

# **Harney County Community Wildfire Protection Plan**

WALSH Project Number: 6224-010  
December 23, 2005

# HARNEY COUNTY COMMUNITY WILDFIRE PROTECTION PLAN

December 23, 2005

Prepared for: Harney County Planning Department  
450 North Buena Vista Avenue  
Burns, Oregon 97220  
541-573-6655

Prepared by: \_\_\_\_\_  
Jerry R. Barker, Ph.D.  
Rangeland and Fire Ecologist

Prepared by: \_\_\_\_\_  
Angela Glenn  
Natural Resource Management Specialist

*Submitted by*  
**WALSH ENVIRONMENTAL SCIENTISTS AND ENGINEERS, LLC**  
4888 Pearl East Circle, Suite 108  
Boulder, Colorado 80301  
(303) 443-3282

WALSH Project Number: 6224-010

# TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION.....</b>	<b>1</b>
1.1	CWPP PURPOSE AND PROCESS .....	1
1.2	HARNEY COUNTY NEED FOR CWPP.....	2
1.3	WILDLAND FIRE MANAGEMENT PRIMER .....	3
1.4	REGULATOR FRAMEWORK .....	4
1.5	HARNEY COUNTY WILDFIRE MANAGEMENT GOALS AND OBJECTIVES.....	5
<b>2</b>	<b>HARNEY COUNTY PROFILE .....</b>	<b>6</b>
2.1	COUNTY SETTING.....	6
2.2	COMMUNITIES.....	6
2.3	CLIMATE .....	7
2.4	COUNTY VEGETATION .....	8
2.5	WATER RESOURCES .....	8
2.6	FIRE PROTECTION AUTHORITIES .....	8
2.7	VALUES AT RISK .....	11
<b>3</b>	<b>CWPP PROCESS .....</b>	<b>12</b>
3.1	HARNEY COUNTY CWPP REQUIREMENTS.....	12
3.2	HARNEY COUNTY CWPP CORE TEAM.....	13
3.3	FEDERAL AGENCY COLLABORATION .....	<del>13</del> 14
<b>4</b>	<b>WILDLIFE RISK ASSESSMENT .....</b>	<b>14</b>
4.1	APPROACH TO THE WILDFIRE RISK ASSESSMENT .....	14
4.2	WILDFIRE HISTORY.....	<del>15</del> 16
4.3	QUESTIONNAIRE SUMMARY .....	17
4.4	WILDFIRE RISK TO COMMUNITIES.....	<del>18</del> 19
4.5	WILDFIRE RISK TO RURAL STRUCTURES.....	<del>20</del> 21
<b>5</b>	<b>WILDFIRE MITIGATION PLAN .....</b>	<b><del>21</del>22</b>
5.1	APPROACH TO MITIGATION PLANNING .....	<del>21</del> 22
5.2	SUGGESTED ACTIONS TO ACHIEVE DESIRED RESULTS.....	<del>22</del> 23
5.3	HAZARDOUS FUEL PROJECTS AND PRIORITY .....	<del>24</del> 25
5.4	NON-FUELS MITIGATION NEEDS .....	<del>27</del> 28
5.5	PROTECTION OF HOMES AND STRUCTURES .....	<del>28</del> 29
5.6	NEED FOR ACTION .....	<del>29</del> 30
<b>6</b>	<b>EMERGENCY OPERATIONS.....</b>	<b><del>30</del>31</b>
6.1	COUNTY WILDFIRE PREPAREDNESS AND OUTREACH.....	<del>30</del> 31
6.2	EMERGENCY PROCEDURES AND EVACUATIONS ROUTES .....	<del>30</del> 31
6.3	WILDFIRE SUPPRESSION OPERATIONS.....	<del>31</del> 32
<b>7</b>	<b>HARNEY COUNTY CWPP MONITORING AND EVALUATION .....</b>	<b><del>32</del>34</b>
7.1	CWPP PLAN ADOPTION.....	<del>32</del> 34
7.2	SUSTAINING CWPP EFFORTS.....	<del>33</del> 34
7.3	CWPP OVERSIGHT, MONITORING AND EVALUATION.....	<del>33</del> 35
<b>8</b>	<b>FUNDING SOURCES AND TECHNICAL RESOURCES .....</b>	<b><del>34</del>35</b>
8.1	COMMUNITY FIRE ASSISTANCE.....	<del>36</del> 38
<b>9</b>	<b>BIBLIOGRAPHY .....</b>	<b><del>38</del>40</b>

## LIST OF FIGURES LOCATED IN APPENDIX A

MAP 1	HARNEY COUNTY LAND OWNERSHIP & FIRE PROTECTION AUTHORITIES
MAP 2	HARNEY COUNTY VEGETATION
MAP 3	HARNEY COUNTY HISTORIC FIRE CONDITION CLASS
MAP 4	HARNEY COUNTY FIRE REGIME CONDITION CLASS
MAP 5	HARNEY COUNTY IGNITION RISK POTENTIAL
MAP 6	HARNEY COUNTY FIRE HISTORY
MAP 7	BURNS-HINES MITIGATION MAP
MAP 8	CRANE MITIGATION MAP
MAP 9	DREWSEY MITIGATION MAP
MAP 10	FRENCHGLEN MITIGATION MAP
MAP 11	FIELDS MITIGATION MAP
MAP 12	DIAMOND MITIGATION MAP
MAP 13	ANDREWS MITIGATION MAP
MAP 14	RILEY MITIGATION MAP

## LIST OF TABLES

TABLE 1 HARNEY COUNTY GOALS AND OBJECTIVES FOR WILDFIRE MANAGEMENT PLANNING .....	5
TABLE 2 COMMUNITY SUMMARY INFORMATION .....	6
TABLE 3 MONTHLY CLIMATE SUMMARY FOR BURNS CITY, OREGON FOR THE YEARS OF 1971–2000 .....	7
TABLE 4 THE EIGHT STEPS TO DEVELOPING A CWPP FOR HARNEY COUNTY .....	12
TABLE 5 HARNEY COUNTY CWPP CORE TEAM MEMBERS .....	13
TABLE 6 WILDFIRE HISTORY FOR THE YEARS 1993–2004 .....	17
TABLE 7 QUESTIONNAIRE SUMMARY .....	<del>17</del> 1748
TABLE 8 WRITTEN RESPONSES TO QUESTION 7 .....	18
TABLE 9 SUMMARY OF RESPONSES TO QUESTION NUMBER 8 .....	<del>18</del> 1849
TABLE 10 COMMUNITY HAZARD RATING AND CONTRIBUTING FACTORS .....	19
TABLE 11 RURAL HARNEY COUNTY STRUCTURE CLASSIFICATION AS TO .....	<del>20</del> 2021
TABLE 12 EMERGENCY EVACUATION ROUTES .....	<del>31</del> 3132
TABLE 13 MONITORING AND EVALUATION TASKS .....	<del>33</del> 3335

## LIST OF APPENDICES

APPENDIX A	FIGURES
APPENDIX B	WILDLAND FIRE RISK AND HAZARD SEVERITY ASSESSMENT FORM
APPENDIX C	QUESTIONNAIRE ON HARNEY COUNTY WILDLAND FIRE ASSESSMENT
APPENDIX D	BROCHURE – FIREWISE COMMUNITIES

## LIST OF ACRONYMS AND ABBREVIATIONS

BIFZ	Burns Interagency Fire Zone
BLM	Bureau of Land Management
CRP	Conservation Reserve Program
CWPP	Community Wildfire Protection Plans
EQIP	Environmental Quality Incentives Program
FEMA	Federal Emergency Management Agency
FEPP	Federal Excess Personal Property
FRCC	Fire Regime Condition Class
GIS	Geographic Information System
HFRA	Healthy Forests Restoration Act
IMT	Incident Management Team
IRP	Ignition Risk Potential
NAPA	National Academy of Public Administration
NEPA	National Environmental Protection Act
NFPA	National Fire Protection Association
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
USFWS	US Fish and Wildlife Service
USFS	US Forest Service
VFA	Volunteer Fire Assistance
WFU	Wildland Fire Use
WHIP	Wildlife Habitat Incentives Program

## EXECUTIVE SUMMARY

The Healthy Forests Restoration Act (HFRA) of 2003 provides the impetus for wildfire risk assessment and planning at the county and community level. 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 devise 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 mitigation, and non-fuels mitigation, community preparedness, and emergency procedures. The Core Team provides oversight to the development of the CWPP and its implementation in Harney County.

The focus of the Harney County CWPP is county-wide with emphasis on the communities of Burns, Hines, Drewsey, Crane, Diamond, Frenchglen, Fields, Andrews, Riley, and rural residences throughout the County. Human life and welfare are values at risk to wildfire because of the buildup of hazardous fuels around communities and structures, poor emergency vehicle ingress and egress, a large area to cover with the fire authorities, and inadequately trained and/or equipped fire suppression authorities. Throughout the County, there are scattered small communities and ranches with houses and out-buildings without structural fire protection because they are outside the Burns or Hines Fire Departments 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 Harney County. During the 12 year period of 1993 to 2004, there were 1,174 wildfires for an average of 98 per year. Lightning caused 78 percent of wildfires, while 22 percent 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. The 1990 Pine Springs Basin Conflagration that burned 73,700 acres and threatened Burns, Hines, and Riley was lightning-caused.

Natural resource management policy and changing ecological conditions have interacted in ways that have resulted in hazardous fuel situations throughout Harney 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, resulting in the loss of important economic and ecological values.

There are varieties of fuels around communities, ranches, and structures that create problems for fire protection. Fuels include ponderosa pine and juniper forests, 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 County include the Central Oregon Forest Protection District, Burns and Hines Fire Departments, four Rangeland Fire Protection Associations (RFPA), Burns Interagency Fire Zone (BIFZ), U.S Fish and Wildlife Service (USFWS), Oregon Department of Forestry (ODF), and the Burns Paiute Indian Reservation. 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, questionnaires, and a public meeting were used to obtain various types of information to assess the risk of wildfire in Harney County. All information was gathered, analyzed, and prepared in the CWPP format by Walsh Environmental Scientists and Engineers, LLC. A project website was maintained by the Harney County Planning Department and provided project updates and information to promote public awareness and outreach.

A direct mailing occurred on October 6, 2005 to 1,059 rural Harney County addresses. The direct mailing consisted of a cover letter from the Planning Director, a questionnaire, and a Firewise pamphlet. The cover letter explained the risk assessment project, announced an upcoming public meeting, and requested that homeowners complete and return the questionnaire. The purpose of the questionnaire was to judge public opinion on the level of wildfire risk in the county, evaluate values at risk, and assess mitigation practices needed to reduce risk (Appendix C). The Firewise brochure explained proper home construction and landscaping practices to reduce the risk of wildfire loss.

A public meeting was convened on December 1, 2005 at 7:00 pm in the Burns Senior Center. Newspaper and radio releases announced the meeting in addition to the direct mailing. The purpose of the meeting was to explain the purpose of the wildfire risk assessment, present the findings of the risk assessment, and provide an opportunity for the public to participate in the process, review of findings, and comment on proposed mitigation possibilities such as hazardous fuels management and non-fuel projects. A draft report of the wildfire risk assessment and mitigation plan was posted on the Harney County website to encourage public review and comment.

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 were determined based on the total score. Field surveys were conducted during September 2005 to assess the level of risk and hazard to the 9 communities and 210 rural houses located throughout the County.

Seven of the nine 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.



### Community Hazard Rating and Contributing Factors

Community	Hazard Rating	Contributing Factors
Burns/Hines East	Moderate Hazard	<ul style="list-style-type: none"> <li>Fuels of dried grass and weeds in proximity to structures</li> <li>Lack of defensible space around some homes</li> <li>Combustible roof or siding on some homes</li> </ul>
Burns/Hines West	High Hazard	<ul style="list-style-type: none"> <li>Fuels of sagebrush, juniper, dried grass and weeds in proximity to structures</li> <li>Surrounding terrain</li> <li>Lack of defensible space around some homes</li> <li>Combustible roof or siding on some homes</li> </ul>
Riley	Moderate Hazard	<ul style="list-style-type: none"> <li>Fuels of sagebrush, dried grass and weeds in proximity to structures</li> <li>Lack of structure defensible space</li> <li>Lack of structure fire protection</li> </ul>
Drewsey Crane Diamond Frenchglen	High Hazard	<ul style="list-style-type: none"> <li>Fuels of dried grass and weeds, sagebrush, juniper in proximity to structures</li> <li>Surrounding terrain</li> <li>Lack of structure defensible space</li> <li>Limited emergency ingress and egress</li> <li>Combustible roof or siding on some homes</li> <li>Lack of structure fire protection</li> </ul>
Andrews Fields	High Hazard	<ul style="list-style-type: none"> <li>Fuels of dried grass, weeds, sagebrush in proximity to structures</li> <li>Lack of structure defensible space</li> <li>Downslope winds and surrounding terrain</li> <li>Combustible roof or siding on some homes</li> <li>Limited emergency ingress and egress</li> <li>Lack of structure fire protection</li> </ul>

There were 210 structures evaluated throughout rural Harney County. These structures did not include those in the Central Oregon Protection District, which were separately evaluated by the Oregon Department of Forestry (ODF). There was no apparent pattern to hazard classification within the County. High-hazard structures were just as likely to be associated with low-hazard structures as with moderate-hazard structures.

### Rural Harney County Structure Classification as to Hazard Rating and Contributing Factors

Hazard Class	Percent of Structures	Contributing Factors
Low	16	<ul style="list-style-type: none"> <li>Two or more roads in/out</li> <li>Main access road is wide, all season, less than 300 ft. long with turnaround</li> <li>Fuel type is predominately grass or other crop</li> <li>Defensible space of 71–100 ft.</li> <li>Terrain is generally flat</li> <li>Non-combustible roof and/or siding</li> <li>Heating and electrical utilities placed underground</li> </ul>
Moderate	58	<ul style="list-style-type: none"> <li>One road in/out</li> <li>Access road is moderately wide, non-surfaced with grade &lt; 5%, &lt; 300 ft. with turnaround</li> <li>Fuel type is predominately grass or other crop</li> <li>Defensible space of 30–70 ft.</li> <li>Terrain is such to adversely affect wildfire behavior</li> <li>Non-combustible roof with combustible siding</li> </ul>

Hazard Class	Percent of Structures	Contributing Factors
		<ul style="list-style-type: none"> <li>Electrical utilities usually below ground but heating fuel is above ground</li> </ul>
High/Extreme	26	<ul style="list-style-type: none"> <li>One road in/out</li> <li>Access road is narrow, non-surfaced with grade &gt; 5%, &lt; than 300 ft. long and without turnaround</li> <li>Fuel type is predominately sagebrush, rabbitbrush, and/or juniper; weeds are abundant</li> <li>Defensible space &lt; 30 ft.</li> <li>Terrain is such to adversely affect wildfire behavior</li> <li>Combustible roof and siding</li> <li>Heating and electrical utilities above ground</li> </ul>

Structure hazard for 41 homes in the Central Oregon Protection District was evaluated by ODF using the presence of a defensible space, water availability, and surrounding fuel type as criteria. ODF found that 61, 15, and 24 percent of the homes could be classified as low, moderate, and high hazard, respectively.

Based on the interviews with fire authority officials, field observations, and questionnaire responses, the following mitigation actions are proposed to reduce their risk of wildfire:

- Continue to strengthen the cooperation among the BIFZ, Burns and Hines Fire Departments, RFPAs, Burns Paiute Tribe, USFWS, and private landowners.
- Strengthen the firefighting ability of the RFPAs through motivation, training, and improved equipment. Work with the RFPAs to maintain adequate funding for insurance, fuel, and equipment repair. Handheld, federal compatible radios are needed to improve communication within and among the RFPAs, and with federal agencies.
- Encourage weed abatement and the development of defensible spaces around homes and other important structures throughout the County.
- Re-construct the fuelbreak northwest of Burns and Hines that was installed for the 1990 Pine Springs Basin Conflagration.
- Develop strategically located fuelbreaks around Drewsey, Crane, Diamond, Frenchglen, Andrews, and Fields.
- Reduce fuels classified as Fire Regime Condition Class (FRCC) 3 to a FRCC 1 category using appropriate management practices.
- Create additional water storage points for fire suppression within the bounds of the Hines and Burns Fire Districts and throughout the RFPAs.
- Distribute 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 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 with the development of local community wildfire plans and participating in countywide fire prevention activities.

The Core Team will oversee the implementation of 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.

# HARNEY COUNTY COMMUNITY WILDFIRE PROTECTION PLAN

## 1 INTRODUCTION

### 1.1 CWPP Purpose and Process

The Healthy Forests Restoration Act (HFRA) of 2003 provides the impetus for wildfire risk assessment and planning at the county and 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 as well as hazardous fuel reduction projects.

The CWPP allows a community to evaluate its current situation with regards to wildfire risk and plan 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 and non-fuels mitigation, community preparedness, and emergency procedures. The CWPP should be tailored to meet the needs of the community. The CWPP process consists of the following steps:

- Organize the CWPP Committee – The committee should consist of city and county government, local fire authority, and state agencies 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 should be developed that may illustrate 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 make informed decisions. 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 are 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, improving emergency procedures, and increasing public education.
- Develop an Action Plan and Assessment Strategy – The action plan should identify who will do what by when. Identify areas of concern and integrate common values. Community funds for hazard reduction projects through grants need to be obtained. The finished CWPP is essential for seeking grant money. Also, an assessment strategy needs to be in place to insure that the CWPP remains current and relevant for future years.
- Finalize the CWPP – The committee needs to agree and approve the CWPP and make sure that the recommend actions are implemented in timely manner.

## 1.2 Harney County need for CWPP

The focus of the Harney County CWPP is county-wide with emphasis on the communities of Burns, Hines, Drewsey, Crane, Diamond, Frenchglen, Fields, Andrews, Riley, and rural residences. The Burns Interagency Fire Zone (BIFZ) is in the process of developing a five-year fuels management plan for public lands under its fire protection authority. The Harney County CWPP will provide critical information for the BIFZ fuel plan.

Wildland fire is a common occurrence in Harney County. Historic fire occurrence was a major ecological influence in shaping the natural vegetation. 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 the buildup of hazardous fuels, construction of houses in proximity to forests and rangelands, increased outdoor recreation, and a lack of public appreciation of wildfire. Lightning-caused fires have been the dominant ignition source for hundreds of years and continue to be the main cause of fire. However, human-caused fires have occurred and their frequency will likely become more numerous as the County's population grows and outdoor recreation increases.

Natural resource management policy and changing ecological conditions have interacted in ways that 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 catastrophic wildfire occurrence in the County, resulting in the loss of important economic and ecological values.

There are varieties of fuels around communities, ranches, and structures that create problems for fire protection. Fuels include ponderosa pine and juniper forests, 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 include the Central Oregon Forest Protection District, Burns and Hines Fire Departments, four Rangeland Fire Protection Associations (RFPAs), BIFZ (USDA Forest Service and USDI Bureau of Land Management), U.S. Fish and Wildlife Service (USFWS), and the Burns Paiute Indian Reservation. 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. The CWPP provides the means to identify wildfire risk, prioritize mitigation projects, improve public awareness, and improve fire authority coordination to better manage wildfire.

### 1.3 Wildland Fire Management Primer

Wildland fire, defined as any non-structure fire occurring in the wildland, 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, that are then used to achieve management purposes under carefully controlled conditions with minimal suppression costs is known as wildland fire use (WFU). Wildfires are unwanted and unplanned fires that result from natural ignition, unauthorized human-caused fire, escaped WFU, or escaped prescribed fire.

Prescribed fire in Harney County could be used to accomplish a number of resource management purposes, such as reducing the amount of hazardous fuels, improving 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 could occur 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 Oregon State fire and air pollution laws and BLM would occur. Oregon Department of Forestry (ODF) and County policy would be maintained during prescribed fires. Acceptable burn days would be determined in consultation with ODF and local agencies.

Fire risk is the probability that wildfire will start from natural or human-caused ignitions. Fire hazard is 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, rate of spread, and intensity. Wildland fuel attributes refer to both dead and live vegetation and include such factors as density, bed depth, continuity, loading, vertical arrangement, and moisture content. Structures are also a fuel source. Fire tends to burn more rapidly and intensely upslope than on level terrain. However, evening “sundowner” winds may rapidly drive wildfire downslope. Weather conditions such as high ambient temperatures, low relative humidity, and windy conditions favor fire ignition and erratic fire behavior.

Natural and human-caused fire has long been an integral part of vegetation communities in the County. Lightning-ignited fire is a natural component of Harney County ecosystems, and its occurrence is important to maintaining the health of forest and rangeland ecosystems. Native Americans used fire for such things as hunting, improving wildlife habitat, land clearing, and

warfaring. As such, many of the plant species and communities are adapted to recurring fire through phenological, physiological, or anatomical attributes. Some plants such as lodge pole 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 Harney County changed the natural fire regime in several interrelated ways. 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 low-intensity 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 western juniper 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 by using prescribed fire as a tool to improve livestock grazing, wildlife habitat, control noxious weeds, or to reduce hazardous fuels. Their primary efforts in managing fuels and fire are to protect human life, economic values, 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 loss.

Wildfire behavior and severity are dictated by fuel type, weather conditions, and terrain. Fuel is the only variable that can easily be managed by reducing such attributes as load, continuity, or size class distribution. Such things as fuelbreaks, tree and shrub thinnings, defensible space, grass mowing or grazing, and green strips are ways to manipulate fuels to reduce the chances of fire occurrence or limit its severity. The CWPP focuses on fuel management on both private and public lands as a means to reduce its risk throughout Harney County.

#### **1.4 Regulator Framework**

There are several Federal and State legislation acts and local committees that set policy and provide guidance to the development of the CWPP for Harney 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.
- Grant-Harney Fire Prevention Co-op – Formed in 1980 to coordinate fire prevention efforts in the counties. The cooperative facilitates interagency coordinating in mass-media, information and education programs, and participation in county fairs. All general fire prevention is coordinated through the Co-op.

### 1.5 Harney County Wildfire Management Goals and Objectives

The goals and objectives for the CWPP process are several and include (Table 1):

**Table 1 Harney County Goals and Objectives for Wildfire Management Planning**

Goals	Objectives
Facilitate a CWPP in Harney County	<ul style="list-style-type: none"> <li>• Provide oversight to all activities related to the CWPP.</li> <li>• Ensure representation and coordination among agencies and interest groups.</li> <li>• Develop a long-term framework for sustaining CWPP efforts.</li> </ul>
Conduct a wildfire risk assessment	<ul style="list-style-type: none"> <li>• Conduct a county-wide wildfire risk assessment.</li> <li>• Identify communities at risk and contributing factors.</li> <li>• Determine the level of risk that structures in the rural county are to wildfire and contributing factors.</li> </ul>
Develop a mitigation plan	<ul style="list-style-type: none"> <li>• Identify and prioritize hazardous fuel treatment projects.</li> <li>• Identify and prioritize non-fuels mitigation needs.</li> </ul>
Manage hazardous fuels	<ul style="list-style-type: none"> <li>• Sustain a long-term, landscape approach to fuels management that focuses on high wildfire risk areas.</li> <li>• Identify priority fuel treatments based on risk assessment and apply for National Fire Plan grants and other funding sources.</li> <li>• Focus strategic hazardous reduction projects on communities at high risk.</li> </ul>
Facilitate emergency planning	<ul style="list-style-type: none"> <li>• Develop strategies to strengthen emergency management, response and evacuation capabilities for wildfire.</li> <li>• Build relationships among county government, fire authorities, and communities.</li> </ul>
Facilitate public outreach	<ul style="list-style-type: none"> <li>• Develop strategies to increase citizen awareness and action for Firewise practices.</li> <li>• Promote public outreach and cooperation for all fuels reduction projects to solicit community involvement and private landowner cooperation.</li> </ul>



## 2 HARNEY COUNTY PROFILE

### 2.1 County Setting

Harney County was established in 1889 with a land base of 10,228 square miles (Map 1). The County population is estimated at 7,000 people. There are approximately 3,200 and 2,000 people living in the incorporated cities of Burns and Hines, respectively. Harney County is located in southeast Oregon and is famous for its century-old ranches and a variety of natural resource attractions such as the Malheur National Forests, Malheur National Wildlife Refuge, Alvord Desert, and Steens Mountain. Elevation ranges from 4,148 feet at Burns to the 9,733-foot peaks of Steens Mountain. Vegetation throughout the county is diverse and varies from ponderosa pine forest in the north to sagebrush shrub lands and grasslands in the south intermixed throughout with wetlands.

The economy of Harney County is primarily supported by ranching, manufacturing, and lumber. The ecological resources such as Steens Mountain and Malheur National Wildlife Refuge draw hikers, geologists, bird watchers, and rock climbers from around the Country. Large, expansive ranches are leading producers of cattle and hay. Harney County cattle production ranks ninth in the Country. The two incorporated cities, Burns and Hines, are a transportation hub for the region and business centers for Oregon's largest county.

### 2.2 Communities

Burns and Hines are the two incorporated cities, and Andrews, Crane, Diamond, Drewsey, Fields, Frenchglen, and Riley are the rural, unincorporated communities that are considered in the Harney County CWPP (Table 2). Burns and Hines are protected by their respective fire departments, which consist of fulltime fire chiefs and volunteer staff. The unincorporated communities are located in areas protected by Rangeland Fire Protection Associations. Burns and Hines are the business center of the County and US Highway 20, which services southeastern Oregon. The seven rural communities are ranching and farming communities located throughout the County. Recreation is also important to these communities. These communities service their respective surrounding areas and usually consist of a hotel, service station, post office, school and/or church, and a few residences. Private landowners in the outlying areas come in for commodities and services.

**Table 2 Community Summary Information**

Community	Location	Fire Authority	Surrounding Fuels
Burns	US Highway 20	Burns Fire Department	Sagebrush/grass on west and south, and agricultural land on east and north, weeds in town
Hines	Immediately west of Burns on US Highway 20	Hines Fire Department	Sagebrush/grass on west and south, and agricultural land on east and north, weeds in town
Andrews	East Steens Road, 16 miles north of Fields	Andrews RFPA <sup>1</sup>	Sagebrush, grass, agricultural land, weeds in town
Crane	State Highway 78, 32 miles southeast of Burns	Crane-Drewsey RFPA	Sagebrush, grass, agricultural land, weeds in town
Diamond	Off of State Road 205,	Crane-Drewsey	Sagebrush, grass,

Community	Location	Fire Authority	Surrounding Fuels
	52 miles south of Burns	RFPA	agricultural land, weeds in town
Drewsey	Off of US Highway 20, 45 miles east of Burns	Crane-Drewsey RFPA	Juniper, sagebrush, grass, agricultural land, weeds in town
Fields	State Road 205, 115 miles south of Burns	Fields RFPA	Sagebrush, grass, agricultural land, weeds in town
Frenchglen	State Road 205, 59 miles south of Burns	No Authority	Juniper, sagebrush, grass, agricultural land, weeds in town
Riley	US Highway 20, 58 miles west of Burns	Silver Creek RFPA	Sagebrush, grass, agricultural land, weeds in town
Rural, dispersed dwellings	Throughout the county	Various RFPAs	Juniper, sagebrush, grass, agricultural land, weeds

<sup>1</sup>Rangeland Fire Protection Association

## 2.3 Climate

Harney County climate is semi-arid with long, severe winters and short, dry summers (Table 3). With a typical high desert climate, the County experiences over 300 days of sunshine per year and receives an average of 11 inches of annual precipitation. Warm, sunny days of summer record highs in the eighties with cool nights. Winter temperatures are typically in the low thirties. Temperatures at Burns for January, which are typical of the open valleys, average 25 degrees Fahrenheit (F). In July, it is typically 70 degrees F, with an annual average temperature, of 47 degrees F. In the north central part of the Malheur Basin (elevation 4,666 feet), the January average is 22 degrees F. In July, it is typically 60 degrees F., with an annual average of 40 degrees F. At P-Ranch Refuge, near Frenchglen, the January average is 30 degrees F. In July, it is typically 66 degrees F. with an annual average of 48 degrees F. The frost-free period extends from the last day of spring with a minimum temperature of 32 degrees F or below, to the first day of fall with a minimum temperature of 32 degrees F or below. The average annual precipitation ranges from under 10 inches for the lower elevations to more than 40 inches at the higher elevations. Within the Refuge, Burns receives about 11.0 inches and P-Ranch gets about 12.0 inches. At all stations, the low precipitation months are July, August, and September.

**Table 3 Monthly Climate Summary for Burns City, 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 °)	35.5	42.0	48.7	56.4	66.2	75.3	84.2	82.1	73.7	62.8	44.9	37.1	59.3
Average Minimum Temperature (F °)	16.6	21.6	25.6	30.0	37.7	45.2	52.6	50.4	41.6	32.9	23.0	17.4	33.0
Average Total Precipitation (inches)	1.67	1.17	1.21	0.78	0.63	0.46	0.45	0.59	0.51	0.60	1.29	1.68	11.04

## 2.4 County Vegetation

The vegetation of Harney County is diverse and typical for the northern Great Basin. The vegetation varies from ponderosa pine forest in the north to expansive sagebrush and grasslands in the south (Map 2). Wetlands are widespread. Cropland and hay fields are common throughout the County. These fields may be considered hazardous fuels in the late summer and fall as the crops and hay dry out. Irrigated fields are not a hazardous fuel. Vegetation types such as ponderosa pine, aspen, juniper, big sagebrush, and the different grasses can all be hazardous fuels given the accumulation of dead plants, unnaturally high plant density and cover, and/or low water content of tissues. Annual grasslands are widespread and dominated by cheatgrass. Cheatgrass is a highly flammable, flashy fuel when it dries in early summer. Thus, it can extend the fire season by one to two months. Cheatgrass is highly competitive with native vegetation and may readily become established on disturbed sites.

## 2.5 Water Resources

Surface water is located in many of the low lying areas in Harney County in the form of lakes, ponds, rivers, and streams. Abundant water is essential for wildfire suppression and structure protection. Water sources are needed for re-filling tanker trucks as close to fires as possible to reduce travel time. Available surface waters include lakes, ponds, rivers, and streams such as Malheur Lake, Harney Lake, Alvod Lake, Tum Tum Lake, Delintment Lake, Trout Creek, Warm Springs Reservoir, and Malheur River. Many agriculture fields are irrigated and sprinkler systems can be used as water sources.

## 2.6 Fire Protection Authorities

Various lands in Harney County receive wildland fire management from the BIFZ, Burns Fire Department, Hines Fire Department, Burns Paiute Indian Reservation, Oregon Department of Forestry (ODF), USFWS, and four Rangeland Fire Protection Associations, depending on land ownership (Map 1). Mutual Aid Agreements exist among the various fire authorities for support and help as needed. However, each authority has its regulations and limitations which dictate its area of responsibility for fire management activity. Map 1 shows the boundaries of the fire protection authorities.

**Burns Interagency Fire Zone (BIFZ)** – The BIFZ is formed by the BLM and US Forest Service, with mutual and offset agreements with ODF. The BIFZ is responsible for wildland fire and fuels management on public and some private lands (through contract arrangements) within the County. These lands include federal land in the BLM Burns District, the Malheur National Forests, Oregon State Land, and contracted private land. BIFZ provides fire protection on certain lands in the Central Oregon Forest Protection District through a yearly “offset” agreement. Firefighters are trained to National Wildfire Coordinating Group (NWCG) standards. The BIFZ supports are a 22-person hand crew that works on wildland fire and fuel management issues in the BIFZ. During the fire season, the following equipment is available to the BIFZ:

- Seven type 4 heavy engines
- Ten type 6 light engines
- One D7 tractor and trailer

- One helicopter Type III
- One single engine air tanker

The majority of the vehicles are stationed at the USFS compound in Hines. However, two Type 6 Engines and two Type 4 Engines are stationed at the BLM compound in Frenchglen. The BIFZ works with the RFPAs through written agreements in providing equipment and training.

**Oregon Department of Forestry** – Responsible for protection in Forest Protection Districts. BIFZ provides protection in the District through mutual aid and offset agreements. ODF administers forest practices on private lands and is responsible for enforcement of the Forest Protection Status (ORS 477). During the fire season, one type 6 engine is stationed in Burns.

**Burns Fire Department** – The Burns Fire Department has responsibility for structure, grass, and vehicle fires within the City of Burns and will respond to fires within a five-mile radius through private contract agreements. Response time is under 10 minutes given optimal conditions. The department consists of a full-time fire chief and volunteer members. The volunteers are trained at the Firefighter I level and some have specialist’s skills. Major equipment consists of two, triple-combination fire engines, a 2,500 gallon water tender, and a brush truck with a 250 gallon tank. The one fire station includes offices and training facilities. The fire department provides burning permits, community structure, prevention, education, and wildfire safety outreach.

**Hines Fire Department District** – The Hines Fire Department has responsibility for structure, grass, and vehicle fires within the City of Hines. However, they will respond to fires within five-mile radius around Hines. Optimal response time is under 10 minutes. The department consists of a full-time fire chief and volunteer members. The volunteers are trained at the Firefighter I level with some working on Firefighter II level with specialist’s skills. Major equipment consists of two, triple-combination fire engines and one brush truck with a 250 gallon tank. The only fire station includes offices and training facilities. The fire department provides burning permits, community structure, prevention, education, and wildfire safety outreach.

**U.S. Fish and Wildlife Service** – This agency provides dedicated wildland fire protection and fuels management on the Malheur National Wildlife Refuge. The USFWS will also respond to wildfire on BIFZ land as requested through a Mutual Aid Agreement. Fuels on the Refuge include marsh vegetation, irrigated meadows, and upland sagebrush and grasses. Prescribed fire is used to manage hazardous fuels and for vegetation improvement. Strategically located, permanent fuelbreaks are maintained throughout the year to reduce the chance of wildfire burning onto or leaving the Refuge. The fuelbreaks include mowed vegetation, mineral soil, and water. There are two permanent USFWS staff that oversee the fire program and are trained as NWCG Burn Bosses. As funds permit, the Refuge will also station up to four additional temporary staff trained at the Firefighter I level during the fire season. Dedicated firefighting equipment includes:

- One bulldozer
- One heavy engine
- One medium engine

- One light engine

Temporary firefighting equipment that is available as needed includes:

- One bulldozer
- Two graders
- One tanker
- One transport truck

**Rangeland Fire Protection Associations** – The RFPAs in Harney County include Fields FPA, Andrews FPA, Crane-Drewsey RFPAs, and Silver Creek RFPAs. RFPAs operate under ORS 477-305 to provide wildfire protection on private lands within their jurisdiction and have a contractual relationship with the BIFZ to provide wildfire protection as first responders. The BIFZ is responsible for wildland fire management on public lands within the RFPAs areas. The associations were formed to provide wildfire protection because protection was not available elsewhere. The RFPAs do not provide structure fire protection. The RFPAs operate as non-profit corporations with volunteer membership. Dues are assessed to RFPAs 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-by-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.

*Fields/Andrews RFPAs* – The Fields and Andrews RFPAs function together as one unit. The Fields and Andrews RFPAs consist of 59,061 and 30,997 acres, respectively, and provide first response wildfire protection to five miles on either side of East Steen Road. The population of the area RFPAs is approximately 150 people. Major equipment consists of three pickup truck tankers with 200 gallon capacity and a 1,000 gallon pumper. The Alvor Ranch will lease its fire fighting equipment to the RFPAs, which consist of truck pumpers, a bulldozer, and a skidder. Twenty volunteers are trained at the Firefighter I level by BLM.

*Silver Creek RFPAs* – The Silver Creek RFPAs is centered around the community of Riley in the northwest part of the County. The RFPAs provides first response wildfire protection to 33,198 acres. Equipment consists of two pickup truck tankers with 250 gallon capacity and a 2,000 gallon tender. There are four volunteers that are trained at the Firefighter I level by BLM.

*Crane-Drewsey RFPAs* – The Crane-Drewsey RFPAs consists of 170,374 acres. Approximately 435 properties are served. Only 50 members have paid dues. Crane and Drewsey combine efforts under one RFPAs for financial reasons to reduce insurance rates. Currently, Drewsey does not have a fire chief or association president. Crane provides fire protection through a Mutual Aid Agreement. Firefighting equipment is strategically located around the RFPAs to provide quick response to wildfire. Major equipment includes pickup trucks with slip-in 200 gallon tanks, a flatbed truck with a 200 gallon tank, and a 500 gallon pumper. BLM stations a small pumper truck at Crane. Two small pumper trucks are stationed at Diamond.

**Burns Paiute Indian Reservation** – The Paiute Indian Reservation is located immediately northwest of Burns and consists of 760 acres. The Reservation provides structure and wildfire

response with a Type 6,280 gallon engine. Two volunteers are working on Firefighter I certification through BLM.

## 2.7 Values at Risk

Human life and welfare are at risk to wildfire in Harney County because of the buildup of hazardous fuels around communities and structures, poor emergency vehicle ingress and egress, and inadequately trained and/or equipped fire suppression authorities. Throughout the County, there are scattered small communities and ranches with houses and outbuildings without structural fire protection because they are outside the Burns or Hines Fire Departments Districts. Other economic values at risk include businesses, farmland, ranchland, grazing land, hunting and recreational land, and critical infrastructure. The communities of Burns, Hines, Andrews, Crane, Diamond, Drewsey, Fields, Frenchglen, and Riley 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
- In the RFPA and VFD, there are inadequately trained volunteer staff
- In the RFPA and VFD, there is a lack of proper equipment (personal protective equipment, trucks, dozers, etc.)
- Not adhering to county approved fire-use procedures and restrictions for such things as burn barrels or burn piles

In addition, numerous individual structures throughout the County are at risk to wildfire for one or more of the following reasons:

- Hazardous fuels in vicinity of structure and along private access roads
- Poor emergency ingress or egress
- Lack of defensible space
- Lack of use of non-combustible building materials
- Lack of available or sufficient water for firefighting

Ecological values within Harney County are important for continued economic growth and human welfare. The degree of loss will depend on wildfire severity and time of recovery. Wildfire is a natural part of the Harney County 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 soil, vegetation, and watershed are altered. In addition, wildfire may produce conditions conducive to the spread of noxious and invasive weeds such as cheatgrass, which will further the degradation of rangeland. Ecological values at risk to wildfire include such things as:

- Wildlife and aquatic habitat
- Rangeland and forests
- Watersheds
- Scenic areas
- Water quality
- Air quality
- Natural vegetation communities
- Cultural and historic sites

### 3 CWPP PROCESS

#### 3.1 Harney County CWPP Requirements

The eight steps to developing the Harney County CWPP are listed in Table 4. These steps are defined in the pamphlet, *Preparing a Community Wildfire Protection Plan*.

**Table 4 The Eight Steps to Developing a CWPP for Harney County**

Step	Task	Explanation
One	Convene Decision makers	Form a core team made up of representatives from local governments, fire authorities, 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 base map 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 Harney County CWPP Core Team

The initial step in developing the Harney County CWPP is to organize a core decision-making team. The members of this team have the responsibility for CWPP implementation and oversight. The Harney County team is composed of representatives from local government, local fire authorities, and an Oregon Department of Forestry representative (Table 5). Representatives from organizations such as communities, utilities, Chamber of Commerce, hunting clubs, water districts, and homeowners associations may choose to participate as appropriate.

**Table 5 Harney County CWPP Core Team Members**

Team Member	Organization	Phone Number
Steven Grasty	Harney County Judge	573-6356
Richard Jennings	Harney County Planning Director	573-6655
Chris Briels	Burns Fire Chief	573-2320
Bob Spence	Hines Fire Chief	573-4404
Bob Barclay	Fields/Andrews FPA	495-2223
John Williams	Fields/Andrews FPA	495-2344
Don Lindner	Crane/Drewsey FPA	495-2300
Phil Peterson	Silver Creek FPA	493-2806
Gordon Perlot	Silver Creek FPA	589-1058
Gordon Foster	Oregon Department of Forestry	541-575-1139
Kenton Dick	Burns Paiute Indian Tribe	573-2088 ex. 250

### 3.3 Federal Agency Collaboration

Federal agencies such as the BLM, USFS, and USFWS (Malheur National Wildlife Refuge) participate in the CWPP planning process as interested stakeholders. The BIFZ has a major interest in the implementation and success of the Harney County CWPP because of their invested concern in wildfire fuels management. The BIFZ provides wildland fire and fuels management on BLM, USFS, and Oregon State Lands in the County. Wildfire does not respect political boundaries so all fire authority organizations must work together to reduce the risk of wildfire. BIFZ advisories to the Harney County CWPP are Jeff Rose (573-4450) and Dan Ridenour (573-4410).



## 4 WILDLIFE RISK ASSESSMENT

### 4.1 Approach to the Wildfire Risk Assessment

Field surveys, Core Team meetings, interviews, questionnaires, and a public meeting were used to obtain various types of information to assess the risk of wildfire in Harney County. All information was gathered, analyzed, and presented in the CWPP format by Walsh Environmental Scientists and Engineers, LLC. A project website was maintained by the Harney County Planning Department that provided project updates and information to promote public awareness and outreach.

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 is adaptable 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 10 communities and 210 rural houses located throughout the County. Community's evaluations consisted of scoring the entire community using NFPA Form 1144. Notes were taken on the type of fuels and terrain surrounding the community because these attributes—in addition to weather—dictate wildfire behavior. At times, fuel and terrain observations were made several miles from a community.

Approximately 20 percent of the homes in rural Harney County were evaluated. The evaluations were conducted through observation of the house from the driveway or road leading to the home. Only homes that appeared to be inhabited 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. However, an attempt was made to evaluate homes throughout the County, except those in the Central Oregon Forest Protection District. ODF evaluated these homes at another time. Therefore, the inferences that are drawn concerning structure hazard cannot be extracted to all structures in Harney County, but are limited to those surveyed. However, the results are still useful for evaluating the level of structure hazard in Harney County and determining ways to reduce the hazard.

Two meetings with the Core Team were convened to discuss the approach to the risk assessment. Also presented were findings of the risk assessment as to assessing wildfire risk in the County. One meeting occurred September 1, 2005 to initiate the project. A second meeting was held on September 19<sup>th</sup>.

Specific interviews were held with several members of the Core Team. The interviews included the Burns and Hines Fire Chiefs, representatives of the RFPAs, representatives from BIFZ, and the Burns Paiute Indian Fire Chief. 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.

A direct mailing occurred on October 6, 2005 to 1,059 rural Harney County addresses. The direct mailing consisted of a cover letter from the Planning Director, a questionnaire, and a Firewise pamphlet. The cover letter explained the risk assessment project, announced an upcoming public meeting, and requested that homeowners complete and return the questionnaire. The purpose of the questionnaire was to judge public opinion on the level of wildfire risk in the County, assess values at risk, and evaluate mitigation practices needed to reduce risk (See Appendix C for questionnaire). The Firewise brochure explained proper home construction and landscaping practices to reduce the risk of wildfire (See Appendix D).

A public meeting was convened on December 1, 2005 at 7:00 pm in the Burns Senior Center. Newspaper and radio releases announced the meeting, as did the direct mailing. The reason for the meeting was to explain the purpose of the wildfire risk assessment, present the findings of the risk assessment, and provide an opportunity for the public to participate in the process, review of 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 were posted on the Harney County website to encourage public review and comment.

The requirements to complete a comprehensive 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 manner, several maps were developed at the same scale and reference. The different maps are Harney County Base Map (landownership, roads, surface water, fire protection authorities), fire history, historic fire regime, fire regime condition class, fire spread potential, community and structure risk level, and fuels management and mitigation opportunities. The maps were produced based on geographic information system (GIS) data obtained from Harney County Planning Department and ODF. All maps are sequentially presented in Appendix A.

## 4.2 Wildfire History

Wildfires have historically occurred in Harney County from lightning and Native American ignitions sources. The natural fire regime of an area is the role that fire would play across a landscape in the absence of modern human mechanical intervention, including Native American burning. The different natural (historical) fire regimes are classified based on average number of years between fires (fire frequency), combined with the severity (amount of vegetation killed or damaged) of the fire on the dominant overstory vegetation. There are seven historic fire regime classes that occur in Harney County (Map 3). Fire frequency and severity varied throughout the County depending on vegetation type and elevation. The most common fire regime occurred with a return frequency of 35-100+ years and with low severity.

Fire regime condition class (FRCC) measure the degree of departure from reference (historic) conditions, possibly resulting in changes to key ecosystem components, such as vegetation characteristics, fuel composition, fire frequency, severity, and pattern, and other associated

disturbances, such as insect and disease mortality, grazing, and drought. The FRCC in Harney County is complex (Map 4). The FRCC 1 is the most common class, but both FRCC 2 and 3 also occur throughout the County. FRCC 1 represents current conditions that are the same as the historic fire regime. FRCC 2 represents a moderate departure from the historic fire regime, which represents moderate changes in fuel attributes such as continuity, composition, amount, and changes in the fire return interval and/or severity. FRCC 3 represents a high departure from the historic fire regime, which means major changes in fuel attributes such as continuity, composition, and amount, and changes in the fire return interval and/or severity. For the purposes of this CWPP, the FRCC classes 1, 2, and 3 represent low-, moderate-, and high-hazardous fuel situations, respectively.

Ignition risk potential (IRP) is the potential 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 5). 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 Harney County. The low class is the most common while the high class is the least common. The high class is associated with juniper and ponderosa pine woodlands and forest in the northwest part of the County. Assessing ignition risk involves evaluating the potential for wildfire ignition from human uses, activities, or events in combination with the actual historical fire occurrence resulting from these uses and from lightning.

As would be expected based on the IRP, wildfires occur throughout Harney County, but with a high preponderance in the northwest section associated with the juniper and ponderosa pine woodland and forests (Map 6). Most fires occur during late summer and fall months. Data on wildfire size, number, and ignition source for the years 1993–2004 are presented in Table 6. Approximately 59 percent of all wildfires in Harney County burn less than 0.25 acres regardless of ignition source, while less than 1 percent of all fires burn over 5,000 acres. Lightning caused 78 percent of wildfires while 22 percent were human-caused. Human-caused wildfire resulted mainly from escaped fire (e.g., trash burning, field burning, land clearing, or slash burning) and campfires.

Many of the significant fire events occur from lightning storms. There are an estimated 50–70,000 lightning strikes per year in Harney County. Widespread, dry lightning is fairly frequent, occurring approximately every one to three years. Occasionally, multiple dry storms occur in a given season. These episodes can cause 50–100 ignitions daily which require suppression. The high frequency of lightning-caused fires illustrates that wildfire is a natural component of Harney County ecosystems. The 1990 Pine Springs Basin Conflagration, which burned 73,700 acres and threatened Burns, Hines, and Riley, was lightning-caused. However, human-caused fire is significant because these fires usually occur close to structures and other important infrastructure.

Even though the vast majority of wildfires in Harney County are suppressed before they burn large areas, wildfire risk to communities and structures is considerable given the number of annual fires that occur. During this 12-year period, there were 1,174 wildfires for an average of 98 per year. The moderate occurrence of wildfire means that county residences need to be vigilant with Firewise practices. Although the risk of wildfire is high in Harney County, within

recent history, wildfire has had little impact on residences. The CWPP process is a preventative tool to reduce the risk of catastrophic fires to property and life.

**Table 6 Wildfire History for the Years 1993–2004**

Fire Size Class (Acres)	Acres Burnt	Number of Fires	Fire Ignition Source	
			Lightning	Human
A 0 – 0.25	71	690	555	135
B 0.25 – 9.9	525	292	224	68
C 9.9 – 99.9	3,345	89	62	27
D 100 – 299.9	7,062	40	29	11
E 300 – 999.9	14,725	25	16	9
F 1,000 – 4,999.9	70,627	29	23	6
G 5,000 – 9,999.9	116,070	9	8	1

### 4.3 Questionnaire Summary

Questionnaires were sent to 1,059 rural addresses and posted on the Harney County Planning Department’s website to obtain information on perceived wildfire risks and hazards (Appendix C). Seventy-seven questionnaires and three letters were returned to the Harney County Planning Department. Generally, the respondents said that wildfire risk is moderate to extreme, vegetation represents the greatest hazard, and its reduction is important for mitigation (Tables 7, 8, and 9).

**Table 7 Questionnaire Summary**

Question		Percent of Total
1. What community do you live in or are closest to?	Burn/Hines	30%
	Andrews	3%
	Buchman	10%
	Crane	14%
	Diamond	11%
	Drewsey	11%
	Fields	3%
	Frenchglen	8%
	Riley	2%
	Other	8%
2. How great of risk do wildfires pose to your property and community?	Extreme	28%
	Moderate	40%
	Low	25%
	No	7%
3. What areas do you think are at extreme fire hazard and pose a risk to homes or property?	Forestlands	17%
	Grasslands	23%
	Sagebrush	30%
	Juniper	13%
	Farmland	2%
	Other	15%
4. What do you think would be the best way to mitigate or reduce these hazardous?	Reduce Vegetation	58%
	Increase Equipment	18%
	Increase Volunteers	10%
	Increase available water	14%
5. Do you know of recent actions taken to reduce the risk of wildfires or to protect residents from wildfire spreading from public lands onto private lands or visa versa?	No	63%
	Yes	37%

6. Have there been recent fire education programs in your community?	No	78%
	Yes	22%
7. Do you think that the community in which you live is prepared to combat wildfire? (See Table 8)	No	22%
	Yes	40%
	I do not know	38%
8. What actions do you think need to be taken to reduce wildfire risk?	See Table 9.	

**Table 8 Written Responses to Question 7**

Comment Number	Number Received	Comment	
1	6	no	Need more equipment and personnel
2	2	no	Not in a rural fire protection district
3	1	no	Available training
4	5	no	No comment
5	15	yes	Areas protected by fire departments, area associations, state government, and federal government.
6	1	yes	Up to a certain size
7	1	yes	Controlled burns already in place
8	1	yes	On private property
9	1	yes	Everyone knows the risk
10	2	yes	No comment
11	1	I don't know	New to the area
12	1	I don't know	Get rid of sagebrush and dry grasses
13	22	I don't know	No comment

**Table 9 Summary of Responses to Question Number 8**

Comment	Number Received	Comment
1	4	Cut or mow grasses near structures and along roadways.
2	1	Use firewood cutting to help reduce fuel loading (dead and down).
3	9	Utilize grazing to reduce fuels around structures.
4	3	Maintain a 10'-20" fuelbreak (fire guards) around all structures.
5	15	Utilize logging, thinning, and other fuel treatment techniques.
6	3	Acquire and update equipment
7	4	Provide more training/education
8	2	Recruit more volunteers
9	10	Utilize prescribed fire (controlled burns) to reduce fuel loading and risk.
10	2	Work together to eliminate weeds on both public and private lands
11	1	Create rural fire protection district
12	1	Let nature decide
13	1	Status quo – no change.
14	1	Join efforts to coordinate the risk of wildland fires.
15	4	Reduce brush around structures
16	1	Property tax incentive for fire prevention efforts
17	1	Clean up empty lots in town
18	1	Plant evergreen forage

#### 4.4 Wildfire Risk to Communities

The NFPA Form 1144 was used to evaluate community risk to wildfire and assign each to a hazard class (Table 10). Burns and Hines were evaluated together because of their close proximity to each other and similarity in the surrounding terrain and fuels, structure composition, and landscaping. The Burns/Hines community was also divided into east and west because of similarities in terrain and fuels associated with the two sections.

**Table 10 Community Hazard Rating and Contributing Factors**

Community	Hazard Rating	Contributing Factors
Burns/Hines East	Moderate	<ul style="list-style-type: none"> <li>• Fuels of dried grass and weeds in proximity to structures</li> <li>• Lack of defensible space around some homes</li> <li>• Combustible roof or siding on some homes</li> </ul>
Burns/Hines West	High	<ul style="list-style-type: none"> <li>• Fuels of sagebrush, juniper, dried grass and weeds in proximity to structures</li> <li>• Surrounding terrain</li> <li>• Lack of defensible space around some homes</li> <li>• Combustible roof or siding on some homes</li> </ul>
Riley	Moderate	<ul style="list-style-type: none"> <li>• Fuels of sagebrush, dried grass and weeds in proximity to structures</li> <li>• Lack of structure defensible space</li> <li>• Lack of structure fire protection</li> </ul>
Drewsey	High	<ul style="list-style-type: none"> <li>• Fuels of dried grass and weeds, sagebrush, juniper in proximity to structures</li> <li>• Surrounding terrain</li> <li>• Lack of structure defensible space</li> <li>• Limited emergency ingress and egress</li> <li>• Combustible roof or siding on some homes</li> <li>• Lack of structure fire protection</li> </ul>
Crane	High	<ul style="list-style-type: none"> <li>• Fuels of dried grass, weeds, sagebrush, juniper in proximity to structures</li> <li>• Lack of structure defensible space</li> <li>• Surrounding terrain</li> <li>• Combustible roof or siding on some homes</li> <li>• Limited emergency ingress and ingress</li> <li>• Lack of structure fire protection</li> </ul>
Diamond	High	<ul style="list-style-type: none"> <li>• Fuels of dried grass, weeds, sagebrush in proximity to structures</li> <li>• Lack of structure defensible space</li> <li>• Surrounding terrain</li> <li>• Combustible roof or siding on some homes</li> <li>• Lack of structure fire protection</li> </ul>
Frenchglen	High	<ul style="list-style-type: none"> <li>• Fuels of dried grass, weeds, sagebrush in proximity to structures</li> <li>• Lack of structure defensible space</li> <li>• Surrounding terrain</li> <li>• Combustible roof or siding on some homes</li> <li>• Limited emergency ingress and egress</li> <li>• Lack of structure fire protection</li> </ul>
Andrews	High	<ul style="list-style-type: none"> <li>• Fuels of dried grass, weeds, sagebrush in proximity to structures</li> <li>• Lack of structure defensible space</li> <li>• Surrounding terrain</li> <li>• Evening downslope winds</li> <li>• Combustible roof or siding on some homes</li> <li>• Limited emergency ingress and egress</li> <li>• Lack of structure fire protection</li> </ul>
Fields	High	<ul style="list-style-type: none"> <li>• Fuels of dried grass, weeds, sagebrush in proximity to structures</li> <li>• Lack of structure defensible space</li> <li>• Evening downslope winds</li> <li>• Combustible roof or siding on some homes</li> <li>• Lack of structure fire protection</li> </ul>

Seven of the nine 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. An action that can be taken immediately to reduce the hazard ratings is the development of defensible spaces around homes and other structures. Briefly, a functional defensible space consists of non-flammable vegetation no closer than 30 feet to the structure, the use of low flammability landscaping plants, mowed grass, lack of firewood stacks, and fuel tanks (See Appendix D for complete instructions). The defensible space should be larger for structures built on slopes.

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 and cause fire to spread rapidly. Grasses and weeds should be mowed in the late summer to reduce the risk of wildfire loss.

The nature of the wildland fuel (i.e., vegetation) around a community will influence its risk to wildfire. Fuels management must consider not only the area immediately around a community but also for several miles out. Wildfire can spread rapidly given flammable fuels (e.g., juniper, dried grass, and sagebrush), windy conditions, and sloping terrain. The FRCC around the communities was used to assess hazardous fuels (Map 4).

#### 4.5 Wildfire Risk to Rural Structures

The NFPA Form 1144 was used to evaluate structure risk to wildfire and assign each to a hazard class (Table 11). The structures evaluated were limited to rural Harney County and are not those located in the Central Oregon Forest Protection District (FPD). The structures located in the FDP were previously surveyed by ODF. Structures are defined as houses used for human occupancy. Outbuildings such as barns, sheds, stables, or other similar buildings were not assessed. Two-hundred and 10 homes were assessed throughout rural Harney County that occurred mainly in the RFPAs. Homes were also assessed on the west side of Burns and Hines. There is no apparent pattern to hazard classification within the County (Map 4). High hazard structures are just as likely to be associated with low hazard structures as with moderate hazard structures.

**Table 11 Rural Harney County Structure Classification as to Hazard Rating and Contributing Factors**

Hazard Class	Percent of Structures	Contributing Factors
Low	16	<ul style="list-style-type: none"> <li>• Two or more roads in/out</li> <li>• Main access road is wide, all season, less than 300 ft. long with turnaround</li> <li>• Fuel type is predominately grass or other crop</li> <li>• Defensible space of 71–100 ft.</li> <li>• Terrain is generally flat</li> <li>• Non-combustible roof and/or siding</li> <li>• Heating and electrical utilities placed underground</li> </ul>
Moderate	58	<ul style="list-style-type: none"> <li>• One road in/out</li> <li>• Access road is moderately wide, non-surfaced with grade &lt; 5%, &lt; 300 ft. with turnaround</li> <li>• Fuel type is predominately grass or other crop</li> <li>• Defensible space of 30–70 ft.</li> </ul>

Hazard Class	Percent of Structures	Contributing Factors
		<ul style="list-style-type: none"> <li>• Terrain is such to adversely affect wildfire behavior</li> <li>• Non-combustible roof with combustible siding</li> <li>• Electrical utilities usually below ground but heating fuel is above ground</li> </ul>
High/Extreme	26	<ul style="list-style-type: none"> <li>• One road in/out</li> <li>• Access road is narrow, non-surfaced with grade &gt; 5%, &lt; than 300 ft. long and without turnaround</li> <li>• Fuel type is predominately sagebrush, rabbitbrush, and/or juniper; weeds are abundant</li> <li>• Defensible space &lt; 30 ft.</li> <li>• Terrain is such to adversely affect wildfire behavior</li> <li>• Combustible roof and siding</li> <li>• Heating and electrical utilities above ground</li> </ul>

Structure hazard for 41 homes in the FPD was evaluated by the ODF using the presence of a defensible space, water availability, and surrounding fuel type as criteria. ODF found that 61, 15, and 24 percent of the homes could be classified as low, moderate, and high hazard, respectively (Map 4).

## 5 WILDFIRE MITIGATION PLAN

### 5.1 Approach to Mitigation Planning

Wildfire mitigation is defined as a means of reducing the chances of the 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 field surveys (completed when assessing community and structure risk to wildfire), interviews with county fire suppression experts, and through a questionnaire that was mailed to 1,059 rural addresses. Fuels mitigation projects were identified and prioritized based on proximity to community, hazardous fuel load and continuity, terrain, and professional experience.

The Harney County CWPP is not a legal document; but rather a planning document. The wildfire mitigation recommendations are for planning purposes—implementation is not required by law. 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 Protection Act (OFPA). Action on private land may require compliance with such policies as OFPA, as well as 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 landownership boundaries. Any action taken will be limited in its effectiveness if either public land managers or private landowners choose not to take complementary action 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 fire authorities 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 make known the benefits from thinning fuel loaded areas. Education makes other mitigation programs possible.

**Defensible space:** Defensible space is a fuelbreak with a minimum 30-foot area around structures (Appendix C). The purpose of the defensible space is to reduce rate of fire spread and intensity so that it may burnout or firefighters may have a chance of 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 or private lands and burn onto private or public lands, respectively, is high. Communities, homeowners, 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 objectives of these vegetative treatments are to manage the buildup of hazardous fuels to alter fire behavior (i.e., rate of spread and burning intensity) and allow firefighters a chance of suppression. Hazardous fuels, such as those classified as FRCC 3, need to be managed to restore forest or rangeland health and manage 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 within the assessment area.

There are a variety of tools available for hazardous fuel treatments including prescribed fire, mechanical (brush-beating), 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. 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 greatest 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 and not 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 allow the County to apply for grant money for fuels reduction projects (see Section 8)

**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, underground 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 to the sites. There is typically a one-lane driveway in and out of the property and sometimes with a locked gate. In the areas where access is difficult, encourage property owners to have firefighting 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, and facilities.

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

- Continue to strengthen the cooperation among the BIFZ, ODF, Burns and Hines Fire Departments, RFPAs, Burns Paiute Tribe, USFWS, and private landowners.
- Strengthen the firefighting ability of the RFPAs through motivation, training, and improved equipment. Work with the RFPAs to maintain adequate funding for insurance, fuel, and equipment repair.
- Continue to 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 sufficient defensible space have a significantly higher probability of surviving a wildfire than those lacking one or both defense mechanisms
- Re-construct the fuelbreak northwest of Burns and Hines that was installed for the 1990 Pine Springs Basin Conflagration.
- Develop strategically-located, Finney fuelbreaks around Drewsey, Crane, Diamond, Frenchglen, Andrews, and Fields.
- Reduce fuels classified as FRCC 3 through appropriate management action to the FRCC 1 category on federal and private lands.

- Create additional water storage points for fire suppression within the bounds of the Hines and Burns Fire Districts.
- Continue the distribution of 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.
- Work with local ranchers to develop grazing plans to reduce fuels around structures and hay stock piles.
- Work with the BIFZ to create a prescribed natural fire program in Harney County. A prescribed natural fire program allows for natural occurring fires to burn when property and life are not at risk.
- Work with the BIFZ, Burns and Harney County Fire Departments, RFPAs, Burns Paiute Tribe, USFWS, and private landowners to develop strategies for post-fire management to reduce erosion and invasive weeds. Actions may include planting and building erosion control structures.

### **5.3 Hazardous Fuel Projects and Priority**

The following are proposed hazardous fuel projects for Harney County. The projects are associated with communities and are present in priority based on wildfire risk, potential for loss, 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 fuelbreaks located within the WUI and within 1–3 miles of the community would be constructed. Given ideal fuel and weather conditions, wildfire can spread rapidly through dry grass, weeds, and shrubs. The fuelbreaks would provide a chance for the fire to be controlled. However, firebrands may loft over the fuelbreaks and cause spot fires in or near communities or structures. Thus, the need for weed abatement and defensible space installation is evident.

The intent of the fuelbreaks is to break up the continuity of the wildland fuel such as juniper, sagebrush, grass, and weeds in order to reduce wildfire rate of spread and severity to allow firefighters a chance for suppression. The suggested locations of the fuelbreaks are presented below. On the ground reconnaissance will be necessary to specify locations. Fire behavior models such as BehavePlus2, FARSITE, and FlamMap can help predict fuelbreaks 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 fuelbreaks.

Compliance with federal and state policy will be followed for fuelbreak construction. Also, funding will need to be secured. This process 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.

Fuelbreaks 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 fuelbreak implementation. The fuelbreaks would be at least 30–50 feet wide or wider on slopes with length varying according to placement and terrain. The intent of the fuel treatment is to reduce the kind and/or amount of vegetation and to minimize soil disturbance. Fuelbreaks would not restrict appropriate land uses such as livestock grazing. Care is needed to ensure minimal vegetation removal so the fuelbreak does not become 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 fuelbreak is still functional. Fuelbreaks would require maintenance by mowing, livestock grazing, hand crews, or herbicide use, as appropriate.

In areas where sagebrush or bitterbrush ground cover is greater than 50 percent, efforts would be to reduce the cover to 15–25 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 stands should be mown or grazed annually to a height of no less than 6 inches. Mowing or grazing during the late summer would allow the plants to set seed and maintain vigor.

Concurrently with the establishment of the fuelbreaks around communities, there should be hazardous fuel management on those areas designated as FRCC 3 (Map 4). The objective would be to reduce FRCC 3 vegetation to FRCC 1. Prescribed fire, hand crews, grazing, and/or mechanical treatments would be used to achieve the FRCC improvement. The type of treatment would depend of proximity of structure, slopes, and fuel type. Ground reconnaissance would identify high-priority areas. Focus would first be on the fuels within one mile of communities. Areas classified as FRCC 2 also need treatment but would be lower priority than the FRCC 3 vegetation. Communities with FRCC 3 fuels within one mile include Hines, Riley, Crane, Burns, Andrews, and the Paiute Indian Reservation.

***Burns and Hines*** – The fuelbreak that was bull dozed into place to protect the cities from the Pine Springs Basin Fire should be re-established northwest of Burns and Hines running from T23S R30E section 35 through Hines South Logging Road to the Paiute Reservation through T23S R30E sections 27, 22, 15 and 11 (Map 7). In addition, strategically located fuelbreaks should be located further west and north of the main fuelbreak to provide an area for firefighters to safely work. Another fuelbreak should be established northwest of the small development along Turnout Road in T22S R31E sections 28, 29, and 32. Defensible space and non-flammable roofs should be encouraged for all structures and houses on the west and south sides of Burns and Hines that are within 300 feet of juniper and sagebrush covered slopes. Firebrands from a fire could blow on to these structures and cause fire. Fuels mitigation and defensible space construction for the Canyon Road houses is needed. This area is at extreme risk for wildfire.

Fuels such as sagebrush and juniper need to be considerably reduced with defensible space construction around homes. Weed abatement by mowing is needed throughout Burns and Hines. Firebrands from wildfire could ignite these weeds and cause spot fires in the towns. FRCC 3 fuels occur in T23S R30E sections 14, 15, and 22; and in T22S R31E sections 21, 28, and 29.

***Paiute Indian Reservation*** – A fuelbreak should be constructed along its boundaries as appropriate to reduce the chance of fire spreading onto or from the Reservation (Map 7). Existing roads on the north and east can be used as the bases for the fuelbreaks. FRCC 3 fuels are located in T22S R30E sections 25, 26, 35, and 36.

***Crane*** – A series of 2–3, strategically placed fuelbreaks should be constructed on the hill slopes on the north and south of town in T25S R3E sections 5, 6, 7, and 8 and perhaps sections 17 and 18 depending on the FARSITE modeling results (Map 8). 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. FRCC 3 fuels occur in T25S R33E sections 13 and 24.

***Drewsey*** – A series of 3–4, strategically placed fuelbreaks should be constructed on the west and east sides of town in the sagebrush vegetation of T20S R35E section 22, 24, 25, 26, and 27. Existing roads may be used as the basis for the fuelbreaks (Map 9). The Malheur River is a natural fuelbreak given that the grass and weeds between the river and town are mowed or grazed. 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 dry out. The use of non-flammable roofs and defensible spaces should be encouraged especially for those houses adjacent to the sagebrush-covered slopes.

***Frenchglen/Jack Pine Place*** – A series of 3–4, strategically placed fuelbreaks should be constructed on all sides of Frenchglen in T32S R32E sections 1, 2, 11, and 12 (Map 10). Grass, weeds, and marsh vegetation should be annually mowed or grazed. Strategically placed fuelbreaks should be constructed between marshlands and towns specifically for the years when the USFWS imposes an artificial drying cycle to manage wetland vegetation. Juniper and sagebrush tree density on the west side of town should be reduced by hand crews. The same actions should occur for the Jack Pine Place in sections 7, 8, 17, and 18. Grass and weeds within the community need to be mowed as they dry out. The use of non-flammable roofs and defensible spaces should be encouraged especially for those houses adjacent to the juniper and sagebrush-covered slopes.

***Fields*** – A series of 3–4, strategically placed fuelbreaks should be constructed on all sides of Fields in T38S R34E sections 23, 24, 25, and 26; T37S R332E section 13 and 14; and T38S R35E sections 18 and 19 (Map 11). However, the west and northwest side is of high concern because of the heavy sagebrush fuel within approximately one mile of town. The greasewood stands further away from town to the west may serve as a fuelbreak because its succulent leaves reduce its flammability. Grass and weeds within the community need to be mowed as they dry out. The use of non-flammable roofs and defensible spaces should be encouraged especially for those houses adjacent to the juniper and sagebrush-covered slopes.

**Diamond** – A series of 2–3, strategically placed fuelbreaks should be constructed around the town mainly in T29S R 33E section 32 (Map 12). The sagebrush-covered slope immediately north of the town is a concern because of its steepness and heavy fuel. Sagebrush cover needs to be greatly reduced by hand crews, shrub chopper, or with herbicide use. Grass and weeds within the community need to be mowed as they dry out. The use of defensible spaces should be encouraged especially for those houses adjacent to the sagebrush-covered slopes.

**Andrews** – A series of 2–3, strategically placed fuelbreaks should be located mainly to the west in sections T35S R33E sections 27 and 34 (Map 13). East Steens Road may be a sufficient fuelbreak to the east. “Sundowner” winds are common in the evening. Grass and weeds within the community need to be mowed as they mature. The use of defensible spaces should be encouraged. High priority FRCC 3 fuels are located around the community in T35S R33E sections 27, 33, 34, and 35; and in T36S R33E section 3.

**Riley** – Grass and weeds need to be mowed or grazed as they dry in the late-summer within the community and the surrounding area (Map 14). Strategically set fuelbreaks should occur on east and southeast of the community in T23S R27 E sections 29 and 32. FRCC 3 fuels occur in T23S R27E section 28

#### 5.4 Non-fuels Mitigation Needs

For the most part, the proposed non-fuels mitigation needs are not specific projects like the hazardous fuel needs but, instead, are needs that 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 BIFZ, ODF, Burns and Hines Fire Departments, US FWS, Burns Paiute Indian Reservation, the RFPAs, 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 and maintain defensible space around their homes and structures
- 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 would occur in conjunction with public demonstrations, education programs, and speakers on wildfire and Firewise practices.

***Strengthen the RFPAs*** – The BIFZ and the four RFPAs provide nearly all the wildfire protection in Harney County. The BIFZ is fully staffed and equipped for wildfire and fuels management in their area of jurisdiction. However, the RFPAs are not. Given that the RFPAs are non-profit, volunteer organizations, the same level of wildfire preparedness cannot be expected as with the BIFZ. However, the RFPAs provide a valuable service for almost 50 percent of the County. Efforts should be made to strengthen the RFPAs through public awareness, economic aid appreciation, and proper equipment and training. All members of the RFPAs should have basic training in wildfire fighting procedures, fiscal management, and wildfire preparedness. Support for the RFPAs should come from the County, ODF, and BLM. The RFPAs should be responsible for Firewise outreach in their respective areas. The RFPAs currently have sufficient vehicles as first responders but equipment needs should be reviewed annually as many pieces are aging and will need replacement. The RFPAs should inventory the private landowners to determine available water resources and what equipment they may have for firefighting. Improved communication among the volunteer firefighters and with BLM is needed. Handheld, BLM compatible radios would be appropriate for this need.

***Supplemental Water Supplies*** – The Burns and Hines Fire Departments both expressed the need for supplemental water supplies. Four, 25–30,000 gallon, underground tanks strategically located in the districts would allow tankers to quickly refill without returning to the station or taking time to pump from a pond, stream, or irrigation pipe. Also, water sources throughout the RFPAs need to be developed. This could occur by contracting with farmers and ranchers to obtain water from their irrigation systems.

## **5.5 Protection of Homes and Structures**

The first important principle concerning structure ignitability and protection is that structures are a source of fuel and may burn just as readily as juniper or sagebrush given the conditions for combustion. Structure loss to wildfire can occur by conduction, convection, or firebrand. Conduction is the fire flame coming in 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 causing combustion. Firebrands ride on air currents resulting from the fire and may be carried over several hundred feet to a 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 water in a flood. For fire to spread, material such as a tree, shrub, or structures in the flame front must meet the conditions of ignitability. The conditions needed 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 and 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 fuels (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 owner. The following are two actions that homeowners can take to reduce the chances of wildfire burning their structures:

- Develop a defensible space around the structure that is at least 30 feet wide, use low-combustible plant material for landscaping, and remove woodpiles (Appendix D). If the structure occurs on a slope, the defensible space must be greater on the downslope side of the house corresponding to the steepness of the slope.
- Use non-combustible construction material to the highest extent possible. The minimum is using non-combustible roofing material.

## 5.6 Need for Action

Wildfire occurrence in Harney County is common. Ignition usually results from natural causes, although human-caused fire potential is high. The hazard of wildland fire is high because of the ladder fuels and overstock ponderosa pine stands, juniper invasion into sagebrush and grasslands, overstock sagebrush stands, and the pervasiveness of weeds. Fire risk is extreme during the late-summer and fall months when grasses and weeds are dry. These flashy fuels are easily ignited and burn rapidly, especially on windy days.

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. Sagebrush, weeds, and grasses growing around many structures and along roads need to be maintained at an acceptable level. The recommended Firewise distance to achieve a survivable space is a 30-foot perimeter around a home or structure, which should also be properly landscaped with fire-resistant vegetation. Greater distances are needed if the structure is located on a slope. Prescribed methods to maintain the vegetation are the use of hand tools, mechanical removal, or herbicidal treatments (limited use). All vegetation removed should be piled and burned or transported to a designated landfill. These Firewise practices are general, but long-term in nature, because they require continual adherence to reduce the hazard of wildfire.



## 6 EMERGENCY OPERATIONS

### 6.1 County Wildfire Preparedness and Outreach

The County should continue its efforts to strengthen the RFPAs and work closely with the BIFZ. The RFPAs need continual encouragement, wildfire training, and updating of equipment. Emergency evacuation routes, evacuation centers, and other considerations need to be in place. Consideration should be given for structure fire suppression training for the RFPAs. The County should continue to work closely with the BIFZ, USFWS, and the Paiute Indian Tribe for hazardous fuel management and wildfire protection. Good communication and cooperation among all fire authorities are essential for reducing wildfire risk throughout the County.

County preparedness occurs before a wildfire emergency with appropriate Firewise building codes for new construction and encouragement for retrofits for existing structures. Briefly, these codes include the use of non-flammable building materials, access roads suitable for emergency vehicles, available water for structure protection, and the development of a defensible space. Community outreach can occur through appropriate activities such as Firewise construction and landscaping demonstrations, mailers in the spring as reminders for landowners to prepare for the fire season, or educational programs during the fire awareness month of October.

### 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 Sheriff would proclaim the preferred evacuation routes and safe sites. However, the need for evacuation can occur without notice when conditions for wildfire are favorable. Homeowners should be prepared to evacuate without formal notice.

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 30 feet or more from the house such as woodpiles, 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 meeting locations in place 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 exterior of the house should be monitored for smoke for several hours after return. Embers may lodge in small cracks and crevices and smolder for several hours before flaming.

Major evacuation routes for each community are listed in Table 12. The emergency roads listed are Federal, State, or County roads and do not require specific fuels reduction along them as long as regular roadside vegetation management occurs. However, homeowners need to evaluate evacuation routes from their property to a major road and determine the need for fuels treatment.

Even though some communities such as Andrews have only one road, it is unlikely that wildfire would threaten both directions.

**Table 12 Emergency Evacuation Routes**

Community	Evacuation Route
Burns/Hines	US Highway 20, US Highway 395
Drewsey	US Highway 20, Van Road
Crane	State Road 78, Venator Road, Buchanan Road
Diamond	Diamond Road
Frenchglen	County Road 205
Andrews	East Steens Road, Alvord Desert
Fields	County Road 205, East Steens Road
Riley	US Highway 20

### 6.3 Wildfire Suppression Operations

Currently, all wildfires in Harney 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 Harney County are:

- Burns Interagency Fire Zone
- Paiute Indian Tribe
- U.S. Fish and Wildlife Service
- Fields/Andrews Fire Protection Association
- Crane-Drewsey Fire Protection Association
- Silver Creek Fire Protection Association
- Oregon Department of Forestry

Air and land are the two modes for initial suppression efforts on a wildfire. The location of the fire dictates the mode of initial attack. An air operation would most likely occur in roadless or limited access areas. Air tankers are located in Boise. The BIFZ has a helicopter and single engine air tanker at its disposal. Smoke jumpers and a retardant base are located in Redmond. An air tanker base resides at LaGrande. In addition, the John Day Airport has a helibase equipped with rappellers and a small engine air tanker. All of these fire support facilities are fully capable of initial attack on fires that are not obtainable by roads.

Initial attack on land to suppress a wildfire would depend on its location in the County. A RFPA could provide a first response to wildfire occurring in their jurisdiction. The BIFZ would respond to wildfire on BLM, USFS, State land, and contracted private land. The USFWS would provide initial attack on the Malheur National Wildlife Refuge. The Paiute Tribe would respond to wildfire on their Reservation. All of these fire authorities are equipped for initial land attack.

If the wildfire escapes initial attack, then the other county fire authorities may be called to action through the Mutual Aid Agreement. If conditions warrant, the BIFZ can call in more support from other areas. The USFS has seven engines working out of John Day and five working out of

Prairie City. The BLM has three engines located at Dayville. The ODF has 15 engines scattered throughout locations such as John Day, Long Creek, Monument, and Burns. The National Park Service also has an engine stationed at Fossil Beds. Federal resources are available through the Northwest Coordination Center (NWCC) located in Portland. State resources are coordinated through the ODF-Salem Coordination Center. Indian tribal resources are available through existing Bureau of Indian Affairs/Tribal Cooperative agreements. ODF has an agreement with Oregon Department of Corrections for the use of inmate resources to fight fires and support fire suppression activities. In addition, a very large private work force 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 firefighting skills.

Extended attack on fires would be handled through an Incident Management Team (IMT). The IMT has the ability to activate all resources needed to suppress wildfire. The IMT would set up a small city-type camp with the capabilities of feeding and housing all personnel. 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 IMTs, and Pacific Northwest National IMTs are available and all partially staffed by local agency personnel.

Structural fires are handled much differently than wildfires because specialized training and equipment are needed. The Burns and Hines Fire Departments are the only fire authorities in Harney County trained and equipped for structure fire fighting. The RFPA volunteers are not trained or equipped for structure fire suppression. Although BIFZ 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 in the cities of Burns or Hines, the County Court can request the Governor to 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 HARNEY COUNTY CWPP MONITORING AND EVALUATION**

### **7.1 CWPP Plan Adoption**

A meeting was convened on December 1, 2005 at the Harney County Senior Center to present the Harney County CWPP to the Core Team, fire authorities, stakeholders, and public. The draft CWPP was posted on Harney County's website to allow public review and response. A 10-day public response period occurred before the CWPP was finalized and presented to the Core Team.

The Harney County CWPP provides the foundation and resources for understanding wildfire risk

and presents opportunities to reduce potential losses from wildfire. Individual communities, RFPAs, and private landowners can take action by developing specific fire plans or by participating in countywide activities for prevention and protection.

The HFRA authorities for Community Wildfire Protection Plans require adoption of this plan, as does the FEMA Disaster - Mitigation Act of 2000. With formal adoption of this plan by the Core Team and Harney County Court, the County will become competitive for hazardous fuels and non-fuels mitigation funding that may assist with plan 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 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.

Harney County is committed to supporting the RFPAs 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 hazardous fuels management and other mitigation projects.

## 7.3 CWPP Oversight, Monitoring and Evaluation

The Core Team will be responsible for CWPP monitoring and evaluation through regular meetings, public involvement, and coordination with all fire protection authorities (Table 13). 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, as well as recent wildfire suppression efforts. Monitoring and evaluation measures should progress overtime in a way that will determine if the CWPP goals and objectives are being obtained.

**Table 13 Monitoring and Evaluation Tasks**

Objective	Tasks	Timeline
Risk Assessment	• Use reliable data that is compatible among the partner agencies	Annual
	• Update the CWPP as new information becomes available	Annual
	• Continue to assess wildfire risk to communities and private landowners	Bi-annual
Fuels Reduction	• Identify and prioritize fuels treatment projects on public land through development of a 5-year plan	Annual
	• Track fuels reduction projects and defensible space projects on private land	Bi-annual

Objective	Tasks	Timeline
	<ul style="list-style-type: none"> <li>• Monitor fuels reduction projects on evacuation routes</li> <li>• Track grants and other funding sources and make appropriate application</li> </ul>	Annual On-going
Emergency Management	<ul style="list-style-type: none"> <li>• Review suitability and the need for fuels reduction along evacuation routes</li> </ul>	Annual
Public Outreach	<ul style="list-style-type: none"> <li>• Plan and hold Firewise education week</li> <li>• Provide Firewise pamphlets at public events</li> <li>• Evaluate techniques used to motivate and educate private landowners.</li> </ul>	Annual Annual Annual

## 8 FUNDING SOURCES AND TECHNICAL RESOURCES

Financial resources that provide support for various wildland fire mitigation action items include various State and Federal grants administered through Oregon Department of Forestry, the Bureau of Land Management, the Natural Resource Conservation Service, and the Federal Emergency Management Agency. Some funding sources are not targeted directly at fuel management; but many times, multiple resource management objectives can 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/Volunteer Fire Assistance: Assistance is funded 90/10 by USFS grants to State Forester.
- Federal Excess Property: Federal equipment loan to State Foresters. Recipients include State Forestry Programs and Rural and Wildland 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; 80 percent federal funding, 20 percent nonfederal funding (<http://www.fs.fed.us/r3/spf/community/>).
- Assistance to Fire Fighters: The FEMA and US Fire Administration Program can improve firefighting operations, services, and equipment; 90 percent federal funding, 10 percent nonfederal funding ([www.usfa.fema.gov](http://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 Harney County can be combined from developments in the County and applied for through 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

publication 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 Harney County. Landowners need to check with their 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 the cost of converting under-producing forestland (brush land and low value/low volume forest) to well stocked forest. Apply by completing a tax credit form and submitting it to the local ODF Stewardship Forester (The form is available on the ODF/Private & Community Forests web site or at the local ODF office). The state tax credit is available to qualified landowners and projects on a continuous basis. Proposed projects should be pre-qualified by the local ODF Stewardship Forester.
- Afforestation Incentive (OAR 629-611 Forest Practices Rules): Provides landowners an incentive to convert parcels of idle land or land in other uses to commercial forest use. Provides assurance that no state forest practices regulation will prohibit harvesting most of the planted timber established and grown as the first crop rotation. Contact the local ODF Stewardship Forester for more information.
- Federal (10 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 10 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](http://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.

## 8.1 Community Fire Assistance

- Volunteer Fire Assistance (VFA): Assistance to Volunteer Fire Departments for equipment & supplies. Contact the local ODF office.
- Rural Fire Assistance (RFA): Assistance to Rural Fire organizations for equipment and supplies. Contact the local ODF office.
- Federal Excess Personal Property program (FEPP): Provides federal excess equipment and supplies to city & rural fire departments for firefighting purposes. Contact the local ODF office.
- Special funding for Insect & Disease control: The cost-share amount varies depending on the acreage owned. It varies from 33 to 50 percent, with the larger landowners being eligible for only 33 percent of the costs. Contact the local ODF office.
- Title II: Funding is available from the County Court for projects to enhance forest objectives. Contact the County Court.
- Title III: Funding is available and can be used on private lands adjacent to or direct benefit to federal lands.

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: [www.odf.state.or.us](http://www.odf.state.or.us)
- Federal Wildland Fire Policy, Wildland/Urban Interface Protection Federal report describing areas that need improvement nationally; Website: [www.fs.fed.us/land/wildfire](http://www.fs.fed.us/land/wildfire)
- National Academy of Public Administration (NAPA), Wildfire Suppression: Strategies for containing costs; Website: [www.napawash.org](http://www.napawash.org)
- Bureau of Land Management (BLM), National Fire Plan, and links; Website: [www.blm.gov](http://www.blm.gov)
- USFS Fire Sciences Laboratory, structure protection information; Website: [www.firelab.org](http://www.firelab.org)
- Firewise, community wildfire planning and outreach tools and information, construction and landscaping practices; Website: [www.firewise.org](http://www.firewise.org)
- Federal Emergency Management Agency (FEMA), information on emergency planning , protection, and funding; Website: [www.fema.gov](http://www.fema.gov)



## 9 BIBLIOGRAPHY

Agee, J.K. 1993. Fire Ecology of Pacific Northwest Forests. Island Press, Washington, D.C.

Anderson, H.D. 1982. Aids to determining fuel models for estimating fire behavior. General Technical Report INT-122, USDA Forest Service, Intermountain Forest and Range Experiment Station, Ogden, UT.

Brown, J.K. 2000. Ecological Principles, Shifting Fire Regimes and Management Considerations, In: Proceedings of the Society of American Foresters National Convention, September 18-22, 1994. Anchorage, Alaska. Society of American Foresters, Washington, D.C.

Cohen, J. and J. Saveland. 1997. Structure Ignition Assessment Can Help Reduce Fire Damages in the W-UI. Fire Management Notes 57(4): 19-23.

Dennis, F.C. undated. Fuelbreak Guidelines for Forested Subdivisions & Communities. Colorado State Forest Service, Fort Collins, CO. (Internet access at [www.colostate.edu/depts/csfs/](http://www.colostate.edu/depts/csfs/))

Fire Regime Condition Class. Internet Access: <http://www.frcc.gov/index.html>.

Firewise. Internet access: [www.firewise.org](http://www.firewise.org).

Grant County Community Wildfire Protection Plan. Undated and unpublished photocopied draft manuscript obtained from Oregon Department of Forestry, John Day, OR.

Hann, W.J. and D.L. Bunnell. 2001. Fire and Land Management Planning and Implementation Across Multiple Scales. International J. Wildland Fire 10:389-403.

Hardy, C.C. et al. 2001. Spatial Data for National Fire Planning and Fuel Management. International J. Wildland Fire 10:353-372.

National Firewise Communities Program. Undated video set. Wildland/Urban Interface Hazard Assessment Training. (Available at [www.firewise.org](http://www.firewise.org)).

National Firewise Communities Program. Undated pamphlet. Communities Compatible with Nature. (Available at [www.firewise.org](http://www.firewise.org)).

National Fire Protection Association. 2002. Standards for Protection of Life and Property from Wildfire. NFPA 1144, Quincy, MA.

National Wildfire Coordinating Group, March 1998. Wildfire prevention strategies. PMS 455 or NFES 1572, National Interagency Fire Center, BLM National Fire & Aviation Training Support Group, Boise, ID.

National Wildfire Coordinating Group, 1991. Inspecting fire prone property P-110: Instructors Guide. NFES 2190, National Interagency Fire Center, BLM National Fire & Aviation Training Support Group, Boise, ID.

Omi, P.N and L.A. Joyce (Technical Editors). 2003. Fire, Fuel Treatments, and Ecological Restoration: Conference Proceedings. RMRS-P-29, U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins, CO.

Oregon Department of Forestry. 2004. Fire Protection Coverage Working Group: White Paper. Internet Access: [www.oregon.gov/ODF/FIRE/docs/FireProtectionCoverageGrp.pdf](http://www.oregon.gov/ODF/FIRE/docs/FireProtectionCoverageGrp.pdf).

Oregon Department of Forestry. 2004. Oregon Forestland-Urban Interface Protection Act: Property Evaluation and Self-Certification Guide. Oregon Department of Forestry, Salem, OR.

Oregon Revised Statues. 477.015. The Oregon Forestland-Urban Interface FireProtection Act of 1997 (Oregon Senate Bill 360).

Schmidt, K.M., et al. 2002. Development of Coarse-Scale Data for Wildland Fire and Fuel Management. General Technical Report, RMRS-GTR-87, U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins, CO.

Society of American Foresters. 2004. Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities. Bethesda, Maryland.

## APPENDIX A

### MAPS

MAP 1	HARNEY COUNTY LAND OWNERSHIP
MAP 2	HARNEY COUNTY VEGETATION
MAP 3	HARNEY COUNTY HISTORIC FIRE CONDITION CLASS
MAP 4	HARNEY COUNTY CURRENT FIRE REGIME CONDITION CLASS
MAP 5	HARNEY COUNTY IGNITION RISK POTENTIAL
MAP 6	HARNEY COUNTY FIRE HISTORY
MAP 7	BURNS-HINES MITIGATION MAP
MAP 8	CRANE MITIGATION MAP
MAP 9	DREWSEY MITIGATION MAP
MAP 10	FRENCHGLEN MITIGATION MAP
MAP 11	FIELDS MITIGATION MAP
MAP 12	DIAMOND MITIGATION MAP
MAP 13	ANDREWS MITIGATION MAP
MAP 14	RILEY MITIGATION MAP

**APPENDIX B**  
**WILDLAND FIRE RISK AND HAZARD SEVERITY ASSESSMENT**  
**FORM**

**APPENDIX C**  
**QUESTIONNAIRE ON HARNEY COUNTY WILDLAND FIRE**  
**ASSESSMENT**

# APPENDIX D BROCHURE

DRAFT