Greater Redmond Community Wildfire Protection Plan

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Prepared by

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Declaration of Agreement

The Healthy Forests Restoration Act requires that the applicable local government, the local fire department, and the state entity responsible for forest management agree to the Community Wildfire Protection Plan. The undersigned have reviewed the Greater Redmond CWPP and agree to this completed document.

Tim Moor, Fire Chief	Date
Redmond Fire & Rescue	
Carroll Penhollow, Chair	Date
Deschutes County Rural Fire Protection District #1	
Alan Unger	 Date
Mayor, City of Redmond	Date
Travis Medema, District Forester	Date
Oregon Department of Forestry	
Dennis Luke, Chair	
Deschutes County Board of Commissioners	
Mile Daly Commissioner	Doto
Mike Daly, Commissioner Deschutes County Board of Commissioners	Date
. ,	
Beverly Clarno, Commissioner	Date
Deschutes County Board of Commissioners	

Acknowledgements

Assembled within the true spirit of collaboration, the following people are acknowledged for their participation and commitment resulting in the creation of the Greater Redmond Community Wildfire Protection Plan.

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Melinda Fortner	Deschutes County
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Greater Redmond Community Wildfire Protection Plan

Purpose

The purpose of the Greater Redmond Community Wildfire Protection Plan (CWPP) is to:

- Protect lives and property from wildland fires;
- Instill a sense of personal responsibility and provide steps for taking preventive actions regarding wildland fire;
- Increase public understanding of living in a fire-adapted ecosystem;
- Increase the community's ability to prepare for, respond to and recover from wildland fires;
- Restore fire-adapted ecosystems; and
- Improve the fire resilience of the landscape while protecting other social, economic and ecological values.

This document outlines the priorities, strategies and action plans for fuels reduction treatments in the greater Redmond wildland urban interface. This CWPP also addresses special areas of concern and makes recommendations for reducing structural vulnerability and creating defensible spaces in the identified communities at risk. It is intended to be a living vehicle for fuels reduction, educational, and other projects to decrease overall risks of loss from wildland fire; updated and revisited at least semi-annually to address its purpose.

Wildland fire is a natural and necessary component of ecosystems across the country. Central Oregon is no exception. Historically, wildland fires have shaped the forests and rangelands valued by residents and visitors. These lands in greater Redmond however, are now significantly altered due to fire prevention efforts, modern suppression activities and a general lack of large scale fires, resulting in overgrown forests with dense fuels that burn more intensely than in the past. In addition, the recent explosion in population has led to increased residential development into forested land, in the wildland urban interface (WUI). To address these issues, members of fire agencies, local businesses and organizations, and individuals collaborated to develop the Greater Redmond Community Wildfire Protection Plan.

Although reducing the risk of catastrophic wildland fire is the primary motivation behind this plan, managing the forests and wildlands for hazardous fuels reduction and fire resilience is only one part of the larger picture. Residents and visitors desire healthy, fire-resilient forests and wildlands that provide habitat for wildlife, recreational opportunities, and scenic beauty.

The Greater Redmond Community Wildfire Protection Plan will assist Redmond Fire & Rescue, Deschutes County Rural Fire Protection District #1 and Redmond area residents in the identification of surrounding lands, including federal and state lands, at risk from catastrophic wildland fire. The Greater Redmond CWPP identifies priorities and strategies for reducing hazardous wildland fuels while improving forest health, supporting local industry and economy and improving fire protection capabilities. It also identifies strategies to address special areas of concern like evacuation routes as well as outlines actions that individuals can take to help protect themselves and their neighborhoods against the threat of wildland fires.

Collaboration

In 2003, the Congress passed historical bi-partisan legislation: the Healthy Forests Restoration Act (HFRA). This legislation directs federal agencies to collaborate with communities in developing a Community Wildfire Protection Plan (CWPP) which includes the identification and prioritization of areas needing hazardous fuels treatment. It further provides authorities to expedite the National Environmental Policy Act (NEPA) process for fuels reduction projects on federal lands. The act also requires that 50% of funding allocated to fuels projects be used in the wildland urban interface.

For the first time, communities have the opportunity to direct where federal agencies place their fuels reduction efforts. With a Community Wildfire Protection Plan in place, community groups can apply for federal grants to treat hazardous fuels and address special concerns to reduce the risk of catastrophic loss as a result of wildland fire.

Community members of Redmond, Oregon came together with representatives from Redmond Fire & Rescue, Deschutes County Rural Fire Protection District #1, Oregon Department of Forestry (ODF), the USDA Forest Service (USFS), the USDI Bureau of Land Management (BLM), the Oregon Military Department, Deschutes County and Project Wildfire to develop the Greater Redmond Community Wildfire Protection Plan. The plan was created by this Steering Committee in accordance with *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities* (Communities Committee, Society of American Foresters, National Association of Counties, National Association of State Foresters 2005); and Deschutes County Resolution 2004-093.

A draft of the Greater Redmond CWPP was available for public comment for 30 days prior to the final signing and approval of the plan. Interested parties provided comments for consideration by the Steering Committee during this period.

The Redmond City Council approved the Greater Redmond Community Wildfire Protection Plan on December 19, 2006. The Greater Redmond CWPP was also formally adopted by Deschutes County by resolution # 2006-139 on December 11, 2006.

Background information

Redmond, Oregon is located in central Oregon and is a rapidly growing social, economic and recreational destination in Deschutes County. According to the 2000 census 13,481 residents call the city of Redmond home. Estimates from Portland State University put the 2005 Redmond population at 20,010 - an increase of 49% within the city limits in only five years. Deschutes County planners estimate that there are now 36,646 people in the greater Redmond area, including the rural areas outside the city limits.

Historically, the Redmond area included a mix of open stands of western juniper, bitterbrush, sage and grasslands that was maintained by frequent low to moderate intensity fires. Today, with more development into the wildland urban interface and effective wildland fire suppression, the greater Redmond area is characterized by widespread stands of dense western juniper, bitterbrush, sage and grasses.

As part of the ongoing wildland fire risk management of the surrounding public and private forestlands, the Bureau of Land Management, Oregon Department of Forestry, Deschutes County and private landowners are engaged in hazardous fuels treatment projects across the planning area.

Currently the Bureau of Land Management is involved in the beginning stages of the Cline Buttes Project which borders the western edge of the Greater Redmond WUI and is adjacent to the Eagle Crest developments. The total acreage and type of treatments to be performed are being determined now.

Deschutes County owns approximately 4% of all the privately owned land in the greater Redmond WUI. Through ongoing funding opportunities, including grants, Deschutes County is taking steps to reduce the hazardous vegetation and provide for a more fire safe community. Deschutes County is also actively engaged in selling some of its lots with the deed requirement that new owners complete any hazardous fuels reduction within one year and maintain it.

Community Base Maps

Early in the planning process, the Steering Committee agreed to utilize the best available information and data from the US Forest Service, Oregon Department of Forestry, the Fire Learning Network and Deschutes County databases. Using this data, the Steering

Committee relied on the following maps and GIS data (Appendix A) to complete the risk assessment process:

- Greater Redmond WUI boundary with identified Communities at Risk,
- 2005 Deschutes County tax lot and population data,
- Fire starts in the last ten years,
- Current Fire Regime Condition Class

Community Profile

The community of Redmond presents a unique challenge for the wildfire planning process. Although the core urban area is not at significant risk from wildfire due to the amount of development and lack of vegetation, the areas adjacent to the core of Redmond are characterized by dense stands of trees, topographical challenges and thick ground vegetation that contribute to its scenic beauty as well as the overall wildland fire risk. There are extensive areas of hazardous wildland fuels intermixed with homes and businesses across the planning area that in the event of a grass or brush fire, could sustain a wildland fire event with catastrophic losses likely. Redmond is also home to many agricultural areas, which have the capacity to carry significant ground fires.

Wildland Urban Interface Description

The Healthy Forests Restoration Act defines wildland urban interface (WUI) as an area within or adjacent to an at-risk community that has been identified by a community in its wildfire protection plan. For areas that do not have such a plan, it is identified as:

- extending ½ mile from the boundary of an at-risk community,
- extending 1½ miles from the boundary of an at-risk community when other criteria are met such as a sustained steep slope or a geographic feature that creates an effective firebreak, or is classified as Condition Class 3 land,
- adjacent to an evacuation route.

The Redmond CWPP Steering Committee has carefully planned and mapped the planning area (see Appendix A). The southern edge of the boundary is the northern boundary of the Bend CWPP. The northern part of the WUI is the Jefferson County CWPP boundary. The west side of the WUI is met by the Greater Sisters Country CWPP boundary and the east side is met by the Crook County CWPP.

The southeast corner of the planning area dips into the Bend CWPP boundary to capture the evacuation route from the Pronghorn development where it meets the Powell Butte Highway. This area was not included in the Bend CWPP risk assessments. The Steering Committee included it in this plan as a necessary element for assessment.

Also included in the Southeast sub region is 23,718 acres of land for the Biak Training Center for the Oregon Army National Guard. The Oregon Military Department recently renewed its long term lease for this land with the Bureau of Land Management. This acreage takes up approximately 90% of the land in this sub region. A representative for the Oregon Army National Guard participated on the Steering Committee for the Greater Redmond CWPP. Under Department of Defense guidelines, the Biak Training Center is also conducting a fire prevention planning effort. Although their planning process significantly differs from the Greater Redmond process, the Steering Committee recognizes the value of the military training center and supports coordinated and complementary efforts to protect it from losses due to wildland fire. Therefore, the Steering Committee included the Biak Training Center in the WUI boundary.

In all eight identified sub regions, the 1½ mile WUI boundary meets the CWPP planning area boundary. For the purposes of this plan, the wildland urban interface (WUI) boundary and the CWPP planning area are the same geographical region.

The city of Redmond lies in the core of the Greater Redmond WUI boundary. The Greater Redmond wildland urban interface boundary is approximately 173 square miles and covers 111,003 acres.

Communities at Risk

The Healthy Forest Initiative (HFI) and the Healthy Forests Restoration Act (HFRA) define a "community at risk" from wildland fire as one that:

- is a group of homes and other structures with basic infrastructure and services (such as utilities and collectively maintained transportation routes) in or adjacent to federal land;
- has conditions conducive to large-scale wildland fire; and
- faces a significant threat to human life or property as a result of a wildland fire.

For assessment and prioritization purposes, the Steering Committee identified the following eight sub regions as Communities at Risk within the Greater Redmond planning area:

Northeast – 13,797 acres with 1,168 structures. Population 2,920.

Southeast – 26,353 acres with 60 structures. Population 150.

Southwest – 20,388 acres with 2,400 structures. Population 6,000.

Northwest – 34,810 acres with 2,677 structures. Population 6,692.

Urban Northwest – 3,351 acres with 2,525 structures. Population 6,312.

Urban Southwest – 4,579 acres with 4,654 structures. Population 11,635.

Urban Northeast – 3,263 acres with 753 structures. Population 1,882.

Urban Southeast – 4,462 acres with 422 structures. Population 1,055.

Figure 1 demonstrates the comparison between the eight Communities at Risk relative to the number of structures in each area.

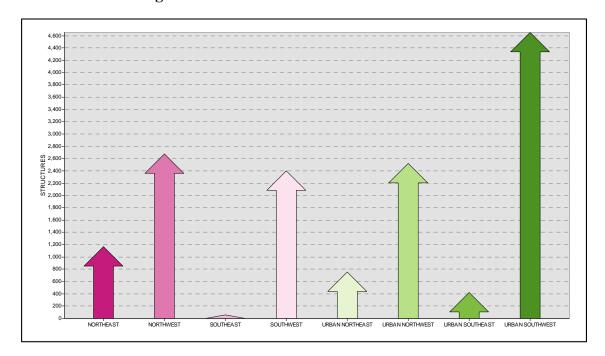


Figure 1 – Structures in the Communities at Risk

Figure 2 demonstrates the population in each Community at Risk.

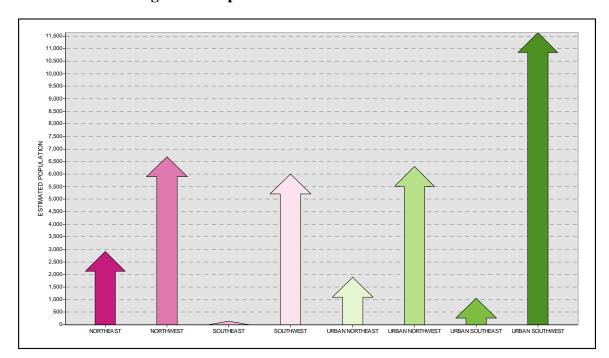


Figure 2 – Population in the Communities at Risk

Fuel Hazards and Ecotypes

The majority of the vegetation in the Greater Redmond WUI includes:

- Western juniper
- Western sage
- Bitterbrush

Western juniper is the predominant overstory species that occurs across the Redmond area landscape. During its first few decades, western juniper is extremely susceptible to wildfire and spends most of its resources putting down major root systems instead of developing thick bark or other fire resistant characteristics. Prior to settlement of the western United States, juniper was frequently killed by wildfires that moved through the landscape approximately every 30 years. As a result, it grew almost exclusively in rocky areas and outcrops where fire could not burn it. Over the past century, western juniper has established itself outside the rocky outcrops and into much of central Oregon, including the greater Redmond area. Specifically, the increase in its range is attributed to more effective fire suppression which has allowed stands to grow unchecked by fire and past grazing practices of domestic livestock which has decreased the amount of ground vegetation needed to carry a fire.

Western sage and a variety of sagebrush species are also found throughout the Redmond planning area. Like western juniper, sagebrush is highly susceptible to fire and rarely

re-sprouts. Under historic conditions, sagebrush took approximately 20 years to reach pre-burn densities following a wildfire event. Without periodic fire, sagebrush reaches an uncharacteristic old-growth form with increased height, woody stems, and thick accumulations leaves – all highly flammable. Changes in fire occurrence along with fire suppression and livestock grazing have contributed to the current condition of sagebrush in the planning area. Introduction of annuals, especially cheat grass, has increased fuel loads so that fire carries easily, increasing the potential for significant and dangerous fire behavior.

Bitterbrush occurs throughout the Redmond planning area on all aspects and elevations and is frequently found with sagebrush and western juniper. Fire severely damages bitterbrush, especially if rain is not received shortly after a burn. Bitterbrush is fire dependent, but not fire resistant. It regenerates mostly from seed after a fire and often sprouts from caches of seeds made by rodents. Bitterbrush will sprout after burning regardless of the severity of the burn and matures relatively quickly. Consequently, the Redmond wildland urban interface area is rich with patches of bitterbrush that burn well on their own and provide fire-ready ladder fuels for taller tree stands.

Community Assessment of Risk

The Greater Redmond Community Wildfire Protection Plan utilizes two risk assessment methodologies: the Oregon Department of Forestry Assessment of Risk Factors and a group assessment based on the current Fire Regime and Condition Class of the landscape.

ODF Assessment of Risk Factors

The ODF Assessment of Risk Factors is based on five categories of evaluation that include a variety of information designed to identify and evaluate wildland fire risk across Oregon: risk of wildfire occurrence, hazard, protection capability, human and economic values protected and structural vulnerability.

Risk of Wildfire Occurrence

The risk of wildfire occurrence refers to the likelihood of a fire occurring based on historical fire occurrence, home density and ignition sources. The risk is high for six of the eight sub regions assessed in the Redmond area. The Urban Northeast and Urban Southeast have a rating of moderate. The calculations are based on evidence from the USFS, ODF and Redmond Fire & Rescue of fire occurrence per 1,000 acres per ten years, as well as home density and ready ignition sources like dry lightning storms, debris burning, equipment use, juveniles, campfires, and arson.

The current condition of the vegetation on the federal and private lands adjacent to and within the greater Redmond WUI poses an extreme risk of catastrophic loss from

wildland fire. The City of Redmond and surrounding rural neighborhoods are also threatened by embers falling on the community from an adjacent wildland fire.

Hazard

The hazard rating describes resistance to control once a fire starts based on weather, topography (including slope, aspect and elevation), vegetation and crown fire potential. As stated earlier, effective wildland fire suppression has led to the extensive buildup of overstory and ground vegetation in the wildland urban interface. **Five of the eight sub regions rated extreme and three rated high in the Greater Redmond planning area.**

A wildland fire could start within any of the communities at risk or in any of the forested areas adjacent to or surrounding the communities. With a fire of any significance, it could be difficult to assemble the resources necessary to adequately address all of the fire and life safety issues that could arise in the early stages of emergency operations.

Protection capability

The ratings for this category are based on fire protection capability and resources to control and suppress wildland and structural fires. The ratings also consider response times and community preparedness. **Fire protection capability ranges from low risk to moderate risk in the Greater Redmond planning area.** When local resources are fully engaged, all agencies can request additional resources through the State of Oregon and request federal resources through the Pacific Northwest Coordination Center.

In addition to this high level of coordination, all fire departments and agencies in Central Oregon convene each year for a pre-season meeting to discuss the upcoming wildland fire season. Topics addressed at this meeting include predicted wildland fire activity, weather forecasts and how agencies can/will respond to meet the needs of fire events.

Redmond Fire & Rescue and Deschutes County Rural Fire Protection District #1

Deschutes County Rural Fire Protection District #1 is directed by a five member elected board of directors and contracts with the City of Redmond to provide fire and EMS services within the rural fire district. As a result of its strong working relationship with the Fire District, Redmond Fire & Rescue provides first response structural and wildland fire coverage within its 150 mile service district. Through four stations Redmond Fire & Rescue provides Emergency Medical Services (EMS), including Advanced Cardiac Life Support transport, within a 450 square mile service boundary. The department also provides trained staff for the Hazardous Materials Response Team and provides specialized firefighting coverage for Redmond International Airport at Roberts Field. Redmond Fire & Rescue adopted the National Incident Management Systems (NIMS) and all personnel have received training and continue to train in its use.

Redmond Fire & Rescue is a combination career and volunteer department that employs one Fire Chief, five Division Chiefs, 33 line firefighter/paramedics, one fire prevention staff member, and three administrative staff members. The department also utilizes nine student volunteers and 12 regular volunteers.

Redmond Fire & Rescue utilizes a fleet of firefighting and EMS apparatus including: three structural engines, three interface engines, one ladder truck, three water tenders, two heavy brush engines, two light brush engines, one light rescue truck, four ambulances, two hazardous materials response vehicles and trailers, two Aircraft Rescue Fire Fighting (ARFF) engines, two command vehicles and six staff vehicles.

The department is a party to the Central Oregon Mutual Aid Agreement. In the event of a major structural fire, the department may request assistance from all other fire departments that are signatory to the agreement. In addition, all Central Oregon fire departments and the wildland fire agencies including the US Forest Service (USFS), Oregon Department of Forestry (ODF), and the Bureau of Land Management (BLM) are party to the Central Oregon Cooperative Wildland Fire Agreement. These cooperative agreements allow for interactive coordination in the event of a wildfire that threatens communities in Central Oregon.

Oregon Department of Forestry (ODF)

The Central Oregon District of the Oregon Department of Forestry does not provide fire protection for any private landowners in the greater Redmond area. ODF does however participate in mutual aid requests for fire suppression on wildland fires within the Redmond CWPP boundary as described above.

USDA Forest Service and USDI Bureau of Land Management

The Forest Service and BLM provide wildland fire protection on the federal lands within the greater Redmond area. Together, they are identified as the Central Oregon Fire Management Service (COFMS). COFMS includes the Deschutes National Forest, the Ochoco National Forest, the Crooked River National Grassland, and the Prineville District of the BLM. These four units are managed cooperatively under combined leadership, with an Interagency Fire Management Officer, two Deputy Fire Management Officers, and a Board of Directors including decision makers from both agencies, with Forest Service District Rangers and BLM Field Managers. COFMS has a central dispatching facility in partnership with the Oregon Department of Forestry that serves as a Coordination Center for fire and fuels operations, as well as safety and training issues for COFMS. In total, COFMS provides the following resources: 15 engines, 4 initial attack hand crews, 6 prevention units, 2 dozers, 2 water tenders, and 1 helicopter with module. Additional regional and national resources are available and include 35 smokejumpers, 2 inter-regional Hotshot crews, 1 air tanker, 1 National Fire Cache, and 20 overhead staff positions.

Law Enforcement

Police services are provided by the City of Redmond Police Department and Deschutes County Sheriff. Both entities have responsibility for ensuring the safe and orderly evacuation of the community in the event of a major emergency. A number of resources have been allocated to accomplish this task including hi/lo sirens on vehicles; emergency notification via radio and television; reverse 9-1-1 capability; Police and Sheriff's

Department staff; Redmond Fire & Rescue staff and community-wide volunteers. Any other issues relative to a major emergency are addressed by the Countywide Disaster Plan and the Deschutes County Department of Emergency Services.

Oregon State Police assists the law enforcement efforts and cooperates with the City of Redmond and Deschutes County for protection in the Redmond area.

Community Preparedness

Also under the category of Protection Capabilities, the ODF Assessment of Risk examines a community's level of organization and preparedness to respond in an emergency situation. The assessment considers whether the area has an organized stakeholder group that looks out for its own area through mitigation efforts, a phone tree, etc. Or, does the area only receive outside efforts such as newsletters, mailings or fire prevention information from other groups? In the Greater Redmond WUI, the Communities at Risk have an average rating of moderate with most efforts made by outside agencies such as the fire department's FireFree efforts in individual neighborhoods. The Steering Committee used local knowledge to determine the level of preparedness.

Values Protected

These ratings are based on home density per ten acres and community infrastructure such as power substations, transportation corridors, water and fuel storage, etc. The human and economic values protected in the Greater Redmond planning area ranged from moderate to high.

Based on Deschutes County tax records from 2005, there are approximately 14,659 residential structures in the Greater Redmond planning area, with an estimated real market value of \$3,864,077,260. In addition, 845 businesses operate in the Redmond area. If a large wildland fire occurs in this area which resulted in the closure of either US Highway 97 or state highway 126, the economic loss to businesses could exceed \$3.5 million per day.

The essential infrastructure includes multiple webs of utilities, roads, water and sewer systems and has an approximate replacement value of \$275,000 per mile for electrical transmission lines; \$150,000 per mile of electrical distribution lines; and \$2 million per electrical sub-station. Physical loss to roads, water and sewer systems would be minimal because most are underground or otherwise not flammable.

Structural Vulnerability

In recent years, many neighborhoods in the greater Redmond area have taken steps to decrease the vulnerability of structures to wildland fire. Although attitudes and behaviors towards fire are changing in the Redmond area thanks to educational programs like FireFree, the exponential population growth and continued development into the wildland urban interface present fresh challenges each year. The Steering Committee puts high

value on the importance of making structures and neighborhoods in the Redmond area as fire safe as possible.

A subcommittee comprised of leaders from Redmond Fire & Rescue, Oregon Department of Forestry, and Deschutes County met to address structural vulnerability based on a combined approach including the NFPA 1144 survey and the statewide ODF Assessment of Risk standards. The rating for structural vulnerability was low in all but the Southwest sub region which received a rating of moderate. The survey included assessments of the following criteria on a community-wide scale rather than lot by lot:

- Flammable roofing wood or non-wood present;
- Defensible space meets local requirements or not;
- Ingress/egress one, two or more roads in/out;
- Road width − 0 to more than 24 feet wide;
- All season road conditions surfaced or not, with grade more or less than 10%;
- Fire Service access more or less than 300 ft, with or without turnaround;
- Street signs Present with 4" reflective characters or absent.

Adequate water resources were not considered in this assessment and are addressed as a priority item under Action Plan and Implementation.

The following table is a summary of the eight Communities at Risk (sub regions), the value ratings (with corresponding scores) and the total scores for each community in each category. The higher the total score in this assessment, the higher the overall risk.

Table 3 - ODF Assessment of Risk

Community at Risk	What is the likelihood of a fire occurring?	Hazard rating	Protection capability	Human and economic values protected	Structural vulnerability	Total score	Rank
	High	Extreme	Moderate	Moderate	Low		
Northeast	30	68	14	22	28	162	4
	High	Extreme	Moderate	Moderate	Low		
Southeast	30	65	10	22	14	141	5
	High	Extreme	Moderate	Moderate	Low		
Northwest	30	68	16	22	30	166	3
	High	Extreme	Low	High	Moderate		
Southwest	35	68	6	35	32	176	2
	Moderate	High	Low	High	Low		
Urban NE	15	50	2	35	18	120	7
	Moderate	High	Low	Moderate	Low		
Urban SE	25	60	2	22	23	132	6
	High	Extreme	Low	High	Low		
Urban NW	35	68	2	50	24	179	1
	High	High	Low	High	Low		
Urban SW	35	55	2	50	24	166	3

Risk: Describes the likelihood of a fire occurring based on historical fire occurrence and ignition sources. Low = 0 - 13 points; Moderate = 14 - 27 points; High = 28 - 40 points.

Hazard: Describes resistance to control once a fire starts based on weather, topography and fuel. Low = 0 - 9 points; Moderate = 10 - 40 points; High = 41 - 60 points; Extreme = 61 - 80 points.

Protection capability: Describes fire protection capability and resources based on type of protection, response times and community preparedness. Low = 0-9 points; Moderate = 10-16 points; High = 17-40 points. A risk factor of low is the goal for each community.

Values protected: Describes the human and economic values in the community based on home density per ten acres and community infrastructure such as power substations, transportation corridors, water and fuel storage, etc. Low = 0 - 15 points; Moderate = 16 - 30 points; High = 31 - 50 points.

Structural vulnerability: Describes the likelihood that structures will be destroyed by wildfire based on roofing and building materials, defensible space, separation of homes, fire department access and street signage. Low = 0 - 30 points; Moderate = 31 - 60 points; High = 61 - 90 points.

Total score: A sum of all the points from each category assessed.

Fire Regime - Condition Class

Fire Regime - Condition Class considers the type of vegetation and the departure from its natural fire behavior return interval.

Five natural (historical) fire regimes are classified based on the average number of years between fires (fire frequency) combined with the severity of the fire on dominant overstory vegetation. Fire regimes I (bitterbrush) and II (western juniper) are the predominant representations on the landscape in the Greater Redmond WUI. Western juniper for example has a fire return interval of approximately 30 years with high potential for stand replacement fires. Therefore, it falls within Fire Regime II.

Table 4 summarizes Fire Regimes.

Table 4 – Fire Regimes

Fire Regime Group	Fire Frequency	Fire Severity	Plant Association Group
I	0 – 35 years	Low severity	Ponderosa pine, manzanita, bitterbrush
II	0 – 35 years	Stand replacement	Western juniper
III	35 – 100+ years	Mixed severity	Mixed conifer dry
IV	35 – 100+ years	Stand replacement	Lodgepole pine
V	> 200 years	Stand replacement	Western hemlock, mixed conifer wet

Condition Class categorizes a departure from the natural fire frequency based on ecosystem attributes. In Condition Class 1, the historical ecosystem attributes are largely intact and functioning as defined by the historical natural fire regime. In other words, the stand has not missed a fire cycle. In Condition Class 2, the historical ecosystem attributes have been moderately altered. Generally, at least one fire cycle has been missed. In Condition Class 3, historical ecosystem attributes have been significantly altered. Multiple fire cycles have been missed. The risk of losing key ecosystem components (e.g. native species, large trees, soil) is low for Class 1, moderate for Class 2, and high for Class 3.

Table 5 summarizes Condition Class.

Table 5 – Condition Class

Condition Class	Attributes
Condition Class 1	 Fire regimes are within or near an historical range. The risk of losing key ecosystem components is low. Fire frequencies have departed from historical frequencies (either increased or decreased) by no more than one return interval. Vegetation attributes are intact and functioning within an historical range.
Condition Class 2	 Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components has increased to moderate. Fire frequencies have departed (either increased or decreased) from historical frequencies by more than one return interval. This change results in moderate changes to one or more of the following: fire size, frequency, intensity, severity or landscape patterns. Vegetation attributes have been moderately altered from their historic ranges.
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 (either increased or decreased) by multiple return intervals. This change results in dramatic changes to one or more of the following: fire size, frequency, intensity, severity, or landscape patterns. Vegetation attributes have been significantly altered from their historic ranges.

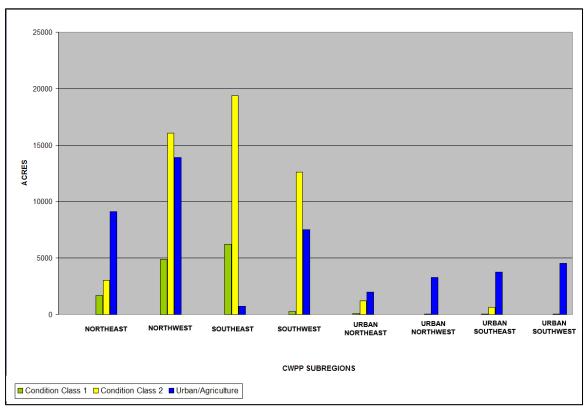
Table 6 shows the percentage of Condition Class 2 lands in each area. In the Greater Redmond WUI boundary, there are no lands in Condition Class 3 at this time. This is due in large part to the Fire Regime in the area which is predominantly western juniper with a fire return interval of approximately 30 years. Although the landscape reveals a Condition Class of 2, it is still significantly at risk of extreme fire behavior.

Table 6 – Percentage of Condition Class 2

Community at Risk	Total acres	Percentage of Condition Class 2	Acres in Condition Class 2	Rank
Southeast	26,353	73.60%	19,396	1
Southwest	20,388	61.80%	12,600	2
Northwest	34,810	46.10%	16,047	3
Urban NE	3,263	37.50%	1,224	4
Northeast	13,797	22%	3,035	5
Urban SE	4,462	14.90%	665	6
Urban NW	3,351	1.40%	47	7
Urban SW	4,579	0.80%	366	8

Figure 7 shows the comparison of Condition Class in each of the Communities at Risk.

Figure 7 – Acres of Condition Class



As shown, the highest percentages of Condition Class 2 lands lie in the more rural areas with the larger acreages. The Steering Committee presents Table 8 as a composite of the ODF Assessment of Risk (Table 3) and Condition Class (Table 6). The Steering Committee used Table 8 as a method to identify and assign priorities for treatment.

Table 8 – Composite of ODF Assessment of Risk & Condition Class

Community at Risk	ODF Rank	Percentage of Condition Class 2	Group consensus of both assessments with consideration of population and structures
Northwest	3	3	1
Southwest	2	2	2
Northeast	4	5	3
Southeast	5	1	4
Urban NW	1	7	5
Urban NE	7	4	6
Urban SW	3	8	7
Urban SE	6	6	8

The Steering Committee carefully considered the rank in both assessments and ultimately relied on values at risk (population and structures) to compensate for the fact that some areas have thousands of acres in Condition Class 2, but very few people and homes actually at risk. The Northwest area for example ranks #3 in both assessments, but when the group considered population and structures at risk, in combination with Condition Class 2 lands, the Northwest has more values at risk than the Southwest and the Southeast areas. Based on group consensus, the Steering Committee determined two groups of area priorities for hazardous fuels treatment in these Communities at Risk:

Highest Priority Communities

- Northwest
- Southwest
- Northeast
- Southeast
- Urban Northwest

High Priority Communities

- Urban Northeast
- Urban Southwest
- Urban Southeast

Areas of special concern

<u>Critical Transportation Routes</u>

Critical Transportation Routes do not have a standard definition in Deschutes County. For purposes of the Greater Redmond CWPP, the Steering Committee defines Critical Transportation Routes as:

- all routes necessary for the support of routine flow of commerce to and/or through the greater Redmond area,
- all routes that could be used for potential evacuation of citizens and/or visitors from a wildland fire threat to public safety,
- routes needed for emergency ingress and egress to a wildland fire incident, not including unimproved or "two-track" roads,
- and, all routes needed to protect and support critical infrastructure (power substations, communication transmission lines, water and fuel storage, public service facilities, recreation facilities, etc).

The Steering Committee expressed great concern over the need to identify, develop and protect critical transportation routes as part of this planning process. A detailed look at specific ingress/egress issues for each Community at Risk is included under Recommendations to Reduce Structural Vulnerability. This issue is also highlighted under Action Plan and Implementation.

Prioritized Hazard Reduction Recommendations and Preferred Treatment Methods

The Steering Committee agreed that the Greater Redmond Community Wildfire Protection Plan is a living tool that can be used for multiple outcomes. The following is an outline of the prioritized Communities at Risk, as well as preferred treatments and goals for hazardous fuels reduction under the Greater Redmond Community Wildfire Protection Plan.

Prioritized Communities at Risk

Based on the combined assessment as shown in Table 8 and group consensus the Steering Committee has identified the following prioritized Communities at Risk for hazardous fuels reduction treatments on public and private lands in the Greater Redmond WUI:

Highest Priority Communities

- Northwest
- Southwest
- Northeast
- Southeast
- Urban Northwest

High Priority Communities

- Urban Northeast
- Urban Southwest
- Urban Southeast

Priorities and goals

With critical needs assessed and priority areas listed, the Steering Committee identified the following goals to meet the Purpose on page 1 of the Greater Redmond CWPP:

- Reduce hazardous fuels on public lands
- Reduce hazardous fuels on private lands (both vacant and occupied)
- Reduce structural vulnerability
- Increase education and awareness of wildfire threat
- Identify, improve and protect critical transportation routes

Preferred treatments and goals for hazardous fuels reduction

The standard of the Greater Redmond CWPP is to decrease the risk of uncharacteristic wildland fire behavior by reducing fuel loads to that which can produce flame lengths of less than four feet. This enables safe and effective initial attack. The overall goal is to return the landscape to Condition Class 1 and provide for a healthy, fire resilient landscape that supports the social, economic and ecological values of greater Redmond area residents and visitors. The Steering Committee recognizes the effectiveness and value of maximizing treatment efforts in areas that are adjacent to federal, state, military or private projects and recommends that future projects consider these benefits when selecting areas for treatment. The following specific standards are recommended for treatments on public and private lands within the greater Redmond planning area.

Federal and state owned lands

Federal lands are managed by the BLM and occupy 41% of lands in the Greater Redmond planning area, all located in the four rural Communities at Risk. The Oregon Military Department leases 22% of the lands for its Biak Training Center in the Southeast sub region. The Steering Committee includes the training center lands within the WUI boundary and in this section for fuels treatment recommendations.

State owned lands represent only 3% of the planning area but include the valuable recreation and scenic areas of Smith Rock State Park and Cline Falls State Park. The state also owns blocks of land in the Northwest and Southwest planning areas. The parks are managed by Oregon State Parks and the blocks of land are managed by the Division of State Lands.

It is the intent of the Steering Committee that the Greater Redmond planning area is subject to expedited measures for hazardous fuels treatment and allocation of funds to protect the communities and neighborhoods as stipulated by the Healthy Forests Restoration Act.

Federal and state land managers are strongly encouraged to work toward the overall standard by treating Condition Class 2 lands with the goal of returning the landscape to Condition Class 1 by reducing fuel loads to that which can produce flame lengths of less than four feet:

- Within a ¼ mile buffer of adjacent Communities at Risk. Treatments should begin here and increase in ¼ mile increments until the WUI boundary is reached.
- Within 300 feet of any critical transportation route or ingress/egress that could serve as an escape route from adjacent communities at risk.

The standard will be achieved through a variety of treatment methodologies such as thinning, prescribed burning and mechanical treatments. Specific treatments should address fuels issues on a landscape scale rather than acre by acre. These treatments shall

be consistent with the current Upper Deschutes Resource Management Plan and the COFMS Five-Year Fire Management Plan on the federal lands.

The Steering Committee also encourages federal land managers to work with local landowners to minimize road closures that could be used as alternate evacuation routes from Communities at Risk.

Private and county owned lands

The majority of the land (54%) in the Greater Redmond planning area is privately owned land and is considered developed, or in rare cases intermixed with development. The County owns only 4% of the land in this planning area. The Steering Committee recommends that County owned lands be treated in the same manner as privately owned lands.

Private lands with structural improvements

On private lands with structural improvements, the goal is for each structure to meet the Default Standards identified in the Oregon Forestland – Urban Interface Fire Protection Act of 1997, also known as Senate Bill 360. This statute outlines standards and requirements for defensible space on private property that receives fire protection from Oregon Department of Forestry.

Although the Oregon Department of Forestry does not provide wildland fire protection in the greater Redmond planning area, the Steering Committee supports the goals and standards of Senate Bill 360. The Steering Committee agreed that the Default Standards from Senate Bill 360 are the minimum goal to achieve on private and county owned lands throughout the Greater Redmond WUI. Citizens and homeowners can achieve this goal by complying with SB 360 standards regardless of whether they are afforded wildland fire protection by Oregon Department of Forestry.

A detailed description of the standards is available from the Oregon Department of Forestry in the handbook for the Oregon Forestland – Urban Interface Fire Protection Act of 1997. This information is also available at www.oregon.gov/ODF/fire/SB360.

The Default Standards under the Oregon Forestland – Urban Interface Fire Protection Act of 1997 are:

- Establish a primary fuel break of 30 feet around structures;
- Create fuel breaks around driveways longer than 150 feet;
- Remove tree branches within 10 feet of chimneys;
- Remove any dead vegetation that overhangs a roof;
- Remove flammable materials from under decks and stairways;
- Move firewood 20 feet away from structures;

Property owners can also achieve the Senate Bill 360 standards by taking advantage of FireFree and Firewise suggestions to create and/or maintain defensible space, a fire-resistant buffer that allows for effective first-response firefighting and a significantly reduced risk of the spread of fire. These national education programs promote a variety of fire safe actions to help prevent the spread of fire to protect individual homes and neighborhoods. Information about these programs can be found at www.firewise.org. More information is also listed in this plan under Recommendations to Reduce Structural Vulnerability.

Vacant lots

Within the Greater Redmond WUI, approximately 20% of the private land is considered vacant, or lots with no structural improvements. Many of those are owned by "absentee owners". In general, vacant lots owned by absentee owners present a specific threat to neighborhoods in that owners have little to no connections to the neighborhoods and in most cases do not recognize their responsibility to contribute to the safety of the entire neighborhood by reducing the hazardous vegetation on their properties. The risk of destructive wildland fires is thereby greater inside these neighborhoods due to the lack of owner attention on vacant lots.

The Steering Committee recommends that those acres that are primarily agricultural in use follow the guidelines under Senate Bill 360 for "High". Those guidelines are the same as described above for the Default Standards and also include a secondary fuel break of an additional 20 feet (a total of 50 feet).

The Steering Committee recommends that those vacant lots and acreages that are dominated by hazardous wildland fuels follow the guidelines under Senate Bill 360 for "High Density Extreme" which also includes the standard of a 20-foot fuel break around each vacant lot with an additional 80 feet of fuel break for a total of 100 feet of defensible space around the lot.



Recommendations to Reduce Structural Vulnerability

Structural Vulnerability

Based on the assessment of structural vulnerability for the ODF Assessment of Risk, Table 9 identifies the main hazards within the eight Communities at Risk in the Greater Redmond planning area. For each hazard or risk listed, an action is recommended to address the threat or decrease the risk. Adequate water resources for fire suppression were not considered as part of this assessment. This topic is addressed under Action Plan and Implementation.

 $Table\ 9-Structural\ Vulnerability\ Hazards\ \&\ Recommendations$

Community at Risk	Primary Hazards	Recommended Actions
	20% have flammable roofing	Homeowner education (FireFree, Firewise, SB 360)
	1/3 do not have defensible space	Homeowner education (FireFree, Firewise, SB 360)
Northwest	90% have only one road in/out	Establish additional routes, sign and maintain
	75% of roads have insufficient width	Identify, upgrade & maintain
	75% of driveways >300 ft without turnaround	Homeowner education (FireFree, Firewise, SB 360)
	1/3 have flammable roofing	Homeowner education (FireFree, Firewise, SB 360)
Southwest	50% do not have defensible space	Homeowner education (FireFree, Firewise, SB 360)
Southwest	50% have only one road in/out	Establish additional routes, sign and maintain
	Some roads with insufficient width (<24 feet)	Identify, upgrade & maintain
	10% have flammable roofing	Homeowner education (FireFree, Firewise, SB 360)
	50% do not have defensible space	Homeowner education (FireFree, Firewise, SB 360)
Northeast	50% have only one road in/out	Establish additional routes, sign and maintain
	Some roads with insufficient width (<24 feet)	Identify, upgrade & maintain
	Poor access to structures – long driveways	Homeowner education (FireFree, Firewise, SB 360)
	10% have flammable roofing	Homeowner education (FireFree, Firewise, SB 360)
	10% do not have defensible space	Homeowner education (FireFree, Firewise, SB 360)
Southeast	Few areas with only one road in/out	Establish additional routes, sign and maintain
	Few roads with insufficient width (<24 feet)	Identify, upgrade & maintain
	Few roads with poor access to structures	Homeowner education (FireFree, Firewise, SB 360)
	1/3 have flammable roofing	Homeowner education (FireFree, Firewise, SB 360)
Urban Northwest	1/3 do not have defensible space	Homeowner education (FireFree, Firewise, SB 360)
orban Morthwest	Few roads with insufficient width (<24 feet)	Identify, upgrade & maintain
	Few have only one road in/out	Establish additional routes, sign and maintain
	1/3 have flammable roofing	Homeowner education (FireFree, Firewise, SB 360)
Urban Northeast	15% do not have defensible space	Homeowner education (FireFree, Firewise, SB 360)
	Few have only one road in/out	Establish additional routes, sign and maintain
	1/3 have flammable roofing	Homeowner education (FireFree, Firewise, SB 360)
Urban Southwest	1/3 do not have defensible space	Homeowner education (FireFree, Firewise, SB 360)
	Few have only one road in/out	Establish additional routes, sign and maintain
	Few roads with insufficient width (<24 feet)	Identify, upgrade & maintain
	1/3 have flammable roofing	Homeowner education (FireFree, Firewise, SB 360)
Urban Southeast	1/3 do not have defensible space	Homeowner education (FireFree, Firewise, SB 360)
	Few have only one road in/out	Establish additional routes, sign and maintain

Table 10 provides a checklist for residents seeking to reduce the risk of catastrophic losses to their homes and properties. The list is compiled from tips and suggestions from the FireFree and Firewise programs, which promote homeowner responsibility for reducing fire hazards on their property. The Steering Committee approves this combined checklist. More information about these programs can be found at www.firefree.org and www.firewise.org.

Table 10 – Defensible Space Checklist

$\overline{\mathbf{V}}$	What can I do to help prevent losses to my property and my neighborhood?
	Post easy-to-read address signs so emergency crews can find your home.
	Reduce the density of nearby trees.
	Clear wood piles and building materials at least 20 feet away from your home.
	Remove low tree branches and shrubs. Trim up juniper and other trees at least 4 feet from the ground. Remove "ladder fuels" among trees.
	Keep grass and weeds cut low.
	Remove all branches and limbs that overhang roofs.
	Remove leaves & needles from gutters, roofs and decks.
	Remove dead plants and brush.
	Maintain a minimum of 30 feet of defensible space around your home.
	Screen vents and areas under decks with 1/8" metal mesh or fire resistant siding.
	Keep decks free of flammable lawn furniture, toys, doormats, etc.
	Choose fire-resistant roofing materials like metal, tile or composition shingles.
	Trim vegetation along driveways a minimum distance of 14' wide x 14' high for fire trucks.
	Choose fire resistive plants. Visit <u>www.extension.oregonstate.edu/deschutes</u> to view <i>Fire-Resistant Plants for the Home Landscape</i> .
	Use alternatives to burning debris like composting or chipping.
	If burning debris – call the Burn Line at Redmond Fire & Rescue at 548-2100 to see if burning is allowed. Do not burn building materials.

Other Recommendations

Education

As stated in the Purpose of the Greater Redmond CWPP, three of the goals for this planning effort are to:

- Instill a sense of personal responsibility for taking preventative actions regarding wildland fire,
- Increase public understanding of living in a fire-adapted ecosystem, and
- Increase the community's ability to prepare for, respond to and recover from wildland fires.

With these goals in mind, education and outreach are top priorities for the Greater Redmond CWPP. The rapid influx of new residents is just one reason the Steering Committee places high value on the education of Redmond area residents and landowners. Many new residents are unfamiliar with wildland fire and have limited experience with issues like defensible space. Residents and visitors will continue to benefit from clear examples of what a fire resilient forest and community look like as well as easy access to resources that help them take action.

There are several opportunities to enhance educational efforts in the greater Redmond area. Redmond Fire & Rescue, Oregon Department of Forestry, the Central Oregon Fire Prevention Cooperative and Project Wildfire all provide wildland fire prevention programs through a variety of individual and collaborative efforts.

Some neighborhoods in the greater Redmond area are well organized through homeowners associations and other groups. These groups provide valuable ongoing education to their populations about the risks of catastrophic wildland fire and ways to improve their protection. The Steering Committee supports these groups and encourages their formation in the greater Redmond area to address the educational needs of current and incoming residents about living in a fire adapted environment and increasing personal responsibility for creating defensible space.

The Steering Committee also recommends support for projects that enhance a community's ability to communicate necessary information in the event of a wildfire. Programs that develop and maintain neighborhood phone trees or communication lists that identify neighbors who may need additional assistance during an evacuation are encouraged.

Utilizing the information in Tables 9 and 10, property owners are strongly encouraged to learn more about how they can reduce the hazards on their own property. Local residents are encouraged to contact Redmond Fire & Rescue at (541) 504-5000 for information. Residents may also find additional information on how they can reduce hazards and protect themselves at www.firefree.org and www.firewise.org.

Action Plan and Implementation

The Steering Committee recognizes that the Greater Redmond CWPP is a living tool with multiple applications. The following priority actions are intended to assist individuals and agencies in the implementation of this CWPP across the greater Redmond area.

Priorities

Reduce hazardous fuels on public lands

Immediately following the acceptance and signed approval of this plan, the Steering Committee will make copies of the Greater Redmond CWPP available to all federal and state land managers including the Deschutes National Forest, the Bureau of Land Management, and the Oregon Department of Forestry. The intention of the Steering Committee is to engage in continued discussions with the greater Redmond community and adjacent landowners to implement the CWPP and accomplish hazardous fuels reduction projects that address the prioritized Communities at Risk in the most expeditious manner possible. The Steering Committee recognizes the effectiveness and value of maximizing treatment efforts in areas that are adjacent to federal, state, military or private projects and recommends that future projects consider these benefits when selecting areas for treatment.

Reduce hazardous fuels on private lands

The intention of the Steering Committee is to engage in continued discussions with landowners to facilitate fuels reduction projects on private lands utilizing the list of prioritized Communities at Risk. These actions can be accomplished through education activities or grants for specific projects on private lands.

Reduce Structural Vulnerability

The Steering Committee is charged with the task of engaging community members to review the Structural Vulnerability Assessment in this CWPP and identify projects that will strengthen the potential for the neighborhoods to survive a catastrophic wildland fire within the Greater Redmond WUI. Tables 9 and 10 can be utilized as a resource for homeowners to improve the fire resistance of their homes on an individual basis and also by groups to implement education programs in the individual sub regions.

The Steering Committee is also charged with the task of working with Redmond Fire & Rescue to identify and assess the water resources available for fire suppression in the Communities at Risk. The Steering Committee will make recommendations for projects to ensure adequate water resources are available for fire suppression.

Increase Awareness and Education

The Steering Committee will work with Redmond Fire & Rescue and Project Wildfire to review the educational programs available and identify potential projects for

implementation in those Communities at Risk that do not already participate in fire prevention education activities.

Identify, Improve and Protect Critical Transportation Routes

The Steering Committee will work with Redmond Fire & Rescue, Deschutes County, and Oregon Department of Transportation to identify and map existing transportation and evacuation routes in each Community at Risk. The Steering Committee will assist in conducting further assessments to determine the evacuation needs of each Community at Risk and identify potential projects developing new routes and/or improving existing routes.

The Steering Committee encourages exploratory discussions with fire agencies and local landowners that address the issue presented when effective evacuation from an area is not available. Are "sheltering in place" and safe staging areas an option?

The Steering Committee will continue to encourage federal land managers to work with local landowners to minimize closures of roads that could be used as alternate evacuation routes from Communities at Risk.

Fund Projects

The Steering Committee will encourage and assist community groups in seeking funding for fuels reduction, educational, and other projects to decrease overall risks of loss from wildland fire.

Evaluation and Monitoring

The Steering Committee faced a complex task in the development of the Greater Redmond Community Wildfire Protection Plan. Implementing and sustaining these efforts will require a significant commitment. Building a collaborative and cooperative environment with Redmond Fire & Rescue, Deschutes County RFPD #1, community-based organizations, local government and the public land management agencies has been the first step in reducing the risk of loss from wildland fire. The Steering Committee pledges to maintain this cooperation with the public over the long-term with the commitment of all the partners involved.

At a minimum, the Steering Committee shall include: the Program Coordinator from Project Wildfire; a Chief Officer from Redmond Fire & Rescue; a representative from Oregon Department of Forestry (ODF); a representative from Central Oregon Fire Management Service (COFMS), and Deschutes County along with members of the greater Redmond public.

The Steering Committee agrees that the Greater Redmond Community Wildfire Protection Plan will be a living document, intended to promote fuels reduction,

educational, and other projects to decrease overall risks of loss from wildland fire; updated and revisited at least semi-annually to address its Purpose.

Redmond Fire & Rescue will work with Project Wildfire to convene the Steering Committee at least twice per year, or as often as the Steering Committee deems necessary to implement and review the Greater Redmond Community Wildfire Protection Plan. Topics for discussion can include:

- Identification and assessment of new or treated risks.
- Evaluation and tracking of progress toward goals.
- Updating of maps.
- Adoption of new and/or revised priorities.
- Identification of specific projects.
- Discussion of grant opportunities and determination of projects eligible for funding.
- Writing of grants.
- Identification of appropriate projects to address additional items as outlined in the Action Plan for Structural Vulnerability, Education and Critical Transportation Routes.
- Coordination of additional items, projects and assessments.

Project Wildfire will ensure that the evaluation and monitoring activities listed above are addressed by the Steering Committee each year. As members of the Steering Committee change, Project Wildfire will ensure that it maintains a balanced representation of agency and public members, with a continued focus on inviting interested parties to participate in the review and planning process.