South-central Lake County Community Wildfire Protection Plan

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List of Acronyms and Abbreviations

BIFZ	Burns Interagency Fire Zone
BLM	Bureau of Land Management
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CWPP	Community Wildfire Protection Plans
EAP	Environmental
EQUIP	Environmental Quality Incentives Program
F	Fahrenheit
FEMA	Federal Emergency Management Agency
FEPP	Federal Excess Personal Property
FLEP	Forest Land Enhancement Program
FRCC	Fire Regime Condition Class
FRT	Forest Resource Trust
FSP	Forest Stewardship Program
GIS	Geographic Information System
HFRA	Healthy Forests Restoration Act
IMT	Incident Management Team
IRP	Ignition Risk Potential
LIFC	Lakeview Interagency Fire Center
NAPA	National Academy of Public Administration
NEPA	National Environmental Protection Act
NFPA	National Fire Protection Association
NWCC	Northwest Coordination Center
NWCG	National Wildfire Coordinating Group
ODF	Oregon Department of Forestry
OFPA	Oregon Forest Protection Act
OWEB	Watershed Improvement Grants
RFA	Rural Fire Assistance
RFPA	Rangeland Fire Protection Associations
RFPD	Rural Fire Protection Districts

SEAT	Small Engine Air Tanker
SWCD	Soil & Water Conservation District
USFWS	U.S Fish and Wildlife Service
USFS	US Forest Service
VFA	Volunteer Fire Assistance
WFU	Wildland Fire Use
WHIP	Wildlife Habitat Incentives Program
WUI	Wildland Urban Interface

Oregon Senate Bill 360 findings

Forestland – urban interface lands (OSB 360) are classified using fuel hazard, weather hazard and topography hazard. ODF classifies the weather factor for the assessment area (all of Lake County) as high-hazard or class 3. The topography hazard is classified as low (class 1) or high (class 2) for slopes < 25 percent of >25 percent, respectively. The vegetation hazard is based on fuel attributes. For this assessment, the Fire Regime Condition Classes (FRCC) represent low (class 1), moderate (class 2) and high (class 3) hazard.

A total of 726,327 acres were classified according to the OBS 360 system. The FRCC classification does not include agricultural lands. All possible classes within the *severe weather hazard* category are found within south-central Lake County. Sixty-six and thirty-four percent of the areas are categorized as extreme-hazard or high-hazard, respectively.

Number of Acres (percent) that Occur in each Hazard Class for Non-Agricultural Land in South-central Lake County

Natural Vegetative Fuel Hazard Factor Value	Wildfire Weather Hazard Factor Value					
	1		2		3	
	Topography Hazard Factor Value					
	1	2	1	2	1	2
1	0	0	0	0	74,187 (10)	13,100 (2)
2	0	0	0	0	158,655 (22)	44,358 (6)
3	0	0	0	0	302,538 (42)	133,489 (18)

Executive summary

The Healthy Forests Restoration Act (HFRA) of 2003 and Oregon Forestland – Urban Interface Fire Protection Act of 1997 (Oregon Senate Bill 360) provide the impetus for wildfire risk

assessment and planning at the county and community level in Oregon. HFRA refers to this level of planning as Community Wildfire Protection Plans (CWPP). The CWPP allows a community to evaluate its current situation with regards to wildfire risk and ways to reduce risk for protection of human welfare and other important economic or ecological values. The CWPP may address issues such as community wildfire risk, structure flammability, hazardous fuels/non-fuels mitigation, community preparedness and emergency procedures. The Core Team is composed of representatives from local government and local fire authorities at the State agency responsible for forest practices. The Core Team provides oversight to the development and implementation of the CWPP in south-central Lake County.

The focus of the this CWPP is on south-central Lake County with emphasis on the communities of Lakeview, Valley Falls, New Pine Creek, Westside and Paisley; Collins Timber Company lands; and rural residences. Human life and welfare are values at risk to wildfire loss in south-central Lake County because of hazardous fuels buildup around communities and structures, poor emergency vehicle ingress and egress and constant need for training firefighting personnel and/or upgrading equipment. Throughout the county, there are scattered small communities and ranches with houses and out buildings without structural fire protection because they are outside the Lakeview Fire Department, Paisley Volunteer Fire Department and the Rural Fire Protection Districts. Other economic values at risk include businesses, farmland, ranchland, grazing land, hunting and other recreational land, historic and cultural sites and critical infrastructure.

Wildland fire is a common occurrence in Lake County. During the years of 1984–2004, there were 374 human-caused fires and 6,874 natural fires. Approximately 5 percent of the fires were human-caused. Approximately, 60 percent of all wildfires burn less than 0.25 acres regardless of ignition source, while less than 1 percent burn over 5,000 acres.

Natural resource management policy and changing ecological conditions have interacted in ways that result in hazardous fuel situations throughout south-central Lake County. These forces include historic fire-suppression policy, juniper invasion into sagebrush and grasslands, overstocked forests and rangelands, invasive weeds and changing climatic patterns. The accumulation of hazardous fuels may set the stage for catastrophic wildfire occurrence in the assessment area resulting in the loss of important economic and ecological values.

There are varieties of fuels in south-central Lake County around communities, ranches and structures that create problems for fire protection. Fuels include ponderosa pine forests and juniper woodlands, sagebrush habitat, grasslands and weed fields. Many of these fuels, such as dried grass and weeds, are highly flammable, burn rapidly and resist control. A coordinated effort among all fire authorities and private landowners in the County is needed to manage hazardous fuels and reduce the risk of wildfire.

Currently, fire-suppression authorities in the assessment area include the Lakeview Fire Department, two Rural Fire Protection Districts (RFPD), Lakeview Interagency Fire Center (LIFC)

and Paisley Volunteer Fire Department. Mutual Aid Agreements exist among the fire authorities for mutual aid and support in the event of a wildfire incident. However, each fire authority operates under regulations that dictate their area of responsibility and specify limitations.

Field surveys, Core Team meetings, interviews, questionnaire and a public meeting were used to obtain various types of information to assess the risk of wildfire in south-central Lake County. All information was gathered, analyzed and synthesized by Walsh Environmental Scientists and Engineers, LLC.

Public meetings were convened on September 15 and November 29, 2005 at 7:00 pm in the Lakeview Senior Center and Elks Lodge, respectively. Newspaper and radio releases announced the meetings. Telephone calls and mailings were made to key people inviting them to the meetings. The purpose of the meetings was to explain the wildfire risk assessment and mitigation planning process, present its findings and provide an opportunity for the public to participate in a review of findings and comment on proposed mitigation possibilities such as hazardous fuels management.

The National Fire Protection Association (NFPA) Form 1144, *Standard for Protection of Life and Property from Wildfire, 2002 Edition* was used to assess the level of risk and hazard to communities and individual houses. The evaluation consisted of rating attributes such as means of access, surrounding vegetation (fuels), presence of defensible space, topography, roofing and other construction materials, available fire protection and placement of utilities. Scores were assigned to each element and then totaled to determine the level of risk. Low , moderate and high-hazard risk were determined based on the total score. Field surveys were conducted during September 2005 to assess the level of risk and hazard to the 5 communities, Collins Timber Company lands and 126 dwellings.

Three of the five communities received a high-hazard rating because of issues with hazardous fuels proximity, the use of combustible construction material, inadequate emergency ingress and egress and the lack of structure fire protection. The Collins Timber Company properties received a high-hazard rating because the presence of hazardous fuels within and on adjoining public lands.

Community Risk

Community	Fire Authority	Fire Hazard	Surrounding Fuels and contributing factors
Lakeview	Lakeview Fire Department	High	• Fuels east and south of town sagebrush, dried grass and weeds in proximity to some structures; west and north agricultural land and; dried grasses and weeds in empty lots and around some of structures within town • Surrounding terrain • Lack of defensible space around some homes • Combustible roof or siding on some homes

Paisley	Paisley Vol. FD	Moderate	• Fuels west and south of town sagebrush, dried grass and weeds in proximity to structures; and, agricultural land east and south of town • Lack of structure defensible space
Westside	Thomas Creek/ West side RFPD	Moderate	• Fuels sagebrush, grass, agricultural land, weeds in town • Lack of structure defensible space • Continuous fuels between public and private boundaries
New Pine Creek	New Pine Creek RFPD	High	• Fuels sagebrush dried grasses on east and south, weeds and dried grasses in town • Lack of defensible space for structures
Valley Falls	No Authority	High	• Fuels west and south of town sagebrush, dried grass and weeds in proximity to structures; and, agricultural land east and north of town • Lack of structure defensible space
Collins Timber Company Lands	Oregon Department of Forestry	High	• Fuels overstock timber, ladder fuels, sagebrush and dried grass of adjoining public land and on property • Lack of fuel break network

126 structures were evaluated throughout rural south-central Lake County. There were no apparent patterns to structure hazard within the assessment area. High-hazard structures are just as likely to be associated with low-hazard structures as with moderate- hazard structures.

Rural South-central Lake County Structure Classification as to Hazard Rating and Contributing Factors

Hazard Class	Percent of Structures	Contributing Factors
Low	24	• Two or more roads in/out • Main access road is wide, all season, less than 300 ft. long with turnaround • Fuel type is predominately grass or other crop • Defensible space of 71–100 ft. • Terrain is generally flat • Noncombustible roof and/or siding • Heating and electrical utilities placed underground
Moderate	54	• One road in/out • Access road is moderately wide, non surfaced with grade < 5%, < 300 ft. with turnaround • Fuel type is predominately grass or other crop • Defensible space of 30–70 ft. • Terrain is such to adversely affect wildfire behavior • Noncombustible roof with combustible siding • Electrical utilities usually below ground but heating fuel is above ground

High/Extreme	22	• One road in/out • Access road is narrow, non surfaced with grade > 5%, < than 300 ft. long and without turnaround • Fuel type is predominately sagebrush, rabbitbrush and/or juniper; weeds are abundant • Defensible space < 30 ft. • Terrain is such to adversely affect wildfire behavior • Combustible roof and siding • Heating and electrical utilities above ground

A total of 726,327 acres were classified according to the OBS 360 system. All possible classes within the severe weather hazard category are found within the assessment area. 66 percent of the lands are categorized as extreme-hazard. The remaining 34 percent of the lands are classified as high-hazard. Fire ignition risk potential for the high- and extreme-hazard areas is generally moderate. Therefore, the risk for wildfire is high in the assessment area and hazardous fuels mitigation and development of defensible spaces is warranted for communities and structures, respectively. Also, fuels management is needed to restore FRCC 3 vegetation close to communities to FRCC 1.

Based on the interviews with fire authority officials, field observations and questionnaire responses, the following prioritized mitigation actions are proposed for south-central Lake County to reduce the risk of wildfire:

- Continue to strengthen the cooperation among the federal agencies (BLM, USFWS and USFS), Lakeview and Paisley Fire Departments, RFPDs Oregon Department of Forestry and private landowners.

- Strengthen the firefighting ability of the RFPDs through motivation, training and improved equipment. Consider expanding the RFPD to include areas not under protection.

- Organize Rangeland Fire Protection Associations (RFPDs) for unprotected lands. RFPDs operate under ORS 183.335 to provide wildfire protection within their jurisdiction and have contractual relationships with the federal agencies to provide wildfire protection as first responders. RFPDs are formed to provide wildfire protection where protection is not available. The RFPDs would not provide structure fire protection. The RFPDs operate as non profit corporations with volunteer membership. Dues are assessed to RFPA residences for membership. Dues and grant money are sources for funding. Expenses are incurred for insurance, fuel and equipment repair. Equipment consists of donated, loaned or secured on grant wildfire fighting vehicles such as brush trucks and tenders. Response times to a wildfire are variable depending on fire location, accessibility and availability of volunteers.

- Encourage weed abatement along roadways, vacant lots within the communities and around homes. A member of the Lake County Weed Board should serve on the CWPP Core

Team to coordinate fuels treatments with federal and state agencies.

- Encourage the development of defensible spaces around homes and other important structures throughout the County. Recent research has demonstrated that houses with a non-flammable roof and defensible space have a significantly higher probability of surviving a wildfire than those lacking one or both defense mechanisms.

- Develop strategically located fuel breaks around Lakeview, New Pine Creek, Valley Falls, West Side, Paisley and around Collins Timber Company lands.

- Create and maintain additional water storage points in the private forested areas and rural areas outside of the RFPDs.

- Continue the distribution of Firewise educational materials to residents in order to promote knowledge and understanding in implementing proper Firewise activities such as landscaping, use of fire resistant building materials, proper access roads and emergency evacuation procedures.

Implementing and sustaining the CWPP is key to success. This is the responsibility of the Core Team. Building partnerships among community based organizations, fire protection authorities, local governments, public land management agencies and private landowners is necessary in identifying and prioritizing measures to reduce wildfire risk. Maintaining this cooperation is a Long-term effort that requires commitment of all partners involved. The CWPP encourages citizens to take an active role in identifying needs, developing strategies and implementing solutions to address wildfire risk by assisting with the development of local community wildfire plans and participating in countywide fire prevention activities.

The Core Team will oversee the implementation and monitoring of the CWPP by working with fire authorities, community organizations, private landowners and public agencies to coordinate hazardous fuels management and other mitigation projects.

SOUTH-CENTRAL LAKE COUNTY COMMUNITY WIDLFIRE PROTECTION PLAN

1 Introduction

1.1 CWPP Purpose and Process

The Healthy 2003 Forests Restoration Act (HFRA) and the 1997 Oregon Forestland Urban Fire

Protection Act (Oregon Senate Bill 360) provide the impetus for wildfire risk assessment and planning at the community level. HFRA refers to this level of planning as Community Wildfire Protection Plans (CWPP). The purpose of the CWPP is for communities to take full responsibility and advantage of wildland fire and hazardous fuel management opportunities offered under HFRA legislation. The CWPP provides for the US Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to the priorities of local communities for forest and rangeland management and hazardous fuel reduction projects.

Oregon Senate Bill 360 established policies regarding the protection of the wildland urban interface (WUI) by:

- Defining WUI in Oregon and establishing a process and system for classifying the interface.

- Establishing standards for WUI property owners so they can manage or minimize fire hazards and risks.

- Providing the means for establishing adequate, integrated fire protections systems in WUI areas, including education and prevention efforts.

The CWPP allows communities and private landowners to evaluate their current situations with regards to wildfire risks and suggests ways in which to reduce risks for protection of human welfare and other important economic or ecological values. The CWPP may address issues such as community wildfire risk, structure flammability, hazardous fuels and non-fuels mitigation, community preparedness and emergency procedures. The CWPP should be tailored to the needs of the community. The CWPP reference in this document is inclusive of Oregon Senate Bill 360 requirements. The CWPP process consists of the following steps:

- Organize the CWPP Committee – The committee should consist of representatives from city and county government, local fire authority and the state agency responsible for forest management.

- Federal Agency Involvement – Representatives from the USFS and/or BLM should be engaged in the CWPP process as consultants.

- Community Interested Parties – The CWPP committee must involve interested community members, private landowners, business, stakeholders and interest groups in the planning process.

- Community Base Map – A community base map needs to be developed that illustrates

important features such as landownership, structures, roads, surface water, fire districts or major utility corridors. The map's importance is that it illustrates community values from which recommendations concerning wildfire planning can occur.

- Develop a Community Wildfire Risk Assessment – The risk assessment will provide critical information to the CWPP committee to inform in decision making. Community members should be actively involved in this step. Items that may be addressed include such things as risk of wildfire occurrence, structure hazard and risk, economic and ecological values at risk, local fire authority, preparedness and capability and hazardous fuels.

- Hazard Reduction Priorities and Recommendations to Reduce Structure Flammability – Mitigation projects will be identified and designed to reduce the risk of wildfire loss to the community and other values. Mitigation projects should be prioritized and may include such things as hazardous fuels management, improving the wildfire-suppression capability of the local fire authority, developing a permanent water supply, reducing structure flammability, improved emergency procedures and public education.

- Develop an Action Plan and Assessment Strategy – The action plan should identify who will do what by when. Funds for hazard reduction projects through grants need to be obtained. The finished CWPP is essential for seeking grant money. Also, an assessment and monitoring strategy needs to be in place to ensure the CWPP remains current and relevant for future years.

- Finalize the CWPP – The Core Team needs to approve the CWPP and implement the recommended actions in a timely manner.

1.2 South-central Lake County's need for CWPP

Wildland fire is a common occurrence in south-central Lake County. Historic fire occurrence was a major ecological influence in shaping the natural vegetation of south-central Lake County. The threat of wildfire continues today. However, wildfire risk to human welfare and economic and ecological values is more serious today than in the past because of hazardous fuels buildup and the construction of houses in proximity to forests and rangelands.

The 2001 Federal Register (Vol. 66, No. 160, Friday, August 17, 2001) listed communities throughout the United States at risk to wildfire. The communities in south-central Lake County that were identified are Camas Valley, Drews Gap, Lakeview Basin, New Pine Creek, Paisley, Valley Falls and Westside. These communities are at risk to wildfire because of the accumulation of hazardous fuels nearby and within the area.

Lightning has been the dominant fire ignition source for hundreds of years and continues to be the

main cause of fire in south-central Lake County. However, human-caused fires have occurred and their frequency will likely increase as the County's population grows and outdoor recreation increases.

Natural resource management policy and changing ecological conditions have interacted in ways that have resulted in hazardous fuel situations throughout the County. These forces include historic fire-suppression policy, juniper invasion into sagebrush and grasslands, overstocked forests and rangelands, invasive weeds and changing climatic patterns. The accumulation of hazardous fuels may set the stage for continued catastrophic wildfire occurrence in the County resulting in the loss of important economic and ecological values. Currently, fire-suppression authorities in the assessment area include the Lakeview Fire Departments, the Paisley Volunteer Fire Department, the Thomas Creek/Westside Rural Fire Protection District (RFPD), the New Pine Creek RFPD and the Lakeview Interagency Fire Center (LIFC). LIFC is the dispatch center for the USFS, BLM, USFWS and ODF. Mutual Aid Agreements exist among the fire authorities for mutual aid and support in the event of a wildfire incident. However, each fire authority operates under regulations that dictate their area of responsibility and specifies limitations. The CWPP provides the means to identify wildfire risk, prioritize mitigation projects, improve public awareness and improve fire authority coordination to better manage wildland fire.

1.3 Wildland Fire Management Primer

Wildland fire is defined as any non structure fire occurring in the wildland and includes prescribed fire, wildland fire use and wildfire. Prescribed fires are planned fires ignited by land managers to accomplish resource objectives. Fires that occur from natural causes, such as lightning and are then used to achieve management purposes under carefully controlled conditions with minimal suppression costs are known as wildland fire use (WFU). Wildfires are defined as unwanted and unplanned fires that result from natural ignition, unauthorized human-caused fire, escaped WFU or escaped prescribed fire.

It is possible that prescribed fire could be used for specific management goals in south-central Lake County. Prescribed fire could be used to accomplish a number of resource management purposes, such as reducing the amount of hazardous fuels, increasing plant species diversity, increasing livestock forage production, abating noxious and invasive weeds and improving wildlife habitat. Multiple resource management objectives are often achieved concurrently.

Prescribed fire is used either in a defined area or in localized burn piles. Area prescribed fires are used to burn vegetation in place and can vary in the number of acres burned. Burn piles are heaps of woody fuel that are accumulated after a mechanical treatment. Consistency with State fire and air pollution laws and BLM, USFS Oregon Department of Forestry (ODF) and County policy would be maintained during prescribed fires. Acceptable burn days would be determined in consultation with the ODF and local agencies.

Fire risk is defined as the probability that wildfire will start from natural or human-caused ignitions. Fire hazard is defined as the presence of ignitable fuel coupled with the influences of terrain and weather. The nature of fuels, terrain and weather conditions combine to dictate fire behavior—or its rate of spread and intensity. Wildland fuel attributes refer to both dead and live vegetation and include such factors as ground cover, bed depth, continuity, loading, vertical arrangement and moisture content. Structures are also considered a fuel source. Fire tends to burn more rapidly and intensely upslope than on level terrain. However, evening "sundowner" winds may rapidly drive wildfire down slope. Weather conditions such as high ambient temperatures, low relative humidity and windy conditions favor fire ignition and may cause erratic fire behavior.

Natural and human-caused fire has long been an integral part of vegetation communities in the assessment area. Lightning-ignited fire is a natural component of south-central Lake County ecosystems and its occurrence is important to maintaining the health of forest and rangeland ecosystems. Native Americans used fire for activities such as hunting, improving wildlife habitat, land clearing and warfare. As such, many of the plant species and communities have adapted to recurring fire through phenological, physiological or anatomical attributes. Some plants such as lodgepole pine and western wheatgrass require reoccurring fire to persist.

European settlers, land use policy and changing ecosystems have altered fire behavior and fuels accumulation from their historic setting. European settlers into south-central Lake County changed the natural fire regime in several interrelated ways. The alterations are directly in response to changes in human intervention. The nature of vegetation (fuel) changed due to land use practices such as homesteading, livestock grazing, agriculture, water development and road construction. Livestock grazing reduced the amount of fine fuels such as grasses and forbs, which carried fire across the landscape. In addition, continuous stretches of forest and rangeland fuels were broken up by land clearing activities. The removal of the natural vegetation allowed introduced weedy plants to colonize and occupy—in many instances—large expanses of land. The establishment of cheatgrass and other annual weeds are examples. Many of these weedy plants become flashy fuels as they age, causing fires to burn faster and hotter than with normal wildland fuels. The invasion of western juniper into big sagebrush stands and grasslands has also increased fuel loads and changed the nature of fire in these ecosystems. In addition, more than a century of fire-suppression policy has resulted in an unusually large accumulation of hazardous fuels such as big sagebrush and bitterbrush in many forest and rangeland ecosystems. The presence of flashy fuels coupled with the large accumulation of naturally occurring fuels has created hazardous situations for public safety and fire management.

Modern day land managers continue the use of fire in south-central Lake County by using prescribed fire as a tool to improve livestock grazing, wildlife habitat and reduce weeds or hazardous fuels. In areas such as the WUI where prescribed fire is not desirable, the wise implementation of silvicultural practices can mimic the effects of fire on the ecosystem. Their

primary efforts in managing fuels and fire are to protect human life, as well as economic and ecological values. Proactive and vigilant fire and fuels management is necessary to protect human welfare, as well as economic and ecological values from fire.

1.4 Regulator Framework

There are several Federal and State legislation acts that set policy and provide guidance for the development of the CWPP for south-central Lake County:

- Healthy Forest Restoration Act (2003) – Federal legislation to promote healthy forest and rangeland management, hazardous fuels reduction on federal land, community wildfire protection planning and biomass energy production.

- National Fire Plan and 10 year Comprehensive Strategy (2001) – Interagency plan that focuses on firefighting coordination, firefighter safety, post fire rehabilitation, hazardous fuels reduction, community assistance and accountability.

- Oregon Statewide Land Use Planning Goal 7 – Directs local government to adopt plans for minimizing risk from natural hazards.

- Federal Emergency Management Agency (FEMA) Disaster Mitigation Act (2000) – Provides criteria for state and local multiple hazard and mitigation planning.

- Oregon Forestland – Urban Interface Fire Protection Act of 1997 (SB 360) established policy for the WUI.

1.5 South-central Lake County Wildfire Management Goals

The goals for the CWPP process are several and include:

- Identify fire risks and hazardous fuels
- Assess structure risks to wildfire
- Strengthen coordination, communication and fire-suppression capabilities among the several fire authorities
- Develop strategies and priorities to reduce hazardous fuels
- Identify non-fuels mitigation projects to reduce the risk of wildfire
- Increase community/citizen awareness and responsibility to reduce the risk of wildfire

2 South-central Lake County Profile

2.1 County Setting

Lake County was established in 1874 with a land base of 8,360 square miles. The county population is estimated at 7,422 people. Lake County is in south-central Oregon and was named because of the many large lakes that are within its borders. The county seat was Linkville until the voters selected a permanent site at Lakeview, which overlooks Goose Lake. The landownership in the assessment area includes BLM (177,777 acres), USFS (286,284 acres), State (4,230 acres) and private (484,957 acres) (Map 1).

A fire swept through Lakeview in 1890 that destroyed about 75 businesses; in 1901 the town was rebuilt. Lakeview is known as "The Tallest Town in Oregon" because of its elevation.

The County's main industries include agriculture, livestock, wood products, mining and recreation. Lake County is famous for both its hang gliding and for having Oregon's only geyser, Old Perpetual. Vegetation in the County is diverse and varies from ponderosa pine forest in the north to sagebrush and grasslands in the south, with wetlands interspersed throughout (Map 2).

The economy of south-central Lake County is primarily ranching, manufacturing and forest products. The ecological resources such as Goose Lake, Lake Abert and Fremont National Forest draw hikers, hang gliders, geologists, bird watchers and rock climbers from around the country.

2.2 Communities

Lakeview and Paisley are the two incorporated cities in south-central Lake County. The rural unincorporated communities of New Pine Creek, Westside and Valley Falls are also included in the CWPP (Table 1). Lakeview is supported by a fire department, which consists of a paid fire chief and volunteer staff. Paisley is supported by a volunteer fire department. The unincorporated communities are located in RFPD (Thomas Creek/Westside and New Pine Creek). Lakeview is the business center of the County, with US Highway 395 and State Highway 140 providing access to southeastern Oregon from California and Nevada, respectively. New Pine Creek, Westside and Valley Falls are ranching and farming communities, which service their respective surrounding areas and usually consist of businesses, hotel, service station, post office, school and/or church and residences. Lakeview provides the major commercial services for the assessment area.

Collins Timber Company lands are analyzed with the communities in this plan because of their ecological and economic importance in the assessment area. Collins employs approximately 100 people and provides land for timber production, wildlife habitat and recreational uses. Collins fire management practices are proactive and they have taken action such as training forest managers as firefighters, equipping trucks with 40–100 gallon slip in units and not letting slash accumulate. However, hazardous fuels on adjoining public lands and within Collins Timber Company lands pose a high-hazard.

Table 1 Summary Community Information

Community	Location	Fire Authority	Population	Surrounding Fuels
Lakeview	US Highway 395	Lakeview Fire Department	2420	Sagebrush/grass on east and south and agricultural land on west and north, weeds in town
Paisley	State Road 31	Paisley RFPD	246	Sagebrush/grass on west and south and agricultural land east and north, weeds in town
Westside	West Hwy 140, South Tunnel Road	Thomas Creek/ West side RFPD	300	Sagebrush, grass, agricultural land, weeds in town
New Pine Creek	US Highway 395	New Pine Creek RFPD	220	Sagebrush/grass on east and south and agricultural land, weeds in town
Valley Falls	Junction of US Highway 395 and State Road 31	No Authority	20	Sagebrush/grass on west and south and agricultural land east and north, weeds in town
Collins Timber Company	McDonald Tract Warner Tract	ODF	NA	Fuels: overstock timber on adjacent property, ladder fuels, sagebrush and dried grass

2.3 Climate

South-central Lake County climate is semi arid with long, severe winters and short, dry summers (Table 2). With a typical high desert climate, the County experiences over 300 days of sunshine per year and receives an average of 15 inches of annual precipitation, most in the form of snow. Warm and sunny days of summer record highs in the 80s with cool nights. Winter temperatures are typically in the low 30s. In the open valleys, temperatures for Lakeview in January average 29° Fahrenheit (F). In July, it is 67° F with an annual average of 47° F. The frost free period extends from the last day of spring with a minimum temperature of 32° F or below to the first day of fall with a minimum temperature of 32° F. Data taken from remote automated weather stations show a significant increase in moisture as elevation increases. The low precipitation months are July, August and September.

Table 2 Monthly Climate Summary for Lakeview Oregon for the years of 1971–2000

Climate Attribute	Month												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Maximum Temperature (F º)	38.5	42.3	48.8	56	64.6	73.9	83.5	83	75	62.7	44.6	38.7	59.5

Average Minimum Temperature (F º)	20.3	23.5	27.4	31.1	37.3	43.9	49.8	48.1	41.4	33.2	25.1	20.5	33.6
Average Total Precipitation (inches)	1.91	1.8	1.68	1.33	1.44	0.97	0.51	0.47	0.69	1.05	1.86	1.94	15.63

2.4 Vegetation

The vegetation of south-central Lake County is diverse and varies from ponderosa pine forest in the north and east to sagebrush and grasslands in the south (Map 2). Wetlands are widespread. Cropland and hay fields are common throughout the assessment area.

2.5 Fire Protection Authorities

South-central Lake County receives wildland fire management from the BLM, Forest Service, ODF, US Fish and Wildlife Service (USFWS), Lakeview Fire Department, Paisley Volunteer Fire Department and two RFPDs (Thomas Creek/Westside and New Pine). Mutual Aid Agreements exist among the various fire authorities for support and help when needed. However, each authority has it regulations and limitations, which dictates its fire management activity. Rural areas outside of the RFPDs do not have formal fire protection. Currently, if there is a fire within these areas, fire authorities have to be reimbursed for their efforts.

Lakeview Interagency Fire Center (LIFC) –LIFC is comprised of the Fremont/Winema National Forest, BLM, USFWS and ODF. LIFC functions to manage wildland fire and fuels on public and some private lands within the County. These lands include federal land in the Fremont National Forests, BLM lands and Oregon State lands. Firefighters are trained to National Wildfire Coordinating Group (NWCG) standards as appropriate. During the fire season the following equipment is “readily” available to LIFC:

- Two, type 4 heavy engines
- Five, type 6 light engines
- One, 3,500 gallon water tender
- Type II Helicopter with six person crew
- Single engine air tanker (400 to 600 gallon capacity)
- Ten person hand crew

Lakeview Fire Department – The Lakeview Fire Department has responsibility for structure, grass and vehicle fires within the City of Lakeview. However, the Department will respond to fires within a one-mile radius around Lakeview. The Lakeview rural fire department has one engine and one water tender. The department consists of a paid fire chief and 30 volunteer members. The volunteers are trained at the Firefighter I level with some working on Firefighter II level and

specialist skills. Major equipment consists of two fire engines and one ambulance.

Paisley Volunteer Fire Department – The Paisley Volunteer Fire Department has responsibility for structure, grass and vehicle fires within the City of Paisley. However, they will respond to fires within a one-mile radius around Paisley. The department consists of a volunteer fire chief and 15 volunteer members. Volunteers are trained at the Firefighter I level with some working on Firefighter II level and specialists skills. Major equipment consists of one fire engine, one water tender and one rescue vehicle.

Thomas Creek/Westside RFPD – The Thomas Creek/Westside RFPD has responsibility for structure, grass and vehicle fires within the RFPD. The department has two stations (Westside and Five Corners), two volunteer fire chiefs and 20 volunteer members. The volunteers are trained at the Firefighter I level with some working on Firefighter II level and specialists skills. Major equipment consists of one old fire engine (needs replacing), two structural engines and three 3,000 gallon water tenders.

New Pine Creek RFPD – The New Pine Creek RFPD has responsibility for structure, grass and vehicle fires within the RFPD. The department consists of volunteer fire chief and 12 volunteer members. The volunteers are trained at the Firefighter I level with some working on Firefighter II level and specialists skills. Major equipment consists of one new one new 1,800 gallon attack water tender and one 2,600 gallon water tender.

Collins Timber Company Land – ODF has responsibility for timber and grass fires within their private property. The timber company has field trucks equipped with 40–100 gallon slip in units, shovels, hoes and fire extinguishers. Some of the employees should be trained at the Firefighter I level.

2.6 Values at Risk

Human welfare, private timberlands and other values are at risk to wildfire in south-central Lake County because of the buildup of hazardous fuels around communities and structures, poor emergency vehicle ingress and egress and the ongoing need for training and/or upgrading of fire-suppression equipment. Other economic values at risk include businesses, private forests, farmland, ranchland, grazing land, hunting and other recreational land and critical infrastructure. The communities of Lakeview, New Pine Creek, Paisley, Valley Falls, Westside and the Collins Timber Company lands are at risk to wildfire for one or more of the following reasons:

- Buildup of hazardous fuels such as juniper, sagebrush, annual weeds or seasonal dry grasses
- No jurisdictional responsibility for structure suppression
- Lack of wildfire-suppression authority

- Poor or limited response time
- Limited access
- Limited trained volunteer staff
- Lack of proper equipment
- Not adhering to county approved fire use procedures and restrictions

In addition, numerous individual structures throughout the assessment area are at risk to wildfire loss because of one or more of the following reasons:

- Hazardous fuels in vicinity of structure
- Poor emergency ingress or egress
- Lack of defensible space
- Lack of noncombustible building materials
- Lack of available water

Ecological values within south-central Lake County are important for continued economic growth and human welfare. The degree of loss will depend on wildfire severity and time needed for recovery. Wildfire is a natural part of the assessment area ecology and normally occurring fire is necessary to maintain many desirable attributes such as wildlife habitat and livestock forage. Under a normally occurring fire regime, many ecological values will recover within a few years. Air quality should recover within days after a fire but wildlife habitat may take years. However, catastrophic wildfire may change wildlife habitat beyond its capacity to recover if the biophysical nature of the area is altered. In addition, wildfire may produce conditions conducive to the spread of noxious and invasive weeds such as cheatgrass. Ecological values at risk to wildfire loss include such things as:

- Wildlife and aquatic habitat
- Rangeland and forests
- Scenic areas
- Farmlands
- Water quality
- Air quality
- Natural vegetation communities

3 Cwpp Process

3.1 South-central Lake County CWPP Requirements

The steps to developing the south-central Lake County CWPP are listed in Table 3. These steps are

defined in the pamphlet, *Preparing a Community Wildfire Protection Plan*.

Table 3 The Eight Steps to Developing a CWPP for South-central Lake County

Step	Task	Explanation
One	Convene Decision makers	Form a core team made up of representatives from local and federal governments, fire authorities Collins Timber Company and Oregon Department of Forestry.
Two	Involve Federal Agencies	Engage local representatives of the BLM and USFS and other land management agencies as appropriate.
Three	Engage Interested Parties	Contact and encourage participation from a broad range of interested organizations and stakeholders.
Four	Establish a Community Base Map	Develop a base map of the County that defines communities at risk, critical infrastructure and forest/ rangeland at risk.
Five	Develop a Community Risk Assessment	Develop a county risk assessment that considers fuel hazards, risk of wildfire occurrence, homes, business and at risk infrastructure and other values and preparedness capability. Rate the level of risk and incorporate into the base map as appropriate.
Six	Establish Community Priorities and Recommendations	Use the risk assessment and base map to facilitate a collaborative public discussion that prioritizes fuel treatments and non-fuel mitigation practices to reduce fire risk and structural ignitability.
Seven	Develop An Action Plan and Assessment Strategy	Develop a detailed implementation strategy and a monitoring plan that will ensure Long-term success.
Eight	Finalize the CWPP	Finalize the County CWPP and communicate the results to interested parties and stakeholders.

3.2 South-central Lake County CWPP Core Team

The initial step in developing the south-central Lake County CWPP is to organize a core decision making team. The members of this team have the responsibility for CWPP implementation and oversight. The south-central Lake County team is composed of representatives from local government, local fire authorities, Collins Timber Company and the ODF representative (Table 4). Representatives from organizations such as communities, utilities, Chamber of Commerce, hunting clubs, water districts and homeowners associations may choose to participate as appropriate.

Table 4 South-central Lake County CWPP Core Team Members

Team Member	Organization	Phone Number
Bill Duke	Lake County Resources Initiative	541 947 5461

Greg Pittman	Oregon Department of Forestry	541 947 3311
Robert Carlson	Lakeview Fire Assistant Fire Chief	541 947 4400
Roland Glade	Thomas Creek/Westside PD	541 947 4685
Lee Fledderjohann	Collins Timber Company	541 947 2018 x27

3.3 Federal Agency Collaboration

Federal agencies such as the BLM and USFS participate in the CWPP planning process as advisors. The BLM and Forest Service have a major interest in the implementation and success of the South-central Lake County CWPP because of their vested interest in wildfire fuels management. Wildfire does not respect political boundaries, so all fire authority organizations must work together to reduce the risk of wildfire. Federal agency advisories to the South-central Lake County CWPP include Chuck McElwain (541 947 6264) and Dan Shoun (541 947 2177).

4 WILDFIRE RISK ASSESSMENT

4.1 Approach to Wildfire Risk Assessment

Field surveys, Core Team meetings, interviews, public questionnaires and public meetings were used to obtain various types of information to assess the risk of wildfire in south-central Lake County. All information was gathered and analyzed by Walsh Environmental Scientists and Engineers, LLC.

The National Fire Protection Association (NFPA) Form 1144, *Standard for Protection of Life and Property from Wildfire, 2002 Edition* was used to assess the level of risk and hazard to communities and individual homes (See Appendix B for NFPA Form 1144). NFPA Form 1144 can be adapted for communities or individual structures. The evaluation consisted of rating attributes such as means of access, surrounding vegetation (fuels), presence of defensible space, topography, roofing and other construction materials, available fire protection and placement of utilities. Scores were assigned to each element and then totaled to determine the level of risk. Low, moderate, high and extreme hazard were determined based on the total score.

Field surveys were conducted during September 2005 to assess the level of risk to wildfire loss to the five communities, Collins Timber Company lands and to 126 individual homes located in rural south-central Lake County. Community evaluations consisted of scoring the entire community using NFPA Form 1144. In addition, notes were taken on the type of fuels and terrain surrounding

the community. At times these observations were made several miles from the community. Hazardous fuel situations were recorded during the surveys.

Approximately 10 percent of the homes in rural south-central Lake County were evaluated for risk to wildfire. The evaluations were conducted through observation of the structure from the driveway or road leading to the home. Only homes that appeared to be occupied were assessed. The survey was not statistically sufficient because a random sample of all possible structures did not occur. The approach was to evaluate every third or fourth house along a road to get a representative sample. Through this sampling method an attempt was made to evaluate homes throughout the assessment area. These homes were evaluated using the NFPA Form 1144. Conclusions that were drawn concerning structure hazard cannot be applied to all structures in south-central Lake County but limited to those surveyed. However, the results are still useful for evaluating the level of structure hazard in the assessment area and for determining ways to reduce the hazard.

One meeting with the Core Team was convened to discuss the approach and findings of the risk assessment and to assess wildfire risk in the County. The meeting occurred on August 30, 2005 to initiate the project.

Specific interviews were held with several members of the Core Team. The interviews included the Lakeview assistant fire chief, representatives from Collins Timber Company and representatives of the RFPDs, ODF, BLM and USFS. Information obtained during the interview included such things as level of preparedness, existing equipment, level of training for volunteer staff, equipment needs, training needs, concerns, hazardous fuels and situations and mitigation opportunities.

The first public meeting occurred on September 15, 2005 at 7:00 pm in the Lakeview Senior Center. The public meeting's purpose was to discuss fire risk and mitigation possibilities. The Firewise pamphlet was available at the meeting to help explain proper home construction and landscaping practices to reduce the risk of wildfire loss.

The second public meeting convened on November 29, 2005 at 7:00 pm in the Elks Lodge. Newspaper and radio releases announced the meeting. The purpose of the meeting was to explain the purpose of the wildfire risk assessment, present the findings of the risk assessment, provide an opportunity for the public to participate in the process, review the risk assessment findings and comment on proposed mitigation possibilities such as hazardous fuels management and non-fuel projects. The draft report of the wildfire risk assessment and mitigation plan was posted on the LCRI website to encourage public review and comment.

Several maps were produced to assist in the fire risk assessment and also to illustrate information. The maps were produced based on Geographic Information System (GIS) data obtained from BLM and ODF. The CWPP calls for a baseline map to be developed that conveys information such as communities at risk, critical infrastructure, water supplies, utilities and mitigation opportunities. In

order to present complex information in a readily understandable way, several maps were developed at the same scale and reference. The different maps are south-central Lake County base map, vegetation, historic fire regime, current fire regime condition class, fire ignition potential and OSB 360 land classification.

4.2 Wildfire History

Wildfires have historically occurred in the assessment area from lightning and from Native American ignitions sources. The natural fire regime of an area is the role of fire—including Native American—across a landscape in the absence of modern human intervention. The different natural (historical) fire regimes are classified based on the average number of years between fires (fire frequency) and its severity (degree of vegetation damage or destruction) on the dominant overstory vegetation. There are six historic fire regime classes that occur in the assessment area (map 3). Fire frequency and severity varied throughout the assessment area depending on vegetation type and elevation. The most common fire regime occurred with a return frequency of 0–35 years and with low to mixed severity.

The current fire regime condition is an estimate of the degree of departure from the historic fire regime. Three classes are used to describe the current fire regime condition (FRCC, Table 5). The FRCC in the assessment area is complex (map 4). The FRCC 3 class is the most common, but both FRCC classes1 and 2 also occur. For the purposes of this CWPP, the FRCC classes 1, 2 and 3 represent low-, moderate- and high-hazardous fuel situations respectively.

Table 5 Fire Regime Condition Class Descriptions

Fire Regime Condition Class	Description
1	Fire behavior, effects and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics. Composition and structure of vegetation and fuels are similar to the natural (historical) regime. Risk of loss of key ecosystem components (e.g. native species, large trees and soil) is low.
2	Fire behavior, effects and other associated disturbances are moderately departed (more or less severe). Composition and structure of vegetation and fuel are moderately altered. Uncharacteristic conditions range from low to moderate. Risk of loss of key ecosystem components is moderate.

3	Fire behavior, effects and other associated disturbances are highly departed (more or less severe). Composition and structure of vegetation and fuel are highly altered. Uncharacteristic conditions range from moderate to high. Risk of loss of key ecosystem components is high.

Wildfire occurrence in Lake County is common (Table 6, Map 5). Ignition usually results from natural causes, although human-caused ignition risk is also high. An analysis of the fire occurrence history from 1984 to 2004 indicates a high level of fires. During the 20 year period studied, there were 375 human-caused fires and 6,874 natural fires. This is an average of 362 fires per year. Approximately five percent of the fires were human-ignited, while 95 percent were lightning-caused. Ninety-one percent of wildland fires originated on public lands. The human ignitions were caused in variety of ways, including abandoned campfires or equipment. The highest cause was abandoned campfires at 20 percent. Lightning fires occurred in June, July and August with most during August.

The main concentration of human-caused fires is around reservoirs and other developed areas (Map 5). Many human-caused fires are related to recreational activities. The most recent large fire was just outside the assessment area around Silver Lake. The Silver Lake fire had a significant impact on the surrounding area and brought home the fact the wildfires are a threat to local communities. Wildfires in the assessment area can be intense, but they tend to require strong winds and dry fuel conditions to burn. Fuel loading, weeds, terrain and flammable buildings put communities at risk.

Table 6 Lake County Wildfire History for the Years 1984–2004[1]

Fire Size Class (Acres)	Acres Burnt	Number of Fires	Fire Ignition Source	
			Lightning	Human
A 0 – 0.25	628	5,689	5,498	191
B 0.25 – 9.9	1,867	1,389	1,234	155
C 9.9 – 99.9	7,717	118	105	13
D 100 – 299.9	3,481	19	13	6
E 300 – 999.9	2,387	5	3	2
F 1,000 – 4,999.9	32,077	20	16	4
G 5,000 – 9,999.9	141,316	9	5	4

[1] Statistics are county wide and not just for south-central lake County.

Even though the vast majority of wildfires in south-central Lake County are suppressed before they burn large areas, wildfire risk to communities and structures is still considerable given the number of annual fires and high level of hazardous fuels. Residents need to be vigilant with Firewise practices (Appendix C).

Ignition Risk Potential (IRP) is the prospective for either lightning- or human-caused fire to start and is defined as the number of wildfires per 1,000 acres per 10 years (Map 6). The classes are low (0 0.1 fires per 1,000 acres per 10 years), moderate (0.1 1.1 fires per 1,000 acres per 10 years) and high (> 1.1 fires per 1,000 acres per 10 years). The IRP varies throughout the assessment area. The low class is the most common while the high class is the least common.

4.3 Wildfire Risk to Communities

The five communities within south-central Lake County and Collins Timber Company lands were assessed for potential risks and hazards. Several factors in and around communities lead to the increased risk of wildfire:

- No jurisdictional authority for structure protection
- Initial attack time to structures
- Lack of trained people and appropriate equipment to take action on structures
- Fuel loading in and around living sites
- Very poor access
- Location of structures (i.e. in draw bottoms, south slope, etc.)
- Construction of structures (combustible roofing, etc.)

The NFPA Form 1144 was used to evaluate community risks and hazards to wildfire and assign each a hazard class. Focus was within the communities and the surrounding wildland urban interface (WUI). The CWPP definition of the WUI is 0.5 miles surrounding a community unless the hazardous fuel situation requires adjustment. For this NFPA 1144 assessment, the WUI was defined as 0.5 miles from the community. All of the communities within the assessment area have protection with fire departments or RFPDs. Each of the fire departments is in need of continued training, current equipment and personnel to be fully effective. The houses and subdivisions not within the protection districts are at higher risk (Table 7).

Table 7 Community Risks

Community	Fire Authority	Fire Hazard	Surrounding Fuels and contributing factors
Lakeview	Lakeview Fire Department	High	• Fuels east and south of town: sagebrush, dried grass and weeds in proximity to some structures; west and north agricultural land and; dried grasses and weed in empty lots and around some of structures within town • Surrounding terrain • Lack of defensible space around some homes • Combustible roof or siding on some homes

Paisley	Paisley Vol. FD	Moderate	• Fuels west and south of town: sagebrush, dried grass and weeds in proximity to structures; and, agricultural land east and north of town • Lack of structure defensible space
Westside	Thomas Creek/ West side RFPD	High	• Fuels: sagebrush, grass, agricultural land, weeds in town • Lack of structure defensible space • Continuous fuels between public and private boundaries
New Pine Creek	New Pine Creek RFPD	Moderate	• Fuels: sagebrush dried grasses on east and south, weeds and dried grasses in town • Lack of defensible space for structures
Valley Falls	No Authority	High	• Fuels west and south of town: sagebrush, dried grass and weeds in proximity to structures; and, agricultural land east and north of town • Lack of structure defensible space
Collins Timber Company Lands	ODF	High	• Overstocked timber, ladder fuels, sagebrush and dried grass on adjoining public land and on property • Lack of fuel break network

Three of the five communities received a high-hazard rating because of issues with hazardous fuels proximity, the use of combustible construction material, inadequate emergency ingress and egress and the proximity to slopes greater than 31 percent. Collins Timber Company lands received a high-hazard rating because of issues with fuel continuity between public and private land, slopes greater than 31 percent and highly flammable property at risk. The risk of fire starting on private or public lands and burning onto public or private lands is high.

Dried grass and weeds were prevalent in and around all communities. Dried grass and weeds are a serious fuel concern during the late summer and fall months. These flashy fuels are highly flammable, cause fire to spread rapidly and resist suppression. Grasses and weeds should be mowed or grazed in the late summer to reduce the risk of wildfire.

The nature of the wildland fuel (i.e., vegetation) around a community will influence its risk to wildfire. Priority fuels management must first take action within the WUI. However, fuels specialists must consider hazardous fuels situations for several miles away from the community. Wildfire can spread rapidly given flammable fuels (e.g., juniper, dried grass and sagebrush), windy conditions and sloping terrain. The Fire Regime Condition Class was used to assess hazardous fuel conditions (map 4).

4.4 Wildfire Risk to Structures

The NFPA Form 1144 was used to evaluate structure risk to wildfire and assign each to a hazard class (Table 8). The structures evaluated are those located in rural south-central Lake County. Structures are defined as houses for human occupancy. Barns, sheds, stables or other similar

buildings were not assessed. A total of 126 homes were assessed. There is no apparent pattern to hazard classification within the assessment area (map 4). High-hazard structures are just as likely to be associated with low-hazard structures as with moderate-hazard structures. The contributing factors are those that seem to define structure placement in one of the hazard classes.

Table 8 Rural South-central Lake County Structure Classifications with Hazard Ratings and Contributing Factors

Hazard Class	Percent of Structures	Contributing Factors
Low	16	• Two or more roads in/out • Main access road is wide, all season, less than 300 ft long with turnaround • Fuel type is predominately grass or other crop • Defensible space of 71–100 ft • Terrain is generally flat • Noncombustible roof and/or siding • Heating and electrical utilities placed underground
Moderate	58	• One road in/out • Access road is moderately wide, non surfaced with grade < 5%, < 300 ft with turnaround • Fuel type is predominately grass or other crop • Defensible space of 30–70 ft • Terrain is such to adversely affect wildfire behavior • Noncombustible roof with combustible siding • Electrical utilities usually below ground but heating fuel is above ground
High	22	• One road in/out • Access road is narrow, non surfaced with grade > 5%, < than 300 ft. long and without turnaround • Fuel type is predominately sagebrush, rabbit brush and/or juniper; weeds are abundant • Defensible space < 30 ft • Terrain is such to adversely affect wildfire behavior • Combustible roof and siding • Heating and electrical utilities above ground

The survey confirmed that there are structures with poor defensible space, combustible building materials, fuel loading, poor ingress and egress and poor placement of utilities. Many of the houses were more than 5 miles from the nearest available fire protection. Areas of highest concern are bordering public lands with slopes greater than 31 percent, moderate to heavy fuels and less than 30 feet of defensible space.

A functional defensible space consists of non-flammable vegetation no closer than 30 feet to the structure, the use of low flammable landscaping plants, mowed grass and lack of firewood stacks and fuel tanks (See Appendix C for complete instructions). The defensible space should be larger for structures built on slopes.

Due to the variety of fuels in the assessment area these structures (mostly farms and ranches) create a wide variety of protection problems. Fuels range from grasses and brush to woodlands, which have the ability to burn rapidly in severe weather conditions and spread quickly. This has produced a significant issue in the protection of life and property and has pushed existing fire protection systems beyond their design capabilities.

Structures at the greatest risk are in areas which fall outside of the established fire districts. These structures are outside of the town limits of Paisley, New Pine Creek, Westside and Lakeview. LIFC can respond to fires within 1 mile of public lands, if the fire is threatening the public land or paying private land if outside the ODF protection boundary.

4.5 Oregon Senate Bill 360 Classification

Forestland – urban interface lands (OSB 360) are classified using fuel hazard, weather hazard and topography hazard (Table 9). ODF classifies the weather factor for the assessment area (all of Lake County) as high-hazard or class 3. The topography hazard is classified as low (class 1) or high (class 2) for slopes < 25 percent or >25 percent, respectively. The vegetation hazard is based on fuel attributes. For this assessment, the FRCC classes represent low (class 1), moderate (class 2) and high (class 3) hazard.

Table 9 Classification of Forest – Urban Interface Lands (OSB 360)

Natural Vegetative Fuel Hazard Factor Value	Wildfire Weather Hazard Factor Value					
	1		2		3	
	Topography Hazard Factor Value					
	1	2	1	2	1	2
1	Low	Moderate	Moderate	Moderate	High	High
2	Moderate	Moderate	Moderate	Moderate	High	Extreme
3	Moderate	Moderate	Moderate	High	Extreme	Extreme

A total of 726,327 acres were classified according to the OBS 360 system (Table 10 and Map 7). The FRCC system does not include agricultural lands and therefore they are not considered in this analysis. All possible classes within the severe weather hazard category are found within the assessment area. Sixty-six percent of the area is categorized as extreme hazard. The remaining 34 percent is classified as high-hazard. Fire ignition risk potential for the high- and extreme-hazard areas is generally moderate (Map 5). Therefore, the risk for wildfire is high in the assessment area and hazardous fuels mitigation as well as development of defensible spaces is warranted for communities and structures, respectively. Also, fuels management is needed to restore FRCC 3 vegetation close to communities to FRCC 1.

Table 10 Number of Acres (percent) that Occur in Each Hazard Class for Non-Agricultural Land

Fire Regime Condition Class	Topography Hazard

(Vegetation Hazard)	1	2
1	74,187 (10)	13,100 (2)
2	158,655 (22)	44,358 (6)
3	302,538 (42)	133,489 (18)

5 WILDFIRE MITIGATION PLAN

5.1 Approach to Mitigation Planning

Wildfire mitigation is defined as “to reduce the chances of its occurrence or the loss of structures and other important community values”. Hazardous fuels management, non-fuels mitigation projects and public outreach are ways to mitigate the risk of wildfire. For maximum effectiveness the three should be implemented concurrently.

Hazardous fuels and non-fuels mitigation projects were identified based on interviews with fire-suppression experts as well as through field surveys conducted when assessing community and structure risk. Fuels mitigation projects were identified and prioritized based on proximity to community, hazardous fuel load and continuity, terrain and professional experience.

The south-central Lake County CWPP is not a legal document, it is a planning document. The wildfire mitigation recommendations are for planning purposes, thus implementation is not required. Actions on public lands will be subject to federal, state and county policies and procedures such as adherence to HFRA, National Environmental Protection Act (NEPA) and Oregon Forest Practices Act (OFPA). Action on private land may be required to be in compliance with policy such as OFPA, county zoning laws and building codes. However to be most effective in reducing wildfire risk, cooperation among federal, state, county and private landowners is essential. Wildfire does not respect land ownership boundaries. Any action taken will be limited in its effectiveness if either public land managers or private landowners choose not to take similar actions on their property.

5.2 Suggested Actions to Achieve Desired Results

The CWPP provides recommendations for hazardous fuels reduction, defensible space, building materials, education, outreach, infrastructure needs, water availability and access. There is only so much a RFPD can do to protect individual life and property from wildland fires. The most effective form of mitigation is education and outreach. The purpose of a community wide education program is to:

1) educate the public to the risks of wildfire to property and life (during the summer months)
2) urge property owners to take responsibility in reducing the risk of wildfire and to create

defensible space around their structures
3) teach the benefits of different types of fire resistant building materials and
4) increase awareness of the natural role of low intensity fire in grassland and woodland ecosystems and the benefits from thinning fuel loaded areas. Education makes other mitigation programs possible.

Defensible space: Defensible space is a fuel break with a minimum 30-foot area around structures (Appendix C). The purpose of the defensible space is to reduce the rate of fire spread and intensity so that it may burnout or to allow firefighters a chance at suppression. The defensible space also provides room for firefighters to maneuver safely around the structure.

Hazardous Fuel Management: The chance that a wildfire will start on public lands and burn onto private lands and visa versa is high. Communities, homeowners, Collins Timber Company lands and other private lands in the assessment area are at risk. The USFS and BLM are partners in a nationwide fuels reduction and forest health project. The objective of fuel breaks is to manage the buildup of hazardous fuels to alter fire behavior (i.e., rate of spread and burning intensity) and to allow firefighters a chance at suppression. Hazardous fuels, such as those classified as FRCC 3, need to be managed to restore forest or rangeland vegetation to FRCC 1. Private landowners and the federal agencies may choose to enter into agreements to reduce the accumulation of hazardous fuels in the assessment area. Long-term and project-specific planning is required to ecologically, economically and effectively manage hazardous fuels.

There are a variety of tools available for hazardous fuel treatments including prescribed fire, mechanical removal, hand crews, herbicides, livestock grazing or a combination of the above. Specific planning is needed for each treatment area to determine the best ecological and economical approach. Treatments will depend on fuel location, terrain, spatial extent, proximity to values at risk and fuel attributes. Hazardous fuels management will potentially result in large amounts of woody plant materials that will need to be disposed of. Appropriate disposal practices will depend on the amount of woody material generated and they may include spreading the debris over a large area, burning, chipping and spreading or burying in a landfill facility. Economical use of the woody debris such as small diameter wood products or biomass energy production should be explored. Livestock grazing should be used to reduce herbaceous plant materials to the extent possible.

All treatments would be implemented following federal, state and local policy. Post treatment management may be necessary to ensure that a productive plant community will establish instead of weeds. Post treatments may include seeding with desirable grasses and forbs and/or erosion control. Monitoring will determine the need for additional management.

Hazardous fuels management can be resource intensive. Coordination with the BLM and USFS and project planning will allow resources to be used in the most efficient manner possible. This CWPP will position the County to apply for grant money for fuels reduction projects (see Section

7.4)

Water storage facilities: Within the assessment area there are numerous streams, ponds, lakes and irrigation systems available as water sources for wildfire-suppression. In areas where water is not readily available, wells, storage tanks or portable water storage systems, as appropriate, could be established. All water refilling sites should be identified and maintained.

Access: Many of the routes to the structures in the assessment area are not adequate to provide easy access. There is typically a one-lane driveway in and out of the property, sometimes with a locked gate. In the areas where access is difficult, encourage property owners to have fire fighting equipment and water availability. Identify properties with access issues and work with owners on improving access for firefighting personnel.

Emergency response: Improving the infrastructure of the existing fire protection departments and fire departments will improve response time to an incident. The quality of wildland fire response is dependant on staff training, distance to fire, equipment, personnel, facilities and current deployment.

Based on the interviews with community officials, field observations and questionnaire responses, the following prioritized actions should occur in south-central Lake County:

- Continue to strengthen the cooperation among the federal agencies (BLM, USFWS and USFS), Lakeview and Paisley Fire Departments, RFPDs, ODF and private landowners.

- Strengthen the firefighting ability of the RFPDs through motivation, training and improved equipment. Consider expanding the RFPD to include the areas not under protection.

- Consider organizing Rangeland Fire Protection Associations (RFPDs) for unprotected lands. RFPDs operate under ORS 183.335 to provide wildfire protection within their jurisdiction and have contractual relationships with the federal agencies to provide wildfire protection as first responders. The Associations are formed to provide wildfire protection where protection is not available. The RFPDs would not provide structure fire protection. The RFPDs operate as non-profit corporations with volunteer membership. Dues are assessed to RFPA residences for membership. Dues and grant money are sources for funding. Expenses are incurred for insurance, fuel and equipment repair. Equipment consists of donated, loaned or secured on grant wildfire fighting vehicles such as brush trucks and tenders. Response times to a wildfire are variable depending on fire location, accessibility and availability of volunteers.

- Encourage the development of defensible spaces around homes and other important structures throughout the assessment area (see Appendix C). Recent research has

demonstrated that dwellings with a non-flammable roof and defensible space have a significantly higher probability of surviving a wildfire than those lacking one or both defense mechanisms. Defensible space is a priority fuel break to protect structures from wildfire.

- Encourage weed abatement along roadways, vacant lots, within communities and around homes. A member of the Lake County Weed Board should serve on the CWPP Core Team to coordinate fuels treatment with federal and state agencies.

- Develop strategically located fuel breaks around Lakeview, Valley Falls, New Pine Creek, West Side, Paisley and around and within Collins Timber Company lands, as appropriate.

- Create and maintain additional water storage points in the private forested areas and rural areas outside of the RFPDs. Possibilities include irrigation system hookups, wells where power is available and buried storage tanks.

- Continue the distribution of Firewise educational materials to residents in order to promote knowledge and understanding in implementing proper activities such as landscaping, use of fire resistant building materials, proper access roads and emergency evacuation procedures.

5.3 Hazardous Fuel Projects and Priority

The proposed hazardous fuel projects are both general and specific because of locations and timing. General guidelines are those following catastrophic events such as wildfire, insect kill and wind and resulting in a large accumulation of hazardous fuels. Appropriate fuel treatments such as prescribed fire, mechanical chipping or mastication or a combination that would reduce the hazard to acceptable levels. Economical use of logs and small diameter materials would be explored. Planning for these projects would occur on a case by case basis and in collaboration with interested stakeholders.

The following are specific hazardous fuel projects for south-central Lake County. The projects are associated with communities and are presented in priority based on wildfire risk, values at risk, structure flammability and resources protected.

The first line of defense is weed abatement and defensible space installation within and around communities and structures. Strategically placed fuel breaks located within the WUI and within one to three miles of the community would be constructed. The focus of the fuel breaks would be within the WUI. Since winds are from the south southwest during the fire season, fuel breaks establishment could extend out approximately one to three miles in this direction. Given ideal fuel and weather conditions, wildfire can move rapidly through dry grass, weeds and shrubs. The fuel

breaks would provide a chance for the fire to be controlled. However, firebrands may be carried by wind over the fuel breaks and ignite spot fires in or near communities or structures. Thus, the need for weed abatement and defensible space installation.

The intent of the fuel breaks is to break up the continuity of fuel such as juniper, sagebrush, grass and weeds to reduce wildfire rate of spread and severity to allow firefighters a chance at suppression. The general locations of the fuel breaks are presented below. However, these locations are just suggestions and on the ground reconnaissance is necessary to identify specific locations. Fire behavior models such as BehavePlus2, FARSITE and FlamMap can help predict fuel breaks locations given historic weather patterns, terrain, fuels and proposed fuels management. The software and user manuals for these fire behavior models are available at http://farsite.org. Federal and state fire managers may have to work with private landowners in some areas to establish fuel breaks.

Compliance with federal and state policy will be followed for fuel break construction. Also, funding will need to be secured. These steps will take time. However, wildfire mitigation can occur immediately within all communities with the construction of defensible spaces around structures and mowing grasses and weeds as they dry in the late summer. This action alone will greatly reduce the risk of wildfire.

Fuel breaks would be constructed using hand crews, mowers, brush choppers, livestock grazing, prescribed fire or bulldozer depending on the vegetation type and terrain. Appropriate best management practices would be followed in fuel break implementation. The fuel breaks would be at least 30 to 50 feet wide or wider on slopes with length varying according to placement and terrain. The intent of the fuel treatments is to reduce the kind and/or amount of vegetation and to minimize soil disturbance. Fuel breaks would not restrict appropriate land uses such as livestock grazing. Care is needed to ensure minimal vegetation removal so the fuel break does not becomes potential habitat for annual weeds such as cheatgrass and tumble mustard. Annual weeds are flashy fuels that would exacerbate fire spread. For this reason, the use of bulldozers should be minimal unless the seeding of perennial grasses occurs after treatment. Likewise, post- fire rehabilitation and monitoring will be necessary on-site where prescribed fire is used. All sites will require yearly monitoring to ensure that the fuel breaks are functional. Fuel break maintenance would be achieved by mowing, livestock grazing, hand crews or herbicide use as appropriate.

In areas where sagebrush or bitterbrush ground cover is greater than fifty percent, efforts would be to reduce the cover to fifteen to twenty-five percent. Hand crews or a shrub chopper could be used for this purpose. This level of sagebrush or bitterbrush cover would still provide adequate wildlife habitat for species such as sage grouse and provide soil protection. Established perennial grass stand should be mown or grazed annually to a height of no less than six inches. Mowing or grazing during the late summer would allow the plants to set seed and maintain vigor.

Lakeview – Establish a fuel break east of town along Deadman and Bullard Canyons in T39S R20E, Sections 34, 14, 22 and 23. Defensible space and non-flammable roofs should be encouraged for all structures and houses on the east and south sides of Lakeview that are within 300 feet of juniper and sagebrush covered slopes. Firebrands could blow onto these structures and cause fire. Fuels mitigation and defensible space constructions for the rural areas to the north of town are also needed. Fuels such as sagebrush and juniper need to be considerably reduced with defensible space construction around homes. Weed abatement by mowing is needed throughout Lakeview. Embers from wildfire could ignite these weeds and cause spot fires in town.

Collins Timber Company Lands – Shaded fuel breaks should be constructed along its boundaries as appropriate to reduce the chance of fire spreading onto or from public lands. Existing roads to the property and existing timber cuts could be used as the basis for the fuel breaks. An effort should be made to reduce ladder fuels, reduce crown cover continuity and limb up trees in FRCC 3 vegetation. Establish shaded fuel breaks along all the boundaries to the width of at least canopy tree height. Develop shaded fuel breaks in association with roads to break up fuel continuity, to contain fire and to keep fire to ground fuels. Restore FRCC 3 vegetation on USFS lands in proximity to Collins property and within the property to FRCC 1. On the ground reconnaissance will be necessary to identify priority areas. Improve water storage facilities and during summer months and consider installing temporary 3,000 gallon bladder storage in critical areas. Ponds that are suitable for dipping and drafting should be maintained. Construct signs at all entry roads that show the level of fire risk and rules concerning fire use. Prohibit campfires on property and smoking outside of vehicles and use spark arresters on saws and other portable harvesting equipment. Work with LIFC to train employees at Firefighter I level. Consider prescribed burns to reduce ground fuels. Follow recommendations in the 2004 "*Collins Lakeview Fire Risk Assessment"*.

Paisley – The west side of town needs sagebrush reduction and development of defensible space. Cultivated lands should continue to be maintained around the community but dried plant materials should be mowed or removed. A series of strategically placed fuel breaks should be constructed on the west of town in T33S, R18E, Sections 23 and 26. Risk of fires starting on the public lands to the west is high. Dried grass and weeds within the community need to be mowed during the fall. The use of non-flammable roofs and defensible spaces should be encouraged. Reduce FRCC 3 areas in proximity of the town to FRCC 1.

New Pine Creek – A series of three to four strategically placed fuel breaks should be constructed on the east and south sides of town in the sagebrush vegetation of T41S, R20E, Sections 8, 17, 20 and 32. Dry wheat fields should be reduced around community by cultivating or watering. Eliminate wood piles next to structures and continuous fuels. Existing roads may be used as the basis for the fuel breaks. The amount of sagebrush, dried grass and weeds in town should be reduced. Hand crews or pesticide use could reduce the sagebrush cover. The grass and weeds within the community need to be mowed as they mature. The use of non-flammable roofs and defensible

spaces should be encouraged especially for those houses adjacent to the sagebrush covered slopes. Embers from wildfire could ignite these weeds and cause spot fires in the towns. Reduce FRCC 3 areas in proximity of the town to FRCC 1.

Valley Falls – Sagebrush reduction and development of defensible space is needed on the west side of town. Continue to maintain cultivated lands around the community. Dried grass and weeds within the community need to be mowed during the fall. The use of non-flammable roofs and defensible spaces should be encouraged. Manage FRCC 3 areas in proximity of the town to FRCC 1.

Westside – Grass and weeds need to be mowed or grazed as they mature in the late summer within the community and the surrounding area.

5.4 Non-fuels Mitigation Needs

The proposed non-fuels mitigation needs for the most part are not specific projects like the hazardous fuel needs but they are on going and need to occur concurrently. The following are the proposed non-fuels mitigation needs presented in order of priority:

Fire Protection Authority Communication and Coordination – Continue the cooperation and communication among LIFC, the RFPDs and private landowners concerning wildfire issues. Collective action is needed to reduce the threat of wildfire through implementation of this plan. Yearly meetings and/or newspaper releases are needed to inform the public of projects implemented in the last year and of proposed action for the near future. This type of teamwork and coalition building among federal, state, counties and private landowners is supported by the National Fire Plan and HFRA.

Community Firewise Outreach – The purposes of the community Firewise program are to:

- Provide information on ways to reduce human-caused fires
- Urge landowners to take action to construct defensible space around their homes and structures (Appendix C)
- Encourage the use of non-flammable roofs and siding on new construction and the retrofit of existing houses
- Increase the awareness of the natural role of fire in ecosystems and the need for hazardous fuel management

An annual “Firewise Clean Up Week” held in the spring and/or in October in association with National Fire Prevention Week is recommended to encourage residents to create defensible space around their residence. In conjunction with the Firewise Clean Up Week, specific demonstration projects may be designed and utilized to educate residents about longer term investments they could

make to increase fire safety. The clean up week could occur in conjunction with public demonstrations, education programs and speakers on wildfire and Firewise practices.

Strengthen the Rural Fire Protection Districts – LIFC, the rural section of the Lakeview Fire Department, Paisley Volunteer Fire Department and the two RFPDs provide wildfire protection in south-central Lake County. For the most part, the federal and state agencies are fully staffed and equipped for wildfire and fuels management in their area of jurisdiction. However, the RFPDs are not. Given that the RFPDs are volunteer organizations, the same level of wildfire preparedness cannot be expected. However, the RFPDs provide a valuable service for a large percentage of residents. Efforts should be made to expand the RFPDs through public awareness, economic aid appreciation, proper equipment and training. All members of the RFPDs should have basic training in wildfire fighting procedures, fiscal management and wildfire preparedness. Support for the RFPDs should come from the County and LIFC. The RFPDs would be responsible for Firewise outreach in their respective areas. The RFPDs currently have sufficient vehicles needs as first responders. Improved communication among the volunteer firefighters and with the federal and state agencies is needed. Handheld, LIFC compatible radios would be appropriate for this need.

5.5 Protection of Homes and Structures

The main principle concerning structure ignitability is that the structure is a source of fuel and may burn just as readily as juniper or sagebrush. Structure loss to wildfire can occur by conduction, convection or firebrand. Conduction is the flame of the fire coming in direct contact with the structure. Convection occurs where the structure becomes hot enough to combust without direct flame contact. Firebrands are embers or burning pieces of limbs, leaves or twigs that are blown onto a structure. Firebrands may lodge in crevices of roofs, eaves or side paneling and smolder for several hours before combustion. Firebrands ride on air currents resulting from the fire and may be carried over one mile from the fire front. Recent studies have shown that structure ignitability is the principle cause of structure loss during a wildland fire and not the character of the wildland fuel or fire intensity *per se*.

Fire spread occurs by a propagating process, not as a moving mass such as a flood. For fire to spread, material such as a tree or shrub in the flame front must meet the conditions of ignitability. The conditions are the presence of oxygen, flammable fuel and heat. Oxygen in a wildland fire situation is almost never limiting. Heat is supplied by the flame front. Potential fuel in the path of the flame that meets the conditions of combustion will ignite. If fuel does not meet the conditions of combustion, it will not ignite. This explains why some trees, patches of vegetation or structures may survive a wildland fire and others in the near vicinity are completely burned.

Structure ignitability, not the nature of wildland fuels, is the main cause of structure loss during wildfires. Critical factors that increase the chances of structure loss are flammable roofing

materials (e.g., cedar shingles) and flammable vegetation (e.g. ornamental trees, shrubs and debris/ wood piles) near the structure. A wildland fire does not burn a structure unless it meets fuel and heat requirements sufficient for ignition and continued combustion. With this understanding of fire behavior, the flammability of the structure and its immediate surroundings can be managed to reduce the chances of ignition and loss during a fire incident. The primary and ultimate responsibility for structure protection during wildland fire lies with the structure owner. The following are two actions that home owners can take to greatly reduce the chances of wildfire burning their structures:

- Develop a defensible space around the structure that is a least 30 feet wide, use low combustible plant material for landscaping and remove wood piles next to structures (Appendix C). If the structure occurs on a slope, the defensible space must be greater on the down slope side of the house corresponding to the steepness of the slope.

- Use noncombustible construction material to the extent possible. The minimum is noncombustible roofing material.

5.6 Need for Action

Wildfire occurrence in south-central Lake County is common. Ignition usually results from lightning, although human-caused fire potential is high. The hazard of wildland fire is high because of the ladder fuels and overstocked ponderosa pine stands, juniper invasion into sagebrush and grasslands, overstocked sagebrush stands and the pervasiveness of invasive weeds. Fire risk is extreme during the late summer and fall months when grasses and weeds are dry. These flashy fuels are ignited easily, burn rapidly and resist suppression. Many structures are at risk because owners do not following Firewise guidelines for protection (Appendix C).

Both general and specific actions are needed to mitigate wildfire risk, improve forest and rangeland health and enhance vegetative diversity. General actions include the adherence to Firewise practices on a continual basis. Specific actions would be the establishment of fuel breaks and restoring FRCC 3 vegetation to FRCC 1 by improving forest and rangeland health. Also, sagebrush, weeds and grasses growing within and around communities, structures and along roads should be maintained as appropriate.

6 EMERGENCY OPERATIONS

6.1 County Wildfire Preparedness and Outreach

The County should continue its efforts to strengthen the RFPDs and work closely with the federal

and state agencies. The RFPDs will continue to need wildfire training, as well as updating of equipment. Emergency evacuation routes, evacuation centers and other considerations need to be in place. Good communication and cooperation among all fire authorities are essential to reducing wildfire risk throughout the County.

County preparedness occurs before a wildfire emergency through the use of appropriate Firewise building codes for new construction and encouragement of retrofits for existing structures. Briefly, these codes include the use of non-flammable building materials, the creation of access roads suitable for emergency vehicles, the preservation of available water for structure protection and the development of a defensible space.

The purpose of a community wide education program is to:

1) educate the public to the risks of wildfire to property and life (during the summer months)
2) urge property owners to take responsibility in reducing the risk of wildfire and to create defensible space around their structures
3) inform the public as to the benefits of different types of fire resistant building materials and
4) increase awareness of the natural role of low intensity fire in grassland and woodland ecosystems and the benefits of thinning fuel loaded areas.

Citizen involvement in wildfire mitigation in and around communities is a necessary element for success. Public education and outreach are effective means of engaging the public in the process of reducing risks to a community, can help identify problems and solutions for both federal and private landowners and can offer opportunities for partnerships and agreements. Such education and outreach has been shown to motivate homeowners to take Firewise measurements around their individual properties, thereby contributing to the reduction of wildfire hazards in a community.

6.2 Emergency Procedures and Evacuations Routes

In the event that the County Sheriff orders a community to evacuate because of threatening wildfire, residents should leave in an orderly manner. The preferred evacuation routes would be proclaimed by the Sheriff.

Before residents leave, they should take every precaution to reduce the chance of structure loss as time allows. Human safety is the number one concern in an evacuation. Action could include thoroughly irrigating the defensible space, watering down the roof and removing all debris from rain gutters. Remove all flammable materials thirty feet or more from the house such as wood piles, leaves, debris and patio furniture. Windows and doors should be closed but not locked. Other openings should be covered. A ladder should be placed for roof access by firefighters. A fully charged hose that reaches around the house should also be available for firefighter use.

Families should have in place meeting locations and phone numbers to call in case family members are separated. Families should take with them important papers, documents, pets, food, water and other essential items. The house should be monitored for smoke for several hours after return. Embers may lodge in small cracks and crevices and could smolder for several hours before flaming.

Evacuation routes for each community are listed in Table 11. Even though some communities such as New Pine Creek have only one road, it is unlikely that wildfire would threaten both directions.

Table 11 Emergency Evacuation Routes

Community	Evacuation Route
Lakeview	State Highway 140, State Highway 31, US Highway 395
New Pine	US Highway 395
Valley Falls	State Highway 31, US Highway 395
Westside	Tunnel Hill Road
Paisley	State Highway 31

6.3 Wildfire-suppression Operations

Currently, all wildfires in south-central Lake County are aggressively suppressed regardless of cause. A Mutual Aid Agreement exists among the various County fire authorities to aid and support suppression activities as appropriate. Fire authorities responsible for wildfire-suppression in south-central Lake County are:

- Lakeview Interagency Fire Center
- New Pine Creek RFPD
- Westside/Thomas Cree RFPD
- Paisley Volunteer Fire Department

Air and land are the two modes for initial wildfire attack. The location of fire dictates the mode of initial attack. An air attack would most likely occur in roadless or limited-access areas. The BLM, USFS and ODF have air attack resources at their disposal. Smoke jumpers and a retardant base are located in Roseburg. Air tanker bases are located in Klamath Falls and Medford. All of these fire support facilities are fully capable of initial attack on fires that are not accessible by roads.

Initial attack on land to suppress a wildfire would depend on its location in the assessment area. A RFPD could provide a first response to wildfire occurring in their jurisdiction. The interagency fire crews would respond to wildfire on BLM, USFS and private forestlands. If the wildfire escapes initial attack, then the other fire authorities may be called to action through the Mutual Aid Agreement. If conditions warrant, the federal and state agencies can call in more support from other areas. LIFC has seven engines working out of Lakeview. ODF has engines stationed throughout Lake County and additional engines stationed at Klamath Falls. Federal resources are

available through the Northwest Coordination Center (NWCC) located in Portland. State resources are coordinated through the ODF Salem Coordination Center. ODF has an agreement with Oregon Department of Corrections for the use of inmate resources to fight fires and support fire-suppression activities. There is also a very large private work force that can be activated through contractual arrangements to support wildfire suppression. Contracting equipment consists of dozers, Lowboys, water tenders, engines and 20 person crews and personnel with specialized talents.

Extended attack would be handled through an Incident Management Team (IMT). The IMT has the ability to activate all resources needed to suppress wildfire. They would also set up a small city-type camp with the capabilities of feeding and housing all crews. The IMT supports the crews with equipment and supplies to safely suppress the fire. The important factor is that the IMT uses outside agency help and contractors so local firefighting personnel can be released to their regular initial-attack duties. The size of the IMT and suppression forces depends on many aspects such as fire size, location, management objectives and values at risk. The Central Oregon IMT, Blue Mountain IMT Oregon Department of Forestry IMT and Pacific Northwest National IMT are available and all partially staffed by local agency personnel.

Structure fires are handled much differently than wildfires because specialized training and equipment are needed. The Lakeview FD, Paisley Volunteer FD, New Pine Creek FD and Westside Thomas Creek FPD are the only fire authorities in south-central Lake County properly trained and authorized for structure fire fighting. The federal agencies are not trained or equipped for structure fire-suppression. Although federal agencies personnel are not trained, equipped or organized to fight structure fires, they will assist the fire departments in protecting exposures and surrounding vegetation by cleaning around houses, setting up pumps and locating and constructing fire lines.

In the event that numerous structures are threatened by wildfire, the County can request the Governor declare an emergency and invoke the Conflagration Act. This will make available additional resources to protect structures. However, all local structural resources must first be depleted.

7 south-central lake county cwpp monitoring and evaluations

7.1 CWPP Plan Adoption

A meeting was convened on November 29, 2005 at the Lakeview Elks Lodge to present the South-central Lake County CWPP to the Core Team, fire authorities, stakeholders and the public. A 10 day public response period occurred before the CWPP was finalized and presented to the Core Team.

The south-central Lake County CWPP provides a foundation and resources for understanding wildfire risk and opportunities to reduce potential losses from wildfire. Individual communities, RFPDs and private landowners can take action by developing specific fire plans or by participating in countywide activities for prevention and protection.

HFRA and FEMA Disaster – Mitigation Act of 2000 require adoption of this plan by the Core Team and Lake County Commissioners. This plan will allow the County to be competitive for hazardous fuels and non-fuels mitigation funding that may assist with its implementation. Furthermore, adoption of this plan highlights the partnerships among fire districts, local government, community based organizations and public agencies.

7.2 Sustaining CWPP Efforts

Implementing and sustaining the CWPP is the key to success. This is the responsibility of the Core Team. Building partnerships among community based organizations, fire protection authorities, local governments, public land management agencies and private landowners is necessary in identifying and prioritizing measures to reduce wildfire risk. Maintaining this cooperation is a long-term effort that requires the commitment of all partners involved. The CWPP encourages citizens to take an active role in identifying needs, developing strategies and implementing solutions to address wildfire risk by assisting in the development of local community wildfire plans and participating in county-wide fire prevention activities.

Lake County is committed to supporting the RFPDs in their fire protection efforts, both short and Long-term. The County will continue to provide support in maintaining countywide risk assessment information and emergency management coordination. The Core Team will work on implementing the fire plan by working with fire authorities, community organizations, private land owners and public agencies to coordinate fuels reduction and other mitigation projects.

7.3 CWPP Oversight, Monitoring and Evaluation

The south-central Lake County Core Team will be responsible for CWPP monitoring and evaluation through regular meetings, public involvement and coordination with all fire protection authorities (Table 12). Monitoring is the collection and analysis of information to assist with decision making and accountability and to provide the basis for change. Evaluation will include the effectiveness of past fuels reduction and non-fuels mitigation projects and recent wildfire-suppression efforts. Overtime, monitoring and evaluation measures will progress in a way that will determine if the CWPP goals and objectives are being obtained.

Table 12 Monitoring and Evaluation Tasks

Objective	Tasks	Timeline

Risk Assessment	• Use reliable data that is compatible among the partner agencies • Update the CWPP as new information becomes available • Continue to asses wildfire risk to communities and private landowners	Annual Annual Bi-annual
Fuels Reduction	• Identify and prioritize fuels treatment projects on public and private lands • Track fuels reduction and defensible space projects on private land • Monitor fuels reduction projects on evacuation routes • Track grants and other funding sources and make appropriate application	Annual Bi-annual Annual On-going
Emergency Management	• Review suitability and the need for fuels reduction along evacuation routes	Annual
Public Outreach	• Plan and hold Firewise education week • Provide Firewise pamphlets at public events • Evaluate techniques used to motivate and educate private landowners.	Annual Annual Annual

7.4 Funding and Technical Resources

Financial resources that provide support for various wildland fire mitigation action items include various State and Federal grants administered though ODF, BLM, the Natural Resource Conservation Service and FEMA. Some funding sources are not targeted at fuel management, but oftentimes multiple resource management objectives can still be achieved when the focus is on only one. Funding requests should be coordinated with ODF, BLM and the USFS. Potential funding sources include, but are not limited to, the following:

- Rural Fire Assistance: Assistance is funded 90/10 by USFS grants to State Foresters.

- Federal Excess Property: USFS equipment is loaned to State Foresters. Recipients include State Forestry Programs and Volunteer Fire Services.

- Economic Action Programs (EAP): A USFS, State and Private program that can assist in diversification for uses of forest products, including utilization of hazardous fuels byproducts; eighty percent federal funding, twenty percent nonfederal funding (http://www.fs.fed.us/r3/spf/community/).

- Assistance to Fire Fighters: The FEMA and US Fire Administration Program can improve fire fighting operations, services and equipment; ninety percent federal funding, ten percent nonfederal funding (www.usfa.fema.gov).

- Pre-Disaster Mitigation Program: A FEMA program delivered through the State's emergency management agency to be used for emergency management and assistance to local governments to develop all hazard mitigation plans.

- Hazardous fuels reduction grants for south-central Lake County can be combined from developments in the County and applied for though ODF. Grant administration costs should be included into countywide grant requests.

The following information was summarized from "*Incentive Programs for Resource Management and Conservation*" (OSU Extension Publication #EC1119) and other sources. This lists the major incentive programs available to assist communities and landowners with the management of their lands. These programs are not limited to the issues of Communities at Risk and are able to provide similar types of cost share opportunities on private lands in all areas of south-central Lake County. Landowners need to check with the participating agency for applicability to their property and needs:

- 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 percent 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. Projects are funded from one "pot" of funds in Salem. Funds are allocated to applications that arrive in Salem on a first come, first served basis, by priority. Current funding available is $6,300. Unused funds continually recycle back into the "pot" as projects are completed or cancelled. In addition, we anticipate that "new" funds will be made available to Oregon in late 2005.

- Oregon 50 percent under producing Forest Land Conversion Tax Credit: State tax credit on cost of converting under producing 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 and Community Forest 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 (ten percent) 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 ten percent 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): Cost shares 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.

7.5 Community Fire Assistance

- Volunteer Fire Assistance (VFA): Assistance to Volunteer Fire Departments for equipment and 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.

- Special funding for Insect & Disease control: The cost share amounts vary depending on the acreage owned. It varies from thirty-three percent to fifty percent, with the larger landowners being eligible for only thirty-three percent of the costs. Contact the local ODF office.

- Title II: Funding is available from the County Commissioners for projects to enhance forest objectives. Contact the County Commissioners.

Numerous technical resources are available for wildfire mitigation. Internet home pages of ODF, the U.S. Forest Service, the Bureau of Land Management and NFPA can be accessed for additional information:

- Oregon Department of Forestry (ODF), internet address for information about Oregon forests and lands; Website: Oregon Department of Forestry

- Federal Wildland Fire Policy, Wildland /Urban Interface Protection Federal report describing areas that need improvement nationally; Website: www.fs.fed.us/land/wildfire

- National Academy of Public Administration (NAPA), Wildfire-suppression: Strategies For Containing Costs; Website: National Academy of Public Administration

- Bureau of Land Management (BLM), National Fire Plan and links; Website: Bureau of Land Management

- USFS Fire Sciences Laboratory, structure protection information; Website: www.firelab.org

- Firewise, community wildfire planning and outreach tools and information, construction

and landscaping practices; Website: www.firewise.org

- Federal Emergency Management Agency (FEMA), information on emergency planning, protection and funding; Website: www.fema.gov

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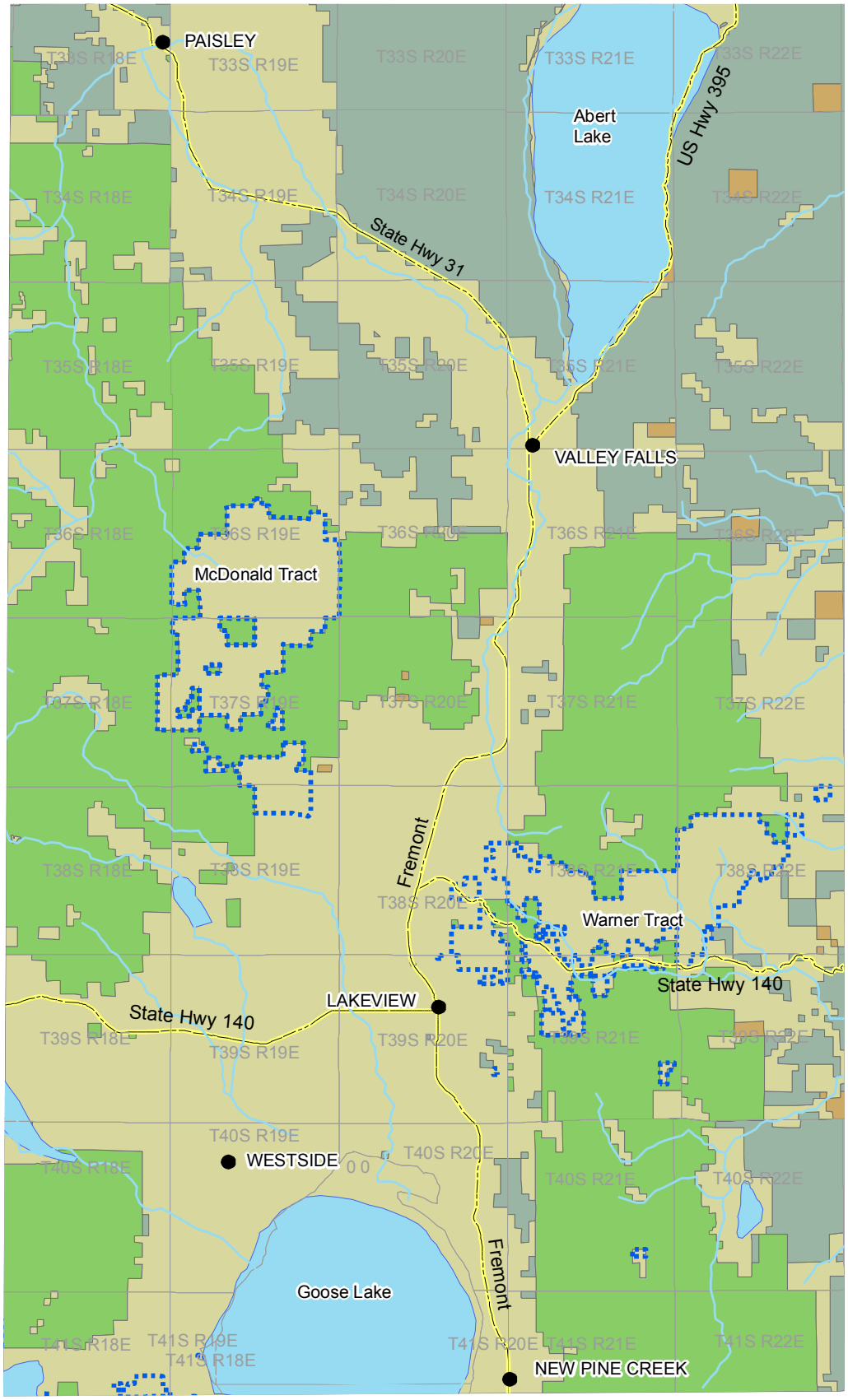
Map 1 - Land Ownership



Land Ownership

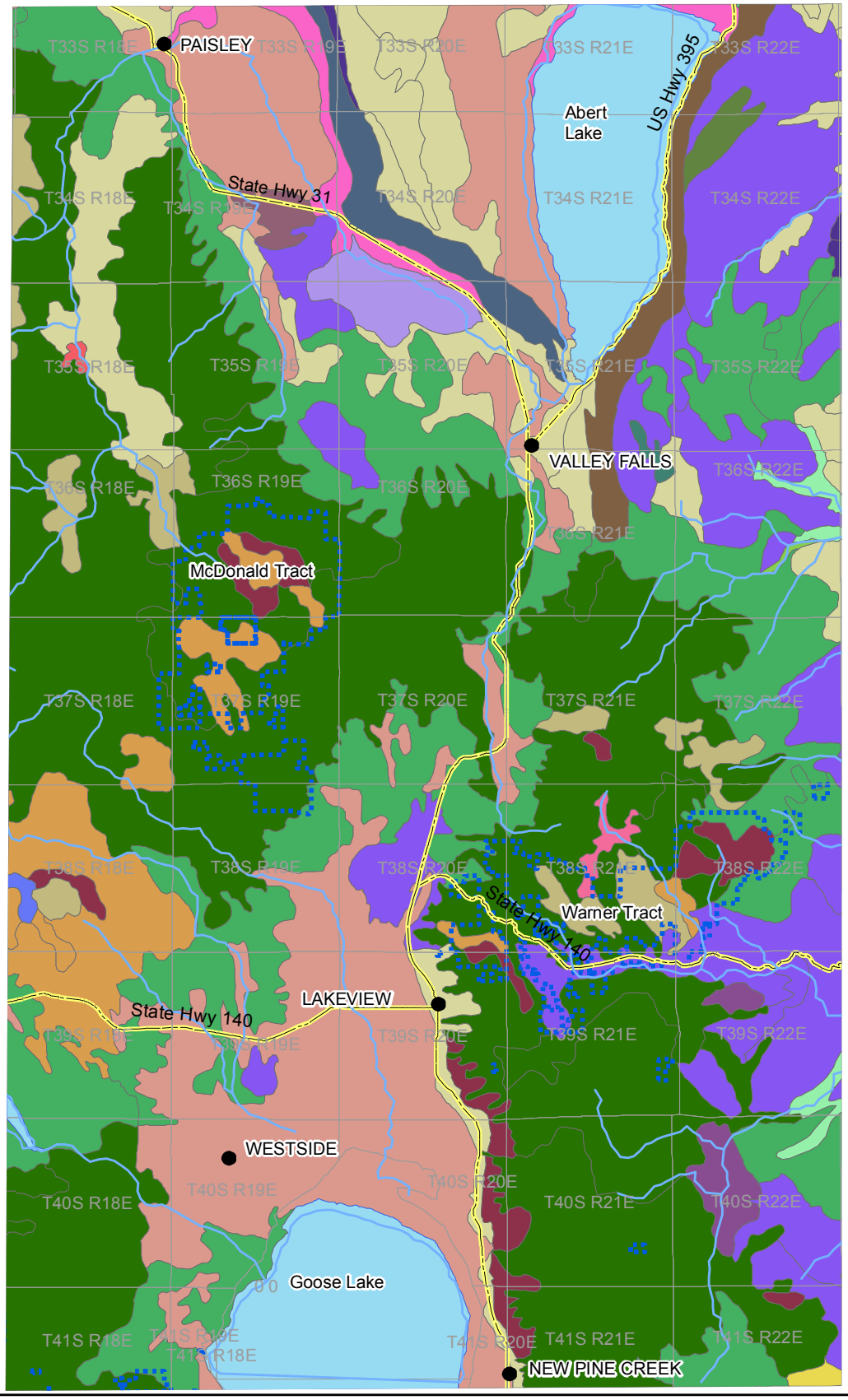
- BLM (177,777 Acres)
- Private (484,957 Acres)
- State Lands (4,230 Acres)
- US Forest Service (286,284 Acres)
- Collins Timber Company Land
- Highways
- Cities
- Township & Range
- Rivers

1:358,000

0 3.75 7.5 15 Miles

Walsh

Map 2 - Vegetation



Vegetation

- Agricultural cropland
- Alkaline grasslands
- Annual grasslands
- Big sagebrush
- Bitterbrush
- Black greasewood
- Black greasewood playa or bottomland
- Bottlebrush squirreltail
- Douglas fir
- Hardstem bulrush
- Low sagebrush
- Mountain mahogany
- Ponderosa pine forest
- Ponderosa pine forests
- Quaking aspen groves
- Recent timber harvest areas
- Rimrock and canyon shrubland
- Sandy bitterbrush steppe
- Sedge montane meadows and wetlands
- Subalpine fir
- True fir
- Tufted hairgrass
- Western juniper
- Willow species floodplain riparian
- Open water
- Collins Timber Company Land
- Cities
- Rivers
- Highways
- Township & Range

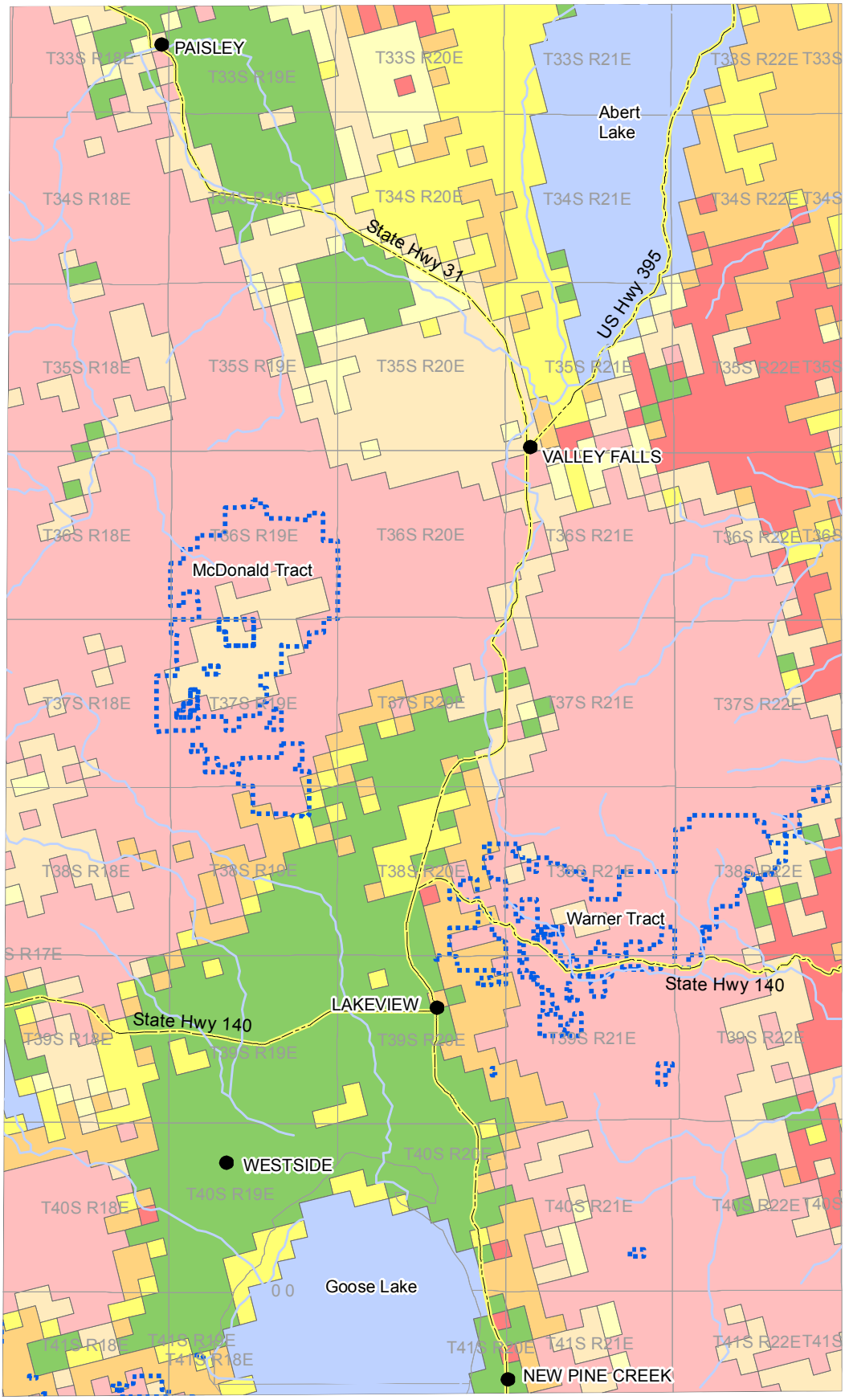
0 3 6 12 Miles

N

1:360,000

Walsh

Map 3 - Historic Fire Regime



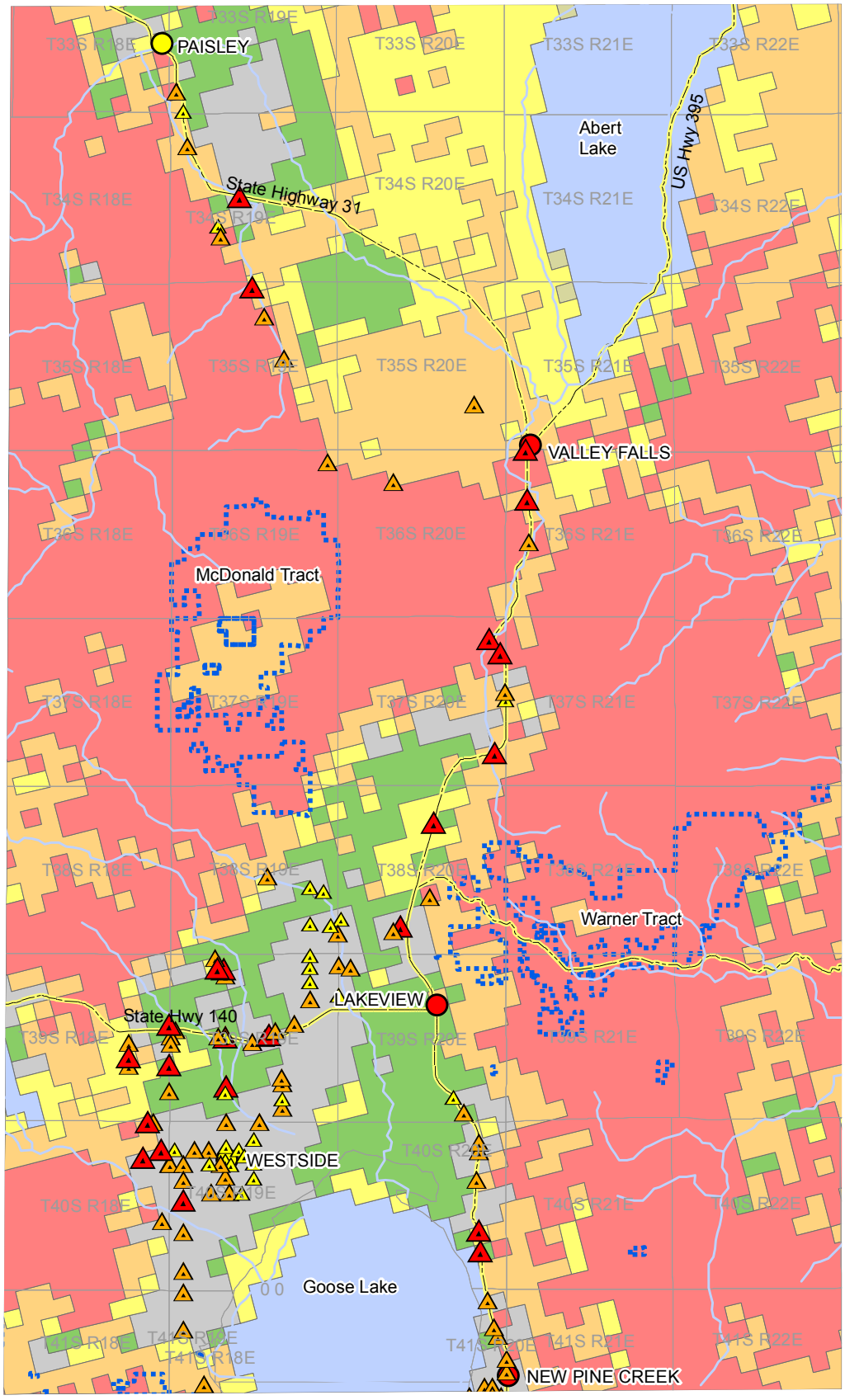
- 0-35 yrs; Condition Class 1 (25,344 Acres)
- 0-35 yrs; Condition Class 2 (124,195 Acres)
- 0-35 yrs; Condition Class 3 (393,771 Acres)
- 35-100+ yrs; Condition Class 1 (62,242 Acres)
- 35-100+ yrs; Condition Class 2 (81,194 Acres)
- 35-100+ yrs; Condition Class 3 (44,260 Acres)
- Agriculture & Non-Vegetative Areas
- Water
- Communities
- Rivers
- Highways
- Collins Timber Company Lands

0 4 8 16 Miles

1:350,000

Walsh

Map 4 - Fire Regime Condition Class



Condition Class 1 (87,587 Acres)
Condition Class 2 (205,930 Acres)
Condition Class 3 (438,031 Acres)

Agriculture
Non-Vegetation
Development
Water

Structure Hazard
Low Hazard
Moderate Hazard
High Hazard

Community Hazard
High
Moderate

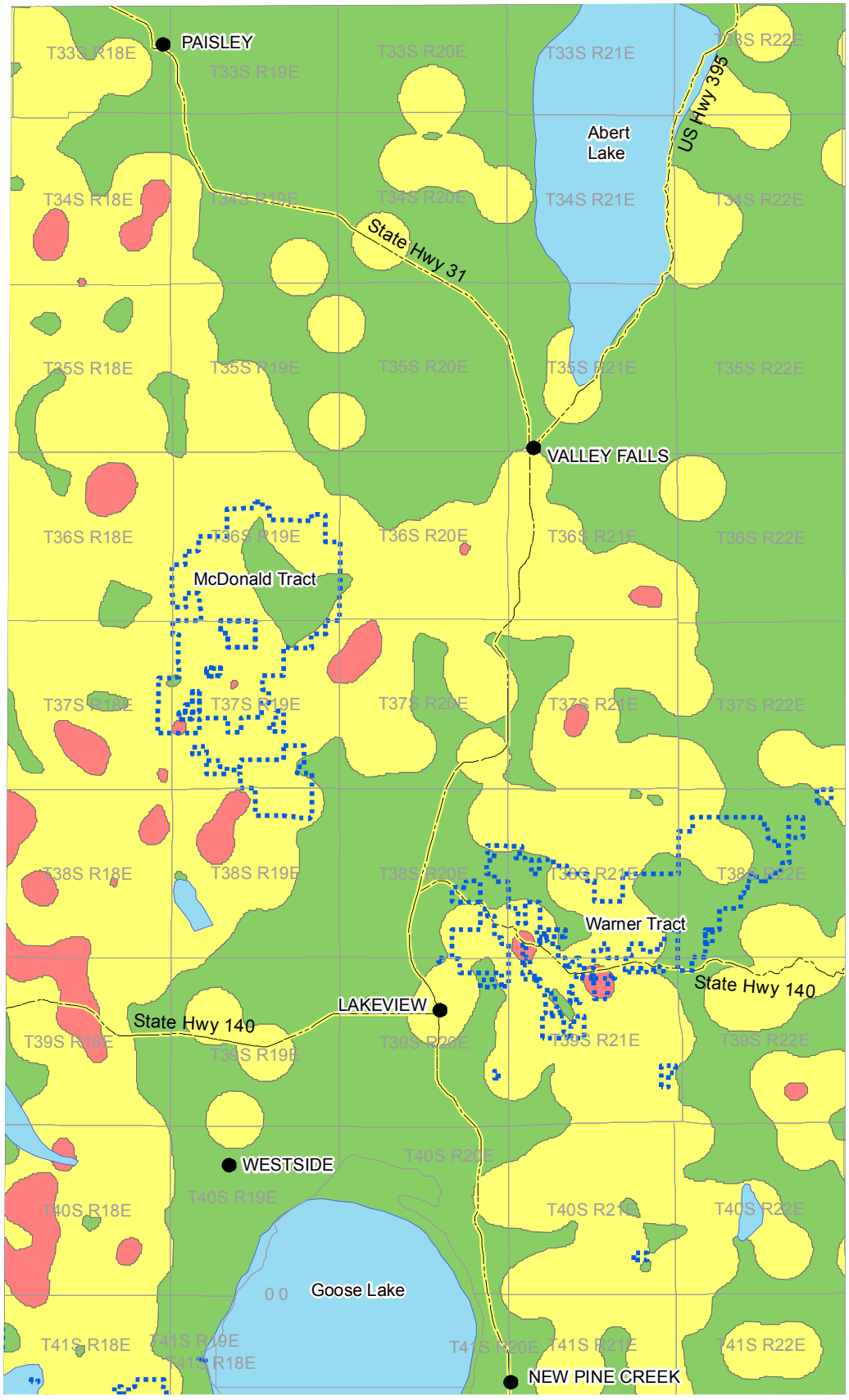
Rivers
Highways
Township and Range
Collins Timber Company Land

0 5 10 20 Miles

1:360,000

Walsh

Map 5 - Ignition Risk Potential



Low: 0-0.1 fires per 1,000 acres per 10 years (483,510 Acres)

Moderate: 0.1-1.1 fires per 1,000 acres per 10 years (444,654 Acres)

High: 1.1+ fires per 1,000 acres per 10 years (25,095 Acres)

Cities

Township & Range

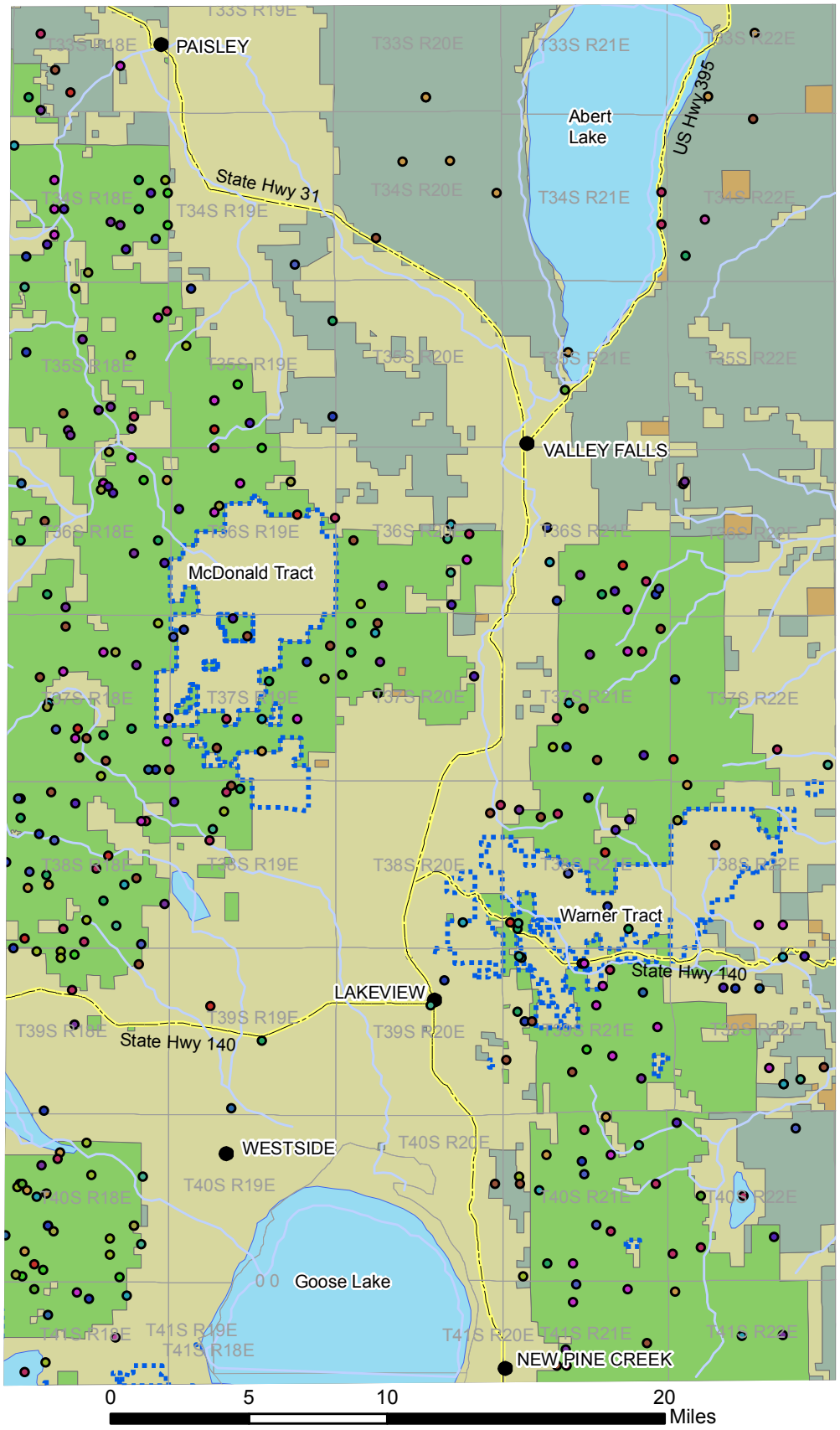
Collins Timber Company Land

0 4.5 9 18 Miles

1:356,000

Walsh

Map 6 - Fire History



1:368,000

Land Ownership

- BLM (177,777 Acres)
- Private (484,957 Acres)
- State Lands (4,230 Acres)
- US Forest Service (286,284 Acres)

- Collins Timber Company Land
- Highways
- Cities
- Township & Range
- Rivers

Fire History

1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003

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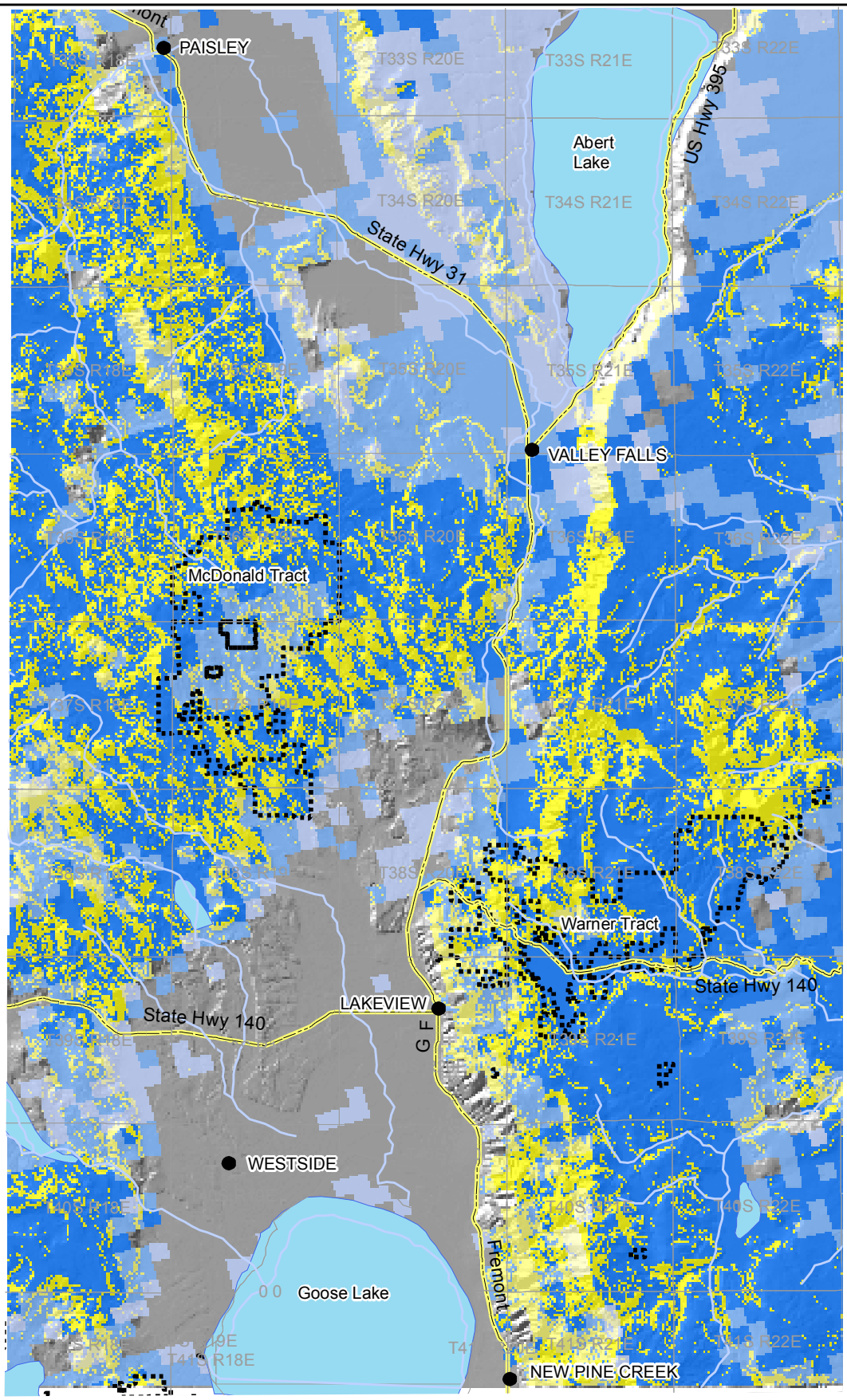
Map 7 - OSB 360 Land Classification



Fire Regime Condition Class 1 on Slope of 25% or less (74,187 Acres)
Fire Regime Condition Class 2 on Slope of 25% or less (158,655 Acres)
Fire Regime Condition Class 3 on Slope of 25% or less (302,538 Acres)
Fire Regime Condition Class 1 on Slope more than 25% (13,100 Acres)
Fire Regime Condition Class 2 on Slope more than 25% (44,358 Acres)
Fire Regime Condition Class 3 on Slope more than 25% (133,489 Acres)

0 5 10 20 Miles

Collins Timber Company Land
Cities
Highways
Township & Range

1:348,600

Walsh

WILDLAND FIRE RISK AND HAZARD SEVERITY ASSESSMENT FORM

Assign a value to the most appropriate element in each category and place the number of points in the column on the right.

Element	Points	
A. Means of Access		
1. Ingress and egress		
a. Two or more roads in/out	0	_____
b. One road in/out	7	_____
2. Road width		
a. ≥7.3 m (24 ft)	0	_____
b. ≥6.1 m (20 ft) and <7.3 m (24 ft)	2	_____
c. <6.1 m (20 ft)	4	_____
3. All-season road condition		
a. Surfaced road, grade <5%	0	_____
b. Surfaced road, grade >5%	2	_____
c. Non-surfaced road, grade <5%	2	_____
d. Non-surfaced road, grade >5%	5	_____
e. Other than all-season	7	_____
4. Fire Service Access		
a. ≤91.4 m (300 ft) with turnaround	0	_____
b. >91.4 m (300 ft) with turnaround	2	_____
c. <91.4 m (300 ft) with no turnaround	4	_____
d. ≥91.4 m (300 ft) with no turnaround	5	_____
5. Street signs		
a. Present [10.2 cm (4 in.) in size and reflectorized]	0	_____
b. Not present	5	_____
B. Vegetation (Fuel Models)		
1. Characteristics of predominate vegetation within 91.4 m (300 ft)		
a. Light (e.g., grasses, forbs, sawgrasses, and tundra) NFDRS Fuel Models A, C, L, N, S, and T	5	_____
b. Medium (e.g., light brush and small trees) NFDRS Fuel Models D, E, F, H, P, Q, and U	10	_____
c. Heavy (e.g., dense brush, timber, and hardwoods) NFDRS Fuel Models B, G, and O	20	_____
d. Slash (e.g., timber harvesting residue) NFDRS Fuel Models J, K, and L	25	_____
2. Defensible space		
a. More than 30.48 m (100 ft) of vegetation treatment from the structure(s)	1	_____
b. 21.6 m to 30.48 m (71 ft to 100 ft) of vegetation treatment from the structure(s)	3	_____
c. 9.14 m to 21.3 m (30 ft to 70 ft) of vegetation treatment from the structure(s)	10	_____
d. <9.14 m (30 ft) of vegetation treatment from the structure(s)	25	_____
C. Topography Within 91.4 m (300 ft) of Structure(s)		
1. Slope <9%	1	_____
2. Slope 10% to 20%	4	_____
3. Slope 21% to 30%	7	_____
4. Slope 31% to 40%	8	_____
5. Slope >41%	10	_____

(NFPA 1144, 1 of 2)

FIGURE A.4.2 Example of Hazard Assessment Form

Element	Points	
D. Additional Rating Factors (rate all that apply)		
1. Topographical features that adversely affect wildland fire behavior	0–5	
2. Areas with a history of higher fire occurrence than surrounding areas due to special situations (e.g., heavy lightning, railroads, escaped debris burning, and arson)	0–5	
3. Areas that are periodically exposed to unusually severe fire weather and strong dry winds	0–5	
4. Separation of adjacent structures that can contribute to fire spread	0–5	
E. Roofing Assembly		
1. Class A roof	0	
2. Class B roof	3	
3. Class C roof	15	
4. Nonrated	25	
F. Building Construction		
1. Materials (predominate)		
a. Noncombustible/fire-resistive siding, eaves, and deck (*see Chapter 8*)	0	
b. Noncombustible/fire-resistive siding and combustible deck	5	
c. Combustible siding and deck	10	
2. Building setback relative to slopes of 30% or more		
a. ≥9.14 m (30 ft) to slope	1	
b. <9.14 m (30 ft) to slope	5	
G. Available Fire Protection		
1. Water source availability		
a. Pressurized water source availability		
1892.7 L/min (500 gpm) hydrants ≤304.8 m (1000 ft) apart	0	
946.4 L/min (250 gpm) hydrants ≤304.8 m (1000 ft) apart	1	
b. Nonpressurized water source availability (off site)		
≥946.4 L/min (250 gpm) continuous for 2 hours	3	
<946.4 L/min (250 gpm) continuous for 2 hours	5	
c. Water unavailable	10	
2. Organized response resources		
a. Station ≤8 km (5 mi.) from structure	1	
b. Station >8 km (5 mi.) from structure	3	
3. Fixed fire protection		
a. NFPA 13, 13R, 13D sprinkler system	0	
b. None	5	
H. Placement of Gas and Electric Utilities		
1. Both underground	0	
2. One underground, one aboveground	3	
3. Both aboveground	5	
I. Totals for Home or Subdivision (Total of all points)		

Hazard Assessment	Total Points
Low hazard	<40
Moderate hazard	40–69
High hazard	70–112
Extreme hazard	>112

(NFPA 1144, 2 of 2)

FIGURE A.4.2 *Continued*