

**REPORT OF THE  
FOREST FUELS AND HAZARD MITIGATION COMMITTEE**

**TO THE**

**OREGON DEPARTMENT OF FORESTRY  
OREGON FIRE PROGRAM REVIEW**



Submitted by the Forest Fuels and Hazard Mitigation Committee

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## List of Forest Fuels and Hazard Mitigation Committee Participants and Affiliations

This report was prepared primarily by Jeff Behan, Institute for Natural Resources, Oregon State University, with assistance from Kathy Lynn, Program for Watershed and Community Health, University of Oregon, under the direction of the Forest Fuels and Hazard Mitigation Committee:

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## Executive Summary

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Many Oregon communities face serious and growing risks from wildfires. These fires are increasingly large and severe after many decades of fire suppression and land use changes, flammable fuel buildups and interactions with climate. The wildland-urban interface (WUI) continues to expand as people relocate to rural areas where they often expect structural fire protection similar to what they experienced in cities. But conditions are different in rural communities located in fire-prone forests. The risk of severe wildfire is greater and limited resources are available to deal with severe fires when they break out.

Fire prevention and suppression without vegetation management to reduce accumulated fuels has and will result in a continuation of uncharacteristically severe, stand-replacing wildfires, particularly in eastern and southwestern Oregon. These fires are difficult and expensive to control. They also place firefighters at high risk. Federal, state and rural fire protection agencies are struggling to cope as wildfire threats, costs, and the scope of protection responsibilities continue to increase. Federal agencies have initiated efforts to reduce hazardous fuels and increase community wildfire readiness as directed by the 2000 National Fire Plan (NFP) and 2003 Healthy Forests Restoration Act (HFRA). These mandates are now being implemented at multiple levels with every effort to coordinate for greater efficiency.

As part of the 2004 Oregon Fire Program Review, the Oregon Department of Forestry (ODF) formed the Forest Fuels and Hazard Mitigation (FFHM) Committee to assess hazardous fuel loading issues, and recommend ways to reduce risk, and improve and strengthen the multiple hazard mitigation strategies in Oregon.

A statewide wildfire risk assessment and a strategy for helping communities develop and implement Community Wildfire Protection Plans (CWPP) were completed as part of the FFHM Committee's work. The Committee also developed specific recommendations for interagency coordination on hazardous fuels treatment, citizen incentives, information acquisition and dissemination, maintenance of treated areas, and biomass utilization. Recommendations are listed in a table at the end of this Executive Summary.

### *Interagency Coordination of Community-Level Wildfire Hazard Mitigation*

The FFHM Committee worked on a coordinated strategy to implement hazardous fuels provisions of the NFP and the HFRA in Oregon communities, focusing on:

- Better integration of hazardous fuel reduction with broader forest health research and forest health improvement efforts
- Identifying, developing and empowering Local Coordination Groups (LCGs) and groups acting as LCGs
- Helping LCGs develop CWPPs that address multiple requirements and interface with regional and state-level wildfire mitigation and fuels planning
- Continuing to integrate fuels reduction and forest health grant programs and make grant information easier to access
- Providing incentives for citizens to take primary responsibility for reducing risk through fuel reduction and reducing structural ignitability on their properties

Hazardous fuels accumulations and forest health issues such as insect and disease infestations are interrelated problems with numerous research and mitigation activities associated with each. Greater efficiency and effectiveness in use of available resources could be realized through better integration of forest health and fuel reduction research, grant writing and access, and project implementation. The FFHM Committee recommends convening a multi-organizational group to identify ways to better integrate fire and non-fire programs addressing these issues. This group could also act as a state level review for grant applications and prioritization of projects. The State's priorities would then go to the grant selection process and the NFP Strategy Team.

An LCG is a team of community stakeholders which share common needs and interests related to NFP goals. LCGs are based around local geographic areas. LCGs should be built within local social networks already in place and working together, especially groups presently pursuing fire hazard mitigation goals, such as resource advisory committees, local conservation districts or fire prevention cooperatives. Federal, state, county and tribal agency roles are to help create LCGs where they do not currently exist. LCGs should serve as the focal point for community wildfire-related activities, including:

- Developing Community Wildfire Protection Plans ensuring that they include action plans
- Prioritizing hazardous fuel reduction needs
- Capitalizing on local NFP and other fire-related grant opportunities
- Fostering public support for meeting NFP goals
- Archiving and making credible information available to the public
- Transferring information and technology down to local communities, and communicating local perspectives back up to state and federal agencies

The HFRA offers priority funding to hazardous fuels reduction projects in areas where Community Wildfire Protection Plans (CWPPs) are in place. CWPPs address wildfire response, hazard mitigation, community preparedness and structure protection. The Federal Emergency Management Agency (FEMA) requires communities to address very similar issues in Natural Hazard Mitigation Plans. Some Oregon WUI communities are also being asked to address the Forestland-Urban Interface Protection Act of 1997 (Senate Bill 360).

To reduce confusion and workloads the FFHM Committee recommends that ODF tutorials, information and assistance be made available locally and via the internet to offer each community the option of developing a single plan that meets HFRA, FEMA and SB 360 requirements. The Committee also recommends that initial efforts to streamline the process for obtaining hazard mitigation grant funding be continued and expanded.

Loss of homes and property, during wildfires, can be significantly reduced. Oregon Department of Land Conservation and Development (DLCD) guidance includes fire precautions for land-use in forested areas. The National Fire Protection Association (NFPA) and the International Code Council (ICC) recommend structural standards for making buildings defensible, or even self-sustaining, in a wildfire. All recommendations include fire-resistant landscaping and making structures more fire-resistant. The FFHM Committee recommends the state consider convening appropriate fire, land-use, and building agencies to review and adopt compatible portions of these codes in an *Oregon Wildland Urban Interface Code*. The Committee also recommends

sharing fire risk and occurrence data with private sector insurance companies to help them identify properties at high risk for wildfire.

### *Wildfire Risk Assessment*

The NFP directs states to identify communities at risk for wildfire. This work was completed concurrently with the FFHM Committee's efforts. For its list of communities at risk in Oregon, ODF defines *Community at Risk* as ***a geographic area within and surrounding permanent dwellings with basic infrastructure and services, under a common fire protection jurisdiction or government, for which there is a significant threat due to wildfire***. In order to develop useful CWPPs and prioritize hazardous fuel projects, specific, logical community boundaries and associated WUIs for Communities at Risk had to be defined. Communities at Risk are delineated based on population density and existing fire districts or municipalities where communities currently receive fire protection services:

#### Step 1: Identify each distinct geographic area that:

- Has a population density of at least 1 structure per 40 acres with minimum of four residences, buffered by the geographic area where problem fires could threaten the populated area, generally 6<sup>th</sup> field watershed boundaries.
- Has conditions conducive to a wildfire event that would threaten human life or property.

#### Step 2: Label (name) each geographic area based upon *common government* as follows:

- For areas with structural fire protection (or contiguous with areas that do) the community name should concur with the common fire protection jurisdiction, such as fire district and/or municipality.
- Unincorporated and unprotected areas not within a city or rural fire district will be labeled as (county name) – unprotected. Labels or place names for these areas can be further refined or determined by using LCDC rural community definitions.

WUI boundaries can be defined by communities, or using the HFRA definition of ½ - 1½ miles from community boundaries. Factors that will be included in the risk assessment and rankings are

- **Risk:** What is the likelihood of a wildfire occurring?
- **Hazard:** What is the physical situation with a potential for human injury, damage to property, or damage to the environment?
- **Protection Capabilities:** What are the wildfire protection capabilities, including capacity and resources to undertake fire prevention measures?
- **Values Protected:** What are the human and economic values associated with communities or landscapes?
- **Structural Vulnerability:** What is the likelihood that structures will be destroyed by wildfire?

ODF will initiate and maintain a risk assessment map and database for the state that counties and communities can use in their own fire risk assessments to collaboratively refine Community at Risk definitions and local components of the risk assessment, and submit results to ODF for approval and inclusion in the statewide database. The risk assessment is dynamic and will be updated as improved information becomes available from state and federal agency sources and from Community Wildfire Protection Plans.

#### *Investing in Fuels Treatment Strategies and Maintenance*

Expenditures on proactive fuels treatments are natural resource investments. The costs of these investments are modest compared to costly and often unsuccessful efforts to suppress large, severe wildfires. The challenge is to strategically consolidate resources and plans to maintain investments in fuels reduction and maximize returns over time. Returns on investments in fuels treatments may include increased public safety, private property protection, municipal water quality, reduced wildfire suppression costs, forest resource protection, improved forest health, resilient fire adapted ecosystems, wildlife habitat and esthetic values. These values are addressed by many agencies, although the relative emphasis placed on a particular type of value may vary across different land ownerships and agency policies.

Areas are prioritized for initial treatment based on fuel conditions, proximity to the WUI and human infrastructure, forest health, and other forest values. Fuels treatments can decrease the risks to WUI communities and forest values by reducing wildfire intensity, severity and size and increasing the chances of rapidly suppressing fires once they start. Fuels treatments include thinning, mowing, pruning lower tree branches and the use of fire to reduce overall fuel (living and dead biomass) and increase the distance between pieces of fuel on the ground and from the ground to the forest canopy.

Substantial increases in treated acres occurred after 1995 reaching 140,000 acres on USFS land in the Pacific Northwest in 2003. The ODF treated 35,000 acres of mostly private land between 1999 and 2004. Additionally, many private property owners are taking the initiative to learn about and actively reduce hazards on their own properties. Tens of millions of dollars have been invested on fuels treatments project planning and work to protect human values and key ecosystem elements within and outside the WUI.

Over the next 10-15 years treated areas on federal, state and private lands will require retreatment to maintain their effectiveness as fuel breaks and fire resilient ecosystems. The FFHM Committee recommends developing a team of state and federal land management fuels experts, and private and community representatives to develop a fuels maintenance database for tracking fuel conditions and treated areas, and coordinating retreatments. The Committee also recommends developing a protocol for fuels retreatment triggering criteria based on desired fire behavior and vegetation conditions, and strategic location.

#### *Utilizing Biomass Waste from Fuels Treatment Projects*

Fuels projects under the NFP and HFRA are expected to produce large amounts of biomass waste in the form of small diameter trees that constitute most of the hazardous fuels in central

Oregon forests. Finding economically viable ways to dispose of this waste is a major challenge. In more productive dry forests, trees of commercial size constitute part of the biomass that managers recommend removing and can help pay for removal of smaller, non-commercial trees but in less productive forests this is often not the case. Scientists generally agree that small, non-merchantable trees constitute the large majority of the trees that contribute to increased fire risk and fuel loadings.

Development of biomass energy generation is seen as having potential to reduce forest fuels, fire risk and unwanted smoke from slash burning, utilize otherwise commercially worthless biomass waste, improve forest health, and produce energy from local sources at the same time. There are several promising aspects of biomass utilization but unfortunately, the cost of producing biomass energy currently exceeds the price at which it can be sold.

Paralleling the FFHM Committee's work, an ad hoc group of state and federal agency staff worked on a strategy to promote biomass waste utilization in Oregon. The FFHM Committee recommends that this group be formally organized and supported as the *Oregon Biomass Working Group* to coordinate with the Renewable Energy Action Plan Work Group and provide input to the Governor and Legislature to develop and promote incentives and investments for biomass production and renewable energy plants.

Part of the biomass challenge lies with promoting greater understanding and more accurate accounting of the social and environmental benefits associated with coupling fuel reduction and biomass waste utilization. Therefore, the FFHM Committee further recommends that the Oregon Biomass Working Group should develop training and education materials and conduct tours to educate Oregonians about issues and multiple direct and indirect benefits of biomass utilization (e.g. healthy forests, improved airsheds and watersheds, reduced particulate and smoke emissions, job creation and energy independence).

#### *A Comprehensive Statewide Fuels Management Plan for Oregon*

The final recommendation of the FFHM Committee is that the products and strategies it developed should be used to build a comprehensive statewide fuels management plan.

## Summary of Recommendations

List of recommendations provided in sections II-V of this report.

### Section II: Interagency Wildfire Hazard Mitigation in Oregon

#### Interagency Coordination of Community-Level Wildfire Hazard Mitigation

Recommendation	Priority	Timeline	Whose Task?	New Authority?	Additional Staff?	Additional Funding?	Funding Source	Barriers to Implementation
1. Create a concise, logical process defining the roles, responsibilities and resources of guiding partner organizations in wildfire hazard mitigation. Clarify policy and scope of ODF role in private land fuel treatments under existing authorities.	High	End of 2005	ODF lead, includes wildland & structural fire agencies, NGOs, Academia	No	No			Variation among individual agency mandates, policies and cultural values
2. Review and improve current hiring practices of ODF personnel to manage and coordinate the organization and implementation of hazard mitigation activities.	High	Mid 2005	ODF Protection	Yes	1 FTE or Contract	\$130,000	State and Federal Grant	Legislative and DAS hiring protocol
3. Develop standardized data elements and identify standard software for Geographic Information Systems (GIS) database on condition class, fire regimes, risk assessments, etc.	High	1/01/2005	PNWCG GIS Group	No	Contract	\$100,000	State and Federal Grant	Variation among individual agency mandates, policies and cultural values. Data availability & compatibility
4. Broadly disseminate information, mission and goals, and mitigation strategy successes of the National Fire Plan (NFP) Strategy Team to other agencies, local governments, fire districts and the general public.	Med	Mid 2005	NFP Coordinator & strategy team members	NA	No			Clear definition & understanding of members roles and decision space; lack of communication plan. Need guidance
5. Ensure that delivery of forest health grants/program under non-fire programs is fully integrated with delivery of NFP/HFRA	High	10/01/05	ODF/NFP	No	No			Changing Standard Operating Procedures

<b>Recommendation</b>	<b>Priority</b>	<b>Timeline</b>	<b>Whose Task?</b>	<b>New Authority?</b>	<b>Additional Staff?</b>	<b>Additional Funding?</b>	<b>Funding Source</b>	<b>Barriers to Implementation</b>
programs. Integrate NFP and forest health/fuel reduction research, grants and activities (ODF/NFP Strategy Team). Develop multi-organization group to recommend how to integrate NFP direction, state and private forestry, insect and disease and forest health research. <i>(This group could act as a statewide level review for grant applications and prioritization of projects. The State's priorities would then go to the grant selection process and the NFP Strategy Team)</i>								
6. Look at program management & delivery of (ODF) Private & Community (P & C) Forests programs and NFP for possible streamlining, coordination, and adoption of similar process.	Med	By next grant period	ODF, NFP Coordinator	No	No			Process of change
7. Encourage communities to use Title II & III funds of PL106-393 Program for developing risk assessment, community fire plans and implementing fuels reduction.	High	Ongoing	Multi - organization	See barrier	No			Up for reauthorization and these funds will not be available if not documented and judicially spent.
8. Encourage involvement and sponsorship in developing Local Coordinating Groups or groups that are or could function as a Local Coordinating Group.	High	Ongoing	Federal, State & County Multi - organization	No	No			None
9. Continue to develop existing Local Coordinating Groups to develop and implement mitigation strategies at the ground level	High	Ongoing	Federal, State & County Multi -	No	No			Limited resources

<b>Recommendation</b>	<b>Priority</b>	<b>Timeline</b>	<b>Whose Task?</b>	<b>New Authority?</b>	<b>Additional Staff?</b>	<b>Additional Funding?</b>	<b>Funding Source</b>	<b>Barriers to Implementation</b>
			organization					
10. Develop a coordinated multi-organization communication plan. <i>Increase awareness of Grants mitigation strategies and successes via the ODF website and other possible venues</i>	High	Mid 2005	ODF Public Affairs And OFRI	No	Contract	\$100,000	State and Federal Grant	Competing responsibilities and messages

### Community Wildfire Planning and Grant Access

<b>Recommendation</b>	<b>Priority</b>	<b>Timeline</b>	<b>Whose Task?</b>	<b>New Authority?</b>	<b>Additional Staff?</b>	<b>Additional Funding?</b>	<b>Funding Source</b>	<b>Barriers to Implementation</b>
1. Finalize development of Oregon Community Wildfire Protection Plan (CWPP) Guidebook	High	3/01/05	ODF	No	No			Collaboration
2. Provide communities training and resources to ensure they are successful in community fire planning and implementation.	High	End of 2005	Multi-organization	No	1 FTE	\$130,000	Federal Grant	Resources and funding
3. Develop a statewide training module and technical assistance teams showing communities where they get assistance, how to develop a CWPP, and build capacity	High	End of 2005	Multi-organization	No	Part of Number two above	Part of Number two above	Part of Number two above	Resources and funding
4. Develop and place CWPP “tutorials” on ODF website as part of a web-based information clearinghouse to assist communities in getting started on CWPPs, and locating grants for projects identified in them.	Med	2/01/2005	Multi-organization	No	Part of Number two above	Part of Number two above	Part of Number two above	Resources and funding
5. Develop a resources list showing communities where they can get assistance for community wildfire planning, risk mitigation and monitoring, and fuel reduction;	High	Mid 2005	Multi-organization	No	Part of Number two above	Part of Number two above	Part of Number two above	Resources and funding

disseminate via ODF website.								
6. Help communities to locate and use best available data, improve incomplete data, & monitor, evaluate and periodically update their CWPPs as new information becomes available.	High	Ongoing	ODF	No	Part of Number two above	Part of Number two above	Part of Number two above	Available data, funding and resources
7. Survey non-governmental, social service, and community-based organizations in Oregon to identify fire-related missions and mandates or that could be leveraged to provide resources for fire protection for communities they work with.	Med	End of 2005	ODF lead, other state agencies	No	Part of Number two above	Part of Number two above	Part of Number two above	Available funding and resources
8. Create guidelines for working with social service community-based agencies and non-governmental organizations to extend programs and increase community wildfire risk mitigation capacity.	Med	End 2005	ODF	No	Unknown			Barriers will be identified by survey (above)
9. Engage Oregon Economic Community Development (OECD) and other appropriate organizations and agencies to assist communities in economic opportunities throughout their CWPP.	Med	Mid 2005	ODF, OECD	No	Part of Number two above	Part of Number two above	Part of Number two above	Challenge to sustain economic development
10. Develop 1-stop grant application menu: Local, state, federal grant program mgrs. review grant programs to seek efficiencies and potential for consolidation into 1-stop grant access system, create unified web-based application. Evaluate monitoring requirements of all grant programs	High	Complete by November 15, 2004	USFS, BIA, BLM, ODF OSFM Grant Program Managers	No	Depends on workloads, will require web development expertise	\$30,000	State or Federal Grant	Depends on workloads, Feasibility
11. Conduct a short-term, statewide review of grant processes.	High	End of 2005	FEMA, USFS, BIA, BLM, ODF,	No	No			Available funds, Depends on workloads

			PNWCG, OSFM Grant Managers					
12. All grant agencies should initiate communication and coordination among local, state and federal grant managers by convening a meeting or conference to facilitate dialog and learning about all grants.	High	Mid 2005	FEMA, USFS, BIA, BLM, ODF, PNWCG, OSFM Grant Managers	No	No			Time and resources
13. Evaluate legislated origins, purposes, and funding streams of each grant program for redundancies in process, potential efficiency gains and possible consolidation. Consider consolidation.	Med	Early 2006	Local, state and federal grant program managers	Yes	No			Political climate Agency cultural values

### Incentives

<b>Recommendation</b>	<b>Priority</b>	<b>Timeline</b>	<b>Whose Task?</b>	<b>New Authority?</b>	<b>Additional Staff?</b>	<b>Additional Funding?</b>	<b>Funding Source</b>	<b>Barriers to Implementation</b>
1. Seek opportunities to collaborate with the insurance industry to assess structural vulnerability. Opportunities for collaboration include fire frequency information sharing and coordination of risk assessment. Engage the insurance industry to actively support WUI mitigation through prevention, education and policy incentives.	High	Early 2005	OSFM, ODF, FEMA, fed agencies, insurance industry	Yes	No			Existing insurance policies, perceptions of who bears responsibility for wildfire risk
2. Develop a WUI Code for Oregon: Reps from DLCD, Building Codes, DEQ, Oregon OSHA and the OSFM create	Med	Begin 2005 – Complete by 2007	DLCD, ODF, DEQ(?), BLDG	No, but legislative direction is needed.	No			Option may be to process as budget note, Will require collaboration among

compatible code, free of conflict between agencies. Legislature should direct appropriate state regulating agencies to review the 2003 International Urban Wildland Interface Code (IUWIC) and adopt compatible portions for an Oregon Wildland Urban Interface Code, supplemented by NFPA Codes 1142, 1143, 1144. Utilize DLCDC Goal 4 standards as a tool (OAR 660).			Codes, OSFM					state agencies, Priorities and compatibility of regulating agencies
3. Encourage development of local WUI Fire Codes: Whether or not a statewide WUI code is adopted, local jurisdictions should consider adopting the 2003 IUWIC, supplemented by the NFPA Codes 1142, 1143, 1144, compatible with DLCDC Goal 4.	Med	2005	County planning, local fire depts., AOC	Yes – Local	No			Lack of statewide WUI code as a foundation.

### Section III: Wildfire Risk Assessment

Recommendation	Priority	Timeline	Whose Task?	New Authority?	Additional Staff?	Additional Funding?	Funding Source	Barriers to Implementation
1. Map and rank Communities-at-Risk. Review interagency risk assessment with local agencies, communities, tribes, state and federal partners to finalize the strategic statewide interagency risk assessment and prioritization of Communities-at-Risk.	High	Dec. 2004	ODF, then federal agencies, NFP Strategy Team	No	No	No		Data
2. Create a statewide spatial database to house available data and make this accessible to communities and other agencies. Disseminate data used to identify	High	Dec. 2004	ODF	No	.5 FTE	\$110,000	Federal Grant	Data, data systems, funding

Communities at-Risk to local counties, municipalities and fire districts. Request initial feedback from communities to refine the risk assessment.								
3. Integrate feedback into risk assessment and share methodology with counties and communities statewide to assist with developing community fire plans and local risk assessments.	High	Ongoing	ODF	No	.5 FTE	\$65,000	Federal Grant	Getting feedback
4. Develop a standardized process and timeline for communities to help update the statewide risk assessment at regular intervals, based on new or more refined local risk information.	Med	Early 2005	ODF	No	.5 FTE	\$100,000	Federal Grant	Funding
5. Use statewide risk assessment to identify low-income communities in the WUI to increase assistance	Med	Early 2005	ODF	No	.25 FTE	\$30,000	Federal Grant	Data
6. Review coordination at the landscape scale to provide a holistic assessment of fuel treatment priorities and accomplishments. Review how and where money is allocated to projects within priority areas. Use state-level review to look for potential areas of improvement. Begin in high risk areas identified through mapping to determine if landscape scale treatments change the condition class and the behavior of a large fire.	High	2005	ODF, federal and local government	No	No	\$100,000	Federal Grant	Data, data systems, funding

## Section IV: Fuels Treatment Strategies and Maintenance

Recommendation	Priority	Timeline	Whose Task?	New Authority?	Additional Staff?	Additional Funding?	Funding Source	Barriers to Implementation
1. Develop fuels team comprised of state and federal land management agencies, along with private and community representatives to develop a fuels treatment/maintenance GIS database.	High	2006	ODF, USFS, BLM, private landowners, communities at risk	No	.25 FTE	\$75,000	State, federal agencies bear costs, unless funded by grants	Depends on staff, workloads, availability of funding
2. Integrate community level fuels data with the statewide fuel treatment database to produce a comprehensive risk assessment linked to the fuel treatment/maintenance database.	Med	2008	ODF	No	.25 FTE	\$100,000	Federal Grant	Depends on staff, workloads, availability of funding
3. Develop a protocol for fuels retreatment. Develop triggering criteria based on desired fire behavior, vegetation conditions, and strategic location.	High	2007	ODF, USFS, BLM and communities at risk	No. (Memorandum of Understanding)	.25 FTE	\$50,000	Federal Grant	Depends on degree of congruence in agency management objectives, legal mandates

## Section V: Biomass Utilization

Recommendation	Priority	Timeline	Whose Task?	New Authority?	Additional Staff?	Additional Funding?	Funding Source	Barriers to Implementation
1. Organize an <i>Oregon Biomass Working Group</i> of representatives from all agencies and entities working on biomass issues in Oregon. The group should provide proactive, productive and workable administrative, fiscal, and operational input to the Governor and Legislature through the Renewable Energy Working Group	High	ASAP	State	No	1 FTE	\$130,000	State or Federal Grant	Resources, Political will

to develop and promote incentives and investments from biomass production and renewable energy processing plants.								
2. Review existing political, operational, and fiscal incentives/opportunities in other states, regions and countries for possible adoption in Oregon.	High	June 2005	Oregon Biomass Working Group	No	No			Political will
3. Develop training and education materials and conduct tours to educate Oregonians about issues and multiple benefits of biomass utilization. <i>Materials should demonstrate the wide range of societal benefits that can directly or indirectly result from biomass production and processing into energy (e.g. healthy forests, improved airsheds and watersheds, reduced CO2, job creation, enhanced local economies, energy independence, etc.). Include all forms of media.</i>	High	June 2005	Oregon Biomass Working Group	No	Part of Number One	Part of Number One	Part of Number One	Political will
4. Assist local governments and communities in seeking funding for feasibility studies for biomass related projects.	High	Ongoing	State and federal agencies (ODF/ OECD)	No	Part of Number One	Part of Number One	Part of Number One	Political will
5. Implement recommendations in the Oregon Biomass Working Group issue identification and strategy paper to guide next steps to increase biomass utilization in Oregon.	High	2005						

## **Introduction**

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### **The growing social, environmental and economic costs of severe wildfires**

Many Oregon communities face serious and growing risks from wildfires. Ecosystem and climatic changes, rapid population growth and development in wildland urban interface (WUI) areas, and rising numbers of outdoor recreationists are compounding wildfire risks and impacts. Rural communities often have limited resources to deal with uncharacteristically severe wildfires. Many have no structural fire protection at all and are unaware of this status. Federal, state and local rural fire protection agencies are struggling to cope as wildfire threats, costs, and the scope of wildfire protection responsibilities continue to increase.

Fire is a natural ecological process. The forests of dry central, northeastern and southwestern Oregon were historically characterized by frequent, low intensity fires. Today fires in these ecosystems are increasingly large and severe due to interactions between decades of fire suppression and land use changes, declining forest health, flammable fuel buildups, and climate (Graham and others 2004a, Neilsen 2004, Atzet 1996). Severe wildfires can threaten many important human values including homes, community infrastructure (e.g. power grids, water supplies) critical fish and wildlife habitat, natural resources, firefighter and public health and safety, soil productivity, clean air, and esthetics (Graham and others 2004a).

Attempts to suppress large, severe wildfires can be very costly, especially when wildland protection agencies must adjust their tactics and structural fire protection resources are mobilized to protect structures in the path of wildfire (Oregon Emergency Management 2003). In 2000, 122,827 fires burned 8.4 million acres in western states and in 2002, 73,457 fires burned 6.9 million acres with federal agency suppression costs of \$1.36 billion and \$1.66 billion respectively (National Interagency Fire Center 2004). Oregon's Biscuit Fire of 2002 cost over \$150 million in suppression efforts (Azuma and others 2004).

Local and state government costs to support evacuation, traffic control, security, and public information during a WUI fire are also significant. Costs of property damage from wildfires can be high in WUI communities, as can resource losses from fires in forests managed for timber. Indirect social costs in the form of lost income and property taxes, dislocation, and associated community destabilization following a severe wildfire can also be significant or even devastating to both rural economies that are dependent on forest tourism and commodity values and to citizens faced with long-term costs of rebuilding community infrastructure and livelihoods.

### **The role of hazardous fuel mitigation in reducing wildfire severity and costs**

Fire prevention and suppression without vegetation management to reduce accumulated fuels has and will result in a continuation of uncharacteristically severe, stand-replacing wildfires in drier conifer forests. The rising occurrence of such fires has focused attention on the role that fuel reduction can play in mitigating wildfire risks and suppression costs. A range of silvicultural treatments can be used to reduce overall fuel (living and dead biomass), fuel loading (tons/acre), and spatial arrangement of fuels (vertical and horizontal). Fuel treatments can decrease the risks WUI communities face by reducing wildfire intensity, severity and size and increasing the chances of rapidly suppressing fires once they start (Martinson and Omi 2003).

Expenditures on proactive fuels treatments are natural resource investments (Kline 2004). The costs of these investments are modest compared to costly and often unsuccessful efforts to suppress large, severe wildfires (Arno 1996). The challenge is to strategically consolidate resources and plans to maintain investments in fuels reduction and maximize returns over time. Returns on investments in fuels treatments may include increased public safety, private property protection, municipal water quality, reduced wildfire suppression costs, forest resource protection, better forest health, resilient fire adapted ecosystems, wildlife habitat and esthetic values. These values are addressed by many agencies, although the relative emphasis placed on a particular type of value may vary across different land ownerships and agency policies.

Public agencies have initiated efforts to reduce hazardous fuels and increase community wildfire readiness as directed by the National Fire Plan (NFP 2000) and Healthy Forests Restoration Act (HFRA 2003). The HFRA explicitly directs the U.S. Forest Service and Bureau of Land Management to work collaboratively with local governments and communities to develop Community Wildfire Protection Plans (CWPPs) that identify and prioritize areas for hazardous fuel reduction treatments.

The hazardous fuels situation and ever-increasing amount of WUI area have drawn the attention of governors, congressional members and presidents. Mitigating forest fuel hazards near communities in dry conifer forests is now a widely accepted policy, and recognition is growing that citizens have a critical responsibility to actively reduce the flammability of their properties. Significant funding to treat hazardous fuels is now available but the scope of the problem is huge and implementing treatments is complex. Moreover, Oregon communities in fire prone ecosystems vary widely in their capacity to prioritize projects and mobilize the resources necessary to deal with hazardous fuel buildups in their WUI areas.

### **The Forest Fuels and Hazard Mitigation Committee**

Strategic prioritization and timely implementation of fuel reduction projects within communities coupled with incentives for homeowners to reduce the flammability of their properties will be key to reducing fire risks and mitigating wildfire hazards in Oregon forests at the landscape level.

As part of the 2004 Oregon Fire Program Review, the Oregon Department of Forestry formed the Forest Fuels and Hazard Mitigation (FFHM) Committee to assess hazardous fuel loading issues in Oregon, and recommend ways to improve, strengthen and increase the efficiency of fuel reduction strategies. This paper describes information and issues framing the FFHM committee's work, and strategies and recommendations that it is submitting for statewide action.

The committee identified four principal objectives to develop fuel reduction strategies that reduce wildfire threats to communities and wildlands and to streamline the multitude of expectations and resources affecting WUI communities. The committee assigned tasks to subcommittees as components needed to meet each objective. Some tasks involved straightforward collation of existing information, while others required collaboration among partner organizations, strategizing, information gathering, analysis and consideration of alternatives. The four objectives of the FFHM Committee were to:

- A. *Develop effective strategies to ensure continuity between federal, tribal, state, private, and local entities on wildfire mitigation and fuels management*
- B. *Determine effective use of state and federal grant funds to assure long term benefits at the landscape level and to position Oregon to be competitive for future grants*
- C. *Enhance interagency and community collaboration to develop landscape-scale strategies for hazard mitigation*
- D. *Develop a statewide fuels management plan*

The FFHM Committee made considerable progress toward this ambitious set of objectives. Recommendations for assisting communities with wildfire planning and the statewide wildfire risk assessment will provide new links in the chain from federal programs to effective community level wildfire hazard mitigation. Assistance for local jurisdictions seeking funds and implementing fuels projects along with land use goals, new building and fire codes and insurance incentives can form the basis of a cohesive effort to empower and encourage citizens in WUI communities to assume greater responsibility for alleviating wildfire fuel risks and hazards.

Continuing initial efforts to promote communication, learning and program integration among grant managers can facilitate better understanding of and access to the numerous grant opportunities available to WUI communities. Similarly, formalizing and supporting the ad-hoc group that coalesced as part of the FFHM Committee process to take advantage of Oregon's tremendous forest fuel biomass waste utilization opportunities offers the promise of real progress on this complex, emerging issue. Local coordination groups and the community plans they develop will serve as "on the ground" conduits for collaborative prioritization of fuels reduction efforts.

New risk information in conjunction with consistent interagency wildfire data standards will facilitate more accurate landscape level tracking and mitigation of wildfire fuels hazards and maintenance of treated landscapes. Considerable work remains to be done on most of these tasks. Taken together, however, the tools and recommendations submitted by the FFHM Committee represent a solid basis for a statewide fuels management plan.

## **I. Background**

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### **The concept of “forest health”**

The Oregon Board of Forestry’s Forestry Program for Oregon (FPFO) states that “forest health is a social value based on both public perception and scientific information. We define a healthy, vital forest landscape as one that maintains its functions, diversity, and resiliency within the context of natural disturbances and is capable of providing people with the array of values, uses, and products desired now and in the future. Forests are ‘unhealthy’ when potential disturbances, such as fire or pest outbreaks, are unusually frequent, severe, or widespread and when the desired outputs such as wood fiber, special forest products, and recreational opportunities cannot be provided or sustained. We view healthy forests as preferable to unhealthy ones because they are resilient and because they are capable of providing the goods, values, services and habitat upon which humans and plant and animal species depend.

Perceptions about forest health have evolved from a focus on preventing tree death from insects, disease, or wildfire to a concept of ‘forest ecosystem health’ that ties together physical, terrestrial, aquatic, and human aspects of the landscape. The ecosystem concept also recognizes that forests are dynamic and that disturbance is an important element in maintaining desired forest conditions.” (Oregon Board of Forestry 2003, p. 54.)

Despite the increasing frequency of uncharacteristically severe fires, wildfire has been an important natural disturbance process in the maintenance of historic ecosystem health and diversity in western United States forests. In short, wildfire can be both “good” and “bad”. The complexity of distinguishing between “natural” (and beneficial) wildfire disturbances, and uncharacteristically severe wildfires exacerbated by human-induced changes in forest structure and function often results in mixed messages being sent by the media, and considerable confusion about wildfire among members of the general public.

The purpose of the next section is to clarify why so many scientists, managers and stakeholders agree that hazardous fuel reduction is critically needed in Oregon forests despite the fact that fire also plays a vital role in maintaining the health of these ecosystems.

### **Reconciling conflicting messages about wildfire**

Key Points:

- Low intensity fires were historically frequent in dry interior western U.S. conifer forests, and were key to maintaining wildfire resilience, forest structure and ecosystem health
- Fire return intervals, fuel accumulations and other fire regime aspects are no longer within their historical range of variability in many dry conifer forests
- Fire fuels have accumulated to uncharacteristically high levels due to various combinations of fire suppression, timber harvesting, grazing and other land uses

- Fuel buildups have significantly increased the risk of uncharacteristically large and severe wildfires in many dry conifer forests
- Climate variability and climate change may further exacerbate fire risk due to multi-year dry periods and/or extended drought, overall warmer, drier climate patterns, reduced winter snowpack and longer fire seasons
- Many forest managers see the need to return fire regimes (e.g. frequency, intensity) to their historical range of variability in dry forests to restore and maintain healthy, fire resilient forest ecosystems
- Restoring fire to its natural role in these ecosystems will be risky and problematic in many areas until fuel loading is significantly reduced by non-fire methods
- Mechanical removal of wildfire fuels at the landscape level in wildland areas remains somewhat controversial, but there is widespread agreement that fuel reduction in WUI areas near communities is urgently needed

### **Wildfire and Historic Range of Variability (HRV)**

For a variety of reasons, many dry conifer forests in the western U.S. have declined in health and are at a high risk for severe wildfires. Strategies to restore and maintain healthy forests require benchmarks with which to compare present conditions and assess change, and to serve as baselines for defining desired future conditions. Land managers commonly use conditions in unmanaged ecosystems to establish these baselines, under the assumption that ecosystems with most natural processes and conditions intact are more resilient to disturbance and able to sustainably produce goods and services that humans value (Landres and others 1999).

Ecosystems are dynamic and variable across space and time, so baseline or reference conditions are usually defined in terms of *natural of range variability* (NRV). Due to uncertainty about what constitutes “natural” and the degree to which Native American burning influenced fire regimes, many ecologists and managers also use the term *historic range of variability* (HRV). Both refer to the range of variation in ecological conditions and processes that would occur within a specified area, period of time and climate in the absence of substantial agricultural development or influence from mechanized equipment (see Morgan and others 1994, Landres and others 1999, Hann and others 1997).

#### *Wildfire as a natural disturbance process in forest ecosystems*

Disturbances such as wildfire operating within the HRV are an intrinsic part of ecosystem development (Pickett and White 1985). *Fire regimes* (characteristics such as fire intensity, frequency, season, size, extent and effects) vary widely depending physical setting and climate. When fire regime characteristics approximate long-term averages, fire is said to be operating within its HRV. In dry forests, fire history is usually assessed using fire scars on trees, while in wetter forests stand age and length of time since the last fire is estimated using tree rings (Veblen

2003). Ecologists estimate that prior to Euro-American settlement large, stand-replacing crown fires burned Pacific Northwest coastal forests every 100-400 years (Means and others 1996), while smaller surface fires revisited dry interior Pacific Northwest forests as often as every 4-20 years, usually with relatively low mortality for the larger trees (Bork 1985, Morrow 1986, Everett and others 2000). West-side Cascade forest fire intervals fall somewhere between these extremes.

Interpreting information about ecological conditions prior to extensive ecosystem alterations by Euro-Americans remains a topic of lively discussion among researchers (e.g. Allen and others 2002, Baker and Ehle 2003, Veblen 2003). Nevertheless, fire history research and HRV are widely accepted as useful tools for assessing ecosystem changes, for developing desired future condition guidelines for restoration and for evaluating consequences of management actions (Veblen 2003, Landres and others 1999).

### **Fire regimes and HRV in dry Oregon forests**

#### *Relatively frequent, low intensity fires historically kept wildfire fuels in check*

In dry interior western U.S. forests, biomass accumulates faster than it decomposes, and fire is the ecological process that historically kept these accumulations in check (Graham and others 2004). Prior to Euro-American settlement, dry Oregon forests were characterized by relatively frequent, mostly low intensity fires that were often ignited by lightning, but also by Native Americans (Agee 1994, Boyd 1999). Low intensity fires promoted regeneration of fire-tolerant species (e.g. ponderosa pine and Douglas-fir), maintained open, park-like forest stand structure of larger, fire resistant trees, reduced biomass, cycled nutrients, decreased disease and insect impacts (Covington and Moore 1994) and provided habitats for wildlife species that favor open stand structures (Fule and others 1997, Swetnam and others 1999).

#### *Native American burning*

Documented reasons for Native American burning include keeping forest areas free of undergrowth, promoting habitat diversity and the amount of edge between different ecotones, increasing growth and yield of grass forage for game species and foods such as huckleberries, warfare and signaling, improving ease of travel and visibility, and reducing risk of wildfire near inhabited areas (Williams 2001). Distinguishing between non-human and human influences on fire regimes and forest structure prior to Euro-American contact is difficult and somewhat controversial (Veblen 2003). There is increasing appreciation of the fact that Native Americans did use fire in many ways, but most researchers conclude that Euro-American induced changes in ponderosa pine forests since 1850 far exceed the influence of indigenous people (e.g. Allen and others 2002). HRV is generally understood to include indigenous human influences.

#### *Fire suppression and exclusion become established policies*

By 1900, fuel levels were increasing in dry interior western forests. Some interests at that time advocated the use of “light burning” to reduce fire risk and intensity, which critics derided as “Paiute Forestry” (Pyne 2000). This debate effectively ended after the fires of 1910 burned 3.1 million acres of interior western forests and killed 85 people, galvanizing public attitudes that wildfires were undesirable and needed to be actively suppressed. Suppression capacity and

effectiveness grew rapidly, especially with the advent of modern vehicles and road systems in the 1940's (Graham and others 2004, Agee 1993).

*Small diameter tree density and brushy undergrowth have increased*

Alteration of fire regimes by fire exclusion has been most pronounced in dry ponderosa pine or Douglas-fir forests (Graham and others 2004). Researchers estimate that Central Oregon ponderosa pine forests have missed 7-10 fire return intervals (Rapp 2002). These and other dry conifer forests now contain uncharacteristically high levels of flammable, brushy undergrowth, litter (e.g. needles, twigs and leaves) and densely stocked, small diameter trees. Harvesting of larger, more fire resistant trees and livestock grazing, which reduces perennial grass cover and disturbs soils, providing a foothold for tree seedlings, have also contributed to development of uncharacteristically dense stands (Allen and others 2002). Trees in these stands are more likely to be killed by insects and disease than more widely spaced trees, which can further exacerbate fuel loadings.

*Species composition changes also increase fuels and fire intensity*

Species composition changes due to fire suppression have also increased fuels and fire risk. Ponderosa pine and Douglas-fir develop thick bark and high crowns which protect them from surface fires. Fire sensitive species such as grand fir are a component of mixed conifer forests, but most seedlings are eliminated under frequent, low intensity ground fire regimes. Fire exclusion has resulted in a larger portion of the landscape occupied by forests with a dense understory of shade tolerant, fire sensitive fir. These trees have thin bark and retain their low branches making them susceptible to virtually all fires in which they often serve as ladder fuels to the overstory and facilitate intense crown fires in areas that rarely experienced them historically (Wright and Agee 2004).

*Climate and fuel interactions may increase wildfire risks*

Climate affects wildfire fuels and wildfire occurrence in several significant ways (Neilsen 2004). The most important environmental variable affecting Pacific Northwest forest composition and function is the effective moisture regime (a function of temperature and precipitation) during the relatively dry summers (Franklin and others 1991). Both decadal climate variability and longer term global warming can affect the effective moisture regime in ways that influence fire frequency and intensity, but these relationships are complex and difficult to disentangle.

The Pacific Decadal Oscillation (PDO), a 20-40 year oscillation in north Pacific Ocean currents, is correlated with multi-year periods of wetter or drier summers, and significantly higher fire risks in drier periods (Hessl and others 2004). Scientists remain uncertain about relationships between the massive (perhaps 500-year) drought that the western U.S. is currently experiencing, and decadal climate variation and climate change, but drier, longer summers clearly increase fire hazards and risks. Long-term moisture stress on trees makes them more susceptible to pathogens such as bark beetles, which exacerbates stress and can push trees past survival thresholds, causing forest die-offs (Neilsen 2004). Warmer winter temperatures resulting from global warming may be reducing winter snowpack and lengthening summer fire seasons.

## **Protecting human values in fire-prone ecosystems**

### *HRV can guide management for fire resilient forests*

Scientific understanding of the ecological functions of wildfire and the consequences of excluding fire from western forests has grown in recent decades, but as with all ecological knowledge, a level of uncertainty remains about fire return intervals and historic fire regimes (Veblen 2003). Nevertheless there is now widespread consensus that in ecosystems with demonstrated historic fire regimes of frequent surface fires and fuel buildups after fire exclusion, eventual restoration of a fire regime approximating the HRV makes ecological sense and offers good opportunities for restoring and protecting the values associated with healthy, fire resilient, dry conifer forests (Arno 1996).

However, reintroducing fire or allowing fires to burn in dry forests is problematic in the short-term, because fuels have accumulated to such high levels (Fiedler 1996). In Oregon alone there are 5.6 million acres of forest in which fuel loadings are so high that prescribed fires cannot be safely used (USDA Forest Service 2003). When wildfires do break out in these areas, they tend to be uncharacteristically severe and hard to control, with a high risk of intense, large-scale, stand replacing crown fires in areas where lower intensity surface fires were historically the ecological norm. Most likely, historic surface wildfires were quite extensive, burning from late-summer until wetter weather arrived in the fall. Long-term exclusion of fire from ponderosa pine forests has virtually assured eventual occurrence of a large fire that kills most trees. Attempts to exclude fires from these forests are costly and often largely unsuccessful (Arno 1996).

### *Fuels reduction: the first step toward safer, more fire resilient forests*

For the reasons outlined above, forest and fire management agencies, legislators and communities are intensely focused on the near-term priority of mechanically reducing fuels as a critical first step in ongoing, longer-term efforts to manage fire prone forests in safer, more sustainable ways. From a social standpoint, uncharacteristically severe wildfires pose serious risks to life, property and the values people associate with forests. From an ecological standpoint, reintroducing fire as part of healthy forest management without reducing fuel levels first may risk damage to watersheds, soils, wildlife habitat and vegetation recovery potential. From an economic standpoint, fire experts repeatedly stress the irony of how much money is brought to bear once a large wildfire is burning compared to how little is spent proactively to reduce wildfire severity and size (e.g. Arno 1996).

### *Hazardous fuel reduction techniques*

Fuels treatments include a suite of mechanical methods and the use of fire to reduce overall fuel loading and change the spatial arrangement of fuel in stands and landscapes (Fitzgerald 2002). Mechanical fuel removal methods include thinning, mowing, and pruning of lower tree branches. Thinning typically removes small diameter trees that may or may not have commercial value. Non-commercial trees and slash can either be chipped and spread over the site or piled and then later burned. A 4-wheel drive tractor with a mowing carriage can be utilized to mow large shrubs and small trees (3" diameter or less), reducing surface and ladder fuels.

Pruning lower tree branches with long-handled pruning saws increases tree crown height and makes it more difficult for surface fire to move up into the canopy. Prescribed fire is also used to reduce surface fuels, usually after the site has been mechanically treated. Prescribed fires are ignited under predetermined fuel-moisture and weather conditions (wind, temperature, relative humidity) and with specific ignition patterns that utilize roads and other fuel breaks to control fire intensity and prevent escape.

*Where should fuels treatment efforts be concentrated?*

Many experts agree that managers should actively reduce fuels in dry forests, but the extent to which mechanical fuel reduction treatments should be implemented in backcountry wildlands continues to be debated (U.S. General Accounting Office 2004). Fuel reduction in frontcountry forests near communities is generally less controversial, and there is widespread agreement about the need to reduce fuels in WUI areas where wildfires can threaten human lives and property. Rummer and others (2003) estimate that over 66 million acres of forestlands could benefit from fuel reduction efforts, while Applet and Wilmer (2003) estimate that 11 million acres need to be treated to protect communities from wildfire.

In short, informed debate has largely moved beyond whether or not fuels treatments are necessary in dry conifer forests to decisions about where they are needed most and how to get them implemented. As Martinson and Omi (2002) point out, “the 20<sup>th</sup> Century has demonstrated the futility of attempts to eliminate fire from natural landscapes. Society must learn to live with fire, and the détente will be realized most appropriately through the medium of fuel treatments [which] provide options for landscape management that balance societal preferences with the unavoidable recurrence of wildland fires. Where fire threatens societal values, fuel treatments can facilitate suppression by providing safe access and egress for firefighters, as well as possible counter-firing opportunities. In wildlands managed to include natural processes, fuel treatments may help restore fire to its historic regime, either by restoring fuel profiles that facilitate safe management ignitions or by buffering the border between values at risk and extensively managed areas where natural ignitions are allowed to play themselves out.” (p. 12.)

## **Partners and Stakeholders in Oregon Wildfire Planning and Management**

### *Federal land management agencies*

The USDA Forest Service (USFS) and USDI Bureau of Land Management (BLM) collectively oversee nearly 29 million acres of Oregon wildlands, and thus are primary partners in Oregon wildfire planning and management. Other federal landholders are the USDI Fish and Wildlife Service (USFWS) and USDI National Park Service (NPS). These agencies play a direct role in wildfire planning and land management, especially where federal lands abut state and private lands and local communities. The Federal Emergency Management Agency (FEMA) now requires states to develop a wildfire component to their statewide Natural Hazards Mitigation Plans. The Bureau of Indian Affairs (BIA) oversees wildfire protection efforts on the 644,000-acre Warm Springs Reservation. (Other tribal lands are protected under agreement with ODF.)

### *Oregon state agencies*

The Oregon Department of Forestry (ODF) oversees state forests and serves as the lead agency coordinating with federal, state, local community and private partners to implement wildfire protection and management in Oregon. The ODF contracts with the BLM to provide fire protection for BLM western Oregon forest land. The Oregon Office of State Fire Marshal (OSFM) works to protect Oregonians' life and property from fire and hazardous materials by promoting the application and use of effective and uniform fire and life safety codes, often acting as a liaison for structural fire departments statewide. Recognizing that citizens with structural property in rural areas cannot rely on suppression alone, OSFM encourages the role of local departments in prevention and risk reduction in the WUI.

Oregon Emergency Management (OEM) is responsible for planning, preparing and providing for the prevention, mitigation and management of emergencies or disasters that threaten lives and property of Oregon citizens and visitors, including wildfire. In line with FEMA requirements, OEM, ODF and OSFM developed a wildfire component to the State Natural Hazards Mitigation Plan (OEM 2003). This plan is a component of the Oregon Emergency Management Plan. Oregon Department of Environmental Quality (DEQ) also plays a role in wildfire planning and management primarily through oversight of air quality issues associated with smoke from controlled and uncontrolled fires.

Oregon's Statewide Goals and Planning Guidelines developed by the Department of Land Conservation and Development (DLCDD) include fire precautions in Goal 4, which pertain to development of forestlands, and Goal 7 which addresses natural hazard mitigation. Oregon's State Building Codes Division has adopted an optional wildfire hazard mitigation appendix, which defines the wildfire hazard zone and its requirements.

### *Native American tribes*

The BIA oversees wildfire protection on the Warm Springs Reservation, but most other reservation lands in Oregon are protected by ODF. Oregon wildfire planning and management includes opportunities for natural resources, cultural resources and community development staff from each of the Oregon tribes to provide input.

Native Americans are North America's original land managers and historically influenced fire regimes in dry Oregon forests (Agee 1994). The Kalapuya used fire frequently to maintain grasslands and cultivate crops in the Willamette Valley, while the Warm Springs Tribe burned in the mountains in the fall to create easier access and to increase spring and summer forage for horses and big game (Helfrich 1961).

As Euro-Americans settled in the western U.S Native American traditional uses of fire diminished in proportion to decreased Indian populations from disease and displacement, external influences, and new technology, but it is important to recognize the value and uses of fire by Pacific Northwest tribes. Recognition of Native Americans' role in shaping western landscapes is becoming more widespread, and managers are looking to traditional uses of fire for insight during development of management alternatives and recommendations aimed at cultural and resource preservation, as well as economic development opportunities.

#### *Local fire departments*

Local fire departments, particularly rural fire protection districts (RFPDs) protect Oregon citizens and primarily structural property from wildfire. The capacity and role of RFPDs in protecting structures from wildland fires threatening rural communities are undergoing major shifts in perspective of responsibilities and priorities. Rural fire departments are actively focused on risk reduction and prevention as a priority to reduce the level of need for aggressive suppression. The role these departments play in mitigation planning is critical to defining gaps in the community's ability to realistically provide prevention and suppression actions.

#### *Private landowners*

Private landowners with a direct stake in wildfire planning and management include industrial timberland owners with a large economic stake in protecting their timber, equipment and structures from loss, non-industrial private forest and rangeland owners with similar stakes in protecting their land and structures, and individual homeowners and businesses with infrastructure located in wildland urban interface areas.

Douglas Forest Protective Association (DFPA), Coos Forest Protective Association (CFPA) and Walker Range Forest Protective Association (WRFPA) are private landowner organizations that provide fire protection services within their jurisdictions.

Citizens and landowners outside a city or in areas with no organized RFPD often fail to realize they are without structural fire protection.

#### *Insurance industry*

Firms that insure the lives and property of people living in communities at risk for wildfire have a significant economic stake in reducing their exposure to claims for wildfire related losses. Insurance companies are increasingly interested in more accurate risk assessments, and many are beginning to require policyholders to reduce risks. Insurance Service Organization (ISO) is one

of several rating bureaus that continuously rate the protection capacity of many rural fire departments and provide risk information to insurance companies.

#### *Non-Governmental Organizations*

Non-governmental organizations (NGOs) can play an important role in assisting agencies, fire districts and landowners in fire protection activities. Organizations such as the American Red Cross lend critical support in responding to and recovering from disasters. Faith-based organizations may provide shelter and other forms of assistance as well. Community-based organizations and non-profits can often provide volunteer support, training and strategic planning assistance that ultimately assists in reducing potential losses from wildfire. Universities and colleges may have training programs, internship opportunities or student support that can contribute to planning and implementation of community fire protection. A list of agencies and non-governmental organizations that may help communities increase their capacity to mitigate wildfire hazards and risks is shown in Appendix B.

## Current Policies and Programs

### Overview

Forest management policies and programs related to wildfire continue to evolve in response to better scientific understanding of land management and ecosystem changes, evolving public attitudes, and growing and diversifying demands placed on forests. Forest land is typically managed for a suite of values, but the particular values emphasized often vary depending on whether the land is held in federal, state, tribal or private ownership. Management practices for these various ownerships were more consistent in the past but have diverged somewhat in recent decades as recreation, water quality, wildlife habitat and other values have displaced timber production as the primary focus on many national forests. Increasing attention is also being focused on reducing fire risk in WUI areas as development in these areas continues to expand.

Forest managers are attempting to prioritize and implement effective, landscape level fuel treatments in the context of an array of public values and agency mandates that are sometimes inconsistent, and across forest land ownerships that may be spatially connected but managed to emphasize different forest values. As part of the background necessary to address these challenges, the following section provides an overview of the principal state and federal policies that influence wildfire fuel reduction and hazard mitigation efforts in Oregon.

### Oregon State Policies and Programs

#### 1. Forestry Program for Oregon

The Oregon Board of Forestry (BOF) supervises matters of forest policy in Oregon, appoints the State Forester, adopts forest practice regulations and oversees the State Forester's duties in managing the Oregon Department of Forestry (ODF). The 2003 Forestry Program for Oregon (FPFO) is the BOF strategic plan. It sets forth the BOF's mission and vision for Oregon's forests and the values, strategies, policies and programs that guide BOF decisions.

The FPFO supports the diversity of ownerships that now characterizes Oregon's forestlands, including federal, tribal, state, and local governments, and private industrial and family forest landowners. To promote sustainable forest management, the FPFO advocates different management strategies for different forest types, ownerships, and locations and recognizes that fuels management approaches will vary based upon the different resource management objectives.

One the 7 major BOF strategies for Oregon forests is to *“Protect, maintain, and enhance the health of Oregon's forest ecosystems, watersheds, and airsheds within a context of natural disturbance and active management.”* As a key action in support of this strategy, *“the board will promote active fuels and vegetation management, along with aggressive wildfire suppression, as key tools to manage forest health on public and private forestlands.”* (Oregon Board of Forestry 2003, p. 17.)

## 2. ORS Chapter 477 Fire Protection of Forests & Vegetation: Protection from Fire Program

Under Oregon Policy (477.005) preservation of forests and conservation of forest resources through prevention and suppression of forest fires is declared to be the public policy of the State of Oregon. This policy establishes two basic principles for forest fire protection:

"A complete and coordinated forest protection system;" and

"The primary mission of the State Forestry Department in such a system is protecting forest resources, second only to saving lives. Structural protection, though indirect, shall not inhibit protection of forest resources."

Under ORS Chapter 477, a "shared responsibility" principle exists for forest landowners and operators with "forest operations." Specific to fuels management (ORS 477.580), if the forester determines that an "additional fire hazard exists" on an operation area sufficient to endanger life, forest resources or property, the operator may have additional responsibilities. These can include fuel treatment, provision of additional protection and/or payment to the forester for extra protection. ORS Chapter 477 includes a number of sub-program elements including Urban Interface Fire Protection and Smoke Management.

### *2a. Urban Interface Fire Protection – Senate Bill 360*

The Oregon Forestland-Urban Fire Protection Act of 1997 (SB 360) is intended to facilitate development of an effective WUI protection system in Oregon by

- Establishment of legislative policy regarding WUI protection
- Defining the WUI in Oregon and establishing a process and system for classifying fire risk in the interface
- Establishing minimum standards for WUI property owners so they can manage or minimize fire hazards and risks
- Providing the means for establishing adequate, integrated fire protections systems in WUI areas, including education and prevention efforts

Failure of a homeowner to comply with minimum standards results in interface property owners having additional liability for fire suppression costs. Oregon believes this combination of incentives and responsibilities will ensure continued homeowner investment in fuels management, rather than a one-time or too limited an effort.

Currently Jackson County and Deschutes County are implementing the objectives of SB 360. The forestland-urban interface classification committees in Deschutes and Jackson counties completed the tasks of identifying forestland-urban interface areas and assigning fire-risk classifications to each area on June 30, 2004. Landowner self-certification information was mailed out in both counties starting in summer 2004.

Josephine County is developing a county fire plan that will meet the majority of requirements and intent of SB 360. Northern Klamath County is hiring a WUI Coordinator to assist with forming the classification committee, and will initiate the implementation process in fall 2004.

The framework ODF has developed to help communities develop Community Wildfire Protection Plans is designed to result in plans that also meet the intent of SB 360.

Federal NFP funding tentatively awarded to ODF for Spring 2005 will allow the implementation process to begin in Douglas County, one county in Northeast Oregon yet to be determined, and then either Jefferson, Wasco or Crook County in Central Oregon. The rate of SB 360 implementation in other Oregon counties will be contingent on future funding, and prioritized based on Community at Risk map/risk ranking tools developed by the ODF Protection Program. ODF has Emergency Board authorization to hire 4 WUI Coordinators to help implement SB 360 in Southwest Oregon, Klamath Falls, Deschutes County and Northeast Oregon.

### 3. Oregon Conflagration Act

The Office of State Fire Marshal (OSFM) assists and supports Oregon fire services during major emergency fire operations through the Emergency Conflagration Act (ORS 476.510). When local and mutual aid suppression resources have been exhausted, the act can be invoked only by the Governor, and only for fires that involve or threaten life and structures. The act allows the State Fire Marshal to mobilize firefighters and equipment from around the state and provides for the State to reimburse local jurisdictions for the use of these resources. Established as a civil defense measure to mobilize suppression resources for massive urban fires, the act was first used in 1951 after an explosion and fire in downtown Roseburg, and was not invoked again until 1972.

Over the past three decades, Oregon has witnessed a spiraling increase in costs associated with the Conflagration Act, which has been invoked more and more frequently since 1972 and nearly always for fires threatening structures in WUI areas. In the decade after 1987 (a record year for fire starts) the average declarations per year more than doubled, and doubled again since 1998. In 2002, ten wildland fires were declared Conflagrations at a cost of \$3.6 million dollars to FEMA and the State of Oregon. FEMA reimbursed a portion of those costs.

Oregon does not have the resources to sustain this level of structural suppression expense. Additionally, it may not be attainable. During a wildfire, when multiple homes/buildings are threatened, the triage protocol designates for protection of homes and structures with the highest chance of surviving the fire. Structures lacking in fire-resistance, adequate fuel reduction, and road/bridge emergency vehicle access are at risk for being considered indefensible. Structural fire protection resources are concentrated, when resources must be priorities, on those with the best chance.

### 4. Oregon Statewide Land Use Planning

The intent of Oregon Statewide Land Use Planning Goal 7 for Areas Subject to Natural Hazards is to protect people and property from natural hazards. Goal 7 directs local governments to adopt comprehensive plans (inventories, policies and implementing measures) to reduce risk to people and property from natural hazards. Goal 7 also indicates that new hazard inventory information provided by federal and state agencies shall be reviewed by the Oregon Department of Land

Conservation and Development (DLCD) in consultation with affected state and local government representatives.

After such consultation, the DLCD shall notify local governments if the new hazard information requires a local response. Local governments shall respond to new inventory information on natural hazards within 36 months after being notified by the DLCD, unless extended by the Department. In relationship to ODF, as new data is identified, and particularly high hazard areas identified through Senate Bill 360, local governments will need to address provisions of Goal 7.

DLCD's Goal 4 pertains directly to "forestland zones." However, the standards of Goal 4 do not apply to lands not zoned under this goal, such as "rural-residential zones" that are inclusive of most of the WUI. Since one of the negative aspects of residential development in forestland zones is increased fire danger, DLCD adopted administrative rules for Goal 4 highlighting fire safety requirements which include:

- Road access design
- Fuel-free buffers
- Roofing materials
- Chimney spark arresters
- Public or contracted fire protection
- Water availability
- Maximum grade of the building site

#### 5. An 11-Point Strategy For Restoring Eastern Oregon Forests, Watersheds And Communities, 2001

Oregon's *An 11-Point Strategy For Restoring Eastern Oregon Forests, Watersheds And Communities, 2001* provides a clear outline of how government agencies, other landowners, and rural communities can work together to achieve this goal. This approach has been applied at a landscape scale in the three-million-acre Blue Mountains Demonstration Area project. The project focuses generally on watershed management and specifically on reduction of hazardous fuels by reducing tree densities across the landscape.

## **Federal Policies and Programs**

### 1. Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy

The Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy of 2003 (Review and Update of the 1995 Federal Fire Management Policy) provides a unified federal policy for management of wildfires (USDA and USDI 2003). The 2003 policy clarifies and modifies earlier federal policies and is more consistent with the FPFO than the 1995 policy. The updated policy clarifies that federal fire protection priorities are life first and then property, community infrastructure, and natural and cultural resources based on the values to be protected, human health and safety, and costs of protection.

To a large degree fuel management objectives and treatments on federal lands are and will be set by federal agency Land and Resource Management Plans. The USFS and BLM are beginning to update these plans.

### 2. National Fire Plan, 10-Year Comprehensive Strategy and Implementation Plan

After the landmark 2000 wildfire season then-President Clinton asked his Secretaries of Agriculture and Interior to outline how the nation could better respond to severe wildfires and their impacts to communities and assure sufficient firefighting capacity for the future. The resulting report, and a set of corresponding agency strategies, formed the basis of the National Fire Plan (NFP) a long-term commitment to help protect human lives, communities and natural resources. The report was incorporated into the Administration's 2001 budget request to Congress, which appropriated funds and provided direction and authority to federal agencies for implementing the NFP.

The NFP addresses five key points:

- Firefighting
- Rehabilitation
- Hazardous Fuels Reduction
- Community Assistance
- Accountability

As directed by Congress, the Interior and Agriculture Secretaries worked with state governors and other stakeholders to complete a *10-Year Comprehensive Strategy* in 2001 (NFP 2001) which laid out *goals* and *guiding principles* of a collaborative approach to reducing wildfire risk to communities and the environment.

10-Year Comprehensive Strategy goals:

1. Improve Prevention and Suppression
2. Reduce Hazardous Fuels
3. Restore Fire-Adapted Ecosystems
4. Promote Community Assistance

Guiding Principles for all goals:

- Collaboration – Facilitate a collaborative approach at the local, regional, and national levels.
- Priority Setting – Emphasize the protection of communities, municipal and other high-priority watersheds at risk.
- Accountability – Establish uniform and cost-effective measures, standards, reporting process and budget information in implementation plans.

The companion 10-Year Comprehensive Strategy *Implementation Plan* (NFP 2002) includes 23 priority tasks (under the 4 goals) for federal, state, and local governments. A key tenet of the NFP is collaboration among federal agencies, states, local governments, tribes and interested publics to develop strategies and carry out programs. Federal land management agency line officers are the principal decision makers concerning public lands, but the Framework for Collaboration in the Implementation Plan defines *national*, *regional*, and *local* collaboration levels and clear roles and responsibilities to assist in implementing the 10-Year Strategy:

National Level – The Secretaries of Agriculture and Interior will implement the stated goals in full partnership with the governors. The secretaries will also work closely with the governors and Congress on policy and budget matters affecting strategy implementation. The Wildland Fire Leadership Council (WFLC) will coordinate policy direction for the federal wildfire management agencies.

Regional Level – Regional, state, local, tribal, or area administrators or other federal officials, tribal leaders, and governors will collaborate and coordinate across jurisdictions to facilitate accomplishments at the local level. Activity at this level will focus on addressing geographically distinct needs and issues, facilitating communication between local and national levels, and resource allocation and prioritization.

Local Level – Successful implementation will include stakeholder groups with broad representation including federal, state, and local agencies, tribes and the public, collaborating with local line officers on decision making to establish priorities, cooperate on activities, and increase public awareness and participation to reduce the risk to communities and environments.

The intention is that ongoing communication among these 3 levels facilitates exchange of technical information to make fully informed decisions and include specific outreach and coordination efforts. The levels are based on participants’ scope of decision-making, management responsibility and/or interest rather than traditional governmental hierarchies and allow federal, state and tribal and local governments to be represented at each level. Under this plan, all parties agreed that reducing the threat of wildland fire to people, communities, and ecosystems will require:

- Firefighter and public safety continuing as the highest priority.
- A sustained, long-term and cost-effective investment of resources by all public and private parties, recognizing overall budget parameters affecting federal, state, tribal, and local governments.

- A unified effort to implement the collaborative framework called for in the 10 -Year Strategy in a manner that ensures timely decisions at each level.
- Accountability for measuring and monitoring performance and outcomes, and a commitment to factoring findings into future decision making activities.
- The achievement of national goals through action at the local level with particular attention on the unique needs of cross-boundary efforts and the importance of funding on-the-ground activities.
- Communities and individuals in the wildland urban interface to initiate personal stewardship and volunteer actions that will reduce wildland fire risks.
- Management activities, both in the wildland-urban interface and in at-risk areas across the broader landscape.
- Active forest and rangeland management, including thinning that produces commercial or pre-commercial products, biomass removal and utilization, prescribed fire and other fuels reduction tools to simultaneously meet long-term ecological, economic, and community objectives.

The Wildland Fire Leadership Council was established in April 2002 to implement and coordinate the NFP and other federal fire policies. WFLC consists of senior level department officials, federal, state, tribal and county representatives, including all five federal wildland firefighting agency heads. WFLC was established to address interagency, interdepartmental differences to ensure seamless delivery of a coordinated fire protection program. WFLC brings together wildland firefighting organizations to implement the 10-Year Comprehensive Strategy and Implementation Plan. WFLC meets regularly to monitor progress of the Ten-Year Strategy, to discuss current issues, and to resolve differences among wildland firefighting agencies.

The Western Forestry Leadership Coalition is a partnership between state forestry agencies and USDA Forest Service to deliver state and private forestry programs in the west and promote science-based forest management. Coalition priority focus areas for 2004 include working with other federal agencies and partners to ensure effective and efficient delivery of the NFP, and promoting specific actions to reverse the trend of overly dense forests on federal and non-federal lands that threaten communities, watersheds, wildlife habitats, old-growth forests and recreation areas in much of the west. The Coalition believes it is more cost effective and efficient to proactively address forest conditions than to deal with negative impacts that result from inaction.

Recognizing the value of coordinating fuels treatments across jurisdictions to effectively protect communities and improve forest and rangeland health, the USFS, BLM, USFWS, NPS, National Association of State Foresters and National Association of Counties signed a *Memorandum of Understanding for the Development of a Collaborative Fuels Treatment Program* in January 2003 to provide a framework for these entities to collaborate on selection of fuels treatments within their respective jurisdictions. (USDA Forest Service and others 2003.)

Implementation of the NFP in the Pacific Northwest is discussed in Section II.

### 3. Healthy Forests Initiative

Under the 2002 Healthy Forests Initiative (HFI), President Bush directed the Secretaries of Agriculture and Interior to streamline regulatory processes to promote faster decision making, improve efficiency, and achieve better results in reducing wildfire risk. The goal of the HFI was to remove barriers to implementing projects under the NFP.

Since August 2002, several tools have been developed and distributed to federal agencies under the HFI, including:

- Alternative Approaches for Streamlining Section 7 Consultation (10/2002)
- Council on Environmental Quality Guidance on Environmental Assessments for Forest Health Projects (12/2002)
- Stewardship End Result Contracting provisions, PL 108-7 (February 2003)
- Two new categorical exclusions for fuels reduction and restoration activities (June 2003)
- Revised 36 Code of Federal Regulations 215 Notice, Comment and Appeal Regulations (June 2003)
- Joint Counterpart Endangered Species Act Consultation Regulations (December 2003)
- Healthy Forest Restoration Act of 2003 (December 2003)
- 36 CFR 218 Predecisional Administrative Review Process under HFRA (January 2004)
- Healthy Forests Initiative and Healthy Forests Restoration Act: Interim Field Guide (January 2004)

### 4. Healthy Forests Restoration Act

The Healthy Forests Restoration Act (HFRA) of 2003 aims to reduce dense undergrowth that fuels large, severe fires by expediting thinning, other mechanical treatments and prescribed burning or fuels projects on federal land, and assisting rural communities, states, and private landowners in restoring healthy forest conditions on state and private lands. The act encourages development of Community Wildfire Protection Plans (CWPPs), under which communities will designate their WUIs, where HFRA projects may take place. The current HFRA funding structure directs 50% of appropriated fuel treatment funding to wildfire agencies for use in the community WUI protection zone. HFRA also encourages biomass energy production through grants and assistance to local communities to create market incentives for removal of otherwise valueless forest material.

### 5. Tribal Forest Protection Act

Signed into law in July, 2004 this legislation supplements existing laws by allowing tribes to enter into stewardship contracts with the Interior and Agriculture departments to conduct hazardous fuels treatments on federal lands within and adjacent to tribal boundaries in order to help better protect those areas from catastrophic wildfires. The bill complements the objectives of the HFRA for reducing wildfire risk across lands of multiple ownerships and jurisdictions and is intended to improve the ability of tribes and federal agencies to protect tribal lands by addressing fire, insect infestation and other threats on federal lands.

#### 6. Federal Emergency Management Agency, Disaster Mitigation Act

The Disaster Mitigation Act of 2000 is administered by the Federal Emergency Management Agency (FEMA) and reinforces the importance of pre-disaster mitigation planning. In February 2002, FEMA published an Interim Final Rule (see 44 CFR Part 201), which specifies criteria for state and local hazard mitigation planning and requires all states to develop and adopt Natural Hazard Mitigation Plans (NHMPs) that meet the FEMA criteria by November 2004 in order to maintain eligibility for certain categories of federal disaster assistance. In order to be eligible for certain hazard mitigation grant funding programs, local and tribal governments must develop and adopt NHMPs that meet FEMA standards. These plans may be for a single jurisdiction or county, or they may be multi-jurisdictional. For the latter type, FEMA requires that all jurisdictions adopt the NHMP and that the NHMP addresses the specific natural hazard risks and needed actions for each jurisdiction.

Local and tribal governments must have approved plans in order to be eligible for Pre-Disaster Mitigation (PDM) funds. Activities eligible for funding can include management costs, information dissemination, planning, and technical assistance. States must have an adopted, FEMA-approved NHMP in place in order to be eligible for hazard mitigation and public assistance funds if a Presidential disaster has been declared.

#### 7. Title III of the Secure Rural Schools and Community Self-Determination Act of 2000 (PL 106-393)

This legislation provides federal funds to counties containing USFS and BLM lands that traditionally have been supported by timber payments, effective FY2001-2006. Specified fund uses include community service work camps for federal lands, easement purchases, forest related educational opportunities, fire prevention and county planning and community forestry.

Counties have the option of putting 15% or 20% of the funds they receive into Title II or Title III projects. Title II Projects can occur on or off federal lands, but in some way must benefit resources on federal lands. Title III Projects are submitted directly to County Commissioners for the county in which the project is taking place. Five Resource Advisory Committees (RACs) have been formed for western Oregon BLM districts that contain Oregon & California (O&C) Grant Lands and Coos Bay Wagon Road (CBWR) lands. Each RAC has a Designated Federal Officer (DFO). RACs review project proposals and make recommendations on spending county-designated funds to the Secretary of Interior (or Agriculture for Forest Service Committees.)

Several Oregon counties depend on this funding and use it for fuels treatments and community fire planning efforts.

## **II. Interagency Wildfire Hazard Mitigation in Oregon**

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### **Administrative context**

For the purposes of this document, the NFP refers to the 10-Year Comprehensive Strategy, and the 10-Year Comprehensive Strategy Implementation Plan. The 10-Year Comprehensive Strategy was endorsed by the Western Governors' Association (WGA), National Association of State Foresters (NASF), Secretaries of Agriculture and Interior, National Association of Counties and the Inter-Tribal Timber Council. Most NFP appropriated funding for federal agencies in Oregon goes to wildfire preparedness and hazardous fuel treatment (USDI and USDA 2003).

The WGA works with the Oregon Governor's Natural Resource Office on state natural resource issues. Natural Resource Office personnel serve as liaisons to the Governor and help provide for uniformity in written policy across state agencies. The Governor's staff recruited several people to serve on the WGA Forest Health Advisory Committee, which first met in March 2004 and will review implementation of the NFP 10-year Comprehensive Strategy. Some of Oregon's representatives on this committee helped draft the Comprehensive Strategy under the Kitzhaber Administration, including the Governor's Natural Resource Office, which is represented on the WGA Forest Health Advisory Committee along with several other Oregon representatives.

The Pacific Northwest Wildfire Coordinating Group (PNWCG) is composed of USFS, BLM, BIA, NPS, USFWS, ODF, and Washington Department of Natural Resources representatives, and is primarily focused on tactical interagency coordination for fire suppression. The State Fire Marshals of Oregon and Washington are ad hoc representatives. The PNWCG predates the NFP, so existing lines of interagency cooperation and communication are sometimes used to address fuels management issues. After the NFP was adopted, the PNWCG set up the PNW (Oregon and Washington) NFP Strategy Team with broader representation from federal agency partners in hazardous fuel reduction and infrastructure management, state fire and land management agencies, the Oregon and Washington Governors' Offices, Oregon State and Washington State University Extension Agents, county commissioners and non-governmental organizations (NGOs).

The NFP Strategy Team sees reduction of unnatural hazardous fuel levels that threaten communities and wildland ecosystems as the foundation principle for dealing with fire risks (NFP Strategy Team 2002). The NFP Strategy Team mission and direction are being developed, but the draft charter states that it will help implement the NFP, HFRA and related initiatives through assistance, interpretation of policies, strategic oversight and management of grants, and identification and resolution of barriers to implementation.

The NFP Pacific Northwest Interagency Grant Team is comprised of representatives of the USFS, BLM, USFWS and BIA and operates under the purview of NFP Strategy Team. This team created a one-stop process for application, selection and distribution of NFP funds to local communities, states and tribes. During the past three years, the Pacific Northwest Interagency Grant Team has distributed more than 100 grants totaling \$15 million.

Individual agencies have also committed resources to focusing on NFP implementation. Region 6 (Oregon and Washington) has appointed an interagency NFP Executive Director. The BLM,

FS, USDI Fish and Wildlife Service and the Bureau of Indian Affairs support this position. The Oregon Department of Forestry has appointed an agency National Fire Plan Coordinator.

### Overview of current wildfire hazard mitigation in Oregon communities

Personnel at all state and federal agency levels in Oregon are working to implement fuel reduction projects. Despite these activities, many policymakers, agency staff and Oregon WUI community residents believe fuel treatments must happen more quickly and in more areas to significantly reduce wildfire hazards at the landscape level. The magnitude of hazardous fuel buildups near many Oregon communities far exceeds the human, financial and equipment resources currently available to treat them, pointing to the critical need to efficiently deliver and use those resources that are available. However, the NFP and especially the HFRA are quite new federal programs and implementing their mandates at the local level is an evolving process.

One impediment to efficient hazardous fuel mitigation is that different local, state, and federal government wildfire programs and groups have developed somewhat independently and are sometimes uncoordinated. Overlapping wildfire planning requirements exist, and fuels management funds are dispersed via a range of different government programs and funding authorities. Citizen groups face significant hurdles when trying to develop wildfire protection plans and hazardous fuels project funding. Moreover, hazardous fuel issues affect multiple land ownerships and jurisdictions, so many agencies and interests have a hand in determining when, where and how fuels management projects are implemented. As noted previously, federal, state, tribal and private forest land management and wildfire hazard mitigation priorities are not always the same, which can also complicate implementation of landscape level fuel reduction actions.

Fortunately, coordinated wildfire hazard mitigation strategies are being developed. Coordination hinges on understanding relationships among the diverse programs, agencies and interest groups involved in fuels project prioritization, funding and implementation. Table 1 shows agencies, jurisdictions and stakeholders involved with wildfire hazard mitigation strategies in Oregon.

**Table 1: Agency, Jurisdiction and Stakeholder Level of Involvement<sup>1</sup> in Wildfire Hazard Mitigation Strategies in Oregon**

	Risk Asses	Fuels Treat.	Prevention	CWPPs	Fuels Monitoring	Utilization	Fire Protection	Insurance /Incentive	Bldg Codes
Fire Districts	Some	Some	Some	Some	Some	Some	Yes	Yes (ISO)	Some
Tribes	Some	Some	Some		Some	Some	Some		Some
Cities	Some	Some	Some	Some	Some	Some	Some		Some
Counties	Some	Some	Some	Some	Some	Some	No		Some
ODF	Yes	Some	Yes	Involved	Some	Some	Yes		Yes
BLM	Yes	Yes	Yes	Involved	Yes	Some	Yes		
USFS	Yes	Yes	Yes	Involved	Yes	Some	Yes		
OSFM	Some	No	Yes	Involved	No	No	Yes		Yes
DLCD	Some	No	Some	Involved	No	No	No		Yes
Industrial Landowners	Some	Some	Some	Some	Some	Yes	Yes (ODF)		Yes
Citizens	Some	Some	Some	Some			Some	Some	Some

<sup>1</sup>Level of involvement indicated using these categories:

- **Yes** = This entity has a direct mandate or function that enables them to engage in this type of strategy, and they are doing so

- **Some** = Some areas or entities may be involved in this type of activity in Oregon, but not all. In other cases, there may be some activity, but it may not be comprehensive or coordinated with other agencies or jurisdictions.
- **No** = There is currently no known activity, mandate or function directing the entity to work on this strategy
- **Involved** = The entity may not be directly coordinating this strategy, but they may have some involvement.
- **Blank** = Unknown

## **Strengths and Disconnects in Current Fuel Treatment Program Implementation**

As part of developing strategies and recommendations for improving interagency coordination, the FFHM Committee identified some of the principal strengths and disconnects of current efforts.

### **Strengths:**

- ODF initiative to implement the NFP
- Local fire managers targeted high risk areas for fuels treatment early in process
- Building rural fire department capacity is ongoing
- Increased community involvement-neighbor to neighbor relationships
- Broadened collaborative opportunities for landscape planning between agencies
- Involvement of more governmental entities and non-governmental organizations
- More coordinated emergency response for natural disasters
- County funds under PL106-393 (Secure Rural School and Community Self-Determination Act of 2000) are being effectively utilized in communities
- County CWPP website integration with mitigation strategies being implemented
- Local promotions by landowners to reduce fuels

### **Disconnects:**

- Need an anchor point for process that provides guidance on mitigation strategies: risk assessments, fuels treatments, monitoring.
- Several different grant selection committees. Many programs exist, but not necessarily known by prospective applicants.
- Communities are being driven by grants instead of strategic planning to attain grants. Grants not requiring demonstration of a sustainable mitigation plan with a specific action plan and collaboration result in potential partners competing against each other. This is not a judicious use of funds and will expedite drain on funding resources.
- Insufficient resources to implement and accomplish fuel treatment activities
- Lack of unified GIS data standards limits ability to see the big picture. Each agency collects data differently.
- NFP money allocated on a regional level with inadequate knowledge of local goals
- The PNW Grant Committee, as currently structured, is too far removed from the ground level to make prioritization of grants
- State prioritization of projects appears not to be used at the regional level
- Research (such as climate change and forest health) is not tied to current processes

- Incentives to reduce wildfire risk are not widely known
- Sunset provision on PL106-393
- Varying capacities among counties and communities to pursue funding, and develop and implement fuel reduction projects

## **Interagency Coordination of Community-Level Wildfire Hazard Mitigation**

The FFHM Committee recommends steps for improving efficiency, effectiveness and coordination of community level hazardous fuels treatments in Oregon that focus on:

- Better integration of hazardous fuel reduction with broader forest health research and forest health improvement efforts
- Identifying, developing and empowering Local Coordination Groups
- Helping Local Coordination Groups develop Community Wildfire Protection Plans that address multiple requirements and interface with state-level fuels planning
- Continuing to develop an integrated “one-stop” grant access system
- Providing incentives for citizens to take primary responsibility for reducing the ignitability of their properties

## **Integrating fuels reduction and forest health improvement efforts**

Hazardous fuels accumulations and forest health issues such as insect and disease infestations are interrelated problems with numerous research and mitigation activities associated with each. However, efforts to improve forest health and mitigate hazardous fuels are often not coordinated and integrated as well as they could be. Greater efficiency and effectiveness in use of available resources could be realized through better integration of forest health and fuel reduction research, grant writing and access, and project implementation.

The FFHM Committee recommends that a multi-organizational group be convened to identify ways to better integrate fire and non-fire programs addressing these issues. This group could also act as a statewide level review for grant applications and prioritization of projects. The State’s priorities would then go to the grant selection process and the NFP Strategy Team.

## **Local Coordination Groups (LCGs)**

### *Organization and development*

The NFP specifies three collaboration levels, including local “...stakeholder groups with broad representation...collaborating with local line officers on decision making...” (NFP 2002). The HFRA also explicitly directs the USFS and BLM to collaborate with local communities as they prioritize, develop and implement hazardous fuel reduction projects. The type of local social network in which this collaboration can occur is termed a Local Coordination Group (LCG).

An LCG is envisioned as a team of stakeholders in a self-identified area which share common needs and interests related to NFP goals. Wherever possible, LCGs should enhance or utilize existing groups that can provide leadership and an organizational framework, especially groups already pursuing fire hazard mitigation goals. Examples of organizations that could potentially

adopt an LCG role include watershed councils, resource advisory committees, local soil and water conservation districts or fire prevention cooperatives. The point is to take advantage of local social networks that are already in place and working together, as long as the group is capable of taking the lead in community-level NFP and HFRA implementation.

Federal and state agency roles are to encourage creation of LCGs where they do not currently exist in some form, facilitate their development, and participate and support their efforts as appropriate. LCGs are based around local geographic areas. They can be a mixture of representatives from local level federal and state agencies, tribal governments, local governments (fire districts, counties, cities, etc.), and interested stakeholders and non-governmental organizations who are affected by and/or interested in NFP goals.

Membership in an LCG should be locally determined. LCGs also determine for themselves how they want to organize to meet objectives and take advantage of working together. Thus they will likely vary with local conditions and social institutions and may have different names. Ideally, *local government or community leaders* should lead and/or facilitate LCGs. Rotating leadership is also desirable. The groups may want to take advantage of facilitators and workshops that can be available to them with federal and state agency partners, to enhance the skills and knowledge of LCG members.

#### *Roles of LCGs*

Once LCGs have been formed or identified, they should serve as the focal point for community level wildfire-related activities, including:

- Sponsoring workshops and meetings to set the stage for community plans
- Developing Community Wildfire Protection Plans
- Prioritizing hazardous fuel reduction needs
- Capitalizing on local NFP and other fire-related grant opportunities
- Coordinating wildfire education and prevention programs
- Providing an on-going forum for fire issues
- Fostering public support for meeting NFP goals
- Archiving and updating community level wildfire information
- Making credible information available to the public
- LCGs can serve as information centers in some cases
- Transferring information and technology down to local communities, and communicating local perspectives back up to state and federal agencies

#### **Community Wildfire Planning and Grant Access**

The HFRA offers priority funding to hazardous fuels reduction projects in areas where Community Wildfire Protection Plans (CWPPs) are in place. CWPPs address wildfire response, hazard mitigation, community preparedness and structure protection issues, and take different forms depending on local situations. Larger communities with numerous structures, greater WUI area, and more planning resources may develop relatively detailed plans. In smaller

communities, less detailed plans may be sufficient. A group of smaller rural communities at risk may choose to develop a CWPP collectively. Conversely, a homeowner's association or locale may develop a localized CWPP within a larger at-risk community, but it must be coordinated directly with that community and the local fire district. All plans should be coordinated with local government, fire departments and at the county level, as well as with state and federal agencies to ensure integration and consistency with existing landscape-scale plans. Community fire plans should also be updated at regular intervals.

The FEMA Disaster Mitigation Act requires that communities address very similar issues in a wildfire hazard chapter of FEMA Community Hazard Mitigation Plans. Federal agencies and ODF encourage local and multi-jurisdictional WUI communities to consider incorporating CWPP and FEMA multi-hazard mitigation planning into one process where feasible (e.g. FEMA 2004). Oregon WUI communities are also being asked to meet requirements of SB 360, the Forestland- Urban Interface Protection Act of 1997, which addresses many of the same issues as the HFRA and FEMA wildfire planning provisions, and planning provisions in Oregon Statewide Land Use Planning Goal 7, Areas Subject to Natural Hazards. To reduce confusion and workload due to multiple, overlapping plans it makes sense for communities to consider developing a single plan that encompasses all of these program requirements.

#### *Developing Community Wildfire Protection Plans in Oregon*

HFRA is not specific about the substance and detail of CWPPs or the process used to develop them. Thus, many communities can benefit from assistance with preparing a plan, and ODF has adopted two guidance tools for this purpose. The first, *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities* was sponsored by the Communities Committee, Society of American Foresters (SAF) National Association of Counties, and the National Association of State Foresters (SAF and others 2004). This guidebook is targeted specifically at meeting HFRA planning requirements.

The second guidance tool adopted by ODF is *A Framework for Community Fire Plans* which was developed by the University of Oregon Program for Watershed and Community Health as part of an integrated fire plan for Josephine County (University of Oregon 2004). This guide helps communities develop plans that not only meet HFRA, but also the intention of the FEMA wildfire chapter, SB 360 requirements and statewide planning Goal 7.

Work on a guidebook specifically designed to help rural Oregon communities through the CWPP process was initiated as part of the FFHM Committee's work. The committee recommends that ODF continue to refine this document, which is shown in Appendix A.

The Association of Oregon Counties (AOC) and the Association of Oregon and California (O&C) Counties have a web-based project through which counties can begin a preliminary and rapid risk assessment for a Community Wildfire Protection Plan. The county can monitor and assess this information as well as share it with partners and stakeholders. These assessments should align closely with the ODF statewide risk assessment and can be viewed as an additional tool for assessing risk during the CWPP process. The projects documented through this website

will aid in obtaining supportive data for the 2006 reauthorization of PL 106-393 Federal Forest Revenue Safety Net legislation. (<http://www.healthyforest.info/cwpp/>)

Developing CWPPs will provide many opportunities for Oregon community members to gather information on fire risk and community values, participate in planning and outreach meetings, and increase awareness and education among all residents, businesses and organizations. The planning process can help the community clarify and refine priorities for protection of life, property and critical infrastructure in the WUI and initiate valuable discussions regarding management options and implications for the surrounding watershed (SAF and others 2004). Community fire plans can also improve the competitiveness of communities, counties, and states vying for state and/or federal funding.

#### *ODF role in CWPP development*

The HFRA requires that three entities mutually agree to the final contents of a CWPP: the applicable local government (i.e. counties or cities), local fire department(s) and the state forest management agency (in Oregon, ODF). These entities are directed to consult with and involve local USFS and BLM representatives and other interested parties during CWPP development.

The ODF District Forester/District Manager (DF) will designate a staff member to participate in CWPP efforts on behalf of the DF in a facilitative and collaborative manner. It is very important that the ODF representative be involved enough to clearly describe the CWPP and know how it meets the minimums of HFRA. This may include contacting the counties or fire defense boards that lie within their district boundaries and discussing their involvement in the process.

The DF has the responsibility to review the CWPP for compliance with the HFRA. The DF's signature on a CWPP, although not required under HFRA, means that ODF agrees to the contents of the CWPP. If the DF believes that a CWPP meets the intent of the HFRA, but may need additional detail on a specific area, they should sign the CWPP to expedite it through the process, and write an accompanying letter describing the concern. If at any time, the CWPP communication process breaks down, the DF may act in a mediator role. The ODF National Fire Plan Coordinator is also available to assist throughout the CWPP process.

Once a CWPP is signed, two copies will be sent to the ODF NFP Coordinator. One copy will be presented to the NFP Strategy Team which provides regional level guidance to all agencies participating in NFP hazard mitigation. The ODF NFP Coordinator retains the second copy.

#### *Community Capacity for Wildfire Risk and Hazard Mitigation*

Another important aspect of community fire planning is ensuring that all citizens are included in assessing risk, identifying measures to reduce risk and implementing mitigation actions. Community mitigation capacity refers to ability to actively reduce fire risks, mobilize in response to a wildfire, and mitigate post-fire damages through restoration activities. Mitigation capacity may vary from community to community based on socioeconomic factors such as income level, proportion of special needs populations and relative severity of economic challenges. Oregon has one of the highest poverty rates in the U.S. and many Oregon WUI residents may lack

incomes high enough to meet basic economic needs with enough left over to cover wildfire protection expenses.

Many Oregon WUI residents are also elderly, physically or developmentally disabled, or have other special needs that limit their ability to take necessary precautions, or respond to or recover from wildfires. They often live in fire prone areas and have few resources available to create defensible spaces around their homes. Thus, they are more susceptible to wildfires than higher income rural residents, whose communities may have more capacity to develop and implement community fire plans and projects. CWPPs should specifically identify and plan for unprotected structures and/or wildland, and can address the needs of low-income, elderly, disabled and other citizens with special needs.

The ODF and FFHM Committee recognized that many state agencies and non-governmental organizations (NGOs) that are not directly involved with wildfire issues could nevertheless be leveraged to assist with fire protection. For example, communities may not have the staff or resources for fire prevention education and outreach, but existing county or state social service agencies have channels of communication to citizens that could be utilized for these purposes.

A strategy for ODF and partner agencies to communicate and collaborate in this manner could make a significant difference by building capacity in communities that might not otherwise be able to participate in forest fuels hazard mitigation. Capacity can be built by providing better access to fuels treatment programs, technical assistance and expertise to develop and implement community fire plans, and funding for staff to support local projects. Resources are also necessary for coordination with social service and other state agencies and organizations.

The FFHM Committee recommends surveying Oregon state agencies and NGOs to identify specific opportunities for collaborating to build wildfire readiness and hazard mitigation capacity in Oregon communities. A list of such organizations is shown in Appendix B, and potential survey questions are shown in Appendix C.

#### *Delivering fuel reduction grants to communities more efficiently*

Recent NFP and HFRA grant programs are targeted specifically at hazardous wildfire fuel reduction. Other programs are broader but can include fuels projects, as well as capital investment, training, and outreach to increase readiness and reduce risks associated with wildland fires. Grant opportunities available under the NFP, HFRA, FEMA, Rural Fire Assistance, Volunteer Fire Assistance, State Fire Assistance, economic development, state and private forestry, forest health and watershed protection programs are described in Appendix D.

Maximizing availability and effective use of grant funds are critical to Oregon's Fire Program. Confusion about grant programs is a significant barrier to communities, so the FFHM Committee developed a strategy to make it easier for communities to access, and for agencies to deliver grants for wildfire protection and hazardous fuels treatment projects.

Successful efforts to fund high-priority projects have three things in common: 1) collective project identification and prioritization; 2) a person or group that assumes a leadership role; and

3) an understanding of grant options available for the type of project at hand. However, differences and lack of integration among grant program goals, inconsistent application processes, timelines and reporting requirements, and multiple agency contacts impede the ability of many communities, especially those with limited resources, to identify and obtain funds they might be eligible for.

Federal wildland agencies developed a “one-stop” grant program in 2001 which consolidated several NFP grant programs into one process. This has been very successful. It may be wise to review the process, take lessons learned and see if the process can be enhanced and expanded through changes and/or additions to the program.

The FFHM Committee recommends continuing to coordinate different grant programs under a single “one-stop” grant access system via short and longer-term actions at federal, state and local levels. The first step should be to convene local, state and federal grant program managers to gain a collective understanding of the priorities and processes of all available grant programs. This meeting should initiate a short-term statewide review of grant availability and access, processes to seek additional efficiencies, coordinate funding and ensure allocation to high-risk areas for 2005. Grant managers should also examine the framework for submitting 2006 grants and assess adjustments that need to be in place by 2006/2007.

Continuing to develop an agreed upon protocol for an integrated grant review system under which state and federal program managers can coordinate opportunities and make them available to local groups is a high priority. A website integrating all grant programs and capable of supporting interagency proposals is a potentially highly useful component. Managers should evaluate what is needed to set up and refine a statewide grant “clearinghouse”. Ideally, this would be sufficiently developed to provide benefits by FY 2006, but evaluating and integrating grant programs across agencies and scales will likely be an ongoing process. Areas to address include:

- Evaluating how well funding opportunities and allocation process are used
- Ensuring grants are targeted for use in highest risk areas. (Current prioritization is often a practical matter of which projects are “ready to go”, rather than being completely risk-based.)
- Evaluating grant application and oversight processes for efficiencies and effectiveness
- Streamlining and standardizing state-wide monitoring and reporting requirements, e.g. make all reports due quarterly.
- Linking local coordination groups into the prioritization and grant planning processes, including required environmental compliance planning.

Over the longer term, community reviews of grant processes should also be initiated through Local Coordination Groups, coordinated at the watershed level.

## **Interagency Coordination Recommendations**

1. Create a concise, logical process defining the roles, responsibilities and resources of guiding partner organizations in wildfire hazard mitigation. Clarify policy and scope of ODF role in private land fuel treatments under existing authorities.

Priority: High

Timeline: End of 2005

Whose task? ODF lead, includes wildland & structural fire agencies, NGOs, Academia

New authority needed?

Additional staff and/or funding needed?

2. Review and improve current hiring practices of ODF personnel to manage and coordinate the organization and implementation of hazard mitigation activities.

Priority: High

Timeline: Mid 2005

Whose task? ODF Protection

New authority needed? Yes

Additional staff and/or funding needed? 1 FTE or contract

3. Develop standardized data elements and identify standard software for Geographic Information Systems (GIS) database on condition class, fire regimes, risk assessments, etc.

Priority: High

Timeline: 1/01/2005

Whose task? PNWCG GIS Group

New authority needed? No

Additional staff and/or funding needed? Contract, ~\$100,000. (Federal grant.)

4. Broadly disseminate information, mission and goals, and mitigation strategy successes of the National Fire Plan (NFP) Strategy Team to other agencies, local governments, fire districts and the general public.

Priority: Medium

Timeline: Mid-2005

Whose task? NFP Coordinator & strategy team members

New authority needed? No

Additional staff and/or funding needed? No

5. Ensure that delivery of forest health grants/program under non-fire programs is fully integrated with delivery of NFP/HFRA programs. Integrate NFP and forest health/fuel reduction research, grants and activities (ODF/NFP Strategy Team). Develop multi-organization group to recommend how to integrate of NFP direction, state and private forestry, insect and disease and forest health research. (This group could act as a statewide level review for grant applications and prioritization of projects. The State's priorities would then go to the grant selection process and the NFP Strategy Team.)

Priority: High

Timeline: 10/01/05

Whose task? ODF/NFP

New authority needed? No

Additional staff and/or funding needed? No

6. Look at program management & delivery of (ODF) Private & Community (P & C) Forests programs and NFP for possible streamlining, coordination, and adoption of similar process.

Priority: Medium  
Timeline: Before next grant period  
Whose task? ODF/NFP Coordinator  
New authority needed? No  
Additional staff and/or funding needed? No

7. Encourage communities to use Title II & III funds of PL106-393 Program for developing risk assessment, community fire plans and implementing fuels reduction.

Priority: High  
Timeline: Ongoing  
Whose task? Multi-organization  
New authority needed? Up for reauthorization. These funds will not be available if not documented and judicially spent.  
Additional staff and/or funding needed? No

8. Encourage involvement and sponsorship in developing Local Coordinating Groups or groups that are or could function as a Local Coordinating Group.

Priority: High  
Timeline: Ongoing  
Whose task? Federal, state and county multi -organization  
New authority needed? No  
Additional staff and/or funding needed? No

9. Continue to develop existing Local Coordinating Groups to develop and implement mitigation strategies at the ground level.

Priority: High  
Timeline: Ongoing  
Whose task? Federal, state and county multi -organization  
New authority needed? No  
Additional staff and/or funding needed? No

10. Develop a coordinated multi-organization communication plan. Increase awareness of Grants mitigation strategies and successes via the ODF website and other possible venues.

Priority: High  
Timeline: Ongoing  
Whose task? Federal, state and county multi -organization  
New authority needed? No  
Additional staff and/or funding needed? No

### **Community Fire Planning and Grant Access Recommendations**

1. Finalize development of Oregon Community Wildfire Protection Plan (CWPP) Guidebook

Priority: High  
Timeline: 3/01/05  
Whose task? ODF  
New authority needed? No

Additional staff and/or funding needed? No

2. Provide communities training and resources to ensure they are successful in community fire planning and implementation.

Priority: High

Timeline: End of 2005

Whose task? Multi-organization

New authority needed? No

Additional staff and/or funding needed? 1 FTE, \$130,000. (Federal grant.)

3. Develop a statewide training module and technical assistance teams showing communities where they get assistance, how to develop a CWPP, and build capacity.

Priority: High

Timeline: End of 2005

Whose task? Multi-organization

New authority needed? No

Additional staff and/or funding needed? (Included as part of Recommendation #2.)

4. Develop and place CWPP “tutorials” on ODF website as part of a web-based information clearinghouse to assist communities in getting started on CWPPs, and locating grants for projects identified in them.

Priority: Medium

Timeline: End of 2005

Whose task? Multi-organization

New authority needed? No

Additional staff and/or funding needed? (Included as part of Recommendation #2.)

5. Develop a resources list showing communities where they can get assistance for community wildfire planning, risk mitigation and monitoring, and fuel reduction; disseminate via ODF website.

Priority: Medium

Timeline: Mid-2005

Whose task? Multi-organization

New authority needed? No

Additional staff and/or funding needed? (Included as part of Recommendation #2.)

6. Help communities to locate and use best available data, improve incomplete data, & monitor, evaluate and periodically update their CWPPs as new information becomes available.

Priority: High

Timeline: Ongoing

Whose task? ODF

New authority needed? No

Additional staff and/or funding needed? (Included as part of Recommendation #2.)

7. Survey non-governmental, social service, and community-based organizations in Oregon to identify fire-related missions and mandates or that could be leveraged to provide resources for fire protection for communities they work with.

Priority: Medium

Timeline: End of 2005

Whose task? ODF lead; other state agencies

New authority needed? No

Additional staff and/or funding needed? (Included as part of Recommendation #2.)

8. Create guidelines for working with social service community-based agencies and non-governmental organizations to extend programs and increase community wildfire risk mitigation capacity.

Priority: Medium

Timeline: End of 2005

Whose task? ODF

New authority needed? No

Additional staff and/or funding needed? Unknown.

9. Engage Oregon Economic & Community Development (OECD) and other appropriate organizations and agencies to assist communities in economic opportunities throughout their CWPP.

Priority: Medium

Timeline: Mid-2005

Whose task? ODF, OECD

New authority needed? No

Additional staff and/or funding needed? (Included as part of Recommendation #2.)

10. Develop 1-stop grant application menu: Local, state, federal grant program managers review grant programs to seek efficiencies and potential for consolidation into 1-stop grant access system, create unified web-based application. Evaluate monitoring requirements of all grant programs and standardize where possible.

Priority: High

Timeline: 12/2004

Whose task? USFS, BIA, BLM, ODF, OSFM Grant Program Managers.

New authority needed? No

Additional staff and/or funding needed? Depends on workloads, will require web development expertise. (~\$30,000. State or federal grant.)

11. Conduct a short-term, statewide review of grant processes.

Priority: High

Timeline: End of 2005.

Whose task? FEMA, USFS, BIA, BLM, ODF, PNWCG, OSFM Grant Managers.

New authority needed? No

Additional staff and/or funding needed? No

12. All grant agencies should initiate communication and coordination among local, state and federal grant managers by convening a meeting or conference to facilitate dialog and learning about all grants.

Priority: High

Timeline: Mid-2005.

Whose task? FEMA, USFS, BIA, BLM, ODF, PNWCG, OSFM Grant Managers.

New authority needed? No

Additional staff and/or funding needed? No

13. Evaluate legislated origins, purposes, and funding streams of each grant program for redundancies in process, potential efficiency gains and possible consolidation. Consider consolidation.

Priority: Medium

Timeline: Early 2006.

Whose task? Local, state and federal grant program managers.

New authority needed? Yes

Additional staff and/or funding needed? No

### **Citizen responsibilities and incentives for mitigating wildfire risks**

People relocating to rural Oregon often expect structural fire protection similar to what they experienced in cities, and frequently have unrealistic expectations concerning the ability of land managers to control wildfire risks. Wildfire agencies and community leaders must use every opportunity to emphasize WUI homeowners' role in reducing wildfire hazards and the reality of what they can expect from fire protection services and wildland fuels treatments (Table 2).

**Table 2: Expectations of fire and fuel management compared to real situation**

<b>EXPECTATION</b>	<b>REAL SITUATION</b>
<i>Structures and homes will be protected by firefighting resources</i>	Most fires wildfires are contained upon initial attack (~96%) but the rest often burn under conditions too extreme for suppression success. Urban interface fires typically overwhelm resources because of the extreme conditions under which they occur. Thus, exposure of dozens of structures simultaneously to fire brands and fire encroachment exceeds the capacity of existing suppression forces to protect and extinguish them. The problem is compounded in dense neighborhoods when structures start to burn or become fully involved because of their tendency to ignite adjacent structures.
<i>Wildland fuel management prevents structure loss</i>	Wildland fuel management changes wildland fire behavior. Structure loss (i.e., homes burning) is also dependent ignitability of the structure and its immediate surroundings. This means that responsibility for structure loss from fire primarily resides with the private owners of the structure and immediate property, not with public land management agencies.
<i>Fuel treatments will stop wildland fires</i>	Fuel treatments change fire behavior within limitations of their prescription. That is, the design criteria or prescription of fuel treatments allow them to perform alterations in fire behavior up to a limit of weather conditions (primarily fuel moisture and winds). This change in behavior includes reduced intensities and spread rates, but does not prevent combustion. Changes in fire behavior and fuel conditions may enhance the effectiveness of fire suppression tactics, but it is impossible for fuel treatments alone to stop fires from burning or spreading.

(Table adapted from Finney and Cohen 2003.)

Home ignitions during wildfires are due primarily to ignitability of the homes themselves and of fuels within 130 feet, rather than landscape level fuel conditions (Cohen 2000). Loss of homes

and property during wildfires can be significantly reduced. The Oregon Department of Land Conservation and Development (DLCD) goals 4 and 7 include fire precautions for land use in forested areas. The National Fire Protection Association (NFPA) and the International Code Council (ICC) recommend structural standards for making buildings defensible, or even self-sustaining, in a wildfire. All recommendations include fire-resistant landscaping and making structures more fire-resistant.

Incentives encouraging landowners' responsibility for ensuring their homes are protected against ignition during wildfires are a key element in reducing wildfire risks and controlling suppression costs in Oregon's wildfire program. Incentives range from continued availability of insurance for WUI homeowners that actively increase the fire resistance of their structures and reduce hazardous fuels on their property to updating building code, fire codes, and permits to require developers and landowners to meet fire equipment access standards, use fire resistant materials, install passive fire protection systems (e.g. residential sprinklers) and develop fire plans.

#### *Insurance incentives*

The FFHM Committee recommends sharing fire risk and occurrence data with private sector insurance companies to help them identify properties at high risk for wildfire.

Insurance companies are increasingly concerned about their financial exposure due to wildfire risks to properties they insure, and are starting to provide incentives to homeowners to reduce these risks. Pilot projects are underway in which homeowners in high wildfire risk areas are given 2-3 years to meet state fuel statutes or face losing their homeowner insurance.

State Farm Insurance currently has a wildfire mitigation pilot program underway in wildfire-prone areas including Colorado, Utah, New Mexico, Arizona, Nevada and Wyoming. Beginning in 2002, State Farm and the Colorado State Forest Service used GIS technology to identify approximately 14,000 State Farm-insured homes that were at high risk for wildfire in that state.

State Farm then contracted with Survey Associates, a company trained in wildfire mitigation and hazards, to photograph and assess the level of fire risk for these homes, focusing primarily on defensible space needs but also on home construction. State Farm underwriters analyzed the photos and assessments and sent letters to homeowners with recommendations. State Farm may recommend fire resistant home construction strategies and materials, but homeowners are not required to act on these recommendations to maintain their policy.

State Farm's recommendations for vegetation treatment do need to be acted upon. State Farm gave policyholders in WUI areas 18-29 months to meet Colorado State Forest Service 6.302 standards for maintaining defensible space around structures or risk losing their coverage. CSFS 6.302 includes specific prescriptions for tree crown and stem spacing, shrub spacing, grass, dead trees, slash and other risks in 3 zones progressively farther from the structure. If a homeowner fails to comply with these prescriptions, insurance premiums can be raised or the policyholder could be dropped altogether. Since June 2003, State Farm completed assessments of 5,000 of the estimated 14,000 most at risk homes under their coverage.

(CSFS 6.302: <http://www.ext.colostate.edu/pubs/natres/06302.html>)

State Farm has initiated a similar program in Oregon (the Wildfire Mitigation & Education Program) but with some changes to the approach used in Colorado. Using spatial fire frequency data overlaid with policyholder locations, the company has completed preliminary mapping that identified approximately 2,771 Oregon policyholders with properties in areas with frequent wildfires, mostly in Jackson, Josephine, Deschutes and Jefferson Counties. A subset of these policyholders will be sent letters notifying them that their property has been identified as being at risk for wildfire, along with information about resources and contacts to help them mitigate these risks.

One year after the letters are sent, these properties will be surveyed for wildfire risk and hazards as was done in Colorado. The intention is to give policyholders an opportunity to proactively reduce wildfire hazards prior to having their property surveyed. The number of policyholders included in the first 2-year cycle will be based on program cost forecasts and resources available within the company. The wildfire underwriting factors they are using align with state fuel statutes, but State Farm will look at each risk to assess the overall degree of exposure and may continue to offer coverage if they feel comfortable with the overall risk level even if the property doesn't meet state fuel statutes in every respect. (Medlock 2004.)

Insurance Services Office, Inc. (ISO) is one organization that supplies risk data, analytics and decision-support services to insurance and government professionals to measure, manage, and reduce risk. ISO's Public Protection Classification (PPC) Service gauges the capacity of local fire departments to respond to property fires, in particular those with structures. ISO collects information on community public fire protection and analyzes the data using their Fire Suppression Rating Schedule (FSRS). ISO then classifies each fire department's ability to suppress fires by assigning a PPC from 1 to 10. 1 represents the best public protection; 10 indicates no recognized protection. PPCs are available on paper, in electronic formats, and through an ISO risk-assessment tool called LOCATION, available on-line or CD-ROM, which provides risk-specific information for every United States address, including fire-protection services, building-code effectiveness and wildfire hazard.

PPCs are updated periodically, and community fire plans can improve PPC ratings. Incentives to communities and individual homeowners may include notifications that their PPC ratings are declining, and insurance rates likely to rise if they do not take action to increase fire preparedness and defensible space. In some cases, low PPC ratings may make a home uninsurable. Conversely, educating communities about potential PPC improvements and opportunities for lower insurance rates are a potential positive incentive. However, insurance company use of PPC is not as universal as it was in the past. For example, State Farm, the nation's largest home insurer, now looks primarily to claim history in a particular area rather than PPCs to set premiums. Thus, experts recommend verification of projected rate changes before implementing major expenditures intended to improve PPC ratings and lower premiums.

The insurance industry and its agents may be willing to assist with educating homeowners about PPC, fire readiness and insurance rate linkages. ISO experts are available at no charge to help communities review impacts of proposed PPC changes. (Gage 2001.)

### *National and International Building and Fire Codes*

The FFHM Committee recommends the state convene appropriate fire, land-use, and building agencies to review and adopt compatible portions of these codes in an *Oregon Wildland Urban Interface Code*.

ISO's Building Code Effectiveness Classifications were developed to help distinguish between communities with effective building code enforcement and those with weak enforcement. This information is of interest to insurance companies because buildings located in communities with effective, well-enforced codes suffer less property damage, and less costly insurance claims when disasters occur. ISO analyzes information on building codes in effect in a particular community and how well these codes are enforced. A Building Code Effectiveness Grading Schedule (BCEGS) is used to assign a grade from 1 to 10, with a focus on regulations that relate to natural hazard resistance. Grade 1 represents exemplary commitment to building-code enforcement; Grade 10 indicates no recognizable enforcement.

Insurers can use BCEGS gradings to grant premium credits for buildings constructed under strictly enforced codes. Insurers that receive ISO's PPCs automatically receive BCEGS information. ISO predicts that the BCEGS program will encourage implementation and enforcement of effective building codes, resulting in safer buildings, less damage, and lower insurer costs from catastrophes. Although many building and fire codes may be adopted locally, the FFHM Committee recommends statewide strength and consistency by utilizing the most compatible land-use, WUI building and fire codes for the adoption of a statewide Oregon WUI Code.

The International Code Council (ICC) offers the International Urban Wildland Interface Code (IUWIC) that contains provisions addressing fire spread, accessibility, defensible space, water supply, and more (ICC 2003). Currently counties may use these provisions to develop fire-safe codes for newly constructed homes, including strict rules on roofing, siding and decking materials and landscape planning for WUI areas. At this time, local jurisdictions wishing to adopt the code as an enforceable regulation can use the sample adoption ordinance template provided with the correct legal language. Government agencies can receive a free copy of the Urban-Wildland Interface Code by calling 1-800-423-6587, Ext. 3264, or visit [www.iccsafe.org](http://www.iccsafe.org). (See recommendation below.)

The National Fire Protection Association (NFPA) develops, publishes, and disseminates consensus codes and standards intended to minimize the possibility and effects of fire risks, including several codes that apply to WUI fire issues and could potentially be adopted by Oregon. NFPA 1142, the Standard on Water Supplies for Suburban and Rural Fire Fighting, “identifies minimum requirements for water supplies for fire fighting purposes in rural and suburban areas in which adequate and reliable water supply systems for fire fighting purposes do not exist.” (NFPA 2001.)

NFPA 1143, the Standard for Wildland Fire Management, “recognizes the development of the National Fire Plan in the United States and numerous mitigation efforts to solve the ailing forests and endangered communities in or near forested areas. This standard specifies management practices and policies necessary for a fire protection organization to develop a wildland fire

management program. It incorporates material to help small community and volunteer fire departments prepare for not only fire suppression in forested and wildland areas but also the broader task of wildland fire management including mitigation, prevention, and community coordination.” (NFPA 2003.)

NFPA 1144, the Standard for Protection of Life and Property from Wildfire, “provides minimum planning, construction, maintenance, education, and management elements for the protection of life, property and other values that could be threatened by wildland fire. It is designed to assist local, state, and federal fire agencies in dealing with the escalating challenges presented by the proliferation of wildland/urban interface communities and the monetary losses of structures in wildland/urban interface areas.” (NFPA 2002.) Guidelines in NFPA 1144 address: 1) assessment and planning, access, ingress, egress and evacuation, 2) fuel modification area, 3) water supply, 4) residential development design, location and construction, 5) fire protection during construction, and 6) community planning for protection of life and property from wildland fire.

### **Incentives Recommendations**

1. Seek opportunities to collaborate with the insurance industry to assess structural vulnerability. Opportunities for collaboration include fire frequency information sharing and coordination of risk assessment. Engage the insurance industry to actively support WUI mitigation through prevention, education and policy incentives.

Priority: High

Timeline: Early 2005

Whose task? OSFM, ODF, FEMA, federal agencies, insurance industry.

New authority needed? Yes

Additional staff and/or funding needed? No

2. Develop a WUI Code for Oregon: Reps from DLCD, Building Codes, DEQ, Oregon OSHA and the OSFM create compatible code, free of conflict between agencies. Legislature should direct appropriate state regulating agencies to review the 2003 International Urban Wildland Interface Code (IUWIC) and adopt compatible portions for an Oregon Wildland Urban Interface Code, supplemented by NFPA Codes 1142, 1143, 1144. Utilize DLCD Goal 4 standards as a tool (OAR 660).

Priority: Medium

Timeline: Begin 2005, complete by 2007.

Whose task? DLCD, ODF, DEQ(?), BLDG Codes, OSFM

New authority needed? No, but legislative direction is needed

Additional staff and/or funding needed? No

3. Encourage development of local WUI Fire Codes: Whether or not a statewide WUI code is adopted, local jurisdictions should consider adopting the 2003 IUWIC, supplemented by the NFPA Codes 1142, 1143, 1144, compatible with DLCD Goal 4.

Priority: Medium

Timeline: 2005

Whose task? County planning, local fire departments, AOC

New authority needed? Yes, local

Additional staff and/or funding needed? No

### III. Wildfire Risk Assessment

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#### Overview of wildfire risk in Oregon

Wildfires are a common and widespread natural hazard in Oregon. Over 41 million acres of Oregon forests and grasslands are susceptible to wildfire. Wildfires can occur during any time of year, but nearly all burn between July and October. No area within the state is free from wildfires. However, southwestern, northeastern and central Oregon are at greatest risk from wildfire impacts to human and ecological values because of their drier climates and extensive number of WUI homes. Wildfires ignited by lightning or humans are common in dry conifer forests and grasslands east of the Cascades. As more people have moved into WUI areas, the number of homes threatened by large wildfires has escalated dramatically. (Oregon Emergency Management 2003.)

#### Statutory and administrative context

Recognition that proactive approaches are needed to reduce escalating wildfire impacts and costs has spurred intense interest in identifying communities most at risk for wildfire to strategically focus wildfire planning and hazard mitigation efforts. In 2001, as mandated by the NFP, the federal government published an initial list of WUI communities near federal lands identified by states and tribes as being at risk from wildfire. This list included a stipulation that federal agencies would continue to work with states and local entities to refine and narrow the list, focusing on communities that are at highest risk (Federal Register 2001a, b). By August 2001, federal land management agencies working with local communities estimated that 367 Oregon communities are at risk of damage from wildfire (Federal Register 2001a, b).

The NFP directs states to maintain and update their Communities at Risk list. States and tribes lacked consistent approaches and guidance for identifying these communities, so in 2003 the National Association of State Foresters (NASF) developed guidelines that collaborative interagency teams in each state are using to amend the initial list, and include WUI communities not defined as being in the vicinity of federal lands. The NASF guidelines (NASF 2003) are intended to guide implementation of provisions in the “Collaborative Fuels Treatment” Memorandum of Understanding (USDA Forest Service and others 2003). These guidelines also meet requirements within the NFP by establishing broad, nationally compatible standards for identifying and prioritizing communities at risk, while allowing for maximum flexibility at state and regional levels. Factors considered in NASF-guided risk ranking assessments include *fire occurrence, fire hazard, values protected* and *fire protection capabilities*.

Assessment of wildfire threats to Oregon communities is also occurring at other levels. The state is implementing Oregon’s Forestland-Urban Fire Protection Act of 1997 (SB 360), in which Oregon Administrative Rules are being used to identify and classify wildfire hazard levels in WUI forestlands in nearly every Oregon county. Many counties and communities are beginning wildfire risk assessments as they develop their CWPPs to address HFRA and FEMA guidelines, and to prioritize NFP and Secure Rural School and Community Self-Determination Act Title III projects. Funding from the 2003 HFRA is directly linked to identification of WUI lands within and adjacent to “at-risk” communities. Aside from meeting grant guidelines, prioritization of

areas where wildfire hazards and risks are highest helps ensure efficient and effective use of planning, hazard mitigation and citizen education resources.

Significant progress toward identifying and prioritizing Oregon communities at risk for wildfire was achieved during the Oregon Fire Program Review. A critical task was to identify and rank communities at risk into categories of *low*, *medium* and *high*, which will help the state and communities focus resources on high priority areas. This information will be a part of the statewide fuels management plan and result in a priority list of communities at risk. Agencies and organizations assisting with this effort include ODF, USFS, BLM, Oregon Office of the State Fire Marshal, University of Oregon Program for Community and Watershed Health, communities and counties, industrial timberland owners, and other agencies that can provide data or interact in the risk assessment process.

### **What is a community at risk?**

Under agreement with the NASF and federal agencies, states are responsible for listing communities at risk for wildfire. NASF guidance defines *community* as “a group of people living in the same locality and under the same government” (NASF 2003). The HFRA defines a *community at risk* as “an area comprised of where humans and their development meet or intermix with wildland fuel” (Federal Register 2001a), or a group of homes and other structures with basic infrastructure and services within or adjacent to federal land, and as an area in which conditions are conducive to a large scale wildland fire event or where a significant threat to human life or property exists as a result of a wildland fire disturbance event.

For its list of communities at risk in Oregon, ODF defines *community at risk* as ***a geographic area within and surrounding permanent dwellings with basic infrastructure and services, under a common fire protection jurisdiction or government, for which there is a significant threat due to wildfire.*** An unincorporated *rural community* without a common government or fire district providing structural fire protection is defined as consisting primarily of permanent residential dwellings but also at least two other land uses that provide commercial, industrial, or public uses (e.g. schools, churches, grange halls, post offices) to the community, surrounding rural area or persons traveling through the area (Oregon Department of Land Conservation and Development 1994).

Coarse-scale prioritization of where to concentrate fire hazard and risk reduction efforts is occurring with initial statewide listings and the focus on WUI areas, where wildfires present the greatest risk to human lives, property and community infrastructure. The next critical step is defining the spatial extent and boundaries of each of these communities, and their associated WUIs. In order to develop useful CWPPs and prioritize hazard mitigation projects, it is necessary to define specific, logical community boundaries for jurisdictional areas identified at the statewide level as being at risk via collaboration with local fire districts, cities and counties.

In general terms, *interface communities* are defined as those where structures directly abut wildland fuels (Federal Register 2001a). Rural communities with structures scattered throughout a wildland area are defined as *intermix communities* (Federal Register 2001a), and can be more difficult to delineate. For fuels management on federal lands, federal agencies and communities

will identify WUI areas within and adjacent to state-identified at risk communities using HFRA criteria.

The HFRA defers to a community's definition of its WUI, if the community has done this work. The WUI may include municipal watersheds and other specific areas of special significance such as communications sites, high voltage transmission lines, church camps, scout camps, research facilities and other structures that if destroyed by fire would result in hardship to communities, as well as adjacent slopes and fuels. In the absence of a community definition, HFRA defines the WUI as extending ½ mile from community boundaries, or 1½ miles when mitigating circumstances exist, such as sustained steep slopes or geographic features aiding in creating a fire break. HFRA also allows inclusion of areas adjacent to evacuation routes for at-risk communities that require fuel reduction to provide safer evacuation in the event of a wildfire.

### **Process for identifying communities at risk in Oregon**

ODF proposes the following process for defining communities at risk for wildfire in Oregon. Separate community delineations are based on population density and existing fire districts or municipalities where communities currently receive fire protection services, and will be used in conjunction with the statewide risk assessment methodology, discussed in the next section.

#### Step 1: Identify each distinct geographic area that:

- Has a population density of at least 1 structure per 40 acres with minimum of four residences, buffered by the geographic area where problem fires could threaten the populated area, generally 6<sup>th</sup> field watershed boundaries.
- Has conditions conducive to a wildfire event that would threaten human life or property.

#### Step 2: Label (name) each geographic area based upon *common government* as follows:

- For areas with structural fire protection (or contiguous with areas that do) the community name should concur with the common fire protection jurisdiction, such as fire district and/or municipality. This may involve splitting larger communities or populated areas based on fire district boundaries, or lumping small non-contiguous areas under one jurisdiction.
- Unincorporated and unprotected areas not within a city or rural fire district will be labeled as (county name) – unprotected. Labels or place names for these areas can be further refined or determined by using LCDC rural community definition parameters such as county, common commercial, industrial or public uses (schools, community center, grange halls, post offices, churches).

### **A Wildfire Risk Assessment Methodology for Oregon**

ODF, in cooperation with state, federal and county partners, has developed a methodology for assessing wildfire risk in communities identified as being at risk. The methodology sets standards and will be used to prioritize fuels treatment areas statewide. ODF piloted this

methodology in cooperation with public agencies, local government, and community-based organizations in Josephine County in 2004.

ODF will initiate and maintain a risk assessment map and database for the state that counties and communities can use in their own fire risk assessments. Using this methodology, Oregon counties and communities will be able to collaboratively identify communities at risk, localize components of the risk assessment and submit results to ODF for approval to be updated in the statewide database. The risk assessment is dynamic and will be updated as improved information becomes available, both from state and federal agency sources (i.e. the LandFire vegetation project) and from community fire plan risk assessments using this methodology.

A detailed “one-size-fits-all” approach is inappropriate for assessing wildfire risk at the community level because individual risk factors vary with location. However, nearly all assessment models consider *risk, hazard, protection capabilities* and *values protected*. In addition, an assessment of the vulnerability of values at risk is needed from the community down to the parcel level. Complex assessment worksheets available through Firewise, NFPA, the BLM Risk Assessment Mitigation Strategy (RAMS), Western Fire Chiefs Association, International Fire Code Institute, and various states can usually be reduced to these 4 groupings. FEMA requires risk assessments to profile hazards, vulnerabilities, and impacts in terms of location, extent, previous occurrence, and potential dollar loss to vulnerable assets.

Consistent with NASF guidance, a rating of *Low, Moderate, or High* will be used to describe each assessment factor (an additional *Very High* rating is allowed for Hazard) for the statewide assessment. However, field-testing indicated a need for finer resolution of risk data to accommodate local assessments. For example, it is possible that nearly every community in a county could receive a statewide rating of “High” for a factor which would do little to help a local government or community prioritize areas of concern. This is why risk ranking is needed in addition to risk assessment. The final statewide product will be available by December, 2004.

Factors that will be included in risk assessments and rankings are:

#### **A. Risk**

*What is the likelihood of a wildfire occurring?*

Statewide data will include use of historic wildfire occurrence provided by ODF, OSFM, and federal land management agencies and tribes. Data that can help local communities better assess potential fire starts and design appropriate fire prevention strategies into a fire plan includes rates of historic fire occurrence and assessment of ignition risk potential.

#### **B. Hazard**

*What is the physical situation with a potential for human injury, damage to property, or damage to the environment?*

Hazard is closely associated with fire weather, topography, and fuels (the fire behavior triangle). *Weather Hazard Factor Value* includes the number of days per season that forest fuels are capable of producing a significant fire event. Reference data for establishing the wildfire

weather hazard factor is provided by ODF, and is developed by analyzing daily wildfire danger rating indices in each regulated use area of the state.

*Topographic Hazard Factor Value* is determined by considering slope, aspect and elevation. Slope and aspect affect both the intensity and rate of spread of a wildfire. Elevation affects the type of vegetation and the length of the fire season. The topography hazard factor is determined by considering slope, aspect, and elevation using Digital Elevation Maps (DEMs). Each factor is added together to determine the topographic value:

*Natural Vegetative Fuel Hazard Factor Value* is the primary factor affecting fire intensity. Vegetation also affects the amount and travel distance of burning embers that significantly impact the degree to which a fire resists control and threatens protected resources. Statewide, best available data will likely be a combination of existing fuel model coverages and grid vegetation types with a crosswalk to hazard value (determined by an expert panel representing all areas). Accuracy of this factor assessment can be increased by overlaying historic insect and disease maps, and current and forecasted forest health information. The quality of fuels data varies significantly statewide, so communities will be encouraged to seek the best available data for their local area to more accurately determine expected fire behavior.

Federal land management agencies are moving toward *condition class* rather than fuel model to assess hazard and prioritize projects. Discussions have begun with USFS-BLM Region 6 staff about how best to coordinate this potential conflict. The good news is that condition class will likely be a close fit to the cross walk from vegetation to natural vegetation hazard.

### **C. Protection Capabilities**

*What are the wildfire protection capabilities, including capacity and resources to undertake fire prevention measures?*

*Protection capability* is a combination of fire protection agency, local government, and community organization capacity. Level of protection capability depends on response time, response capability, road access, and community fire planning and implementation. Statewide, the best available data to evaluate protection capability is the presence or absence of structural and wildland fire protection agencies, using structural fire district boundaries and wildland protection boundaries. At the county or local level, capability ratings are based on fire response time, capacity and safe access, and can be raised based on community mitigation efforts proven to increase fire response effectiveness. To assist with local assessments and planning, these factors should be identified and mapped as factors that will either increase or decrease protection system effectiveness (i.e., areas with limited vehicle access that would lead to identifying escape routes, safety zones, and/or road brushing projects to provide for public and firefighter safety). Generally, areas more than 300' from a road or driveway should be considered limited response.

### **D. Values Protected**

*What are the human and economic values associated with communities or landscapes (NASF definition)?*

The intent of this assessment is to identify communities for which a significant threat to life or property exists. Protection priorities vary between agencies, but protection of human life comes

first for all. For a general assessment of life, either population density or home density is appropriate. However, identification and evaluation of additional human and economic values is needed for FEMA and community fire planning. It is important to identify *community* values at risk from wildfire.

Assessments of economic values at risk are best conducted locally. Examples of these values include power substations and corridors, communication sites and facilities, transportation corridors, major manufacturing and utilities facilities, municipal watersheds, water storage and distribution, fuel storage facilities, hospitals and health care facilities, landfills and waste treatment facilities, schools, churches, community centers, and stores as well commercial forests, recreation sites, critical habitat, historic and cultural sites, etc.

### **E. Structural Vulnerability**

*What is the likelihood that structures will be destroyed by wildfire?*

Risk, hazard, and protection capabilities account for 90% of the likelihood of a wildfire event threatening life and property. Parameters controlled by landowners within the home ignition zone account for 90% of the likelihood of a wildfire threatening structures. Chief among these parameters are roofing assembly/material, defensible space, and access to the structure. Assessment of structural vulnerability is best accomplished by site-specific visits. Viewing factors individually will assist in determining what is causing the problem. Mapping of access limitations (e.g. dead-end roads, poor bridges, heavy roadside fuels etc.) aids in planning mitigation. Several other risk assessment and triage tools are available for this high resolution work, such as the Firewise/NFPA 1144, IFC International Wildland-Urban Interface Code, Oregon State Fire Marshal Triage form, and more are being developed. ODF districts are coordinating with local rural fire districts to complete these assessments.

### **Other Risk Assessment Methodologies and Tools**

The problem of increasing wildfire risk is widespread in the west and a number of other wildfire risk assessment methods, tools and efforts are at various stages of development in other regions.

The Landscape Fire and Resource Management Planning Tools Project (LANDFIRE) is an interagency effort to develop a geospatial tool for fire resource allocation, prioritizing restoration or hazard reduction projects, evaluating success of wildfire management activities, and strategic wildfire management planning to help implement the NFP and HFRA. The tool is being refined in central Utah and northern Rocky Mountains. LANDFIRE will eventually be implemented in other areas, including Oregon, prioritized by regional fire management needs and availability of satellite imagery and land cover information (USGS 2004).

Fire-Climate-Society (FCS-1) is a prototype model developed by Wildfire Alternatives (WALTER) at the University of Arizona that links human dimensions and natural science GIS submodels into a comprehensive model to allow assessment of fire hazard consequences for ecosystems and human systems arising from interactions of climate, human activity, and biophysical processes. The FCS-1 model provides spatially explicit maps about the geographical

distribution of fire probability and values at risk for study areas in Arizona and New Mexico, based on information users enter online (University of Arizona 2004).

Oregon land managers and communities faced an immediate need for better wildfire risk information to address grant requirements and efficiently target wildfire fuel reduction projects. Current efforts will soon produce such knowledge. Managers should also monitor development of other new risk assessment tools and methods, and integrate them as they become available.

## **Risk Assessment Recommendations**

1. Map and rank Communities-at-Risk. Review interagency risk assessment with local agencies, communities, tribes, state and federal partners to finalize the strategic statewide interagency risk assessment and prioritization of Communities-at-Risk.

Priority: High

Timeline: 12/2004

Whose task? ODF, then federal agencies, NFP Strategy Team

New authority needed? No

Additional staff and/or funding needed? No

2. Create a statewide spatial database to house available data and make this accessible to communities and other agencies. Disseminate data used to identify Communities at-Risk to local counties, municipalities and fire districts. Request initial feedback from communities to refine the risk assessment.

Priority: High

Timeline: 12/2004

Whose task? ODF

New authority needed? No

Additional staff and/or funding needed? .5 FTE, \$110,000 (Federal grant.)

3. Integrate feedback into risk assessment and share methodology with counties and communities statewide to assist with developing community fire plans and local risk assessments.

Priority: High

Timeline: Ongoing

Whose task? ODF

New authority needed? No

Additional staff and/or funding needed? .5 FTE, \$65,000 (Federal grant.)

4. Develop a standardized process and timeline for communities to help update the statewide risk assessment at regular intervals, based on new or more refined local risk information.

Priority: Medium

Timeline: Ongoing

Whose task? ODF

New authority needed? No

Additional staff and/or funding needed? .5 FTE, \$100,000 (Federal grant.)

5. Use statewide risk assessment to identify low-income communities in the WUI to increase assistance

Priority: Medium

Timeline: Early 2005

Whose task? ODF

New authority needed? No

Additional staff and/or funding needed? .25 FTE, \$30,000 (Federal grant.)

6. Review coordination at the landscape scale to provide a holistic assessment of fuel treatment priorities and accomplishments. Review how and where money is allocated to projects within priority areas. Use state-level review to look for potential areas of improvement. Begin in high risk areas identified through mapping to determine if landscape scale treatments change the condition class and the behavior of a large fire.

Priority: High

Timeline: 2005

Whose task? ODF, federal and local governments

New authority needed? No

Additional staff and/or funding needed? \$100,000 (Federal grant.)

## IV. Fuels Treatment Strategies and Maintenance

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### Maintaining Oregon's Investments in Fuel Treatments

There is an increasing threat of large, uncharacteristically intense wildfires and a corresponding elevated risk to homes and human infrastructure in Oregon.

Local USFS and BLM district managers have prioritized areas for initial fuel treatment based on fuel conditions, proximity to the WUI and human infrastructure, forest health, and other forest values. In the past, treatments have not been well coordinated between USFS and BLM districts, nor with neighboring communities. In addition, initial treatments did not adequately assess landscape-level risks, resulting in treatment areas that were typically small in size and not coordinated between agencies in their application across the landscape.

Since 2002, prioritizing areas for initial fuel treatments on federal lands have been based on *fire regime* and *current condition class* (see Tables 1 and 2, Schmidt and others 2002, Agee 2002). Land managers developed condition classes (1, 2 and 3) to exhibit the departure in severity, intensity, and frequency for wildfires today compared to historic conditions. Changes in historic fire regimes have led to changes in key ecosystem components such as vegetation (e.g. species composition, stand age, structural stage, canopy closure, and mosaic patterns); fire frequency, severity, and pattern; introduction of invasive plants; and altered insect and disease dynamics. A coarse-scale map of condition classes was developed for the United States to determine rough acreages in each condition class category (Schmidt et al. 2002) but this map is too coarse-scale for determining condition class at specific site locations on the ground.

Following adoption of the fire regime and condition class framework by federal land managers, initial fuel treatments now strive to target condition class 3 areas where historically fire was frequent (fire regimes I, II and III) and now contains high fuel loading. The overall purpose of these fuel treatments is to re-establish stand and landscape characteristics that make forests more fire-resilient (see Table 3, Agee 2002). Information on fire regime and condition class guides choices about where fuel reduction is needed most, and treatments are also being strategically applied in and around WUI areas to protect human infrastructure.

NFP guiding principles speak to maintaining ecosystems in and around the WUI in conditions that provide for a fire-safe environment (NFP 2002). Achieving this would not only protect critical elements of ecosystems currently at risk of uncharacteristically intense wildfire, but would also provide ecosystem characteristics that would enhance public and firefighter safety and property protection through reduced incidents of extreme fire behavior and increased ability to manage fires with a range of suppression strategies and tactics.

The goal of all fuel treatments (e.g., thinning, mowing, pruning, and prescribed fire) is to “step down” fuels in wildlands and in the WUI. Figure 1 shows the acres targeted for fuel treatment on USDA Forest Service lands in Region 6 from 1989 through 2004. Substantial increases in treated acres occurred after 1995, reaching 140,000 and 130,000 acres in 2003 and 2004 respectively. Between 1999 and 2004, the ODF treated 35,000 acres of mostly private land.

**Table 1: Fire Regime Group Descriptions (from Schmidt and others 2002.)**

Fire Regime Group	Frequency <sup>1</sup> (Fire Return Interval)	Severity <sup>2</sup>
I	0–35 years	low severity
II	0–35 years	stand replacement severity
III	35–100+ years	mixed severity
IV	35–100+ years	stand replacement severity
V	>200 years	stand replacement severity

<sup>1</sup>Fire frequency is the average number of years between fires

<sup>2</sup>Severity is the effect of the fire on the dominant overstory vegetation

**Table 2: Fire Regime Current Condition Class<sup>1</sup> Descriptions (Schmidt and others 2002.)**

Condition class	Fire regime	Example management options
<i>Condition Class 1</i>	Fire regimes are within an historical range, and the risk of losing key ecosystem components is low. Vegetation attributes (species composition and structure) are intact and functioning within an historical range.	Where appropriate, these areas can be maintained within the historical fire regime by treatments such as fire use.
<i>Condition Class 2</i>	Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historical frequencies by one or more return intervals (either increased or decreased). This results in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation attributes have been moderately altered from their historical range	Where appropriate, these areas may need moderate levels of restoration treatments, such as fire use and hand or mechanical treatments, to be restored to the historical fire regime
<i>Condition Class 3</i>	Fire regimes have been significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. This results in dramatic changes to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been significantly altered from their historical range.	Where appropriate, these areas may need high levels of restoration treatments, such as hand or mechanical treatments, before fire can be used to restore the historical fire regime

<sup>1</sup>*Fire Regime Current Condition Classes (FRCC)* are a qualitative measure describing degree of departure from historical fire regimes, possibly resulting in alterations of key ecosystem components, e.g. species composition, structural stage, stand age, canopy closure, and fuel loadings. One or more of the following activities may have caused this departure: fire suppression, timber harvesting, livestock grazing, introduction and establishment of exotic plant species, introduced insects or disease, or other management activities.

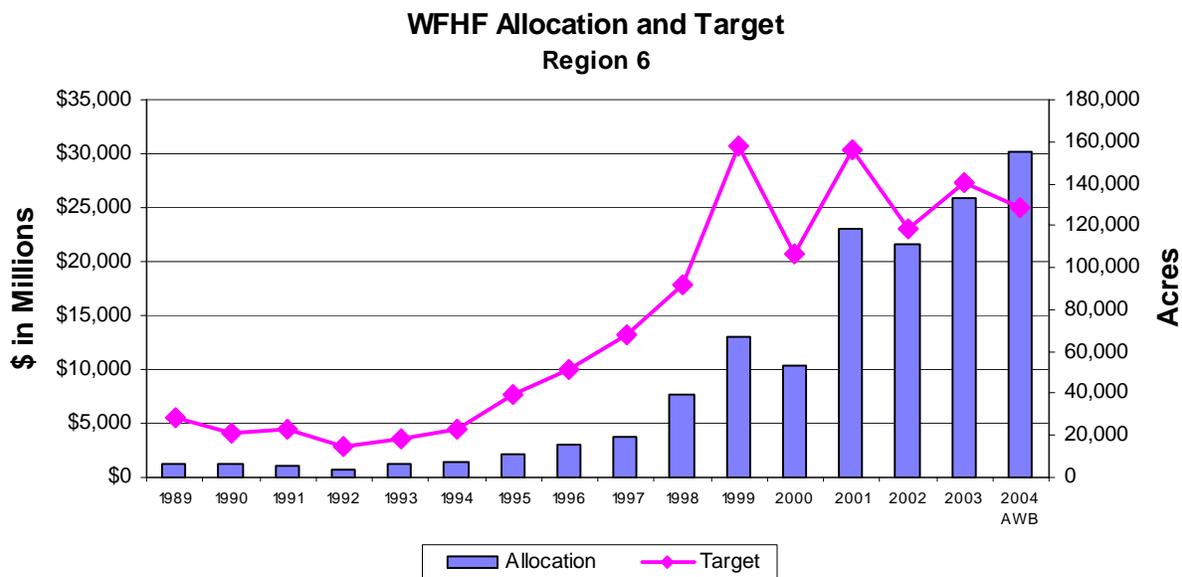
**Table 3: Principles of Fire-Resilient Forests (from Agee 2002.)**

Principle	Effect	Advantage	Concerns
<i>Reduce surface fuels</i>	Reduces potential flame length	Control easier, less torching	Surface disturbance, less with fire than with other techniques
<i>Increase height to live crown</i>	Requires longer flame length to begin torching	Less torching	Opens understory, may allow surface wind to increase
<i>Decrease crown density</i>	Makes tree-to-tree crown fires less probable	Reduces crown fire potential	Surface wind may increase and surface fuels may be drier
<i>Keep larger trees</i>	Thicker bark and taller crowns	Increases tree survivability	Removing smaller trees is economically less profitable

Tens of millions of dollars have been invested (Figure 1) to protect human values and key ecosystem elements within and outside the WUI through NFP and other funding sources. In addition, a great deal of effort and dollars have been expended on fuel reduction project planning.

Over the next 10-15 years treated areas shown in Figure 1 and areas treated on state and private lands (not shown) will require retreatment to maintain their effectiveness as fuel breaks and fire resilient ecosystems. It is unclear whether funding will be available in the future to retreat these areas as they move away from a desirable condition, or whether maintenance costs will be absorbed into existing agencies budgets and out of the pockets of private landowners. Future retreatments should cost less per acre than the initial suite of fuel treatments applied if they are conducted before fuels have re-accumulated to pretreatment levels. Therefore it is critical for Oregon to develop a maintenance strategy that protects initial investments in fuel reduction work.

**Figure 1: USFS Region 6 Wildfire hazardous fuel (WFHF) treatment funding allocations and targets for 1989-2004.**



**Considerations when developing a fuels maintenance program**

Once treated, stands undergo the process of ecological succession in which understory and overstory vegetation changes over time. This results in incremental changes (often increases) in herbs, grasses, shrubs, and tree seedlings because more growing space has been created and thus more soil nutrients and water have been made available by partial removal of competing overstory trees and other vegetation. Overstory structure also changes as residual trees expand their crowns and increase in diameter, while continually adding more standing biomass (wood) and biomass to the forest floor from annually shed needles and branches. Subsequent insect and disease disturbances can kill trees creating snags and downed logs, which add more biomass (of

larger size) to the forest floor. In the absence of fire, such as in Fire Regime I, fuel loading continues to increase with the potential to fuel intense wildfires.

This dead biomass accumulates faster than it decays in the drier forests types of southwest, central and eastern Oregon. Thus, dry forests treated for fuel reduction now will need to be retreated at some point in the future to maintain their effectiveness. The rate at which wildfire fuels re-accumulate and the length of time before retreatment is needed depends on several interrelated factors, including:

- Initial treatment level (how much biomass (fuel) was removed initially in the understory and overstory);
- Plant association group;
- Site productivity;
- Rate of fuel accumulation;
- Fuel structure (i.e., condition class)
- Historic fire regime;
- Desired fire behavior (for effective control)
- Climatic regime

As previously mentioned, fire regime and condition class is the primary framework for prioritizing areas for *initial* fuel treatment, particularly on federal lands. However, this framework may be less useful to resource managers and communities for prioritizing areas for future *retreatment* because current condition class maps are too coarse-scale to be useful on the ground, the line between classifying a given area as condition class 1, 2 or 3, is not exact or distinct, and fire behavior within just one condition class can be highly variable.

From the list above, initial treatment level, plant association group, and desired fire behavior may be the most meaningful parameters for prioritizing or scheduling areas for retreatment. In addition, strategic location (i.e., proximity of treated areas to the WUI) must also be considered because of the element of risk to human values and infrastructure. Considerations for each parameter are discussed below.

#### *Initial Treatment Level*

The more fuel removed (living and dead) during the initial treatment or suite of treatments, the longer it takes for the site to re-accumulate fuel to a level triggering retreatment. Not all fuel layers may require retreatment within a given timeframe, however. For example, a ponderosa pine stand on a ponderosa pine/bitterbrush/Idaho fescue plant association thinned from below and then underburned to reduce slash and flammable bitterbrush may require retreatment after 10 years in the shrub layer only as the shrubs recover to pretreatment levels. If the overstory trees were thinned wide enough in the initial treatment, retreatment of the tree layer may not occur for 20 years or more.

#### *Plant Association Groups*

Plant associations are grouping of plants species which reoccur on the landscape within particular environmental conditions. Plant association groups are named based on the dominant

overstory trees species and understory shrub and herb layers. Franklin and Agee (2004) point out that plant association groups provide an important basis for differentiating between forest types and their inherent ecological characteristics and processes. Knowing the plant association for a particular area, managers can infer a number of the items on the above list including, climate, site productivity, fire regime, rate of fuel accumulation, and successional patterns following disturbance (i.e., fuel treatments). For example, more productive dry grand fir plant associations accumulate living ladder fuels and dead fuels at a greater rate than less productive plant associations (e.g., ponderosa pine associations), and thus will move from condition class 1 to class 2 faster and require re-treatment sooner. Plant association groups have been mapped on federal lands and have been entered into GIS systems. Retrieval of this information for a particular location on federal lands would be relatively easy, but this information is lacking for private lands.

### *Desired Fire Behavior*

A key element in prioritizing areas for retreatment is having managers specify *desired* fire behavior (e.g. flame length, rate of spread) for a given set of fuel moisture and weather conditions, such as “average worst fire condition”, by geographic regions of the state. Average worst fire condition is defined as the number of days during the fire season in which seasonal dryness and wind exceed the 90th percentile for cumulative weather observations for the past decade. In other words, this would be the point where fire conditions are classified as “very high.” Naturally, this would vary across the state due to differences in prevailing climate. For example, this may range from as little as 7 days in the Coast Range to 47 days in eastern Oregon.

Thus, managers might specify a desired flame length in treated areas of 2-3 feet under the average worst fire conditions. When fuel conditions change over time enough to support flame lengths greater than 3 feet, retreatment is triggered and the site is prioritized for re-treatment. The retreatment trigger point can be estimated using existing fire behavior models. For areas adjacent to the WUI, the maximum desired flame length should be less than 4 feet because greater flame lengths are too intense for direct attack by firefighters with hand tools (Schmidt et al. 2002).

Fuel accumulation rates and the length of time to reach the trigger point vary by plant association group, so it can be difficult to pinpoint the number of years before re-treatment is necessary. The Forest Vegetation Simulator (FVS, Stage 1973; Wykoff et al. 1982) can be used to project stand development and fuel accumulation following fuels treatments, and model output can be fed into a variety of fire behavior subroutines (e.g., Fire and Fuel Extension to FVS (Reinhardt and Crookston 2003)) to provide managers with an estimate of when re-treatment would be necessary. After specifying desired fire behavior, several model runs can be conducted for various plant association groups (ponderosa pine, lodgepole pine, mixed conifer) and for different desired fire behavior parameters.

### **Summary**

Developing a fuels reduction maintenance program will entail knowing plant association groups for an area and defining acceptable fire behavior parameters. We suggest that a flame length of 4 feet or less, particularly in or near WUI areas, is appropriate. Information on plant association

groups is readily available on GIS vegetation layers from federal agencies, but is lacking on private lands. Using these two pieces of information, projections can be made using stand simulation and fire behavior models to determine when a particular site will move beyond acceptable fire behavior criteria and require some level of retreatment. Retreatment priorities will also need to consider surrounding risk (e.g., structures), thus areas close in to homes and subdivisions would be scheduled for retreatment first while outlying areas would be treated later.

The development of a fuel treatment maintenance strategy is important for Oregon. A maintenance strategy could assist communities in developing Community Wildfire Protection Plans, which require some detailed explanation of how fuel treatments in the WUI will be maintained over time. Developing and implementing a fuel maintenance strategy will be critical in estimating budgets and future funding needed from federal and other sources to maintain these areas over time. Also, a fuel treatment maintenance strategy would be an important component of the fire risk assessment model for Oregon (Jim Wolf, *in progress*).

The major challenge for developing a cohesive fuel maintenance program for Oregon is the diversity of state, federal, and private ownerships with contrasting objectives and legal mandates. Thus, close collaboration with all stakeholders will be key to the development of a statewide fuels maintenance strategy and its implementation. Another challenge will be deciding who keeps track of all the fuel treatments performed on the ground and developing a common database so that queries can be made about retreatment priorities for specific locations. Most likely a fuels working group, comprised of state, federal, private, and community representatives, is needed to work these details out. The primary outcome from this group would be to have a common fuels treatment database that any group can access for planning purposes and to input treatment acres by location. Funding and personnel to support this collaborative effort needs to be an agency priority in order to make this important endeavor happen.

## **Fuels Treatment Recommendations**

1. Develop fuels team comprised of state and federal land management agencies, along with private and community representatives to develop a fuels treatment/maintenance GIS database.

Priority: High

Timeline: 2006

Whose task? ODF, USFS, BLM, private landowners, communities at risk

New authority needed? No

Additional staff and/or funding needed? .25 FTE, ~\$75,000.

2. Integrate community level fuels data with the statewide fuel treatment database to produce a comprehensive risk assessment linked to the fuel treatment/maintenance database.

Priority: Medium

Timeline: 2008

Whose task? ODF

New authority needed? No

Additional staff and/or funding needed? .25 FTE, \$100,000 (Federal grant.)

3. Develop a protocol for fuels retreatment. Develop triggering criteria based on desired fire behavior, vegetation conditions, and strategic location.

Priority: High

Timeline: 2007

Whose task? ODF, USFS, BLM and communities at risk

New authority needed? No (Memorandum of Understanding.)

Additional staff and/or funding needed? .25 FTE, \$50,000 (Federal grant.)

## V. Biomass Waste Utilization

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### *Introduction*

Most biomass targeted for removal during hazardous fuels and forest health restoration treatments is in the form of ladder fuel trees that range from 1 to 40 feet tall and 2 to 5 inches in diameter. These trees have zero or low value for timber products, and are thus usually considered to be waste material. The purpose of this section is to highlight challenges, opportunities and recommendations concerning the potential for utilizing this biomass waste.

### **Potential biomass supplies resulting from fuel treatments**

A recent USFS study graphically illustrates the amount and configuration of tree biomass that hazardous fuels treatments in western U.S. forests could potentially generate. Based on a combination of Forest Inventory and Analysis (FIA) data and fire regime condition class (FRCC) assessments (Schmidt and others 2002), the study provided a broad-scale, conservative estimate of the number, size classes and volumes of trees that could be removed to address NFP hazardous fuel reduction and ecosystem restoration objectives (USDA Forest Service 2003). The analysis covered several regional forest types on both public and private forest land in 15 western states and described all standing tree volume including stems, limbs, and tops. Reserved forests and low productivity areas were not considered.

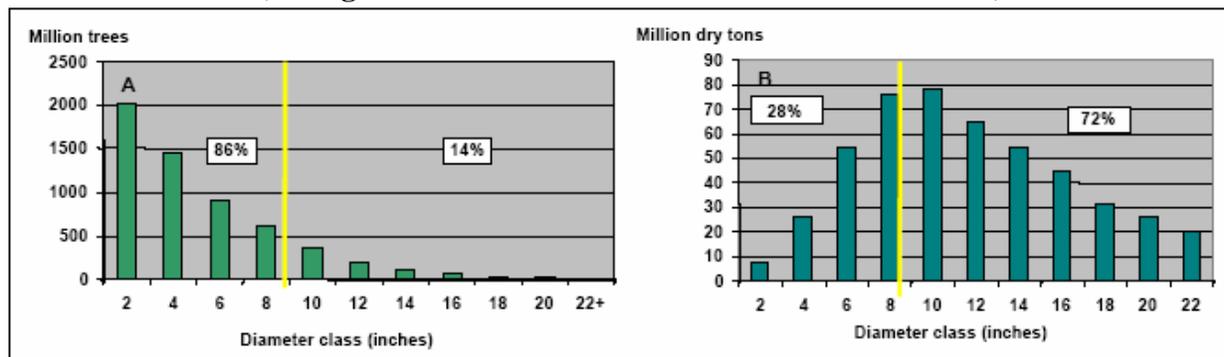
Potential biomass removal volumes were estimated by hypothetically applying conservative, ecologically-based silvicultural prescriptions across regional forest types, in which trees from all size classes would be removed. There is widespread agreement on the need to remove small trees to reduce fuel loadings, but cutting larger trees can be controversial. The authors argued that while removal of seedlings and saplings is important to reduce ladder fuels, thinning only small material does little to reduce crown fire spread and that in general, removing some trees from all diameter classes has a more significant effect on reducing measures of fire risk.

Since the prescriptions were developed for very large areas (regional forest types), they statistically describe average forest conditions over the landscape, not specific forest stands. Thus, the assessment did not define preferred fuel reduction management prescriptions for particular stands. Specific treatments to address fuel loading in a given stand should be based on assessment of factors such as HRV, plant association groups, predicted or desired fire behavior, and other local considerations, as described previously.

The researchers' hypothetical prescriptions accounted for the wide variety of fuel reduction prescriptions that would likely be needed to accommodate old-growth, threatened and endangered species, wildlife habitat, insect outbreaks, watershed protection, and other ecological and multiple resource objectives. Estimated removals were generally small to mid-size trees, but larger trees could also be removed if the FIA data indicated surpluses in those size classes. No upper diameter limit was imposed on the prescription.

72% of the *volume* identified for removal would come from trees larger than 8 inches in diameter at breast height (DBH), but 86% of the total *number* of trees identified for removal were 8 inches or less. Across the study area, over 2 billion trees in the 2-inch diameter class, and another 1.5 billion trees in the 4-inch diameter class were identified for removal. (Figure 2.)

**Figure 2: Diameter distribution of trees (A) and volume removed (B) in the USFS biomass removal scenario for 15 western U.S. states. Both distributions continue to tail off beyond 22-inch diameter. (Vissage and Miles 2003 in USDA Forest Service 2003.)**



Even after excluding 40% of the study area that was high elevation, steep slopes or not within 15 miles of major transportation infrastructure, the study identified 346 million bone dry tons of biomass that would need to be removed from FRCC 3 areas alone. Nearly 55 million bone dry tons of this material is in Oregon, second only to California among the 15 western states. (Fuel loading is so high in FRCC 3 areas that there is a high risk of losing key ecosystem components in a wildfire. Thus, all else being equal, these areas are the highest priority for treatment. See Table 2, page 68.)

Because fuel treatments require substantial human and monetary resources, projects that can pay for themselves are more likely to be completed on a large scale. In more productive dry Oregon forests, trees of merchantable size constitute part of the biomass that managers recommend removing and can help pay for removal of the large numbers of smaller, non-merchantable trees. In these cases, removing only small trees will not reduce fuel loadings to an acceptable level, so there is an ecological as well as economic rationale for removing some larger trees (e.g., 12-21 inches DBH). Elsewhere in Oregon however, merchantable trees do not have to be removed to reduce fuel loadings to acceptable levels, and in all areas the vast majority of trees that contribute to high fire hazard are small trees with little or no economic value (Duncan 2004).

### Turning biomass waste into energy

Finding economically viable ways remove huge numbers of small, non-merchantable trees from the landscape is the central dilemma facing managers as they try to implement hazardous fuel treatments. One option is to simply cut these trees and leave them on the forest floor. However, doing so often increases fire hazard, and the severity of pest insect outbreaks. Historically this material was either burned in prescribed fires or in uncharacteristically severe wildfires. High fuel loadings, air quality restrictions, short windows of appropriate weather, and risk of escaped fire are some factors that limit application of prescribed fire (USDA Forest Service 2003). Both prescribed fires and wildfires can impact human health, produce greenhouse gases, and can have detrimental impacts on forest ecosystems and Oregon's airsheds. Open burning produces massive amounts of visible smoke and particulates, and significant quantities of nitrogen oxide (NOx), carbon monoxide (CO) and hydrocarbon emissions that contribute to atmospheric ozone (Morris 1999).

Converting biomass waste into energy is one promising way to sustainably address some of these problems. Use of biomass waste as power plant fuel vastly reduces the smoke and particulate emissions associated with its disposal, and significantly reduces the amounts of CO, NO<sub>x</sub>, and hydrocarbons released to the atmosphere. If non-merchantable forest thinnings were consumed in biomass power boilers instead of open burning, NO<sub>x</sub> emissions could be reduced by 64% and particulate matter could be reduced by 97% (Antares Group, Inc. 2003).

Converting biomass waste into energy would also directly or indirectly address a range of other social, economic and ecological issues associated with forest ecosystems and surrounding communities. Investing time, money and efforts in biomass waste conversion has a high potential for multiple returns for each level of sustainability (economic, ecological, social) relative to original investment, and could also significantly improve utilization of the urban waste stream. Oregon currently produces in excess of 9 million bone dry tons of biomass annually from wildland fuel residues, land clearing waste, sawmill residues, pallets, buildings, yard trimmings, storm damaged vegetation, log yard waste, industrial wood waste, etc.

Potential benefits that could result from developing biomass energy in Oregon include:

- Reduced wildfire risk and severity
- Reduced wildfire suppression costs
- Reduced wildfire-related property damage and losses
- Reduced greenhouse gas emissions
- Improved forest health (increased tree vigor, fewer insect and disease problems)
- Improved water quality
- Improved air quality (less open burning)
- Increased jobs in economically depressed rural areas
- Increased energy independence; less reliance on fossil fuels
- Sustainable wildlife habitat

#### *Biomass energy basics and economic considerations*

In this discussion, biomass refers to trees and woody plants, including bark, limbs, tops, needles leaves, stumps, roots and other woody parts and debris that are by-products of restoration and hazardous fuel reduction treatments, disease and insect infestation management activities, or other management activities that involve removal, manipulation or silvicultural treatment of forests, trees, and woody plants.

Biomass-generated electricity is usually produced by burning biomass in a high pressure boiler to produce steam which turns a turbine connected to a generator. Biomass can be co-fired with coal in existing coal-fired power plants. Green full-tree chips produced from small-diameter ponderosa pine are being co-fired with coal in the Canon City Power Plant in Colorado. Biomass can also be co-fired with natural gas (Prokupets, Mackes and Smith 2002). Biorefineries that could produce electricity, heat, fuels and useful chemicals at one location are being developed, as are smaller mobile biomass units that could power and heat small businesses, rural homes and schools.

The "Fuels for Schools" program is a partnership of USFS Regions 1 and 4, five State Foresters, rural schools, and the Bitterroot Resource Conservation and Development Area operating under USFS State and Private Forestry. USFS grants are defraying most of the costs of installing modern, high tech boiler heating systems in several rural Montana schools that burn chipped small diameter biomass waste from fuel reduction projects. Emissions from these systems compare favorably with natural gas furnaces. The initial investment is high, but cost savings during use can range from 15-20% when replacing natural gas; 40-50% for fuel oil, and even higher when replacing propane or electricity (Fuels for Schools 2004). The Darby school district where the first boiler was completed reports saving \$41,000 in the first year of operation (Lemon 2004). This funding option is not currently available in Oregon, but such projects do appear to be cost effective over time, suggesting that other funding entities may be willing to support them.

Large biomass power plants require emission controls and are expensive to build. Assurance of a long-term, reliable and local fuel supply may be necessary to justify the cost. Currently, the cost to produce electricity from biomass, including recovering initial investment costs of the infrastructure, is higher than its market value. Costs run 8-12 cents/kilowatt hour, while open market revenues run from 4-6 cents/kilowatt hour. However, economic viability of biomass energy production can depend on how costs and benefits are weighed, and in the right situations, biomass power plants are economically viable.

A 53 megawatt plant has operated in northern California since 1988 and provides enough electricity for nearly 50,000 homes (Duncan 2004). However, this operation benefits from a state-mandated payment of 5.37 cents/kilowatt-hour from the utility buying their power. Located near Medford, Oregon, Biomass One is a 25 megawatt, wood waste fired cogeneration plant which annually recovers 355,000 tons of wood waste and converts it into electricity and steam. The steam is sold locally for drying lumber and veneer. All electricity is sold to Pacific Power for distribution to their customers in the Rogue Valley. Using wood waste provided by local citizens and area businesses for fuel, Biomass One produces enough power to satisfy the needs of over 20,000 homes. Currently, it is economical for Biomass One to pay \$25 per bone dry ton and pick up wood waste within a 75-mile radius of their facility (Draper 2004).

According to the Union of Concerned Scientists, extensive subsidies for fossil fuels have created a substantial barrier for biomass energy, and the environmental costs of fossil fuels are not included in their price, so the benefits of biomass are not valued as they should be (Union of Concerned Scientists 2003). If fuel treatments that produce biomass can be shown to significantly reduce the risk of incurring major fire suppression costs and resource and property losses, subsidies to defray upfront costs may be a viable option. Transporting biomass can be costly, but if the material is going to be burned onsite anyway, subsidizing the cost of hauling it to a plant where electricity is generated and smoke emission is controlled may be environmentally and economically justifiable (Duncan 2004).

These considerations suggest that market solutions for biomass electrical generation should continue to be pursued. "Green energy" certification for biomass electricity would help it command a higher price, as demonstrated by the fact that many Oregon rate payers are willing to pay a premium for electricity produced by solar and wind energy. At these higher "green

energy” rates, removal of biomass from the forest and its conversion to electricity may be economically feasible.

#### *Policy context for biomass energy in Oregon*

In early 2004, Governor Kulongoski requested state agencies to develop a Renewable Energy Action Plan to encourage energy production from renewable local sources using a variety of technologies, including burning of biomass from small diameter wood. Renewable resource development may help protect Oregonians from high energy prices, reduce the flow of energy expenditures from the state, and increase investment, businesses and jobs in Oregon. The Renewable Energy Action Plan (2<sup>nd</sup> draft) calls for development of 25 megawatts of biomass fueled electricity generation by the end of 2006 (Oregon Department of Energy 2004). In addition, the ODF and Board of Forestry’s FPFO place great emphasis on comprehensive, integrated, and proactive sustainable efforts and outcomes for Oregon’s forests, communities and citizens.

Utilizing the vast stream of non-merchantable waste produced as the NFP and HFRA projects are implemented has the potential to increase the amount of fuel treatments while producing energy from local sources. Building appropriately scaled biomass energy plants and ensuring a stable supply of fuel for them would directly and concurrently address several of Oregon’s policy goals.

#### *Biomass power marketing challenges and Renewable Resource Standards*

In rural Oregon areas, obtaining long term power sales contracts could pose hurdles to implementing biomass power projects. Local municipal utilities may not be present to purchase base load power, and there are potentially high wheeling costs via utility lines. (Wheeling is a charge for moving electricity over non-federal transmission lines from a generating plant to power customers.) Interconnecting utilities may not be willing to enter into power sales contracts under existing market conditions. (COIC 2002).

Power sales contracts could potentially be obtained with entities that are required to conform to a state or federally mandated Renewable Portfolio Standard (RPS) law, but Oregon currently does not have an RPS law in effect. An RPS ensures that a minimum amount of renewable energy is included in the portfolio of electricity resources serving a state or country, thereby putting utilities on the path towards sustainability. Those familiar with the issues often cite the lack of an RPS standard as a significant barrier to biomass utilization in Oregon. The Renewable Energy Action Plan calls for completion of a feasibility assessment of an RPS for Oregon by the end of 2006 (Oregon Department of Energy 2004).

#### *Interest in biomass energy is growing in Oregon*

The central dilemma that the USFS, BLM, and other agencies face as they focus on reducing excess biomass in Oregon forests is the expense of removing large numbers of small non-merchantable trees and the huge waste streams this would generate. If this waste can be put to

beneficial use as a renewable energy source, fuels treatment projects are much more likely to be implemented.

Articulating and, if possible, quantifying the multiple benefits of investing in biomass energy infrastructure is the key to generating the public and private sector support that will be necessary if it is to succeed. This is challenging because many of the benefits of linking the fuel reduction waste stream with biomass energy consist of hard-to-measure values and un-priced benefits such as reduced fire risk (i.e. the fires and fire-related losses that could be avoided), less exposure to smoke, more fire resilient ecosystems, and a more stable regional energy supply. Another significant challenge is that initial investments required for large-scale fuels treatments and biomass power plants are substantial, but many of the potential benefits accrue indirectly and over extended timeframes. Despite these challenges, the apparent potential for a “win-win” situation that improves forest health, community safety and economic stability (property taxes paid to communities from these facilities and local jobs created), and energy security has resulted in a great deal of interest in pursuing biomass energy in Oregon.

Concurrent with the FFHM Committee’s work, the ODF is currently developing an issue paper including recommendations that address forest biomass waste streams and renewable energy opportunities. The purpose of this document is to develop an understanding within the ODF of issues and current opportunities surrounding management and disposal of the non-marketable waste streams of forest biomass. This report is still in draft form.

The primary FFHM Committee recommendation concerning biomass is to formally organize an hoc group as the *Oregon Biomass Working Group* in cooperation with the Renewable Energy Action Plan working group and empower it to work with local congressional delegates and stakeholders to increase understanding of the multiple social, economic and ecological benefits of utilizing the fuel treatment waste stream for biomass energy production.

## **Biomass Utilization Recommendations**

1. Organize an *Oregon Biomass Working Group* of representatives from all agencies and entities working on biomass issues in Oregon. The group should provide proactive, productive and workable administrative, fiscal, and operational input to the Governor and Legislature through the Renewable Energy Working Group to develop and promote incentives and investments from biomass production and renewable energy processing plants.

Priority: High

Timeline: ASAP

Whose task? ODF/State, other agencies and entities listed below

New authority needed? No

Additional staff and/or funding needed? 1.0 FTE, \$130,000 (Federal grant.)

1. Oregon Dept. of Energy (ODOE)
2. Oregon Dept. of Forestry (ODF)
3. United States Forest Service (USFS)
4. Bureau of Land Management (BLM)
5. Oregon Tribes

6. Oregon Dept. of Environmental Quality (DEQ)
7. Oregon Dept. of Human Services (DHS)
8. State or Oregon University/higher education Systems
9. Oregon Department of State Lands (DSL)
10. Public Utility Commission
11. Oregon Economic and Community Development (OECD)
12. The Nature Conservancy (TNC)
13. Governors Office, Nature Resources Division
14. Bonneville Power
15. Utilities and electrical co-ops
16. Private energy consulting firms
17. Private energy investors/groups
18. Oregon Dept. of Agriculture (DOA)
19. Fuel suppliers/contractors
20. Oregon Environmental Council

2. Review existing political, operational, and fiscal incentives/opportunities in other states, regions and countries for possible adoption in Oregon.

Priority: High

Timeline: June 2005

Whose task? Oregon Biomass Working Group

New authority needed? No

Additional staff and/or funding needed? No

3. Develop training and education materials and conduct tours to educate Oregonians about issues and multiple benefits of biomass waste utilization. Materials should demonstrate the wide range of societal benefits that can directly or indirectly result from biomass production and processing into energy (e.g. healthy forests, improved airsheds and watersheds, reduced CO<sub>2</sub>, job creation, enhanced local economies, energy independence, etc.). Include all forms of media.

Priority: High

Timeline: June 2005

Whose task? Oregon Biomass Working Group

New authority needed? No

Additional staff and/or funding needed? (Included in Recommendation #1.)

4. Assist local governments and communities in seeking funding for feasibility studies for biomass related projects.

Priority: High

Timeline: Ongoing

Whose task? State and federal agencies (ODF/OECD)

New authority needed? No

Additional staff and/or funding needed? (Included in Recommendation #1.)

5. Implement recommendations in the Oregon Biomass Working Group issue identification and strategy paper to guide next steps to increase biomass utilization in Oregon.

Priority: High

Timeline: June 2005

Whose task? May vary

New authority needed? Unknown

Additional staff and/or funding needed? Unknown

## **VI. Statewide Fuels Management Planning in Oregon: Next Steps**

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The magnitude of hazardous fuel accumulations in drier Oregon forests coupled with continuing expansion of urban growth into the surrounding forests suggests that Oregonians will experience uncharacteristic wildfires for years, if not decades to come. Reduction of hazardous fuels therefore will continue to be a priority in the near and long term. A comprehensive statewide fuels management strategy is needed to protect firefighters, citizens, communities, forests, and rangelands from the undesired effects of wildland fire.

Over the long run, investments in fuels treatments and maintenance may be among the most cost effective uses of the state's limited wildfire protection resources. The greatest returns on these investments (social, ecological and economic benefits) will be realized through landscape level coordination of treatment funding, equipment and human resources.

Elements that are recommended for inclusion in a Comprehensive Statewide Fuels Management Strategy are, as a minimum, to be the following:

### ***Statewide Fuels Risk Assessment and Prioritization***

A first step toward a more strategic, landscape level plan and implementation would be for the state, federal, and tribal wildland fire agencies to understand how each has developed their risk assessments and prioritized fuel reduction activities on the lands they are responsible for managing or protecting. Development of a statewide interagency risk assessment and prioritization for treatments and protection are the critical first steps.

### ***Archive, Disseminate and Maintain Wildfire Hazard and Risk Information***

The statewide community wildfire risk assessment (to be completed in fall, 2004) will be used in conjunction with local CWPPs to prioritize fuel reduction projects in WUI. Interagency risk rankings may require a process for integrating community and statewide prioritizations. A statewide fuels management plan should include a strategy for archiving, disseminating and updating risk assessment data as new information becomes available. Wildfire information (e.g., fuels data, treatment records/maps, plant association and vegetation information, wildfire occurrence and intensity, location of structures in WUI areas) could be made available via easy to understand and use internet-based GIS tools. (Such a tool was recently placed in service in California.) The data and website should be maintained via communication and periodic meetings among community planning networks and land management agencies and fuels project administrators. This information would be useful in the development of a fuels treatment maintenance strategy.

### ***Collaborate to Develop and Use Community Wildfire Protection Plans***

Agencies should help communities organize Local Coordination Groups and develop CWPPs consistent with other emergency plans addressing wildfires, such as the FEMA Natural Hazard Mitigation plan, existing land use plans and statewide information standards. Local Coordination Groups should be collaborative and committed to implementing fuel reduction and maintenance projects after CWPPs are in place. The state and federal agency staff role is to act as a resource and support as local communities create and maintain the networks necessary for local collaboration and support. Local level agency personnel have key roles in developing local federal and state priorities, transferring information and technology to local communities, as well

as communicating local perspectives back up to state and federal agencies leaders. State agencies not directly responsible for wildfire protection are encouraged to play a greater role in assisting communities with limited mitigation capacity to become more active in wildfire fuel reduction projects. Federal regulatory agencies should also participate in the development of these plans to ensure implementation and urgency is understood and supported.

The ODF and other agencies should continue to support and promote the Association of Oregon Counties (AOC) and the Association of Oregon and California (O&C) Counties web-based project through which counties can begin a preliminary and rapid risk assessment for a Community Wildfire Protection Plan. The projects documented through this website will aid in obtaining supportive data for the 2006 reauthorization of PL 106-393 Federal Forest Revenue Safety Net legislation. (<http://www.healthyforest.info/cwpp/>)

### ***Citizen/Landowner Responsibility***

Aggressive communication and education with citizens about wildfire and fuel hazards while encouraging landowners to actively reduce the ignitability of their properties should be cornerstones of a fuels strategy for Oregon and CWPPs. People often receive conflicting messages about wildfire protection responsibilities. Agencies should promote a better understanding of wildland fire ecology, fuel buildups, home ignitability, and hazard mitigation as a critical component of achieving local consensus about wildfire fuels management goals and priorities.

### ***Continue to Pursue Opportunities for Biomass Utilization***

Recognition is growing that Oregon's huge supply of excess forest fuels could potentially be utilized in beneficial ways rather than simply cut and/or burned. However, Oregon faces several serious challenges before stakeholders will perceive biomass utilization as economically viable and be willing to invest in the necessary technologies, infrastructure and transportation systems. ODF and other agencies should continue to actively investigate ways to surmount these challenges via cooperative efforts of a Biomass Utilization Working Group to advise state government, recruit investors and educate the public about the many potential environmental and economic benefits associated with biomass utilization.

### ***Continue to Develop and Refine an Integrated Grant Access System***

Efforts to streamline and integrate the solicitation and access process for grant funds are underway and should continue. Ensuring that existing fuel reduction funding resources are available is key to empowering communities to play an active role and assume more responsibility to reduce wildfire fuels. Removing barriers related to complex and hard to understand grant processes would allow greater efficiency and effectiveness in implementing a Comprehensive Statewide Fuels Management Strategy. It would also show commitment on the part of state and federal agencies and provide additional incentives for communities to organize and participate in creating fire resiliency around and within their communities. Also communities need to demonstrate they are maximizing any potential dollars received. Grant requirements should call for communities to show they are working collaboratively, and not competing or duplicating use of funds applied for. This means coordination and collaborative application for funds.

***Conclusion:***

Oregon Department of Forestry is the pivotal state organization to lead the development of a Comprehensive Statewide Fuels Management Strategy. The Department should initiate a forum which brings together all state and federal wildland management and regulatory agencies, tribal government leaders, and county leadership. The initial forum would bring together the many independent fuels planning and fire protection efforts. A Statewide Strategy, with a common mission and vision, will lead to statewide and geographical collaboration that reduces risk from wildland fires to communities, watersheds, and infrastructures, and more importantly, firefighters and citizens. This will also reduce the cost, both fiscal and in loss of resources, of fire suppression actions.

*The FFHM Committee has been challenged by this assignment. We are proud of our collaborated final product in which we have strived to meet the direction and interests of the Steering Committee. Forest Fuels and Hazard Mitigation are complex and long-term issues ripe for collaboration. They are some of the most urgent issues for private landowners, tribal, state and federal government agencies in the State of Oregon to address. The time is now.*

## Glossary of Terms

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**At-Risk Community:** 1. A geographic area of permanent dwellings with basic infrastructure and services, under a common fire protection jurisdiction or government, for which there is a significant threat due to wildfire. 2. An area comprised of where humans and their development meet or intermix with wildland fuel. (HFRA.) 3. A geographic area within and surrounding permanent dwellings with basic infrastructure and services, under a common fire protection jurisdiction or government, for which there is a significant threat due to wildfire. (ODF draft definition.)

In Title I of the HFRA, this term means an area comprised of:

- An interface community as defined in the notice Wildland Urban Interface Communities Within the Vicinity of Federal Lands That Are at High Risk From Wildfire (Federal Register 2001a, b.)
- OR
- A group of homes and other structures with basic infrastructure and services (such as utilities and collectively maintained transportation routes) within or adjacent to federal land
- AND
- In which conditions are conducive to a large-scale wildland fire disturbance event
- AND
- For which a significant threat to human life or property exists as a result of a wildland fire disturbance event. (HFRA Interim Field Guide.)

**Biomass utilization:** The harvest, sale, offer, trade, and/or utilization of trees and woody plants, including limbs, tops, needles, leaves, and other woody parts, grown in a forest, woodland, or rangeland environment, that are the by-products of restoration and hazardous fuel reduction treatments to produce the full range of wood products, including timber, engineered lumber, paper and pulp, furniture and value-added commodities, and bio-energy and/or bio-based products such as plastics, ethanol, and diesel. (USDA and others 2002, Biomass MOU.)

**Community:** A group of people living in the same locality and under the same government.

**Community capacity:** The collective ability of residents in a community to respond to external and internal stresses, to create and take advantage of opportunities, and to meet local needs.

Community capacity in relation to wildfire addresses a community's ability to mitigate wildfire threats, respond to active wildfire, and mitigate post-fire damage. This includes the ability to implement risk-reduction strategies, including hazardous fuels reduction, firefighting, and restoration activities.

**Community Wildfire Protection Plan (CWPP):** In Title I of the HFRA, this term means a plan for an at-risk community that:

- Is developed in the context of the collaborative agreements and the guidance established by the Wildland Fire Leadership Council and agreed to by the applicable local government, local fire department, and State agency responsible for forest management, in consultation with interested parties and the Federal land-management agencies managing land in the vicinity of the at-risk community

- Identifies areas for hazardous-fuel-reduction treatments, sets priorities for treating them, and recommends the types and methods of treatment on Federal and non-Federal land that will protect one or more at-risk communities and their essential infrastructure

AND

- Recommends measures to reduce structural ignitability throughout the at-risk community (HFRA Interim Field Guide.)

A community wildfire planning process provides an opportunity for communities to prioritize for reduction of wildfire threats to the community and individual properties, determine hazard mitigation strategies and implementation measures, and to enhance community protection and mitigation capacity.

**Condition Class 1:** Fire regimes are within a historical range, and the risk of losing key ecosystem components is low. Vegetation attributes (species composition and structure) are intact and functioning within an historical range. (National Fire Plan.)

**Condition Class 2:** Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historical frequencies by one or more return intervals (either increased or decreased). This results in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation attributes have been moderately altered from their historical range. (National Fire Plan.)

**Condition Class 3:** Fire regimes have been significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. This results in dramatic changes to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been significantly altered from their historical range. (National Fire Plan.)

**Creeping fire:** 1. A low intensity fire with a negligible rate of spread. 2. Fire burning with a low flame and spreading slowly. (National Fire Plan.)

**Crown fire:** 1. Fire that has ascended from the ground into the forest canopy. 2. The movement of fire through the crowns of trees or shrubs more or less independently of the surface fire. (National Fire Plan.)

**Crown fuels:** Live and dead material in the canopy of trees.

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

**Fine fuels:** Fast-drying fuels, generally with a comparatively high surface area-to-volume ratio, which are less than ¼-inch in diameter and have a timelag of one hour or less. These fuels readily ignite and are rapidly consumed by fire when dry. (National Fire Plan.)

**Fire frequency:** The return interval of fire. (Agee 1993.)

**Fire break:** A natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work. (National Fire Plan.)

**Fire hazard:** 1. A condition or physical situation with a potential for wildfire. 2. The degree of flammability of the fuels once a fire starts. This includes the fuel (type, arrangement, volume and condition), topography and weather. (Firewise.)

**Fire hazard reduction:** 1. Any treatment of living and dead fuels that reduces the threat of ignition and spread of fire. (Firewise.) 2. Any treatment of a hazard that reduces the threat of ignition and fire intensity or rate of spread. (National Fire Plan.)

**Fire history:** Information on the role, frequency and extent of wildland fire over time.

**Fire intensity:** Heat released per unit length of fireline, during a fire.

*Low intensity*—Average flame length of less than 3 feet.

*Intermediate intensity*—Average flame lengths between 3 and 9 feet.

*High intensity*—Average flame lengths above 9 feet, or flames enter tree crowns extensively, or both.

**Fire prevention:** Education and communication with citizens to inform them of actions they may take to help change behavior and contribute to reducing fire starts and severity.

**Fire protection:** Structural or wildland protection from fire, either mandated by policy or statute. Includes equipment and people usually trained and organized to respond to fires and to provide inspections, education and information to homeowners

**Fire risk:** 1. The probability that damage to life, health, property, and/or the environment will occur as a result of a wildfire hazard or hazards. 2. The chance of a fire starting from any cause. (Firewise.)

**Fire regime:** 1. Characteristic combination of fire frequency, intensity, seasonal timing, and fire size in an ecosystem. 2. Periodicity and pattern of naturally-occurring fires in a particular area or vegetative type, described in terms of frequency, biological severity, and area extent. 3. A generalized description of the role fire plays in an ecosystem. Fire regime is characterized by fire frequency, predictability, seasonality, intensity, duration, scale (patch size), as well as regularity or variability. 4. Describes the patterns of fire occurrence, frequency, size, and severity - and sometimes, vegetation and fire effects as well - in a given area or ecosystem. A fire regime is a generalization based on fire histories at individual sites. Fire regimes can often be described as cycles because some parts of the histories usually get repeated, and the repetitions can be counted and measured, such as fire return interval.

**Fire regime condition class:** A classification of the amount of departure of conditions at a given time period (such as current or future) from the ecological reference conditions. Reference

conditions include the amounts for the 5 characteristic vegetation-fuel classes, the fire frequency, and the fire severity in the absence of modern Euro-American influence for the climate of the period being assessed (such as historic, current, or future). Historical conditions are commonly used as a best estimate for reference conditions. Native American or anthropogenic influences are commonly included. Fire regime condition class is a relatively complete measure of the departure from the natural system. Named “fire regime” because of the keystone nature of fire.

**Fire season:** 1. Period(s) of the year during which wildland fires are likely to occur, spread, and affect resource values sufficient to warrant organized fire management activities. 2. A legally enacted time during which burning activities are regulated by state or local authority. (National Fire Plan.)

**Fire severity:** 1. Damage to ecosystems. Assessed in many ways, such as percentage of trees killed and soil char. (USFS PNW Research Station.) 2. The effect of fire on plants; for trees, often measured as percentage of basal area removed. (Agee 1993.)

**Firewise:** A public education program developed by the National Wildland Fire Coordinating Group that assists communities located in proximity to fire-prone lands. (For additional information visit the Web site at: <http://www.firewise.org>)

**Flame length:** The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface); an indicator of fire intensity. (National Fire Plan.)

**Flash fuels:** Fuels such as grass, leaves, draped pine needles, fern, tree moss and some kinds of slash, that ignite readily and are consumed rapidly when dry. Also called fine fuels. (National Fire Plan.)

**Fuel:** Combustible material. Includes vegetation, such as grass, leaves, ground litter, plants, shrubs and trees that feed a fire. (Also see fine fuels, flash fuels, heavy fuels, surface fuels.)

**Fuel loading:** The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area. (National Fire Plan.)

**Fuels reduction (fuels treatment):** 1. Treatments that reduce overall fuel (living and dead biomass), fuel loading (tons/acre) and fuel spatial arrangement (vertical and horizontal) in forests and rangeland to change wildfire intensity and reduce fire severity. 2. Manipulation, including combustion, or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control. (National Fire Plan.) 3. Reduction of hazardous fuels around individual homes (defensible space) and on private or public land.

**Heavy fuels:** Fuels of large diameter such as snags, logs, large limb wood, that ignite and are consumed more slowly than flash fuels. (National Fire Plan.)

**Historical range of variability (natural range of variability):** 1. The ecological conditions and processes within a specified area, period of time, and climate, and the variation in these

conditions that would occur without substantial influence from mechanized equipment. Provides information on characteristics of the environment that apparently sustained many species, ecological communities and processes. 2. The temporal and spatial distribution of ecological processes and structures prior to European settlement of North America. 3. Variation of physical and biological conditions within an area due to climatic fluctuations and disturbances of wind, fire, and flooding.

**Incentives:** Incentives may be tax-based, grant opportunities for residents, fire districts or community organization, or other measures that increase the likelihood of stakeholder participation in fire risk mitigation. Incentives can be positive (e.g., grants and funding) or negative (e.g., tax or liability; increase in expense for, or loss of insurance coverage).

**Interface community:** Community where structures directly abut wildland fuels. There is a clear line of demarcation between residential, business, and public structures and wildland fuels which do not generally continue into the developed area. Development density is usually 3 or more structures per acre, with shared municipal services. Fire protection is generally provided by a local government fire department with responsibility to protect structures from both interior fires and advancing wildland fires. An alternative definition of the interface community emphasizes a population density of 250 or more people per square mile.

**Intermix community:** Community where structures are scattered throughout a wildland area. There is no clear line of demarcation; wildland fuels are continuous outside of and within the developed area. Development density ranges from structures very close together to one structure per 40 acres. Fire protection districts funded by various taxing authorities normally provide life and property fire protection and may also have wildland fire protection responsibilities. An alternative definition of intermix community emphasizes a population density of between 28-250 people per square mile.

**Ladder fuels:** 1. Fuels that provide vertical continuity allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. Ladder fuels help initiate and assure the continuation of crown fires. (Firewise.)

**Mean fire-return interval:** (Mean fire-free interval; mean fire interval.) Arithmetic average of all fire-return intervals for a specific site over an extended period of time.

**Monitoring:** Assessment of the effectiveness of fuels treatments (the change in conditions and level of risk) the measure of benefit derived from the investment over time, and a mechanism for ensuring that objectives were met.

**Multiparty monitoring:** In general, state and federal agencies will monitor the results of fuels reduction projects. But under HFRA, where a community shows significant interest the agency must establish a multiparty monitoring, evaluation, and accountability process in order to assess the ecological and social effects of the projects.

**Municipal watershed:** A community water system “that serves at least 15 service connections used by year-round residents of the area served by the system; or regularly serves at least 25 year

round residents” (Safe Drinking Water Act, Section 1401, 42 U.S.C.A. 300f (15) in HFI/HFRA Interim Field Guide.)

**Occluded community:** Community, often within a city, where structures abut an island of wildland fuels, e.g. park or open space.

**Plant association:** The basic abstract unit in the classification of potential vegetation, described by overstory/understory indicator species. (Agee 1993.)

**Plant community:** An assemblage of plant species that occur widely enough across the landscape to be recognized as a unit; this assemblage can be a pioneer group of species, a late successional group, or a combination of both. (Agee 1993.)

**Preparedness:** Condition or degree of being ready to cope with a potential fire situation. (National Fire Plan.)

**Prescribed burning:** Controlled application of fire to wildland fuels in either their natural or modified state, under specified environmental conditions, which allows the fire to be confined to a predetermined area, and to produce the fire behavior and fire characteristics required to attain planned fire treatment and resource management objectives. (Firewise.)

**Prescribed fire:** 1. A fire burning within prescription. This fire may result from either planned or unplanned ignitions. (Firewise.) 2. Any fire ignited by management actions under certain, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition. (National Fire Plan.) 3. A fire ignited under known conditions of fuel, weather, and topography to achieve specified objectives. (Agee 1993.)

**Prescribed natural fire:** A fire ignited by natural processes (usually lightning) and allowed to burn within specified parameters of fuels, weather, and topography to achieve specified objectives. (Agee 1993.)

**Prescription:** Measurable criteria that define conditions under which a prescribed fire may be ignited, guide selection of appropriate management responses, and indicate other required actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations. (National Fire Plan.)

**Prevention:** Activities directed at reducing the incidence of fires, including public education, law enforcement, one on one conversations, and reduction of fuel hazards.

**Risk assessment:** Assessment of wildfire risk, hazard, values, and protection capabilities within a community, watershed or other defined geographic area. The assessment will illustrate the potential loss of life, property or natural resources that may be a result of these combined factors.

**Rural community:** An unincorporated community which consists primarily of permanent residential dwellings but also has at least two other land uses that provide commercial, industrial,

or public uses (including but not limited to schools, churches, grange halls, post offices) to the community, the surrounding rural area, or to persons traveling through the area. (Oregon Land Conservation and Development Commission.)

**Rural fire district:** (RFD) An organization established to provide fire protection to a designated geographic area outside of areas under municipal fire protection. Usually has some taxing authority and officials may be appointed or elected. (Firewise.)

**Slash:** Debris left after logging, pruning, thinning or brush cutting; includes logs, chips, bark, branches, stumps and broken understory trees or brush. (National Fire Plan.)

**Stakeholder:** A person with an interest or concern in something. A stakeholder group means a group with an interest or concern in something. (Oxford New American Dictionary.)

**Structure:** A permanently sited building, a manufactured home, or a mobile home that is either a dwelling or an accessory building, which occupies at least 500 square feet of ground space, and which has at least one side that is fully covered. (Oregon Department of Forestry.)

**Surface fire:** A fire burning along the surface without significant movement into the understory or overstory, usually below 1-m flame length. (Agee 1993.)

**Surface fuels:** 1. Fuels lying on or near the surface of the ground, consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, and low stature living plants. (Fire wise.) 2. Loose surface litter on the soil surface, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches that have not yet decayed enough to lose their identity; also grasses, forbs, low and medium shrubs, tree seedlings, heavier branchwood, downed logs, and stumps interspersed with or partially replacing the litter. (National Fire Plan.)

**Underburn:** A fire that consumes surface fuels but not trees or shrubs. (National Fire Plan.)

**Understory:** Low-growing vegetation (herbaceous, brush or tree reproduction) growing under a stand of trees. Also, that portion of trees in a forest stand below the overstory. (Firewise.)

**Understory fire:** A fire burning in the understory, more intense than a surface fire with flame lengths of 1 to 3 m. (Agee 1993.)

**Wildland:** An area in which development is essentially non-existent, except for roads, railroads, power lines, and similar transportation facilities. Structures, if any, are widely scattered. (Firewise.)

**Wildland fire/wildfire:** 1. Any nonstructure fire, other than prescribed fire, that occurs in the wildland. 2. A human-caused or natural fire that is not meeting land management objectives. (Agee 1993.)

**Wildland fire protection:** The protection of natural resources and watersheds from damage by wildland fires. State protection and Federal forestry or land management agencies normally

provide wildland fire protection with trained and equipped personnel. (The equipment and training required to conduct wildland fire protection is not normally provided to the structural fire protection firefighter.) Various taxing authorities and fees fund this service. (Firewise.)

**Wildland-urban interface (WUI):** 1. Any area where wildland fuels threaten to ignite combustible homes and structures. (Firewise.) 2. The line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Three categories: Interface Community, Intermix Community, and Occluded Community. 3. WUI includes those areas of resident populations at imminent risk from wildfire, and human developments having special significance. These areas may include critical communications sites, municipal watersheds, high voltage transmission lines, observatories, church camps, scout camps, research facilities, and other structures that if destroyed by fire, would result in hardship to communities. These areas encompass not only the sites themselves, but also the continuous slopes and fuels that lead directly to the sites, regardless of the distance involved. (USDA Forest Service Southwestern Region.)

4. WUI definition under the Healthy Forest Restoration Act (HFRA): The HFRA defers to a community's definition of its WUI, if the community has done this work. The WUI may include municipal watersheds and other specific areas of special significance such as communications sites, high voltage transmission lines, church camps, scout camps, research facilities and other structures that if destroyed by fire would result in hardship to communities, as well as adjacent slopes and fuels. In the absence of a community definition, HFRA defines the WUI as extending ½ mile from community boundaries, or 1½ miles when mitigating circumstances exist, such as sustained steep slopes or geographic features aiding in creating a fire break. HFRA also allows inclusion of areas adjacent to evacuation routes for at-risk communities that require fuel reduction to provide safer evacuation in the event of a wildfire.

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## List of Acronyms

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BCEGS- Building Code Effectiveness Grading Schedule  
BIA- (United States Department of Interior) Bureau of Indian Affairs  
BLM- (United States Department of Interior) Bureau of Land Management  
BOF- (Oregon) Board of Forestry  
CWPP- Community Wildfire Protection Plan  
DBH- Diameter (at) breast height  
DEM- Digital Elevation Map  
DEQ- (Oregon) Department of Environmental Quality  
DLCD-(Oregon) Department of Land Conservation and Development  
DF - District Forester  
DOI-Department of Interior  
FEMA- Federal Emergency Management Agency  
FLEP- Forest Land Enhancement Program  
FRT- (Oregon) Forest Resource Trust  
FVS- Forest Vegetation Simulator  
FY- Fiscal Year  
GIS- Geographic Information Systems  
HFRA- Healthy Forests Restoration Act  
HFI- Healthy Forests Initiative  
IUWIC- International Urban-Wildland Interface Code  
ISO- Insurance Services Office  
MOI-Memorandum of Understanding  
NASF- National Association of State Foresters  
NGO- Nongovernmental organization  
NFIRS- National Fire Incident Reporting System  
NFP- National Fire Plan  
NFPA- National Fire Protection Association  
NIPF- Non-industrial private forest  
NPS- National Park Service  
NRCS- Natural Resources Conservation Service  
ODF- Oregon Department of Forestry  
OECD- Oregon Economic and Community Development Department  
OEM- Oregon Emergency Management  
ORDC- Oregon Rural Development Council  
OSFM- Oregon State Fire Marshal  
PNWCG- (National Fire Plan) Pacific Northwest Coordinating Group  
PPC- Public Protection Classification

RAC- Resource Advisory Committee  
RAMS- (BLM) Risk Assessment Mitigation Strategy  
RFA- Rural Fire Assistance  
RFD- Rural Fire Department  
RFPD- Rural Fire Protection District  
SDM- Small diameter material  
SFA- State Fire Assistance  
USDI- United States Department of Interior  
USDA- United States Department of Agriculture  
USFS- United States (Department of Agriculture) Forest Service  
USFWS- United States (Department of Interior) Fish and Wildlife Service  
VFD- Volunteer Fire Department  
WFLC- Wildland Fire Leadership Council (National Fire Plan)  
WGA- Western Governor's Association  
WSFM- Western States Fire Managers  
WUI- Wildland Urban Interface

(Placeholder for Cooperator Logos)

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# ***Guidebook* for Creating Community Wildfire Protection Plans**

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This information will aid communities and agencies in the development of a Community Wildfire Protection Plan that will serve as a resource to enhance community safety through hazard and risk reduction in the wildland urban interface.

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## Introduction

### Mission

Oregon Department of Forestry is dedicated to the development of strategic Community Wildfire Protection Plans (CWPP) for implementation of the National Fire Plan and Healthy Forest Restoration Act in a streamlined "one-stop-shopping" process. ODF strives to assist local communities in taking a lead in fire planning efforts. This is done by creating guidance for basic fire planning, identifying access to information and necessary tools, and providing service and support needed for a successful plan. It is important to include full stakeholder participation, coordination, project identification, prioritization, funding review and multi-agency cooperation. Every citizen has a responsibility for fire safety while creating local grassroots' community buy-in, allowing for a sense of ownership and empowerment for the community.

This document includes:

- Historical wildfire data pertaining to the wildland-urban interface for Oregon
- A framework for communities to use in order to complete the plan
- Risk Assessment tools needed to determine high-risk areas
- Websites that contain background information regarding the need of a CWPP
- Websites that educate the landowner on what they can do to mitigate hazards contributing to wildfire on their property.

## Wildland-Urban Interface Fire Loss in Oregon<sup>1</sup>

Wildland fires are a common and widespread natural hazard in Oregon; the state has a long and extensive history of wildfire. Significant portions of Oregon's wildlands and areas adjacent to rural communities are dominated by ecosystems dependent upon fire for their health and survival.

Oregon has more than 41 million acres (more than 64,000 square miles) of forest and rangeland that are susceptible to wildfire. In addition, significant agricultural areas of the Willamette Valley, north central, and northeastern Oregon grow crops, such as wheat, that are prone to wildfire damage. Communities are also at risk. According to a listing in the 2001 *Federal Register*, 367 Oregon communities are at risk of damage from wildfire. (<http://www.fireplan.gov/reports/351-358-en.pdf>)

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<sup>1</sup> State of Oregon *Emergency Management Plan, Natural Hazards Mitigation Plan, Fire Chapter, December 2003*

The majority of wildfires occur between June and October. However, wildfires can occur at other times of the year, when weather and fuel conditions combine to allow ignition and spread. Seventy percent of Oregon's wildland fires result from human activity. The remaining thirty percent result from lightning, occurring most frequently in eastern and southern Oregon.

The financial and social costs of wildfires demonstrate the need to reduce their impact on lives and property, as well as the short and long-term economic and environmental consequences of large-scale fires. Cost savings can be realized through preparedness and risk reduction including a coordinated effort of planning for fire protection and implementing activities among local, state, and federal agencies, the private sector, and community organizations. Individual property owners have a major role to play in this coordinated effort, especially in wildland interface areas.

The wildland-urban interface (WUI) is the area or zone where structures and other human development meet or intermingle with wildland or vegetative fuels. As more people have moved into wildland urban interface areas, whether for lifestyle or economic reasons, the number of large wildfires affecting homes has escalated dramatically. Many in the population migrating to rural Oregon from urban areas took with them an expectation of structural fire protection similar to high-density areas they were leaving. Rural fire departments combined with local mutual aid agreements and finally the Conflagration Act attempt to fulfill these expectations, but many homes are still located within areas with little or no structural fire protection.

Recent fire seasons bring the wildland interface problem to the forefront and the problem of overabundant dense forest fuels is a focus of public discussion. The forest fuels issue is a major, continuing problem that has received presidential level attention. Work is underway to reduce fuels in WUI areas by way of community involvement and funding from *National Fire Plan*. (<http://www.nwfireplan.gov>) National Fire Plan goals are:

- Ensure sufficient firefighting resources for the future;
- Rehabilitate and restore fire-damaged ecosystems;
- Reduce fuels (combustible forest materials) in forests and rangelands at risk, especially near communities; and
- Work with local residents to reduce fire risk and improve fire protection.

Community Assistance grants and other grant opportunities are available through *National Fire Plan* (NFP) to aid in achieving these goals. The goals aim high. They represent a huge amount of work, and their ultimate success will depend on concerned individuals, agencies, and organizations joining forces. No agency or group working alone can achieve NFP's goals. (<http://www.fireplan.gov/content/home>)

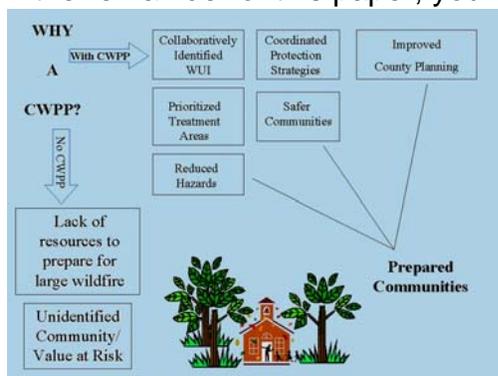
# CWPP Development

## Preparing a Community Wildfire Protection Plan <sup>2</sup>

Both the *National Fire Plan*, and the *Ten-Year Comprehensive Strategy for Reducing Wildland Fire Risks to Communities and the Environment* (<http://www.fireplan.gov/reports/7-19-en.pdf>) place a priority on working collaboratively within communities in the WUI to reduce their risk from large-scale wildfire. The incentive for communities to engage in comprehensive forest planning and prioritization was given new momentum with the enactment of the *Healthy Forests Restoration Act* (HFRA) in 2003. (<http://www.whitehouse.gov/infocus/healthyforests/toc.html>) The language in HFRA provides maximum flexibility for communities to determine the substance and detail of their plans and the procedures they use to develop them. HFRA emphasizes the need for federal agencies to work collaboratively with communities in developing hazardous fuel reduction projects, and it places priority on treatment areas identified by communities themselves in a community fire plan. Couple this with the direction by NFP and the Ten-Year Strategy, which also states that collaboration and prioritization of projects by a community is essential, one can see how important preparing a plan is.

Other constraints on local government, such as FEMA direction to prepare county hazard mitigation plans (<http://www.fema.gov/fima/planning10.shtm>), and implementation of SB 360 ([http://www.odf.state.or.us/DIVISIONS/protection/fire\\_protection/prev/sb360/docs/overview.pdf](http://www.odf.state.or.us/DIVISIONS/protection/fire_protection/prev/sb360/docs/overview.pdf)), has made it very important that local government also participate in the development and implementation of a community wildfire protection plan.

In the remainder of this paper, you will find a discussion on establishing a committee for a CWPP and a guiding framework that captures all requirements of a CWPP (NFP, Ten-Year Strategy, HFRA, FEMA Disaster Mitigation, and development of data for implementation of SB 360). Also, visiting the websites mentioned above and using local knowledge of the community will aid in the completion of the plan.



## Establishing a Committee to Develop the Plan

The committee charged with developing the CWPP should consist of representation from local government, local fire authorities, and the state agencies responsible for

<sup>2</sup> <http://www.communitiescommittee.org/pdfs/cwpphandbook.pdf>

forest management in that community. Also, part of the committee should contain tribal representation, representation from key landowners, both private and industrial, community-based groups, resource advisory councils, watershed councils, and any other collaborative entities that make up the community. Core group size is dependent upon interest, however too many people on a committee tasked with the development of such a plan could hinder the process. At that time, the core group should develop a list of resource advisors that could comment on the progress of the group and on the draft document of the plan.

## Collaboration

The purpose of collaboration is to accomplish shared goals and objectives, and build a system that will address issues and opportunities. Consensus is used in shared decision making and leadership, trust, and productivity should be highly important. A Community Wildfire Protection Plan that involves multi-party collaboration between local government, the fire district(s), and Oregon Department of Forestry, landowners and stakeholders, along with federal land management agencies is key to the plan's success. This call for collaboration enhances meaningful partnerships between agencies, organizations, and the public. A strong collaborative process begins with the development of a common understanding of program goals and mutual objectives. A collaborative process requires significant investment of time and energy by a range of partners, but its benefits can greatly exceed the costs.

The plan relies on how well the committee can effectively involve a broad range of participants and how well the plan addresses the concerns of the participants. A minimum of three entities must agree to the final contents of a CWPP. Those three entities are:

- The applicable local government (i.e., counties or cities);
- The local fire departments (can be a representative of those fire departments---most likely the county fire chief); and
- A local representative from Oregon Department of Forestry---usually the District Forester.

The opportunity to coordinate at a local or regional level is unique for this type of a plan. A committee may decide that agreement of the contents of the plan should involve other entities as well. That will be up to the local government that has established the committee charged with the developing the plan, however federal agencies should serve as technical advisors.

There are three levels of partners to consider when identifying whom you might involve in a collaborative planning event. The first is federal. Federal partners include the Forest Service, the Bureau of Land Management, the National Park Service, Fish and Wildlife Service, NOAA Fisheries, and Bureau of Indian Affairs. The second, state partners, include the Oregon Department of Forestry, Land Grant University Extension Services, Oregon Economic Development Department, Counties – in particular fire districts and planning departments. And third, private partners, which are many and assist in

developing information and abilities to either write or implement plans. Good sources for help in the Pacific Northwest are the Community Forest Practitioner Network, Society of American Foresters, Sustainable Northwest, Insurance companies, and local Chambers of Commerce.

## Community Outreach

It is important that the committee decide on a schedule of community meetings to garner public input on the plan as well as support for the implementation of the plan (hence, the term "community" in Community Wildfire Protection Plan). The CWPP will not be worth the paper it is written on if the community does not become involved in the development or implementation of the goals and objectives in the plan. The community can be the best source of information and every attempt should be made to gain the involvement of the community. Because the CFP is not a regulatory document, it is also important that the community view the plan as valuable to public safety and as a resource to mitigating hazards from the risk of wildfire.

## Framework for a Community Wildfire Protection Plan

This outline provides a framework for the elements for a CWPP and a process for facilitating the development of the plan. The Program for Watershed and Community Health created this framework as part of the development of an integrated fire plan for Josephine County, an ongoing effort involving the County, public agencies and the fire protection districts. The framework addresses elements of fire protection and focuses on engaging the fire protection districts to identify and address the needs of the many diverse communities, neighborhoods, and individuals at risk from fire. This process is also intended to help develop a fire plan that meets requirements and guidelines of federal grants programs such as the Federal Emergency Management Agency Pre-Disaster Mitigation program and the National Fire Plan.

Throughout the process, there is an opportunity for community participation to collect information about fire risk, hold planning and outreach meetings, and increase public awareness and education. There are many sources for data collection and each community will be unique in where this information can be found. We highly recommend using or creating the best available information or developing an action item to improve your data. It is important not to become hung up on having "perfect" information and instead focus on utilizing existing resources and capabilities. For the purposes of this table, a community can include citizens, towns, cities, counties, Tribes, or other government agencies involved in fire planning.

Another important aspect of community fire planning is ensuring that all members of the population are included when assessing risk, identifying measures to reduce risk and implementing actions. In many rural communities, there is no government body, special district, or advocate to ensure protection for all citizens. Community Wildfire Protection

Plans should specifically identify and plan for unprotected structures and/or wildland, and can address the needs of low-income, elderly, disabled and other citizens with special needs.

**Table 1. Community Wildfire Protection Plan Framework**

Chapter	Elements	Source	Progress
Executive Summary	Goals and objectives	Community	
	Methodology	Community	
	Action Plan	Community	
Introduction	Background and History <ul style="list-style-type: none"> <li>History of fire occurrences/community impacts</li> <li>Activities for community fire protection</li> </ul>	Community	
	Planning Area Boundaries <ul style="list-style-type: none"> <li>Communities and neighborhoods, fire districts, unprotected areas, etc.</li> </ul>	Community	
	Definitions and Descriptions	Agencies & Community	
	Fire Policies and Programs <ul style="list-style-type: none"> <li>Healthy Forests Restoration Act (HFRA)</li> <li>National Fire Plan (NFP)</li> <li>Federal Emergency Management Agency (FEMA)</li> <li>Oregon Senate Bill 360</li> </ul>	Agencies & Commissioners	
Planning Process	Description of Partners and Committees	Community	
	Description of Community Fire Committee	Community	
	Collaboration and Community Outreach <ul style="list-style-type: none"> <li>Description of community meetings &amp; community, social service, &amp; agency stakeholders</li> <li>Documentation of community meetings</li> </ul>	Community	
	Review of community studies and reports <ul style="list-style-type: none"> <li>Planning, land use, visioning, fire</li> <li>List the information needed -- Gaps in data sets</li> </ul>	Agencies, Commissioners, others	
Chapter	Elements	Source	Progress
Community Profile	<ul style="list-style-type: none"> <li>Environment and Natural Resources</li> <li>Population, demographics, socio-economic data</li> <li>Housing and development trends</li> <li>Transportation, infrastructure, land use</li> <li>Insurance Services Office Fire Hazard Rating and local insurance information.</li> </ul>	Community	
Wildfire Risk Assessment	<b>Fire Hazard</b> (Vegetation, slope) <ul style="list-style-type: none"> <li>Description of community fire conditions, history of fire within the community, seasonal weather patterns affecting fire behavior.</li> </ul>	Agencies	
	<b>Fire Risk</b> (occurrence/ignition) <ul style="list-style-type: none"> <li>Lightning caused</li> <li>Human caused</li> </ul>	Agencies	
	<b>Protection Capabilities</b> , i.e. Infrastructure, road systems, hydrants, firefighters (remember to be realistic – what are the true capabilities)	Community	

	<p><b>Structural Vulnerability</b></p> <ul style="list-style-type: none"> <li>• Roof Type</li> <li>• Access</li> <li>• Defensible Space</li> </ul>	Community	
	<p><b>Values</b> (Number of lives at risk - residential density)</p> <ul style="list-style-type: none"> <li>• Economic values (business, industry)</li> <li>• Ecological values (Biological diversity, habitat, T&amp;E, Endemic Species, soil, air, water quality, and ecosystem health)</li> <li>• Social values (Home and property, view, livestock/pets, livelihood, cultural, historical sites and features)</li> </ul>	Community	
Emergency Management	<p><b>Protection Capabilities &amp; Infrastructure Protection</b></p> <ul style="list-style-type: none"> <li>• Inventory of fire protection resources</li> <li>• Wildland suppression procedures</li> <li>• Training resources and needs</li> <li>• Mutual aid agreements</li> <li>• Evacuation Procedures</li> <li>• Telephone trees, emergency contacts, community information database</li> <li>• Fire District Capabilities</li> </ul> <p>Next Steps (Needs and Recommendations)</p> <ul style="list-style-type: none"> <li>• <b>Identify strategies to reduce structural ignitability – HFRA/NFP</b></li> </ul>	Community/County Emergency Operations Plan	
Mitigation Action Plan	Current Projects and Policies (i.e. ordinances, policies)	Agencies	
	Community strategy for risk reduction	Community	
	<p><b>Fuels Reduction</b></p> <ul style="list-style-type: none"> <li>• Community partners</li> <li>• Description and educational materials</li> <li>• Current activities</li> <li>• Recommended Actions</li> <li>• <b>Identify and prioritize areas for hazardous fuels treatments and methods to be used –HFRA/NFP</b></li> </ul>	Community & Agencies	
	<p><b>Biomass Utilization and Economic Development</b></p> <ul style="list-style-type: none"> <li>• Community partners</li> <li>• Description and educational materials</li> <li>• Current activities</li> <li>• Recommended Actions</li> </ul>	Community/Region	
<b>Chapter</b>	<b>Elements</b>	<b>Source</b>	<b>Progress</b>
Mitigation Action Plan (continued)	<p><b>Education and Community Outreach</b></p> <ul style="list-style-type: none"> <li>• Population/audiences</li> <li>• Resources</li> <li>• Evacuation Plan</li> <li>• Current activities</li> <li>• Recommended Actions</li> </ul>	Community	
Monitoring and Evaluation	Prioritization Process/Coordination	Community	
	Plan Adoption & Community Celebration	Community	

	<b>Implementation</b> <ul style="list-style-type: none"> <li>• Timeline for project implementation, monitoring and evaluation</li> <li>• Interagency collaboration, cooperative agreements, and public/private partnerships</li> <li>• Identify funding for recommendations</li> <li>• Measures to sustain activity and public involvement within the fire plan</li> </ul>	Community, Agencies & others	
	<b>Monitoring</b> <ul style="list-style-type: none"> <li>• Multi-party monitoring</li> <li>• Description of benchmarks and how they are met</li> <li>• Annual updates of progress</li> <li>• Plan for updating and continued community involvement</li> </ul>	Community & Agencies	
	<b>Evaluation</b> <ul style="list-style-type: none"> <li>• Lessons learned</li> <li>• Measure progress using benchmarks and indicators</li> <li>• Revise and update with new information and needs</li> </ul>	Community & Agencies	
Appendices	Notes from public meetings	Community	
	Glossary/Acronym List	Agencies	
	Bibliography	Community and Agencies	
	Prevention Education Materials List	Agencies, Local Government	
	Funding and resources	Community and Agencies	
	Maps	Community, Local Government and Agencies	

## Process for Developing a Community Wildfire Protection Plan

A CWPP can be as simple or as complex as a community wants to make it. Remembering that this document should serve as a dynamic, working document will help the community focus on what it is they want to get out of the plan. Minimum requirements for a CWPP are: 1) the plan is collaboratively developed by local and state government representatives, with federal agencies and other interested parties acting as technical consultants; 2) risk assessment needs completed (discussed later in this document) on fire occurrence/fire hazards, as well as an assessment of structural ignitability; 3) a section of the plan needs to be devoted to how a community is going to handle the structural ignitability component of the assessment and how a community is going to address identifying and prioritizing areas for hazardous fuel reduction treatments; 4) contain recommendations for the types and methods of treatments that will protect one or more at-risk communities and essential infrastructure.<sup>3</sup>

Table 2 illustrates a process for developing a CWPP. The process provides steps for community organizing, gathering information and identifying priorities for action. This

<sup>3</sup> <http://www.communitiescommittee.org/pdfs/cwpphandbook.pdf>

process can result in increased capacity within a community to reduce risk from wildfire. These tasks may vary depending on the resources within a community and build off information being developed through other county, state or federal fire plans and projects.

**Table 2. Community Wildfire Protection Planning Process**

Activity	Tasks	Timeline	Resources Needed
1. Establish a Community Wildfire Committee	1.1. Identify diverse community and agency representatives for the project steering committee.		
	1.2. Establish roles and responsibilities		
	1.3. Review/modify community fire plan outline		
	1.4. Identify communities and neighborhoods within Fire District/planning area boundaries		
	1.5. Identify volunteers in each of the communities/neighborhoods to help with the community fire plan		
	1.6. Develop a timeline for steering committee meetings and public outreach process		
	1.7. Develop system to monitor project timeline, tasks, products, and budget		
2. Identify Goals and Objectives	2.1. Facilitate a session with the steering committee to identify community fire plan goals and objectives		
	2.2. Develop community organizational charts to illustrate organizations and local, state, and federal agencies that participate in various elements of fire protection.		
	2.3. Organize a public meeting to present goals and objectives to community stakeholders and provide project information.		
3. Gather Information on Wildfire Programs	3.1. Coordinate with the County and project subcommittees to present information on fuels reduction and fire protection projects to steering committee		
	3.2. Identify other fire-related projects within the community that have not been identified elsewhere		
4. Review Fire District Capabilities and Household Needs	4.1. Develop an inventory of resources (e.g., staff and volunteers), equipment, service boundaries, revenue and other resources		
	4.2. Gather data on household accessibility, notification, evacuation routes, special needs, household preparedness, as well as homeowners insurance.		
5. Conduct community meetings	5.1. Organize community/neighborhood meetings		
	5.2. Schedule location and identify logistical tasks		
	5.3. Work with volunteers to conduct community outreach and notify public about the meetings		
	5.4. Coordinate with County to use wildfire risk assessment maps and other background materials for meetings		
	5.5. Coordinate with County to assist w/ meeting facilitation		
<b>Activity</b>	<b>Tasks</b>	<b>Timeline</b>	<b>Resources Needed</b>

6. Identify and Prioritize Activities	6.1. Facilitate committee meeting to reflect on community input. Also, review actions outlined in the CFP.		
	6.2. Identify community needs and potential activities to address those needs		
	6.3 Organize a second public meeting to identify priority activities and strategies for implementation.		
7. Draft the Community Fire Plan	7.1. Document all planning activities, needs, resources, and recommendations		
	7.2. Provide the public with an opportunity to comment on the fire plan and recommended actions		
	7.3. Submit the draft community fire plan to the County		
8. Implement, Monitor and Evaluate	8.1. Develop strategies to prioritize, implement, monitor and evaluate the community fire plan		
	8.2. Provide continued public involvement opportunities throughout implementation of fire plan activities.		
	8.3. Identify potential sources of funding for plan/activity implementation		

## Risk Assessment<sup>4</sup>

Oregon Department of Forestry agrees that standards need to be established that provide for uniform identification and prioritization of communities at risk. It is important to include information from all lands and ownerships, use a collaborative process that is consistent with the complexity of land ownership patterns, resource management issues, and the number of interested stakeholders, as well as set priorities by identifying high risk/high hazard areas for future projects and ranking those projects in priority order. The *Field Guidance* document prepared by the National Association of State Foresters (<http://www.stateforesters.org/reports/COMMUNITIESATRISKFG.pdf>) discusses how to identify communities at risk. In addition, Oregon Department of Forestry is complementing the *Field Guidance* document with more information that pertains specifically to Oregon. It will include a scoring system for a low, medium, and high ranking of individual components for assessing risk and hazard.

Insert Jim's Concept for Identifying and Assessment of Communities at Risk in Oregon here. We will have to wait for the finalization of the document.

Another tool that can be used for risk assessment comes from the Association of Oregon Counties. They offer a Rapid Assessment System that county governments can take advantage of. This tool serves as a first step to take in risk assessment. It does not replace the risk assessment done using the standard mentioned above. To learn more, visit Healthy Forest at <http://www.healthyforest.info>.

<sup>4</sup> <http://www.stateforesters.org/reports/COMMUNITIESATRISKFG.pdf>

## Prevention Education

It is important to emphasize the prevention message that the committee would like to convey to local citizens. Key concepts that need addressed are "structural vulnerability" and "structural ignitability". *Firewise*, a national prevention program, stresses the importance of eliminating structural vulnerability and ignitability to a wildfire by eliminating the hazards around the structure that might start or encourage the spread of a wildfire. To do this, a homeowner must pay attention to the construction of the home, landscape around the home, and the design and maintenance of the landscape. To learn more, visit the Firewise website at <http://www.firewise.org>. The website is full of information regarding workshops, resources to reference, and an on-line catalog. The website assists whole communities to become firewise.

Another prevention program that guides homeowners step by step through the

*Structural Ignitability* - a term that relates to the cause of a home igniting during a wildfire. Examples are rating given to the building materials used for the

*Structural Vulnerability* - a term that relates factors contributing to how and why a home is vulnerable to wildfire. Examples of factors that would make homes vulnerable in a wildfire event are access to the home, ladder fuels and vegetation within the landscape of

process of eliminating hazards around their home is *Living with Fire*. This is a newspaper publication that was initiated by the University of Nevada, Reno (Cooperative Extension and Agricultural Experiment Station) and the Sierra Front Wildfire Cooperators. The Pacific Northwest Prevention

Working Team for the Pacific Northwest Wildfire Coordinating Group reviewed and modified it for use throughout the Northwest. It is available as a *pdf* file and can be downloaded at no cost. Visit <http://www.or.blm.gov/nwfire/docs/Livingwithfire.pdf>.

Other programs, such as *FireFree* (<http://www.dcrfpd2.com/ffreenew/index2a.htm>) and *I'm Concerned..* (<http://www.or.blm.gov/nwfire>) are also used.

## Maintenance, Monitoring and Evaluation

Fuels reduction projects across Oregon are taking place to help protect communities from large wildfire events. Maintaining those landscapes over time should be a goal of a community wildfire protection plan. Fitzgerald and Martin explain prioritization for retreatment depends on past treatment level, plant association, and desired fire behavior as the most meaningful parameters for prioritizing re-treatment. Of course, strategic location (i.e., WUI) of treated areas must also be considered in the prioritization process because it is an element of risk (the potential loss of structures).<sup>5</sup>

<sup>5</sup> "A Conceptual Approach for a Maintenance Strategy for Fuel Treatments in Oregon: Maintaining the Investment" by Stephen Fitzgerald and Charlie Martin

Monitoring and evaluation of goals set in a community wildfire protection plan need to be scheduled. It is recommended that the core group reconvene at least annually to review the benchmarks that were set during the development of the plan. By reconvening the core group that developed the plan, multi-party monitoring of the plan will be satisfied. Also, a formal agreement should be in place as to how accomplishments and updates to the plan will be recorded. The updates will reflect the progress of the plan.

## Grant Opportunities

Once a community wildfire protection plan is in place, finding funds to complete projects within the scope of the plan can be overwhelming. Oregon Department of Forestry has a comprehensive list of grant offerings that may lead to funding of appropriate projects listed in a community wildfire protection plan. Contact your local Oregon Department of Forestry office for a list of those grants or visit this link (to be inserted when guidebook is finalized).

## Appendix B: Rural Resources in Oregon

The FFHM Committee identified agencies and NGO's that can help communities increase their capacity to mitigate wildfire hazards and risks, and could potentially be incorporated into a communications plan. The organizations listed below have resources (technical assistance, training, funding, etc.) for rural Oregon. This list, while comprehensive, is not exhaustive. *(List provided in part by the Oregon Rural Development Council)*

### Oregon State Agencies

Agency	Web site	Role	Population Served	Lead/resources
Children/Families Commission	<a href="http://www.ccf.state.or.us/">http://www.ccf.state.or.us/</a>			
Dept. of Land Conservation & Development	<a href="http://www.lcd.state.or.us/">http://www.lcd.state.or.us/</a>			Lane Shetterly, Director, (503) 373-0050
Department of Environmental Quality	<a href="http://www.deq.state.or.us/">http://www.deq.state.or.us/</a>			Stephanie Hallock, Director (503) 229-5696
Disabilities Commission	<a href="http://www.odc.state.or.us/">http://www.odc.state.or.us/</a>			
Human Services Department	<a href="http://www.dhs.state.or.us/">http://www.dhs.state.or.us/</a>			
Governor's Economic Revitalization Team	<a href="http://www.gert.oregon.gov/">http://www.gert.oregon.gov/</a>			Ray Naff, Director (503) 378-3072
Housing and Community Services	<a href="http://www.hcs.state.or.us/">http://www.hcs.state.or.us/</a>			
Oregon Department of Agriculture	<a href="http://www.oda.state.or.us/">http://www.oda.state.or.us/</a>			
Oregon Department of Forestry	<a href="http://www.odf.state.or.us">http://www.odf.state.or.us</a>			Marvin Brown, State Forester (503) 945-7211
Oregon Economic and Community Development	<a href="http://www.econ.state.or.us">http://www.econ.state.or.us</a>			Marty Brantley, Director 503-986-0123
Oregon Office of the State Fire Marshal	<a href="http://sfm.state.or.us">http://sfm.state.or.us</a>			Nancy Orr, Acting State Fire Marshal (503) 373-1540
Oregon Watershed Enhancement Board	<a href="http://www.oweb.state.or.us/">http://www.oweb.state.or.us/</a>			
Oregon Heritage Commission	<a href="http://www.oregonheritage.org/">http://www.oregonheritage.org/</a>			
State Historic Preservation Office	<a href="http://www.shpo.state.or.us/shpo">http://www.shpo.state.or.us/shpo</a>			

### Statewide Organizations

Organization	Web site	Role	Population Served	Lead/resources
Association of Oregon Community Development Organizations	<a href="http://www.aocdo.org/">http://www.aocdo.org/</a>			
Oregon Rural Development Council	<a href="http://www.oregonruraldev.org/">http://www.oregonruraldev.org/</a>			Megan Smith, Chair
Rural Development Initiatives	<a href="http://www.rdiinc.org/">http://www.rdiinc.org/</a>			

Rural Community Assistance Corporation	<a href="http://www.rcac.org/">http://www.rcac.org/</a>			
Technical Assistance for Community Services	<a href="http://www.tacs.org/">http://www.tacs.org/</a>			
The Chandler Center for Community Leadership	<a href="http://www.chandlercenter.com/">http://www.chandlercenter.com/</a>			
Community Action Agencies	<a href="http://www.cado-oregon.org">http://www.cado-oregon.org</a>			

## Educational Resources

<b>Organization</b>	<b>Website</b>	<b>Role</b>	<b>Population Served</b>	<b>Lead/resources</b>
OSU Extension	<a href="http://extension.oregonstate.edu/">http://extension.oregonstate.edu/</a>			
OSU Institute for Natural Resources	<a href="http://www.inr.oregonstate.edu">http://www.inr.oregonstate.edu</a>			
Oregon Forest Resources Institute	<a href="http://www.forestresourceinstitute.com/">http://www.forestresourceinstitute.com/</a>			
Southern Oregon University Regional Services Institute	<a href="http://www.sou.edu/sorsi/">http://www.sou.edu/sorsi/</a>			
Oregon Center for Rural Policy Research and Service (Eastern Oregon University)	<a href="http://www.ruralpolicy.org/">http://www.ruralpolicy.org/</a>			
Community Service Center (University of Oregon)	<a href="http://www.uoregon.edu/~cscoc">http://www.uoregon.edu/~cscoc</a>			Megan Smith, Managing Director
Program for Watershed and Community Health (University of Oregon)	<a href="http://cwch.uoregon.edu">http://cwch.uoregon.edu</a>			Kathy Lynn, Program Manager
Office of Rural Health (Oregon Health Sciences University)	<a href="http://www.ohsu.edu/oregonruralhealth/">http://www.ohsu.edu/oregonruralhealth/</a>			
Oregon Office of Rural Policy	<a href="http://www.governor.state.or.us/Gov/pdf/ExecutiveOrder04-04.pdf">http://www.governor.state.or.us/Gov/pdf/ExecutiveOrder04-04.pdf</a>			Merrisue Carlson

## Tribal Organizations

<b>Tribe</b>	<b>Website</b>	<b>Role</b>	<b>Population Served</b>	<b>Lead/resources</b>
Burns Paiute Tribe	<a href="http://www.harneycounty.com/Paiute.htm">www.harneycounty.com/Paiute.htm</a>			Ken Dicks
Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians	<a href="http://www.coos-lowerumpqua-siuslaw.org">www.coos-lowerumpqua-siuslaw.org</a>			Howard Crombie, Environmental Coordinator
Confederated Tribes of Grand Ronde	<a href="http://www.grandronde.org">www.grandronde.org</a>			John Mercier, Public Works Director
Confederated Tribes of Siletz Reservation	<a href="http://www.ctsi.nsn.us">www.ctsi.nsn.us</a>			Tom Chandler Planning Department, 800
Confederated Tribes of the Umatilla Indian Reservation (Cayuse, Umatilla and Walla Walla Tribes)	<a href="http://www.umatilla.nsn.us">www.umatilla.nsn.us</a>			Koko Hufford, Director of Emergency Management

Confederated Tribes of the Warm Springs Reservation (Warm Springs, Wasco and Paiute Tribes)	<a href="http://www.warmsprings.com">www.warmsprings.com</a>			Danny Martinez, Fire Chief
Coquille Indian Tribe	<a href="http://www.cedco.net/index.html">http://www.cedco.net/index.html</a>			Don Ivy, Cultural Resources Director
Cow Creek Band of the Umpqua Indians	<a href="http://www.cowcreek.com">www.cowcreek.com</a>			Carol Ferguson, Housing Director
Klamath Tribes (Klamath, Modoc and Yahooskin)	<a href="http://www.klamathtribes.org">www.klamathtribes.org</a>			Kathleen Mitchell, General Manager
Affiliated Tribes of the Northwest Indians	<a href="http://www.atntribes.org">http://www.atntribes.org</a>			Ernest L. Stensgar, President 208/686-8813

### Federal Agencies

Agency	Web site	Role	Population Served	Lead/resources
US Department of Agriculture Rural Development	<a href="http://www.rurdev.usda.gov/or/">http://www.rurdev.usda.gov/or/</a>			Lynn Schoessler, State Director (503) 414-3300
US Department of Agriculture Forest Service	<a href="http://www.fs.fed.us/r6/">http://www.fs.fed.us/r6/</a>			Bonnie Wood, (503) 808-2701
Economic Development Administration	<a href="http://www.eda.gov/">http://www.eda.gov/</a>			
Environmental Protection Agency	<a href="http://www.epa.gov/region10/">http://www.epa.gov/region10/</a>			
Federal Emergency Management Agency	<a href="http://www.fema.gov/regions/x/">http://www.fema.gov/regions/x/</a>			John Pennington, Director
Housing and Urban Development	<a href="http://www.hud.gov">http://www.hud.gov</a>			
Natural Resources Conservation Service	<a href="http://www.nrcs.usda.gov/">http://www.nrcs.usda.gov/</a>			
Bureau of Land Management	<a href="http://www.or.blm.gov/">http://www.or.blm.gov/</a>			
US Postal Service	<a href="http://www.usps.gov">http://www.usps.gov</a>			

### Other Local/Regional Organizations to consider

- Community Development Corporations (CDC)
- Regional Rural Boards
- Councils of Governments (COG)
- Economic Development Districts (EDD)
- Watershed Councils
- Soil and Water Conservation Districts (SWCD)
- Resource Conservation and Development Councils (RC&D)
- Local Arts Councils
- Local community colleges
- Small Business Development Centers (SBDCs, statewide)
- Education Service Districts (ESDs, statewide)
- Rural Fire Departments (local)

- Recreation Groups (river rafting, ski patrol, etc.)
- Medical Facilities

## Appendix C: Oregon State Agency Questionnaire

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The Oregon Department of Forestry is coordinating an effort to inventory agencies and organizations throughout the state in order to ensure that resources and information can be made available to all citizens.

### Survey Questions

1. What is your agency's mission?
2. What populations do you serve? (*check all that apply*)
  - Low-income
  - Senior citizens
  - Disabled
  - Children
  - Veterans
  - Other: \_\_\_\_\_
3. How many people access your services?
  - Under 3000
  - 3000 – 50,000
  - 50,000 +
4. What geographic regions of the state does your agency provide services in? (*check all that apply*)
  - Northeast Oregon
  - Northwest Oregon
  - Southwest Oregon
  - Southeast Oregon
5. What indicators do you use to determine eligibility for your program?
  - Federal Poverty Level
  - Social Security
  - Disability Benefits
  - Other:
6. What is your agencies relationship to fire?
  - Direct partner with fire agency
  - NonePlease describe:
7. Is there an opportunity for your organization to coordinate with ODF to help ensure that elderly, disabled, and low-income citizens are able to participate in a fuels reduction cost-share program?
  - Yes
  - NoPlease describe:

## Appendix D: Description of Grants for Hazard Mitigation Strategies

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### National Fire Plan (NFP) Community Assistance and Wildland Urban Interface Grants in the Pacific Northwest

*Online Information:* [http://www.nwfireplan.gov/Grants/NFP\\_Grants.htm](http://www.nwfireplan.gov/Grants/NFP_Grants.htm)  
<http://www.nwfireplan.gov>

*Grant Description:* Grants for NFP community assistance program components, delivered through the USFS, NPS, BIA, USFWS and BLM in the Pacific Northwest. Programs support community fire protection planning, facilitate economic use of woody materials removed during fuels treatments, and complement activities of state and federal land-management agencies engaged in implementing the NFP. Proponents seeking funding for treatment of hazardous fuels must have complete CWPPs.

Combined 2004 NFP funding for these programs in Oregon and Washington was \$7-9 million, with similar funds expected for 2005. Funds awarded based on criteria outlined in each category, cost effectiveness, leveraged funds from partners, likelihood of success (e.g. applicant's ability to carry out proposal, meet regulatory requirements, and environmental analysis), reasonability of proposal, realistic timelines, completeness clarity, and anticipated outcomes. Projects should be multi-partner and coordinated with appropriate adjacent federal agency or state and other partners' projects, should emphasize local training and employment, and be coordinated with state and tribal employment services. Applicants with secure matching funds or in kind contributions have a competitive advantage. Utilization and marketing proposals require a minimum of 20% non-federal cost share.

*Funds to be used for:* 1) Community fire risk assessment and mitigation plans, 2) WUI fuels treatments implementation, 3) SDM and biomass utilization opportunities and demonstration projects, and 4) WUI fire prevention and education programs. Some projects that could be funded include:

- Developing strategic community fire plans and hazardous fuel reduction plans;
- Conducting hazardous fuels reduction activities, including mechanical treatment and prescribed fire
- Providing incentives, technical assistance and education programs to encourage reduction of hazardous fuels in fire-prone communities
- Developing prevention and education programs focused on mitigating fire risk in the wildland/urban interface
- Expanding markets for by-products of hazardous fuels reduction.

Examples of recent fire planning/fuels/SDM related grants in Oregon:

Harney County Fuels Utilization and Byproduct Feasibility Study.....	\$50,000
Grant Soil & Water Cons. Dist. Grant County Wildfire Risk Reduction.....	\$25,000
Deschutes Soil & Water Cons. Dist. S. Deschutes Hazard Fuels Composting.....	\$89,950
Central Oregon Intergov. Council Wildfire Risk Reduction, Phase II .....	\$83,000
Deschutes County WUI South County Survivable Space Mgmt.....	\$40,000

Wallowa Resource Market Based Incentives/Small Diameter Materials.....	\$179,000
Oregon Department of Forestry NE Oregon Community Fire Planning.....	\$50,000
United Community Partners Pine and Eagle Valley Interface Education.....	\$26,540
Illinois Valley Community Response Team SDM Market Development.....	\$30,000
Illinois Valley CR Team Illinois Valley Community Fire Planning.....	\$35,000
Jefferson County Fire Dist. #1 Jefferson Cty Create A Fire-Safe Community.....	\$25,000

*Not eligible:* Facility construction or repair, real estate acquisition, implementation on federal lands, firefighting apparatus, and research projects. WUI fuels treatment funds are for non-federal lands only.

*Who can apply:* Counties, cities, state and local government agencies, federally recognized tribes, universities and colleges, school districts, and state-chartered non-profit organizations. Solicitations from businesses organized for profit or individuals are not accepted. Private entities wishing to participate are encouraged to work with their “Local Coordination Group” for wildland fire activities, through their local government, or community development organization.

*Applications due:* March.

*How to apply:* BLM functions as the clearinghouse for all participating federal funding agencies in Oregon and Washington. This “one-stop” approach allows grant seekers to submit a single proposal, while letting the agencies match requests to the best program.

*Contacts:*

- USFS/BLM: Lauren Maloney 503-808-6587 [lauren\\_maloney@or.blm.gov](mailto:lauren_maloney@or.blm.gov)
- Bill VonSegen 503-808-2348 [wvonsegen@fs.fed.us](mailto:wvonsegen@fs.fed.us)
- Barbara Kennedy 503-808-2323 [bkennedy@fs.fed.us](mailto:bkennedy@fs.fed.us)
- Bureau of Indian Affairs: Cory Winnie, 503-231-6759
- US Fish & Wildlife Service: Bruce Babb 503-231-6234 [bruce\\_babb@r1.fws.gov](mailto:bruce_babb@r1.fws.gov)

**United States Department of Interior (DOI) Rural Fire Assistance (RFA) Grants**

*Online Information:* <http://www.nifc.gov/rfa/index.html>

*Grant Description:* Purpose is to improve firefighter safety and wildland fire protection capabilities of rural and volunteer fire departments when responding to wildland fires. Participating agencies include BIA, NPS, BLM and USFWS. Each eligible rural/volunteer fire department may apply for any amount up to \$20,000. Awards are limited to \$20,000 per fire department. Each department must provide a minimum 10% matching cost share, which may include in-kind services. In Oregon, funds are distributed through ODF or by DOI agencies directly to rural/volunteer fire departments (RFD/VFDs), by developing agreements, using existing agreements or MOIs, or through tribal government contracts. DOI agencies may also purchase equipment and donate it to RFD/VFDs.

*Funds to be used for:* Equipment, training, and fire prevention materials/activities related to wildland fire.

*Who can apply:* Any rural or volunteer fire department that helps fight fire on or near DOI lands and 1) has an agreement through its state forester, or a mutual aid agreement/cooperative fire agreement with the local DOI agency, 2) serves a community of less than 10,000 people near federal land (WUI), and 3) is able to meet the minimum 10% cost share ratio (which can include in-kind services, e.g. facility costs for hosting fire training courses, travel and per diem costs for personnel to attend fire training courses, administration costs for purchasing equipment for the RFA program, etc.)

*How to apply:* Don Matlick, Oregon Department of Forestry, 503-945-7444, [dmatlick@odf.state.or.us](mailto:dmatlick@odf.state.or.us)

*Applications due:* Varies by agency. Funds awarded in June 2004.

### **USDA Forest Service/Interagency Volunteer Fire Assistance (VFA) Grants**

*Online Information:* <http://www.fs.fed.us/fire/partners/vfa/help/index.htm>

*Grant Description:* Authorized by the Cooperative Forestry Assistance Act of 1978 as amended by the Forest Stewardship Act of 1990. Provides financial assistance to organize, train, and equip Volunteer Fire Departments (VFD). 50/50 matching reimbursement grants for basic fire and personal safety equipment, training, and organizing new fire departments in unprotected communities. Recipients fund entire project, when completed are reimbursed 50% of total project amount. Community share can be "in-kind" contributions, e.g. volunteer labor or donation of services such as volunteer instructors to present training courses. Maximum reimbursement per multi-community project (4 or more fire departments) is \$10,000 and maximum reimbursement to a single fire department project is \$4,500.

*Funds to be used for:* Communications networks, static water supplies such as dry hydrants and cisterns, converting federal surplus vehicles to water tenders, engines, brush trucks, and equipment trucks, protective clothing, community fire prevention education. A list of diverse past projects funded by VFA is available online at:

[http://www.fs.fed.us/fire/partners/vfa/help/append\\_e.htm](http://www.fs.fed.us/fire/partners/vfa/help/append_e.htm)

*Who can apply:* VFDs in towns or a service area with less than 10,000 people.

*How to apply:* Don Matlick, Oregon Department of Forestry, 503-945-7444, [dmatlick@odf.state.or.us](mailto:dmatlick@odf.state.or.us)

USFS/BLM: Barbara Kennedy 503-808-2323, [bkennedy@fs.fed.us](mailto:bkennedy@fs.fed.us)

### **USDA Forest Service State Fire Assistance (SFA) Wildland Urban Interface Hazard Mitigation Grants**

*Online Information:* [www.fs.fed.us/r4/sfa\\_grants/sfa\\_grants.html](http://www.fs.fed.us/r4/sfa_grants/sfa_grants.html)

*Grant Description:* Competitive grants available to 17 western states and Pacific Island territories. For FY2003, Congress provided \$15 million of SFA funding assistance to western states through the USDA Forest Service State and Private Forestry programs, much of it focused on mitigating risk in WUI areas.

*Funds to be used for:* Emphasis on hazardous fuel reduction, information and education, and community and homeowner action within the 4 broad goals of the NFP 10-Year Comprehensive Strategy- improve prevention, reduce hazardous fuels, restore fire-adapted ecosystems, promote community assistance.

Examples of projects that qualify (not all-inclusive)

Goal #1: Improve Prevention:

- FireWise or similar programs.
- Living with Fire newspaper inserts.
- Fire education components to Project Learning Tree.
- Fire prevention projects.
- Pamphlets, brochures, handouts.

Goal #2 - Hazardous Fuels Reduction:

- Defensible space around homes and structures.
- Shaded fuel breaks.
- Fuels reduction beyond defensible space.
- Removal of slash including piling and burning; mulching; grinding; etc.
- Prescribed fire.

Goal #3 - Restore Fire-adapted Ecosystems:

- Fuels reduction beyond defensible space.
- Removal of slash including piling and burning; mulching; grinding; etc.
- Prescribed fire
- Thinning
- Promote the establishment of native plants

Goal #4 - Homeowner and Community Action:

- Homeowner-association sponsored fuels reduction projects.
- Municipal, fire district, county coordination of slash disposal.
- Multi-jurisdictional hazard reduction projects.

Examples of projects that do not qualify include purchase of fire department equipment (try VFA Grant Program), small business start-up funding, research and development projects, (try Economic Action Program), and preparedness and suppression capacity building (other SFA funds).

*Who can apply:* State Forestry. State Forestry may sponsor other participants.

*How to apply:* USFS/BLM: Barbara Kennedy: 503-808-2323 [bkennedy@fs.fed.us](mailto:bkennedy@fs.fed.us) Oregon

Department of Forestry: Don Matlick: 503-945-7444 [dmatlick@ODF.state.or.us](mailto:dmatlick@ODF.state.or.us)

*Application due:* 2004 timelines:

July 28: States announce availability of the WUI grant for 2004.

July 28-Oct.16: States accept applications and prioritize list of final applications.

Oct. 17: Applications due to Webmaster ([swinward@fs.fed.us](mailto:swinward@fs.fed.us)).

Oct. 18-26: WUI Grants Committee reviews all applications.

Oct. 27-29: WUI Committee to meet and make final decision.

Nov.: Western States Fire Managers (WSFM) makes recommendation of funding to Council of Western State Foresters.

Dec. Grants awarded.

## **USDA Forest Service Economic Action Programs**

*Online Information:* [www.fs.fed.us/r6/coop](http://www.fs.fed.us/r6/coop)

*Grant Descriptions:* Rural Community Assistance, Economic Recovery- USFS Cooperative Programs staff provides technical and financial assistance to rural communities located in or near National Forests and Grasslands that have become economically dependent or disadvantaged due to public land management decisions. Grants are competitive and provided to eligible communities, counties, and tribes for development of strategic action plans and for funding projects in those plans.

Rural Development- Technical and financial assistance to help strengthen, diversify, and expand local economies, especially those with long-term or persistent economic problems. Communities need not be federal land dependent to be eligible. Provide technical assistance and matching funds for natural resource-related projects to stimulate improvements in the economic or social well-being of rural citizens.

*Funds to be used for:* Many types of assistance and projects including fire-related projects. See [www.fs.fed.us/r6/coop/programs/investments/investments\\_to\\_date.htm](http://www.fs.fed.us/r6/coop/programs/investments/investments_to_date.htm)

*Who can apply:* Communities, tribal governments, counties, municipalities, and not-for-profits with an economic development mission in areas dependent on forests and natural resources that meet these criteria:

- Community must be located within 100 miles of a National Forest boundary
- Population is 10,000 people or less, or county population is less than 22,550
- At least 15% of total primary and secondary income is derived from wood products and forest-related industries, e.g. recreation and tourism
- Community is economically disadvantaged as a result of Federal or private sector land management practices

*How to Apply:* Contact your local National Forest Coordinator for Rural Community Assistance. See [www.fs.fed.us/r6/coop/contacts.htm](http://www.fs.fed.us/r6/coop/contacts.htm)

*Applications due:* Typically January-March.

## **Department of Homeland Security/FEMA Assistance to Firefighters Grant (AFG) Program**

*Online information:* <http://www.usfa.fema.gov/fire-service/grants/afgp/grants.shtm>  
<http://www.firegrantsupport.com/docs/2004AFGguidance.pdf>

*Subscribe to AFG email newsletter at:*

<http://www.firegrantsupport.com/Newsletter/subscription/subscribe.aspx>

*Grant description:* Designed to fund essential basic needs of local fire departments in 3 main program areas: Operations and Firefighter Safety, Fire Prevention, and Firefighting Vehicles. Fire departments may submit only one application in any one of the 3 program areas. Departments that serve a population of 50,000 or less must provide at least 10% of the project amount; those that serve populations of more than 50,000 must provide 30%. Maximum federal share for any one applicant is \$750,000. Recipients must agree to participate in the National Fire Incident Reporting System (NFIRS) for at least 1 year after grant receipt, and must submit regular progress reports. An audit or program review will be required. Grants are intended to supplement a department's budget, not replace a portion of it, so recipients are required to maintain departmental expenditures equal to an average of the previous 2 years for the activity for which the grant is awarded.

According to FEMA Region 10 staff, \$500-\$750 million is expected to be available for this program in 2005, but has not been appropriated by Congress yet.

*Funds to be used for:* Training, equipment, personal protective equipment, wellness and fitness, and modifications to facilities.

*Who can apply:* Local fire departments of a state or territory that protect urban, suburban, and rural communities. Departments may be all career, all volunteer, or have a combination of volunteer and career members. Fire departments that provide emergency medical and rescue services also are eligible. Previous grant award winners may apply for another grant. Ineligible applicants include private for-profit fire departments, State agencies, federally funded fire departments, and organizations that exclusively provide emergency medical and rescue services.

*How to apply:* Submit grant requests by completing an online application.

*Applications due:* 2004 application period was March 1-April 2, 2004.

## **Department of Homeland Security/FEMA Fire Prevention and Safety Grant Program**

*Online information:* <http://www.usfa.fema.gov/fire-service/grants/safetygrant/index.shtm>  
*Guidance:* <http://www.usfa.fema.gov/downloads/doc/04-fpsg-guidance.doc>

*Grant description:* The Fire Prevention and Safety Grants help firefighters throughout the country provide critical fire safety education and conduct other activities to protect children, families, and communities from fires and other hazards. The Fire Prevention and Safety Grants fund projects related specifically to fire prevention. This program is part of the

Assistance to Firefighters Grant Program that will award over \$700 million to firefighters this year to help local fire departments purchase equipment, fund health and safety programs, enhance emergency medical services programs, and conduct fire education and prevention programs.

*Funds to be used for:* Projects that base their project scope on a risk assessment will receive the highest consideration. The following list is **not** an all-inclusive list of projects that will be considered. These projects are **not** listed in order of importance:

- Projects that promote distributing and installing smoke alarms and checking to assure previously installed smoke alarms are operational.
- Projects that promote planning for emergency egress for residential, commercial, or institutional occupancies and practicing escape routes, or conducting home fire safety surveys.
- Fire prevention programs targeting high-risk audiences, including those that:
  - i. Enhance national, regional, State, or local efforts to reduce fires and burn injuries affecting children under the age of 14 or adults over 65.
  - ii. Target geographical areas with a higher incidence of fire related deaths, injuries, and property loss; *and*
  - iii. Implement projects that mitigate fire related risks in urban, suburban or rural areas to include addressing culturally sensitive materials or social economic challenges.
- Projects that affect the entire community such as educating the public about residential sprinklers, promoting residential sprinklers, and demonstrating working models of residential sprinklers.
- Projects that promote the adoption or awareness of building codes and enforcement, improve engineering, or enact fire-related ordinances for new construction.
- Projects that develop and implement national prevention initiatives, focused on the three target groups mentioned above.
- Local or regional projects to educate or train personnel in the area of public education, code enforcement and arson prevention.
- Fire safety education props (trailers, mobile robots, and puppets) in conjunction with a definitive and comprehensive public safety education campaign.
- Wildfire Prevention Programs.
- Arson Prevention Programs.

*Who can apply:* Fire departments as well as national, regional, state or local organizations with expertise in fire prevention are eligible to apply for these grants. Private non-profit and public organizations are eligible to apply for funding for these grants. Fire departments that have received or applied for training, equipment, vehicles, etc. under the FY 2004 Assistance to Firefighter Grant Program are eligible to apply for the fire prevention grants in this application period. However, funding to any organization is limited to a \$750,000 Federal share per program year. If a fire department received funding through the FY 2004 Assistance to Firefighters Grant Program, the total of that award plus the FY 2004 Fire Prevention grant cannot exceed \$750,000.

*How to apply:* Applications can be submitted online at <https://portal.fema.gov>.

*Applications due:* 2004 application period is September 1 - September 30.

*Contact:* Assistance to Firefighters Grant Program staff via phone or email, (866) 274-0960 or [firegrants@dhs.gov](mailto:firegrants@dhs.gov), with questions.

## **FEMA Pre-Disaster Mitigation Competitive (PDM-C) Grant Program**

*Online information:* <http://www.fema.gov/fima/pdm.shtm>

*Grant description:* Nationally competitive grant program to help state, tribal and local governments reduce overall risks to people and structures, and reduce reliance on funding from actual disaster declarations via cost-effective pre-disaster hazard mitigation activities that complement a comprehensive mitigation program. \$150 million was allocated in FY2003. Congress reauthorized the PDM-C Grant Program through December, 2004, with a bill to extend the PDM-C for 3 years still pending. PDM-C grant applicants must have an approved local mitigation plan prior to approval of project grants. Applicant management costs not to exceed 10%, sub-applicant management costs not to exceed 5%. 75% federal cost-share. Small, impoverished communities may be eligible for a 90% federal cost-share.

Focus has been primarily on flood and earthquake hazard mitigation, but wildfire has been recognized as an increasingly serious natural hazard and groups attempting to reduce wildfire hazards are encouraged to apply. Communities recognized through the Firewise Communities/USA program who apply PDM grant may receive a higher national ranking than those communities not recognized. The Greater Eastern Jemez Wildland/Urban Interface Corridor in New Mexico was awarded a \$100,000 dollar PDM-C grant to provide thinning throughout several communities.

A critical component of all successful PDM-C grants is a favorable benefit/cost (B/C) ratio. Projects with B/C ratio of less than 1:1 will not be funded, and those with higher ratios will be more competitive against the many nationwide that are right at 1:1. Proposals that create defensible space near high value structures, subdivisions or community infrastructure are more likely to be funded. Proposals must include a B/C review using FEMA B/C module. A wildfire-specific B/C module has just been developed and is available in beta form as an Excel template. B/C analysis information available at: [http://www.fema.gov/doc/fima/pdm03\\_comp\\_bceval.doc](http://www.fema.gov/doc/fima/pdm03_comp_bceval.doc)

*Funds to be used for:* Pre-disaster mitigation planning and projects primarily addressing natural hazards. Evaluated based mostly on B/C ratio, but also qualitative factors, including feasibility, staff and resources, implementation timeline and expectations, and consistency with national priorities of repetitive loss. (The more people, property, and economic assets that benefit from the mitigation, the better the B/C ratio).

*How to apply:* Apply through Oregon Emergency Management office. Contact: Dennis Sigrist, 503-378-2911, [dsigrist@oem.state.or.us](mailto:dsigrist@oem.state.or.us). FEMA Region 10 PDM-C Program Manager: Sharon Loper, 425-487-4700. FEMA's electronic grants (e-Grants) system should

be used whenever possible. Applicants may submit a paper application, which can be obtained from FEMA Regional Offices. FEMA Region 10: <http://www.fema.gov/regions/x/index.shtm>

*Applications due:* FY2005 open season will be 6 months, starting in fall, 2004.

### **Secure Rural School and Community Self-Determination Act of 2000**

*Online information:* [http://www.or.blm.gov/planning/advisory/act\\_summary.htm](http://www.or.blm.gov/planning/advisory/act_summary.htm)  
[http://www.fs.fed.us/r6/Project\\_Submission\\_Form\\_P1.doc](http://www.fs.fed.us/r6/Project_Submission_Form_P1.doc)

*Grant description:* The Act provides federal funds to counties containing USFS and BLM lands that traditionally have been supported by timber payments, effective FY2001-2006. Funds are intended to benefit of public schools, roads and other purposes. BLM and USFS funds are kept separate because of their differing sources and uses. Counties have the option of putting 15% or 20% of the funds they receive into Title II or Title III projects. Title II Projects can occur on or off Federal lands, but in some way must benefit resources on Federal lands. Title III Projects are submitted directly to County Commissioners for the county in which the project is taking place.

5 Resource Advisory Committees (RACs) have been formed for western Oregon BLM districts that contain Oregon & California (O&C) Grant Lands and Coos Bay Wagon Road (CBWR) lands. Each RAC has a Designated Federal Officer (DFO) responsible for use and management of the Committee. The USFS has also established Resource Advisory Committees for combinations of National Forests throughout the nation.

The purpose of these Committees is to review project proposals and make recommendations on spending the county-designated funds to the Secretary of the Interior (or Agriculture for Forest Service Committees.)

*Funds to be used for:* Title II funds- Protection, restoration and enhancement of fish and wildlife habitat, and other resource objectives on Federal land and on non-federal land where projects would benefit these resources on Federal land. At least 50% must be used primarily for 1) road maintenance, decommissioning, or obliteration; or 2) restoration of streams and watersheds. Title III Funds can be used only for:

- Search, rescue and emergency services on federal lands.
- Community service work camps for community service on federal lands.
- Easement purchases for non-motorized access to public lands or conservation easements.
- Forest related educational opportunities for after school programs
- Fire prevention and county planning to educate homeowners or planning efforts to reduce or mitigate the impact of development on adjacent federal lands
- Community forestry cost-share requirements under the Cooperative Forestry Assistance Act of 1978

*Who can apply:* Anyone can submit a Title II project, but must work with appropriate federal agencies, state and local governments, private and nonprofit entities, and landowners where the project will take place. Project funds may be used by the Secretary of the Interior for implementing cooperative agreements with willing federal agencies, State and local governments, private and nonprofit entities, and landowners. Anyone can submit Title III projects, but only very specific projects will be considered.

*How to apply:* April 1. Nov.: WSFM makes recommendation of funding to Council of Western State Foresters. Title III Projects are submitted directly to County Commissioners for the county in which the project is taking place.

### **Forest Stewardship Plan (FSP)**

*Online information:*

<http://www.oweb.state.or.us/directory/documents/foreststewardship.pdf>

<http://www.fs.fed.us/r6/coop/programs/landowner/landowner.htm>

[http://www.odf.state.or.us/divisions/management/forestry\\_assistance/assist/fsp.asp?id=3020104](http://www.odf.state.or.us/divisions/management/forestry_assistance/assist/fsp.asp?id=3020104)

*Grant Description:* Encourages non industrial private forest (NIPF) landowners to manage their lands for soil and water, wildlife, fisheries, recreation, aesthetics and timber production through development of action-oriented multi-resource management plans, demonstration sites, and information and education. Professional natural resource managers assist family forestland owners document objectives, make stewardship decisions, and recommend resource practices. Forest Stewardship Plans (FSPs) define landowner objectives, describe current natural resource conditions on the property, and outline 10-year action plans to achieve landowner goals while maintaining and enhancing those resources present. Plans must be reviewed and approved by local ODF stewardship foresters. Minimum project size is 10 acres.

*Funds to be used for:* Professional natural resource consultant written plans for rural land suitable for growing trees.

*Not eligible:* The FSP does not fund "on-the-ground" stewardship projects. Ownerships larger than 5,000 acres are not eligible unless a special waiver is obtained.

*Who can apply:* Private landowners

*How to apply:*

[http://www.odf.state.or.us/divisions/management/forestry\\_assistance/assist/fsp.asp?id=3020104](http://www.odf.state.or.us/divisions/management/forestry_assistance/assist/fsp.asp?id=3020104)

### **Oregon Department of Forestry - Forest Resource Trust**

*Online information:*

[http://www.odf.state.or.us/divisions/management/forestry\\_assistance/trust/goal.asp?id=50201040203](http://www.odf.state.or.us/divisions/management/forestry_assistance/trust/goal.asp?id=50201040203)

*Grant description:* Encourages landowners to establish and maintain healthy forests on lands capable of growing forests but currently in brush, cropland, pasture or very poorly stocked (and not subject to reforestation requirement of the Oregon Forest Practices Act).

Up to 100% of reforestation costs from site preparation through free-to-grow establishment (up to a \$100,000 cap every two years) is paid by the Forest Resource Trust (FRT) through direct cost payments to consultants, contractors and others hired by the landowner to do the work. In exchange for these direct cost payments, the landowner accepts responsibility for managing the reforestation project based on an agreed upon project plan listing the site preparation, tree planting, seedling protection and competitive release activities that are, or may be, necessary to establish a healthy, free-to-grow forest.

Local ODF stewardship foresters and consulting foresters provide technical and project management help through all project stages. All activities and payments are subject to mutual satisfaction of both the landowner and stewardship forester. Landowners enter into FRT agreement which:

- Runs with the land for up to 200 years
- Provides stable and secure funding by setting forth an approved budget for the reforestation project that carries over from one year to the next until the forest is successfully established as a free-to-grow stand
- Has a provision for landowner buyout during first 25 years of the contract where direct cost payments by the FRT can be paid back at 6.8% interest.
- Absorbs 100% of risk associated with losses from insects, disease, fire, storms, flood or other natural destruction through no landowner fault
- Shares net revenues from any profitable timber harvest between the landowner and FRT based upon a percentage determined at contract onset.
- Limits revenue sharing only to harvest of an expected amount of volume.
- Has incentives for managing forest stands that allow landowners to grow out of the contract by limiting revenue sharing to an expected harvest volume easily met by thinning, longer rotation and other stand treatments.
- Transfers ownership of any carbon offset credits attributable to the forest stand to the BOF to attract third-party investment in the FRT.

*Funds to be used for:* The direct cost payments of site preparation, tree planting, seedling protection, and competitive release activities.

*Who can apply:* Land must be at least 10 contiguous acres, zoned for forest or farm use and part of a private non-industrial forestland ownership no more than 5,000 acres.

*How to apply:* Through local Oregon Department of Forestry stewardship foresters.

## **Forest Land Enhancement Program (FLEP)**

*Online information:* <http://www.odf.state.or.us/pcf/assist/cslist.asp?id=401010207>

*Grant Description:* A federally funded program created by the 2002 Farm Bill that provides financial, technical, and educational assistance to family forest landowners to help them better manage their forested lands. FLEP replaces the former Stewardship Incentive Program (SIP) and Forestry Incentives Program (FIP) and is administered locally by the ODF. The program provides cost share funds to defray a portion of landowner costs for forest stewardship plan development and specific on-the-ground practices.

Funding for FLEP has been problematic since its inception in 2002. Funding was initially available to Oregon landowners in 2003. FLEP did not receive 2004 funding, although some uncommitted 2003 funds may still be available locally. More funding is expected in mid-late 2005. FLEP provides cost share on 50% - 75% of the eligible costs of approved practices. Cost share rate (50% or 75%) depends on the specific practice.

Practice cost must be at least \$1,000 and the practice must be completed to specifications provided by the local ODF stewardship forester. Project size limited to 1,000 acres per year (federal fiscal). Following installation and cost share of the approved practice, the landowner must maintain / protect the practice for 10 years.

*Funds to be used for:* General practices that can be funded under FLEP (in Oregon) include:

- 1) Forest Stewardship Plan prepared by a consulting forester
- 2) Afforestation / Reforestation
- 3) Forest Stand Improvement
- 4) Water Quality Improvement / Watershed Protection
- 5) Wildlife Habitat Improvement
- 6) Wildfire Risk Reduction
- 7) Wildfire Rehabilitation
- 8) Roads (selected activities to improve roads)

*Who can apply:* Non-industrial / family forest landowners that own at least 10 but no more than 5,000 acres of forestland. (Waivers for up to 15,000 acres of forestland ownership may be granted in some situations). Landowner must have an approved forest stewardship plan prior applying for financial assistance for practices 2 – 8 (above). For emergency wildfire rehabilitation, the stewardship plan may be developed concurrently with approved on-the-ground rehabilitation practices.

*How to apply:* Interested landowners should check with the local ODF stewardship forester regarding local funding availability and the application. Applications can be downloaded from:

<http://www.odf.state.or.us/pcf/assist/cslst.asp?id=401010207>

## **Conservation Reserve Program (CRP)**

*Online information:*

<http://www.fsa.usda.gov/dafp/cepd/crp.htm>

*Grant description:* The CRP is a voluntary program under which agricultural landowners can receive annual rental payments and cost-share assistance to establish long-term, resource conserving covers on eligible farmland. The Commodity Credit Corporation (CCC) makes annual rental payments based on the land's agriculture rental value, and provides cost-share assistance for up to 50% of the participant's costs in establishing approved conservation practices. Participants enroll in CRP contracts for 10-15 years. Program is administered through the Farm Service Agency (FSA). Program support is provided by NRCS, Cooperative State Research and Education Extension Service, state forestry agencies, and local Soil and Water Conservation Districts.

*Funds to be used for:* Establishment of long-term, resource conserving covers on eligible farmland. Land must be eligible and suitable for any of the following conservation practices:

- riparian buffers;
- wildlife habitat buffers;
- wetland buffers;
- filter strips;
- wetland restoration;
- grass waterways;
- shelterbelts;
- living snow fences;
- contour grass strips;
- salt tolerant vegetation; and
- shallow water areas for wildlife.

*Who can apply:* To be eligible for placement in CRP, land must be either:

- Cropland (including field margins) that is planted to an agricultural commodity 4 of the previous 6 years from 1996-2001, and is physically and legally capable of being planted in a normal manner to an agricultural commodity; or
- Certain marginal pastureland that is enrolled in the Water Bank Program or suitable for use as a riparian buffer or for similar water quality purposes.

Land within an Environmental Protection Agency (EPA)-designated public wellhead area may also be eligible for enrollment on a continuous basis.

*How to apply:* Through local FSA offices.

### **Conservation Reserve Enhancement Program (CREP)**

*Online information:* <http://www.fsa.usda.gov/dafp/cepd/crep.htm>

*Grant description:* An offspring of the Conservation Reserve Program (CRP), CREP is a voluntary program for agricultural landowners. Unique state and federal partnerships allow landowners to receive incentive payments for installing specific conservation practices.

*Funds to be used for:* Farmers can receive annual rental payments and cost-share assistance to establish long-term, resource conserving covers on eligible land. The program is primarily used for establishing riparian forest buffers.

*Not eligible:* Lands with an existing CRP contract or an approved offer with a contract pending are not eligible for CREP until that contract expires.

*Who can apply:* In addition to offering acreage along salmon and trout streams, the applicant must satisfy the basic eligibility criteria for CRP. Land must be cropland that has been cropped 2 of the past 5 years and remains physically and legally capable of being cropped. Marginal pastureland is also eligible provided that it is suitable for use as a riparian buffer planted to trees. Producers are eligible if the land has been owned or operated for at least 1 year prior to enrollment.

*How to apply:* Through local FSA office.

### **Environmental Quality Incentives Program (EQIP)**

*Online information:* <http://www.nrcs.usda.gov/programs/eqip/>  
<http://www.nrcs.usda.gov/>

*Grant description:* The EQIP was reauthorized in the 2002 Farm Bill. Oregon's EQIP is a locally led, voluntary conservation program for farmers, ranchers and forestland owners to address their conservation needs. NRCS administers the program based on locally identified natural resource priorities. Local Work Groups (LWG) convened by the Soil and Water Conservation Districts work together to provide advice to NRCS on priorities that need to be addressed within their area. EQIP offers contracts with a minimum term that ends 1 year after implementation of the last scheduled practices and a maximum of 10 years.

Contracts provide incentive payments and cost-shares to implement appropriate conservation practices according to environmental quality incentives program plans developed with producers to address resource concerns, subject to NRCS technical standards adapted for local conditions. Local conservation districts must approve the plans. EQIP may cost-share up to 75% of costs of certain conservation practices. Limited resource producers and beginning farmers, ranchers and forestland owners may be eligible for cost-shares up to 90%. Farmers and ranchers may elect to use a certified third-party provider for technical assistance. An entity may not receive cost-share or incentive payments that exceed \$450,000 for all EQIP contracts entered during the term of the Farm Bill.

*Funds to be used for:* Financial and technical help installing or implementing certain structural and management practices to address resource concerns on agricultural and forest land. Incentive payments may be provided for up to 3 years to encourage producers to carry out management practices they may not otherwise use without the incentive.

*Who can apply:* Persons who are engaged in livestock or agricultural production, including forestry, on eligible land may participate in the EQIP program.

*How to apply:* <http://www.nrcs.usda.gov/programs/eqip/>

## Wildlife Habitat Incentives Program (WHIP)

*Online information:* <http://www.nrcs.usda.gov/programs/whip/>

*Grant description:* Reauthorized in the 2002 Farm Bill, the WHIP encourages creation of high quality wildlife habitats that support wildlife populations of national, state, tribal, and local significance. Working with private landowners and operators; conservation districts; and federal, state, and tribal agencies through WHIP, the NRCS provides technical and financial assistance to landowners and others to develop upland, wetland, riparian, and aquatic habitat areas on their property.

Conservation districts convene local work groups to identify local wildlife habitat priorities and provide input to the State Technical Committee that advises the State conservationist in development of a State WHIP plan. The State WHIP plan serves as a guide for the development of the State WHIP ranking criteria. Participants voluntarily limit future use of the land for a period of time, but retain private ownership. NRCS works with participants to develop wildlife habitat development plans, which form the basis of cost-share agreements between NRCS and participants. NRCS provides cost-share payments to landowners under these agreements that are usually 5 to 10 years in duration, depending upon the practices to be installed. There are shorter-term agreements to install practices that are needed to meet wildlife emergencies, as approved by the NRCS State conservationist. NRCS also provides greater cost-share assistance to landowners who enter into agreements of 15 years or more for practices on essential plant and animal habitat. NRCS can use up to 15% of available WHIP funds for this purpose.

*Funds to be used for:* Developing upland, wetland, riparian, and aquatic habitats.

*Who can apply:* To be eligible, an entity must own or have control of the land to be enrolled in the program for the duration of the agreement period. The land must be:

- Privately owned land, or
- Federal land when the primary benefit is on private or tribal land, or
- State and local government land on a limited basis, or
- Tribal land

If land is determined eligible, NRCS places emphasis on enrolling:

- Habitats for species experiencing declining or significantly reduced populations
- Practices beneficial to fish and wildlife that may not otherwise be funded
- Wildlife and fish habitats identified by local and state partners and Indian tribes

*Not eligible:* Entities with income exceeding \$2.5 million for 3 tax years immediately preceding the year the contract is approved are not eligible, but an exemption is provided in cases where 75% of the income is derived from farming, ranching, or forestry.

*How to apply:* The WHIP application process consists of the following 5 steps:

- Landowner submits application to an NRCS local office, conservation district office, or office of a designated cooperating entity.

- Conservation district convenes local work group to identify local wildlife habitat priorities and communicates priorities to State Technical Committee. NRCS State conservationist consults with State Technical Committee to rank applications received based on the State WHIP plan and the state established ranking criteria.
- When funds are available, NRCS makes allocations to the NRCS State offices based on expressed unfunded demand for the program, priorities in the State WHIP plan, and the level of contribution by partner organizations.
- The NRCS State conservationist commits allocated funds to high ranking landowner offers and enters into long-term agreements with selected participants.
- Following agreement signature by NRCS and selected entity, funds are obligated and the participant may begin to implement the wildlife habitat development plan.

Application:

[http://www.nrcs.usda.gov/programs/whip/WHIP\\_signup/WHIP\\_signupinfo.html](http://www.nrcs.usda.gov/programs/whip/WHIP_signup/WHIP_signupinfo.html)

### **Wetlands Reserve Program (WRP)**

*Online information:* <http://www.nrcs.usda.gov/programs/wrp/>

*Grant description:* Reauthorized in the 2002 Farm Bill and administered by NRCS, the WRP provides technical and financial assistance to eligible private landowners to address wetland, wildlife habitat, soil, water, and related natural resource concerns and provides an opportunity for landowners to receive financial incentives to enhance wetlands in exchange for retiring marginal land from agriculture. Participants voluntarily limit future use of the land, but retain private ownership.

NRCS and its partners, including conservation districts, continue to provide assistance to landowners after completion of restoration activities by reviewing restoration measures, clarifying technical and administrative aspects of the easement and project management needs, and providing basic biological and engineering advice on how to achieve optimum results for wetland dependent species.

*Funds to be used for:* Landowners and tribes may apply for a conservation easement or cost-share restoration agreement with the USDA to restore and protect wetlands.

*Ineligible land/applicants.* Ineligible land includes wetlands converted after December 23, 1985; lands with timber stands established under a CRP contract; federal lands; and lands where conditions make restoration impossible. Entities with average income exceeding \$2.5 million for the 3 tax years immediately preceding the year the contract is approved are not eligible, but an exemption is provided in cases where 75% of the income is derived from farming, ranching, or forestry operations.

*Who can apply:* Landowner must have owned the land for at least 12 months prior to enrollment, unless the land was inherited, the landowner exercised the landowners right of redemption after foreclosure, or the landowner can prove the land was not obtained for the

purpose of enrolling it in the program. Landowner must show evidence of ownership. Land must be restorable and suitable for wildlife benefits including:

- Wetlands farmed under natural conditions
- Farmed wetlands
- Prior converted cropland
- Farmed wetland pasture
- Farmland that has become a wetland as a result of flooding
- Range land, pasture, or production forest land where the hydrology has been significantly degraded and can be restored
- Riparian areas which link protected wetlands
- Lands adjacent to protected wetlands that contribute significantly to wetland functions and values
- Previously restored wetlands that need long term protection.

*How to apply:* Applications may be obtained and filed at any time with local USDA Service Center or conservation district office. Applications also may be obtained at: [www.sc.egov.usda.gov](http://www.sc.egov.usda.gov). Enter NRCS in the agency field, Wetlands Reserve Program in the Program Name field, and CCC-1250 in the Form Number field.

### **OWEB Small Grant Program**

*Online information:* <http://www.oweb.state.or.us/directory/fundingintro.html>

*Grant description:* Responds to need for local decision making about restoration priorities, on a shorter timeframe than provided under OWEB's regular grant program. Enables up to 28 small grant teams in Oregon made up of local soil and water conservation district, watershed council and tribal representatives to award small grants up to \$10,000 for eligible restoration projects, disbursed from OWEB directly to grant recipients. Requires at least a 25% non-OWEB match.

*Funds to be used for:* Could be used for silvicultural treatments that reduce fire risk or severity if applicant demonstrates direct benefits to watershed and a favorable benefit/cost analysis. Some jurisdictions (e.g Rogue basin) specifically exclude thinning projects due to concerns about being overwhelmed with applications for this type of work, so applicants should confirm guidelines in their area before applying.

*Who can apply:* Watershed restoration and enhancement projects on forest, agricultural, range, urban, and rural residential lands that use existing technical guidance are eligible.

*How to apply:* <http://www.oweb.state.or.us/SmallGrant/Info/info.shtml>

### **ODF Community Forestry Assistance (CFA) Grant Program**

*Online information:*

[http://www.odf.state.or.us/divisions/management/forestry\\_assistance/ucf/cfa](http://www.odf.state.or.us/divisions/management/forestry_assistance/ucf/cfa)

*Grant description:* Designed to help improve quality of life in Oregon cities and communities. Typical CFA projects are directed at improving long-term health and care of urban forests, or at initiating new urban forestry programs in Oregon municipalities. For 2005, up to \$50,000 in matching grants of \$1,000-\$10,000 will be distributed through a competitive process, funded through ODF's partnership with the USFS.

*Funds to be used for:* Consideration will be given to projects that:

- improve the health of urban and community forests
- educate the public, involve volunteers or promote partnerships
- address a community problem or result in measurable community benefit
- can be replicated by or serve as a model for other communities
- can clearly be accomplished within the specified timeframe

*Who can apply:* Oregon municipalities, counties, state agencies, school boards, park districts, etc., or non-profit organizations including private schools and colleges.

*How to apply:*

[http://www.odf.state.or.us/divisions/management/forestry\\_assistance/library/pub/UCF/CFA05App.pdf](http://www.odf.state.or.us/divisions/management/forestry_assistance/library/pub/UCF/CFA05App.pdf)

*Applications due:* Monday November 1, 2004 at 5:00 pm.

## **ODF Urban and Community Forestry (UCF) Small Projects Fund**

*Online information:*

[http://www.odf.state.or.us/divisions/management/forestry\\_assistance/ucf/cfa](http://www.odf.state.or.us/divisions/management/forestry_assistance/ucf/cfa)

[http://www.odf.state.or.us/divisions/management/forestry\\_assistance/library/pub/SPFapplication.pdf](http://www.odf.state.or.us/divisions/management/forestry_assistance/library/pub/SPFapplication.pdf)

*Grant description:* ODF's Urban and Community Forestry Assistance Program's Small Projects Fund (UCF-SPF) provide one-time reimbursable funds of \$250-\$1500 on a 50/50 matching cost share basis to cover the small, yet sometimes prohibitive, administrative and material expenses directly related to community forestry projects encountered by smaller volunteer groups and cities across Oregon.

*Funds to be used for:*

- educational materials (such as film, video tape, educational computer software)
- printing, copying, mailing, and advertising costs
- tree planting materials such as stakes, mulch, fertilizer and soil additives
- 1-2 ceremonial trees per project, as necessary
- volunteer recognition items (such as t-shirts, ribbons, plaques, certificates)
- room or equipment rental for special events, such as pruning clinics

- travel and registration expenses related to training or continuing education
- Arbor Week events and related tree promotional items or activities

NOT eligible:

- administrative, overhead, or telephone costs
- items not directly related to success of the project or survival of the trees
- hazard tree appraisal and removal
- supplements to staff salaries, insurance costs, food
- consultants or employee staff time (unless approved beforehand by UCF staff)

*How to apply:* Submit grant application and budget form, a grant narrative not to exceed 2 pages, and an 8.5" x 11" project map, if applicable to the ODF Urban and Community Forestry program by 5 pm on the last business day preceding the quarterly deadline. For more information contact Paul D. Ries at [pries@odf.state.or.us](mailto:pries@odf.state.or.us) or 503/945-7391.

*Applications due:* Throughout the year. Applications must be received by quarterly deadlines on March 31, June 30, September 30, and December 31.

## **Energy Trust Grants**

*Online information:* <http://www.energytrust.org>

*Grant description:* The Open Solicitation program provides opportunities for Oregonians to receive financial incentives and support for innovative applications of renewable energy technology. Energy can be produced from the by-products of agriculture, industry or municipal utilities (such as solid waste). Waste material can be burned directly or processed to recover methane, which is then burned, to generate electricity. Currently, biomass is the largest source of renewable energy produced in Oregon, but still only accounts for about 1% of all energy consumed in the state. The Energy Trust is developing a systematic effort to better tap into the abundant potential of biomass. Each year, about \$1,000,000 is reserved for open solicitation incentives, including biomass.

*Funds to be used for:* This program is designed to support renewable energy projects that do not already have an established incentive program developed and launched by the Energy Trust of Oregon. Projects will generally be awarded in the areas of small wind, solar photovoltaics, biomass, biogas, small hydro, and geothermal electric.

*Who can apply:* Commercial, Industrial, Residential, General Public/Consumer, Nonprofit, Schools, Local Government, State Government, Agricultural.

*How to apply:* Through Energy Trust Open Solicitation Program:  
[http://www.energytrust.org/RR/os/Unsolicited\\_app.pdf](http://www.energytrust.org/RR/os/Unsolicited_app.pdf)

## Oregon Watershed Enhancement Board (OWEB) Watershed Improvement Grants

*Online information:* <http://www.oweb.state.or.us/grantapps/index.shtml>

*Grant description:* OWEB administers grants totaling more than \$20 million annually to support voluntary efforts by Oregonians to create and maintain healthy watersheds. OWEB staff has indicated that wildfire fuel reduction projects may be fundable under this program if applicants can clearly demonstrate that the project will significantly improve watershed health and reduce the risk of watershed impacts from uncharacteristically severe wildfire. They caution that these grants also fund many other types of watershed enhancement and restoration work, so the project must be well developed and demonstrate a very positive benefit/cost ratio.

*Funds to be used for:* Projects that support Oregon's efforts to restore salmon, improve water quality, and strengthen ecosystems that are critical to healthy watersheds and sustainable communities. Priorities are projects that:

- Demonstrate understanding of watershed processes involved and offer the best solution considering overall watershed enhancement needs of the appropriate basin and objectives of the Oregon Plan For Salmon and Watersheds.
- Address altered watershed functions affecting water quality and fish production
- Include removal or remediation of human-caused alterations (roads, culverts, channelization, etc.) to improve water quality and/or fish habitat
- Change land management practices that have chronic disturbances to the watershed as opposed to projects that address only symptoms of disturbance
- Have local support and collaboration between stakeholders and agencies
- Focus on upslope/upstream rather than downslope/downstream treatments
- Ensure monitoring of both implementation and effectiveness and are structured to have measurable outcomes and identifiable results.
- Are developed from a watershed-level assessment and analysis of conditions that includes an action plan for restoration or enhancement of watershed functions.
- Benefit or will lead to future watershed improvement benefits affecting water quality or species recovery.

*Who can apply:* Individuals, organizations, local governments, or institutes of higher education. State or federal agencies must co-apply with another eligible applicant (watershed council, etc.)

*How to apply:* Applications are distributed to OWEB and 5 regional review teams who score project applications individually, then meet to discuss them and determine which to recommend for funding. Regional recommendations and statewide projects are reviewed by OWEB's Education and Technical Advisory Committees. OWEB receives an overall recommendation for program funding, together with a summary of each project with regional review committee evaluation comments.

While the criteria vary somewhat depending on the type of activity proposed, the following criteria generally apply:

- The project will promote public awareness or education about watershed resource issues.
- Appropriate monitoring is planned to document the achievement of project objectives.

*Applications due:* October 25, 2004; December 13, 2004.

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Another good source of information about federal grant programs related to wildfire hazard mitigation is the publication Building Better Rural Places: Federal programs for sustainable agriculture, forestry, conservation and community development. A publication of the U.S. Department of Agriculture agencies working together for sustainable rural development in collaboration with The Michael Fields Agricultural Institute. (2001.)

Available online at:

<http://attra.ncat.org/guide/>