

Greater Bend Community Wildfire Protection Plan



Two Bulls Fire, June 2014

February 2016



CITY OF BEND



"STEWARDSHIP IN FORESTRY"



Prepared by
Project Wildfire
541-322-7129

www.projectwildfire.org
projectwildfire.pw@gmail.com

Executive Summary

Community Wildfire Protection Plans (CWPPs) are documents that are designed by a local group of stakeholders who are invested in the wildland fire threat to their area. The group of stakeholders typically consists of a representative from the fire department(s), the state, any governing bodies and especially property owners. Each of these representatives should bring their concerns regarding wildland fire to the discussion and propose solutions to their concerns.

Although reducing the risk of high intensity wildland fire is the primary motivation behind this plan, managing the larger landscape to restore forest health and more resilient conditions and improving fire response by all fire agencies are also discussed and addressed in the action plan. Continued efforts have been made by county, state and federal land management agencies to reduce the threat of high intensity wildland fires through education and fuels reduction activities on public lands. In addition, private property owners have responded enthusiastically to the defensible space and preparation guidelines and recommendations to reduce hazardous fuels on their own properties by participating in programs such as Firewise and FireFree. All of these activities allow the Greater Bend Area to become a more Fire Adapted Community.

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 wildlands valued by residents and visitors. These landscapes 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 increase in population has led to a swell in residential development into forested land in the wildland urban interface (WUI).

The result of the fuel hazards and forest types in the Greater Bend CWPP area is an overgrowth of trees, forest floor fuels and an abundance of dead or dying vegetation that contribute to a substantially elevated risk of wildland fires that are difficult to control. These overly dense conditions lead to fire behavior that produce flame lengths over eight feet with crowning and torching that can result in stand replacement severity fires.

Bend, Oregon is located east of the Cascades and is the social, economic and recreational hub of Deschutes County. Deschutes County is the fastest growing county in Oregon and currently the Greater Bend Community Wildfire Protection Plan Boundary is home to 97,940 residents. Developed between 3,500 and 4,300 feet in elevations, in a classic wildland urban interface environment, the greater Bend area is also home to abundant wildlife including deer, elk, and many species of birds and fish. Within the planning area there is also a significant amount of public land with developed and dispersed recreation sites, which provide valuable recreation opportunities to both residents and visitors. In the summer months, Deschutes County estimates an additional transient population of up to 20,000 people that occupy these areas creating a seasonal challenge for those agencies responsible for fire suppression and evacuation.

Historically, the Bend area was a mix of forest types including ponderosa pine, some open tracts of western juniper, bitterbrush, sage and open grasslands. Forests in the higher elevations were composed of mixed conifers.

The 2016 Greater Bend Area Community Wildfire Protection Plan will assist all agencies and Bend area property owners in the identification and prioritization of all lands, including surrounding public lands that are at risk from high intensity wildland fire. The Greater Bend CWPP identifies priorities and strategies for reducing hazardous wildland fuels while improving forest health, supporting local industry and economy and improving fire protection capabilities.

Addressing these goals in a cooperative, collaborative manner maintains alignment with the goals outlined in the National Cohesive Wildland Fire Management Strategy (Cohesive Strategy) – resilient landscapes, Fire Adapted Communities and safe and effective wildfire response. For more information on Cohesive Strategy, visit <http://www.forestsandrangelands.gov/>.

The Greater Bend Community Wildfire Protection Plan was developed by and for the community members to enhance their understanding of their local surroundings and how their landscape determines their risk of wildland fire. Each risk assessment and recommendation in this plan has been made after careful consideration by the Steering Committee. Specific recommendations for homeowners to reduce their risk can be found on pages 35, 40 and 41 of this CWPP. The Steering Committee’s recommendations to achieve more fire resilient landscapes can be found on pages 34 and 46 of this CWPP.

Declaration of Agreement

Under the Healthy Forests Restoration Act, the applicable local government, the local fire department(s) and the state entity responsible for forest management approve the CWPP. The Greater Bend Community Wildfire Protection Plan (CWPP) was originally completed and signed in May 2006 and a revision was completed in September 2011. As directed by this CWPP, extensive fuels reduction activities have been completed on public and private lands. Recent wildland fires have also impacted the landscape. Combined, these events have changed the priorities outlined in the previous documents.

This plan is not legally binding, as it does not create or place mandates or requirements on individual jurisdictions. It is intended to serve as a planning tool for fire and land managers and residents to assess risks associated with wildland fire and identify strategies and make recommendations for reducing those risks.

Larry Langston, Fire Chief
City of Bend Fire Department

Date

Ray Miao, Board Chair
Deschutes County Rural Fire Protection District #2

Date

Jim Clinton, Mayor
City of Bend

Date

Kristin Dodd, Unit Forester
Oregon Department of Forestry

Date

Alan Unger, Chair
Deschutes County Board of Commissioners

Date

Acknowledgements

Assembled within the true spirit of collaboration, the following people are acknowledged for their participation and commitment resulting in this 2016 Greater Bend Community Wildfire Protection Plan.

Jim Baker	Lane Knolls Resident
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Alissa Cordner	Whitman University & US Forest Service
Kristin Dodd	Oregon Department of Forestry, Unit Forester
Ben Duda	Oregon Department of Forestry, Assistant Unit Forester
Alex Enna	US Forest Service
Tom Fay	Executive Director, DCRFPD #2
Patti Gentiluomo	Sunriver Owner's Association
Alison Green	Project Wildfire
Doug Green	Bend Fire & Rescue, Fire Inspector
Brenda Hallmark	Bureau of Land Management, BLM
Ed Keith	Deschutes County Forester
Scott Letourneau	Lane Knolls Resident
Craig Letz	Bend Resident & Small Business Owner
Bob Madden	Bend Fire & Rescue, Deputy Chief of Fire Operations
Jane Mellow	North Rim Resident
Ray Miao	Woodside Ranch Resident
James Osbourne	US Forest Service
Dave Reinke	Lane Knolls Resident
Wendy Robinson	City of Bend, Growth Management Department
Cathy Smith	Aperion Management Group
Kevin Stock	US Forest Service, Fire Management Officer
Nicole Strong	OSU-Extension
Sasha Sulia	Bend Parks & Recreation
Brown Thompson	Awbrey Glen Resident

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Contact Information

Copies of this CWPP may be found and downloaded at:

www.projectwildfire.org

Larry Langston, Fire Chief

Bend Fire & Rescue
1212 SW Simpson Avenue
Bend, OR 97702
(541) 322-6300

Tom Fay, Executive Director

Deschutes County Rural Fire Protection District #2
1212 SW Simpson Avenue
Bend, OR 97702
(541) 318-0459

Bob Madden, Deputy Chief of Fire Operations

Bend Fire & Rescue
1212 SW Simpson Avenue
Bend, OR 97702
(541) 322-6300

Kristin Dodd, Unit Forester

Oregon Department of Forestry
3501 NE 3rd Street
Prineville, OR 97754
(541) 447-5658

Ed Keith, County Forester

Deschutes County
61150 SE 27th Street
Bend, OR 97702
(541) 322-7117

Kevin Stock, Fire Management Officer

US Forest Service, Bend-Fort Rock District
63095 Deschutes Market Road
Bend, OR 97701
(541) 383-5300

Brenda Hallmark, Fuels Program Lead

Prineville District, Bureau of Land Management & Ochoco National Forest
3050 NE 3rd Street
Prineville, OR 97754
(541) 416-6780

Alison Green, Program Director

Project Wildfire
61150 SE 27th Street
Bend, OR 97702
(541) 322-7129

Greater Bend Community Wildfire Protection Plan

Purpose

Since its creation in May 2006, the Greater Bend Community Wildfire Protection Plan has been reviewed twice (2011 and 2016) by a local steering committee to be applied as it was intended by a wide variety of private landowners and public agencies to decrease the risks of high intensity wildfire in the Greater Bend Area.

The mission of the Greater Bend Community Wildfire Protection Plan is *to protect against loss of life, property and natural resources as the result of wildland fire*. The Plan has met its mission and continues to serve as the leading document providing direction and guidance to those seeking to protect the resources of the Greater Bend Area.

The Greater Bend CWPP Steering Committee reassembled in September 2015 to review events, projects and activities that have occurred in the planning area that may have influenced to otherwise changed the original priorities of the 2006 Plan and the 2011 update.

Wildland fire is a natural and necessary component of forest ecosystems across the country. Central Oregon is no exception. Historically, wildland fires have shaped the forests valued by residents and visitors. Forests and other wildlands in greater Bend however, are now significantly altered due to past forest management practices, fire prevention efforts, modern suppression activities, residential development and a general lack of large scale fires. These activities have resulted in overgrown forests - some with closed canopies and all with abundant ladder fuels that dramatically increase the chances of large wildland fires that burn intensely and cause catastrophic losses.

Previous population growth and projected future growth has led to increased residential development into forests and into the wildland urban interface (WUI) presenting an increased challenge for fire protection, fire prevention and law enforcement agencies.

Although reducing risk of high intensity wildfire is the primary motivation behind this plan, managing the forests and wildlands for hazardous fuels reduction and fire resilience is only a 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. By establishing a more fire adapted community through work on private property and a more fire resilient landscape, the fire response will be better integrated and successful.

The Steering Committee further refined the purpose of the Greater Bend Community Wildfire Protection Plan:

- Protect lives and property from wildland fires;
- Instill a sense of personal responsibility 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;
- Create and maintain fire adapted communities; and
- Improve the fire resilience of the landscape while protecting other social, economic and ecological values.

The update outlines the revised priorities, strategies and action plan for fuels reduction treatments in the wildland urban interface and post fire recovery. This updated CWPP again addresses special areas of concern and makes recommendations for reducing structural vulnerability and creating defensible spaces in communities at risk. With this revision the Greater Bend CWPP remains a living vehicle for fuels reduction, education, and other projects to decrease overall risks of loss from wildland fire.

Planning Summary

The Board of County Commissioners adopted the most recent revision of the Greater Bend Community Wildfire Protection Plan in February 2011. Continued efforts have been made by local, state, and federal agencies to reduce the threat of high intensity wildland fires through education and fuels reduction activities on public and private lands. In addition, private residents have responded enthusiastically to the defensible space and preparation guidelines and recommendations to reduce hazardous fuels on their own properties.

In keeping with the strategy of the original 2006 Greater Bend CWPP, the Steering Committee revisited the planning outline in *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities* (Communities Committee, Society of American Foresters, National Association of Counties, and National Association of State Foresters 2005).

Below are the eight steps recommended by *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities* the Steering Committee used as guidance through the revision process:

Step one: Convene the decision makers.

The Greater Bend CWPP Steering Committee reconvened in September 2015 to review the extensive amount of work completed within and adjacent to the WUI boundary on public and private lands; and reassess the priorities for future fuels reduction treatments. The Steering Committee is comprised of representatives from Bend Fire & Rescue; Manager from Deschutes County Rural Fire Protection District #2; Oregon Department of Forestry (ODF); the City of Bend; Bureau of Land Management (BLM) and the US Forest Service (USFS); the Deschutes County Forester; other stakeholders; members of the public; and the Program Director from Project Wildfire.

Step two: Involve state and federal agencies.

The Healthy Forests Restoration Act (HFRA) directed communities to collaborate with local and state government representatives, in consultation with federal agencies and other interested parties in the development of a CWPP. The Steering Committee recognized the importance of this collaboration and involved not only members from the USDA Forest Service and USDI Bureau of Land Management (BLM) but Oregon Department of Forestry (ODF) and Deschutes County representatives as well. Each agency brought a wealth of information about fuels reduction efforts planned and completed along with educational information based on current research across the nation.

Step three: Engage interested parties.

The Steering Committee included representatives from the Communities at Risk, members of local businesses, road districts, homeowner/neighborhood associations, and other organizations and individuals. The Steering Committee encouraged a collaborative environment for the stakeholders to accomplish the 2016 revision of the Greater Bend CWPP. Collaboration and coordination between agencies, community members and landowners is the fundamental goal of the Cohesive Strategy.

Step four: Establish a community base map.

The Steering Committee reviewed the previous maps and boundaries from the 2011 CWPP. The group approved the 2016 CWPP Boundary, which now distinguishes two new rating areas within the City of Bend and an extended area in the West rating area to include the watershed that provides the drinking water for the City of Bend. The Steering Committee was able to, with this change, better assess the wildland urban interface threat for residents within the city and plan for the watershed.

Step five: Develop a community risk assessment.

The Steering Committee relied on the ODF Assessment of Risk Factors and the Structural Vulnerability factors for each of the eight (8) Communities at Risk.

Step six: Establish community hazard reduction priorities and recommendations to reduce structural ignitability.

Based on the assessments, the Steering Committee produced items in the action plan for each rating area. The Steering Committee also made recommendations to reduce structural vulnerability based on information in the assessments and local knowledge.

Step seven: Develop an action plan and assessment strategy.

The Steering Committee identified an action plan for key projects; roles and responsibilities for carrying out the purpose of the CWPP; potential funding needs, post fire recovery considerations and the evaluation process for the CWPP itself.

Step eight: Finalize the Community Wildfire Protection Plan.

A draft of the Greater Bend CWPP was available for public comment for 30 days prior to the final signing and approval of the plan. Interested parties provided comments during this period. Bend Fire & Rescue, Deschutes County Rural Fire Protection District #2, Oregon Department of Forestry, The City of Bend and the Deschutes County Board of Commissioners, mutually approved the Greater Bend Community Wildfire Protection Plan as demonstrated in the Declaration of Agreement.

Collaboration

In 2002, President George W. Bush established the Healthy Forests Initiative (HFI) to improve regulatory processes to ensure more timely decisions, greater efficiency and better results in reducing the risk of high intensity wildfire. This initiative allowed forest management agencies for the first time, to expedite the documentation process for the purpose of reducing hazardous fuels on public lands.

In 2003, the US Congress passed historical bi-partisan legislation: the Healthy Forests Restoration Act (HFRA). This legislation expands the initial effort under the Healthy Forests Initiative and directs federal agencies to collaborate with communities in developing a CWPP, which includes the identification and prioritization of areas needing hazardous fuels treatment. It further provides opportunities and authority for federal agencies 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.

Communities now have the opportunity to participate in determining where federal agencies place their fuels reduction efforts. With a CWPP 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.

Although some of the capabilities and authority under HFI and HFRA have been challenged in federal courts, all have been successfully upheld and the original intent and validations under each remain the same.

In 2009, Congress passed the Federal Land Assistance, Management, and Enhancement (FLAME) Act and called for a National Cohesive Wildland Fire Management Strategy to address wildland fire related issues across the nation in a collaborative, cohesive manner. The Cohesive Strategy was finalized in 2014 and represents the evolution of national fire policy:

To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire.

The primary, national goals identified as necessary to achieving the vision are:

Resilient landscapes: Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.

Fire-adapted communities: Human populations and infrastructure can withstand a wildfire without loss of life and property.

Wildfire response: All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

Building a collaborative and cooperative environment with the fire department(s), 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 participants involved. The importance of collaboration with neighboring CWPPs is recognized by the Steering Committee and is referenced throughout this CWPP as documentation of collaborative efforts to maximize hazardous fuels reduction efforts in the area. The Steering Committee agrees that the Greater Bend Community Wildfire Protection Plan will be a living document, intended to promote fuels reduction, education and other projects to decrease overall risks of loss from wildland fire; it is intended to be revisited at least annually to address its purpose.

At a minimum, the Greater Bend CWPP Steering Committee shall include: representatives from Bend Fire & Rescue; Manager from Deschutes County Rural Fire Protection District #2; representatives from Oregon Department of Forestry (ODF); representatives from the City of Bend; representatives from Bureau of Land Management (BLM) and the US Forest Service (USFS); the Deschutes County Forester; and the Program Director from Project Wildfire, along with members of the public.

Updated Background Information

Deschutes County continues to be the fastest growing county in Oregon, according to [Portland State University](#). The combined population of the City of Bend and that portion of Deschutes County within the Greater Bend Community Wildfire Protection Plan Boundary is home to 97,940 residents. The City of Bend anticipates continued growth and is currently preparing for an Urban Growth Boundary expansion for needed housing and employment.

US Highway 97, a major transportation route through the state, runs north to south, through the middle of the city of Bend. US Highway 20 also intersects the city of Bend in the north and east part of town. As central Oregon grows, more residents and tourists crowd the highway and increase congestion, particularly during the summer months when fire season reaches its peak. As part of the central community, transportation routes are included in the consideration of the WUI boundary due to their critical role as roads and travel corridors that link communities together and serve as evacuation routes.

The community is located at 3,500 and 4,300 feet in elevations, in a classic wildland urban interface environment, the greater Bend area is also home to abundant wildlife including deer, elk, and many species of birds and fish. Within the planning area there is also a significant amount of public land with developed and dispersed recreation sites, which provide valuable recreation opportunities to both residents and visitors. In the summer months, Deschutes County estimates an additional transient population of up to 20,000 people that occupy these areas creating a seasonal challenge for those agencies responsible for fire suppression and evacuation.

Historically, the Bend area was a mix of forest types including ponderosa pine, some open tracts of western juniper, bitterbrush, sage and open grasslands. Forests in the higher elevations were composed of mixed conifers. The climate in greater Bend is typical of the east slopes of the Cascade Mountains, with most of the annual precipitation coming as winter snow or fall and spring rains. Summers are dry and prone to frequent thunderstorms with lightning storms producing multiple fire ignitions.

Today, with more development into the wildland urban interface, less stand management, less logging activity and highly effective wildland fire suppression, the greater Bend area is characterized by thicker stands of western juniper on the north and east sides with ponderosa pine, bitterbrush and bunchgrasses to the west and south. In some areas, a variety of noxious weeds are crowding out the native grasses and shrubs. The higher elevations are still a mix of conifers including ponderosa pine.

The community of Bend 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, there are areas adjacent to the core of Bend are characterized by large trees and excessive ground vegetation or “ladder fuels” that contribute to its scenic beauty *and* the overall wildland fire risk. Closed canopies are rare inside the city limits. There are significant areas of hazardous wildland fuels intermixed with homes and businesses that in the event of a grass or brush fire could sustain a wildland fire event with catastrophic losses likely. These areas are also susceptible to ember showers from large wildland fire events nearby.

Public & Private Accomplishments:

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



US Forest Service & Bureau of Land Management

Currently, under the combined management of the Central Oregon Fire Management Service (COFMS), the US Forest Service and the Bureau of Land Management are involved in multiple fuels projects in WUI areas that stretch across this planning area to reduce hazardous fuels and the likelihood of high intensity wildfire. The US Forest Service – Bend Fort Rock District manages approximately 72,409 acres or 35% of the lands in the Bend CWPP area and continues to make great strides to increase forest health and reduce the potential for high intensity wildland fire.

It is important to note that each project area requires multiple types of fuels reduction activities to achieve the desired result including mechanical shrub mowing, tree thinning, hand piling, and under burning. Therefore, multiple entries are required in order to adequately restore forest ecosystem health and reduce hazardous fuels. The ultimate goal for these projects is to reduce the potential for high intensity fire that can spread to tree crowns, requiring costly suppression efforts and causing large losses on the landscape as well as in and around communities

Table 1 – Ongoing USFS Fuels Reduction Projects within Greater Bend CWPP Boundary (updated November 2015)

Project Name	Implementation Start Date	Total Project Acres	Thinning			Mowing			Underburning		
			Planned	Completed	Remaining	Planned	Completed	Remaining	Planned	Completed	Remaining
Bend Municipal Watershed Fuel Break	2015	57	57	57	0	0	0	0	0	0	0
East Tumbull	2009	4,233	4,063	4,063	0	3,357	2,437	920	377	335	42
Fry	2009	113	113	113	0	113	113	0	113	113	0
Rocket	2016	921	921	0	921	888	0	888	586	0	586
South Bend HFRA	2009	3,088	1,087	338	749	2,805	2,594	211	2,050	213	1,837
Upper Deschutes River WUI*	2016	50	43	0	43	43	0	43	7	0	7
Ursus*	2017	3,379	3,379	0	3,379	0	0	0	0	0	0
West Bend	2014	22,671	16,591	0	16,591	18,645	2,000	16,145	17,124	558	16,566
West Tumbull	2010	1,308	1,308	1,308	0	1,243	1,243	0	559	48	511
TOTAL		35,820	27,562	5,879	21,683	27,094	8,387	18,207	20,816	1,267	19,549

*The Ursus and UDR WUI projects are still in the planning stage, acres and treatments may change. Planning on these projects is scheduled to be completed in 2016.

Oregon Department of Forestry



Over the last five years, Oregon Department of Forestry has been working with a number of private landowners to complete fuels reduction projects in the greater Bend area. These projects have been primarily in the highest priority areas in the CWPP Boundary. These partnerships have yielded 25 projects and 772 acres total in fuels reduction and education.

Currently, ODF is working with four landowners to complete fuels reduction on larger parcels to achieve fire resilient landscapes and forest health. ODF also has multiple ongoing projects to assist landowners in compliance with Senate Bill 360 standards.

Oregon Forestland-Urban Interface Fire Protection Act of 1997

The Oregon Forestland-Urban Interface Fire Protection Act, also known as Senate Bill 360, enlists the aid of property owners toward the goal of turning fire-vulnerable urban and suburban properties into less volatile zones where firefighters may more safely and effectively defend homes from wildfires. The law requires property owners in identified forestland-urban interface areas to reduce excess vegetation around structures and along driveways. In some cases, it is also necessary to create fuel breaks along property lines and roadsides.

The process of identifying forestland-urban interface areas follows steps and definitions described in Oregon Administrative Rules. Briefly, the identification criteria include:

- Lands within the county that are also inside an Oregon Department of Forestry protection district.
- Lands that meet the state's definition of "forestland."
- Lands that meet the definition of "suburban" or "urban"; in some cases, "rural" lands may be included within a forestland-urban interface area for the purpose of maintaining meaningful, contiguous boundaries.
- Lots that are developed, that are 10 acres in size or smaller, and which are grouped with other lots with similar characteristics in a minimum density of four structures per 40 acres.

A classification committee identifies forestland-urban interface areas in each county. Once areas are identified, a committee applies fire risk classifications to the areas. The classifications range from "low" to "high density extreme," and the classification is used by a property owner to determine the level of hazardous fuel reduction that needs to be established on the property to minimize risk of experiencing structural property loss from unwanted wildfire. The classification committee reconvenes every five years to review and recommend any changes to the classifications. This process was completed and approved in fall 2009. At the same time, Deschutes County elected to classify *all* the lands within its boundaries, regardless of ODF protection.

The Oregon Department of Forestry is the agency steward of this program. It supplies information about the act's fuel-reduction standards to property owners. ODF also mails each of

these property owners a certification card, which may be signed and returned to ODF after the fuel reduction standards have been met. Certification relieves a property owner from the act's fire cost recovery liability. This takes effect on properties that are within a forestland-urban interface area and for which a certification card has not been received by ODF. In these situations, the state of Oregon may seek to recover certain fire suppression costs from a property owner if a fire originates on the owner's property, the fuel reduction standards have not been met, and ODF incurs extraordinary suppression costs. The cost-recovery liability under the Oregon Forestland-Urban Interface Fire Protection Act is capped at \$100,000.

The specific recommendations under Senate Bill 360 for private lands are outlined under Prioritized Hazard Reduction Recommendations and Preferred Treatment Methods in this CWPP.

Deschutes County



In 2013, Deschutes County was granted approximately \$220,000 for fuels reduction in the Greater Bend Area. The funding was used to implement multiple sweat equity projects, throughout the CWPP Boundary, as well as many fuel reduction projects on larger parcels. Overall, the funding was used to reduce fuels on 932 acres in two years. Deschutes County has also implemented numerous fuel reduction and Sweat Equity projects in the surrounding areas.

In partnership with Deschutes County, Project Wildfire plans and implements two FireFree events every year in the spring and the fall. The spring days are completely free for residents to drop off yard debris at landfills throughout Deschutes County. The fall days are half-priced days held at Knott Landfill for Bend Residents in particular. On a ten-year average the FireFree days have collected 36,097 cubic yards of debris. Residents shattered previous records in 2015 by bringing in 46,115 cubic yards in the spring and fall. The public has come to expect these FireFree events. The events are an easy and cost effective way for homeowners to create and maintain their defensible space.



Bend Fire and Rescue



Bend Fire and Rescue continues to support all aspects of the Greater Bend CWPP. Recently, the City of Bend was awarded additional funding to audit and possibly improve their wildland urban interface code for Bend City residents. This will enhance the community's adaptation to wildfires by implementing improved land use planning approaches. The City will be working with subject matter experts to determine which regulations will provide safe and reasonable wildland urban interface codes while balancing the other important Bend resident values.

Firewise Communities USA



The Firewise Communities USA program is a national recognition program which highlights communities that have chosen to complete and maintain defensible space; ensure adequate access, water and signage; promote ongoing fire prevention education, and build or retro-fit structures with non-combustible building materials such as siding, decks and roofing. Adequate water availability and access are also required. Firewise Communities USA now recognizes 5 communities in the Greater Bend CWPP area – Awbrey Glen, Deschutes River Woods, North Rim, Sunset View Estates and Woodside Ranch. In 2015 these communities have invested approximately \$145,000 in hazardous fuels reduction and wildfire preparedness activities.

The Firewise Communities program recognizes communities who have demonstrated their commitment to wildfire preparedness. Through these steps, the Firewise Communities in the Greater Bend Area have effectively lowered their wildfire risk. They have fostered collaboration between neighbors, increased awareness and their communities' ability to respond to wildfire.

Fire Adapted Communities (FAC)

This CWPP contributes to the over-arching framework and goal of the national Fire-Adapted Communities (FAC) program. The FAC program acknowledges that people and nature are increasingly threatened by fire, despite fire's natural, beneficial role. At the same time,



firefighting costs are escalating and diverting money away from proactive land management. The solution is to make natural areas and communities more fire-ready so that fire can be allowed to play its natural role at a meaningful scale. This program is in direct alignment with the Cohesive Strategy goal of creating more fire adapted communities.

The Fire Adapted Communities (FAC) initiative and the FAC Learning Network are also helping homeowners, communities and land managers in fire-prone areas prepare for inevitable fires -- to "live with fire" safely. Deschutes County is recognized as a pilot community in the Fire Adapted Communities Learning Network. This network encourages the development and sharing of best practices and innovations in order to accelerate the adoption of fire adapted community concepts nationwide. The Network currently supports eighteen hub organizations and pilot communities that have committed to implementing, assessing and sharing the work that they are doing to increase their communities' resilience to wildfire.

A fire-adapted community acknowledges and takes responsibility for its wildfire risk, and implements appropriate actions address resident safety, homes, neighborhoods, businesses and infrastructure, forests, parks, open spaces and other community assets. There is no end-point in becoming a fire-adapted community. Sustaining, growing and adapting strategies, partnerships and capacity through time are key. Visit www.fireadapted.org for more information.

Collaborative Forests Landscape Restoration Act – Deschutes Collaborative Forest Restoration Project



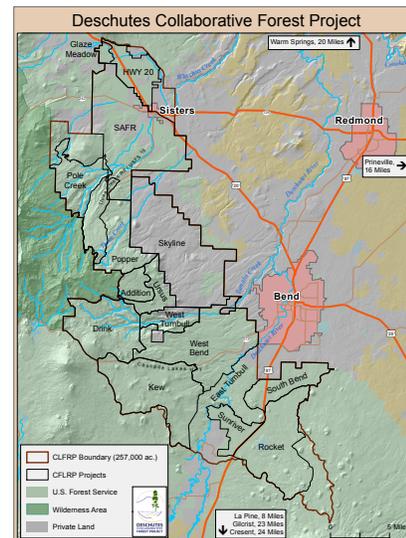
In 2010, a collaborative group of local agencies and organizations formed a proposal for funding a large, collaborative forest restoration and hazardous fuels reduction project on public lands managed by the Deschutes National

Forest. This landscape level project is known as the Deschutes Collaborative Forest Project (DCFP). Under the federal Collaborative Forest Landscape Restoration Act (CFLRA), the proposal was approved for funding up to \$10 million over the next ten years. The Steering Committee and several task-oriented sub-committees now provide input and recommendations to the Deschutes National Forest for projects located on the 257,000 acre landscape.

The entire project spans the west side of the Greater Bend WUI, the western portion of the East & West Deschutes County CWPP boundary, and is also included in the Sisters CWPP boundary to the north and the Sunriver CWPP boundary to the south. An amendment to the original boundary was approved in 2012 to include additional landscape acreage near Sunriver and Black Butte Ranch. Now portions of the \$10 million award can be expended across a broader area.

As restoration projects on this landscape are implemented, the prescriptions and guidelines identified in this CWPP will be met marking a significant treatment of wildland hazardous fuels on a landscape scale, a priority in each of the CWPPs in Deschutes County. This will also allow for the creation and realization of fire adapted communities along much of the west side of the county.

The Deschutes Collaborative Forest Project now has a website in place – www.deschutescollaborativeforest.org – along with a social media presence on Facebook to continue the stakeholder dialogue and educational outreach for this important landscape.



Community Base Maps

The CWPP Steering Committee relied on the following maps and GIS data (Appendix A):

- Greater Bend WUI boundary with eight revised Communities at Risk, and all private & public land ownership;
- 2015 Deschutes County tax lot and population data; and
- Fire starts from the last 10 years.

For updated planning purposes, the Steering Committee referenced this data and relied on recent activities and fuels treatment projects in specific Communities at Risk. All the maps are located in the appendix.

Wildland Urban Interface Description

The Healthy Forests Restoration Act defines the WUI as an area within or adjacent to an at-risk community that has been identified by a community in its wildfire protection plan.

The Bend CWPP Steering Committee reviewed the overall WUI boundary and expanded the boundary to the southwest, west and northwest in this update. The boundary was expanded to include the Bridge Creek Watershed which is the source of approximately half the drinking water for the City of Bend. The western boundary follows a combination of roads and watershed boundaries. The southern edge of the boundary is the northern boundary of the Sunriver CWPP. The northern part of the WUI is the Greater Sisters Country CWPP boundary on the northwest side and the boundary for the Greater Redmond CWPP on the northeast side. The Greater Bend wildland urban interface boundary is approximately 328 square miles and covers 209,833 acres.

The Steering Committee further reviewed the internal boundaries of the Communities at Risk. Two rating areas within the City of Bend are now divided into the Greater Bend and the Core Bend Rating areas, where previously Highway 97 divided it to the East and the West. The Greater Bend Area includes the Urban Area Reserve areas as well as the City Limits

It is important to note that the WUI boundary extends to the entire CWPP boundary. By comparison, the Greater Sisters Country CWPP outlines a WUI boundary that sits *inside* the overall CWPP boundary as there are large agricultural lands outside the interface with limited structural development. For the Greater Bend CWPP, the Steering Committee acknowledges that the wildland urban interface stretches across the entire planning area, with structural development and other values at risk.

The committee considered all three categories of a wildland urban interface community as defined in the 2001 Federal Register. Those categories include:

Category 1. Interface Community

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

Category 2. Intermix Community

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

Category 3. Occluded Community

The Occluded Community generally exists in a situation, often within a city, where structures abut an island of wildland fuels (e.g., park or open space). There is a clear line of demarcation between structures and wildland fuels. The development density for an Occluded Community is usually similar to those found in the Interface Community, but the occluded area is usually less than 1,000 acres in size. Fire protection is normally provided by local government fire departments.

For planning purposes in the 2016 Greater Bend CWPP, the Steering Committee agreed that the defined wildland urban interface boundary includes all three categories of community as defined above.

Fuel Hazards and Ecotypes

The Greater Bend Wildland Urban Interface encounters diverse vegetation types including:

- Ponderosa pine
- Lodgepole
- Mixed Conifer
- Western juniper
- Bitterbrush
- Manzanita
- Sagebrush
- Cheat Grass

Ponderosa pine is currently found in the southern and western portions of the greater Bend area, and in the higher elevations. Historically, ponderosa pine forests contained more understory grasses and less shrubs than are present today. These plants combined with fallen pine needles, formed fast-burning fuels that led to recurrent widespread burning. Historically, low-intensity ground fires that occur at intervals of 11-15 years are characteristic for Ponderosa Pine. The pattern of low ground fires and stand dynamics resulted in the open park-like conditions that early inhabitants and visitors found in the region.



Prior practices such as over-grazing and high grade logging combined with later decreased stand management, less logging activity and highly effective wildland fire suppression have significantly altered the ponderosa pine forest type. Removal of the larger pines has dramatically decreased open park-like forests, replacing them with more evenly spaced and smaller “black-bark” forests. Similar to other species of conifer forest types, the suppression of fire has greatly increased the number and density of trees, creating ladder fuels and putting the stands at risk of attack from insects and disease. These factors have contributed to more intense fires in ponderosa pine forests in recent years.

Mature **lodgepole pine** in central Oregon is characterized by dense, uniform stands, an absence of other species, and a general lack of understory shrub or herbs (although bitterbrush is often found with mature lodgepole pine). Lodgepole pine forests exhibit a moderate severity fire regime with a fire return interval between 60 and 80 years. Fire in lodgepole pine stands can be low, moderate, or severe over time and often result in full stand replacement.





Mixed conifer (wet and dry) is a complex forest type that varies considerably depending on elevation and site conditions. In the plan area, dry mixed conifer and wet mixed conifer forest types occur, depending on the elevation.

The dry mixed conifer includes Douglas fir, ponderosa pine, lodgepole pine, western larch and true fir. Found at elevations ranging from 3,600 feet to 4,500 feet, it occupies a transitional zone between the higher elevation mixed conifer zone and the true ponderosa pine or lodgepole pine zone.

The wet mixed conifer is found in the higher elevations (4,000 – 7,000 feet) on the west side of the fire plan area. Similar to the dry mixed conifer sites, vegetation consists of Douglas fir, white fir, ponderosa pine, western larch, and lodgepole pine. Spruce can be found in the wetter riparian areas. The historical range of fire intervals in the wet and dry mixed conifer varies considerably; from 35 to 200 years and can be of variable intensity; from low intensity maintenance burns to stand replacement events.

Western juniper occurs mainly in the northern and eastern sections of the Greater Bend WUI. The fire history of western juniper is characterized by fire that occurs approximately every 30 years and is generally limited by the availability of fuels. Western juniper trees have thin bark and fires kill them easily. Western juniper appears to be expanding its range over the previous century.



Bitterbrush occurs throughout the greater Bend area on all aspects and elevations and is frequently found with mixed shrubs such as manzanita and sage. 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 Greater Bend 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.

Manzanita is a shrub that occurs throughout the greater Bend area, usually mixed with other shrub species such as bitterbrush. Manzanita is established both through sprouts and seeds that are stimulated by fire. Fires in manzanita are conducive to rapid and extensive fire spread due to both physical and chemical characteristics. The shrub has volatile materials in the leaves, low moisture content in the foliage and persistence of dead branches and stems. Manzanita is particularly susceptible to fire where it is the primary understory component.



Sagebrush is found on the eastern portions of the Greater Bend WUI and commonly grows in association with juniper and bitterbrush. Most fires kill sagebrush plants. In many sage communities, changes in fire occurrence along with fire suppression and livestock grazing have contributed to the current condition of sage communities. Prior to the introduction of annuals, insufficient fuels may have limited fire spread in big sagebrush communities. Introduction of annuals, especially cheat grass, has increased fuel loads so that fire carries easily. Burning in sage communities

commonly sets the stage for repeated fires. Fire frequency can be as little as 5 years, not sufficient time for the establishment and reproduction of big sagebrush. In these cases annuals such as cheat grass commonly take over the site.

Cheatgrass provides a flammable link in the brush and forests vegetation types. It cures early in the fire season and ignites readily during dry periods because of its very fine structure that responds readily to changes in the atmospheric moisture, tendency to accumulate litter and invasive nature. Cheatgrass promotes more frequent fires by increasing the biomass and horizontal continuity of fine fuels that persist during the summer lightning season. Its expansion has dramatically changed fire regimes and plant communities over vast areas of western rangelands by creating an environment where fires are easily ignited, spread rapidly, cover large areas, and occur frequently. Fire in these habitats can have severe effects on native species of plants and animals.



Historic fire seasons occurred between July and September, with the middle to end of August being the period of the most extreme fire conditions. Cheatgrass matures by July, while most native species it replaces mature in late August. With Cheatgrass dominant, wildfires tend to



occur earlier in the season, when native perennials are more susceptible to injury by burning. These fires are larger and more uniform, with fewer patches of unburned vegetation remaining within burns. Cheatgrass thrives in grounds that have been disturbed by activities such as recreation or building. There are many areas within the Bend CWPP Boundary that have Cheatgrass invading the landscape, in some cases creating ladder fuel adjacent to homes in the WUI. Cheatgrass is recognized as a noxious weed in Deschutes County.

The result of the fuel hazards and forest types in the greater Bend area is an overgrowth of trees and forest floor fuels with an abundance of dead or dying vegetation that contribute to a substantially elevated risk of wildland fires that are difficult to control. These overly dense conditions lead to fire behavior that produces flame lengths over eight feet with crowning and torching that can result in stand replacement severity fires.

Not only, have large stand replacement fires not occurred, but also the more frequent low intensity fires have not been allowed to burn either. This practice of fire exclusion along with insufficient vegetation/fuels reduction has resulted in the buildup of excessive live and dead fuels.

Fires too, have significantly impacted the Greater Bend landscape. The table below recognizes the large fires that have endangered the Greater Bend Area in the last 10 years. All of these larger wildfires have threatened residents, prompted evacuations within multiple neighborhoods, created health concerns due to prolonged heavy smoke inundating the area, and some threatened the City of Bend’s water supply. Even though Awbrey Hall (1990) and the Skeleton Fire (1996) are out of the scope of this table, they are notable fires in Bend’s history. Combined they resulted in the loss of 44 homes, 15 outbuildings, and \$11 million in damage. These fires also served as the impetus for the community wildfire preparedness activities seen in central Oregon and in the Greater Bend Area.

Table 2 – Large Fires in the Last 10 Years

Fire Name	Fire Size (acres)	Year Occurred
18 Road Fire	3,800	2003
Rooster Rock	6,100	2010
Pole Creek	26,795	2012
Two Bulls	6,908	2014

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.

As noted, the Steering Committee redefined the existing boundaries of the Communities at Risk to identify eight (8) Communities at Risk.

Table 3 – Communities at Risk

Community at Risk	Acreage	Structures	Estimated Population
Core Bend	2,116	3,996	9,990
Greater Bend	25,923	27,258	68,145
North	25,177	2,127	5,318
Northeast	25,853	1,477	3,693
Northwest	34,014	313	783
Southeast	35,646	1,520	3,800
Southwest	22,522	2,437	6,093
West	38,582	48	120

Community Assessment of Risk

For the 2016 Greater Bend Community Wildfire Protection Plan the Steering Committee relied on the Oregon Department of Forestry Assessment of Risk Factors to determine numerical value for the eight (8) Communities at Risk.

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 based on historical evidence of fire history as well as 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 Bend WUI poses an extreme risk of catastrophic loss from wildland fire. Bend is also threatened by the likely possibility of a crown fire sweeping into the community, or 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, less logging activity, effective wildland fire suppression and a lack of forest management has led to dense vegetation in the wildland urban interface. Some of the understory consists of dense bitterbrush and manzanita with some areas of native bunchgrasses. Due to the lack of disturbance these stands will continue to become more and more overcrowded.

A wildland fire could start within the communities 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. The potential exists for a high intensity wildland fire for any number of reasons, during a significant portion of each year.

Values Protected

The human and economic values protected in the Greater Bend WUI are based on home density per ten acres and community infrastructure such as power substations, transportation corridors, water and fuel storage, etc.

Based on Deschutes County tax records from 2015, there are approximately 39,176 homes in the Greater Bend WUI, with an appraised value of \$8.4 billion. In addition over 2,300 businesses operate in the Bend area, with an appraised value of \$3.3 billion.

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. Loss to roads, water and sewer systems would be minimal because most are underground or otherwise not flammable.

Other Community Values

Of high importance to residents and business owners in Bend is the value placed on scenic beauty and recreational opportunities that exist on public lands both within and adjacent to the planning area. If a large wildland fire occurs in this area, which resulted in area closures or the closure of either US Highway 97 or state highway 20, the economic loss to businesses could exceed \$3.5 million per day.

A [business resiliency study](#) conducted by FEMA in 2012 presents statistics for small businesses that have been impacted by a natural disaster such as a large wildfire. All of the statistics apply to those businesses that did not have a business continuity plan or an emergency plan:

- 43% of companies never reopened.
- 51% of companies closed within 2 years.
- 80% of companies that do not recover from a disaster within one month are likely to go out of business.
- 75% of companies without business continuity plans fail within three years of a disasters.
- Companies that aren't able to resume operations within ten days (of a disaster hit) are not likely to survive.
- Of those businesses that experience a disaster and have no emergency plans, 43% never reopen; of those that do reopen, only 29% are still operating two years later.

A large wildfire can have lingering effects that last for months and the largest impacts lasting for at least a month. With much of Bend's local economy tied to small local businesses that depend on the local surrounding forest environment, the consequences of a wildfire that closed major recreation and tourist opportunities would be catastrophic. Business resiliency of the Bend's small businesses is a critical piece in creating a more fire adapted community. Specific action items for business owners are located in the Action Plan.

The loss of recreational use by visitors to the area as a result of scenic quality, specifically large "burn over" areas, will have a significant economic impact not only to the Bend area, but to the remainder of Deschutes County and neighboring cities like Sunriver, La Pine, Redmond and Sisters. If a large wildland fire occurs in this area, the result will be catastrophic loss to both the developed and dispersed recreational opportunities in the greater Bend area.

Protection capability

In this category, the lower the overall rating, the better the risk factor is. The ratings 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.

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.

Bend Fire and Rescue

Bend Fire and Rescue is the city of Bend's municipal fire department. With a predominantly career staff and small volunteer support personnel, Bend Fire and Rescue provides first response structural and wildland fire coverage within its 164 square mile service district. Through five stations Bend Fire and Rescue provides Emergency Medical Services, including Advanced Cardiac Life Support transport, within a 1,450 square mile boundary. The department also provides limited Hazardous Materials and River Rescue services. The department has adopted the National Incident Management Systems (NIMS) and all personnel have received training and continue to train in its use. Bend Fire and Rescue employs one Fire Chief, five Deputy Chiefs, four Battalion Chiefs, sixty eight Firefighter/Paramedics and Emergency Medical Technicians (EMTs), six members in the Fire Prevention Division, and three administrative staff members. The Department also employs six part-time EMTs and utilizes volunteers in other programs.

Bend Fire and Rescue commands a Fire Investigation Team (FIT) that provides 24/7 fire investigation across the district, including wildland fires. The benefit of the FIT is not only in the investigation to determine the cause of a fire, but to provide information about the science of fire so the department can focus on a prevention message, campaign and code development to prevent those fires in the future.

Bend Fire and Rescue utilizes a fleet of firefighting and EMS apparatus including six structural engines, six off-road brush engines, three water tenders, one ladder truck, one heavy rescue vehicle, six ambulances, three command vehicles, and seven fire prevention vehicles.

The department is a party to the Central Oregon Mutual Aid Agreement. In the event of a major fire the department may request assistance from all other fire departments that are signatory to the agreement. In addition to Central Oregon Fire Departments, this includes the US Forest Service, Oregon Department of Forestry, and the BLM. Conversely, when these agencies need assistance and the District has resources available, it assists them. Bend Fire and Rescue is also a party to an Automatic Aid Agreement with Redmond, Cloverdale, Sunriver, Sisters, US Forest Service and ODF. Through a streamlined Computer Aided Dispatch (CAD) center, Bend Fire and Rescue responds automatically to certain calls in areas up to five miles beyond the fire district.

In addition to the firefighting resources, Bend Fire and Rescue puts 10% of its workforce towards fire prevention. The fire prevention team is comprised of one Fire Marshal and six Deputy Fire Marshals that provide enforcement of local fire codes and ordinances as well as provide public education across the district.

Local Ordinances provide the department with the control of burning practices. This step alone has contributed positively to the decrease in the amount of fire calls and reduced the threat of wildfire in the greater Bend area.

Local building codes and fire codes also reduce the catastrophe from wildfires as they allow the department to restrict the use of combustible roofing materials, design new communities with adequate and proper access (ingress/egress) for emergency vehicles as well as adequate water supply and hydrant distribution. Address sign specifications and road signs are also managed by Bend Fire and Rescue. These opportunities give firefighters an expedient route to fires and allow residents to safely evacuate.

All of these enforced code and ordinance provisions help reduce the number and severity of fires in the greater Bend area.

Deschutes County Rural Fire Protection District #2 (DCRFPD#2)

The Deschutes County Rural Fire Protection District #2 consists of approximately 132 square miles of suburban and forested land surrounding the City of Bend, Oregon, and represents approximately 21,000 constituents. The average population of the district greatly increases seasonally due to tourism.

A five-member volunteer board of directors and a paid full-time executive director governs the District. The executive director handles the day-to-day operations, fiscal and contract management, and performs administrative and public relation functions of behalf of the district. The actual delivery of fire and emergency medical services to district constituents is provided through a contract with the City of Bend. All physical services (fire, EMS, transport, prevention, education, and hazardous materials response) are provided by the City of Bend Fire Department. Financial services such as official financial audits and reviews are also contracted to firms specializing in those services.

Under an agreement made in 2000 between the city of Bend and the rural fire district, ownership of the existing stations was transferred to the district. The district then remodeled one of the stations and built four brand new ones, as well as a new training center. All of the stations are leased back to the city. The current configuration of the stations provides excellent emergency services to the city and district residents. The city of Bend and the fire district are considering a potential sixth station located in the center of the coverage area to improve response times.

Oregon Department of Forestry (ODF)

Within the Greater Bend CWPP area, the Central Oregon District of the Oregon Department of Forestry (ODF) protects the private forestland. ODF provides wildland fire response for fires burning on or threatening private forestlands paying a Forest Patrol Assessment. There are some areas within the Greater Bend CWPP Boundary that receive dual protection from ODF and the Bend Fire & Rescue or Deschutes County Rural Fire District #2 because they are located in one or the other of the fire districts and are also classified as private forestland within the ODF district. In areas of dual protection, when a wildland fire occurs, the fire district provides initial response and transfers fire command to ODF personnel upon their arrival.

During fire season, typically June through October, ODF provides ten engines, one five-person hand crew and one dozer; all are available for initial attack response in the Prineville-Sisters unit. Statewide resources are also available to ODF including initial attack hand crews, dozers, water tenders, helicopters, air tankers, and overhead staff positions, depending on statewide needs. During fire season these resources are in high demand and may not always be available. In addition to Oregon Department of Forestry suppression capabilities, ODF cooperates with wildland fire protection agencies in the area including the local fire departments and districts, the US Forest Service, and the Bureau of Land Management.

USDA Forest Service and USDI Bureau of Land Management

The Forest Service provides wildland fire protection on the federal lands within the Bend CWPP area. Together, with the Bureau of Land Management (BLM), 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: 26 engines, six initial attack hand crews, six prevention units, two dozers, two water tenders, one Type 3 helicopter, 35 smoke jumpers, two interagency Hotshot Crews (Redmond & Prineville), one Type 2 helicopter with 20 rappellers, one Type 1 helicopter, Central Oregon Dispatch Center (COIDC), Redmond Air Center, an air tanker base, a regional fire cache and required overhead staff positions. During fire season these resources are in high demand and may not always be available. Anytime an incident grows beyond the capability of the local resources a request may be made to ODF and to the [Pacific Northwest Coordination Center](#) for additional wildland fire fighting resources.

Law Enforcement

The City of Bend Police Department and Deschutes County Sheriff provide police services for the Greater Bend area. 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; Bend Fire and Rescue staff and community-wide volunteers. The Countywide Disaster Plan and the Deschutes County Department of Emergency Services address any other issues relative to a major emergency.

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

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 and will respond to meet the needs of fire events.

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 looks at 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 FireFree information from other groups? In the Greater Bend WUI, the communities at risk varied from having a high level of organization to not having any. The Steering Committee used local knowledge to determine the level of preparedness.

The **American Red Cross** offers a gamut of tools to boost community preparedness such as community presentations on emergency preparedness kits. The Red Cross gives presentations to church groups, HOAs, citizen groups, etc. Red Cross plays a vital in emergency response during large wildfire events and in the recovery post fire. At any time of day or night, trained Red Cross volunteers respond to the scene of structural or wildland fires and provide food, shelter, and emotional support to those affected.

Structural Vulnerability

In recent years, many neighborhoods in the greater Bend area have taken steps to decrease the vulnerability of structures to wildland fire. Although attitudes and behaviors towards fire are changing in the Bend area thanks to educational programs like FireFree and Firewise, the 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 Greater Bend WUI as fire safe as possible.

The following table is a summary of the eight Communities at Risk, 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.

Risk: Describes the likelihood of a fire occurring based on historical fire occurrence and ignition sources.

Hazard: Describes resistance to control once a fire starts based on weather, topography and fuel.

Protection capability: Describes fire protection capability and resources based on type of protection, response times and community preparedness.

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.

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.

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

Rank: An ordered numerical ranking based on the total points

Table 3 - ODF Assessment Summary

	Core Bend	Greater Bend	North	Northeast	Northwest	Southeast	Southwest	West
Likelihood of fire occurring								
Fire Occurrence	20	20	20	20	20	20	20	20
Ignition Risk – Home Density	10	10	0	0	0	0	5	0
Ignition Risk – Other Factors	10	10	10	10	10	10	10	10
Total	40	40	30	30	30	30	35	30
Rating	High	High	High	High	High	High	High	High
Hazards								
Weather	40	40	40	40	40	40	40	40
Slope	0	0	0	0	0	0	0	2
Aspect	5	5	5	5	5	5	5	5
Elevation	1	1	1	1	1	1	1	1
Vegetation	1	15	15	15	15	17	19	20
Crown Fire Potential	0	5	3	3	10	7	7	10
Total	47	66	64	64	71	70	72	78
Rating	High	Extreme	Extreme	Extreme	Extreme	Extreme	Extreme	Extreme
Protection Capabilities								
Fire Response	0	0	0	0	10	8	9	14
Community Preparedness	2	1	2	2	1	1	2	1
Total	2	1	2	2	11	9	11	15
Rating	Low	Low	Low	Low	Moderate	Low	Moderate	Moderate
Values Protected								
Home Density	30	30	2	2	2	2	15	2
Community Infrastructure	20	20	20	20	10	20	20	20
Total	50	50	22	22	12	22	35	22
Rating	High	High	Moderate	Moderate	Low	Moderate	High	Moderate

The higher the overall score, the greater the risk.

Table 3 - ODF Assessment Summary, continued.

	Core Bend	Greater Bend	North	Northeast	Northwest	Southeast	Southwest	West
Structural Vulnerability								
Flammable Roofing								
Non wood – 0								
Wood – 30	2	4	1	6	3	7	5	1
Defensible Space								
Meets SB360 – 0								
Non Compliant – 30	6	15	12	12	18	18	24	15
Ingress - Egress								
Two or more roads – 0	0							
One road – 7		1	5	5	5	3	6	7
Road Width								
Greater than 24 feet – 0	0							
20 -24 feet – 2		1	1	1	1	1	2	2
Less than 20 feet – 4								
All season road condition								
Surfaced, <10% grade - 0	0							
Surfaced, >10% grade – 1								
Non surfaced, <10% grade - 1		1	1	1	1			
Non surfaced, >10% grade - 3								
Other than all season – 4							2	2
Street Signs								
Present – 4” reflective letters – 0	0		0	0	0	0	0	0
Absent – 5		1						
Fire Service Access								
<300 ft with turnaround – 0	0							
>300 ft with turnaround – 2								2
<300 ft w/o turnaround – 4		2			2	2		
>300 ft w/o turnaround – 5			3	3			3	
Total	8	26	23	28	30	32	42	29
Rating	Low	Low	Low	Low	Low	Moderate	Moderate	Low

Table 4 provides a summary of the ODF Assessment of Risk and the total score for each rating area.

Table 4 – ODF Assessment of Risk Summary with Ranking

	Likelihood of Fire Occurring	Hazards	Protection Capability	Values Protected	Structural Vulnerability	Total	Rank
Southwest	35 High	72 Extreme	11 Moderate	35 High	42 Moderate	195	1
Greater Bend	40 High	66 Extreme	1 Low	50 High	26 Low	183	2
West	30 High	78 Extreme	15 Moderate	22 Moderate	29 Low	174	3
Southeast	30 High	70 Extreme	9 Low	22 Moderate	32 Moderate	163	4
Northeast	30 High	71 Extreme	11 Moderate	12 Low	30 Low	154	5
Core Bend	40 High	47 High	2 Low	50 High	8 Low	147	6
Northwest	30 High	64 Extreme	2 Low	22 Moderate	28 Low	146	7
North	30 High	64 Extreme	2 Low	22 Moderate	23 Low	141	8

After considering the risk assessment priorities the Steering Committee agreed that each rating area had different values driving the overall risk assessment score. Instead of assigning priority groups, the Steering Committee accepted Table 4 as the risk assessment priority and addressed the specific recommendations in the action plan for each rating area.

Areas of special concern

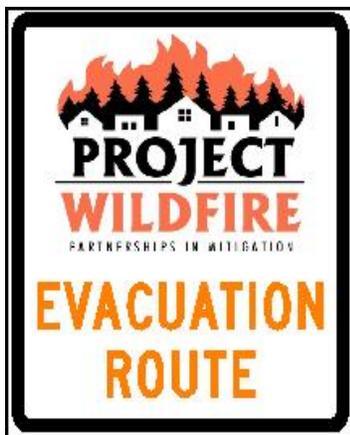
Critical Transportation Routes

Critical Transportation Routes do not have a standard definition in Deschutes County. For purposes of the Greater Bend 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 Bend 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).

With up to 20,000 visitors in Bend per day during peak summer months and an additional 20,000 people using recreation sites and the transportation corridors around Bend, critical transportation routes are a prime concern for those agencies responsible for fire suppression and evacuation.

As noted in previous plans, the Steering Committee is concerned with the lack of maintained roads leading in and out of the high risk areas in the WUI. Should an evacuation be necessary, the Steering Committee expressed great concern over the quality of the evacuation routes. Many of the egress routes are dirt roads that contribute to substantial dust and debris clouds as vehicles attempt to use them. During the summer months, after a few cars travel the road, the dust is so dense that it is not safe for vehicles to continue using the road until the dust settles. Lack of maintenance has led to deteriorated road surfaces with large potholes, ruts and washboards that slow evacuation efforts and cause some vehicles to break down, further complicating a mass departure from the area. The current condition of some of the evacuation routes is a life safety issue.



Working with Deschutes County and Project Wildfire, several neighborhoods within the Communities at Risk have taken advantage of a signage program to increase visibility of evacuation route signs along roads. The signs are made from high intensity reflective material and indicate proper exit routes from these neighborhoods.

The Steering Committee underscored the need to continue to identify, develop and protect critical transportation routes as part of this planning process. Ingress/egress issues are included under Recommendations to Reduce Structural Vulnerability. This issue is also highlighted under Action Plan and Implementation.

Bend drinking water protection area

The Greater Bend CWPP Steering Committee included the Bridge Creek Watershed in the WUI boundary. Approximately half of Bend's drinking water comes from this area. The watershed was established in 1926 in cooperation with the Deschutes National Forest and a subsequent 1991 Memorandum of Understanding, which describes protection measures in place for the watershed. Annual inspections of the watershed are conducted with the Department of Environmental Quality and the Deschutes National Forest. A wildland fire occurring in or near this watershed could severely affect water quality in the Bridge Creek watershed. The Steering Committee recommends treatment for hazardous fuels as identified in this plan to prevent catastrophic damage from wildfires to the watershed.

Hazardous vegetation along railroads

The Steering Committee expressed concern over the condition of the vegetation in the railroad right of way in those Communities at Risk that the railroad transects. In Deschutes River Woods (Southwest) for example, residents are concerned about the increased flammability of the brush and vegetation due to their unchecked growth. In some areas, the railroad right of way extends

100 feet from the center of tracks on both sides of the rails. In the past, trains traveling in the area have ignited dry vegetation along the railways. In addition to the size of the railroad right of way is the amount and type of flammable vegetation. These areas are dense with bitterbrush, rabbit brush, cheat grass and noxious weeds – all acting as ladder fuels to the ponderosa pine that shares the right of way. Sheer size along with the amount and type of vegetation can lead to a large fire with high spreading potential to nearby homes and neighborhoods already at risk. The Steering Committee recommends encouraging the owners of the railroad to comply yearly with requests that the vegetation be maintained below 4” to deter the spread of any potential fires.

Hazard Reduction Recommendations and Preferred Treatment Methods

Goals

The Steering Committee identified the following goals to meet the Purpose on page one of the Greater Bend CWPP:

- Reduce hazardous fuels on public lands;
- Reduce hazardous fuels on private lands;
- Reduce structural vulnerability;
- Increase education and awareness of the wildfire threat;
- Identify, improve and protect critical transportation routes;

Preferred treatments and goals for hazardous fuels reduction

Appendix A includes detailed maps of the WUI boundary throughout the Greater Bend CWPP and the recommended areas for treatments by reducing wildland fuel hazards on both public and private lands.

The standard of the Greater Bend CWPP is to decrease the risk of uncharacteristic and high intensity 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 CWPP goal is also to provide for a healthy, fire resilient landscape that supports the social, economic and ecological values of Bend area residents and visitors. The Steering Committee recognizes the effectiveness and value of maximizing treatment efforts in areas that are adjacent to federal 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 Bend WUI.

Public lands

Seven of the eight Communities at Risk are adjacent to public lands managed by either the Forest Service or the Bureau of Land Management. State owned lands represent only a small percentage of the lands (1%) within the plan area.

It is the intent of the Steering Committee that the Greater Bend WUI 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.

The overall standard for public lands under this CWPP is to decrease the risk of high intensity wildland fire behavior by reducing and maintaining fuel loads to that which can produce flame lengths of less than four feet in the areas within the WUI boundary. This buffer will begin at the edge of private lands (except where other land management practices prohibit it such as riparian or wetland areas) and extend onto the federal lands to the designated WUI boundary. This enables safe and effective initial attack. This standard can be achieved by federal land management agencies 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.

In the mixed conifer, lodgepole and sub-alpine fir stands where Crown Fire Potential is rated Extreme by the federal agencies the recommended standard is to reduce 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 evacuation route from any of the Communities at Risk.
- Maintenance of previously treated lands is also a top priority. Treatment and maintenance of previously treated lands before treatment begins again in other places is an important component of keeping communities safe.

In general, the dominant strategy in all areas should be thinning from below, in an effort to restore large trees, open, ponderosa pine dominated forests. In juniper and bitterbrush dominated stands, federal land managers are strongly encouraged to utilize mechanical treatments and especially prescribed fire to reduce fuel loads to that which can produce flame lengths of less than four feet.

These treatments shall be consistent with the current COFMS Fire Management Plan on the federal lands and existing land management plans on state owned lands.

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

Industrial and non-industrial private forestlands

Private forestlands are generally larger land holdings managed for multiple values including timber, wildlife, recreation and water. The landowner may or may not live on the property however the property is largely forest vegetation excluding the area directly adjacent to any structures. There are private forestland parcels in the Greater Bend WUI that directly border some of the Communities at Risk. The Steering Committee recommends continued partnerships with private forestland owners that encourage fuels management to the standards above as part of an overall plan for management of the forest resource.

Industrial and non-industrial private forestland owners can meet the overall standard by treating fuels with the goal of reducing fuels 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 evacuation route from adjacent Communities at Risk.

The standard can 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 existing land management plans for these areas.

Private and county owned lands

The majority of the land (59%) in the Greater Bend planning area is private land and is considered developed, or in rare cases intermixed with development. The County owns 1% of the land in this planning area.

Private land with *or* without structural improvements

On private lands within the Greater Bend CWPP WUI boundary with structural improvements or those that are vacant, the goal is for each property to meet the Senate Bill 360 Standards for its individual classification rating. This statute outlines standards and requirements for defensible space on private property that has fire protection from Oregon Department of Forestry.

Not all property in the Greater Bend WUI is provided wildland fire protection by ODF. During the reclassification process in 2009 however, Deschutes County elected to classify every parcel of private land regardless of its protection status by ODF.

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 [Senate Bill 360](#).

Property owners can also 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 by participating in programs like FireFree and Firewise, which promote a variety of fire safe actions to help prevent the spread of fire, to protect individual homes and neighborhoods.

Property owners that live within the city limits of Bend do have to comply with local building codes and fire codes to reduce the catastrophe from wildfires. These codes allow for the City and Bend Fire and Rescue to restrict the use of combustible roofing materials, design new communities with adequate and proper access (ingress/egress) for emergency vehicles as well as adequate water supply and hydrant distribution; address sign specifications and road signs are also managed by Bend Fire and Rescue. There are also ordinances in effect that allow for the enforcement of vegetation abatement. All of these enforced code and ordinance provisions help reduce the number and severity of fires in the greater Bend area.

Key State, County and City Planning Documents

Proactive land use planning is one of the best ways to address wildland fire concerns and to decrease the number of residents at risk of damage from future wildfires. Integrating wildfire risk reduction into the land use planning process helps a community provide for resident safety while addressing wildland fires in a cost-effective manner. Wildfire Urban Interface areas must include evaluating and changing land use practices that contribute to forest health degradation and increased wildfire risk. Wildfire urban interface conflicts and solutions exist within the context of land use. In fire prone areas like Greater Bend, community officials must develop, adopt and enforce comprehensive land use plans, zoning regulations and building codes for community protection, forest restoration, ecosystem health and long-term fire management.

State of Oregon

Since 1973, Oregon has maintained a strong statewide program for land use planning. The foundation of that program is a set of 19 Statewide Planning Goals. The goals express the state's policies on land use and related topics, such as citizen involvement, housing, and natural resources. Most of the goals are accompanied by guidelines, which are suggestions about how a goal may be applied. Oregon's statewide goals are achieved through local comprehensive planning. State law requires each city and county to adopt a comprehensive plan and the zoning and land-division ordinances needed to put the plan into effect.

The local comprehensive plans must be consistent with the Statewide Planning Goals. The state's Land Conservation and Development Commission (LCDC) review plans for consistency with the Statewide Planning Goals. When LCDC officially approves a local government's plan, the plan is then "acknowledged". It then becomes the controlling document for land use in the area covered by that plan.

Oregon's planning laws apply not only to local governments but also to special districts and state agencies. The laws strongly emphasize coordination – keeping plans and programs consistent with each other, with the goals, and with acknowledged local plans.

The Statewide Planning Goal that is applicable to this plan is Goal 7. The purpose of Statewide Goal 7 is to protect people and property from natural hazards; wildfire is included by definition as a natural hazard.

Deschutes County

In 2011 Deschutes County updated their Comprehensive Plan that includes a specific chapter (Chapter 3.5) addressing the wildfire risk in the context of natural hazards. A large part of this chapter is dedicated to reducing wildfire risk and managing the forest resources in Deschutes County. This portion of the Comprehensive Plan references all seven (7) of the Deschutes County Community Wildfire Protection Plans as important documents that outline the priorities, strategies, and actions for fuels reduction treatments in specific planning areas. This provides goals and policies related to wildfire that are consistent with the Statewide Planning Goal 7 mentioned above.

The Board of County Commissioners adopted the original Deschutes County Natural Hazards Mitigation plan in 2006. The goals of the Natural Hazards Mitigation Plan are to prioritize risk and natural hazards for planning purposes. Since that time the Mitigation Plan has been revised twice in 2010 and in 2015 by a committee comprised of representatives from the US Forest Service, ODF, Deschutes County, local fire districts, and municipalities.

City of Bend

The City of Bend's acknowledged comprehensive plan is the Bend Area General Plan. The Oregon Land Conservation and Development Commission first acknowledged the plan in 1981. The City last completed a major update in 1998. Since that time, the City has updated the plan chapters on demographics and population (2004); economic development (2005); transportation (2013); and public facilities and services (2013- 2014). The City implements the plan through the Bend Development Code, which was adopted in 2006.

The City is working on evaluating the capacity of the Urban Growth Boundary's (UGB) need for housing and potential economic opportunities in the Urban Growth Boundary expansion when selected. The plan amendments and implementing development code changes will inform on needed housing, employment land, land for public parks and schools, transportation, public facilities (e.g. water and sewer) and introduce a new chapter for urbanization. Wildfire risk within the Urban Growth Boundary has generated considerable discussion and prompted wildfire as a topic of consideration in the determination of the area for inclusion. The above project is scheduled for completion and local adoption in spring 2016.

On September 2, 2015 the City Council adopted a resolution approving the Bend Addendum to the 2015 Deschutes County Multi-Jurisdictional Natural Hazards Mitigation Plan (NHMP). The addendum included 4 action items related to wildfire. These items are:

- Inventory alternative firefighting water sources and encourage the development of additional sources.
- Encourage creation and adoption of wildland urban interface maps to direct development requirements that assist wildfire mitigation.
- Increase communication, coordination, and collaboration between wildland urban interface property owners, city and county planners, and fire prevention crews and officials to address inherent risks in the wildland urban interface areas; available prevention and protection measures; and federal mitigation assistance programs.
- Implement fire mitigation activities in a manner consistent with the goals of promoting sustainable ecological management and community stability.

The above action items are intended to be implemented through existing planning documents including the Comprehensive Plan, the Bend Development Code and the Greater Bend CWPP. The Natural Hazard Mitigation Plan identified wildfire as the number one risk for Bend with a high probability of occurrence. Each of these action items will require a high level of coordination and communication between all parties and agencies in Greater Bend. The City of Bend's Comprehensive Plan, Bend Development Code and the Greater Bend Community Wildfire Protection Plan will provide implementation guidance on the action items listed above.

The City of Bend recently gained additional expertise to examine the land use planning and regulatory processes already in place through the Community Planning Assistance for Wildfire (CPAW). CPAW provides communities with technical assistance to better integrate land use planning and regulatory approaches with community wildfire risk reduction and resilience activities. The City was selected as one of several communities nationwide to receive planning assistance. As part of this process, technical planning team members will collaborate with Bend stakeholders such as, planning staff and fire department(s) officials, to provide a set of recommendations. Typically, the CPAW planning process will include a thorough review of key planning documents, such as the Bend Urban Area General Plan, Bend Development Code, and the Greater Bend Community Wildfire Protection Plan.

Recommendations to Reduce Structural Vulnerability

Structural Vulnerability

Based on the assessment of structural vulnerability for the ODF Assessment of Risk Factors, Table 5 identifies the main hazards within the eight Communities at Risk in the Greater Bend planning area. For each hazard or risk listed, an action is recommended to address the threat or decrease the risk.

Table 5 – Structural Vulnerability Hazards & Recommendations

Community at Risk	Primary Hazards	Recommended Actions
Core Bend	Defensible Space – Hazardous Vegetation	FireFree, Firewise, SB 360 compliance
	Structural composition (roofing)	FireFree, Firewise, SB 360 compliance
Greater Bend	Defensible space – hazardous vegetation	FireFree, Firewise, SB 360 compliance
	Structural composition (roofing)	FireFree, Firewise, SB 360 compliance
	Insufficient access & evacuation routes	Establish route(s), sign and maintain
	Some inadequate signage	Identify and improve
North	Defensible space – hazardous vegetation	FireFree, Firewise, SB 360 compliance
	Structural composition (roofing)	FireFree, Firewise, SB 360 compliance
	Insufficient access & evacuation routes	Improve route(s), sign and maintain
Northeast	Defensible space – hazardous vegetation	FireFree, Firewise, SB 360 compliance
	Structural composition (roofing)	FireFree, Firewise, SB 360 compliance
	Insufficient access & evacuation routes	Improve route(s), sign and maintain
Northwest	Defensible space – hazardous vegetation	FireFree, Firewise, SB 360 compliance
	Structural composition (roofing)	FireFree, Firewise, SB 360 compliance
	Insufficient access & evacuation routes	Establish route(s), sign and maintain
	Poor condition of interior roads	Identify, upgrade and maintain
Southeast	Defensible space – hazardous vegetation	FireFree, Firewise, SB 360 compliance
	Structural composition (roofing)	FireFree, Firewise, SB 360 compliance
	Insufficient access & evacuation roads	Establish route(s), sign and maintain
	Poor condition of interior roads	Identify, upgrade and maintain
Southwest	Defensible space – hazardous vegetation	FireFree, Firewise, SB 360 compliance
	Structural composition (roofing)	FireFree, Firewise, SB 360 compliance
	Insufficient access & evacuation routes	Improve route(s), sign and maintain
	Poor condition of some roads	Identify, upgrade and maintain
West	Defensible space – hazardous vegetation	FireFree, Firewise
	Structural composition	FireFree, Firewise
	Insufficient access & evacuation routes	Establish route(s), sign and maintain
	Poor condition of some roads	Identify, upgrade and maintain

Table 6 provides a checklist for residents seeking to reduce the risk of major 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 6 – Defensible Space Checklist

- 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 flammable vegetation and brush around your home.
- Reduce the density of nearby trees.
- Clear wood piles and building materials away from your home.
- Remove low tree branches and shrubs.
- Keep grass and weeds cut low.
- Remove overhanging branches and limbs.
- 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.
- Keep decks free of flammable lawn furniture, doormats, etc.
- Choose fire-resistant roofing materials.
- Trim vegetation along driveways a minimum distance of 14' x 14' for fire trucks.
- Use alternatives to burning debris like composting or chipping.

Education

Education and outreach are top priorities for the Greater Bend CWPP. The rapid influx of new residents is just one reason the Steering Committee places high value on the education of Bend area residents and landowners. Many new residents are unfamiliar with wildland fire and have limited experience with issues such as 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.

A recent public paradigm shift across the United States, a fire adapted community engages a higher degree of personal responsibility on the part of residents in fire prone areas. Residents and neighbors are encouraged to prepare not only their properties but also their families in fire safe practices including necessary evacuation protocols. Utilizing pre-fire strategies such as defensible space and fire resistant landscaping and construction materials, communities can turn entire neighborhoods into fire adapted communities where even in the event of a wildland fire, people can safely evacuate themselves, homes survive with little or no intervention from fire agencies and if trapped, people know what to do to survive the fire.

There are several opportunities to enhance these educational efforts in the greater Bend area. Bend Fire and Rescue, the Central Oregon Fire Prevention Cooperative and Project Wildfire all provide wildland fire prevention programs through a variety of individual and collaborative efforts. Community forums that raise awareness of fire risk can be a powerful tool to reach individuals and businesses that otherwise would not be reached through the above channels. Business owners, recreation enthusiasts, and conservationists are essential to the wildfire resiliency dialogue.

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

Local residents are encouraged to contact Bend Fire and Rescue for information. Residents may also find additional information on how they can reduce hazards and protect themselves from loss due to wildland fires at www.firefree.org and www.firewise.org.

Action Plan and Implementation

The Greater Bend CWPP identifies priorities and strategies for reducing hazardous wildland fuels while improving forest health, supporting local industry and economy, and improving fire protection capabilities. Addressing all three of these goals maintains local residents' commitment to aligning with nation goals, which are outlined in the Cohesive Strategy.

The Steering Committee recognizes that the Greater Bend CWPP is a living tool with multiple applications. The value of the action plan is to establish measurable activities or actions that will further the goals outlined by the CWPP. The following actions are intended to assist individuals and agencies in the implementation of this CWPP across Bend and the adjacent WUI.

Improving Fire Protection Capabilities

The Steering Committee is again 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 high intensity wildland fire in Bend and the adjacent WUI. Homeowners can utilize tables 5 and 6 as a resource to improve the fire resistance of their homes on an individual basis.

The Steering Committee is also charged with the task of working with Bend Fire and Rescue and Deschutes County Rural Fire Protection District #2 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.

The Steering Committee will work with the Bend Fire and Rescue, Deschutes County Rural Fire Protection District #2, 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 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.

Oregon Department of Forestry is currently in the planning phase of installing smoke detection cameras in Deschutes County. The smoke detection cameras should be installed by the next revision of this plan. These cameras will aid in effective suppression response by the wildland agency resources by allowing for more accurate reporting on smoke size and location. The hope is that local fire lookouts and Central Oregon

Interagency Dispatch Center (COIDC) can use multiple perspectives provided by the cameras to effectively communicate smoke locations to resources.

Working towards a more Fire Adapted Community

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. Specific action items for each Community at Risk are listed below:

Community at Risk	Specific Action Item
Core Bend	Due to the high occurrence of fire with the rating area, residents should practice fire mitigation strategies and develop evacuation kits for their family in case of a large wildfire.
Greater Bend	The Greater Bend area still has numerous WUI areas and vegetation within the City Limits that need to be mitigated by the appropriate entity or owner.
North	The presence of Juniper and numerous brush species still create a high potential for crown fires. Residents living in the North Community at Risk should reduce ladder fuels and thin where appropriate to reduce the crown fire potential.
Northeast	The presence of Juniper and numerous brush species still create a high potential for crown fires. Residents living in the Northeast Community at Risk should reduce ladder fuels and thin where appropriate to reduce the crown fire potential.
Northwest	Given the historical and recent fire occurrence the crown fire potential is high. Residents are urged to create and maintain defensible space, reduce ladder fuels and thin where necessary. The Northwest Community at Risk typically has longer response times by emergency personnel. Ensuring the access and evacuation routes are clear of vegetation will prevent the response times extending in times of large wildfires or other emergency incidents.
Southeast	There is a significant amount of vegetation present; all stakeholders in the Southeast Community at Risk are urged to mitigate their fuels to create a fire resilient and healthy landscape.

<p style="text-align: center;">Southwest</p>	<p>There is a significant amount of vegetation present; all stakeholders in the Southwest Community at Risk are urged to mitigate their fuels to create a fire resilient and healthy landscape.</p> <p>Given the historical and recent fire occurrence the crown fire potential is high. Residents are urged to create and maintain defensible space, reduce ladder fuels and thin where necessary. The Southwest Community at Risk typically has longer response times by emergency personnel. Ensuring the access and evacuation routes are clear of vegetation and passable by large vehicles will prevent the response times extending in times of large wildfires or other emergency incidents.</p>
<p style="text-align: center;">West</p>	<p>Due to the large portion of federal land ownership, treatments in the watershed to protect the City of Bend's water supply and vital communication sites for emergency personnel.</p> <p>Given the historical and recent fire occurrence the crown fire potential is high. Residents are urged to create and maintain defensible space, reduce ladder fuels and thin where necessary. There is a significant amount of vegetation present; all stakeholders in the West Community at Risk are urged to mitigate their fuels to create a fire resilient and healthy landscape.</p> <p>The West Community at Risk typically has longer response times by emergency personnel. Ensuring the access and evacuation routes are clear of vegetation and passable by large vehicles will prevent the response times extending in times of large wildfires or other emergency incidents.</p>

The Steering Committee has expressed the vital need of educating vacant lot owners in the Greater Bend CWPP Boundary. The group will work on strengthening the relationships between residents and local leadership so that they can collaboratively develop an educational campaign that will target out-of-area owners. Education was an overarching theme that the Steering Committee agreed is a paramount priority throughout the revision process.

The Steering Committee clearly outlined some venues that will reach the population desired. Utilizing City Club, Bend 2030, Building a Better Bend are all community forums that reach many in the CWPP Boundary. Project Wildfire will also be working with members of the Steering Committee to tailor educational messages for local decision

makers regarding the wildland urban interface risk, overall wildland fire risk and fire history.

The Steering Committee will pursue funding for demonstration lots for local residents to use as examples in visible, strategic locations throughout the CWPP boundary. 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.

One important piece of a Fire Adapted Community is preparing for the recovery process after a wildland fire occurs. There are many resources for residents who are recovering from a wildland fire that can impact their small business and home. Build community and business resiliency is the key to being fully adapted to fire. An After the Fire resources page can be found in the appendices of this document.

Restoring Resilient Landscapes

Immediately following the acceptance and signed approval of this plan, the Steering Committee will make copies of the 2016 Update to the Greater Bend 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 Bend 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 or private projects and recommends that future projects consider these benefits when selecting areas for treatment.

There are 209,833 acres in the Greater Bend WUI area. Significant fuels reduction projects continue to improve the overall health and fire resiliency of the landscape. Achieving a resilient healthy landscape however, requires multiple entries on treatment sites, over a period of years. For example, thinning and mowing may occur over a 12-24 month project period. The under-burning component of the project may not occur for another year while the land recovers from the thinning and mowing and produces an adequate shrub content to support prescribed fire.

Therefore, the Steering Committee recognizes that although significant fuels reduction work has been completed the need continues on the landscape as a whole. The Steering Committee supports the ongoing planning and treatment process on public lands, especially an increase in use of prescribed fire. There are multiple prescribed fire techniques that land managers may use to best suit the area they are working within. The ultimate goal is to restore low intensity fire, or also known as a broadcast burn, to the local ecosystem, which has been historically dependent on fire for its health.

Treating ground fuels is a critical component of any effort designed to reduce fire threat, and it has added ecological benefits, such as recycling nutrients. Once an area, or unit, has been thinned and the slash has been treated, the site can be broadcast burned. Fire practitioners prepare the area by constructing firelines and/or use natural breaks such as roads or existing trails for containment lines for the prescribed burn. Where site objectives dictate that standing dead trees and large downed woody material need to be protected, they can be either hand lined or otherwise excluded from the burn block. Extra protection measures may not be necessary for many fire-tolerant cultural or archaeological sites: treating these areas with prescribed fire has the advantage of protecting them from emergency suppression activities during a wildfire. Generally, the target flame length is under four feet, although some sites require a “hotter” burn to achieve the resource objectives.

Historically, large-scale broadcast burning has occurred in the spring. As the demands to boost prescribed fire use increase, utilizing as many “burn windows”, or days when the weather conditions are favorable, will be a critical piece in achieving restoration goals. This, however, is a more challenging time to use prescribed fire and will depend on the availability and preparedness of appropriate resources and weather.

Burn operations usually begun by mid-morning following the break-up of the nighttime temperature inversion and the establishment of the daytime wind pattern. Completion of ignition should be targeted early enough to ensure adequate smoke dispersal prior to the onset of cooler nighttime temperatures.

Extensive public notification is an essential element of the program. The public can contact the Deschutes National Forest if they have health concerns that are exacerbated by smoke so that they can be notified prior to a prescribed burn. The Deschutes National Forest uses social media; especially [Twitter](#) to notify local residents of prescribed burns on the Forest. Fire personnel also rely on their local partners to notify and educate the local public through educational programs with civic groups, service clubs, homeowner associations, etc.

Once thinning, slash treatment, and first under-burning have been completed, the treated area constitutes an effective fuel-break for the next several years. Follow-up thinning and maintenance burns must be scheduled as necessary to ensure the treated areas remain free of the risk of catastrophic wildfire. Adequate access must be assured, not only to conduct needed follow-up treatments, but also to permit rapid response of fire suppression forces.

For our area, it is no longer a question of if a wildfire will occur, but when, where, and how much damage will result. Working with residents before the wildfire, not during or after it, is preferred. Experience with wildfires burning in previously treated areas demonstrates the following:

- Improved access for fire fighters and apparatus
- Increased efficiency when locating and constructing firelines
- Easier detection and suppression of spot fires

- Decreased mop up time and effort
- Reduced fire intensity, torching and mortality
- Improved public safety
- Reduction of loss
- Reduction of air emissions

Another benefit, particularly in interface areas, is reduced trash accumulation through elimination of hiding cover necessary for transient camps and party spots.

Evaluation and Monitoring

The Steering Committee faced a complex task in the update of the Greater Bend Community Wildfire Protection Plan. Implementing and sustaining these efforts will require a significant commitment. Maintaining a collaborative and cooperative environment with Bend Fire and Rescue, Deschutes County RFPD #2, community-based organizations, local government and the public land management agencies continues to be an important step in reducing the risk of 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: a Deputy Fire Chief from Bend Fire and Rescue; a representative from ODF; representatives from the US Forest Service, the BLM, the City of Bend, and Deschutes County along with members of the greater Bend public.

The Steering Committee agrees that the Greater Bend 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; revisited at least annually to address its Purpose.

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.

Bend Fire and Rescue will work with Project Wildfire to convene the Steering Committee as often as the Steering Committee deems necessary to implement and review the Greater Bend 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 assessment

Core Bend

2,116 acres 3,996 structures 9,990 population

1. What is the likelihood of a fire occurring?

2016

Fire occurrence (per 1000 acres per 10 years) 0 – 0.1 (low) 5 points 0.1 – 1.1 (moderate) 10 points 1.1+ (high) 20 points	20 (0.0)
Ignition Risk – Home Density (homes per 10 acres) 0 - 0.9 (rural) 0 points 1 – 5 (suburban) 5 points 5.1+ (urban) 10 points	10 (18.88)
Ignition Risk – Other Factors Present < 1/3 present 0 points 1/3 – 2/3 present 5 points > 2/3 present 10 points	10
Total points:	40
Risk category rating: 0 – 13 points = Low 13 – 27 points = Moderate 27 – 40 points = High	
Rating:	High

Other factors: power lines or stations, logging, construction, debris burning, mining, dispersed or developed camping, off-road vehicle use, flammables, fireworks, dry grass mowing, woodcutting, equipment use, target shooting, military training, arson, cultural activities, railroad, highways, county or public access road, camps/resorts/stables, schools, business, ranch or farm, lightning prone, dumping

2. Hazards

Core Bend

2016

Weather Zone 3	40
Topography - Slope 0 – 25% 0 points 26 – 40% 3 points 41% + 5 points	0
Topography - Aspect N, NW, NE 0 points W, E 3 points S, SW, SE 5 points	5
Topography - Elevation 5001 feet + 0 points 3501 – 5000 feet 1 point 0 – 3500 feet 2 points	1
Vegetation (SB 360 definition) Non-forest 0 points HV 1 5 points HV 2 15 points HV 3 20 points	1
Crown Fire Potential Passive - Low 0 points Active – Moderate 5 points Independent – High 10 points	0
Total points:	47
Risk category rating: 0 – 9 points = Low 10 – 40 points = Moderate 41 – 60 points = High 61 – 80 points = Extreme	
Rating:	High

HV 1 – produces flame lengths up to 5 feet with very little spotting, torching or crowning.

HV 2 – produces flame lengths 5-8 feet high with sporadic spotting, torching or crowning.

HV 3 – produces flame lengths over 8 feet with frequent spotting, torching and crowning.

3. Protection Capabilities

Core Bend

2016

Fire response		
Organized structural response < 10 minutes	0 points	0
Inside fire district, response > 10 minutes	8 points	
No structural protection, only wildland response	15 points	
No structural or wildland protection	36 points	
Community Preparedness		
Organized stakeholder group, community fire plan, phone tree, or mitigation efforts	0 points	2
Primarily agency efforts (mailings, FireFree, etc.)	2 points	
No efforts	4 points	
Total points:		2
Protection Capability Category Rating:		
0 – 9 points = Low		
10 – 16 points = Moderate		
17 – 40 points = High		
Rating:		Low

4. Values Protected: Human and economic

Homes (density per 10 acres)		
0.1 – 0.9 (rural)	2 points	30 (18.88)
1 – 5 (suburban)	15 points	
5.1 + (urban)	30 points	
Community Infrastructure		
None	0 points	20
One present	10 points	
More than one present	20 points	
Total points:		50
Values Protected Category Rating:		
0 – 15 points = Low		
16 – 30 points = Moderate		
31 – 50 points = High		
Rating:		High

Community infrastructure – Power substations and corridors, transportation corridors, municipal watersheds, water storage and distribution, fuel storage, health care facilities, landfills and waste treatment, schools, churches, community centers, and stores.

2016 update:

- The group agreed that even though there is no official fire occurrence statistics that local knowledge shows Core Bend meets the criteria for a high fire occurrence.
- The group agreed that the most urban part of Bend does not have the vegetation component the rest of the rating areas have.

Greater Bend

25,923 acres 27,258 structures 68,145 population

1. What is the likelihood of a fire occurring?

2016

Fire occurrence (per 1000 acres per 10 years) 0 – 0.1 (low) 5 points 0.1 – 1.1 (moderate) 10 points 1.1+ (high) 20 points	20 (0.8)
Ignition Risk – Home Density (homes per 10 acres) 0 - 0.9 (rural) 0 points 1 – 5 (suburban) 5 points 5.1+ (urban) 10 points	10 (10.51)
Ignition Risk – Other Factors Present < 1/3 present 0 points 1/3 – 2/3 present 5 points > 2/3 present 10 points	10
Total points:	40
Risk category rating: 0 – 13 points = Low 13 – 27 points = Moderate 27 – 40 points = High	
Rating:	High

Other factors: power lines or stations, logging, construction, debris burning, dispersed or developed camping, off-road vehicle use, flammables, fireworks, dry grass mowing, woodcutting, equipment use, target shooting, arson, cultural activities, highways, county or public access road, ranch or farm, lightning prone, dumping

2. Hazards

Greater Bend

2016

Weather Zone 3	40
Topography - Slope 0 – 25% 0 points 26 – 40% 3 points 41% + 5 points	0
Topography - Aspect N, NW, NE 0 points W, E 3 points S, SW, SE 5 points	5
Topography - Elevation 5001 feet + 0 points 3501 – 5000 feet 1 point 0 – 3500 feet 2 points	1
Vegetation (SB 360 definition) Non-forest 0 points HV 1 5 points HV 2 15 points HV 3 20 points	15
Crown Fire Potential Passive - Low 0 points Active – Moderate 5 points Independent – High 10 points	5
Total points:	66
Risk category rating: 0 – 9 points = Low 10 – 40 points = Moderate 41 – 60 points = High 61 – 80 points = Extreme	
Rating:	Extreme

HV 1 – produces flame lengths up to 5 feet with very little spotting, torching or crowning.
HV 2 – produces flame lengths 5-8 feet high with sporadic spotting, torching or crowning.
HV 3 – produces flame lengths over 8 feet with frequent spotting, torching and crowning.

3. Protection Capabilities

Greater Bend

2016

Fire response		
Organized structural response < 10 minutes	0 points	0
Inside fire district, response > 10 minutes	8 points	
No structural protection, only wildland response	15 points	
No structural or wildland protection	36 points	
Community Preparedness		
Organized stakeholder group, community fire plan, phone tree, or mitigation efforts	0 points	1
Primarily agency efforts (mailings, FireFree, etc.)	2 points	
No efforts	4 points	
Total points:		1
Protection Capability Category Rating:		
0 – 9 points = Low		
10 – 16 points = Moderate		
17 – 40 points = High		
Rating:		Moderate

4. Values Protected: Human and economic

Homes (density per 10 acres)		
0.1 – 0.9 (rural)	2 points	30 (10.51)
1 – 5 (suburban)	15 points	
5.1 + (urban)	30 points	
Community Infrastructure		
None	0 points	20
One present	10 points	
More than one present	20 points	
Total points:		50
Values Protected Category Rating:		
0 – 15 points = Low		
16 – 30 points = Moderate		
31 – 50 points = High		
Rating:		Moderate

Community infrastructure – Power substations and corridors, transportation corridors, municipal watersheds, water storage and distribution, fuel storage, health care facilities, landfills and waste treatment, schools, churches, community centers, and stores.

2016 Update:

- The group agreed that even though there is no empirical fire occurrence statistics the local knowledge shows the Greater Bend Rating Area meets the criteria for a high fire occurrence.
- The group agreed that the greater Bend area still has numerous WUI areas and vegetation within the City Limits that dictated a score of 15 in the vegetation component.
- Many Firewise Communities have accomplished a significant amount of work in Greater Bend improving the Community Preparedness score.

North

25,177 acres 2,127 structures 5,318 population

1. What is the likelihood of a fire occurring?

2016

Fire occurrence (per 1000 acres per 10 years) 0 – 0.1 (low) 5 points 0.1 – 1.1 (moderate) 10 points 1.1+ (high) 20 points	20 (0.3)
Ignition Risk – Home Density (homes per 10 acres) 0 - 0.9 (rural) 0 points 1 – 5 (suburban) 5 points 5.1+ (urban) 10 points	0 (0.84)
Ignition Risk – Other Factors Present < 1/3 present 0 points 1/3 – 2/3 present 5 points > 2/3 present 10 points	10
Total points:	30
Risk category rating: 0 – 13 points = Low 13 – 27 points = Moderate 27 – 40 points = High	
Rating:	High

Other factors: power lines or stations, logging, construction, debris burning, dispersed or developed camping, off-road vehicle use, flammables, fireworks, dry grass mowing, woodcutting, equipment use, target shooting, arson, cultural activities, county or public access road, ranch or farm, lightning prone, dumping

2. Hazards

North

2016

Weather Zone 3	40
Topography - Slope 0 – 25% 0 points 26 – 40% 3 points 41% + 5 points	0
Topography - Aspect N, NW, NE 0 points W, E 3 points S, SW, SE 5 points	5
Topography - Elevation 5001 feet + 0 points 3501 – 5000 feet 1 point 0 – 3500 feet 2 points	1
Vegetation (SB 360 definition) Non-forest 0 points HV 1 5 points HV 2 15 points HV 3 20 points	15
Crown Fire Potential Passive - Low 0 points Active – Moderate 5 points Independent – High 10 points	3
Total points:	64
Risk category rating: 0 – 9 points = Low 10 – 40 points = Moderate 41 – 60 points = High 61 – 80 points = Extreme	
Rating:	Extreme

HV 1 – produces flame lengths up to 5 feet with very little spotting, torching or crowning.

HV 2 – produces flame lengths 5-8 feet high with sporadic spotting, torching or crowning.

HV 3 – produces flame lengths over 8 feet with frequent spotting, torching and crowning.

3. Protection Capabilities

North
2016

Fire response		
Organized structural response < 10 minutes	0 points	0
Inside fire district, response > 10 minutes	8 points	
No structural protection, only wildland response	15 points	
No structural or wildland protection	36 points	
Community Preparedness		
Organized stakeholder group, community fire plan, phone tree, or mitigation efforts	0 points	2
Primarily agency efforts (mailings, FireFree, etc.)	2 points	
No efforts	4 points	
Total points:		2
Protection Capability Category Rating:		
0 – 9 points = Low		
10 – 16 points = Moderate		
17 – 40 points = High		
Rating:		Low

3. Values Protected: Human and economic

Homes (density per 10 acres)		
0.1 – 0.9 (rural)	2 points	2 (0.8)
1 – 5 (suburban)	15 points	
5.1 + (urban)	30 points	
Community Infrastructure		
None	0 points	20
One present	10 points	
More than one present	20 points	
Total points:		22
Values Protected Category Rating:		
0 – 15 points = Low		
16 – 30 points = Moderate		
31 – 50 points = High		
Rating:		Moderate

Community infrastructure – Power substations and corridors, transportation corridors, municipal watersheds, water storage and distribution, fuel storage, health care facilities, landfills and waste treatment, schools, churches, community centers, and stores.

2016 Update:

- The group agreed that even though there is no empirical fire occurrence statistics the local knowledge shows the North Rating Area meets the criteria for a high fire occurrence.
- With the vegetation of the Juniper and brush in this rating area still poses the potential for crown fires.

Northeast

25,853 acres 1,477 structures 3,693 population

1. What is the likelihood of a fire occurring?

2016

Fire occurrence (per 1000 acres per 10 years) 0 – 0.1 (low) 5 points 0.1 – 1.1 (moderate) 10 points 1.1+ (high) 20 points	20 (1.2)
Ignition Risk – Home Density (homes per 10 acres) 0 - 0.9 (rural) 0 points 1 – 5 (suburban) 5 points 5.1+ (urban) 10 points	0 (0.57)
Ignition Risk – Other Factors Present < 1/3 present 0 points 1/3 – 2/3 present 5 points > 2/3 present 10 points	10
Total points:	30
Risk category rating: 0 – 13 points = Low 13 – 27 points = Moderate 27 – 40 points = High	
Rating:	High

Other factors: power lines or stations, logging, construction, debris burning, dispersed or developed camping, off-road vehicle use, flammables, fireworks, dry grass mowing, woodcutting, equipment use, target shooting, arson, cultural activities, county or public access road, ranch or farm, lightning prone, dumping

2. Hazards

Northeast

2016

Weather Zone 3	40
Topography - Slope 0 – 25% 0 points 26 – 40% 3 points 41% + 5 points	0
Topography - Aspect N, NW, NE 0 points W, E 3 points S, SW, SE 5 points	5
Topography - Elevation 5001 feet + 0 points 3501 – 5000 feet 1 point 0 – 3500 feet 2 points	1
Vegetation (SB 360 definition) Non-forest 0 points HV 1 5 points HV 2 15 points HV 3 20 points	15
Crown Fire Potential Passive - Low 0 points Active – Moderate 5 points Independent – High 10 points	3
Total points:	64
Risk category rating: 0 – 9 points = Low 10 – 40 points = Moderate 41 – 60 points = High 61 – 80 points = Extreme	
Rating:	Extreme

HV 1 – produces flame lengths up to 5 feet with very little spotting, torching or crowning.

HV 2 – produces flame lengths 5-8 feet high with sporadic spotting, torching or crowning.

HV 3 – produces flame lengths over 8 feet with frequent spotting, torching and crowning.

3. Protection Capabilities

Northeast

2016

Fire response		
Organized structural response < 10 minutes	0 points	0
Inside fire district, response > 10 minutes	8 points	
No structural protection, only wildland response	15 points	
No structural or wildland protection	36 points	
Community Preparedness		
Organized stakeholder group, community fire plan, phone tree, or mitigation efforts	0 points	2
Primarily agency efforts (mailings, FireFree, etc.)	2 points	
No efforts	4 points	
Total points:		2
Protection Capability Category Rating:		
0 – 9 points = Low		
10 – 16 points = Moderate		
17 – 40 points = High		
Rating:		Low

4. Values Protected: Human and economic

Homes (density per 10 acres)		
0.1 – 0.9 (rural)	2 points	2 (0.57)
1 – 5 (suburban)	15 points	
5.1 + (urban)	30 points	
Community Infrastructure		
None	0 points	20
One present	10 points	
More than one present	20 points	
Total points:		22
Values Protected Category Rating:		
0 – 15 points = Low		
16 – 30 points = Moderate		
31 – 50 points = High		
Rating:		Moderate

Community infrastructure – Power substations and corridors, transportation corridors, municipal watersheds, water storage and distribution, fuel storage, health care facilities, landfills and waste treatment, schools, churches, community centers, and stores.

2016 Update:

- The group agreed that even though there is no empirical fire occurrence statistics the local knowledge shows the Northeast Rating Area meets the criteria for a high fire occurrence.
- With the vegetation of the Juniper and brush in this rating area still poses the potential for crown fires.

Northwest

34,014 acres 313 structures 783 population

1. What is the likelihood of a fire occurring?

2016

Fire occurrence (per 1000 acres per 10 years) 0 – 0.1 (low) 5 points 0.1 – 1.1 (moderate) 10 points 1.1+ (high) 20 points	20 (1.4)
Ignition Risk – Home Density (homes per 10 acres) 0 - 0.9 (rural) 0 points 1 – 5 (suburban) 5 points 5.1+ (urban) 10 points	0 (0.09)
Ignition Risk – Other Factors Present < 1/3 present 0 points 1/3 – 2/3 present 5 points > 2/3 present 10 points	10
Total points:	30
Risk category rating: 0 – 13 points = Low 13 – 27 points = Moderate 27 – 40 points = High	
Rating:	High

Other factors: power lines or stations, logging, construction, debris burning, dispersed or developed camping, off-road vehicle use, flammables, fireworks, dry grass mowing, woodcutting, equipment use, target shooting, arson, cultural activities, highways, county or public access road, camps/resorts/stables, business, ranch or farm, lightning prone, dumping

2. Hazards

Northwest

2016

Weather Zone 3	40
Topography - Slope 0 – 25% 0 points 26 – 40% 3 points 41% + 5 points	0
Topography - Aspect N, NW, NE 0 points W, E 3 points S, SW, SE 5 points	5
Topography - Elevation 5001 feet + 0 points 3501 – 5000 feet 1 point 0 – 3500 feet 2 points	1
Vegetation (SB 360 definition) Non-forest 0 points HV 1 5 points HV 2 15 points HV 3 20 points	15
Crown Fire Potential Passive - Low 0 points Active – Moderate 5 points Independent – High 10 points	10
Total points:	71
Risk category rating: 0 – 9 points = Low 10 – 40 points = Moderate 41 – 60 points = High 61 – 80 points = Extreme	
Rating:	Extreme

HV 1 – produces flame lengths up to 5 feet with very little spotting, torching or crowning.

HV 2 – produces flame lengths 5-8 feet high with sporadic spotting, torching or crowning.

HV 3 – produces flame lengths over 8 feet with frequent spotting, torching and crowning.

3. Protection Capabilities

Northwest

2016

Fire response Organized structural response < 10 minutes 0 points Inside fire district, response > 10 minutes 8 points No structural protection, only wildland response 15 points No structural or wildland protection 36 points	10
Community Preparedness Organized stakeholder group, community fire plan, phone tree, or mitigation efforts 0 points Primarily agency efforts (mailings, FireFree, etc.) 2 points No efforts 4 points	1
Total points:	11
Protection Capability Category Rating: 0 – 9 points = Low 10 – 16 points = Moderate 17 – 40 points = High	
Rating:	Moderate

3. Values Protected: Human and economic

Homes (density per 10 acres) 0.1 – 0.9 (rural) 2 points 1 – 5 (suburban) 15 points 5.1 + (urban) 30 points	2 (0.09)
Community Infrastructure None 0 points One present 10 points More than one present 20 points	10
Total points:	12
Values Protected Category Rating: 0 – 15 points = Low 16 – 30 points = Moderate 31 – 50 points = High	
Rating:	Low

Community infrastructure – Power substations and corridors, transportation corridors, municipal watersheds, water storage and distribution, fuel storage, health care facilities, landfills and waste treatment, schools, churches, community centers, and stores.

2016 Update:

- With the historical and recent fire occurrences in this rating area the group decided to give the full points possible for crown fire potential.
- Due to longer response times and some access issues in this rating area, the group agreed that a 10 was appropriate for fire response.

Southeast

35,646 acres 1,520 structures 3,800 population

1. What is the likelihood of a fire occurring?

2016

Fire occurrence (per 1000 acres per 10 years) 0 – 0.1 (low) 5 points 0.1 – 1.1 (moderate) 10 points 1.1+ (high) 20 points	20 (3.2)
Ignition Risk – Home Density (homes per 10 acres) 0 - 0.9 (rural) 0 points 1 – 5 (suburban) 5 points 5.1+ (urban) 10 points	0 (0.43)
Ignition Risk – Other Factors Present < 1/3 present 0 points 1/3 – 2/3 present 5 points > 2/3 present 10 points	10
Total points:	30
Risk category rating: 0 – 13 points = Low 13 – 27 points = Moderate 27 – 40 points = High	
Rating:	High

Other factors: power lines or stations, logging, construction, debris burning, dispersed or developed camping, off-road vehicle use, flammables, fireworks, dry grass mowing, woodcutting, equipment use, target shooting, arson, cultural activities, highways, county or public access road, ranch or farm, lightning prone, dumping

2. Hazards

Southeast

2016

Weather Zone 3	40
Topography - Slope 0 – 25% 0 points 26 – 40% 3 points 41% + 5 points	0
Topography - Aspect N, NW, NE 0 points W, E 3 points S, SW, SE 5 points	5
Topography - Elevation 5001 feet + 0 points 3501 – 5000 feet 1 point 0 – 3500 feet 2 points	1
Vegetation (SB 360 definition) Non-forest 0 points HV 1 5 points HV 2 15 points HV 3 20 points	17
Crown Fire Potential Passive - Low 0 points Active – Moderate 5 points Independent – High 10 points	7
Total points:	70
Risk category rating: 0 – 9 points = Low 10 – 40 points = Moderate 41 – 60 points = High 61 – 80 points = Extreme	
Rating:	Extreme

HV 1 – produces flame lengths up to 5 feet with very little spotting, torching or crowning.

HV 2 – produces flame lengths 5-8 feet high with sporadic spotting, torching or crowning.

HV 3 – produces flame lengths over 8 feet with frequent spotting, torching and crowning.

3. Protection Capabilities

Southeast

2016

Fire response Organized structural response < 10 minutes 0 points Inside fire district, response > 10 minutes 8 points No structural protection, only wildland response 15 points No structural or wildland protection 36 points	8
Community Preparedness Organized stakeholder group, community fire plan, phone tree, or mitigation efforts 0 points Primarily agency efforts (mailings, FireFree, etc.) 2 points No efforts 4 points	1
Total points:	9
Protection Capability Category Rating: 0 – 9 points = Low 10 – 16 points = Moderate 17 – 40 points = High	
Rating:	Low

4. Values Protected: Human and economic

Homes (density per 10 acres) 0.1 – 0.9 (rural) 2 points 1 – 5 (suburban) 15 points 5.1 + (urban) 30 points	2 (0.43)
Community Infrastructure None 0 points One present 10 points More than one present 20 points	20
Total points:	22
Values Protected Category Rating: 0 – 15 points = Low 16 – 30 points = Moderate 31 – 50 points = High	
Rating:	Moderate

Community infrastructure – Power substations and corridors, transportation corridors, municipal watersheds, water storage and distribution, fuel storage, health care facilities, landfills and waste treatment, schools, churches, community centers, and stores.

2016 Update:

- Due to the vegetation present the group agreed to give high points in that category.
- Many Firewise Communities have accomplished a significant amount of work in Greater Bend improving the Community Preparedness score.

Southwest

22,252 acres 2,437 structures 6,093 population

1. What is the likelihood of a fire occurring?

2016

Fire occurrence (per 1000 acres per 10 years) 0 – 0.1 (low) 5 points 0.1 – 1.1 (moderate) 10 points 1.1+ (high) 20 points	20 (4.9)
Ignition Risk – Home Density (homes per 10 acres) 0 - 0.9 (rural) 0 points 1 – 5 (suburban) 5 points 5.1+ (urban) 10 points	5 (1.08)
Ignition Risk – Other Factors Present < 1/3 present 0 points 1/3 – 2/3 present 5 points > 2/3 present 10 points	10
Total points:	35
Risk category rating: 0 – 13 points = Low 13 – 27 points = Moderate 27 – 40 points = High	
Rating:	High

Other factors: power lines or stations, logging, construction, debris burning, dispersed or developed camping, off-road vehicle use, flammables, fireworks, dry grass mowing, woodcutting, equipment use, target shooting, arson, cultural activities, highways, county or public access road, ranch or farm, lightning prone, dumping

2. Hazards

Southwest

2016

Weather Zone 3	40
Topography - Slope 0 – 25% 0 points 26 – 40% 3 points 41% + 5 points	0
Topography - Aspect N, NW, NE 0 points W, E 3 points S, SW, SE 5 points	5
Topography - Elevation 5001 feet + 0 points 3501 – 5000 feet 1 point 0 – 3500 feet 2 points	1
Vegetation (SB 360 definition) Non-forest 0 points HV 1 5 points HV 2 15 points HV 3 20 points	19
Crown Fire Potential Passive - Low 0 points Active – Moderate 5 points Independent – High 10 points	7
Total points:	72
Risk category rating: 0 – 9 points = Low 10 – 40 points = Moderate 41 – 60 points = High 61 – 80 points = Extreme	
Rating:	Extreme

HV 1 – produces flame lengths up to 5 feet with very little spotting, torching or crowning.

HV 2 – produces flame lengths 5-8 feet high with sporadic spotting, torching or crowning.

HV 3 – produces flame lengths over 8 feet with frequent spotting, torching and crowning.

3. Protection Capabilities

Southwest

2016

Fire response		
Organized structural response < 10 minutes	0 points	9
Inside fire district, response > 10 minutes	8 points	
No structural protection, only wildland response	15 points	
No structural or wildland protection	36 points	
Community Preparedness		
Organized stakeholder group, community fire plan, phone tree, or mitigation efforts	0 points	2
Primarily agency efforts (mailings, FireFree, etc.)	2 points	
No efforts	4 points	
Total points:		11
Protection Capability Category Rating:		
0 – 9 points = Low		
10 – 16 points = Moderate		
17 – 40 points = High		
Rating:		Moderate

4. Values Protected: Human and economic

Homes (density per 10 acres)		
0.1 – 0.9 (rural)	2 points	15 (1.08)
1 – 5 (suburban)	15 points	
5.1 + (urban)	30 points	
Community Infrastructure		
None	0 points	20
One present	10 points	
More than one present	20 points	
Total points:		35
Values Protected Category Rating:		
0 – 15 points = Low		
16 – 30 points = Moderate		
31 – 50 points = High		
Rating:		High

Community infrastructure – Power substations and corridors, transportation corridors, municipal watersheds, water storage and distribution, fuel storage, health care facilities, landfills and waste treatment, schools, churches, community centers, and stores.

2016 Update:

- With the vegetation present and the home density the group decided 19 points in vegetation was necessary for this area.
- With the historical and recent fire occurrences in this rating area the group decided to give a large number for crown fire potential.
- Because of access issues in this rating area the group decided to score the fire response higher.

West

38,582 acres 48 structures 120 population

1. What is the likelihood of a fire occurring?

2016

Fire occurrence (per 1000 acres per 10 years) 0 – 0.1 (low) 5 points 0.1 – 1.1 (moderate) 10 points 1.1+ (high) 20 points	20 (5.2)
Ignition Risk – Home Density (homes per 10 acres) 0 - 0.9 (rural) 0 points 1 – 5 (suburban) 5 points 5.1+ (urban) 10 points	0 (0.012)
Ignition Risk – Other Factors Present < 1/3 present 0 points 1/3 – 2/3 present 5 points > 2/3 present 10 points	10
Total points:	30
Risk category rating: 0 – 13 points = Low 13 – 27 points = Moderate 27 – 40 points = High	
Rating:	High

Other factors: power lines or stations, logging, construction, debris burning, dispersed or developed camping, off-road vehicle use, flammables, fireworks, dry grass mowing, woodcutting, equipment use, target shooting, arson, cultural activities, highways, county or public access road, ranch or farm, lightning prone, dumping

2. Hazards

West

2016

Weather Zone 3	40
Topography - Slope 0 – 25% 0 points 26 – 40% 3 points 41% + 5 points	2
Topography - Aspect N, NW, NE 0 points W, E 3 points S, SW, SE 5 points	5
Topography - Elevation 5001 feet + 0 points 3501 – 5000 feet 1 point 0 – 3500 feet 2 points	1
Vegetation (SB 360 definition) Non-forest 0 points HV 1 5 points HV 2 15 points HV 3 20 points	20
Crown Fire Potential Passive - Low 0 points Active – Moderate 5 points Independent – High 10 points	10
Total points:	78
Risk category rating: 0 – 9 points = Low 10 – 40 points = Moderate 41 – 60 points = High 61 – 80 points = Extreme	
Rating:	Extreme

HV 1 – produces flame lengths up to 5 feet with very little spotting, torching or crowning.

HV 2 – produces flame lengths 5-8 feet high with sporadic spotting, torching or crowning.

HV 3 – produces flame lengths over 8 feet with frequent spotting, torching and crowning.

3. Protection Capabilities

West
2016

Fire response		
Organized structural response < 10 minutes	0 points	14
Inside fire district, response > 10 minutes	8 points	
No structural protection, only wildland response	15 points	
No structural or wildland protection	36 points	
Community Preparedness		
Organized stakeholder group, community fire plan, phone tree, or mitigation efforts	0 points	1
Primarily agency efforts (mailings, FireFree, etc.)	2 points	
No efforts	4 points	
Total points:		15
Protection Capability Category Rating:		
0 – 9 points = Low		
10 – 16 points = Moderate		
17 – 40 points = High		
Rating:		Moderate

4. Values Protected: Human and economic

Homes (density per 10 acres)		
0.1 – 0.9 (rural)	2 points	2 (0.012)
1 – 5 (suburban)	15 points	
5.1 + (urban)	30 points	
Community Infrastructure		
None	0 points	20
One present	10 points	
More than one present	20 points	
Total points:		22
Values Protected Category Rating:		
0 – 15 points = Low		
16 – 30 points = Moderate		
31 – 50 points = High		
Rating:		Moderate

Community infrastructure – Power substations and corridors, transportation corridors, municipal watersheds, water storage and distribution, fuel storage, health care facilities, landfills and waste treatment, schools, churches, community centers, and stores.

2016 Update:

- The group added a slope score for this rating area because of the topography in the Bridge Creek watershed.
- The vegetation component was awarded the full points due to the terrain and the difficulty to implementation in fuel reduction treatments in the watershed.
- This area also has a storied history of large wildfires so the group gave the full 10 points for crown fire potential.
- The group gave additional points for response time due to the long response time and access concerns.
- The neighborhood is tight knit and has been doing fuels reduction, thus lowering the community preparedness score.
- The values at risk include a communication site and the watershed for the City of Bend.

Detailed Structural Vulnerability Risk Assessment

Structural Vulnerability: In regards to flammable roofing the group mentioned that there are a few wood shake roofs in each rating area and they scored the areas accordingly. For the table with the numerical values please see page 27 in the Community Wildfire Protection Plan.

Core Bend:

- Flammable Roofing:
 - Out of 30 points this rating area received a 2.
- Defensible Space
 - The group suggested that about 80% were compliant according to Senate Bill 360. So the area was given a 6 out of 30.
- Ingress – Egress
 - This rating area has multiple roads in and out, so it was given a 0 out of 7.
- Road Width
 - All roads were determined to be greater than 24 feet wide, so it was given a 0 out of 4.
- All season road condition:
 - All the roads within the City of Bend are surfaced and no considerable grade. It was given a 0 out of 4.
- Street Signs (this does not address property address signs)
 - This area was given a 0 out of 5 for the presence of reflective road signs.
- Fire Service Access:
 - The group gave this area a 0 out of 5 due to easy access for fire apparatus.

Greater Bend:

- Flammable Roofing:
 - Out of 30 points this rating area received a 4.
- Defensible Space
 - The group suggested that about 50% were compliant according to Senate Bill 360. So the area was given a 15 out of 30.
- Ingress – Egress
 - This rating area has a few areas that would be difficult to gain access but overall most areas have multiple roads in and out, so it was given a 1 out of 7.
- Road Width
 - There are a few roads that the group agreed were skinnier than 24 feet wide, so it was given a 2 out of 4.
- All season road condition:
 - All the roads in this area are surfaced however, some have steep grades, so the group gave the area 1 out of 4.
- Street Signs (this does not address property address signs)
 - This area was given a 1 out of 5 in regards to all areas having reflective roads signs. There still a few neighborhoods that have wooden street signs instead of reflective.
- Fire Service Access:
 - The group gave this area a 2 due to the presence of short driveways lacking turnarounds in particular areas.

North:

- Flammable Roofing
 - Out of 30 points this rating area received a 1.
- Defensible Space
 - The group suggested that about 60% were compliant according to Senate Bill 360. So the area was given a 12 out of 30.
- Ingress – Egress
 - This rating area has a couple main roads for access, but in the event of an evacuation the lack of alternate routes would be a major concern. This rating area received a 5 out of 7 points.
- Road Width
 - Some of the roads in this area are under 24 feet wide. This rating area received a 1 out of 4.
- All season road condition:
 - This area received a 1 due to the roads not being surfaced in areas. However, the grade is less than 10%.
- Street Signs (this does not address property address signs)
 - This area was given a 0 out of 5 points due to some reflective signs present in the rating area.
- Fire Service Access:
 - The group gave this area a 3 out of 5 points due to long driveways (longer than 300 feet) that lack a turnaround for large fire apparatus.

Northeast:

- Flammable Roofing:
 - Out of 30 points this rating area received a 6.
- Defensible Space
 - The group suggested that about 60% were compliant according to Senate Bill 360. So the area was given a 12 out of 30.
- Ingress – Egress
 - This rating area has a couple main roads for access, but in the event of an evacuation the lack of alternate routes would be a major concern. This rating area received a 5 out of 7 points.
- Road Width
 - Some of the roads in this area are under 24 feet wide. This rating area received a 1 out of 4.
- All season road condition:
 - This area received a 1 due to the roads not being surfaced in areas. However, the grade is less than 10%.
- Street Signs (this does not address property address signs)
 - This area was given a 0 out of 5 points due to the presence of reflective signs in the rating area.
- Fire Service Access:
 - The group gave this area a 3 out of 5 points due to long driveways (longer than 300 feet) that lack a turnaround for large fire apparatus.

Northwest:

- Flammable Roofing
 - Out of 30 points this rating area received a 3.
- Defensible Space
 - The group suggested that about 40% were compliant according to Senate Bill 360. So the area was given an 18 out of 30.
- Ingress – Egress
 - This rating area has a couple main roads for access, but in the event of an evacuation the lack of alternate routes would be a major concern. This rating area received a 5 out of 7 points.
- Road Width
 - Some of the roads in this area are under 24 feet wide. This rating area received a 1 out of 4.
- All season road condition
 - This area received a 1 due to the roads not being surfaced in some areas. However, the grade is less than 10%.
- Street Signs (this does not address property address signs)
 - This area was given a 0 out of 5 for the presence of reflective road signs.
- Fire Service Access
 - The group gave this area a 2 due to the presence of short driveways lacking turnarounds.

Southeast:

- Flammable Roofing:
 - Out of 30 points this rating area received a 7.
- Defensible Space
 - The group suggested that about 40% were compliant according to Senate Bill 360. So the area was given an 18 out of 30.
- Ingress – Egress
 - This rating area has a couple main roads for access, but in the event of an evacuation the lack of alternate routes would be a concern. This rating area received a 3 out of 7 points.
- Road Width
 - Some of the roads in this area are under 24 feet wide. This rating area received a 1 out of 4.
- All season road condition
 - This area received a 1 due to the roads not being surfaced in areas. However, the grade is less than 10%.
- Street Signs (this does not address property address signs)
 - This area was given a 0 out of 5 points due to the presence of reflective signs in the rating area.
- Fire Service Access
 - The group gave this area a 2 due to the presence of short driveways lacking turnarounds.

Southwest:

- Flammable Roofing:
 - Out of 30 points this rating area received a 5.
- Defensible Space
 - The group suggested that about 20% were compliant according to Senate Bill 360. So the area was given a 24 out of 30.
- Ingress – Egress
 - This rating area has one main road for access, however other roads that might be needed for access are small and unmaintained. This rating area received a 6 out of 7 points.
- Road Width
 - Some of the roads in this area are under 24 feet wide. This rating area received a 2 out of 4.
- All season road condition
 - This area received a 2 due to the roads not being surfaced in some areas and a steep grade in some areas.
- Street Signs (this does not address property address signs)
 - This area was given a 0 out of 5 point due to the presence of reflective road signs.
- Fire Service Access:
 - The group gave this area a 3 out of 5 points due to long driveways (longer than 300 feet) that lack a turnaround for large fire apparatus.

West:

- Flammable Roofing
 - Out of 30 points this rating area received a 1.
- Defensible Space
 - The group suggested that about 50% were compliant according to Senate Bill 360. So the area was given a 15 out of 30.
- Ingress – Egress
 - This rating area has one main road for ingress/egress the other roads are difficult to transverse, so it was given 7 out of 7.
- Road Width
 - Some of the roads in this area are less than 24 feet wide. This rating area received a 2 out of 4.
- All season road condition
 - This area received a 2 due to the roads not being surfaced in many areas and some areas with steep grades.
- Street Signs (this does not address property address signs)
 - This area was given a 0 out of 5 point due to the presence of reflective road signs.
- Fire Service Access
 - The group gave this area a 2 out of 5 points due to long driveways with turnaround available for large fire apparatus.

Glossary of Terms

- **Assessment of Risk Factors:** Risk Assessment process developed by the Oregon Department of Forestry that allows for an objective identification and wildfire risk assessment of Oregon's Communities that is appropriate at all levels of resolution, i.e. statewide, community to individual tax lot. Includes five factors that sum to an overall score to assess and compare risk: risk, hazard, protection capabilities, values protected and structural vulnerability.
- **Cohesive Strategy:** In 2009, Congress passed the Federal Land Assistance, Management, and Enhancement (FLAME) Act and called for a National Cohesive Wildland Fire Management Strategy, also known commonly as the Cohesive Strategy, to address wildland fire related issues across the nation in a collaborative, cohesive manner. The Cohesive Strategy was finalized in 2014 and represents the evolution of national fire policy: To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire. The primary, national goals identified as necessary to achieving the vision are: **Resilient landscapes:** Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives. **Fire-adapted communities:** Human populations and infrastructure can withstand a wildfire without loss of life and property. **Wildfire response:** All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.
- **Crown Fires:** A fire that advances from top to top of trees or shrubs more or less independent of a surface fire. Crown fires are sometimes classed as running or dependent to distinguish the degree of independence from the surface fire.
- **Defensible Space:** Defensible Space, in the context of fire control, is the natural and landscaped area around a structure that has been maintained and designed to reduce wildfire danger by using vegetation that is fire resistant.
- **Deschutes Collaborative Forest Project:** In 2010, a collaborative group of local agencies and organizations formed a proposal for funding a large, collaborative forest restoration and hazardous fuels reduction project on public lands managed by the Deschutes National Forest. This landscape level project is known as the Deschutes Collaborative Forest Project (DCFP).
- **Dispersed Campgrounds & Recreational Sites:** Campsites or recreational sites members of the public use that are outside of a designated campground or developed recreation site. These sites do not have trash removal or facilities such as tables and fire pits. For more information on how to use dispersed recreational sites visit: <http://www.fs.usda.gov/>

- **Fire Adapted Community:** One of the tenets of the Cohesive Strategy. A Fire Adapted is one that acknowledges and takes responsibility for its wildfire risk, and implements appropriate actions at all levels. Deschutes County is a pilot community for the Fire Adapted Communities Learning Network. For more information visit: <http://www.facnetwork.org>
- **Fire Break:** A gap in vegetation or other combustible materials that acts as a barrier to slow or stop the progress of a wildfire.
- **Fire Prone Area:** A geographic area that can support a wildfire due to weather and vegetation.
- **Fire Resiliency:** A landscape or geographic location that is able to withstand wildfire without suffering catastrophic effects, such as loss of life, home loss or damage and/or environmental damage.
- **Fire Return Interval:** The time between fires in a defined area or landscape.
- **Fire Suppression Costs:** The financial figure that is incurred during any operations by fire fighting agencies to suppress (or put out), a wildland fire.
- **FireFree:** A local program in Central Oregon that uses ten steps to educate property owners on how to defend their home from wildfire. FireFree also provides two annual events where homeowners can dispose of debris created from wildfire preparedness activities.
- **Firewise:** A national program that provides a process that empowers neighbors to work together in reducing their wildfire risk. The National Fire Protection Association sponsors the Firewise program.
- **Hazardous Fuel Reduction:** Reducing vegetation that could accelerate a wildland fire.
- **Hazardous Fuels:** Any fuel or vegetation that will sustain or accelerate a wildland fire.
- **High Intensity:** Fire intensity represents that energy releases during various phases of the fire. High intensity fires are damaging to certain vegetation and ecosystems that are not adapted to them. Much of the lower elevation forests in Central Oregon are adapted to lower intensities.
- **Overstory:** Also called the canopy. Made up of the tallest trees that stand over the rest of the plants in the landscape.

- **Pacific Northwest Coordination Center:** The Northwest Interagency Coordination Center (NWCC) is the Geographic Area Coordination Center for the Northwest Region, which includes the States of Oregon and Washington. Located in Portland, OR, the NWCC serves as the focal point for interagency resource coordination, logistics support, aviation support and predictive services for all state and federal agencies involved in wildland fire management and suppression in the region. Cooperating agencies include the: Bureau of Land Management, US Forest Service, Oregon Dept of Forestry, US Fish and Wildlife Service, Bureau of Indian Affairs, Washington Dept. of Natural Resources and the National Park Service.
- **Resilient Landscapes:** A landscape that is able to recover quickly or repel disturbances that may be a departure from normal circumstances.
- **Silvicultural Treatments:** A planned series of treatment that aide in achieving the goals set forth by a diverse set of values. Silviculture is the practice of controlling the establishment, growth, composition, health and quality of forests to meet diverse needs and values.
- **Stand Dynamics:** The underlying physical and biological forces that shape and change a particular area or forest stand.
- **Structural Ignitability:** Also known as Structural Vulnerability; which refers to the probability of a home igniting during a large wildfire.
- **Structural Vulnerability Factors:** Factors that can increase or decrease a home's probability of igniting during a large wildfire. Examples include: roof composition, roof cleanliness, vent covers, deck composition & cleanliness, etc.
- **Thick Bark Pine:** a local species is Ponderosa Pines. Their thick bark makes them a fire resistant species. The lower elevation forests that were/are dominated by Ponderosa Pines are adapted to low intensity fire that would burn through as often as every ten years.
- **Tree Crowns:** See overstory. Also known as the tree canopy.
- **Understory:** The layer of vegetation beneath the main canopy of a forest.
- **Wildfire Preparedness:** Changing behaviors and/or process to reduce the impact a wildfire may have on the population.
- **Wildland Fire:** Any non-structural fire that occurs in vegetation or natural fuels. An unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all

other wildland fires where the objective is to put the fire out.

- **Wildland Fuels:** Vegetation that is located in an area in which development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities. Structures, if any, are widely scattered.
- **Wildland Urban Interface (WUI):** The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Describes an area within or adjacent to private and public property where mitigation actions can prevent damage or loss from wildfire. Much of Deschutes County is considered Wildland Urban Interface.

Appendix E: Post Fire Recovery

During the Fire Contacts

Deschutes County 911 Non-Emergent Line (541) 693-6911
American Red Cross (Eastern & Central Oregon Chapter) (541) 382-2142

Web links for Fire and Evacuation Information:

- Central Oregon Fire Information Blog [Central Oregon Fire Info](#)
- Deschutes County Emergency Blog [Deschutes County Emergency Info](#)
- Central Oregon Interagency Twitter Feed twitter.com/CentralORFire
- Deschutes County Sheriff's Twitter Feed twitter.com/DeschutesSO
- Evacuation Guide [Ready, Set, Go](#)
- Emergency Notifications [Deschutes County Alerts](#)

After the Fire Resources for Affected Residents

Fire Management Assistance (FMAG) is available to States, local and tribal governments, for the mitigation, management, and control of fires on publicly or privately owned forests or grasslands, which threaten such destruction as would constitute a major disaster. The Fire Management Assistance declaration process is initiated when a State submits a request for assistance to the Federal Emergency Management Agency (FEMA) Regional Director at the time a "threat of major disaster" exists. The entire process is accomplished on an expedited basis and a FEMA decision is rendered in a matter of hours.

The Fire Management Assistance Grant Program (FMAGP) provides a 75 percent Federal cost share and the State pays the remaining 25 percent for actual costs. Before a grant can be awarded, a State must demonstrate that total eligible costs for the declared fire meet or exceed either the individual fire cost threshold - which applies to single fires, or the cumulative fire cost threshold, which recognizes numerous smaller fires burning throughout a State. Eligible firefighting costs may include expenses for field camps; equipment use, repair and replacement; tools, materials and supplies; and mobilization and demobilization activities.

FEMA Individual Assistance (FEMA IA) has created a set of tools to help those facilitating their community's recovery. Community Services Programs deliver a variety of services to assist in disaster recovery. Disaster Housing Resources provides links to access information on multiple disaster housing programs and strategies. FEMA Voluntary Agency and Donations Coordination delivers information, support and guidance during disaster recovery. The National Emergency Child Locator Center and National Mass Evacuation Tracking System are both tracking databases that can be activated during disasters and assist in reunifying family members. The National Shelter System is a database that supports the agencies responsible for Mass Care and Emergency Assistance. For information on these tools follow this link to [FEMA's site](#).

FEMA Public Assistance ([FEMA PA](#)) mission's to provide assistance to State, Tribal and local governments, and certain types of Private Nonprofit organizations so that communities can quickly respond to and recover from major disasters or emergencies declared by the President.

Through the PA Program, FEMA provides supplemental Federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations. The PA Program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process.

The Federal share of assistance is not less than 75% of the eligible cost for emergency measures and permanent restoration. The grantee (usually the State) determines how the non-Federal share (up to 25%) is split with the sub-grantees (eligible applicants).

Small Business Disaster Loans through the [Small Business Administration \(SBA\)](#). SBA provides low-interest disaster loans to businesses of all sizes, private non-profit organizations, homeowners, and renters. SBA disaster loans can be used to repair or replace the following items damaged or destroyed in a declared disaster: real estate, personal property, machinery and equipment, and inventory and business assets.

Oregon VOAD ([Voluntary Organizations Active in Disaster](#)) is a group of faith-based, community service organizations with disaster relief roles related to short and long-term recovery from disasters.

Functions include but are not limited to: damage assessment, cleanup, building repair, donations management, child care, clothing, communication, counseling, disaster welfare inquiry, financial assistance, food, human relations, mass care, sheltering, transportation, volunteer staffing, warehousing and bulk distribution. ORVOAD coordinates disaster planning with member agencies to ensure reduction of duplication and an increase in effective delivery of services.

Natural Resources Conservation Services (NRCS) may provide funding they are allocated to help with fire recovery efforts for agricultural and private, non-industrial forestland owners. Program and application announcements will be made as funding becomes available. Please check [this site](#) frequently for updates.

American Red Cross [Casework](#): Providing Emergency Assistance is trains Red Cross caseworkers how to conduct effective client interviews and provide appropriate assistance to help meet a client's immediate disaster-caused or disaster-aggravated needs.

Fire Recovery Safety Tips

REMEMBER – use caution and good judgment. Hazards may still exist, even though the fire is controlled.

ELECTRICAL

Electrical Safety Facts

General: An important part of the disaster recovery is hazard recognition. Should you come across damaged or fallen power poles or lines, contact your local electrical power authorities. **DO NOT TOUCH THE DOWNED WIRES.** In the cleanup area, be especially careful when cutting trees and operating heavy equipment around power lines. Vegetation and power poles may have lost stability due to fire damage.

If a power line or pole should fall next to you while working in the area, *do not walk – hop out of the area.* (Using this technique, you will be less likely to be a conductor of electricity).

Electricity is always trying to go somewhere. It goes easily through conductors; it does not go easily through non-conductors.

Conductors	Non-Conductors
Metal	Rubber
Water	Glass
Wet Things	Plastic
Things In Water (including animals/pets)	

One of the most important fixtures in the conduction of electric current are utility poles. The fire or fire suppression actions may have dislodged or broken some of these poles, causing the wires to sag or break, resulting in extremely hazardous conditions. Do not touch anything at the scene.

Trees can also be dangerous conductors of electricity. When a tree falls or grows into contact with power wires, the electric power diverts and finds a path to the ground through the branches and the trunk. Anyone who comes into contact with these trees is subject to tragic consequences, since electric power can easily jump from the tree to the person.

Electrical Safety Tips

- Do not overload circuits; don't operate several large appliances at the same time on the same circuit.
- Do not use extension cords to plug in many items on one outlet.
- Turn off appliances when you finish using them. Provide adequate air circulation around all appliances to prevent over-heating. Keep appliances clean, repaired and serviced.

- Check wires and plugs regularly. Replace worn or frayed wires. Do not run cords under carpets or across doorways.
- Be careful when replacing fuses or breakers. Keep the area near the circuit box dry and turn the main switch off before changing the fuse/breaker.
- Temporary lines should be removed from service.

Electrical Locations To Avoid

- Electrical meters and service lines coming into the home or other outbuildings.
- Any power supply line which appears to sag, show bare wire, or have insulation missing.
- Secured power sub-stations or any area identified as high voltage.
- Downed power lines.

Emergency Procedures for an Electrical Fire

- Call the fire department.
- Shut off power supply at the breaker if possible.

Restoring Electric Power

If, upon returning to your residence, there is no electrical power, please check to make sure the main breaker is on. If the breakers are on and power is still not present, please call to report the power outage to your local electrical power authorities.

Reporting problems like a down or broken wire will speed up the process of power restoration.

- Stand off to one side of the breaker box when turning on the main breaker. Do not stand directly in front of the box.
- If any smells of hot electrical insulation or sparking occurs, turn off the breaker immediately and call an electrician.
- If electrical lights or appliances appear brighter than normal, turn off main breaker. The service entrance needs to be checked.

To Change A Fuse

Try to find the cause of the blown fuse, and correct it by disconnecting the defective appliance or appliances causing the overload or short circuit. Shut off the main power switch when you change the fuse.

- Do not replace fuses with a higher amp rating fuse than you removed.
- Turn on the main switch to restore the power.
- If the fuse blows again, leave it alone and contact a certified electrician. Other problems may exist and should be investigated to remove the possibility of an electrical fire.

To Reset A Circuit Breaker

Try to find the cause of the overload or short circuit and correct it by disconnecting the defective appliance or appliances. Turn the switch to “on” to reset and restore power. If breaker trips again leave it alone, and contact a certified electrician. Other problems may exist and should be found to remove the possibility of an electrical fire.

Special Information of Fuses & Circuit Breakers

Fuses and circuit breakers shut off the current whenever too much current tries to flow through a wire because of:

- A short circuit, possibly caused by a bare wire touching the ground;
- Overloading, possibly caused by too many lights or appliances on one circuit; or
- By defective parts in an appliance.

Know where the main circuit or fuse box is located in your house. Be sure you can locate the main switch; it controls all of the power coming into the house and is usually inside the circuit box. In some cases, however, it may be located outside of the house. Fuse or circuit boxes generally are labeled to designate which area of the house the circuits or fuses serve.

DRINKING WATER

Restoring Water Systems

Unless impacted by a fuel spill, the fire should not have affected wells at undamaged homes. If your house was damaged, your water system may potentially have become contaminated with bacteria due to loss of water pressure. In this case it is recommended that the well be disinfected and the water be tested before consumption. To disinfect your water system, pour ½ - 1 cup of chlorine bleach inside the well casing and turn on all faucets until a chlorine scent is noticed. Allow the chlorine solution to remain in the system overnight. The following morning, open all faucets and flush the system until free of chlorine smell.

If you have a public use well or water system, contact the County Health Department for specifics on testing prior to consumption of any water.

SOLID WASTE

Removing Debris

Cleanup of your property can expose you to potential health problems from hazardous materials. Wet down any debris to minimize health impacts from breathing dust particles. The use of a two-strap dust particulate mask with nose clip and coveralls will provide the best minimal protection. Leather gloves should be worn to protect your hands from sharp objects while removing debris.

Hazardous materials such as kitchen and bathroom cleaning products, paint, batteries, contaminated fuel and damaged fuel containers must be handled properly. Contact your local County Officials for specific handling restrictions and disposal options.

All hazardous materials should be labeled as to their contents if known!

HEATING FUELS

Checking Propane Tanks

Propane suppliers recommend homeowners contact them for an inspection prior to reusing their system. If the fire burned the tank, pressure relief valve probably opened and released the contents of the tank. Tanks, brass and copper fittings, and lines may be heat-damaged and unsafe. Valves should be turned off and remain closed until the propane suppliers inspect the system.

Checking Home Heating Oil Tanks

Heating oil suppliers recommend homeowners contact them for an inspection prior to reusing their system. The tank may have shifted or fallen from the stand and fuel lines may have kinked or weakened. Heat from the fire may have caused the tank to warp or bulge. Non-vented tanks are more likely to bulge or show signs of stress. The fire may have loosened or damaged fittings and filters. If the tank is in tact and heating oil remains in the tank, the heating oil should still be good. If you have questions on the integrity of the tank, fuel lines, tank stand, or the fuel, or need assistance in moving the tank or returning it to service, contact your fuel supplier.

MISCELLANEOUS SAFETY AWARENESS

Ash Pits

Holes created by burned trees and stumps create ash pits, which are full of hot ashes. Mark them for your safety, as they can stay hot for many days following the fire, causing serious burns. Warn your family and neighbors, especially children. Tell them to watch for ash pits and to not put hands or feet in these holes—they are hot!

Evaluation of Trees Damaged by Fire

The following information will assist you in evaluating any trees that have been scorched or burnt by the fire. Identification of the type of tree affected is important and can easily be done. Two basic types of trees exist in this area: deciduous and evergreen. Deciduous trees are broad leaf trees that lose their leaves in the fall.

In this area we have a variety of deciduous tree species. Evergreen trees have needles and in this area we mainly have Ponderosa Pine, Lodgepole Pine and Western Juniper.

First: visually check the tree stability. Any tree weakened by fire may be a hazard. Winds are normally responsible for toppling weakened trees. The wind patterns in your area may have changed as a result of the loss of adjacent tree cover. Seek professional assistance before felling trees near power lines, houses or other improvements.

If the tree looks stable:

- Visually check for burnt, partially burnt or broken branches and tree tops that may fall.
- Check for burns on the tree trunk. If the bark on the trunk of the tree has been burned off or scorched by very high temperatures completely surround the tree's circumference, the tree will not survive. This is because the living portion of the tree (cambium) was destroyed. The bark of the tree provides protection to the tree during fire. Bark thickness varies based upon tree species: check carefully to see if the fire or heat penetrated the bark. Where fire has burnt deep into the tree trunk, the tree should be considered unstable until checked.
- Check for burnt roots by probing the ground with a rod around the base of the tree and out away from the base several feet. The roots are generally six to eight inches below the surface. If you find that the roots have been burned you should consider this tree very unstable; it could easily be toppled by wind.

If the tree is scorched

- A scorched tree is one that has lost part or all of its needles. Leaves will be dry and curled. Needles will be a light red or straw colored. Healthy deciduous trees are resilient and may possibly produce new branches and leaves, as well as sprouts at the base of the tree. Evergreen trees, particularly long-needled trees, may survive when partially scorched. An evergreen tree that has been damaged by fire is subject to bark beetle attack. Please seek professional assistance concerning measures for protecting evergreen trees from bark beetle attack.

Residual Smoke In Fire Interior

Smoke may be present on the interior of the fire for several days following containment. This occurs as a result of stumps, roots, and other surface materials being exposed to changing temperatures and wind conditions. Smoke volume from these materials may fluctuate depending on weather conditions. This activity should not pose a risk and smoke will continue to dissipate until materials are fully consumed or extinguished by fire crews or weather.

Flooding Risk

With the recent large high intensity wildfires in Oregon certain locations within burned areas, or downhill and downstream of burned areas are much more susceptible to flash flooding and debris flows. Even areas that are not traditionally flood prone are at risk due to changes to the landscape caused by wildfire. Rainfall that would normally be absorbed will run off extremely quickly after a wildfire, as burned soil can be as water repellent as pavement. As a result, much less rainfall is required to produce a flash flood. A good rule of thumb is, if you can look uphill from where you are and see an area burned by wildfire, you are at risk.

Preparing for Flooding

In the event of moderate to heavy rainfall, do not wait for a flash flood warning in order to take steps to protect life and property. Thunderstorms that develop over the burned area may begin to produce flash flooding and debris flows before a warning can be issued. If you are in an area vulnerable to flooding and debris flows, plan in advance and move away from the area. There may be very little time to react once the storms and rain start.

- Have an evacuation/escape route planned that is least likely to be impacted by Flash Flooding or Debris Flows
- Have an Emergency Supply Kit available
- Stay informed before and during any potential event; knowing where to obtain National Weather Service (NWS) Outlooks, Watches and Warnings via the NWS Pendleton Website, Facebook, Twitter, or All Hazards NOAA Weather Radio
- Be alert if any rain develops. Do not wait for a warning to evacuate should heavy rain develop.
- Call 911 if you are caught in a Flash Flood or Debris Flow
- Contact local officials for additional risk information and potential mitigation efforts
- Contact The US Army Corps of Engineers regarding their [Silver Jackets Program](#)