oregon fire services during major emergency operations through the Conflagration Act (ORS 476.510). The Conflagration Act was developed in 1940 as a civil defense measure and can be invoked only by the Governor. The act allows the State Fire Marshal to mobilize firefighters and equipment from around the state and provides for the funding of resources through state funds. The Conflagration Act is* ***only*** *used for fires that involve or* ***threaten life and structures****.*

### 5.1.4 Training Resources and Needs

Several local entities provide firefighter training, along with the training that the Fire District conducts every month. The entities listed below are the primary firefighter training curriculums that are available locally.

Klamath Community College
Oregon Institute of Technology
East Slope Training
Department of Public Safety Standards and Training (DPSST)

Oregon State Fire Marshals Office (OSFM)
Klamath-Lake Fire Training Association
Other neighboring training associations and community colleges

The C-ALRFPD has developed a training plan for all personnel who work as firefighters in the Fire District. Some training is mandatory, and others are only desirable, but all C-ALRFPD personnel meet or exceed the training and experience requirements for the positions that they function in. The C-ALRFPD Training Plan is included in the appendix.

## 5.2 Protection recommendations

- Continue to foster development of partnerships with local structure fire districts.
- Continue cross training of employees in wildland and structure firefighting
- Continue to inventory and monitor water sources, and develop or improve sites as necessary.
- Continually update the Structure Vulnerability Surveys, ensuring that new homes and hazard reduction treatments are captured and update.
- Acquire needed funding to complete the planning and construction of the proposed new fire station in the Ninemile area, Station 3.
- Continue to recruit and train new volunteer firefighters to replace outgoing volunteers and to staff new fire stations such as Station 2.
- Continue to invest in upgrading essential firefighting equipment such as turnouts, breathing apparatus, radios, and rescue equipment to ensure that the firefighters have the supplies and personal protective equipment that is required for safe firefighting and rescue missions.
- Upgrade and replace the older firefighting and rescue vehicles as they become outdated or unusable. Continue to pursue funding for a new Wildland Interface Fire Engine, Water Tender, and other equipment as needed to replace the older, less dependable equipment and to equip the new fire station.

# Chapter 6, Mitigation Plan

## 6.1 Current Projects and Policies

### Federal Lands

Within the C-ALRFPD, numerous fire hazard reduction projects have been completed over the last few years, and several more are on going. The Chiloquin Ranger District of the Fremont-Winema National Forest is currently implementing several fire hazard reduction treatments on Forest Service land that is in and around the community of Chiloquin, projects that were analyzed in the Chiloquin Community Fuels Reduction Project Environmental Assessment (CCFRP EA). During the analysis process for these EA's, the C-ALRFPD has collaborated with the USFS to ensure that proposed projects on federal lands will complement the hazard reduction treatments occurring on adjacent private lands. The *"Decision Notice And Finding of No Significant Impact for the Chiloquin Community Fuels Reduction Project (CCFRP) (USFS, 2002)* states:

> **The Decision**
>
> Based on the analysis described in the Environmental Assessment, input from the Klamath Tribes, other state and federal agencies, and the public during this analysis, it is my decision to implement Alternative 2. Alternative 2 will include pre-commercially thinning of small stems (0-8" DBH) on 769 acres to reduce fuel ladders and open up dense stands. Mowing or other mechanical brush treatment will be used on 2321 acres of the project area to reduce thick brush fuels and prepare some areas for burning. Underburning will be done on 900 acres to consume accumulated ground fuels. Hand piling of small trees and brush will be done on 311 acres unsuited to machine treatment. Junipers will be removed from encroached meadow edges on 325 acres by hand cutting, piling, and burning. Decadent mountain mahogany will be cut, piled and burned on 206 acres to make room for younger mahogany plants. Conifer planting will be done on 79 acres following brush removal to replace brush with trees. Alternative 2 will retain big game cover, and will leave mature bitterbrush in treated units for seed sources. In response to concerns from the Tribes and others, this alternative contains no commercial harvest activities, and uses less underburning than the other action alternative. Alternative 2 was developed in cooperation with the Klamath Tribes' Natural Resource Department.

The projects described in the Decision Notice are in various stages of implementation, with much of the work having been completed as of 2005. As described in the decision, the treatments in the selected alternative are non-commercial only, with no commercial harvest of timber being proposed. Treatments include thinning, brush cutting\mowing, hand piling and burning of cut slash, and underburning, all standard hazard reduction treatments that have proven to be very effective in reducing fire hazard in the stands around the C-ALRFPD.

Karen Shimamoto, FWNF's Forest Supervisor, signed the decision notice for the Ninemile EA on August 31, 2004. This project area is located in the Ninemile area and includes the Forest Service lands that are south of the Sprague River Highway. The Decision Notice for this document states:

## The Decision

Based on the analysis described in the Environmental Assessment, collaboration with the Klamath Tribes, the Chiloquin-Agency Lake Fire District, and the Chiloquin Community Action Team, coordination with other state and federal agencies, and comments received from the public during this analysis, it is my decision to implement Alternative 2. Alternative 2 will reduce the fuel hazard with two or more treatments on a total of 6961 acres of Wildland-Urban Interface in the Ninemile Area. The treatments will include commercially thinning conifers from 4-21" DBH on 3461 acres to reduce fuel ladders and open up dense stands. Commercial harvest will include yarding all slash to the landings for disposal by burning or by chipping. Whipfalling of trees from 0-4" DBH will be done on 2093 acres to further reduce fuel ladders and control stocking. Machine piling and pile burning (1440 acres), jackpot burning (221 acres) and handpiling and pile burning (26 acres) will be done to treat slash created by whipfalling. Slashbusting or brush mowing will shred the brush component of the fuel profile on 4793 acres, preparing these acres for underburning. Underburning will finish the suite of fuel reduction treatments on 6374 acres by consuming accumulated ground fuels and shredded brush. Alternative 2 will retain big game cover, and will leave mature bitterbrush in treated units for seed sources.

The projects from this analysis are currently in various stages of implementation. The planned treatments are very similar to those proposed in the CCFRP for almost all of the same reasons, except that the Ninemile projects include commercial timber harvest of 4-21" DBH trees on over 3,461 acres. The IDT determined that non-commercial treatments alone would not be sufficient to adequately treat the wildland fire hazards currently present in many different stands.

The latest planning effort by the Chiloquin Ranger District is the Ninemile North EA, which will probably have a signed Decision Notice in the spring of 2006. This planning area continues to extend the same types of hazard reduction treatments across the FS lands in the Ninemile area that are north of the Sprague River Highway. This planning area proposes many of the exact same hazard reduction treatments as in the two previous EA's, again for almost all of the same reasons.

These on-going and proposed hazard reduction treatments by the FS have been planned and coordinated with input from the C-ALRFPD Fire, in an effort to ensure that the highest priority fire hazard areas on both private and federal lands were

addressed and the projects implemented in a coordinated way so that the different treatments would complement each other and increase the effectiveness of the hazard reduction treatments at a landscape level. Current high fire hazard National Forest lands that were near structures and or essential infrastructure were listed as high priority for treatments. Values at risk, essential infrastructure, structure vulnerability, suppression capabilities and public safety were all considered during the development of the different treatment alternatives.
The National Forest lands surrounding the fire district are managed under numerous federal land management policies and regulations, including the National Fire Plan and the Healthy Forest Restoration Act.

**Private Lands**

At the same time that the FS was implementing projects on the federal lands, private landowners within the C-ALRFPD were actively implementing some of the similar fire hazard reduction treatments on the private lands within the C-ALRFPD. Over 800 acres of private land within the fire district has benefited from hazard reduction treatments through cost share agreements where the landowner is reimbursed for a portion of their hazard reduction treatment costs if they agree to maintain the treatments into the future. Many of the hazardous fuels reduction treatments accomplished to date on private lands within the C-ALRFPD have been completed utilizing cost-share agreements where the landowners pay for only 25% of the cost of the hazard reduction treatments.

The different hazard reduction treatments completed and proposed on private lands are nearly identical to those completed by the USFS, except that private landowners normally use less prescribed fire treatments because of concerns over liability and smoke management issues.

Fire hazard reduction treatments on private lands are often associated with commercial harvest to help offset the cost of the treatments and to reduce the density of overstory trees on a property. Overstocked stands of mature trees are typically at greater risk to insect and disease infestations and are more susceptible to extreme fire behavior such as crown fires and torching. Many other landowners within the C-ALRFPD have had excellent results hiring equipment operators to mow or cut the brush from the understory of the timber stands on their properties. Although brush cutting or mowing alone does not remove the fuel loadings, the treatments are still very effective at reducing the flammability of the fuels in an area by changing the arrangement of the fuels, cutting them up into small pieces and scattering them across the surface of the ground. Ladder fuels between the surface and tree limbs are significantly reduced.

Several policies and regulations have been developed in the State of Oregon to address the issue of wildland fire hazard and communities. As discussed in Chapter 1, policies and laws such as State Senate Bill 360 help the state's private landowners in understanding their responsibilities related to treating the wildland fire hazard on their property.

## 6.2 Community Strategy for Risk Reduction

As discussed in Chapter 4, the implementation of standard fuels reduction treatments on the stands within the C-ALRFPD can greatly reduce the probability of large, catastrophic wildfires. In addition to fuels treatments, we must continue to educate the community members about wildland fire hazards and steps they can take to protect their home and property from wildfire. In the spring of 2004, a document titled*, "Community Protection Strategy for Chiloquin-Agency Lake Rural Fire Protection District"* was created based on input from the C-ALRFPD, the USFS, and the ODF (document is included in the appendix). These were the original strategies used by the three agencies responsible for wildland fire suppression in the C-ALRFPD.

During the development of this CWPP, the community strategies were refined and expanded.

The list below summarizes the community strategies for risk reduction within the C-ALRFPD:

1) Continue to implement and encourage hazard reduction treatments on federal and private lands within the identified WUI (based on our treatment priorities).
2) Continue expanding our public outreach and education programs on defensible space, hazardous fuels reduction, and wildland fire safety.
3) Continue on-going structural vulnerability surveys and public contacts, and annually update surveys as needed.
4) Continue to pursue various funding sources to help pay for community education and hazard reduction projects.

5) Continue to foster and expand the collaboration between the different entities involved in the CWPP process and to seek out new partners.
6) Continue to train and equip the C-ALRFPD organization at a level that will allow them to continue providing safe and effective firefighting, medical and rescue services as needed by this growing community.

## 6.3 Fuels Reduction

### 6.3.1 Community partners

The key community partners involved in our hazardous fuels reduction programs include:

US Forest Service, Chiloquin Ranger District – The USFS provides fuels management, prescribed burning, and forestry expertise, coordinates with C-ALRFPD on hazard reduction treatments in the WUI, provides land management information for the National Forest lands surrounding the fire district, provides assistance with community education activities, continues cross training in wildland and structure firefighting, assists with federally funded hazard reduction programs, and continues mutual aid support for fire suppression and other incident management situations.

Oregon Department of Forestry, Klamath-Lake District – The role of the ODF is very similar to that of the USFS, but at a reduced level due to availability of skilled personnel. The wildland fire suppression resources continue to provide mutual aid support for fire suppression and other incident management situations.

Private Contractors – The role of private contractors has primarily been to provide the equipment and manpower to accomplish the hazard reduction projects. Loggers thin and remove commercial sized lumber, mechanical equipment operators mow brush and slash, thinning crews complete the pre-commercial thinning or brush cutting, and private firefighting companies provide prescribed burning and firefighting services.

Private Landowners/Community Members – The private landowners and community members are the backbone of the entire hazard reduction program, so they are our primary partners in the hazard reduction programs. These landowners create defensible space around their homes and treat the fire hazard on their properties. They become educated about hazardous fuels in the WUI, and they participate in cost-share programs to help fund the treatments. They also provide input and support to the on-going CWPP process. Some landowners that own large acreages within the C-ALRFPD area are Train Mountain, The Nature Conservancy, and Jeld-Wen.

Bureau of Land Management – There is a small amount of land near Agency Lake that the Klamath Falls BLM office manages. The area is mostly marsh or riparian type fuels that the BLM treats for fire hazard as necessary.

### 6.3.2 Description of treatments and educational materials

Through many years of experience, wildland fire managers in the C-ALRFPD area have found that several standard fuels reduction treatments have proven to be very effective in significantly reducing the intensity and rate of spread of wildfires. As discussed in Chapter 4, wildfires that burn in surface fuels are much more predictable and easier to contain than wildfires that spread through "ladder fuels" and into the crowns of trees. All of the large, devastating wildfires discussed in Chapters 1 and 4 started out burning in surface fuels, but quickly climbed through the brush and lower tree branches into the overstory canopy, exhibiting extreme fire behavior, with crowning, torching and long range spotting causing fire suppression efforts to be hampered or rendered ineffective.

Hazard reduction treatments that increase the 'height to live crown' distance are most effective in reducing the threat of wildfires that exhibit extreme fire behavior characteristics. The 'height to live crown' distance is measured from the top of the surface fuels (brush, grass, timber litter) to the bottom of the lowest overstory branches. The greater the distance between these two fuel sources, the less chance there is of fire reaching into the crowns of the overstory trees. Pruning of lower tree branches, mowing or cutting of brush in the understory, and thinning of small understory trees are all effective treatments for increasing the 'height to live crown' distances.

Thinning and other timber stand improvement practices are also very effective at reducing the probability of wildfires burning with extreme characteristics, by increasing the health and vigor of individual trees and by increasing the spacing between trees to reduce the possibility of wildfires spreading from the crown of one tree to the crowns of surrounding trees.

Some standard fire hazard reduction treatments are listed below with a short description and reasons why they are effective in the fuel types of the C-ALRFPD.

**Commercial or Non-commercial Thinning of Trees:** Thinning of trees is generally separated into pre-commercial and commercial thinning, depending on whether trees that will be cut have any commercial value or not. Smaller plantation or understory trees will normally not have any commercial value and the cut trees will normally need to be piled and burned or cut and scattered. Overstory trees over 8" DBH would normally have some commercial value and would be cut to log lengths or chipped and hauled to a mill for processing.
**Why effective:** When timber stands are overstocked, trees can become stressed and more prone to insect and disease. When the branches of the tree crowns are intertwined and close to each other, wildfires are more likely to be able to spread into and through the crowns of the trees. Healthy, thinned stands of trees reduce the ability for fire to climb into the overstory, and the trees have less competition for sunlight, nutrients and water.

**Hand or Machine Piling of Brush or Slash:** Cut slash or brush is placed into piles, either by hand or piled by a machine such as a dozer.

**Why effective:** Any slash that is created from hazard reduction treatments or logging activities should be cut up and scattered, hauled away, or burned so that it is not left on site to create additional fire hazard. When the slash is piled and burned, the majority of the slash is completely consumed and removed from the surface.

**Machine Mowing or Mastication of Fuels:** Slash, brush and/or small trees are mowed or masticated by equipment such as an excavator with slashbuster head, or tractor pulling a brush mower.
**Why effective:** Brush, slash, and/or small trees are cut up into small pieces and scattered out over the surface of the ground. The "ladder fuels" in the understory are eliminated, trees in the stand can be thinned at the same time as brush cutting, and slash treatment is completed all at once. Having the ability to complete a combination of treatments at one time can make this treatment very cost effective.

**Hand Cutting of Fuels:** Slash, brush, small trees and lower limbs of trees (pruning) can be cut with saws. Machines can be limited by slope and terrain, but workers carrying chainsaws can access very steep and rugged areas. Slash is scattered, piled, or underburned after cutting treatments.
**Why effective:** Hazardous fuels found in locations where machinery cannot access are still important areas to treat from a fire hazard standpoint. Ground disturbance or soil compaction is very minimal with hand treatments as compared to machinery.

**Burning Piles:** The burning of slash, normally in the fall or other periods of cold, wet weather. This disposes of the piled slash concentrations (both machine and hand).
**Why effective:** Piles can be burned when soil moistures and conditions are wet or frozen, minimizing the effects of the burning on the soil and the chance of fire escaping the burn area. Escaped fires resulting from unexpected weather may occur and cause damage to the surrounding vegetation. Piles will need to be monitored and extinguished if weather conditions show that damage from escape will occur.

**Underburning:** This treatment is used over a large area to burn surface fuels. It reduces the fuel loadings and modifies the fuel profiles of the area.
**Why effective:** Slash, brush, and timber litter is burned on site with controlled surface fires. Hazardous fuels may be cut before underburning treatments, while some stands can be underburned with out prior fuel treatments. This treatment best replicates the effects of natural, low-intensity wildfires of the pre-historic past and provides many of the benefits of natural fire.
With all proposed burning, there is always a risk of the fire escaping the control lines and spreading into adjacent stands. Although serious consequences can occur from an escaped prescribed fire, the fire intensity and damage caused is usually much less than a wildfire because the burns are usually done during periods of moderate to low fire behavior (spring or fall).

**Fuel Breaks:** This treatment utilizes strategically placed "fuel breaks" to slow the intensity and rate of spread of wildfires, and create an area where fire suppression operations may safely occur.
**Why effective:** Fuel breaks are areas where hazard reduction treatments have occurred to protect structures, community, or important infrastructure from wildland fire. This "fuel break" approach uses the concept of treating a portion of a landscape, with the treatment areas strategically designed to provide the best protection of the values at risk while treating only a portion of the fire hazard area. Fuel breaks may have all fuel removed or can be "shaded" where the overstory trees are left but most all of the understory vegetation has been removed.

## Disposal of Fuels

When hazardous fuels are treated, there is often some amount of slash that needs to de disposed of. Some treatment methods such as mowing or mastication of fuels cuts the slash material in such small pieces that it can be dispersed over the treatment area with little increase in fire hazard. When there is slash that needs to be disposed of, the Fire District recommends the following priorities:

**1st** Utilize woody material for lumber, chips, or firewood.

**2nd** Utilize Biomass facilities, if and when they become available in our area.

**3rd** Pile and burn the slash. (This is the last resort due to smoke production and risk of escape.)

Understory burning is not a recommended fuel treatment practice for private landowners due to the lack of skills and knowledge with prescribed burning in the private sector and the inherent risks associated with fire use.

## Education Material

Several publications, (brochures, booklets, workbooks, etc.) have been developed to help homeowners and community members better understand the steps that they can take to reduce the risk of wildfires and protect their home. The listing below is by no means complete, but identifies some of the most popular resources available locally to help with public education.

Fire-Resistant Plants for Oregon Home Landscapes – Suggests specific types of vegetation that may reduce your risk from wildfire, available through the Oregon State University Extension Service.

Fire-Free Program – Steps you can take to help make your home a FireFree Zone, available through SAFECO Corporation.

It Could Happen To You! – Homeowner's handbook to protecting your family and property in case of a wildfire, available through the USFS.

Protect Your Forest Home – One page handout that again describes a home in danger from wildfire and steps to take to make you home fire safe, available through the ODF.

Living with Wildland Fire, A guide for homeowners – A comprehensive brochure that details many steps that homeowners can take to make their home more defensible, available from the Pacific Northwest Wildfire Coordinating Group (PNWCG).

Is Your Home Protected From Wildfire Disaster? – A homeowners guide to wildfire retrofit, available from the Institute for Business & Home Safety (IBHS).

**Property Evaluation & Self-Certification Guide for Deschutes County** – Booklet that can help a property owner evaluate a property and structure's vulnerability to damage or destruction by wildfire, and choose measures that will make a property compliant with the standards of the Oregon Forest-Urban Interface Fire Protection Act of 1997, available from the ODF.

Firewise Community Workshop Participant Workbook – A workbook intended to help communities in the WUI take steps to become a FIREWISE community, available from the National Wildland/Urban Interface Fire Program (www.firewise.org).

Preparing a Community Wildfire Protection Plan – A handbook for developing CWPP's for WUI communities, available from the Society of American Foresters (http://www.safnet.org/).

Preparing a Community Wildfire Protection Plan, *Procedures and Financing* - A booklet that outlines the workshop presented by the Western Forestry and Conservation Association.

### 6.3.3 Current activities

As discussed in previous chapters, the landowners within the C-ALRFPD are currently implementing many different types of fuels reduction treatments. Fire district personnel have completed structural vulnerability surveys on almost every structure in the C-ALRFPD, and continue to meet and interact with the fire district residents. Defensible space treatments on homeowner lots is progressing well and almost 1,000 acres of private land within the district has been treated for fire hazard through cost share agreements. Numerous other landowners such as Train Mountain, The Nature Conservancy, and Jeld-Wen are continually cleaning up the fire hazard on the thousands of acres of land that they manage. Water sources throughout the district are being evaluated for volume, flow, and seasonal availability to ensure that the fire district has an accurate assessment of water source locations and capacities. Federal land managers such as the USFS and Bureau of Land Management (BLM) are completing

hazard reduction treatments on the public lands, and continually planning new areas for treatments.

### 6.3.4 Recommended actions

From a fuels reduction standpoint, there are several recommended actions that have been identified through this planning process.

- Build defensible space around every home, business, and important infrastructure within the C-ALRFPD.
- Continue to implement standard fire hazard reduction activities based on the priorities established in Chapter 7.
- Priority for treatments should be to first reduce the probability of wildfires climbing into the overstory vegetation, by reducing or eliminating “ladder fuels”, especially in the bitterbrush/ponderosa pine ecosystems.
- Continue to support and collaborate with the USFS on their planned fuel treatment activities that are in and around the C-ALRFPD WUI area.
- Pursue hazard reduction treatments on vacant/absentee-owner lots, especially those that present a fire hazard threat to adjacent homes or improvements.
- Continue to update and improve the structural vulnerability surveys to identify hazards and to increase public awareness and education about fuels reduction.
- Pursue grants and cost share programs that can help offset the cost of hazard reduction treatments on private lands.

## 6.4 Education and Community Outreach

Education and community outreach is an on-going process that was started many years ago within the fire district, and a major goal of this CWPP process. Support for the projects and activities related to wildfire safety have increased steadily over the last few years. Residents of the fire district are learning about defensible space and landowners are making good progress on treating some high hazard areas. Although a lot has been accomplished so far, the work has really just started. Hundreds of homes are in need of defensible space clearing, thousands of acres of private land still need to have the hazardous fuels cleaned up and many residents have still never heard of a WUI. Community education and outreach is one of the most important steps that the CWC must make to ensure that the ultimate goal of a fire safe community is realized.

For homeowners in the C-ALRFPD area, the education and outreach programs should continue to be focused on helping residents to understand the important role that fire plays in the fire adapted ecosystems of the fire district and what steps they can take to build defensible space and reduce the risk of damage from wildfire events. These outreach and education programs must be ongoing to serve as a continual reminder for residents, especially in the spring and early summer of each year, and to ensure that new residents moving into the area are allowed the same opportunity to learn how to reduce fire hazards and increase survivability of their home.

### 6.4.1 Population / Audiences

As described in Chapter 2, the population of the fire district is spread out over a wide area, but the City of Chiloquin is the primary population hub for the area. The fire district includes about 3,000 residents, but only about 700 live in the City of Chiloquin. Many residents of the fire district actually work or go to school in Klamath Falls and commute home every day. Approximately 20% of the population is of Native American heritage and normally have an excellent understanding of the environment and the role of wildfires. Approximately 30% of the community is retired or at least has retirement income coming in regularly so they often have time to be interested in community education programs such as this. Almost everyone who lives within the fire district loves the outdoors and the beautiful landscapes of the area, and would probably have at least some interest in learning more about how we can protect it.

Outreach and education programs for the residents of the fire district should be presented in an open, community atmosphere so that persons from many different groups will feel comfortable at the events. Meetings should be held at the community center or other public type facility that is easily accessible to as many people as possible. Outdoor activities would normally be the best venue to use when planning the programs in the summer, because the audience in the district typically loves the outdoors and associated activities. Several outdoor events already occur each year within the fire district that have proven to be very successful platforms for education programs in the past, such as the annual Chiloquin Rodeo and the Fourth of July Parade. When children become part of the audience, Smokey Bear is always an excellent way to reach them.

### 6.4.2 Resources

Several of our community partners are excellent resources for outreach and education programs.

US Forest Service: Brochures and educational material to help the public understand the different concepts related to wildland fire. Specialist and other resource professionals are available to help make presentations or answer specific questions about any resource topics or activities that the USFS is planning. The agency also has firefighters, engines, dozers, and other firefighting equipment available for the public to see and learn from, along with Smokey Bear for special occasions.

Oregon Department of Forestry: The ODF can provide many of the same resources that the USFS does, skilled personnel, education material, firefighting resources, and knowledge of federal and state funded hazard reduction programs.

C-ALRFD: The key entity in the education and community outreach program is the local fire district itself. The employees and volunteers with the fire district possess the most knowledge about their community and the local fire suppression issues, and are an excellent resource for day-to-day contact with the fire district residents. Fire district members typically live and work in the Chiloquin area and have a strong passion for public service.

Private Contractors: As discussed before, private contractors will provide the bulk of the manpower and resources to complete many of the hazard reduction treatments. These private individuals best understand their capabilities and limitations when it comes to different hazard reduction treatments. Private companies can demonstrate different types of equipment and treatment methods so that the public can see first hand what the actual effects are for different types of treatments.

Publications and Websites: There are literally hundreds of publications and websites that are available to help with education and outreach efforts. The publications range from complex technical reports, to cartoon drawings of homes and defensible space. The website index included in the appendix of this plan provides links to many different education and outreach resources.

### 6.4.3 Evacuation Plan

Individual evacuation routes for the communities within the C-ALRFPD were not developed as it was felt that due to the number of roads that travel in and out of the Fire District, adequate primary and secondary evacuation routes are available for almost every community. The total number of potential evacuees for the entire Fire District is approximately 3,000, with a much smaller number most likely being involved with any particular evacuation. Highway 97, Highway 62, Highway 422 north and south, Modoc Point Road, Sprague River Road, and Williamson River Road are the main travel routes through the Fire District and will serve as the primary evacuation routes for most of the communities. Hundreds of smaller roads are dispersed throughout the Fire District on both federal and private lands, allowing homeowners multiple escape route options should a primary route be blocked. Depending on surrounding vegetation and fire hazards, many residents may best be advised to stay at home or in a nearby safety area such as irrigated fields or meadows during a wildfire event. Timing, fire behavior, road conditions, and fire location should all be considered when deciding to evacuate and when selecting an evacuation route. Fire District personnel can discuss specific evacuation plans and safety areas with individual homeowners during the Structure Vulnerability Surveys and other public contact situations.

The community of Woodland Park, and a few other smaller subdivisions, are located in areas where there is only one way in, and one way out. The road leading into Woodland Park travels through forested and brush covered areas that could become impassable during a wildfire event. The C-ALRFPD and local landowners should consider having the fire hazard treated along this road right of way, and others like it, to increase public safety in the event of an evacuation due to wildfire. Effective hazard reduction treatments along roadways include mowing or mastication of fuels within the road right-of-way.

The residents of communities such as Woodland Park must become familiar with local safe areas (safety zones) to go to in the event that they are trapped in their community by wildfire and cannot escape. The 'safety zone' must be an area of non-flammable fuels (such as a gravel pit, green meadows or irrigated fields) that is of sufficient size to allow the residents to stay there safely while a wildfire passes. The C-ALRFPD personnel are in the process of completing an inventory of suitable 'safety zones' so that residents will know where to go when a future wildfire strikes.

In the event of a wildfire incident that requires evacuations, the Klamath County Sheriff's Department is a vital resource. In the State of Oregon, residents cannot be 'forced' to leave their homes during an evacuation order, but law enforcement officers can restrict persons from returning to their home once an area has been evacuated. Much of the information collected during the Structural Vulnerability Surveys will be useful during an evacuation, including the exact GPS location of each home and whether or not elderly or disabled persons are staying at a particular residence. A complete C-ALRFPD evacuation plan for all-risk incidents is planned for completion and inclusion with this CWPP in the future.

### 6.4.4 Current Activities

The day-to-day public contacts by fire district personnel are the most common form of education and outreach. During the structure surveys, almost every homeowner in the fire district had an opportunity to talk with fire district personnel and learn about the different methods of protecting their homes from wildfire. District personnel were encouraged to spend as much time as needed with each property owner so that they could answer all of their questions and provide any fire protection advice. Brochures were handed out to residents in the communities, and are also available at the C-ALRFPD office or the Chiloquin Ranger Station.

Public presentations to private landowners inform them of treatment options and possible funding sources to help with treatment costs. The CWPP and other community activities are discussed and input is solicited. Presentations are made to different community groups such as the Community Action Team, Lions Club, and The Klamath Tribes.

The annual Fourth of July parade in Chiloquin is another stage where the wildland fire safety message can be communicated. Wildland and structure firefighting engines

participate in the parade, along with Sparky and Smokey Bear. Fire prevention material and candy is provided for the children, and information about wildland fire safety and defensible space is available for homeowners. The public sees collaboration between the different firefighting agencies and has the opportunity to see the equipment and firefighters.

Prevention signs have been in use for decades, as a way to spread fire prevention information. Many fire prevention signs within the fire district speak directly to defensible space and protecting your home during wildfire events. The prevention signs are strategically placed at the entrance points and other locations along our most traveled routes in the Fire District. Flyers and signs are posted during high fire danger periods to remind citizens to be careful with fire and to make their property fire safe.

### 6.4.5 Recommended Actions

- The C-ALRFPD should continue the community outreach and education programs that have already been established, and should pursue new opportunities as they become available.

- The fire district should complete the planning of an annual "Fire Day" event where local firefighting agencies all gather together to display their firefighting equipment, meet the local residents and share fire hazard and defensible space information. A barbeque and children's activities can be provided, and Smokey Bear and Sparky can make an appearance. Fire station tours, fire extinguisher training, smoke detector and home fire safety information, and fire weather information can be presented to the public.

- Structural vulnerability surveys and door-to-door contacts must be continued, with all new residents included each year. The database must be updated annually with input from landowners when hazard reduction and defensible space treatments have been implemented. New hazard reduction programs and possible funding options will also be discussed with interested property owners.

- Local media representatives should be contacted when news worthy events occur related to wildland fire safety, and the Fire District should take advantage of the opportunities presented during fires or other incidents to educate the public about the importance of defensible space and hazard reduction treatments.

- Newsletters, brochures, and flyers can be utilized as periodic mailings to remind residents of wildland fire safety issues.

- The Fire District has a goal of being certified as a "FireWise" community and should continue to pursue this. Many different public education opportunities exist with the "FireWise" programs, and this certification is a worthy community goal.

- Public education about Oregon Senate Bill 360 will become very important for landowners and should be included in future outreach programs.

- Maintain and update the Chiloquinfire.com web page. This website provides a central location for local residents to access important information related to fire safety, including the most current copy of this plan. Residents of the Fire District can access the website to also determine current burning regulations, observe the current wildland fire hazard, and to learn more about the services of the Fire District.

- Continue partnerships and collaboration with established partners and constantly seek new partners on future hazard mitigation projects.

- Inventory evacuation routes and assess if the implementation of fire hazard reduction work would be beneficial.

- Complete an inventory of potential 'safety zone' areas for each community within the C-ALRFPD, along with GPS locations, approximate size, and access information.

- Complete a C-ALRFPD Evacuation Plan for all-risk situations.

# Chapter 7, Monitoring and Evaluation

## 7.1 Prioritization Process / Coordination

On October 28, 2005 a meeting was held at the Chiloquin Fire Department office to prioritize treatment areas within the C-ALRFPD WUI boundary. Fire Chief Holster, Doug Miller, John Giller, and Rick Ward and Ken White from the Klamath Tribes attended the meeting and participated in the prioritization process. Personnel from the USFS, and other major landowners were not invited to this meeting as it was felt by the group that they might be biased toward prioritizing or not prioritizing treatments on their lands.

During this analysis, numerous variables were considered including:

- Fuel types
- Historic Fire Occurrence
- Completed and Proposed Hazard Reduction Treatment Projects
- Vegetation and Stand Types
- Stand Conditions and Forest Health
- Values at Risk, and vulnerability of the values
- Risks to essential infrastructure
- Known areas of high fire hazard
- Access and travel routes
- Evacuation routes
- Limitations on detection capabilities
- Historic prevailing weather conditions
- Protection capabilities
- Structural vulnerability

The group considered using a ranking system based on the above criteria, but it was felt by the group that there were too many variables to consider and that an adequate and impartial ranking system would be too difficult to develop. The group then decided on a process that would rely on local expertise, but considering all of the variables listed above.

The first step in the prioritization process was to identify appropriate treatment areas, and put the lines on a map. The treatment areas were developed using the evaluation criteria listed above. Once the planning area was broken into treatment areas, the group started into the ranking process of priority treatments areas.

After much discussion, the group established a priority ranking of areas where hazard reduction projects should be completed. Areas of fire hazard that presented the greatest threat to the most homes were ranked as the highest priority. The first two priorities are not actually a specific treatment area, but a type of treatment area (defensible space and private lots near or adjacent to structures). So as not to confuse

the priority areas with community zones, the priority treatment areas were identified by letters and are available in the GIS data included with this plan.

Treatments in these areas should be implemented with the primary objective of reducing the crown fire potential in these stands (thinning and removal of brush and ladder fuels). The different hazard reduction treatments discussed in Chapter 6 are all effective methods to consider when treating the hazardous fuels of these areas.

The map and table below displays the treatment areas and their priority ranking.

**Priority # 1**

**Where**

The defensible space within 100 feet of structures or other improvements that need to be protected from wildfire. This includes lands within all communities of the C-ALRFPD.

**Why**

As discussed numerous times in this plan, the number one priority for hazard reduction treatments is the defensible space within 100 feet of every home within the Fire District. The area around the home must be the first line of defense against wildfire damage as this area provides the most benefit from the least amount of work and dollars spent, and provides the best protection for homes in the WUI.

**What**

Treatments in this area should focus on:

1) Defensible Space

**Priority # 2**

**Where**

High fire hazard private lands comprised mostly of vacant lots and small forested areas adjacent to homes and other improvements. This includes lands within all communities of the C-ALRFPD.

**Why**

These properties are often vacant and owned by persons living outside of the fire district. An adjacent neighbor's vacant lot may be situated so that it comprises a large portion of your home's defensible space. The neighbor may not have a home on the lot, but the fire hazard must still be treated in order to fully protect your home and property.

A wildfire starting in one of these high fire hazard areas can place several homes at risk almost immediately. These high fire hazard areas adjacent to homes are often a favorite place for children to play and are close to areas of high human activity; consequently these properties are constantly at risk to human caused fires.

**What**

Treatments in this area should focus on:

1) Defensible Space
2) 'High' fire hazard areas on vacant lots near homes
3) Complementing planned and completed projects on adjacent USFS lands.

**Priority #3**

**Where**

Area A – The primarily private, timber and brush covered lands that lie on the east side of Highway 97, stretching from Spring Creek Hill on the north, down to Day School Rd. on the south. The communities of Woodland and Rainbow Park, most all the homes and businesses on the east side of Highway 97, and those private lands in and around the City of Chiloquin are included.

**Why**

This area has the highest concentration of homes and structures within the entire C-ALRFPD, and it also has the highest fire occurrence rate. Due to the combination of hazardous fuels, high density of homes, and high fire occurrence rate, Area A is the highest priority area within the C-ALRFPD for treatment of hazardous fuels.

**What**

Treatments in this area should focus on:

1) 'High' fire hazard areas on private lands, especially those near homes or other improvements.
2) Complimenting planned and completed projects on adjacent USFS lands such as those associated with the Chiloquin Community Fuels Reduction Project (CCFRP).
3) Reduction of fire hazard along evacuation routes for communities with limited evacuation route options such as Woodland Park.
4) Reduction of fire hazard along major travel routes and high public use areas.

**Priority #4**

**Where**

Area C – The private lands primarily covered in brush and/or timber that lie west of Highway 97, east of Highway 62, and south of Highway 422 North.

**Why**

This area is an old fire scar from the 1939 Pine Ridge Fire that burned from the historic community of Pine Ridge to the shores of Agency Lake. The lands are now primarily covered in 50 to 60 year old, decadent bitterbrush, with some brush areas over 6 feet tall. This area contains the largest continuous block of 'high' fire hazard fuels within the C-ALRFPD. Intermixed with the brush and timber of the area, are hundreds of homes and the entire Train Mountain development, placing them at serious risk to damage from wildfire.

The potential for large and devastating wildfire in this area is significant due to the highly flammable fuel types and the location of the high fire hazard areas as related to many homes and improvements. With the predominate wind direction of the C-ALRFPD area being from the west, the community of Chiloquin, Woodland Park and Rainbow Park are also at high risk to a wildfire starting in Area C, crossing Highway 97 and spreading to the east.

**What**

Treatments in this area should focus on:

1) 'High' fire hazard areas on private lands, especially those near homes or other improvements.
2) Landscape level treatments of the 'high' hazard fuels found on the private lands in this area, especially the lands that are primarily covered in brush or brush/timber.
3) Complementing planned and completed projects on adjacent USFS lands.
4) Reduction of fire hazard along evacuation routes for areas with limited evacuation route options.
5) Reduction of fire hazard along major travel routes and high public use areas (Train Mountain, Highway 97,62, and 422 north and south).

**Priority #5**

**Where**

Area D – Primarily federal lands in the Cave Mt area that lie between the Ninemile and CCFRP areas that the Forest Service has completed planning on.

**Why**

This area includes the timber and brush covered USFS lands that lie between Chiloquin and the Ninemile communities. A wildfire burning in this area needs to only spread 1 to 2 miles or less, to the east or west before it threatens numerous homes and improvements in the Fire District.

**What**

Treatments in Area D should focus on:

1) 'High' fire hazard areas on private lands.
2) 'High' fire hazard areas on USFS lands adjacent to private lands, especially those near homes or other improvements such as those along Chiloquin Ridge Road.
3) Complimenting planned and completed projects on adjacent private lands.
4) Reduction of hazardous fuels that can threaten the communications site on the top of Cave Mountain.

**Priority #6**

**Where**

Area B – Primarily federal lands that lie east of Hwy 62, north of Hwy 422 North, and west of Hwy 97.

**Why**

Homes and improvements are situated on the east, west and south sides of this area. This primarily forested area is comprised of ponderosa, lodgepole and mixed conifer type stands, with some areas of dense understory vegetation consisting of different brush species. High fire hazard areas on private lands within this area are also a priority for hazard reduction treatments.

**What**

Treatments in this area should focus on:

1) 'High' fire hazard areas on private lands.
2) 'High' fire hazard areas on USFS lands adjacent to private lands, especially those near homes or other improvements, such as those along Highway 62.
3) Reduction of fire hazard along the evacuation routes for subdivisions with limited evacuation route options, such as the community of Spring Creek, north of Collier Logging Museum.
4) Landscape level treatment of the hazardous fuels found on the USFS lands within this area.
5) Complimenting planned and completed projects on adjacent private lands.

**Priority #7**

**Where**

Area I – Primarily federal lands within the 1-½ mile radius of the essential infrastructure located at the top of Applegate Butte.

**Why**

As discussed in previous portions of this report, there are millions of dollars worth of critical communications equipment on the top of Applegate Butte. If a wildfire were to spread toward the top of this mountain, numerous communication services would be threatened, including telephone, microwave and radio communications used on a daily basis by the residents and workers in the Fire District area.

**What**

Treatments in this area should focus on:

1) Defensible space treatments of the hazardous fuels that surround the communications site at the top of Applegate Butte.
2) Landscape level treatment of the hazardous fuels found primarily on the USFS lands surrounding Applegate Butte, especially the south and west facing aspects of the Butte.

**Priority #8**

**Where**

Area H – The high fire hazard areas situated on private lands within the Ninemile area, north and south of the Sprague River Hwy.

**Why**

Much of the Ninemile area is covered by short grass and brush covered areas with stringers and patches of ponderosa pine. The high fire hazard stands within the area are comprised primarily of ponderosa pine with bitterbrush understory; the combination that we know is very volatile and conducive to extreme fire behavior. The homes and other improvements that are situated within or near these high fire hazard areas are at significant risk to damage from wildfire, however the density of homes is much less than other areas of the Fire District and the high fire hazard areas are broken up by large meadows or other areas of short grass and low fire danger. In the near future, USFS projects associated with the Ninemile EA's will begin to make a significant improvement on the fire hazard surrounding the private lands in this area.

**What**

Treatments in this area should focus on:

1) 'High' fire hazard areas on private lands, especially those near homes or other improvements.
2) Landscape level treatments of the 'high' hazard fuels found on the private lands in this area, especially the lands that are primarily covered in brush or brush/timber.
3) Complementing planned and completed projects on adjacent USFS lands.
4) Reduction of fire hazard along evacuation routes for areas with limited evacuation route options.

**Priority #9**

**Where**

Area G – Primarily the federal lands that are located east of Hwy 97 and south of the Chiloquin Special Trust lands.

**Why**

Area G is an area that is predominantly ponderosa pine/bitterbrush in the lower elevations, and mixed conifer in the higher elevations. The primary reason for fire hazard treatments in this area is that the southwest-facing slope above Highway 97 in this area is very steep (70% + slope) and covered in 'high' fire hazard fuels (brush, grass, and timber). A fire starting along Highway 97 (which is a very common occurrence) has the potential to quickly spread to the top of this steep slope and continue northward through many acres of 'high' fire hazard fuels that are present in this area. Numerous large wildfires have burned on these slopes in the last few decades, and it is only a matter of time before they will burn again.

**What**

Treatments in Area D should focus on:

1) 'High' fire hazard areas on private lands.
2) 'High' fire hazard areas on USFS lands adjacent to private lands, especially those near homes or other improvements, such as those along Highway 97.
3) Landscape level treatment of the hazardous fuels found on the USFS lands within this area, especially those areas that have been significantly impacted by insect and disease.
4) Reduction of fire hazard along Highway 97 and the adjacent railroad tracks as most of the fires that start in Area D have a point of origin very close to the highway or railroad tracks.

**Priority #10**

**Where**

Area F – Primarily the federal lands in the Ninemile area that are located south of the private lands in Area H.

**Why**

As discussed in the Purpose and Need for the Forest Service's Ninemile EA, this area has large acreages of 'high' fire danger stands that lie to the south and west of the homes and improvements along the Sprague River Road.

**What**

Treatments in Area D should focus on:

1) 'High' fire hazard areas on USFS lands adjacent to private lands, especially those near homes or other improvements such as those along Sprague River Road.
2) Continuing to collaborate and coordinate planned and completed projects on private lands with hazard reduction projects on the adjacent USFS lands.
3) Landscape level treatment of the hazardous fuels found on the USFS lands within this area.

**Priority #11**

**Where**

Area E – Primarily the federal lands in the Ninemile area that are located north of the private lands in Area H.

**Why**

Similar to Area F, this area comprises many acres of 'high' fire hazard USFS lands that are in desperate need of fire hazard reduction treatments. The planned projects associated with the Ninemile North EA will help to meet the fire hazard reduction goals for this area.

**What**

Treatments in Area E should focus on:

1) 'High' fire hazard areas on USFS lands adjacent to private lands, especially those near homes or other improvements such as those along Sprague River Road.
2) Continuing to collaborate and coordinate planned and completed projects on private lands with the planned hazard reduction projects on the adjacent USFS lands.

3) Landscape level treatment of the hazardous fuels found on the USFS lands within this area.

**Priority #12**

**Where**

Area J – Primarily private agriculture lands west of Highway 97 and south of the Williamson River.

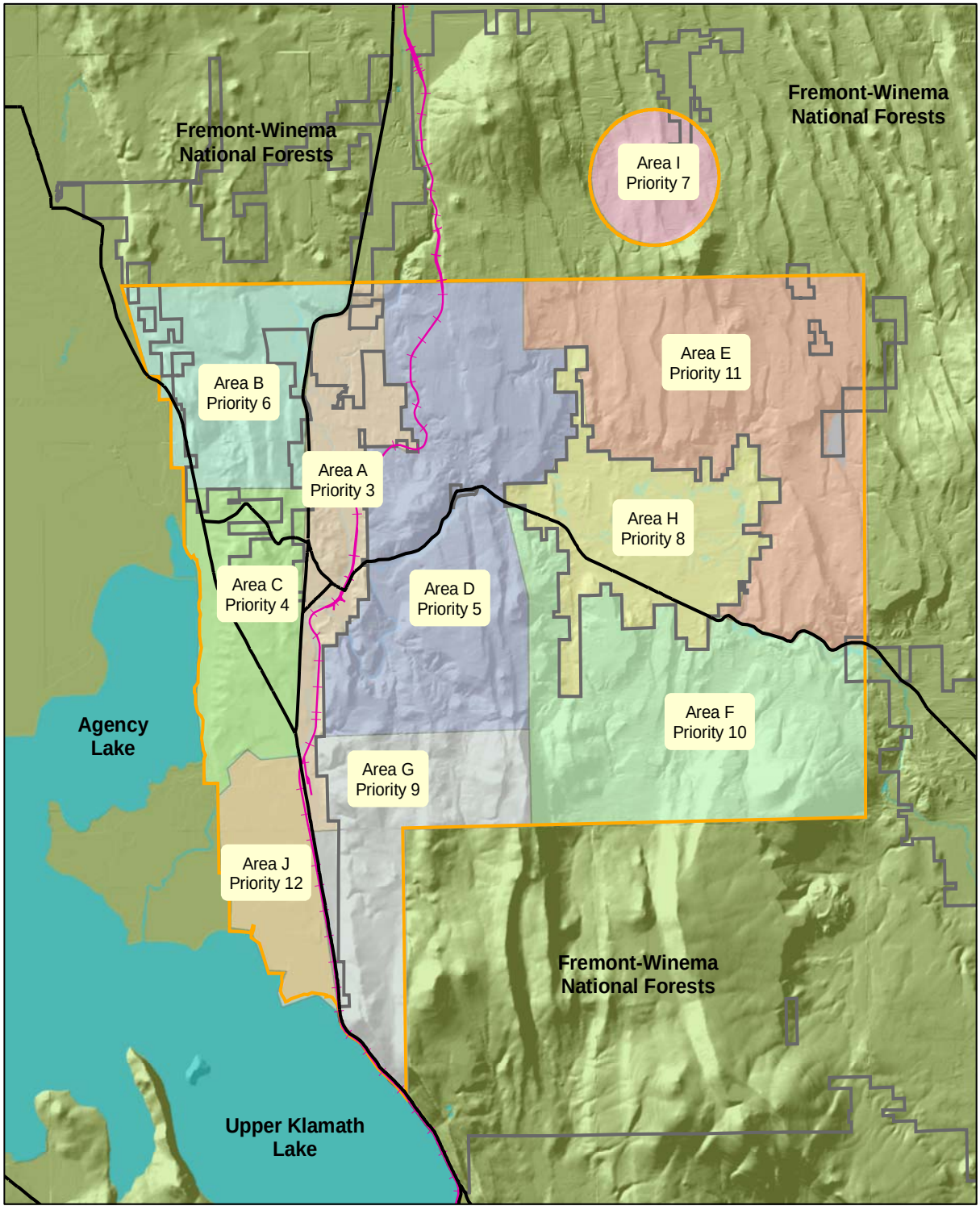
**Why**

Much of Area J is comprised of grazing and farming fields, with some isolated patches of timber and brush. This area is the lowest priority for fire hazard reduction treatments because of the lack of 'high' fire hazard areas. Most of the agriculture lands within Area J would work very nicely as a 'safety zone' during a wildfire event.

**What**

Treatments in this area should focus on:

1) Reduction of fuels in 'high' fire hazard areas on private lands, especially those near homes or other improvements.
2) Reduction of fire hazard along Highway 97 and the railroad tracks, a major source for human caused wildfires.


Fremont-Winema National Forests
Fremont-Winema National Forests
Area I Priority 7
Area E Priority 11
Area B Priority 6
Area A Priority 3
Area H Priority 8
Area C Priority 4
Area D Priority 5
Agency Lake
Area F Priority 10
Area G Priority 9
Area J Priority 12
Fremont-Winema National Forests
Upper Klamath Lake
Legend
Roads
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Treatment Priority
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Treatment Area Priorities
* Priority 1 is Defensible Space
* Priorty 2 is High Fire Hazard Vacant Lots
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Miles

## 7.2 Implementation

### 7.2.1 Timeline for project implementation, monitoring and evaluation

Implementation of hazard reduction projects have been ongoing for many years, but have started in earnest around 2001 after the National Fire Plan was adopted. The timeline for project implementation is to continue and expand our successful fire hazard reduction treatment projects across the C-ALRFPD, focusing on the high fire hazard areas within the priority treatment areas. Additional funding, such as the grants and cost share programs discussed in the following section, will be aggressively pursued to help with the cost of necessary treatments.

The USFS personnel, as required by their agency, will complete the monitoring and evaluation of treatments on the USFS lands. The C-ALRFPD personnel will also monitor these treatments, so that different treatment methods can be evaluated for potential use on private lands.

The C-ALRFPD personnel will be the primary entity to monitor and evaluate the fire hazard reduction treatments being completed on private lands. Fire District personnel will evaluate whether different treatments are effective, and monitor how long the treatments are effective over time. Landowners are expected to maintain the hazard reduction treatments completed with cost share funds to ensure that the fire hazard treatments are kept effective for as long as possible.

### 7.2.2 Inter-agency collaboration

The C-ALRFPD encourages our inter-agency partners to assist with continual monitoring and evaluation of current and planned projects within the Fire District. The District places high value on the input that we receive from our interagency partners since they all offer different expertise and a perspective that is unique to their discipline. Community members and personnel from local entities are invited to see the different treatments that have been used within the C-ALRFPD so that they can learn about the different hazard reduction treatment methods.

### 7.2.3 Identify funding for recommendations

With the completion of this CWPP, several different funding opportunities may become more accessible to the Fire District. Future funding request that are tied to the implementation of this CWPP will help decision makers to see how the request will help to implement the goals and objectives of this overall community plan.

Numerous incentive programs are available to landowners, communities, and other entities to assist with funding for hazardous fuels reduction and community outreach and education projects. Listed below are some of the programs available in Oregon.

**Major Incentive Programs available to Family Forestland Owners in Oregon:**

>**Forest Stewardship Program (FSP)** --- cost shares consultant written / ODF approved stewardship plans -- apply with your local ODF Stewardship Forester using FLEP application form.

>**Forest Resource Trust (FRT)**--- loan / grant to cover costs (normally 100% of costs) to convert under producing forest land or marginal agricultural land into conifer forest. Applies only to DF "high" Site 4 or better sites. Apply by completing FRT application form at local ODF offices.

>**Forest Land Enhancement Program (FLEP)** --- cost shares a variety of upland forestry practices (site prep, tree planting, non-commercial thinning, release, etc.) Apply with local ODF Stewardship Forester using FLEP application form.

>**Oregon 50% Underproducing Forest Land Conversion Tax Credit** -- state tax credit on cost of converting underproducing forestland (brush land and low value / low volume forest) to well stocked forest. Apply by completing tax credit form and submitting it to the local ODF Stewardship Forester. (The form is available on the ODF/Private & Community Forests web site or at the local ODF office.) The state tax credit is available to qualified landowners and projects on a continuous basis. Proposed projects should be pre-qualified by the local ODF Stewardship Forester.

**>Afforestation Incentive *(OAR 629-611 Forest Practices Rules)* -** Provides landowners an incentive to convert parcels of idle land or land in other uses to commercial forest use. Provides assurance that no state forest practices regulation will prohibit harvesting most of the planted timber established and grown as the first crop rotation. Contact the local ODF Stewardship Forester for more information.

>**Federal (10%) reforestation tax credit** --- federal tax credit on cost of most afforestation or reforestation projects is available for project work completed before October 22, 2004. For reforestation / afforestation work done after October 21, 2004, landowners can "deduct" a certain amount of project expenses. (Note: The 10% federal tax credit has been repealed but landowners will be able to deduct some reforestation / afforestation expenses going forward from now.) Landowners need to contact the IRS or their tax professional to get the required forms and properly utilize this incentive. Additional Information can be found at: www.timbertax.org

>**Environmental Quality Incentives Program (EQIP)** -- can cost share a wide variety of agricultural and forestry practices. However, availability of funding for upland forestry practices depends on a number of woodland owners applying for EQIP funding and

actively participating in local EQIP working group. Apply for EQIP funds at local NRCS (Natural Resource Conservation Service) office.

>**Watershed Improvement Grants (OWEB)** --- cost shares riparian (usually near stream or in-stream) work - check with local watershed counsel and / or SWCD (Soil & Water Conservation District). Grant applications are available on-line at OWEB or at the local SWCD office.

>**Wildlife Habitat Incentives Program (WHIP)** -- cost shares a variety of wildlife enhancement practices, which can include forest establishment and thinning for wildlife purposes. Apply with local NRCS office.

>**Conservation Reserve Program (CRP)** -- cost shares a variety of conservation practices on agricultural land including forest establishment and thinning. Pays rental on acres enrolled for ten to fifteen years. Apply at local FSA (Farm Services Agency) office.

>**Conservation Reserve Enhancement Program (CREP)** -- cost shares primarily riparian and wetland improvement projects on agricultural land. Practices include riparian forest buffer establishment. Pays rental on acres enrolled for ten to fifteen years. Apply at local FSA office.

**Community Fire Assistance:**

**Volunteer Fire Assistance (VFA):** Assistance to Volunteer Fire Departments for equipment & supplies. Contact the local ODF office.

**Rural Fire Assistance (RFA):** Assistance to Rural Fire organizations for equipment and supplies. Contact the local ODF office.

**Federal Excess Personal Property program (FEPP):** Provides federal excess equipment and supplies to city & rural fire departments for firefighting purposes. Contact the local ODF office.

**Other Programs:**

**Special funding for Insect & Disease control** The cost share amounts vary depending on the acreage owned. It varies from 33% to 50%, with the larger landowners being eligible for only 33% of the costs. Contact the local ODF office.

**Title II** funding is available from the county for projects to enhance forest objectives. Contact the County Commissioners.

## 7.3 Monitoring

### 7.3.1 Annual updates of progress

The C-ALRFPD CWC meetings will be held at a minimum of once each year to update project progress, plan information, and to foster and continue public education and outreach. The original members of the CWC will all be encouraged to participate in future meetings, and replacements will be made to the committee as necessary. The C-ALRFPD personnel will continue to collaborate with the USFS on hazard reduction treatments of federal lands within the C-ALRFPD WUI boundary, and will also continue to collaborate with the ODF personnel on hazard reduction projects being undertaken on private lands.

### 7.3.2 Description of monitoring and evaluation

Monitoring is a critical component of all natural resource management programs. Monitoring provides information on whether a program is meeting its goals and objectives. The purpose of this monitoring strategy is to track implementation of planned activities and evaluate how the goals of the C-ALRFPD CWPP are being met over time. The data gathered will help to determine if the objectives of the plan are being met, if updates need to me made, and if the plan is useful and being implemented as envisioned. This CWPP is a “living” document and must be continually monitored and updated as conditions and community values change.

The purpose of this monitoring strategy is to track implementation of activities and evaluate how well the goals of the CWPP are being met over time. The following are the three different types of monitoring:

- **Implementation Monitoring:** Did you do what you said you would do?
- **Effectiveness Monitoring:** Did treatments meet the objectives?
- **Verification Monitoring:** Did our actions lead to the outcomes we expected?
-

Each functional element of the C-ALRFPD CWPP (risk assessment, fuels reduction, emergency management, and education and outreach) provides monitoring tasks for recommended action items. The table below provides a summary of monitoring task for each of these functional areas.

## Summary of Monitoring Tasks

| Objective | Monitoring Tasks | Who? | Timeline |
|---|---|---|---|
| **Risk Assessment** | Update fire occurrence and fire perimeter databases, including all state and federal fires that burn within the Fire District. | C-ALRFPD | Annually |
| | Update the risk assessment with new data as conditions change and new data becomes available. | C-ALRFPD | Annually |
| | Continue to assess new values at risk and include them in the CWPP as appropriate. | C-ALRFPD, CWC | Annually |
| **Fuels Reduction** | Identify and prioritize fuels treatment projects on an annual basis. | C-ALRFPD | Annually |
| | Track the total acres treated through fuel reduction measures | C-ALRFPD | Annually |
| | Track grants and utilize risk assessment data in new applications. | C-ALRFPD | Annually |
| | Document number of residents that meet the requirements of Oregon Forestland-Urban Interface Fire Protection Act (Senate Bill 360) | C-ALRFPD | Annually |
| | Track fuels reduction grants and defensible space projects occurring on homes of citizens with special needs. | C-ALRFPD | Annually |
| | Track education programs and document how well they integrate fuels objectives. | C-ALRFPD, CWC | Annually |
| | Evaluate opportunities for biomass marketing and utilization | C-ALRFPD | Annually |
| **Emergency Management** | Track education efforts around emergency management | C-ALRFPD | Annually |
| | Track progress on water source improvements | C-ALRFPD | Annually |
| | Review emergency management policies and procedures, and Fire District training policies. | C-ALRFPD | Annually |
| **Education & Outreach** | Evaluate techniques used to mobilize and educate citizens. | C-ALRFPD | Annually |
| | Review public education and community outreach material and update as necessary. | C-ALRFPD | Annually |
| | Random sample of "certified" homes to measure whether or not they continue to meet standards. | C-ALRFPD | Annually |
| | Review progress of "FireWise" certification efforts and make adjustments as needed. | C-ALRFPD, CWC | Annually |

# Chapter 8, Appendices

# Useful Websites

## Healthy Forests and National Fire Plan

- **White House - Healthy Forests:** The presidents Healthy Forest Initiative page.
- **Department of the Interior - Healthy Forest Initiative:** D.O.I. healthy forest information.
- **How Statutory, Regulatory, and Administrative Factors Affect National Forest Management (also known as "Process Predicament")** (PDF) (June 2002)
- **National Pacific Nothwest National Fire Plan Page:**
- **The National Fire Plan:** (August 2000)
- **HFI/HFRA Interim Field Guide:**
- **Linking the President's Healthy Forests Initiative with the 10-Year Comprehensive Strategy Implementation Plan:**
- **Managing the Impact of Wildfires on Communities and the Environment:** A Report to the President In Response to the Wildfires of 2000, September 8, 2000
- **Healthyforests.gov - The official US Healthy Forests Website:**
- **NIFC Communicator's Guide:** Provides a discussion of U.S. federal wildland fire policy, an ecosystem approach to management, and institutional factors.

## Community and Homeowner Information

- **Firewise:** Contains educational information for people who live or vacation in fire-prone areas of the United States. All information is supplied and approved by the National Wildfire Coordinating Group, a consortium of wildland fire agencies that includes the USDA-Forest Service, the Department of Interior, the National Association of State Foresters, the U.S. Fire Administration and the National Fire Protection Association.
- **Firefree:** Central Oregon's program to promote wildfire safety.
- **Smokey Bear Website:** The Smokey Bear campaign is the longest running public service fire prevention campaign in US History.
- **The Fire Safe Council:** Distributes fire prevention education materials to industry leaders and their constituents, evaluated legislation pertaining to fire safety and empowered grassroots organizations to spearhead fire safety programs.
- **Western States Fire Information Resource:** Provides a useful directory to those informational resources on the Internet related to Fire, Emergency Medical Services, and Emergency Service First Responders.

- **ISO Mitigation Online:** Source for up-to-date information on community efforts to mitigate the risk of losses from fire and natural hazards.

*Communication and Outreach*

- **Joint Fire Science Program Project Highlights - FIREHouse:** Provides a "one-stop shopping" for resource managers, decision makers, scientists, students, and communities who want access to the results of research efforts to understand and manage fire and fuels on public lands.
- **Fire Learning Network:** Furthers the Nature Conservancy's biodiversity conservation goals and the goals of the U.S. National Fire Plan by accelerating ecosystem restoration at landscapes and by fostering innovation and transferring lessons learned via regional learning networks.

## Fire and Fuels Management Information

- **Fire Regime Condition Class**: A standardized tool for determining the degree of departure from reference condition vegetation, fuels and disturbance regimes.

- **US Forest Service, Role of Wildland Fire in Resource Management**

## Agencies and Organizations

- **Chiloquin, Oregon Community Web Page:** www.chiloquin.com

- **Chiloquin – Agency Lake Rural Fire Department:** www.chiloquinfire.com

- **The Klamath Tribes:** Official website of The Klamath Tribes

- **California Department of Forestry and Fire Protection, Fire and Resource Assessment Program:** Assesses the amount and extent of California 's forests and rangelands, analyzes their conditions and identifies alternative management and policy guidelines.

- **US Forest Service, Ecosystem Management Coordination:** Supports and manages planning and decision making processes used by the Forest Service.

- **Federal Emergency Management Agency:** Leads the effort to prepare the nation for all hazards and effectively manage federal response and recovery efforts following any national incident.

- **International Association of Fire Chiefs:** A network of the worlds leading experts in firefighting, emergency medical services, terrorism response, hazardous materials spills, natural disasters, search & rescue, and public safety legislation.

- **National Interagency Fire Center:** The nation's support center for wildland firefighting.

- **National Volunteer Fire Council:** Serves as the information source regarding legislation, standards and regulatory issues.

- **US Forest Service, National Wildfire Programs Database:** Serves as a clearinghouse of information about nonfederal policies and programs that seek to reduce the risk of loss of life and property through the reduction of hazardous fuels on private lands.

- **Society of American Foresters:** Provides access to information and networking opportunities to prepare members for the challenges and the changes that face natural resource professionals.

- **U.S. Fire Administration:** Focuses on reducing losses caused by fire and related emergencies through leadership, advocacy, coordination, and support.

- **Western Forestry Leadership Coalition:** Administers programs that help to improve forest health, encourage land conservation, and stimulate community economic recovery.

- **Western Governor's Association:** Works with the Forest Service, Department of the Interior, tribes, counties and interested stakeholders to develop an historic comprehensive plan outlining long-term wildland fire management strategy for the West.

- **Oregon Statewide Land Use Planning Goal 7:** Oregon plan to protect people and property from natural hazards. (PDF)

- **Oregon State Fire Marshal website:** Official site of the Oregon State Fire Marshal.

# Glossary

**A**

**Aerial Fuels**: All live and dead vegetation in the forest canopy or above surface fuels, including tree branches, twigs and cones, snags, moss, and high brush.

**Air Tanker**: A fixed-wing aircraft equipped to drop fire retardants or suppressants.

**Agency**: Any federal, state, or county government organization participating with jurisdictional responsibilities.

**Anchor Point**: An advantageous location, usually a barrier to fire spread, from which to start building a fire line. An anchor point is used to reduce the chance of firefighters being flanked by fire.

**Aspect**: Direction toward which a slope faces.

**B**

**Backfire**: A fire set along the inner edge of a fireline to consume the fuel in the path of a wildfire and/or change the direction of force of the fire's convection column.

**Backpack Pump**: A portable sprayer with hand-pump, fed from a liquid-filled container fitted with straps, used mainly in fire and pest control. (See also Bladder Bag.)

**Behave**: A system of interactive computer programs for modeling fuel and fire behavior that consists of two systems: BURN and FUEL.

**Bladder Bag**: A collapsible backpack portable sprayer made of neoprene or high-strength nylon fabric fitted with a pump. (See also Backpack Pump.)

**Blow-up:** A sudden increase in fire intensity or rate of spread strong enough to prevent direct control or to upset control plans. Blow-ups are often accompanied by violent convection and may have other characteristics of a fire storm. (See Flare-up.)

**Brush**: A collective term that refers to stands of vegetation dominated by shrubby,

woody plants, or low growing trees, usually of a type undesirable for livestock or timber management.

**Brush Fire**: A fire burning in vegetation that is predominantly shrubs, brush and scrub growth.

**Bucket Drops**: The dropping of fire retardants or suppressants from specially designed buckets slung below a helicopter.

**Buffer Zones**: An area of reduced vegetation that separates wildlands from vulnerable residential or business developments. This barrier is similar to a greenbelt in that it is usually used for another purpose such as agriculture, recreation areas, parks, or golf courses.

**Burn Out**: Setting fire inside a control line to widen it or consume fuel between the edge of the fire and the control line.

**Burning Ban**: A declared ban on open air burning within a specified area, usually due to sustained high fire danger.

**Burning Conditions**: The state of the combined factors of the environment that affect fire behavior in a specified fuel type.

**Burning Index**: An estimate of the potential difficulty of fire containment as it relates to the flame length at the most rapidly spreading portion of a fire's perimeter.

**Burning Period:** That part of each 24-hour period when fires spread most rapidly, typically from 10:00 a.m. to sundown.

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**C**

**Campfire**: As used to classify the cause of a wildland fire, a fire that was started for cooking or warming that spreads sufficiently from its source to require action by a fire control agency.

**Candle or Candling**: A single tree or a very small clump of trees which is burning from the bottom up.

**Chain**: A unit of linear measurement equal to 66 feet.

**Closure:** Legal restriction, but not necessarily elimination of specified activities such as smoking, camping, or entry that might cause fires in a given area.

**Cold Front:** The leading edge of a relatively cold air mass that displaces warmer air. The heavier cold air may cause some of the warm air to be lifted. If the lifted air contains enough moisture, the result may be cloudiness, precipitation, and thunderstorms. If both air masses are dry, no clouds may form. Following the passage of a cold front in the Northern Hemisphere, westerly or northwesterly winds of 15 to 30 or more miles per hour often continue for 12 to 24 hours.

**Cold Trailing:** A method of controlling a partly dead fire edge by carefully inspecting and feeling with the hand for heat to detect any fire, digging out every live spot, and trenching any live edge.

**Command Staff:** The command staff consists of the information officer, safety officer and liaison officer. They report directly to the incident commander and may have assistants.

**Complex**: Two or more individual incidents located in the same general area which are assigned to a single incident commander or unified command.

**Contain a fire:** A fuel break around the fire has been completed. This break may include natural barriers or manually and/or mechanically constructed line.

**Control a fire:** The complete extinguishment of a fire, including spot fires. Fireline has been strengthened so that flare-ups from within the perimeter of the fire will not break through this line.

**Control Line:** All built or natural fire barriers and treated fire edge used to control a fire.

**Cooperating Agency:** An agency supplying assistance other than direct suppression, rescue, support, or service functions to the incident control effort; e.g., Red Cross, law enforcement agency, telephone company, etc.

**Cover Type:** For the purposes of the Chiloquin-Agency Lake CWPP, Cover Type is the predominate overstory vegetation type of an area.

**Creeping Fire:** Fire burning with a low flame and spreading slowly.

**Crew Boss:** A person in supervisory charge of usually 16 to 21 firefighters and responsible for their performance, safety, and welfare.

**Crown Fire (Crowning):** The movement of fire through the crowns of trees or shrubs more or less independently of the surface fire.

**Curing**: Drying and browning of herbaceous vegetation or slash.

**D**

**Dead Fuels:** Fuels with no living tissue in which moisture content is governed almost entirely by atmospheric moisture (relative humidity and precipitation), dry-bulb temperature, and solar radiation.

**Debris Burning**: A fire spreading from any fire originally set for the purpose of clearing land or for rubbish, garbage, range, stubble, or meadow burning.

**Defensible Space:** An area either natural or manmade where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and the loss to life, property, or resources. In practice, "defensible space" is defined as an area a minimum of 30 feet around a structure that is cleared of flammable brush or vegetation.

**Detection**: The act or system of discovering and locating fires.

**Direct Attack:** Any treatment of burning fuel, such as by wetting, smothering, or chemically quenching the fire or by physically separating burning from unburned fuel.

**Dispatch**: The implementation of a command decision to move a resource or resources from one place to another.

**Dispatcher**: A person employed who receives reports of discovery and status of fires, confirms their locations, takes action promptly to provide people and equipment likely to be needed for control in first attack, and sends them to the proper place.

**Dispatch Center:** A facility from which resources are directly assigned to an incident.

**Division**: Divisions are used to divide an incident into geographical areas of operation. Divisions are established when the number of resources exceeds the span-of-control of the operations chief. A division is located with the Incident Command System organization between the branch and the task force/strike team.

**Dozer**: Any tracked vehicle with a front-mounted blade used for exposing mineral soil.

**Dozer Line**: Fire line constructed by the front blade of a dozer.

**Drip Torch**: Hand-held device for igniting fires by dripping flaming liquid fuel on the

materials to be burned; consists of a fuel fount, burner arm, and igniter. Fuel used is generally a mixture of diesel and gasoline.

**Drop Zone**: Target area for air tankers, helitankers, and cargo dropping.

**Drought Index**: A number representing net effect of evaporation, transpiration, and precipitation in producing cumulative moisture depletion in deep duff or upper soil layers.

**Dry Lightning Storm**: Thunderstorm in which negligible precipitation reaches the ground. Also called a dry storm.

**Duff**: The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil.

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**E**

**Engine**: Any ground vehicle providing specified levels of pumping, water and hose capacity.

**Engine Crew**: Firefighters assigned to an engine. The Fireline Handbook defines the minimum crew makeup by engine type.

**Entrapment**: A situation where personnel are unexpectedly caught in a fire behavior-related, life-threatening position where planned escape routes or safety zones are absent, inadequate, or compromised. An entrapment may or may not include deployment of a fire shelter for its intended purpose. These situations may or may not result in injury. They include "near misses."

**Environmental Assessment (EA)**: EA’s were authorized by the National Environmental Policy Act (NEPA) of 1969. They are concise, analytical documents prepared with public participation that determine if an Environmental Impact Statement (EIS) is needed for a particular project or action. If an EA determines an EIS is not needed, the EA becomes the document allowing agency compliance with NEPA requirements.

**Environmental Impact Statement (EIS)**: EIS’s were authorized by the National Environmental Policy Act (NEPA) of 1969. Prepared with public participation, they assist decision makers by providing information, analysis and an array of action alternatives, allowing managers to see the probable effects of decisions on the environment. Generally, EIS’s are written for large-scale actions or geographical areas.

**Escape Route:** A preplanned and understood route firefighters take to move to a safety zone or other low-risk area, such as an already burned area, previously constructed safety area, a meadow that won't burn, natural rocky area that is large enough to take refuge without being burned. When escape routes deviate from a defined physical path, they should be clearly marked (flagged).

**Escaped Fire**: A fire that has exceeded or is expected to exceed initial attack capabilities or prescription.

**Extended Attack Incident**: A wildland fire that has not been contained or controlled by initial attack forces and for which more firefighting resources are arriving, en route, or being ordered by the initial attack incident commander.

**Extreme Fire Behavior**: "Extreme" implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One of more of the following is usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.

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**F**

**Faller**: A person who fells trees. Also called a sawyer or cutter.

**FARSITE:** A fire behavior and growth simulator for use on Windows computers. It is used by Fire Behavior Analysts. FARSITE is designed for use by trained, professional wildland fire planners and managers familiar with fuels, weather, topography, wildfire situations, and the associated concepts and terminology.

**Fine (Light) Fuels**: Fast-drying fuels, generally with a comparatively high surface area-to-volume ratio, which are less than 1/4-inch in diameter and have a time lag of one hour or less. These fuels readily ignite and are rapidly consumed by fire when dry.

**Fingers of a Fire**: The long narrow extensions of a fire projecting from the main body.

**Fire Behavior**: The manner in which a fire reacts to the influences of fuel, weather and topography.

**Fire Behavior Forecast**: Prediction of probable fire behavior, usually prepared by a Fire Behavior Officer, in support of fire suppression or prescribed burning

operations.

**Fire Behavior Specialist**: A person responsible to the Planning Section Chief for establishing a weather data collection system and for developing fire behavior predictions based on fire history, fuel, weather and topography.

**Fire Break**: A natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work.

**Fire Cache**: A supply of fire tools and equipment assembled in planned quantities or standard units at a strategic point for exclusive use in fire suppression.

**Fire Crew**: An organized group of firefighters under the leadership of a crew leader or other designated official.

**Fire Front**: The part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified the fire front is assumed to be the leading edge of the fire perimeter. In ground fires, the fire front may be mainly smoldering combustion.

**Fire Intensity**: A general term relating to the heat energy released by a fire.

**Fire Line**: A linear fire barrier that is scraped or dug to mineral soil.

**Fire Load**: The number and size of fires historically experienced on a specified unit over a specified period (usually one day) at a specified index of fire danger.

**Fire Perimeter**: The entire outer edge or boundary of a fire.

**Fire Regime Condition Class**: A fire regime condition class (FRCC) is a classification of the amount of departure from the natural regime. A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning

**Fire Season:** 1) Period(s) of the year during which wildland fires are likely to occur, spread, and affect resource values sufficient to warrant organized fire management activities. 2) A legally enacted time during which burning activities are regulated by state or local authority.

**Fire Shelter**: An aluminized tent offering protection by means of reflecting radiant heat and providing a volume of breathable air in a fire entrapment situation. Fire shelters should only be used in life-threatening situations, as a last resort.

**Fire Shelter Deployment**: The removing of a fire shelter from its case and using it

as protection against fire.

**Fire Storm:** Violent convection caused by a large continuous area of intense fire. Often characterized by destructively violent surface indrafts, near and beyond the perimeter, and sometimes by tornado-like whirls.

**Fire Triangle**: Instructional aid in which the sides of a triangle are used to represent the three factors (oxygen, heat, fuel) necessary for combustion and flame production; removal of any of the three factors causes flame production to cease.

**Fire Weather**: Weather conditions that influence fire ignition, behavior and suppression.

**Fire Weather Watch**: A term used by fire weather forecasters to notify using agencies, usually 24 to 72 hours ahead of the event, that current and developing meteorological conditions may evolve into dangerous fire weather.

**Fire Whirl**: Spinning vortex column of ascending hot air and gases rising from a fire and carrying aloft smoke, debris, and flame. Fire whirls range in size from less than one foot to more than 500 feet in diameter. Large fire whirls have the intensity of a small tornado.

**Firefighting Resources**: All people and major items of equipment that can or potentially could be assigned to fires.

**Flame Height**: The average maximum vertical extension of flames at the leading edge of the fire front. Occasional flashes that rise above the general level of flames are not considered. This distance is less than the flame length if flames are tilted due to wind or slope.

**Flame Length**: The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface); an indicator of fire intensity.

**Flaming Front**: The zone of a moving fire where the combustion is primarily flaming. Behind this flaming zone combustion is primarily glowing. Light fuels typically have a shallow flaming front, whereas heavy fuels have a deeper front. Also called fire front.

**Flanks of a Fire**: The parts of a fire's perimeter that are roughly parallel to the main direction of spread.

**Flare-up**: Any sudden acceleration of fire spread or intensification of a fire. Unlike a blow-up, a flare-up lasts a relatively short time and does not radically change control plans.

**Flash Fuels**: Fuels such as grass, leaves, draped pine needles, fern, tree moss and some kinds of slash, that ignite readily and are consumed rapidly when dry. Also called fine fuels.

**Forbs**: A plant with a soft, rather than permanent woody stem, that is not a grass or grass-like plant.

**Fuel**: Combustible material. Includes, vegetation, such as grass, leaves, ground litter, plants, shrubs and trees, that feed a fire. (See Surface Fuels.)

**Fuel Bed**: An array of fuels usually constructed with specific loading, depth and particle size to meet experimental requirements; also, commonly used to describe the fuel composition in natural settings.

**Fuel Loading**: The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area.

**Fuel Model**: Simulated fuel complex (or combination of vegetation types) for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified.

**Fuel Moisture (Fuel Moisture Content)**: The quantity of moisture in fuel expressed as a percentage of the weight when thoroughly dried at 212 degrees Fahrenheit.

**Fuel Reduction:** Manipulation, including combustion, or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control.

**Fuel Type**: An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.

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**G**

**Geographic Area**: A political boundary designated by the wildland fire protection agencies, where these agencies work together in the coordination and effective utilization

**Ground Fuel**: All combustible materials below the surface litter, including duff, tree or shrub roots, punchy wood, peat, and sawdust, which normally support a glowing combustion without flame.

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**H**

**Hand Line**: A fireline built with hand tools.

**Hazard Reduction**: Any treatment of a hazard that reduces the threat of ignition and fire intensity or rate of spread.

**Head of a Fire**: The side of the fire having the fastest rate of spread.

**Heavy Fuels**: Fuels of large diameter such as snags, logs, large limb wood, that ignite and are consumed more slowly than flash fuels.

**Helibase**: The main location within the general incident area for parking, fueling, maintaining, and loading helicopters. The helibase is usually located at or near the incident base.

**Helispot**: A temporary landing spot for helicopters.

**Helitack**: The use of helicopters to transport crews, equipment, and fire retardants or suppressants to the fire line during the initial stages of a fire.

**Helitack Crew**: A group of firefighters trained in the technical and logistical use of helicopters for fire suppression.

**Holding Actions**: Planned actions required to achieve wildland prescribed fire management objectives. These actions have specific implementation timeframes for fire use actions but can have less sensitive implementation demands for suppression actions.

**Holding Resources**: Firefighting personnel and equipment assigned to do all required fire suppression work following fireline construction but generally not including extensive mop-up.

**Hose Lay**: Arrangement of connected lengths of fire hose and accessories on the ground, beginning at the first pumping unit and ending at the point of water delivery.

**Hotshot Crew**: A highly trained fire crew used mainly to build fireline by hand.

**Hotspot**: A particular active part of a fire.

**Hotspotting**: Reducing or stopping the spread of fire at points of particularly rapid rate of spread or special threat, generally the first step in prompt control, with emphasis on first priorities.

**I**

**Incident**: A human-caused or natural occurrence, such as wildland fire, that requires emergency service action to prevent or reduce the loss of life or damage to property or natural resources.

**Incident Action Plan (IAP):** Contains objectives reflecting the overall incident strategy and specific tactical actions and supporting information for the next operational period. The plan may be oral or written. When written, the plan may have a number of attachments, including: incident objectives, organization assignment list, division assignment, incident radio communication plan, medical plan, traffic plan, safety plan, and incident map.

**Incident Command Post (ICP)**: Location at which primary command functions are executed. The ICP may be co-located with the incident base or other incident facilities.

**Incident Command System (ICS)**: The combination of facilities, equipment, personnel, procedure and communications operating within a common organizational structure, with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident.

**Incident Commander**: Individual responsible for the management of all incident operations at the incident site.

**Incident Management Team**: The incident commander and appropriate general or command staff personnel assigned to manage an incident.

**Incident Objectives**: Statements of guidance and direction necessary for selection of appropriate strategy(ies), and the tactical direction of resources. Incident objectives are based on realistic expectations of what can be accomplished when all allocated resources have been effectively deployed.

**Infrared Detection**: The use of heat sensing equipment, known as Infrared Scanners, for detection of heat sources that are not visually detectable by the normal surveillance methods of either ground or air patrols.

**Initial Attack**: The actions taken by the first resources to arrive at a wildfire to protect lives and property, and prevent further extension of the fire.

**L**

**Ladder Fuels**: Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

**Large Fire**: 1) For statistical purposes, a fire burning more than a specified area of land e.g., 300 acres. 2) A fire burning with a size and intensity such that its behavior is determined by interaction between its own convection column and weather conditions above the surface.

**Lead Plane**: Aircraft with pilot used to make dry runs over the target area to check wing and smoke conditions and topography and to lead air tankers to targets and supervise their drops.

**Light (Fine) Fuels**: Fast-drying fuels, generally with a comparatively high surface area-to-volume ratio, which are less than 1/4-inch in diameter and have a time lag of one hour or less. These fuels readily ignite and are rapidly consumed by fire when dry.

**Lightning Activity Level (LAL)**: A number, on a scale of 1 to 6, that reflects frequency and character of cloud-to-ground lightning. The scale is exponential, based on powers of 2 (i.e., LAL 3 indicates twice the lightning of LAL 2).

**Line Scout**: A firefighter who determines the location of a fire line.

**Litter**: Top layer of the forest, scrubland, or grassland floor, directly above the fermentation layer, composed of loose debris of dead sticks, branches, twigs, and recently fallen leaves or needles, little altered in structure by decomposition.

**Live Fuels**: Living plants, such as trees, grasses, and shrubs, in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms, rather than by external weather influences.

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**M**

**Mineral Soil:** Soil layers below the predominantly organic horizons; soil with little combustible material.

**Mobilization:** The process and procedures used by all organizations, federal, state and local for activating, assembling, and transporting all resources that have been

requested to respond to or support an incident.

**Modular Airborne Firefighting System (MAFFS):** A manufactured unit consisting of five interconnecting tanks, a control pallet, and a nozzle pallet, with a capacity of 3,000 gallons, designed to be rapidly mounted inside an unmodified C-130 (Hercules) cargo aircraft for use in dropping retardant on wildland fires.

**Mop-up**: To make a fire safe or reduce residual smoke after the fire has been controlled by extinguishing or removing burning material along or near the control line, felling snags, or moving logs so they won't roll downhill.

**Multi-Agency Coordination (MAC)**: A generalized term which describes the functions and activities of representatives of involved agencies and/or jurisdictions who come together to make decisions regarding the prioritizing of incidents, and the sharing and use of critical resources. The MAC organization is not a part of the on-scene ICS and is not involved in developing incident strategy or tactics.

**Mutual Aid Agreement**: Written agreement between agencies and/or jurisdictions in which they agree to assist one another upon request, by furnishing personnel and equipment.

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**N**

**National Environmental Policy Act (NEPA)**: NEPA is the basic national law for protection of the environment, passed by Congress in 1969. It sets policy and procedures for environmental protection, and authorizes Environmental Impact Statements and Environmental Assessments to be used as analytical tools to help federal managers make decisions.

**National Fire Danger Rating System (NFDRS)**: A uniform fire danger rating system that focuses on the environmental factors that control the moisture content of fuels.

**National Wildfire Coordinating Group:** A group formed under the direction of the Secretaries of Agriculture and the Interior and comprised of representatives of the U.S. Forest Service, Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service and Association of State Foresters. The group's purpose is to facilitate coordination and effectiveness of wildland fire activities and provide a forum to discuss, recommend action, or resolve issues and problems of substantive nature. NWCG is the certifying body for all courses in the National Fire Curriculum.

**Nomex ®**: Trade name for a fire resistant synthetic material used in the

manufacturing of flight suits and pants and shirts used by firefighters (see Aramid).

**Normal Fire Season**: 1) A season when weather, fire danger, and number and distribution of fires are about average. 2) Period of the year that normally comprises the fire season.

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**O**

**Operational Period**: The period of time scheduled for execution of a given set of tactical actions as specified in the Incident Action Plan. Operational periods can be of various lengths, although usually not more than 24 hours.

**Overhead**: People assigned to supervisory positions, including incident commanders, command staff, general staff, directors, supervisors, and unit leaders.

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**P**

**Pack Test:** Used to determine the aerobic capacity of fire suppression and support personnel and assign physical fitness scores. The test consists of walking a specified distance, with or without a weighted pack, in a predetermined period of time, with altitude corrections.

**Peak Fire Season:** That period of the fire season during which fires are expected to ignite most readily, to burn with greater than average intensity, and to create damages at an unacceptable level.

**Personnel Protective Equipment (PPE)**: All firefighting personnel must be equipped with proper equipment and clothing in order to mitigate the risk of injury from, or exposure to, hazardous conditions encountered while working. PPE includes, but is not limited to: 8-inch high-laced leather boots with lug soles, fire shelter, hard hat with chin strap, goggles, ear plugs, aramid shirts and trousers, leather gloves and individual first aid kits.

**Preparedness:** Condition or degree of being ready to cope with a potential fire situation

**Prescribed Fire**: Any fire ignited by management actions under certain, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

**Prescribed Fire Plan (Burn Plan)**: This document provides the prescribed fire burn boss information needed to implement an individual prescribed fire project.

**Prescription**: Measurable criteria that define conditions under which a prescribed fire may be ignited, guide selection of appropriate management responses, and indicate other required actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

**Prevention:** Activities directed at reducing the incidence of fires, including public education, law enforcement, personal contact, and reduction of fuel hazards.

**Project Fire**: A fire of such size or complexity that a large organization and prolonged activity is required to suppress it.

**Pulaski**: A combination chopping and trenching tool, which combines a single-bitted axe-blade with a narrow adze-like trenching blade fitted to a straight handle. Useful for grubbing or trenching in duff and matted roots. Well-balanced for chopping.

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**R**

**Radiant Burn**: A burn received from a radiant heat source.

**Rappelling**: Technique of landing specifically trained firefighters from hovering helicopters; involves sliding down ropes with the aid of friction-producing devices.

**Rate of Spread**: The relative activity of a fire in extending its horizontal dimensions. It is expressed as a rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Usually it is expressed in chains or acres per hour for a specific period in the fire's history.

**Reburn**: The burning of an area that has been previously burned but that contains flammable fuel that ignites when burning conditions are more favorable; an area that has reburned.

**Red Card:** Fire qualification card issued to fire rated persons showing their training needs and their qualifications to fill specified fire suppression and support positions in a large fire suppression or incident organization.

**Red Flag Warning**: Term used by fire weather forecasters to alert forecast users to an ongoing or imminent critical fire weather pattern.

**Rehabilitation:** The activities necessary to repair damage or disturbance caused by wildland fires or the fire suppression activity.

**Relative Humidity (RH)**: The ratio of the amount of moisture in the air, to the maximum amount of moisture that air would contain if it were saturated. The ratio of the actual vapor pressure to the saturated vapor pressure.

**Remote Automatic Weather Station (RAWS)**: An apparatus that automatically acquires, processes, and stores local weather data for later transmission to the GOES Satellite, from which the data is re-transmitted to an earth-receiving station for use in the National Fire Danger Rating System.

**Resources**: 1) Personnel, equipment, services and supplies available, or potentially available, for assignment to incidents. 2) The natural resources of an area, such as timber, crass, watershed values, recreation values, and wildlife habitat.

**Resource Management Plan (RMP)**: A document prepared by field office staff with public participation and approved by field office managers that provides general guidance and direction for land management activities at a field office. The RMP identifies the need for fire in a particular area and for a specific benefit.

**Resource Order**: An order placed for firefighting or support resources.

**Retardant**: A substance or chemical agent which reduced the flammability of combustibles.

**Run (of a fire)**: The rapid advance of the head of a fire with a marked change in fire line intensity and rate of spread from that noted before and after the advance.

**Running**: A rapidly spreading surface fire with a well-defined head.

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**S**

**Safety Zone**: An area cleared of flammable materials used for escape in the event the line is outflanked or in case a spot fire causes fuels outside the control line to render the line unsafe. In firing operations, crews progress so as to maintain a safety zone close at hand allowing the fuels inside the control line to be consumed before going ahead. Safety zones may also be constructed as integral parts of fuel breaks; they are greatly enlarged areas which can be used with relative safety by firefighters and their equipment in the event of a blowup in the vicinity.

**Season Ending Event:** The data of the weather event after which fires cease to pose a

significant problem, in terms of spread, to fire managers.

**Scratch Line**: An unfinished preliminary fire line hastily established or built as an emergency measure to check the spread of fire.

**Single Resource**: An individual, a piece of equipment and its personnel complement, or a crew or team of individuals with an identified work supervisor that can be used on an incident.

**Size-up**: To evaluate a fire to determine a course of action for fire suppression.

**Slash**: Debris left after logging, pruning, thinning or brush cutting; includes logs, chips, bark, branches, stumps and broken understory trees or brush.

**Sling Load**: Any cargo carried beneath a helicopter and attached by a lead line and swivel.

**Slop-over**: A fire edge that crosses a control line or natural barrier intended to contain the fire.

**Smokejumper**: A firefighter who travels to fires by aircraft and parachute.

**Smoke Management**: Application of fire intensities and meteorological processes to minimize degradation of air quality during prescribed fires.

**Smoldering Fire**: A fire burning without flame and barely spreading.

**Snag**: A standing dead tree or part of a dead tree from which at least the smaller branches have fallen.

**Spark Arrester:** A device installed in a chimney, flue, or exhaust pipe to stop the emission of sparks and burning fragments.

**Spot Fire**: A fire ignited outside the perimeter of the main fire by flying sparks or embers.

**Spot Weather Forecast**: A special forecast issued to fit the time, topography, and weather of each specific fire. These forecasts are issued upon request of the user agency and are more detailed, timely, and specific than zone forecasts.

**Spotting**: Behavior of a fire producing sparks or embers that are carried by the wind and start new fires beyond the zone of direct ignition by the main fire.

**Staging Area**: Locations set up at an incident where resources can be placed while awaiting a tactical assignment on a three-minute available basis. Staging areas are

managed by the operations section.

**Stand Replacement Fire:** 80% of more of the timber stand is killed by wildfire.

**Strategy**: The science and art of command as applied to the overall planning and conduct of an incident.

**Strike Team**: Specified combinations of the same kind and type of resources, with common communications, and a leader.

**Structure Fire**: Fire originating in and burning any part or all of any building, shelter, or other structure.

**Suppressant**: An agent, such as water or foam, used to extinguish the flaming and glowing phases of combustion when direction applied to burning fuels.

**Suppression**: All the work of extinguishing or containing a fire, beginning with its discovery.

**Surface Fuels**: Loose surface litter on the soil surface, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches that have not yet decayed enough to lose their identity; also grasses, forbs, low and medium shrubs, tree seedlings, heavier branchwood, downed logs, and stumps interspersed with or partially replacing the litter.

**Swamper**: (1) A worker who assists fallers and/or sawyers by clearing away brush, limbs and small trees. Carries fuel, oil and tools and watches for dangerous situations. (2) A worker on a dozer crew who pulls winch line, helps maintain equipment, etc., to speed suppression work on a fire.

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**T**

**Tactics**: Deploying and directing resources on an incident to accomplish the objectives designated by strategy.

**Temporary Flight Restrictions (TFR)**: A restriction requested by an agency and put into effect by the Federal Aviation Administration in the vicinity of an incident which restricts the operation of nonessential aircraft in the airspace around that incident.

**Terra Torch ®**: Device for throwing a stream of flaming liquid, used to facilitate rapid ignition during burn out operations on a wildland fire or during a prescribed fire

operation.

**Test Fire**: A small fire ignited within the planned burn unit to determine the characteristic of the prescribed fire, such as fire behavior, detection performance and control measures.

**Timelag**: Time needed under specified conditions for a fuel particle to lose about 63 percent of the difference between its initial moisture content and its equilibrium moisture content. If conditions remain unchanged, a fuel will reach 95 percent of its equilibrium moisture content after four timelag periods.

**Topography:** This is the overall layout of the land: steepness of slope and aspect.

**Torching**: The ignition and flare-up of a tree or small group of trees, usually from bottom to top.

**Two-way Radio:** Radio equipment with transmitters in mobile units on the same frequency as the base station, permitting conversation in two directions using the same frequency in turn.

**Type**: The capability of a firefighting resource in comparison to another type. Type 1 usually means a greater capability due to power, size, or capacity.

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**U**

**Uncontrolled Fire:** Any fire which threatens to destroy life, property, or natural resources, and

**Underburn**: A fire that consumes surface fuels but not trees or shrubs. (See Surface Fuels.)

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**V**

**Vehicle access**: Is access in and out possible for the type of initial attack or protection vehicle needed including space for more than one vehicle, turn-around space, and appropriate bridges and gates capable of accommodating firefighting vehicles.

**Volunteer Fire Department (VFD)**: A fire department of which some or all members are unpaid.

**W**

**Water sources**: Many rural residential areas lack large water storage or pumping facilities, putting a higher demand on firefighting resources which have large water tank capabilities.

**Water Tender**: A ground vehicle capable of transporting specified quantities of water.

**Weather**: Major concerns are: yearly moisture accumulations, humidity, wind, temperatures and lightning frequency/occurrence

**Wet Line**: A line of water, or water and chemical retardant, sprayed along the ground, that serves as a temporary control line from which to ignite or stop a low-intensity fire.

**Wildland Fire**: Any non-structure fire, other than prescribed fire, that occurs in the wildland.

**Wildland Fire Situation Analysis (WFSA)**: A decision-making process that evaluates alternative suppression strategies against selected environmental, social, political, and economic criteria. Provides a record of decisions.

**Wildland Fire Use**: The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in Fire Management Plans.

**Wildland Urban Interface**: The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

# Acronyms

**BLM:** Bureau of Land Management
**C-ALRFPD:** Chiloquin-Agency Lake Rural Fire Protection District
**CCFRP:** Chiloquin Community Fuels Reduction Project
**CFR:** Code of Federal Regulations
**CWC:** Community Wildfire Committee
**CWPP:** Community Wildfire Protection Plan (Healthy Forests Restoration Act)
**DEQ:** Department of Environmental Quality
**DOI:** Department of Interior
**EA:** Environmental Assessment
**EPA:** Environmental Protection Agency
**FEMA:** Federal Emergency Management Agency
**FS:** Forest Service
**F-WNF:** Fremont-Winema National Forests
**GIS:** Geographic Information System
**HFRA:** Healthy Forest Restoration Act
**HFI:** Healthy Forest Initiative
**HUC:** Hydrologic Unit Code
**ICS:** Incident Command System
**IDT:** Inter-disciplinary Team
**IMT:** Incident Management Team
**NFP:** National Fire Plan and 10-Year Comprehensive Strategy
**ODF:** Oregon Department of Forestry
**ODOT:** Oregon Department of Transportation
**OEM:** Office of Emergency Management (State)
**OSFM**: Oregon State Fire Marshall
**OSP:** Oregon State Police
**RAWS:** Remote Automated Weather Station
**T & E:** Threatened and Endangered Species
**USDA:** United States Department of Agriculture
**USDI:** United States Department of Interior
**USFS:** United States Forest Service
**WFSA :** Wildland Fire Situation Analysis
**WUI:** Wildland Urban Interface

# Definitions and Policies

**-** This section provides a summary of policies and definitions of Communities at Risk, Wildland Urban Interface, and Defensible Space.

| | **Wildfire Risk Assessment** |
|---|---|
| **Policy/Source** | **Definition** |
| **Fire Plan** | ***Risk***: the potential and frequency for wildfire ignitions (based on past occurrences)<br>***Hazard***: the conditions that may contribute to wildfire (fuels, slope, aspect, elevation and weather)<br>***Values***: the people, property, natural resources and other resources that could suffer losses in a wildfire event.<br>***Protection Capability***: the ability to mitigate losses, prepare for, respond to and suppress wildland and structural fires.<br>***Structural Vulnerability***: the elements that affect the level of exposure of the hazard to the structure (roof type and building materials, access to the structure, and whether or not there is defensible space or fuels reduction around the structure.) |
| | **Communities at Risk** |
| **Policy/Source** | **Definition** |
| **Healthy Forests Restoration Act** | Title I – Hazardous Fuel Reduction on Federal Land, SEC. 101. Definitions:<br>(1) AT-RISK COMMUNITY.—The term ''at-risk community'' means an area—<br>(A) that is comprised of— (i) an interface community as defined in the notice entitled ''Wildland Urban Interface Communities Within the Vicinity of Federal Lands That Are at High Risk From Wildfire'' issued by the Secretary of Agriculture and the Secretary of the Interior in accordance with title IV of the Department of the Interior and Related Agencies Appropriations Act, 2001 (114 Stat. 1009) (66 Fed. Reg. 753, January 4, 2001); or (ii) a group of homes and other structures with basic infrastructure and services within or adjacent to Federal land;<br>(B) in which conditions are conducive to a large-scale wildland fire disturbance event;<br>(C) for which a significant threat to human life or property exists as a result of a wildland fire disturbance event. |
| **National Association of State Foresters Identifying and Prioritizing Communities at Risk** | In June 2003, the National Association of State Foresters developed criteria for identifying and prioritizing communities at risk. Their purpose was to provide national, uniform guidance for implementing the provisions of the "Collaborative Fuels Treatment Program." The intent was to establish broad, nationally compatible standards for identifying and prioritizing communities at risk, while allowing for maximum flexibility at the state and regional level.<br>NASF defines 'Community at Risk' as "a group of people living in the same locality and under the same government" (*The American Heritage Dictionary of the English Language*, 1969). They also state that 'a community is considered at risk from wildland fire if it lies within the wildland/urban interface as defined in the federal register (*FR Vol. 66, No. 3, Pages 751-154, January 4, 2001).'*<br>NASF suggests identifying communities at risk on a state-by-state basis with the involvement of all organizations with wildland fire protection responsibilities (state, local, tribal, and federal) along with other interested cooperators, partners, and stakeholders. They suggest using the 2000 census data (or other suitable means) identify all communities in the state that are in the wildland urban interface and that are at risk from wildland fire, regardless of their proximity to federal lands. |
| **Federal** | In January 2001, then Agriculture Secretary Dan Glickman and Interior Secretary |

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| **Register /Vol.66, No.160 /Friday, August 17, 2001 /Notices** | Bruce Babbitt released a proposed list of communities eligible for enhanced federal wildfire prevention assistance. The preliminary list of over 4000 communities included many that are near public lands managed by the federal government.<br>The initial definition of urban wildland interface and the descriptive categories used in this notice are modified from ''A Report to the Council of Western State Foresters—Fire in the West—The Wildland/Urban Interface Fire Problem'' dated September 18, 2000. Under this definition, ''the urban wildland interface community exists where humans and their development meet or intermix with wildland fuel.''<br>There are three categories of communities that meet this description. Generally, the Federal agencies will focus on communities that are described under categories 1 and 2. For purposes of applying these categories and the subsequent criteria for evaluating risk to individual communities, a structure is understood to be either a residence or a business facility, including Federal, State, and local government facilities. Structures do not include small improvements such as fences and wildlife watering devices.<br>***Category 1. Interface Community:***<br>The Interface Community exists where structures directly abut wildland fuels. There is a clear line of demarcation between residential, business, and public structures and wildland fuels. Wildland fuels do not generally continue into the developed area. The development density for an interface community is usually 3 or more structures per acre, with shared municipal services. Fire protection is generally provided by a local government fire department with the responsibility to protect the structure from both an interior fire and an advancing wildland fire. An alternative definition of the interface community emphasizes a population density of 250 or more people per square mile.<br>***Category 2. Intermix Community:***<br>The Intermix Community exists where structures are scattered throughout a wildland area. There is no clear line of demarcation; wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres. Fire protection districts funded by various taxing authorities normally provide life and property fire protection and may also have wildland fire protection responsibilities. An alternative definition of intermix community emphasizes a population density of between 28–250 people per square mile.<br>***Category 3. Occluded Community:***<br>The Occluded Community generally exists in a situation, often within a city, where structures abut an island of wildland fuels (e.g., park or open space). There is a clear line of demarcation between structures and wildland fuels. The development density for an occluded community is usually similar to those found in the interface community, but the occluded area is usually less than 1,000 acres in size. Fire protection is normally provided by local government fire depts. |
| **A Definition of Community, James A. Kent / Kevin Preister** | "A community is a geographic place that is characterized by natural systems such as watersheds, cultural attachment and human geographic boundaries. Physical, biological, social, cultural, and economic forces create natural boundaries that distinguish one community from another. The importance is in recognizing the unique beliefs, traditions, and stories that tie people to a specific place, to land and to social/kinship networks. It is a naturally defined human geographic area within which humans and nature rely on shared resources. People from outside this place can effectively contribute to its stewardship by providing relevant information and/or participating through relating their own values associated with geographic place. Community is defined by the informal systems and to the degree the formal systems are tied to the informal it becomes part of a community definition. Both have a distinct function. Informal systems are horizontal. They maintain culture, take care of people and are concerned with survival. They thrive on openness, honesty, and |

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| | the idea that people want to do what is right for each other and the broader society. Formal systems are vertical and they serve centralized political, ideological, and economic functions. They contribute resources and legal structure to community change. Formal meetings alone do not constitute community communication or decision making functions." http://www.ntc.blm.gov/partner/community.html |
| **Firewise Definition of Community** | "According to Webster's dictionary, a community is 'a body of people living in one place or district...and considered as a whole' or 'a group of people living together and having interests, work, etc. in common'. Homeowner associations and similar entities are the most appropriate venue for the Firewise Communities/USA recognition program. These smaller areas within the wildland/urban interface offer the best opportunities for active individual homeowner commitment and participation, which are vital to achieving and maintaining recognition status." http://www.firewise.org/usa/ |
| **Executive Order NO. 04-04 Oregon Office of Rural Policy and Rural Policy Advisory Committee** | Office of Rural Policy and Rural Policy Advisory Committee<br>-*Frontier Rural* – A geographic area that is at least 75 miles by road from a community of less than 2000 individuals. It is characterized by an absence of densely populated areas, small communities, individuals working in their communities, an economy dominated by natural resources and agricultural activities, and a few paved streets or roads.<br>-*Isolated Rural* – A geographic area that is at least 100 miles by road from a community of 3000 or more individuals. It is characterized by low population density (fewer than five people per square mile), an economy of natural resources and agricultural activity, large areas of land owned by the state or federal government and predominately unpaved streets.<br>-*Rural* – A geographic area that is at least 30 miles by road from an urban community (50,000 or more). It is characterized by some commercial business, two or fewer densely populated areas in a county, an economy changing from a natural resource base to more commercial interests and reasonable, but not immediate access to health care.<br>-*Urban Rural* – A geographic area that is at least 10 miles by road from an urban community. It is characterized by many individuals community to an urban area to work or shop, an economy with few natural resource and agricultural activities, easy and immediate access to health care services and numerous paved streets and roads.<br>http://governor.oregon.gov/Gov/pdf/ExecutiveOrder04-04.pdf |
| | **Wildland Urban Interface** |
| **Policy/Source** | **Definition** |
| **Federal Register /Vol.66, No.160 /Friday, August 17,2001 /Notices** | The Federal Register states, "the urban-wildland interface community exists where humans and their development meet or intermix with wildland fuel." This definition is found in the Federal Register Vol.66, Thursday, January 4, 2001, Notices; and in "Fire in the West, the Wildland/Urban Interface Fire Problem", A Report for the Western States Fire Managers, September 18, 2000. |
| **10-Year Comprehensive Strategy** | A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy (August 2001) "The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels" (Glossary of Wildland Fire Terminology, 1996). http://www.fireplan.gov/content/reports/?LanguageID=1 |
| **Senate Bill 360:** | Senate Bill 360: Forestland Urban Interface Protection Act of 1997. Forestland Urban Interface 477.015 Definitions. (1) As used in ORS 477.015 to 477.061, unless the context otherwise requires, "forestland-urban interface" means a geographic area of forestland inside a forest protection district where there exists a concentration of |

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| | structures in an urban or suburban setting. |
| **NFPA 1144** | NFPA 1144: Standard for Protection of Life and Property from Wildfire 2002 Edition Wildland/Urban Interface is an area where improved property and wildland fuels meet at a well-defined boundary. Wildland/urban intermix is an area where improved property and wildland fuels meet with no clearly defined boundary. http://www.nfpa.org/catalog/home/OnlineAccess/1144/1144.asp |
| | **Defensible/Survivable Space** |
| **Policy/Source** | **Definition** |
| **Home Ignition Zones – "Wildland-Urban Fire—A different approach"** | Recent research focuses on indications that the potential for home ignitions during wildfires including those of high intensity principally depends on a home's fuel characteristics and the heat sources within 100-200 feet adjacent to a home (Cohen 1995; Cohen 2000; Cohen and Butler 1998). This relatively limited area that determines home ignition potential can be called the *home ignition zone*. http://firelab.org/fbp/fbresearch/wui/pubs.htm (Jack D. Cohen) |
| **NFPA 1144** | NFPA Publication 1411 defines defensible space as "An area as defined by the AHJ (typically with a width of 9.14 m (30 ft) or more) between an improved property and a potential wildland fire where combustible materials and vegetation have been removed or modified to reduce the potential for fire on improved property spreading to wildland fuels or to provide a safe working area for fire fighters protecting life and improved property from wildland fire. |
| **OAR 629-044-1085: Fuel Break Requirements** | (1) The purpose of a fuel break is to: (a) Slow the rate of spread and the intensity of an advancing wildfire; and (b) Create an area in which fire suppression operations may more safely occur.<br>(2) A fuel break shall be a natural or a human-made area where material capable of allowing a wildfire to spread: (a) Does not exist; or (b) Has been cleared, modified, or treated in such a way that the rate of spread and the intensity of an advancing wildfire will be significantly reduced.<br>(3) A primary fuel break shall be comprised of one or more of the following: (a) An area of substantially non-flammable ground cover. Examples include asphalt, bare soil, clover, concrete, green grass, ivy, mulches, rock, succulent ground cover, or wildflowers. (b) An area of dry grass which is maintained to an average height of less than four inches. (c) An area of cut grass, leaves, needles, twigs, and other similar flammable materials, provided such materials do not create a continuous fuel bed and are in compliance with the intent of subsections 1 and 2 of this rule. (d) An area of single specimens or isolated groupings of ornamental shrubbery, native trees, or other plants, provided they are: (A) Maintained in a green condition; (B) Maintained substantially free of dead plant material; (C) Maintained free of ladder fuel; (D) Arranged and maintained in such a way that minimizes the possibility a wildfire can spread to adjacent vegetation; and (E) In compliance with the intent of subsections (1) and (2) of this rule.<br>(4) A secondary fuel break shall be comprised of single specimens or isolated groupings of ornamental shrubbery, native trees, or other plants, provided they are: (a) Maintained in a green condition; (b) Maintained substantially free of dead plant material; (c) Maintained free of ladder fuel; (d) Arranged and maintained in such a way that minimizes the possibility a wildfire can spread to adjacent vegetation; and (e) In compliance with the intent of subsections 1 and 2 of this rule.<br>http://arcweb.sos.state.or.us/rules/1102_Bulletin/1102_ch629_bulletin.html |
| **Senate Bill 360: Forestland Urban Interface** | Total Fuel Break Distance<br>Classification / Fire Resistant Roofing / Non-Fire Resistant Roofing<br>LOW: No Requirement / No Requirement<br>MODERATE: 30 feet / 30 feet<br>HIGH: 30 feet / 50 feet |

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| **Protection Act of 1997. Fuel Break Distance** | Extreme & High Density<br>Extreme 50 feet 100 feet |
| **Is Your Home Protected from Wildfire Disaster? A Homeowner's Guide to Wildfire Retrofit, Institute for Business and Home Safety** | A survivable space is an area of reduced fuels between your home and the untouched wildland. This provides enough distance between the home and a wildfire to ensure that the home can survive without extensive effort from either you or the fire department. One of the easiest ways to establish a survivable space is to use the zone concept.<br><br>**Zone 1:** Establish a well-irrigated area around your home. In a low hazard area, it should extend a minimum of 30 feet from your home on all sides. As your hazard risk increases, a clearance of between 50 and 100 feet or more may be necessary, especially on any downhill sides of the lot. Plantings should be limited to carefully spaced indigenous species.<br><br>**Zone 2:** Place low-growing plants, shrubs and carefully spaced trees in this area. Maintain a reduced amount of vegetation. Your irrigation system should also extend into this area. Trees should be at least 10 feet apart, and all dead or dying limbs should be trimmed. For trees taller than 18 feet, prune lower branches within six feet of the ground. No tree limbs should come within 10 feet of your home.<br><br>**Zone 3:** This furthest zone from your home is a slightly modified natural area. Thin selected trees and remove highly flammable vegetation such as dead or dying trees and shrubs.<br>How far Zones 2 and 3 extend depends upon your risk and your property's boundaries. In a low hazard area, these two zones should extend another 20 feet or so beyond the 30 feet in Zone 1. This creates a modified landscape of over 50 feet total. In a moderate hazard area, these two zones should extend at least another 50 feet beyond the 50 feet in Zone 1. This would create a modified landscape of over 100 feet total. In a high hazard area, these two zones should extend at least another 100 feet beyond the 100 feet in Zone 1. This would create a modified landscape of over 200 feet total.<br>http://www.ibhs.org/publications/view.asp?id=130 |
| **Living with Fire: A Guide for the Homeowner** | This guide, distributed in Oregon through the Pacific Northwest Wildfire Coordinating Group, provides information on creating effective defensible space and guidelines illustrated below.<br><br>Defensible Space<br>Recommended Distances – Steepness of Slope----------<br>Flat to Gently Sloping 0 to 20% / Moderately Steep 21% to 40% / Very Steep 40+%<br><br>**Grass**: Wildland grasses (such as cheatgrass, weeds, and widely scattered shrubs with grass understory) 30 feet 100 feet 100 feet |

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| | **Shrubs**: Includes shrub dominant areas | 100 feet | 200 feet | 200 feet |
| | **Trees**: Includes forested areas. If substantial grass or shrub understory is present use those values shown above | 30 feet | 100 feet | 200 feet |
| **Fire Free** | A buffer zone -- a minimum 30-foot fire-resistive area around a house that reduces the risk of a wildfire from starting or spreading to the home. Although a 30-foot distance is standard, additional clearance as great as 100 feet may be necessary as the slope of your lot increases. http://www.firefree.org/ffreenew/subpages/gitz.htm. | | | |

**CHILOQUIN-AGENCY LAKE**

**RURAL FIRE PROTECTION DISTRICT**

**CHILOQUIN, OREGON**

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| **IN THE MATTER OF ADOPTING THE WILDLAND URBAN INTERFACE BOUNDARY FOR THE CHILOQUIN-AGENCY LAKE RURAL FIRE PROTECTION DISTRICT FOR THE PRESERVATION OF LIFE, NATURAL RESOURCES AND PROPERTY** | ) ) ) ) ) ) ) | **RESOLUTION 05-015** |

**WHEREAS,** In reference with the United States Department of Agriculture, Forest Service, Federal Register / Volume 66 Number 160 dated August 17, 2001; and the Healthy Forest Restoration Act dated December, 2003 the Community of Chiloquin and surrounding area has been determined to be a High Risk Community for Wildfire;

**WHEREAS,** The Chiloquin-Agency Lake Rural Fire Protection District consists of approximately 40,000 acres of private lands, which is mostly surrounded on three sides by US Forest Service, Fremont-Winema National Forest. The wildland fuels on these private lands and US Forest Service consist primarily of timber, brush and/or grass;

**WHEREAS,** the Chiloquin-Agency Lake Rural Fire Protection District has conducted a study to determine fuel models and condition classes of the Fire District. A majority of the Fire District is considered to be Wildland Urban Interface. The Wildland Urban Interface Area is mostly a Fuel Model 6 and a Condition Class 3, See Exhibit A;

**WHEREAS,** in collaborations with the US Forest Service, Fremont-Winema National Forest, Chiloquin Ranger District the same type of fuel models and condition classes surround the Chiloquin-Agency Lake Rural Fire Protection District on properties owned by the US Forest Service, Fremont-Winema National Forest;

**WHEREAS,** with previous fire occurrences it has shown these types of fuel models and condition classes can lead to devastating wildland fire within and surrounding the Chiloquin-Agency Lake Rural Fire Protection District;

**WHEREAS,** the Chiloquin-Agency Lake Rural Fire Protection District has the primary responsibility for structure protection and fire prevention within the Fire District Boundaries;

**WHEREAS,** due to the extreme risk to life, infrastructure, natural resources and property and through collaborations with the US Forest Service, Fremont-Winema National Forest, Chiloquin Ranger District the Chiloquin-Agency Lake Rural Fire Protection District has established a Wildland Urban Interface Boundary, See Exhibit B.

**WHEREAS,** through continued collaboration the established Wildland Urban Interface Boundary will provide for determining priorities for wildland fuel reductions on private lands and lands owned by the US Forest Service.

**NOW, THEREFORE IT IS HEREBY RESOLVED,** that the Chiloquin-Agency Lake Rural Fire Protection District adopts Exhibit B as the Wildland Urban Interface Boundary for the protection of life, natural resources and property.

Dated this 8th day of March 2005.

CHILOQUIN-AGENCY LAKE RURAL FIRE PROTECTION DISTRICT

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Board Member

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ATTEST:

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