

BENTON COUNTY COMMUNITY WILDFIRE PROTECTION PLAN

“there is no future without fire on the ground and smoke in the sky¹”



<https://inciweb.nwcg.gov/incident/photograph/7609/106/117342> Bootleg Fire Incident Photographs

¹ Paul Hessburg, Research Ecologist, co-author of “Making Transparent Environmental Management Decisions”, TEDxBend, May 2017

https://www.ted.com/talks/paul_hessburg_why_wildfires_have_gotten_worse_and_what_we_can_do_about_it/transcript?language=en

Signature Page:

The contents of this document have been agreed upon and endorsed by the Benton County Board of Commissioners, the Oregon Department of Forestry, and the Fire Defense Board. 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 to provide a framework for those local agencies associated with wildfire suppression and protection services to assess the risks and hazards associated with wildland urban interface areas and to identify strategies for reducing those risks. This is a working document to be updated as necessary.

Benton County Board of County Commissioners

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Pat Malone, Commissioner

Nancy Wyse, Commissioner

Date: _____

Michael Curran, District Forester Date
ODF West Oregon District, Oregon Department of Forestry

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?????? RFPD Fire Chief
Fire Defense Board Chief

Approved as to form:

Benton County Counsel Date

Acknowledgments

This Community Wildfire Protection Plan (CWPP) represents the efforts and collaboration of a number of professionals and community members working to improve preparedness for wildfire events while reducing factors of risk.

Agencies and organizations that participated in the planning process are listed below. These agencies appointed representatives to a Technical Advisory Committee. The representatives are listed in **Appendix B**.

- Benton County Fire Defense Board
 - Philomath Fire and Rescue
 - Corvallis Fire Department
 - Blodgett-Summit Rural Fire Protection District
 - Alsea Rural Fire Protection District
 - Adair Rural Fire Protection District
 - Albany Fire Department
 - Monroe Rural Fire Protection District
 - Hoskins-Kings Valley Rural Fire Protection District
- Benton County Commissioners and County Departments
 - Community Development
 - Public Works
 - Sheriff's Office (Emergency Management)
 - Natural Areas, Parks and Events
- Oregon Department of Forestry
- Oregon State University Extension
- Benton County Soil and Water Conservation District
- U.S. Fish and Wildlife Service
- Natural Resources Conservation Service
- United States Forest Service
- Bureau of Land Management
- United States Department of Agriculture
- Starker Forests, Inc.
- Weyerhaeuser
- Hull-Oakes Lumber Co

Also included in **Appendix B** is a list of community members who volunteered to be on a Community Advisory Committee. Along with the Technical Advisory Committee, these members provided staff with valuable input prior to and after the public comment period.

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It is imperative that homeowners implement fire mitigation measures and have an escape plan in place prior to any emergency event.

Executive Summary

Over a century of timber harvest and aggressive fire suppression has significantly altered forest composition and structure from historical conditions. These activities have resulted in the accumulation of vegetation and a more closed and dense forest structure. Such conditions contribute to wildfires that burn at higher intensity than in the past. More severe fire events have also become increasingly costly to taxpayers, who ultimately shoulder the expense of fire suppression efforts.

As recent catastrophic fires in the American West have demonstrated, the human cost of wildfire is felt most acutely in the Wildland-Urban Interface (WUI), where residential and other developments have increasingly encroached into these altered forest environments. In the WUI, homes, pets, crops, livestock, and human lives are vulnerable. Long-term damage to the environment and to critical infrastructure is also a real danger.

The Benton County Community Wildfire Protection Plan (CWPP) provides a wildfire-based approach to managing County forestlands and development in the WUI. All recommendations should be viewed through the lens of personal responsibility and collaboration between governmental officials, community leaders, and citizens.

The document first presents background regarding wildfire and the government (federal, state and local) efforts to plan for and mitigate the effects of wildfire.

Chapter 2 focuses on the risk of fire in the interface between development and wildlands and the general approaches to mitigating that risk.

Chapter 3 evaluates the fire conditions and response capabilities within different regions of the county.

Chapter 4 identifies the goals and objectives of this Community Wildfire Protection Plan and promulgates policies to meet those objectives. Will include action-item list

Chapter 5 dives into the factors affecting wildfire risk statewide in Oregon as well as past fires in Benton County.

Chapter 6 summarizes the fire protection agencies and related partner agencies in the county.

Appendix A outlines resources available for self-education and monetary or other assistance.

Appendix B identifies the members of the Advisory Committees.

Appendix C is the Advanced Report for Benton County from the Oregon Wildfire Risk Explorer (dated July 21, 2021)

Appendix D contains the task lists from the 2009 and the 2016 updates and gives updates if available.

Appendix E is the table showing the complete known fire history for the county back to the year 1960.

CHAPTER 1 BACKGROUND

The first **Benton County Community Wildfire Protection Plan (CWPP)** was developed in 2008 by the Benton County Fire Defense Board, Oregon Department of Forestry, and Benton County Community Development Department with project facilitation and support provided by Northwest Management, Inc. of Moscow, Idaho. It became effective in 2009.

The first update of the CWPP was completed in 2016. It was developed through a collaborative process facilitated by Patrick MacMeekin of Oregon Department of Forestry and Chris Bentley representing the Benton County Community Development Department.

This second update to the CWPP will combine and update information from both the 2009 and 2016 versions, in addition to incorporating new information.

Wildfire Characteristics

Wildfire² (or wildland fire), an unplanned and unwanted fire, can have beneficial and harmful effects on human, historical, cultural, and ecological resources. Wildfires can reduce fuel loads, increase ecosystem health and functioning, and restore fire-adapted ecosystems. At the same time, they can damage timber resources and soils, degrade water quality, and impair watershed functions. Wildfires also can damage communities, destroy homes, and lead to loss of human life. Wildfire management is a series of coordinated activities undertaken by federal, state, local authorities, and community members to prepare for, resolve, and recover from wildfire events. These activities generally include prevention, preparedness, suppression, and post fire site rehabilitation.

The characteristics of fire are important to understand when trying to mitigate its negative effects on humans and structures. In order for fire to exist, the three components of the fire triangle must be present. The triangle consists of fuel, heat, and oxygen. Most fires caused by natural events are initiated by lightning strikes. Human-caused fires, both accidental and deliberate, are produced in many ways, including campfires, chimneys, torches, matches, fireworks, cigarettes, vehicle fires, military ordnance, equipment usage, and smoldering slash piles. In either instance, natural or human-caused, the ignition is started because the fire triangle exists.



Fire occurring in natural ecosystems begins as a point of ignition, burns outward into circles and spreads in the direction toward which the wind is blowing. Additionally, when burning occurs on uneven terrain the fire spreads upslope and will form itself into broad ellipses. Effects of fire on ecosystem resources can represent damages, benefits, or some combination of both, depending largely on the characteristics of the fire site, the severity of the fire, the period of valuation, and the values placed on the resources affected by the fire.

² A **wildfire** is an unplanned fire caused by lightning or other natural causes, by accidental (or arson-caused) human ignitions, or by an escaped prescribed fire. [Wildfires, Prescribed Fires, and Fuels - Wildland Fire Program \(U.S. National Park Service\) \(nps.gov\)](https://www.nps.gov/learn/management/planning-and-prevention/wildfires-prescribed-fires-and-fuels-wildland-fire-program)

The ecosystems of most forests depend upon fire to maintain various functions. The use of fire for beneficial purposes is considered, where appropriate, in terms of reducing fuel loads, disposing of slash, preparing seedbeds, thinning overstocked stands, increasing forage plant production, improving wildlife habitats, changing hydrologic processes, and improving aesthetic environments. However, despite its beneficial values to ecosystems, fire has been suppressed for years because of its perceived effects on timber harvest and threat to human life. In addition, new development continues to push its way into what is termed as the “wildland-urban interface.”

The Wildland-Urban Interface

The wildland-urban interface (**WUI**) refers to any developed area where conditions affecting the combustibility of natural and cultivated vegetation (*wildland fuels*³) and structures or infrastructure (*built fuels*) allow for the ignition and spread of fire through these combined fuels. The WUI is widespread across a diverse range of geographies and landscapes and is a result of many factors in the natural and built environments. The dynamic nature of the WUI presents many challenges and requires a fundamental shift in views on development and wildfire hazard.

Two primary classifications are used to spatially define the WUI: intermix and interface

- An *intermix WUI* is where structures are interspersed or scattered throughout wildland vegetation. An *intermix WUI* is often found in rural, exurban, or large-lot suburban developments.
- An *interface WUI* is where built fuels are grouped near areas with wildland fuels. There is a clear line of demarcation between development and vegetation, which may appear as an abrupt edge between a highly urbanized or suburban neighborhood and a wildland area—for example, when development borders public lands or when urban growth boundaries are in place.

There are three categories of *interface WUI*:

- The classic wildland-urban interface exists where well-defined urban and suburban development presses up against open expanses of wildland areas;
- The mixed wildland-urban interface is characterized by isolated subdivisions and small communities situated predominantly in wildland settings; and
- The occluded wildland-urban interface exists where islands of wildland vegetation occur inside a largely urbanized area.

³ Fire managers define *fuels* as all living and dead plant material that can be ignited by a fire. Fuel characteristics strongly influence fire behavior and the resulting fire effects on ecosystems. [Wildfires, Prescribed Fires, and Fuels - Wildland Fire Program \(U.S. National Park Service\) \(nps.gov\)](https://www.nps.gov/subjects/wildfire/wildfires-prescribed-fires-and-fuels-wildland-fire-program)

Healthy Forests Restoration Act (HFRA)⁴

As part of its focus on hazardous fuel reduction, the HFRA defines Community Wildfire Protection Plans (CWPPs). President Bush established the Healthy Forests Initiative on August 22, 2002, directing the Departments of Agriculture and Interior and the Council on Environmental Quality to improve regulatory processes to ensure more timely decisions, greater efficiency, and better results in reducing the risk of catastrophic wildland fires.

HFRA provides funding and guidance for forest management activities, with the goal of protecting communities from catastrophic wildfire. Activities include implementing hazardous fuel reduction projects on federal lands, working with private landowners and tribal governments to protect and restore watersheds, and promoting conservation activities to protect endangered species habitat and enhance biodiversity.

Creating a CWPP is voluntary for local governments. However, HFRA requires that federal land management agencies (e.g., the Bureau of Land Management and USDA Forest Service) use them to prioritize funding approval for fuel-reduction projects on both federal and nonfederal lands. At least 50 percent of all funds appropriated for projects under HFRA must be used within the WUI as defined by the local CWPP document. As a result, preparing a CWPP provides communities with significant opportunities for input into the implementation of hazardous fuel management on surrounding federal lands, such as national forests.

HFRA requires that CWPPs meet three minimum requirements:

1. A CWPP must be collaboratively developed by local and state government agency representatives, in consultation with federal agencies and other interested parties. Collaborative planning can be key to effective wildland fire management because a collaborative process has the capacity to bring together multiple private and public stakeholders across the landscape in a partnership to reduce fire risk. In addition, working collaboratively strengthens relationships and communication within a community. The final CWPP must be approved by the city or county government, the local fire department(s), and the state forest management agency.
2. A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure. It provides communities with a great opportunity to influence where and how agencies implement fuel reduction projects on federal or private lands, as well as how additional federal funds may be distributed for projects on non-federal lands. This is important because reducing fuels within a few feet of homes and other structures can significantly reduce fire losses, and, in addition, there is evidence that fuels treatments in wildlands can affect fire behavior and thereby reduce fire risk for WUI communities.
3. A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures in areas addressed by the plan. The key to limiting the loss of structures from wildland fire is to reduce the ignitability of the structure and its immediate surroundings. Property owners, therefore, have a primary responsibility for reducing structural ignitability, with members of the fire services collaborating in the process.

With hazardous fuel reduction treatments and structure ignitability reduction, it is key that the whole community be involved because the ‘immediate surroundings’ of a structure may include neighboring public and private properties. A local CWPP guides actions to implement safety

⁴ Courtesy of PAS Report 594, Planning the Wildland-Urban Interface; Molly Mowery, AICP, Anna Read, AICP, Kelly Johnston, RPF, and Tareq Wafaie, AICP

measures and fuel management to protect residents, homes, businesses, natural areas, and cultural resources against wildfires. The CWPP acts as a vehicle to not only promote work on public lands but to educate and empower private landowners to take preparedness steps well ahead of fire season. Within the document, there are recommendations to reduce structural ignitability, create defensible space⁵, and evacuation preparedness information.

Typical information contained in a CWPP includes a clear methodology for identifying and spatially delineating the extent of the WUI, historical information on regional wildfires, a community wildfire hazard or risk assessment, potential funding sources, data related to response capabilities, required actions to address minimum requirements, and other factors or strategies that require consideration for the community. County CWPPs become the plan to address overarching concerns related to wildfire planning needs. CWPPs are not, however, regulatory documents and do not require action, although new regulations or revisions to existing regulations can be an item that is recommended within the document.

⁵ **Defensible space** is defined as a natural or human-made area in which material capable of supporting the spread of fire has been treated, cleared or modified to slow the rate and intensity of advancing wildfire and allow space for fire suppression operations to occur.

Federal Land Assistance, Management, and Enhancement (FLAME) Act

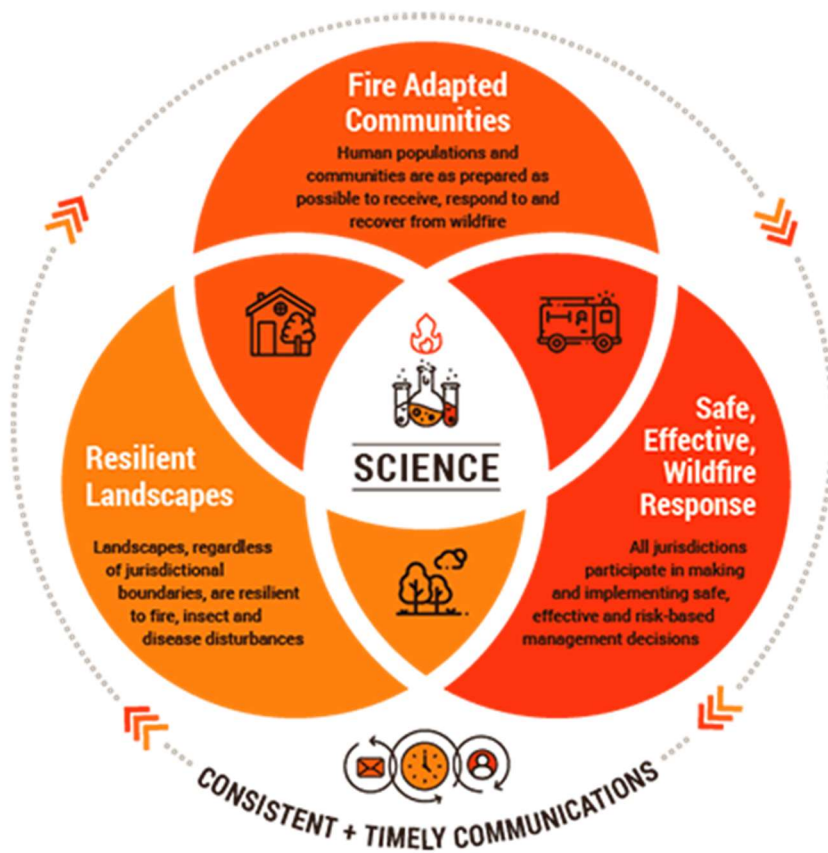
In 2009, Congress passed the Federal Land Assistance, Management, and Enhancement Act and called for a National Cohesive Wildland Fire Management Strategy (Cohesive Strategy)⁶. The Cohesive Strategy, finalized in 2014, represents the evolution of national fire policy. The national fire policy is to safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and, ultimately, learn how to live with wildland fire. The National Cohesive Wildland Fire Management Strategy encourages everyone to work together using the best management practices and good science and research to make progress in three main goals to achieve the vision:

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.

Safe and effective risk-based 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.

Figure 1.2: How the three goals overlap with science in the middle



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⁶ <https://cohesivefire.nemac.org/national-priorities>

⁷ U.S. Fire Administration, <https://www.usfa.fema.gov/blog/cb-042120.html>

The Cohesive Strategy establishes a national vision for wildland fire management, defines three national goals, describes the wildland fire challenges, identifies management opportunities to reduce wildfire risks, and establishes national priorities focused on achieving the national goals. The Cohesive Strategy serves as the key framework for addressing wildland fire challenges across the nation. This strategy is outlined below and illustrated in Figure 1.3.

The Cohesive Strategy

Vision: To safely and effectively extinguish fire when needed, use fire where allowable, manage our natural resources, and as a nation, to live with wildland fire.

National Goals:

1. Resilient Landscapes
2. Fire Adapted Communities
3. Safe and Effective Wildfire Response

Wildland Fire Challenges:

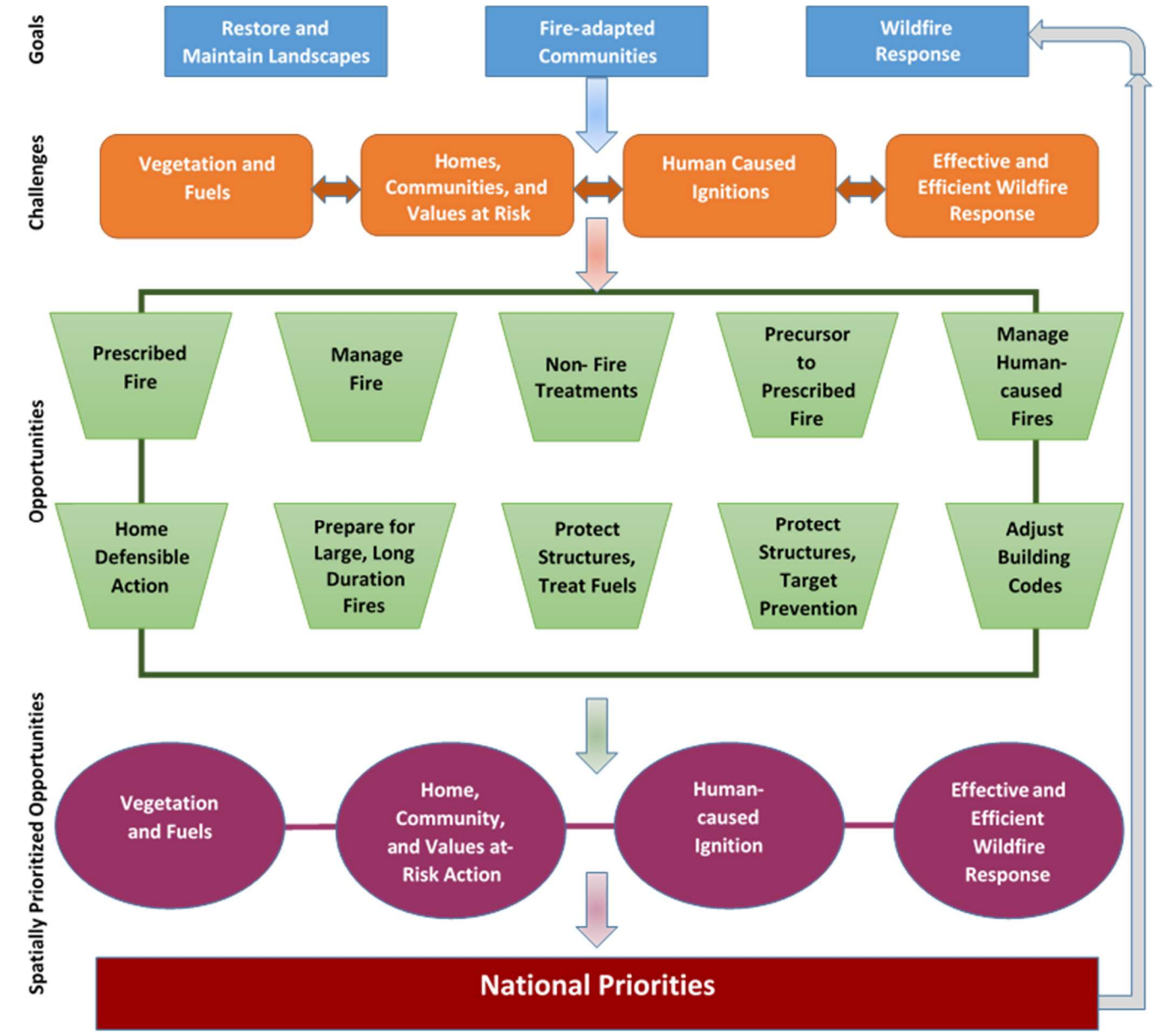
1. [Managing vegetation and fuels](#);
2. [Protecting homes, communities, and other values at risk](#);
3. [Managing human-caused ignitions](#); and
4. [Effectively and efficiently responding to wildfire](#).

Management Opportunities:

1. Managing vegetation and fuels
 - a. Use prescribed fire.
 - b. Use unplanned ignitions to achieve resource management objectives and ecological purposes.
 - c. Use a variety of methods that do not directly involve fire to change vegetation composition and structure and alter fuels to reduce hazard. These include product utilization (forest thinning, commercial timber harvest) along with various mechanical thinning and debris disposal techniques. Non-mechanical methods can involve livestock grazing to reduce fine fuels in rangeland systems, or using herbicides to eradicate or suppress unwanted vegetation.
 - d. Use economically sustainable mechanical treatment as a precursor to, and combined with, safer and more expanded use of wildland fire.
2. Protecting homes, communities, and other values at risk
 - a. Focus on home defensive actions.
 - b. Focus on combination of home and community actions.
 - c. Adjust building codes.
3. Managing human-caused ignition
 - a. Support fire prevention educational efforts.
 - b. Develop adequate and enforceable state and local ordinances related to wildfire prevention.

- c. Tailor prevention programs to specific causal factors and community dynamics.
- 4. Effectively and efficiently responding to wildfire
 - a. Prepare for large, long-duration wildfires.
 - b. Create solutions that generally include combinations of resources, organizational or administrative adjustments, and tactics.
 - c. Match response efforts with other management options, such as target landscape fuels and ignition prevention.

Figure 1.3 The National Cohesive Wildland Fire Management Strategy



General Guidance

Vegetation and Fuels

- Where wildfires are unwanted or threaten communities and homes, design and prioritize fuel treatments to reduce fire intensity, structure ignition and extent.
- Where allowed and feasible, manage wildfire resources objectives and ecological purposes to restore and maintain fire-adapted ecosystems and achieve fire-resilient landscapes.
- Use and expand fuel treatments involving mechanical, biological, or chemical methods where economically feasible and sustainable, and where they align with landowner objectives.

Homes, Communities, and Values at Risk

- Promote community and homeowner involvement in planning and implementing actions to mitigate the risk posed by wildfire.
- Emphasize proactive wildfire risk mitigation actions.
- Pursue municipal, county, and state building and zoning codes and ordinances that mitigate fire risk to protect life and property from wildfire.

Human-caused Ignitions

- Emphasize programs and activities that prevent human-caused ignitions, whether accidental or incendiary, where these ignitions, combined with high levels of area burned, suggest the greatest need. Programs should be tailored to meet identified local needs.

Effective and Efficient Wildland Fire Response

- Enhance wildfire response preparedness in areas more likely to experience large, long-duration wildfires.
- Enhance wildfire response preparedness in areas experiencing high rates of structure loss per area burned.
- At the community level, emphasize both structure protection and wildfire prevention to enhance the effectiveness of initial response.

What is a Fire Adapted Community?

Communities in wildfire-prone areas are learning what it takes to be fully prepared for wildland fire. A Fire Adapted Community incorporates people, buildings, businesses, infrastructure, cultural resources, and natural areas into the effort to prepare for the effects of wildland fire. Community leaders and residents accept responsibility for living in an area with wildfire hazards. They have the knowledge, skills and have adopted tools and behaviors to prepare in advance for their community's resilience in a wildfire prone environment.

A Fire Adapted Community...

- Acknowledges and understands its wildfire risk;
- Recognizes that it is in or near a fire-prone ecosystem;
- Has leaders and citizens with the knowledge, skills, willingness and realistic expectations to properly prepare for and deal with wildland fire;

- Communicates clearly with citizens about wildfire risks and specific methods for preparedness;
- Has adequate local fire suppression training, equipment and capacity to meet realistic community protection needs;
- Creates and uses a Community Wildfire Protection Plan (CWPP);
- Reduces levels of flammable vegetation on lands near and inside the community;
- Has local building, planning, zoning and fire prevention policies and codes that require ignition-resistant buildings, building materials and landscapes;
- Has buildings and landscaping that are designed, constructed, retrofitted and maintained in a manner that is resistant to ignition;
- Creates safety features such as buffers between fuels and neighborhoods, designated evacuation routes and internal neighborhood safety zones;
- Makes sure fire adapted community features, activities and behaviors are maintained over time; and
- Has leaders and residents who coordinate, plan and collaborate to leverage their resources to reduce wildfire risk while increasing community resiliency.

An increased scope of service delivery to communities and local governments provides the tools and technical advice to help encourage community and landowner involvement with fuels mitigation, target fire prevention messages toward human caused ignitions, and to review building and zoning codes that make buildings more resistant to fire. Creating fire adapted communities benefit all with reduction in loss of infrastructure, watersheds, cultural assets, parks, view sheds, transportation and utility corridors.

Oregon Senate Bill 762 (2021)

During the 2021 Regular Session, Oregon State Legislature passed Oregon's first comprehensive wildfire preparedness and resiliency bill. A summary of the bill sections follow.

Statewide Map of Wildfire Risk

Under the purview of the Oregon Department of Forestry (ODF)

Required to be complete by June 30, 2022

- Directs the ODF to create a statewide map of wildfire risk with five risk classifications: extreme, high, moderate, low, and no risk.
- The map will be developed with input from Oregon State University, state agencies, the State Fire Marshal, federally recognized Indian tribes, local governments, and others.
- The map will be based on weather, climate, topography and vegetation and consistent with criteria by which the forestland-urban interface shall be identified and classified.
- Public input opportunities are required and affected property owners and local governments will be able to appeal the assignment of properties to the wildfire risk classes after the map is developed.
- The map will be maintained by OSU and made available on the Oregon Wildfire Risk Explorer.
https://tools.oregonexplorer.info/OE_HtmlViewer/index.html?viewer=wildfireplanning
- This map will be sufficiently detailed to assess wildfire risk at the property-ownership level, include WUI boundaries, and include layers identifying vulnerable populations, locations of critical services such as hospitals, major infrastructure, and other important data layers.

Land Use [Planning]

Under the purview of the Department of Land Conservation and Development (DLCD)

Required to be complete by October 1, 2022

- Directs the Department of DLCD to identify updates to statewide land use planning program and local comprehensive plans and zoning codes needed to incorporate wildfire risk maps and minimize wildfire risk.
- These would include provisions on development considerations in high and extreme wildfire risk areas, defensible space, building codes, and safe evacuation routes.

Building Codes

Under the purview of the Department of Consumer and Business Services (DCBS)

Required to be complete by October 1, 2022 but shall not be operative before April 1, 2023

- Requires the DCBS to adopt hazard mitigation building code standards for Oregon Residential Specialty code (R327) to apply to new dwellings and new accessory structures.
- Requires an amendment of Code to include standards when there are additions to existing dwellings and accessory structures, and for replacement of existing exterior elements.
- New building code standards will require fire-smart construction materials and techniques in high-risk fire areas.
- Must create and maintain an interactive mapping tool to display at the property level which properties must comply with the Code.

Defensible Space

Under the purview of the Oregon State Fire Marshall (OSFM)
Requirements required to be established by December 31, 2022

- Directs the OSFM to create and enforce defensible space standards for all lands in the wildland-urban interface that are designated as extreme or high risk.
- Requirements shall not exceed the standards set forth in the International Wildland-Urban Interface Code by the International Code Council – but they can be modified specific to Oregon conditions.

<https://codes.iccsafe.org/content/IWUIC2018/effective-use-of-the-international-wildland-urban-interface-code>

- The OSFM shall enforce these standards through the local fire districts; the local government may also choose to enforce.
- Local government can also adopt and enforce local requirements for defensible space greater than the OSFM rules but still must be consistent with the International Wildland-Urban Interface Code or other Oregon best practices.
- The bill also includes financial resources (Community Risk Reduction Fund) to help low-income and traditionally underserved populations protect their homes, for critical and emergency infrastructure, and for schools, hospitals, and senior service facilities
- Once adopted, the new defensible space requirements can't be used to approve or deny a land use application but can be used as a criteria to review the request

Reduction of Wildfire Risk

Under the purview of the ODF, in collaboration with Oregon State University Extension Service
Required to be complete by June 30, 2023

- Requires the state to adopt programs to mitigate wildfire risk through forest resilience and treatment projects.
- Creates a new program that treats state and federal lands the same, and creates restrictions on where the ODF can engage in shared stewardship work.

Utilities' Electric System Plans

Under the purview of the Public Utility Commission

- Requires electric utilities to operate in compliance with a risk-based wildfire mitigation plan.
- After regional, state, and local input, public utilities will be required to submit plans for de-energizing their lines during high wind and hot days that pose a greater risk for downed power lines to spark fires.

Health Systems for Smoke

Under the purview of the Department of Environmental Quality (DEQ), in coordination with the Oregon Health Authority (OHA) and the Department of Human Services (DHS)

No designated "due by" date but the OHA and the DHS must report to the Legislative Assembly by June 20, 2023 on the operation of the grant

- Requires DEQ to monitor for wildfire smoke, the OHA to create clean air shelters for the public, and OHA increase the availability of smoke filtration systems.

- OHA and DHS are tasked with implementing a grant program to local governments for establishment of emergency clean air shelters and equipping public buildings with smoke filtration systems.
- They must also establish a program to make smoke filtration devices available to vulnerable residents and for residential buildings with residents who qualify for the Oregon Health Plan or Medicaid.

Emergency Response and Disaster Recovery

Under the purview of the Office of Emergency Management (OEM)

- Requires wildfire to be included in the definition of “emergency” and for the OEM to update its statewide emergency plan to prepare for wildfire.

Oregon Conservation Corps

- Creates the Oregon Conservation Corps to engage youth and young adults in reduction of risk wildfire poses to communities and critical infrastructure, and to help create fire-adapted communities.
- Tasked to help ODF with the Reduction of Wildfire Risk.
- The grant will fund to proposals that: (a) Protect at-risk communities and infrastructure within the wildland-urban interface (b) Meet standards for fuel treatment established by the department

Small Forestland Grant Program

Under the purview of the ODF

- ODF is tasked with establishing a small forestland grant program for providing grants, on a competitive basis, to support small forestland owners (up to 160 acres) in reducing wildfire risk through the restoration of landscape resiliency and the reduction of hazardous fuels on the owners’ property.

Prescribed Fire

Under the purview of the ODF

- Creates a Certified Burn Manager program to include best practices.
- Trying to make it easier for property owners to be able to used prescribed fire as a mitigation tool.

Federal Partnerships

- Requires ODF to cooperate with federal forest management agencies.

Protected Areas

Under the purview of the State Forester, in collaboration with State Fire Marshal, state agencies and local governments

- A county shall ensure that all lands that are outside of forest protection districts and susceptible to wildfire have baseline level or higher wildfire protection no later than January 1, 2026 – This would apply to the Greenberry Gap area which is not within a Rural Fire Protection District.
- Rules shall be established creating baseline levels of wildfire protection for lands.
- Must reflect regional conditions.

- The State Forester can provide some financial assistance to counties to carry this out.

Wildfire Response Capacity

Under the purview of the ODF

- ODF shall establish and maintain an expanded system of automated smoke detection cameras and sufficient staffing in detection centers to monitor and alert fire suppression staff when fires are detected.
- ODF shall act to facilitate wildfire prevention and wildfire response communication and coordination between federal, state, local and private entities.
- Will assess the adequacy of available mutual aid to local fire departments and identify means for providing additional resources

Wildland-Urban Interface Fire Protection

State Board of Forestry

- Requires adoption of a new definition of WUI, which will be used to create the Map of Wildfire Risk

Oregon Forests and Management

About 35 percent of Oregon's forests are at high-risk of uncharacteristic fire because of disruption in their natural fire regimes. Another 42 percent are at moderate risk. As projected under climate change analysis, continuation of warmer, drier conditions increase forest vulnerability to insect and disease attack, and ultimately increase the risk of uncharacteristically severe wildfires. Such fires can threaten communities and adjoining private lands, while destroying timber values, terrestrial and aquatic habitat, domestic use watersheds, cultural resources and critical infrastructure.⁸

Oregon's forested landscape consists of a mosaic of land uses including working forests, conservation reserves, and those associated with human-dominated uses. Oregon is home to some of the world's most productive forests, ranging from dense Douglas fir forests of the Willamette Valley and Coast Range to the high desert Ponderosa Pine stands in the Cascades and Blue Mountains. Forests cover over 30.5 million acres of Oregon, almost half of the state. Sixty percent of the forestland base, approximately 16 million acres, is owned and managed by the federal government under management plans for different benefits. The Oregon Department of Forestry estimates that there are approximately 10.4 million acres of nonfederal wildland forests and approximately 853,000 acres of mixed forest/agriculture that are protected under zoning designations.

Due to the proportion of ownership by the US Forest Service or Bureau of Land Management, the condition of the state's federal forests have a dramatic effect on the health of Oregon's total forestland base, and, in turn, on the Oregon Department of Forestry's ability to accomplish its mission. Through its Federal Forest Restoration Program⁹, the Oregon Department of Forestry has the opportunity to implement active treatments using the Good Neighbor Authority to increase the resilience of our federal forests to uncharacteristic wildfire.

Approximately 15 percent, or 4.3 million acres, of Oregon's forests are owned by families or individuals. Of this total, roughly half of these acres are inside urban growth boundaries or are within a mile of current residential or other development zones (i.e., rural residential). Various factors interact to divide tracts of working forests into smaller parcels and lead to an intermingling of homes and forestlands. This reduces the likelihood that forests will be actively managed to produce a range of values, and increases the cost and complexity of fire protection.

Since the implementation of Oregon's unique Land Use system in 1974, Oregon has maintained 97 percent of all non-federal land as resource land use (farm, forest or range). However, the WUI has grown significantly during that period. Between 1994 and 2019, over 18,000 dwellings of all types were approved on farmland across the state. Oregon Department of Forestry's Five Year Land Use Report (2018) shows that 704,000 acres have shifted from resource lands to low-density residential or urban uses¹⁰. Fire ignition data shows an increased exposure to risk within the WUI. Over the decade from 2008 through 2017, 64 percent of fires on Oregon Department of Forestry-protected lands occurred within one mile of the WUI, and 87 percent of these fires were human-caused.

⁸ 2019-21 Governor's Budget, Oregon Department of Forestry, Agency Summary Narrative https://www.oregon.gov/odf/AboutODF/Documents/Budget/ODF%202019-21%20Governor%E2%80%99s%20Budget%20Narrative%20FINAL_Agency%20Summary.pdf

⁹ [https://www.oregon.gov/Oregon Department of Forestry/working/Pages/federal-forest-restoration-program.aspx](https://www.oregon.gov/Oregon%20Department%20of%20Forestry/working/Pages/federal-forest-restoration-program.aspx)

¹⁰ Land Use Change on Non-Federal Land in Oregon and Washington, July 2018

https://www.oregon.gov/odf/board/bofarchives/20180905/BOFSR_20180905_07_01_Land%20Use%20Change%20on%20Non-Federal%20Land%20in%20Oregon%20and%20Washington%202018%20Update.pdf

2018-2019 Farm & Forest Report https://www.oregon.gov/lcd/Publications/2018-2019_Farm_Forest_Report.pdf

It should not be assumed that just because an area is identified as being within the WUI, that it will receive treatments because of this identification alone. Nor is it implicit that all WUI treatments will be the application of the same prescription. Instead, each location targeted for treatments must be evaluated on its own merits: factors of structural ignitability, access, resistance to control, population density, resources and capabilities of firefighting personnel, and other site-specific factors.

It should also not be assumed that WUI designation on national or state forestlands automatically equates to a treatment area. The U.S. Forest Service, Bureau of Land Management, Oregon Department of Forestry, and Oregon Department of State Lands are still obligated to manage lands under their control according to the standards and guides listed in their respective forest plans. The adopted forest plan has legal precedence over the WUI designation until such a time as the forest plan is revised to reflect updated priorities.

The Four Phases of Wildfire and Emergency Preparedness

Emergency management is a continuous process that requires the participation of all the members of a community. Wildfire and emergency management is divided into four distinct phases: mitigation, preparedness, recovery, and response. Each of the four phases is interconnected and the outcome of one phase can influence the outcome of another. The four phases of emergency preparedness need to be incorporated into actions proposed in the CWPP. Each of the four phases is described in more detail below.

Figure 1.1 Wildfire Emergency Phases



Courtesy Fairfax County, Virginia Community Emergency Response Guide

Mitigation: taking place before a wildfire occurs, mitigation involves preventing future wildfires from happening or lessening their effects. Mitigation can involve activities like educating the public about local hazards, assessing hazards and a community’s vulnerabilities to these hazards, and improving critical infrastructure. A local example would be a homeowner requesting a property fire

assessment from the rural fire department, Corvallis Fire Department, or Oregon Department of Forestry (location of property determines agency conducting). Once the assessment is done, the property owner then takes action to reduce risk.

Preparedness: also taking place before a wildfire, preparedness is the state of being ready for a major disaster or emergency. Preparedness involves agencies and property owners making cohesive plans and preparing supplies to be used in the event of a wildfire. Additionally, preparedness includes training for the occurrence of a major disaster. Preparedness is one of the most time-consuming phases of wildfire management, but its importance cannot be overstated.

Response: taking place during and in the immediate aftermath of a wildfire, the response phase of wildfire management involves the immediate actions taken by both professional emergency services and prepared citizens. The overall goal of this phase is to minimize the loss of life and economic impact of a wildfire. Response also involves the evacuation of citizens and the formation of shelters. Plans composed in the preparedness phase greatly influence the outcome of the response phase.

Recovery: taking place in the aftermath of a wildfire, recovery involves all actions taken to restore a community to its pre-disaster state. Recovery is a process that can take anywhere from a few days to years and includes both social and economic elements.

Unlike most other natural hazards, wildfire risk within the WUI is not defined by geography alone. Certain conditions must be present for significant interface fires to occur. The most common are hot, dry, and windy weather; the inability of fire protection forces to contain or suppress the fire; the occurrence of multiple fires that overwhelm committed resources; and a large fuel load (dense vegetation).¹¹ Once a fire has started, several conditions influence its behavior, including fuel, topography, weather, drought, and development. These combined conditions are the key elements that add to increased wildfire hazard. The severity of the wildfire is ultimately affected by the severity of these conditions. For example, if a steep slope (topography) is combined with extremely low humidity, high winds, and highly flammable vegetation, then a high-intensity wildfire may develop.

Since the 1970s, Oregon's growing population has expanded further and further into traditional resource lands such as forestland. The interface between urban and suburban areas and the resource lands created by this expansion has produced a significant increase in threats to life and property from fires, and has pushed existing fire protection systems beyond original or current design or capability. Property owners in the interface are often unaware of the problems and threats they face. Therefore, many owners have done very little to manage or offset fire hazards or risks on their own property. Furthermore, human activities increase the incidence of fire ignition and potential damage.

Factors that Influence Fire Behavior

Fuel¹²

Fuel is the material that feeds a fire, and is a key factor in wildfire behavior. Grasses, brush, branches, logs, logging slash, litter, leaves, conifer needles, and buildings are all examples. Fuel is classified by volume and by type. Volume is described in terms of fuel loading¹³, or the amount of available vegetative fuel. The type of fuel refers to the species of trees, shrubs, and grass that are present. Oregon, as a western state with prevalent conifer, brush, and rangeland fuel types, is subject to more frequent wildfires than other regions of the nation. The physical properties and characteristics of fuels govern how fires burn. Fuel loading, size and shape, moisture content, and continuity and arrangement all have an effect on fire behavior.

An important element in understanding the danger of wildfire is the availability of diverse fuels in the landscape, such as natural vegetation, structures, and combustible materials. A house surrounded by brush rather than defensible space allows for greater continuity of fuel and increases the fire's ability to spread. After decades of fire suppression, dog-hair thickets have accumulated and these enable high intensity fires to flare and spread rapidly. Structures that are made of

¹¹ Robert Olson Associates. June 1999. Metro Regional Hazard Mitigation Policy and Planning Guide. Portland, OR: Metro.

¹² Department of Land Conservation and Development (DLCD). July 2000. Planning for Natural Hazards: The Oregon Technical Resource Guide. Chapter 7.

¹³ The total amount of combustible material in a defined space. Fuel load is quantified in heat units or in its equivalent weight in wood. Excessive fuel load for what would normally be expected in a space of that type can be an indicator of incendiary fire (a perpetrator attempted to accelerate fire spread and burning by moving combustible materials into the fire area).

combustible material such as shake roofs and wood siding are especially susceptible to fire. Untrimmed bushes near these structures often serve as ladder fuels¹⁴ – enabling a slow-moving ground fire to climb onto rooftops and into the crowns of trees. A crown fire is significantly more difficult to suppress than a ground fire, and is much more threatening to structures in the interface.

Wildfire at the upper end of the wildfire intensity spectrum is likely to spread into the tops of the tallest trees in violent and discontinuous surges. Fire that occurs at this severe end of the spectrum responds to its own convective winds, spreading rapidly as sparks from exploding trees ignite other fires many meters away. Because of the many different possible fuels found in the interface landscape, firefighters have a difficult time predicting how fires will react or spread. Prevention activities primarily focus on altering the characteristics of fuels in an effort to mitigate the risk of catastrophic fires. These activities generally are referred to as fuel reduction.

Topography

Fires burning in similar fuel conditions burn very differently under varying topographic conditions. Topography alters heat transfer and localized weather conditions, which in turn influence vegetative growth and resulting fuels. Changes in slope and aspect can have significant influences on how fires burn. In general, north slopes tend to be cooler, wetter, and more productive sites. This can lead to heavy fuel accumulations, with high fuel moistures, later curing of fuels, and lower rates of spread. South and west slopes tend to receive more direct sun, and thus have the highest temperatures, lowest soil and fuel moistures, and lightest fuels. The combination of light fuels and dry sites leads to fires that typically display the highest rates of spread. These slopes also tend to be on the windward side of mountains. Thus these slopes tend to be “available to burn” a greater portion of the year.

Topography influences the movement of air, thereby directing the course of a fire. For example, if the percentage of uphill slope doubles, the rate of spread in wildfire will likely double. Gulches and canyons can funnel air and act as chimneys, which intensify fire behavior and cause the fire to spread faster. Solar heating of dry, south-facing slopes produces upslope drafts that can complicate fire behavior. Unfortunately, hillsides with hazardous topographic characteristics are also desirable residential areas in many communities. This underscores the need for wildfire hazard mitigation and increased education and outreach to homeowners living in interface areas.

Weather

Weather is the most unpredictable component governing fire behavior, constantly changing in time and across the landscape. Weather includes temperature, relative humidity, wind speed and direction, atmospheric stability, cloud cover, and precipitation.

Weather patterns combined with certain geographic locations can create a favorable climate for wildfire activity. Areas where annual precipitation is less than 30 inches per year are extremely fire susceptible. High-risk areas in Oregon share a hot, dry season in late summer and early fall when high temperatures and low humidity favor fire activity. Predominant wind directions may guide a fire’s path. In addition, many high intensity fires produce their own wind, which aids in the spread of fire.

¹⁴ Fuel that can carry a fire burning in low-growing vegetation to taller vegetation is called ladder fuel. Examples of ladder fuels include low-lying tree branches and shrubs and trees under the canopy of a large tree.

Weather patterns causing extreme fire behavior in western Oregon are associated with Foehn winds in late summer and early fall. Historic fire events including the Tillamook Burns and 2020 Labor Day Fires developed under the influence of these winds, locally referred to as East Winds

Development

Currently, approximately 3,687 sq. mi. or 3.8% of Oregon's land base is considered to be WUI¹⁵. These are areas where conditions are conducive to a large-scale wildland fire disturbance event, thereby posing a significant threat to human life or property. Using data from the Wildfire Risk Assessment tool, ODF estimated over 750,000 homes are located in WUI areas in Oregon. This percentage will change when the new statewide WUI mapping, undertaken by the State because of the passage of Senate Bill 762 (2021), is complete.

¹⁶The United States Forest Service published a study identifying the WUI according to the federal government's definition of the WUI. The study finds that 36 percent of all homes in Oregon are built in the WUI and 80.4 percent of seasonal (vacation) homes in Oregon are built in the WUI. Oregon has one of the highest proportions of seasonal homes in the WUI in the nation. Fires in the WUI are common. Since 1988, 64 percent of fires on lands protected by the Oregon Department of Forestry took place within a mile of the WUI. Of these, 87 percent are human caused.

Growth and development in forested areas is increasing the number of human-caused wildfires in the interface in Oregon. Wildfire has an effect on development, yet development can also influence wildfire. While wildfires have always been a historic part of the ecosystem in Oregon, homes in the interface can lead to increased human ignition of fire. The combined increase in human development and activity in the interface, with the high content of fuels from years of fire suppression, can create a lethal combination.

Homeowners seem to prefer lots that are private and have scenic views nestled in vegetation. A private setting may be far from public roads, or hidden behind a narrow, curving driveway. These conditions, however, make evacuation and firefighting difficult. The scenic views found along mountain ridges can also mean areas of dangerous topography. Natural vegetation contributes to scenic beauty, but it may also provide a ready trail of fuel leading a fire directly to the combustible fuels of the home itself.

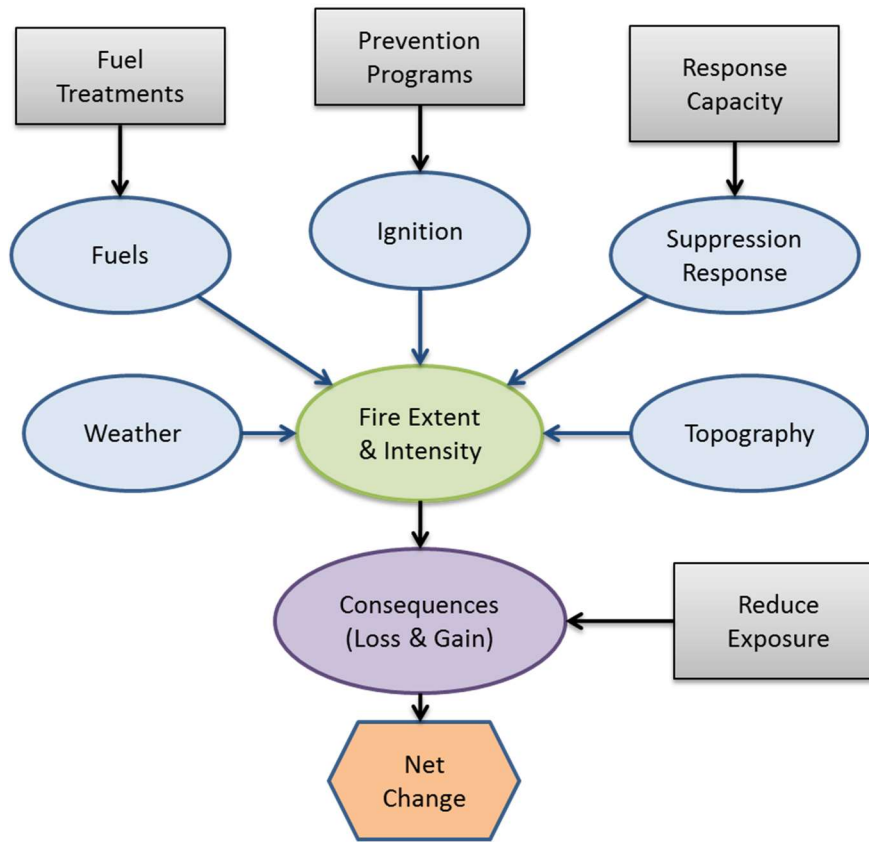
A simple conceptual model of wildfire

Figure 2.1 includes five principal contributing factors (blue circles), consequences, and four management options (grey boxes) designed to either change wildfire extent and intensity, or to alter risk by changing the degree of exposure experienced by valued elements of the landscape.

¹⁵ Oregon Department of Land Conservation and Development 2019-2021 Biennial Report https://www.oregon.gov/lcd/About/Documents/2019-21_Biennial_Report.pdf

¹⁶ A New Vision for Wildfire Planning: A Report on Land Use and Wildfires <https://friends.org/sites/default/files/2019-04/A%20New%20Vision%20for%20Wildfire%20Planning%202018.pdf>

Figure 2.1 Influences of Wildfire



Exacerbating Conditions

Because wildland fires have been suppressed, the patterns and characteristics of fires are changing. Vegetation that historically would have been minimized by frequent fires has become more dominant. Over time, some species have also become more susceptible to disease and insect damage, which leads to an increase in mortality. The resulting accumulation of dead wood and debris creates the types of fuels that promote intense, rapidly spreading fires. Decades of logging and fire suppression have also changed the characteristics of forests, trending towards younger forest stands. Mature forests are typically less dense, with smaller numbers of large, more fire-resistant trees. Young forests are denser with larger numbers of small, less fire-resistant trees.

The County’s historic oak woodland and savanna ecosystems’ fire regime typically consisted of relatively low-intensity fires on a short fire return interval (5-25 years). With the current and past fire suppression efforts and changes in land use, there is a dramatic increase in this interval. By suppressing fires, the ecosystem has been changed, allowing coniferous trees, such as Douglas fir, to establish and overtop the oak trees that once dominated the landscape. In many cases these forests have been altered to the point where oak is no longer the primary tree species and the understory is dominated by woody shrubs, rather than grasses and forbs.

Why is the WUI vulnerable?

The development of homes and other structures within the natural areas subject to wildfire is expanding the WUI in Benton County, as it is across the country. The interface areas are characterized by a diverse mixture of housing structure styles, age, development patterns, ornamental and natural vegetation, and natural fuels.

The defining characteristic of the WUI area is that structures are built in areas with essentially continuous (and often high) vegetative fuel loads. In other words, structures are built in areas subject to wildland fires. When wildland fires occur in such areas, they tend to spread quickly and structures in these areas may become little more than additional fuel sources. The siting of homes has also changed over time. Historically, pioneering families built their homes in low lands, close to water and the fields they intended to work. In the last 30 years or so, rural homes have increasingly been built in locations chosen because of the view or other amenities. Thus, many newer homes are in locations more difficult to defend against wildland fires.

Structures and occupants in WUI areas have limited fire suppression resources compared to urban or suburban areas. Homes in the WUI are most commonly on wells rather than on municipal water supplies, which limits the availability of water for fire suppression. Less availability of water resources makes it more likely that a small wildland fire or a single structure fire will spread before it can be extinguished.

Occupants in the WUI also face high life safety risk, especially from large fires that may spread quickly. Life safety risk in interface areas is exacerbated by limited numbers of roads (in the worst case, only one access road) that are often narrow, winding, and subject to blockage by a wildland fire. Life safety risk in the WUI is also increased by homeowners' reluctance to evacuate homes quickly and instead try to protect their homes with whatever fire suppression resources are available. Such efforts generally have very little effectiveness.

In the event of a wildfire, vegetation, structures, and other flammable materials can merge into unpredictable fuel loads and events. Factors relevant to the fighting of wildfires within WUI include access, firebreaks, proximity of water sources, distance from a fire station, and available firefighting personnel and equipment. The availability of fire personnel is dependent on the severity of a fire season as crews are activated and called to active wildfire events. A busy wildfire season will leave fire personnel stretched thin as resources are dispersed to priority areas. Residents should do all they can to reduce their susceptibility to wildfire.

In summary, structures are typically destroyed or damaged by wildfire for one or more of the following reasons:

- Location in or surrounded by heavy fuel loads with a high degree of continuity (i.e. few significant firebreaks). Risk may be particularly high if the fuel load is grass, brush, and smaller trees subject to low moisture levels in short duration drought periods;
- Construction of structures to less than fully fire-safe practices: combustible roofing material, wood construction;
- Structures with no defensible space or lack of maintenance of defensible zones around structures;
- Storage of firewood and combustibles beneath or around structures;
- Poor road access to structures limiting firefighting apparatus;
- Structures located on steep slopes covered with flammable vegetation;
- Limited fire suppression capacity: limited water supply capacity for fire suppression purposes, limited firefighting personnel and apparatus, and long response times for fire alarms.

Local Wildfire Threat

Overall, the threat of wildland fire appears moderate for Benton County, in large part because of a historically long-duration wet season lasting from October through May. However, for portions of Benton County, depending on conditions in specific developments in the WUI, the threat may be moderate to high, especially during the dry season from June-September and during periods of drought. See the **Appendix C** for the Advanced Report for Benton County from the Oregon Wildfire Risk Explorer. Once the Wildfire Risk Explorer has been updated with the new wildfire risk information on a landscape level per the requirements of Senate Bill 762, the appendix will be updated with a new report

Local Fire Protection Issues

The following is a brief overview of the many issues continuing to challenge Benton County in providing wildland fire safety to citizens.

Urban and Semi-Rural Growth

One challenge is the continued development of houses in the intermix and interface WUIs. Despite statewide regulation of residential development in resource lands, dwellings continue to be approved in the intermix WUI through exemptions in the regulations. Also, the interface WUI is expanding and has created, by this expansion, a significant increase in threats to life and property from fires, and has pushed existing fire protection systems beyond original or current design or capability. Property owners in the interface may not be aware of the problems and threats and the need to offset fire hazards or risks on their own property. Furthermore, human activities increase the risk of fire ignition and potential damage.

Rural Fire Protection

People moving from urban to areas that are more rural frequently have high expectations for structural fire protection services. New residents may not realize they are living outside a fire protection district or that the service provided is not the same as in an urban area. The diversity and amount of equipment and the number of personnel can be substantially limited in rural areas. Fire protection may rely more on the landowner's personal initiative to take measures to protect their property. Furthermore, subdivisions on steep slopes and/or in areas with poor access and the greater number of homes exceeding 3,000 square feet are also factors challenging fire service organizations.

Unprotected Land

An area in Benton County between Corvallis and Monroe is not currently within a structural fire protection district. This area includes approximately 232 structures.

Debris Burning

Local burning of trash and yard debris has been identified as a significant problem as well as the number one cause of wildfires throughout Benton County. Escaped debris fires impose a very high fire risk to neighboring properties and residents whether it is done within or outside of the designated period. A growing portion of local fire department calls are in response to debris fires or backyard burning that either have escaped the landowner's control or are causing smoke management problems. It is likely that regulating this type of burning will always be a challenge for local authorities and fire departments; however, improved public education regarding the county's burning regulations and permit system as well as potential risk factors would be beneficial.

Road and Bridge Standards

Fire chiefs throughout Benton County have identified home accessibility issues as a primary concern in many of the rural areas in the county. Many private driveways are too narrow and/or too steep and most do not have adequate turnouts, turnaround areas, or alternative escape routes. In addition, many privately maintained, rural access roads have become overgrown by vegetation, effectively restricting safe access, particularly in a wildfire situation.

Inadequate private bridges lacking weight rating signage has also been identified by Fire Chiefs as a common problem. Due to the risk of bridge failure and resulting personnel injury and equipment damage, fire and medical service organizations will not cross bridges that may be incapable of handling the weight of emergency response apparatus or for which weight limits are not known.

Volunteer Firefighter Recruitment

The rural fire departments in Benton County are predominantly dependent on volunteer firefighters. Each district spends a considerable amount of time and resources training and equipping each volunteer, with the hope that they will continue to volunteer their services to the department for at least several years. One problem that all volunteer-based departments encounter is the diminishing number of new recruits. As populations continue to rise and more and more people build homes in high fire risk areas, the number of capable volunteers has gone down. In particular, many departments have difficulty with volunteers being available during regular workday hours (8 a.m. to 5 p.m.).

Public Wildfire Awareness

As the potential fire risk in the WUI continues to increase, it is clear that fire service organizations cannot be solely responsible for protection of lives, structures, infrastructure, ecosystems, and all of the intrinsic values that go along with living in rural areas. Public awareness of the wildland fire risks as well as homeowner accountability for the risk on their own property is paramount to protection of all the resources in the WUI.

Water Resources

Even though there are many streams, rivers, ponds, and private wells in the county, access to this resource for fire suppression is not always available. Nearly every fire district involved in this planning process indicated the need to develop additional water resources in several rural areas. Developing water supply resources such as cisterns, dry hydrants, drafting sites, and/or dipping locations ahead of an incident is considered a force multiplier and can be critical for successful suppression of fires. Pre-developed water resources can be strategically located to cut refilling turnaround times in half or more, which saves valuable time for both structural and wildland fire suppression efforts.

Mitigation

Hazardous Fuel Reduction.

The reduction of hazardous fuels is a proven means of mitigating wildfire hazards. Hazardous fuels include all living and dead plant material subject to ignition by fire. When fire encounters areas where fuels have accumulated, the result is wildfires that burn hotter, faster, and higher. When fire encounters areas of heavy fuel loads (continuous brush, downed vegetation or small trees) it can burn these surface and ladder fuels and may quickly move from a ground fire into a crown fire. The principal aim of any fuel reduction intervention is to remove or modify fuel loads so that wildfires

are less severe and can be suppressed more easily. The following treatments can be utilized to reduce hazardous fuels:

Mechanical treatments include harvesting, thinning tree stands, limbing overgrown trees, mowing, chipping, removing underbrush, cutting, and piling using hand crews or machines. Fuel breaks and other landscape modifications can also mitigate potential wildfire damage.

Chemical treatments include the use of herbicide to inhibit vegetative growth and accumulation. Any such treatment should only be employed where appropriate and in compliance with State and Federal Regulations.

Biologic treatments, such as grazing, should be employed where use would be a benefit to agriculture as well as fuel reduction projects.

Prescribed burning involves the use of fire under specific environmental conditions, to a predetermined area, to achieve a desired outcome. Prescribed burning should only be employed as a method of fuels reduction where appropriate. Caution must be used at all times when using this method, and all preparations to extinguish an emergent fire should be in place. Local, and State guidelines on prescribed burning must be carefully followed.

Structural Ignitability.

The threat of structure loss makes fire management in the WUI distinct from other wildfire management situations. Structural ignitability is a principal cause of structural losses during WUI fires. Highly ignitable homes can be destroyed during lower-intensity wildfires, whereas homes with low ignitability may survive high-intensity wildfires. The primary area of concern is the Structure Ignition Zone (SIZ), which includes the home and its immediate surroundings within 100' of the home in all directions. Common contributors to structural ignitability are flammable roofing materials (e.g. cedar shingles), wooden decking, debris-filled gutters, uncovered vents, and the presence of burnable vegetation (e.g. ornamental trees, shrubs, firewood) immediately adjacent to the structure. By constructing or retrofitting a structure to harden it against wildfire and by maintaining a defensible space, structural ignitability can be effectively mitigated and a structure's chance of surviving a wildfire may be dramatically increased.

Education and Outreach.

Public education and outreach is a critical tool in any effort to mitigate wildfire. Making information on hazard reduction available in a number of outlets and in a variety of forms is critical. How best to encourage homeowners to create defensible space and reduce ignitability of their homes is a challenge for policymakers, land managers and community officials.

Restoration and Recovery.

The true cost of wildland fire is not in suppression alone. There are mitigation and recovery costs in the aftermath of wildland fire such as socioeconomic impacts, consequences to physical and mental health, as well as long-term restoration work that must be done. High intensity fires have been shown to kill trees and the seed source, essentially sterilizing the landscape and interfering with natural regeneration. In such cases, dead trees harbor disease and insect infestation and contribute to fuel loading, which increases future fire potential.

In response to the 2020 Wildfires (Labor Day Fires) the State established a Recovery Task Force. This is a multi-agency body that covers all efforts in restoring communities and home owners that were impacted by the fires.

Research has shown that actions taken immediately following a catastrophic wildfire, such as salvage logging and reforestation, can mitigate these effects. Salvage logging, for example, removes hazardous dead trees and recovers the burned logs to recoup the economic value, which can then be reinvested into other restoration and forest management activities. Taking no action following a fire event can significantly raise the potential for catastrophic stand replacement fire in the future.

ACTIONS AND ACTIVITIES

There are many actions that will help improve safety in a particular area; there are also many mitigation activities that can apply to all residents and all fuel types. General mitigation activities that apply to all of Benton County are discussed below while activities that are more specific are discussed within Chapter 4.

Residential Treatments. In any residential setting, treatments should begin with a home evaluation. Many guides are available to help a homeowner through the evaluation process. Treatment factors are usually based around structural ignitability (roofing, siding, deck materials, mesh screening) and landscape treatments (defensible space).

Defensible Space. Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Home defensibility starts with the homeowner. Once a fire has started and is moving toward a structure, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the building. Beyond the homes, forest management efforts must be considered to slow the approach of a fire that threatens a community.

¹⁷Results of modeling fuels and fire behavior in Lane County confirmed that maintaining a canopy adequately disconnected from surface fuels is the most effective long-term forest management action in an environment where vigorous vegetative growth occurs when light reaches the forest floor. The current defensible space standards increase surface and ladder fuel growth by allowing light to penetrate the forest canopy through the requirement for canopy spacing to reduce crown fire potential.

Treatments within 60 feet are the most important and treatments beyond 100 feet do not provide additional protection, even on steep slopes. Fuels reduction should be focused on ladder fuel reduction within a closer distance to the home while eliminating requirements for canopy spacing in areas where it would not have a beneficial impact. Landowners who choose an open canopy fuel break should be made aware of the need for maintenance in reducing wildfire risk over time.

The following are recommended defensible space standards:

Primary Fuel Break

The primary fuel break is measured from the edge of the structure footprint, defined as the structure **and** attached accessories, such as decks, carports and any other building material attached to structure.

The Primary Fuel Break includes the Structure Ignition Zone; 0-5 Feet from the structure and an additional 25 feet of managed landscaping.

¹⁷ Lane County CWPP Fire Siting Recommendations and Fuels and Fire Behavior Modeling; Oregon Department of Forestry, Oregon Office of State Fire Marshalls, United States Forest Service, Bureau of Land Management, The Nature Conservancy, Friends of Buford Park and Lane County Parks

There shall not be any tree branches within 15 feet of the structure footprint in any direction. Within 15 feet, tree trunks (defined as the main stem(s) of a large woody plant) are acceptable within this zone, as long as tree limbs have been pruned to allow 15 feet of clearance from the structure footprint. For example, a large conifer tree may be growing within 6 feet of a house, as long as the closest branches are at least 15 feet above and away from the structure in all directions.

Immediate Zone 0-5 Feet

A 5-foot non-combustible perimeter is required, measured from structure perimeter outwards. Non-combustible is defined as material incapable of burning during sustained convection and radiant heat. Non-combustible is also defined as material unable to combust under extreme heat and extended flame contact, rock or mineral soil for example. There shall be no vegetation within this zone.

Intermediate Zone 5-30 Feet

Grass is maintained to no more than 4 inches above the ground and kept green if possible. Mature trees are pruned to a height of 10 feet from the ground (lowest point of branch); trees less than 20 feet tall are pruned between 1/3 and 1/2 of the trees height, not to exceed 1/2 of the trees height to avoid damage from pruning. Prune trees as they grow until the branches reach 10 feet from the ground. No dead plant material is present. Three times vertical spacing is maintained between surface and canopy fuels. Surface fuels other than short maintained grass lawns shall not be growing or arranged in a continuous or otherwise connected fashion, nor in quantities nor densities known to sustain fire activity under extreme

Secondary Fuel Break

Extended Zone: 30-100 feet

All trees over 20 feet tall are pruned to a height of 10 feet from the ground (lowest point of branch), trees less than 20 feet tall are pruned between 1/3 and 1/2 of the trees height, not to exceed 1/2 of the trees height to avoid damage from pruning. Prune trees as they grow until the branches reach 10 feet from ground. All dead plant material within 10 feet of the surface has been removed or mulched. Dead plant material includes but is not limited to sticks, limbs, leaves, branches and trunks. Maintain at least two times vertical clearance between canopy layers and from the lowest canopy layer to the ground. This may be replicated for multiple canopy layers. For example, surface vegetation may be 2 feet tall, with the understory canopy greater than 4 feet above the surface vegetation, and at least two times lower than the height of the dominant canopy.

Coarse Woody Debris (CWD) Exemption: CWD can be defined as dead trees and remains of large branches on the ground in forests, rivers and wetlands. CWD is known to increase soil moisture and improve wildlife habitat, therefore a Limited Amount will be allowed within the secondary fuel break. In total no more than 200 linear feet will be allowed within the secondary fuel break. The diameter of all CWD must be a minimum of 9 inches. All CWD present must be either in contact with surface soil or within 6 inches of surface contact. For example, you could have two 100 foot long downed trees 9 inches in diameter or larger as long as the fine fuels such as branches have been removed or mulched.

Additional Slope restrictions:

Sloping land within 100 feet of structures in which the majority of a quadrant has a greater than 10% grade will have additional primary fuel break distances. No matter the additional primary fuel break distance, the immediate zone will remain the same (0-5 feet non-combustible fuel break)

0-9%

The standard fuel breaks mentioned above should be created (5-30 feet Intermediate Zone) and the Secondary Fuel Break (30-100 feet).

10-24%

Within 180° of the steepest downward slope, the Primary Fuel Break should extend an additional 10 feet, creating an Intermediate Zone from 5-40 feet. The Secondary Fuel Break (Extended Zone) should be 40-100 feet.

24-39%

Within 180° of the steepest downward facing slope, the primary fuel break should extend an additional 20 feet creating a 50-foot Intermediate Zone (5-50 feet) on the downslope half of the house/property. The Secondary Fuel Break should extend from 50 feet to 100 feet.

>40%

Allowing structures within 100 feet of slopes exceeding 39% is not recommended. If additions occur on sites with slopes 40% or greater, the Primary Fuel Break should extend an additional 30 feet (5-60 feet) from the structure on all sides. The Secondary Fuel Break should extend from 60-100 feet from the structure.

The above specifications alone will not improve home survivability during wildfire events. Home hardening activities (fire resistant building material paired with annual fine fuel removal and maintenance) have a much larger impact on home ignition risk than fuel breaks. Fuel breaks require annual maintenance. The above recommendations are an attempt to improve long-term efficacy of fuel break codes by incorporating canopy shade as a significant maintenance tool for controlling surface fuels in Western Oregon.

Structural Treatments. Structural treatment can be as simple as putting mesh screens over any openings into the dwelling and closing in the space under any porches. It can also include more thorough treatments such as reroofing and using ignition resistant materials for additions. A study¹⁸ by Headwaters Economics in 2018 showed that there are negligible costs between a typical home and a home constructed using wildfire-resistant materials and design features.

Decades of research and post-fire assessments have provided clear evidence that building materials and design, coupled with landscaping on the property, are the most important factors influencing home survivability during a wildfire.

Human-caused Prevention. The safest, easiest, and most economical way to mitigate unwanted fires is to stop them before they start by preventing human-caused fires. Campaigns designed to reduce the number and sources of ignitions can be quite effective and can take many forms.

¹⁸ <https://headwaterseconomics.org/wp-content/uploads/building-costs-codes-report.pdf>

Traditional “Smokey Bear” type campaigns that spread the message passively through signage can be effective. Active prevention techniques can involve mass media, radio, and the local newspapers.

Pre-planning for Fire Response. Although conducting home, community, and road defensible space projects is a very effective way to reduce the fire risk to communities, recommended projects cannot all occur immediately and many will take several years to complete. Thus, developing pre-planning guidelines specifying which and how local fire agencies will respond to specific areas is beneficial. These response plans should include assessments of the structures, topography, fuels, available evacuation routes, available resources, response times, communications, water resource availability, and any other factors specific to an area. All of these plans should be available to the local fire departments as well as dispatch personnel.

Limiting Use. Areas within the Oregon Department of Forestry Protection District boundary are also subject to Public Use Restrictions, referred to as “Regulated Use”, during fire season in an attempt to limit or manage use of activities known to cause fires. The countywide ban on debris or “backyard” burning established by the Benton County Fire Defense Board during the fire season is an example of actions specifically taken to prevent wildfires.

Evacuation Pre-planning. Development of community evacuation plans is necessary and critical to assure an orderly evacuation in the event of a threatening wildland fire. Designation and posting of escape routes reduce chaos and escape times for fleeing residents. Community safety zones should also be established in the event safe evacuation is impossible and ‘sheltering in place’ becomes the better option.

Facility Maintenance. Recreational facilities near communities or in the surrounding forests such as parks or natural areas should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape-resistant fire rings and barbeque pits should be installed and maintained. In some cases, restricting campfires during dry periods may be necessary.

Reducing Wildland Fuels. Surface fuel accumulations in nearby forests can also be kept to a minimum by periodically conducting pre-commercial thinning, pruning and limbing, and possibly controlled burns.

Fire Response. Once a fire has started, how much and how large it burns is dependent on the availability of suppression resources. In most cases, rural fire departments and the Oregon Department of Forestry are the first to respond and have the best opportunity to halt the spread of a wildland fire. For many districts, the ability to reach these suppression objectives is largely dependent on the availability of functional resources and trained individuals. Increasing the capacity of departments through funding and equipment acquisition can improve response times and subsequently reduce the potential for resource loss.

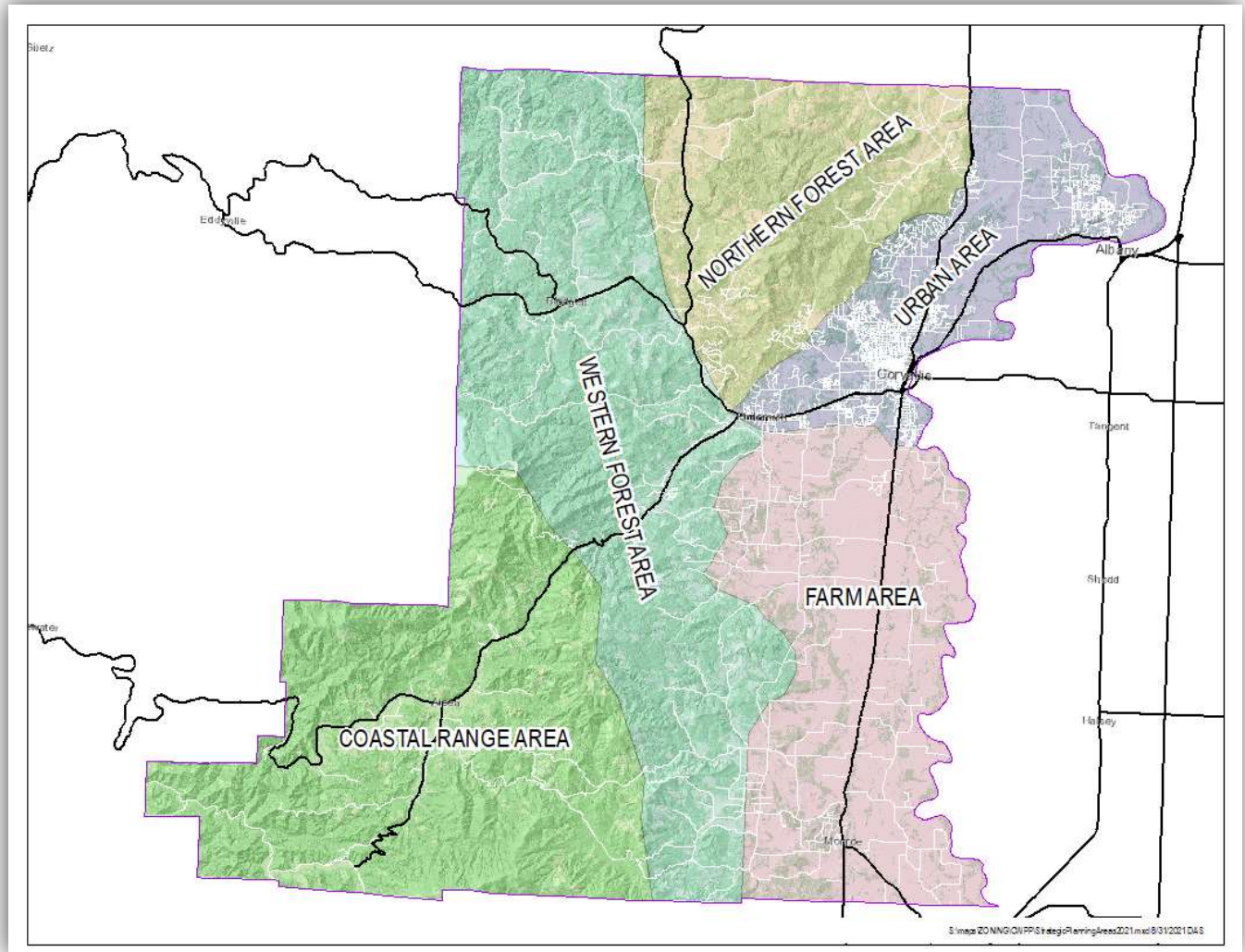
Wildland Fire Specific Development Regulations. As the trend to build in the WUI continues, regulation rather than persuasion is becoming more prevalent. WUI codes regarding new construction that regulate the use of certain building materials (roofing, siding, vents, decking, etc.), road and bridge standards, availability of water resources, proximity of vegetation, and other requirements have been adopted in communities and counties across the United States. County policies can be revised to provide for more fire conscious techniques such as using fire resistant construction materials; improved road, driveway, and bridge standard, establishment of permanent water resources, and adoption of defensible space requirements.

Other Mitigation Efforts. Other actions to reduce fire hazards are thinning and pruning power line corridors and strictly enforcing fire-use regulations. This ensures that areas beneath power lines

have been cleared of potential high-risk fuels and makes sure that the buffer between the surrounding forestlands is wide enough to protect the poles as well as the lines. Another action is creating a fire resistant buffer along roads.

CHAPTER 3 STRATEGIC PLANNING AREAS

In order to facilitate the understanding of wildfire risks specific to areas in Benton County, sub regions called “Strategic Planning Areas (SPAs)” were identified in the 2009 CWPP. SPAs are distinguished by similar fuel conditions and would require similar initial fire attack techniques. Typically, SPA boundaries lie along local zoning boundaries, fuel or vegetative cover type changes, or logical topographic features. The following SPAs are from the 2009 CWPP and little of the information identified for each of the SPAs has changed.



INFORMATION APPLICABLE TO ALL SPAs

Emergency Response.

- Emergency response is coordinated by the county emergency dispatch system. All fire districts and the Oregon Department of Forestry have mutual aid agreements. This is an agreement that allows for support, additional resources, and specialized teams from other districts or agencies. Mutual aid agreements enable the utilization of nearby assets when needed, providing timely fire and rescue response to all areas of the county based on available resources.
- The Oregon Department of Forestry does not provide structural fire protection. Mutual aid agreements between Oregon Department of Forestry and the fire districts supplement wildland fire protection, when needed.

Hazardous Conditions.

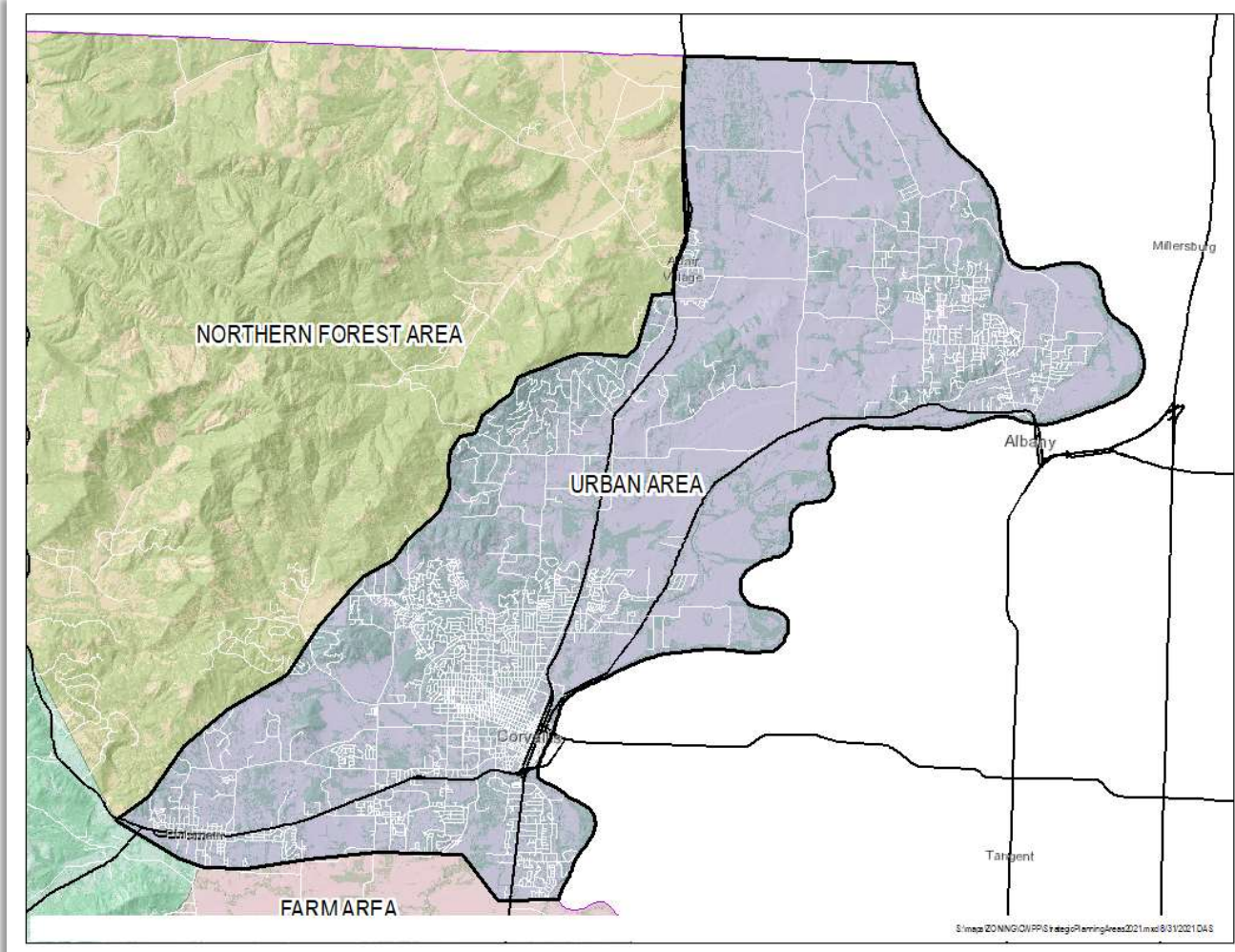
- Development continues in the forested foothills as people seek to live in seclusion yet remain in close proximity to urban amenities. As more area is developed and human use rises, the chance of a human caused wildfire will increase and the pressure on fire protection services and the need for improved infrastructure and education will increase.
- Ignitions are often concentrated around roads and rail lines due to the intense activity and availability of ignition sources, such as cigarettes, hot metal, and sparks.
- Agricultural and riparian lands adjacent to forested land are a considerable wildfire concern. Depending on the time of year, slope, and weather, fuels such as grasses, brush and agricultural crops can easily ignite. If these fuel types are within close proximity to forested areas, a surface fire may move into the forest, creating a wildfire situation during times when forest fire risk is normally low. Vegetation, slope, and wind direction can be factors in determining whether a non-threatening ground fire spreads to the forest canopy and becomes a dangerous crown fire.
- A wind-driven fire in agricultural fuels or dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. Fires burning in some types of un-harvested fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels. Fields enrolled in conservation programs or set aside for wildlife habitat, can burn very intensely due to an increased amount of fuel build-up from previous years' dead growth. Larger flame lengths and intense heat make fires in these fields difficult to control. Under extreme weather conditions, such as particularly strong winds, escaped agricultural or open range fires can threaten individual homes or a town site with a rapidly advancing fire. However, this type of fire usually is quickly controlled.
- The human factor combined with heavy accumulation of mixed fuels can result in a rapidly spreading and potentially destructive wildfire. The rate of wildfire spread in a forest environment is dependent on the structure of the forest, weather, aspect and slope. Heavy understory vegetation in multi-storied forests creates a situation conducive to a rapidly advancing, highly destructive crown fire.
- High winds increase the rate of spread and intensity of fires. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners can maintain an adequate defensible space around structures by watering their yards, clearing brush and ladder fuels, and mowing grass and weeds.

Mitigation measures.

- Farmstead and homesite openings can act as fuel breaks by creating a discontinuous fuel bed, which can help slow a wildfire and improve suppression efforts. Clearings and fuel breaks will disrupt a slow moving wildfire enabling suppression before a fire can ignite heavier fuels.
- Due to the low risk of wildfires in urban areas, mitigation is less of an issue than it is in the wooded foothills or in areas bordering open space parks or agricultural fields. Measures that can be taken in densely landscaped urban residential areas include watering yards, clearing litter accumulations from both the yard and the roof, and mowing grass and weeds. Designing fuel breaks between wildland fuels and residential areas would significantly lessen a fire's potential of igniting structures or landscape vegetation. Maintaining a clean and green yard around dwellings is also an effective fire mitigation measure.
- Travel corridors can be made more fire resistant by frequently mowing or use of herbicides along the edges to reduce the fuels or planting grasses that are more fire resistant such as western wheatgrass and blue grama. Aggressive initial attack on fires occurring along travel routes will help insure that these ignitions do not spread to nearby residential areas.
- Mitigation measures needed in forested areas include construction of a defensible space around structures and along access routes, pruning and thinning trees, mowing and removing weeds and other vegetation and moving flammable items such as propane tanks and wood piles to a safe distance from any flammable material.
- Using fire resistant siding, decking, and roofing will help reduce the ignitability of a structure.
- Signage of unrestricted, alternate escape routes would reduce confusion and save time during a wildfire or other emergency event. Many access routes in the wooded foothills are located in areas of moderate to high fire risk due to the close proximity of continuous fuels. In the event of a wildland fire, it is likely that one or more escape routes would become impassable. Landowners should clearly understand the designated emergency evacuation routes for their area.
- Roads and driveways accessing rural residential areas may or may not have adequate road widths and turnouts for firefighting equipment depending on when the residences were constructed. Performing road inventories in high-risk areas documenting or mapping their access limitations and substandard bridges will improve firefighting response time and identify areas in need of improvement. Current fire codes now require compliance with minimum road standards for new construction.
- Designing a plan to help firefighters control fires in farmland and open areas adjacent to forest would significantly lessen the spread of fire. Mitigation activities would include plowing a fire resistant buffer zone around fields and along pre-designated areas to tie into existing natural or manmade barriers or implementing a prescribed burning regime during less risky seasons of the year.
- Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near rural subdivisions will increase the effectiveness and efficiency of emergency response by rural fire districts in a wildfire situation.

Urban Area - Strategic Planning Area #1

SPA 1 is located in the northeastern corner of Benton County and includes the cities of Corvallis, Albany, Philomath and Adair Village. SPA 1 is bordered on the east by the Willamette River, SPA 3 (Northern Forest Area) to the west, Polk County to the north and SPA 2 (Farm Area) to the south.



Planning Area Assessment

This is a heavily populated urban and semi-urban area intermixed with parks, farmland, wooded river bottomland, forested knolls, foothills and major transportation corridors. Land ownership is predominantly private with several large tracts owned by Oregon State University, Benton County, Oregon State Parks and Recreation and the E.E. Wilson Wildlife Area operated by the Oregon Department of Fish and Wildlife.

Forest and shrub land vegetation is common in and around many residential areas developed near foothills and riparian waterways. Development in the agricultural land is widely dispersed on isolated parcels surrounded by seasonal crops, tree farms and orchards. Homesite and subdivision development is increasing throughout the area by expanding into the wooded areas and farmland as zoning allows, particularly in the North Albany, Vineyard Mountain, Cascade Heights, Skyline West, Oak Creek and the Cardwell Hills areas.

Wildfire Potential

Residents within this SPA have a low risk of experiencing a wildland fire in the urban areas of Corvallis, Philomath and Albany and moderate to high-risk in the outlying residential areas adjacent to open space, farmland, wooded foothills and river drainages. Residential areas with dense landscaping adjacent to wildland fuels are at a relatively higher risk due to the continuity of fuels and litter accumulations.

Native and non-native landscape vegetation is especially dense in the older residential clusters and many of these areas lie adjacent to ignitable fuels. Privacy and seclusion created by landscaping is highly desirable in closely arranged subdivisions, which limits opportunities for creation of wildfire defensible space and creates large accumulations of potentially flammable biomass in yards and on rooftops. Under extreme wildfire conditions or during an extreme wind event, heavily vegetated residential areas have the potential to carry an advancing fire front, fueling the fire with landscape vegetation, litter and ultimately the home itself as seen in many of the recent southern California wildfires.

In the wooded foothills and wooded residential lots, wildfire potential is high due to the heavy concentration of forest vegetation, ladder fuels, steep slopes and numerous potential ignition sources. Wildland fuels are a mix of oak savanna and grassland at the lower elevations and transitions into variable density Douglas fir/Hemlock forest mixed with oak and maple species at higher elevations. Homesite development and timber management has transformed these areas into a mosaic of multi-aged stands of timber mixed with open areas of pasture and farmland. Human activity increases the probability of a wildfire during the dry season or during a high wind event.

Ingress-Egress

Ingress and egress within the heavily populated urban areas is currently regulated through planning and building codes. Most of the roads in newer subdivisions have been designed to accommodate emergency vehicles with either loop roads or cul-de-sacs with wide turning radii and easily negotiable grades, which are better suited to all types of emergency response equipment. This minimizes hazards associated with emergency access and provides multiple emergency escape routes.

Some residences constructed in the outlying foothills' subdivisions and occluded woodlots and prior to modern codes are accessed via unimproved, single-lane roads. In these areas, access roads and driveways are often steep and/or lined with shrubs and mature trees that can limit or prohibit access during a wildfire. Many of these roads have a single access point for both ingress and egress and lack adequate turnout and turn-around areas for emergency vehicles. The inability of emergency resources to safely access structures reduces or may even eliminate suppression response.

Infrastructure

Urban residents throughout most of SPA 1 have municipal water systems, which includes a network of public fire hydrants. New development is required by the International Fire Code to have hydrant placement in their development plan. Subdivisions and development outside municipal boundaries typically rely on community water systems or multiple-home well systems.

Above ground, high voltage transmission lines cross the planning area in many directions in corridors cleared of most vegetation, which provides for a defensible space around the power line infrastructure and may provide a control point for fire suppression, if well maintained. Local public

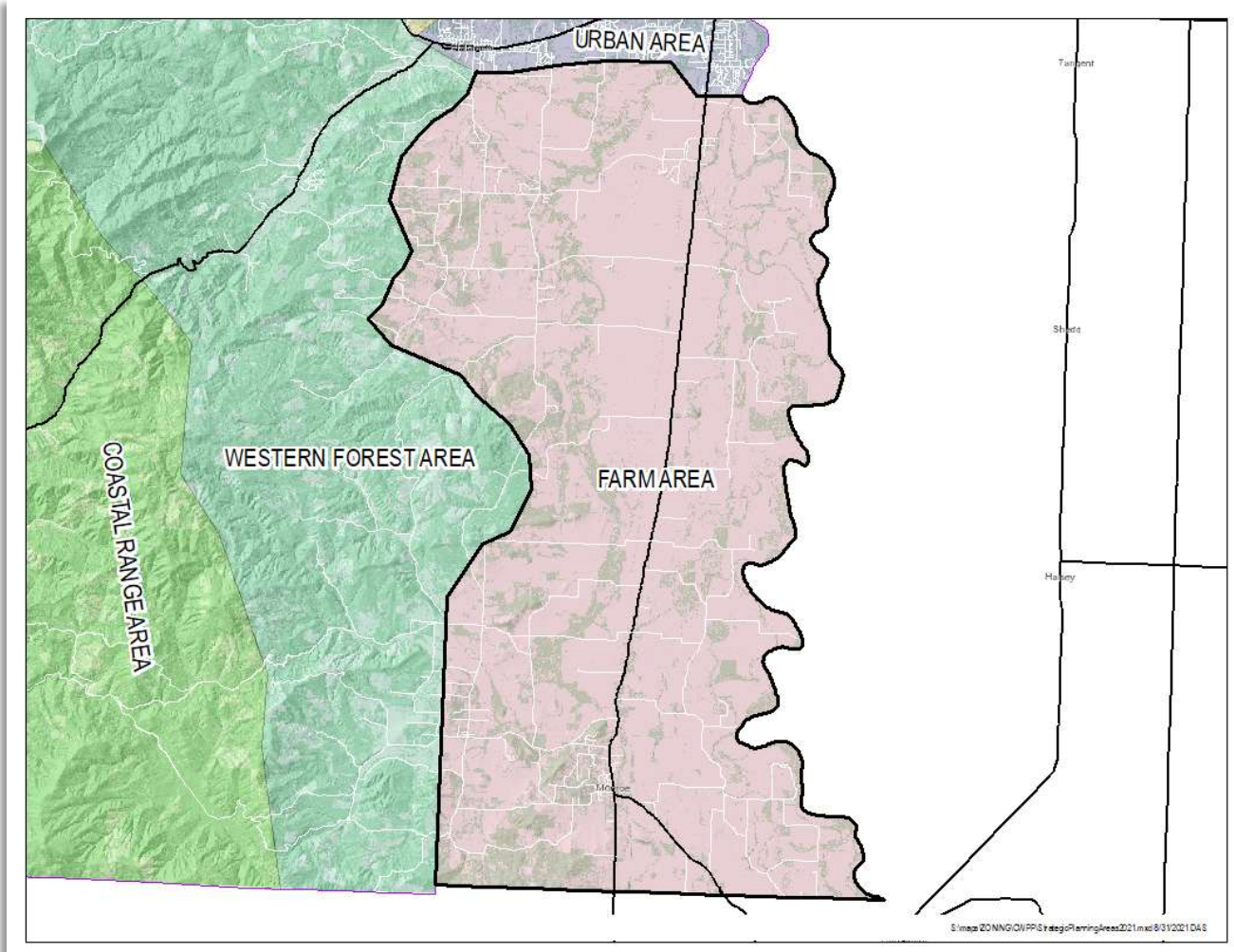
electrical utility lines are both above and below ground traveling through back yards and along roads and highways. Many of these lines are exposed to damage from falling trees and branches. Power and communications may be cut to some of these during a wildfire event.

Fire Protection

Structural fire protection in SPA 1 is provided by the Corvallis Fire Department, Albany Fire Department, Adair Rural Fire Protection District and Philomath Fire and Rescue. The Oregon Department of Forestry has jurisdiction for wildfires in the forested foothills along the western edge of SPA 1.

Farm Area – Strategic Planning Area #2

SPA 2 is located in the southeastern portion of Benton County and includes the communities of Monroe, Alpine, Alpine Junction, Bellfountain and Greenberry. SPA 2 is bordered on the east by the Willamette River and Linn County, dense forestland on the west, SPA 1 (Urban Area) on the north, and Lane County to the south.



Planning Area Assessment

This area is predominantly rural farmland interspersed with wooded hilltops and shrubby riparian areas. Land ownership is primarily private with a few large tracts owned by Benton County, forest industry, and the William Finley National Wildlife Refuge operated by the United States Fish and Wildlife Service. Muddy Creek and its tributaries pass through the center of the planning area creating widely diverse woodlands and riparian habitat. Widely scattered homesite development is common in the forested areas and along wooded draws that flank cultivated farmland.

Development in the rural farmland is widely distributed. New development occurs primarily near communities and along major roads. Occasionally, farmland is subdivided between family members for new homesites or for development of new farming facilities. Most of the pressure for multi-housing subdivisions occurs in close proximity to existing cities due to requirements of the Oregon statewide land use system. In nearly all developed areas, structures are in close proximity to vegetation that becomes a significant fire risk at certain times of the year.

Wildfire Potential

Residents within this SPA have a variable risk of experiencing a wildland fire depending on their location and proximity to vegetative cover. Wildfire potential is low to moderate in the rural farmland and moderate to high in the wooded riparian areas and patches of forestland. Residences in wooded areas are at the highest relative risk and residences in the rural farmland are at a lower risk.

Fuels in the forested areas consist of several conifer and hardwood species mixed with a variety of understory shrubs and grasses. Forested areas in this SPA are often adjacent to or surrounded by agricultural crops or rangeland. Agricultural and ranching activities throughout the area have the potential to increase the risk of a human-caused ignition. Large expanses of wildlife habitat, conservation lands or annual crops provide areas of continuous fuels that have the potential to threaten homes and farmsteads.

There are also numerous residences located in the portion of this SPA that are currently not covered by a fire protection service. These structures and families have a much greater risk of experiencing a wildfire due to this lack of protection. Several of the local farmers and ranchers have equipment available to help suppress any ignitions in this area.

Ingress-Egress

Many access routes in this SPA are located in areas of moderate to high fire risk due to the close proximity of continuous fuels along the roadway. Commercial forestlands generally have good logging roads enabling access for fire suppression equipment, however many residences are accessed via unimproved, narrow roads and driveways accessible only by small emergency vehicles. Many of these roads lack adequate turnout and turn-around areas for emergency vehicles and have bridges that are underrated for heavy equipment. The inability of firefighters to safely access structures reduces or may even eliminate suppression response. In the event of a wildland fire, it is likely that one or more of the escape routes would become impassable.

Highway 99W and Bellfountain Road are the primary ingress and egress routes traveling north to south. Highway 99W is the main highway between the communities of Corvallis and Monroe. Primary routes traveling east and west include the Decker/Greenberry Road and the Alpine to Alsea access road.

Infrastructure

Residents living in Monroe have access to a municipal water system with public fire hydrants. Outside of Monroe, development typically relies on individual or multiple-home well systems. Creeks, ponds and developed drafting areas provide water sources for emergency fire suppression in the rural areas to a limited extent. Additional water resources distributed throughout the planning area are needed to provide water for fire suppression in a timely manner.

Local public electrical utility lines travel both above and below ground along roads and highways with some exposure to damage from wind and falling trees. Power and communications may be cut to some of these areas during a wildland fire event.

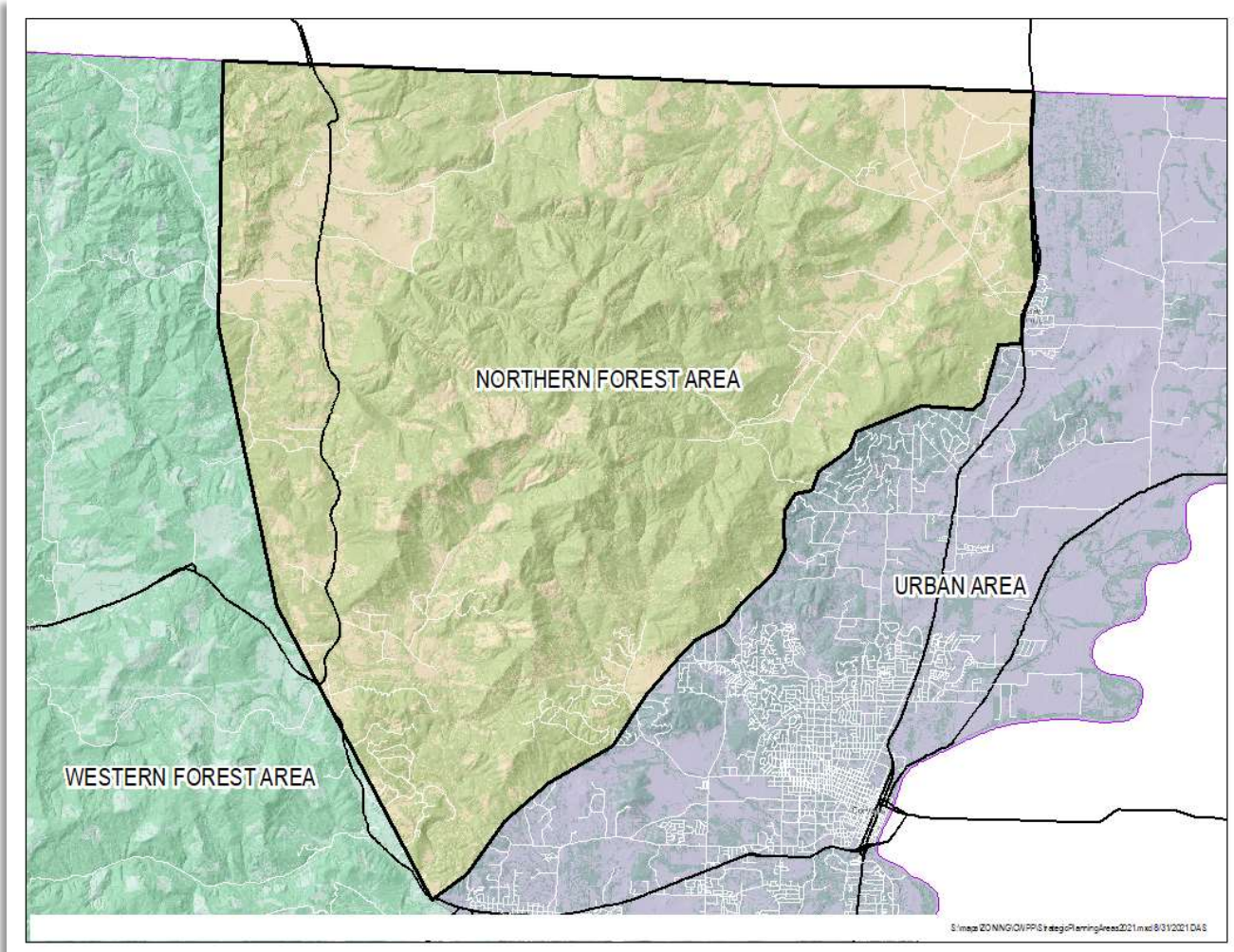
Fire Protection

Structural fire protection is provided by the Monroe Rural Fire Protection District, Philomath Fire and Rescue, and the Corvallis Fire Department. These departments provide the first level of emergency response within their respective districts. The Oregon Department of Forestry has jurisdiction for wildfires in the forested foothills along the western edge of the SPA.

A large area in the east central portion of the planning area has no assigned fire protection district and is outside the Oregon Department of Forestry jurisdictional boundary. Fires in this area are primarily managed by the local citizens and a cooperative of local farmers.

Northern Forest Area – Strategic Planning Area #3

SPA 3 is located in the north central portion of Benton County from Kings Valley to Soap Creek and includes the communities of Kings Valley, Hoskins, and Wren. The SPA is bordered on the west by SPA 4 (Western Forest Area), on the north by Polk County, and SPA 1 (Urban Area) to the east and south.



Planning Area Assessment

Land ownership consists of private- and industry-held tracts, Oregon State University (State of Oregon), Bureau of Land Management, and Benton County. Homesite development in this planning area is confined primarily to areas in and around Kings Valley, Soap Creek, Oak Creek, Wren/Blakesley Creek and Highways 20 and 223 west of Philomath. Extensive homesite development is occurring in forested areas surrounding the valleys and highways in close proximity to wildland fuels. These homes are typically accessed by timbered forest routes, some with roads with a single access providing both ingress and egress. A main railroad spur linking the coast to inland resources passes through this area.

This planning area is predominantly forestland on mountainous terrain and agricultural areas along the valley bottoms. SPA 3 includes all of the McDonald-Dunn Forests managed by Oregon State Experimental Forest as well as large expanses of commercial forestland actively managed by timber companies and non-industrial private landowners. The McDonald-Dunn Forests in the east central portion of this planning area and industrial timberlands to the west provide a multitude of

recreational opportunities including hunting, camping, hiking and biking. This area is a popular recreation and interpretive area experiencing heavy use throughout the year. Adjacent land subdivision and development continues, to the extent allowed by limited availability of residentially zoned land, in the wooded foothills due to its close proximity to the Corvallis area.

Wildfire Potential

Residents within this area have a variable risk of experiencing a wildland fire depending on location and proximity to vegetation cover. Residences within the forest and woodland areas are at the highest relative risk and residences in the valley bottoms and surrounded by farmland are at a lower risk. Wildfire potential is low to moderate in the farmland, valley bottoms and highways, and moderate to high in the forested areas. Wildland fuels in forested areas consist of several conifer and hardwood species mixed with a variety of understory shrubs and grasses. Timber management throughout this area has created a mosaic of forest stands with widely varying age and size classes enhancing stand density and structure, which can increase ladder fuels and wildland fire potential. In many areas along the valley bottoms, agriculture and forested land lie adjacent to residential developments and individual homesites.

Many homes in the forested areas are surrounded by high-risk forest fuels and only a few have taken measures to reduce this risk by creating a defensible space. The desire for seclusion, views, and privacy creates dangerous living conditions in the forest environment, often without the landowner's awareness of the potential consequences. Fuels along driveways also increase homeowner's risk as both access by fire equipment and escape from the area may become difficult during a fire event.

Development and human activity in areas with heavy fuel loads increases wildfire risk and the chances for major property damage or loss of life. Outdoor recreation and desire for rural living is increasing in popularity, especially in the mountains and forested areas. As more forested areas are used for recreation and habitation, the probability of a human-caused ignition increases. Special consideration is needed to increase public education and fuels mitigation treatments where recreation and development coexist in high-risk, wildland fire areas.

Ingress-Egress

Primary ingress and egress routes traveling north to south through SPA 3 include Highway 20 and 223 on the west and south side. Primary access from the Soap Creek area to Highway 99W is via Soap Creek and Tampico Roads in the northeast corner of the planning area. Other secondary access routes from developed areas include Maxfield Creek Road, Blakesley Creek Road, Marys River Estates Road, Cardwell Hill Drive, and Oak Creek Road.

Many access routes are narrow and windy and driveways in this planning area are overgrown with vegetation, have bridges that are underrated for heavy equipment, are too narrow, or lack adequate turn out or turn around areas. Many of the roads provide only one access for both ingress and egress, passing through heavily forested areas. In the event of a wildland fire, it is likely that one or more of the designated escape routes would become impassable.

Remote forested areas within the planning area generally have logging road access enabling access for fire suppression equipment. Most of these roads were designed for logging trucks, and accommodate larger fire equipment.

Infrastructure

Residents within the communities of Kings Valley, Hoskins and Wren as well as the surrounding areas do not have access to municipal water systems; thus, no public fire hydrants are available.

Development throughout this SPA typically relies on individual or multiple-home well systems. Ponds, rivers, creeks and developed drafting sites provide additional water sources for fire suppression in emergencies.

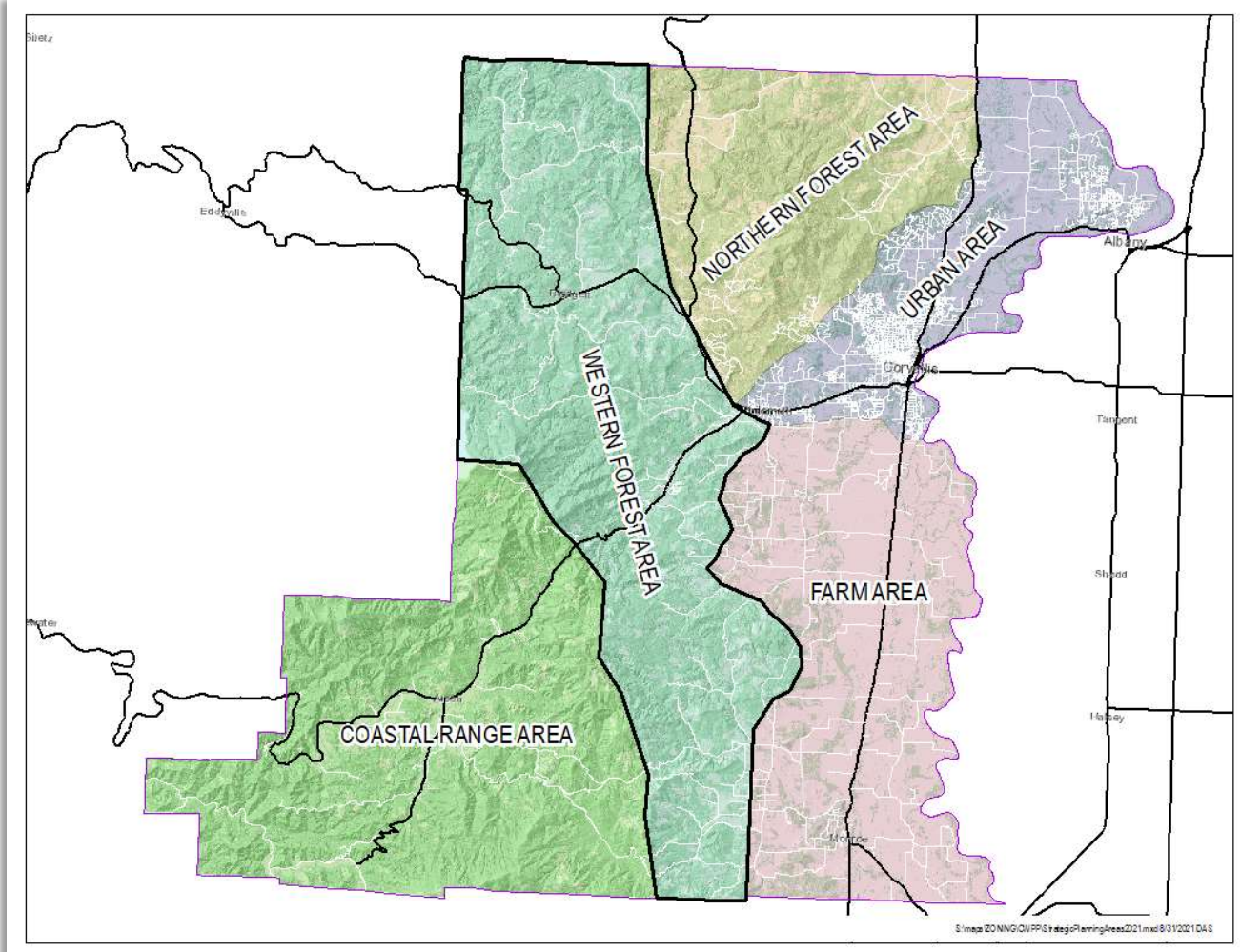
Above ground, high voltage transmission lines cross the planning area in corridors cleared of most vegetation, which provides for a defensible space around the power line infrastructure and may provide a control point for fire suppression, if well maintained. Local public electrical utility lines are both above and below ground traveling through back yards and along roads and highways. Many of these lines are exposed to damage from falling trees and branches. Power and communications may be cut to some of these areas during a wildfire event.

Fire Protection

Structural fire protection in SPA 3 is provided by the Hoskins-Kings Valley Rural Fire District, Philomath Fire and Rescue, Corvallis Fire Department and Adair Rural Fire Protection District. These departments provide the first level of emergency response within their respective districts. The Oregon Department of Forestry has jurisdiction for wildfires in the forestlands.

Western Forest Area – Strategic Planning Area #4

SPA 4 is located in the west central portion of Benton County running the entire length of the county from north and south. SPA 4 includes the communities of Summit, Blodgett, Dawson and Glenbrook. SPA 4 is bordered on the east by SPA 2 (Farm Area) and SPA 3 (Northern Forest Area), on the west by SPA 5 (Coastal Range Area) and Lincoln County, on the north by Polk County and to the south by Lane County.



Planning Area Assessment

This planning area is nearly all forestland except for a few areas where farmland extends up river valleys or timber has been cleared for a farmstead. Land ownership in this area is predominantly Bureau of Land Management, U.S. Forest Service (Siuslaw National Forest), Oregon Board of Forestry (State), forest industry, City of Corvallis and scattered holdings of non-industrial private forestland. Vast expanses of forestland, especially public forestland, provide recreational opportunities including hunting, fishing, camping, off-road vehicle use, hiking and biking. This area is a popular recreation area and experiences heavy use throughout the year.

Due to the rural nature of this area, forest zoning, and vast expanses of commercial timberland, most development has occurred only along major highways and river corridors as well as areas at the edge of the farmland on the east side of the planning area. Structures have been built in close proximity to wildland fuels along timbered forest routes, some with roads with a single access providing both ingress and egress. In addition, openings have been cut for development of

farmsteads and homesites, especially near the main roads and rural towns. Small land clearings for pasture development as well as for cash crops, open space, and orchards are common.

Land subdivision and development continues on the outskirts of this SPA due to its close proximity to urban areas, subject to the limitations of resource zoning.

The Corvallis Watershed, owned by the City of Corvallis and the U.S. Forest Service, is located within this planning area. Corvallis obtains almost half of its annual water needs from this area.

Wildfire Potential

Wildfire potential is moderate to high in the forested areas and moderate in the few areas of farmland and valley bottoms. Wildland fuels are primarily mixed conifer and deciduous forest with areas of shrubs, mixed crops and orchards. The topography changes from rolling to steep in the mountain areas and flat to gently rolling in the river valleys.

Forest management has created a patchwork of stands in a wide array of age classes and stocking densities, depending on ownership. Clearcutting followed by planting is the most common harvest and regeneration method practiced in the region. Slash generated from timber harvest is often piled after logging and burned in the wet season after it has cured for an appropriate length of time. Site preparation with prescribed fire is seldom used due to high annual precipitation and a narrow burning window. Large expanses of forest are even-aged due to these reforestation practices. This creates a situation in which younger stands may act as ladder fuels for neighboring stands due to finer fuels and increased woody material closer to the ground. In the older, more mature timber stands, shade has played a role in the stands' development. The understory vegetation and lower branches are reduced due to the lack of available light. The reduced ground vegetation and ladder fuels lessen the ease with which a ground fire can move into the canopy.

Residents have a moderate to high-risk of experiencing a wildland fire due to the extensive forestland and the trend towards development in the WUI. The age of the surrounding timber stands can be a factor in determining whether a non-threatening ground fire will spread to the canopy and become a dangerous crown fire. The concern is that with more development adjacent to wildland fuels, the potential fire danger increases due to increased ignition sources caused by human activity.

Recreation, agriculture, logging and ranching activities throughout the area increase the risk of a human-caused wildfire spreading to forested areas. Fields enrolled in conservation programs or non-annual cash crops near development provide areas of continuous fuels that have potential to threaten several homes and farmsteads and possibly escape into forested areas or into towns.

Ingress-Egress

Primary access in the northern part of SPA 4 is via Highway 20 (Corvallis-Newport Highway). Secondary access funneling into Highway 20 includes the Summit/Blodgett Road, Hoskins/Summit Road and Marys River Road. Highway 34 (Alsea Highway) provides primary access through the middle of the area and the South Fork Access Road, from Alsea to Alpine, provides primary access in the south as well as emergency access for residents east of the Coast Range summit. Highways 20 and 34 are heavily traveled main roads that provide access through the Coast Range to the Oregon Coast.

There are also multitudes of paved and graveled secondary roads that crisscross the timbered areas. Many are single lane roads providing both ingress and egress, leading to homesites or logging units. Many access routes and driveways in this planning area are overgrown with vegetation, have bridges that are underrated for heavy equipment, are too narrow, or lack adequate turn out and

turn around areas. In the event of a wildland fire, it is likely that one or more of the designated escape routes would become impassable.

Remote forested areas within the planning area generally have logging road access, which enables access for fire suppression equipment. Most of these roads were designed for logging trucks, and can accommodate larger fire equipment.

Infrastructure

Residents along the Alsea Highway near Philomath have limited access to a municipal water system. Those outside the city limits and in unincorporated areas typically rely on individual or multiple-home well systems.

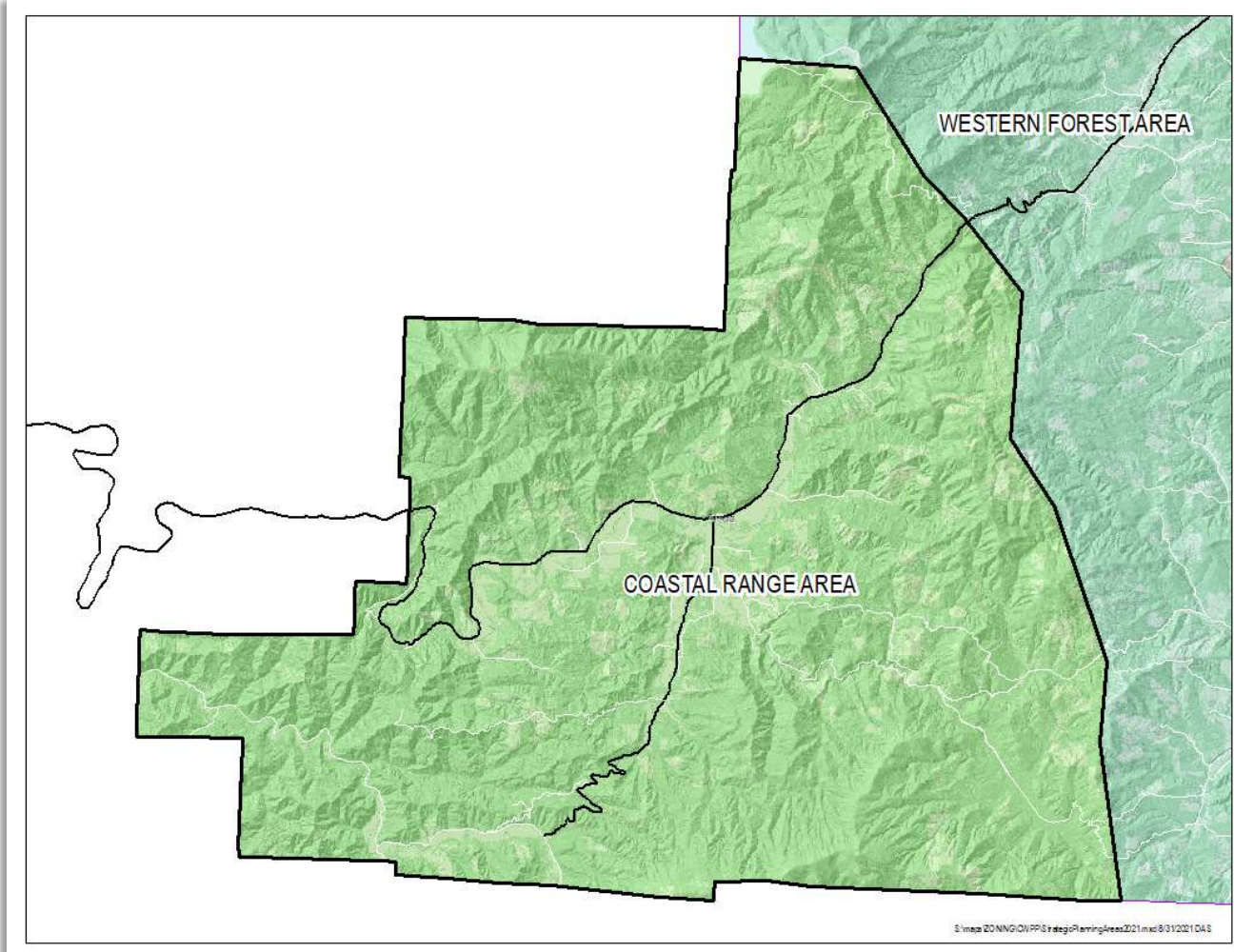
Above ground, a high voltage transmission line crosses the planning area in a corridor cleared of most vegetation, which provides for a defensible space around the power line infrastructure and may provide a control point for fire suppression, if well maintained. Local public electrical utility lines are both above and below ground traveling through back yards and along roads and highways. Many of these lines are exposed to damage from falling trees and branches. Power and communications may be cut to some of these areas during a wildfire event.

Fire Protection

Structural fire protection in SPA 4 is provided by Blodgett-Summit Rural Fire Protection District, Philomath Fire and Rescue, and Monroe Rural Fire Protection District. These departments provide the first level of emergency response within their respective districts. The Oregon Department of Forestry has jurisdiction for wildfires on all forestlands within their jurisdictional boundary.

Coastal Range Area – Strategic Planning Area #5

SPA 5 is located in the southwest corner of Benton County within the coastal mountain range. This planning area is bordered on the north and west by Lincoln County, south by Lane County and on the east by SPA 4 (Western Forest Area).



Planning Area Assessment

SPA 5 is a rural area where most of the residential development occurs along the river valleys and major highway corridors. Also, a rural unincorporated community, is the only community in this planning area.

SPA 5 is nearly all forested with scattered development and farmsteads occupying the fertile river valleys and highway corridors. Most of the development in this SPA is farmsteads and homesites occurring along the main highway corridors and river bottoms. Land clearing for pasture, cash crops, open space, and orchards is common.

Land ownership in this area is predominantly Bureau of Land Management, U.S. Forest Service (Siuslaw National Forest), forest industry and non-industrial private forestland. Vast expanses of forestland, especially public forests, provide recreational opportunity including hunting, fishing, rafting, camping, off-road vehicle use, hiking and biking. This area is a popular recreation area experiencing heavy use throughout the year. Due to the ownership pattern, resource zoning, and

remote location, there is less pressure for land subdivision and development in this planning area than other parts of the county.

Wildfire Potential

Wildfire potential in SPA 5 is moderate to high in the forested areas and moderate to low in the valley bottoms. Wildland fuels are a mix of conifer and deciduous trees (Douglas fir, hemlock and big leaf maple) with areas of shrubs, mixed crops and orchards. The topography is rolling to steep in the mountain areas and flat to gently rolling in the river valleys.

Forest management has created a patchwork of stands in a wide array of age classes and stocking densities, depending on ownership. Clearcutting followed by planting is the most common harvest and regeneration method practiced in the region. Slash generated from timber harvest is often piled after logging and burned in the wet season after it has cured for an appropriate length of time. Site preparation with prescribed fire is seldom used due to high annual precipitation and a narrow burning window. Large expanses of forest are even-aged due to these reforestation practices. This creates a situation in which younger stands may act as ladder fuels for neighboring stands due to finer fuels and increased woody material closer to the ground. In the older, more mature timber stands, shade has played a role in the stands' development. The understory vegetation and lower branches are reduced due to the lack of available light. The reduced ground vegetation and ladder fuels lessen the ease with which a ground fire can move into the canopy.

Residents within SPA 5 have a moderate to high-risk of experiencing a wildland fire since it is heavily forested and has extensive recreational use. The age of the surrounding timber stands can be a factor in determining whether a non-threatening ground fire will spread to the canopy and become a dangerous crown fire. Clearings and fuel breaks will disrupt a slow moving wildfire enabling suppression that is more successful. During a fast moving wildfire event, evacuation of people and containment of the fire are the highest priorities.

Recreation, agriculture, logging and ranching activities throughout the area increase the risk of a human-caused wildfire spreading to forested areas. Fields enrolled in conservation programs or non-annual cash crops near development provide a continuous fuel bed that has the potential to escape into forested areas. Under extreme weather conditions, fires could threaten individual homes or the town of Alsea.

Ingress-Egress

Primary access is Highway 34 (Alsea Highway) and Lobster Valley/Alsea Road. Highway 34 is a heavily traveled route through the Coastal Range to the Oregon Coast. There are also multitudes of paved and graveled secondary roads leading off the main highways into the forested areas. Many roads are timber-covered lanes leading to homesites or logging units with a single access point providing both ingress and egress. Many access routes and driveways in this planning area are overgrown with vegetation, have bridges that are underrated for heavy equipment, are too narrow, or lack adequate turn out and turn around areas. In the event of a wildland fire, it is likely that one or more of the designated escape routes would become impassable.

Remote forested areas within the planning area generally have established logging roads enabling access for fire suppression equipment. Most of these roads were designed for loaded logging trucks; thus, they also accommodate larger fire equipment.

Infrastructure

Residents within the town of Alsea have access to municipal water systems. In this area, public fire hydrants are available. Outside of Alsea, development typically relies on individual or multiple-home

well systems. Ponds, rivers, creeks and developed drafting sites provide additional water sources for fire suppression in emergencies.

Local public utility lines traveling along roads and highways and are exposed to damage from falling trees. Power and phone service into forested areas are both above and below ground. Power and communications may be cut to some of these areas during a wildfire.

Fire Protection

Structural fire protection in SPA 5 is provided by Alsea Rural Fire Protection District, which provides the first level of emergency response within its districts. The Oregon Department of Forestry has jurisdiction for wildfires on all forestland within their jurisdictional boundary with the exception of the U.S. Forest Service lands.

Why Develop a Community Wildfire Protection Plan?

The process of developing a CWPP can help a community clarify and refine its priorities for the protection of life, property, and critical infrastructure in the wildland–urban interface on both public and private land. It also can lead community members through valuable discussions regarding management options and implications for the surrounding land base. Local fire service organizations help define issues that may place the county, communities, and/or individual homes at risk. The CWPP planning process also incorporates an element for public outreach. Public involvement in the development of the document not only facilitates public input and recommendations, but also provides an educational opportunity through interaction of local wildfire specialists and an interested public.

The ultimate goals of a CWPP are to improve wildfire preparedness and to protect lives and property. Many benefits accompany the creation of a CWPP. Through the process of developing a CWPP, entities are able to:

- Improve coordination and communication between emergency response agencies and the community;
- Define and map the WUI;
- Identify and prioritize projects that will increase wildfire preparedness;
- Identify community values;
- Assess wildfire risk;
- Increase competitive advantage in securing grant funding;
- Reduce the risk and impacts of wildfire;
- Restore healthier, more resilient conditions in local forests; and
- Improve communications.

Integration with Other Plans

The CWPP builds on and supplements the wildfire chapter of the Federal Emergency Management Agency’s (FEMA’s) approved Benton County Multi-Hazard Mitigation Plan. The update process will continue to include integration with the National Fire Plan, the Healthy Forests Restoration Act, and the Disaster Mitigation Act. The plan utilizes the best and most appropriate science from all partners as well as local and regional knowledge about wildfire risks and fire behavior, while meeting the needs of local citizens and recognizing the significance wildfire can have to the regional economy.

Benton County CWPP History

Benton County’s first Community Wildfire Protection Plan (CWPP) was completed and approved by the Board of County Commissioners in 2009. An update of that plan was completed and approved in 2016. These plans have helped guide community education, risk assessment, and fuel reduction projects, as well as planning and implementing infrastructure improvements to reduce wildfire risk. A review of projects from the 2009 and 2016 CWPPs are summarized in **Appendix D**.

VISION, MISSION, GOALS & OBJECTIVES

Based on an understanding of the WUI, the specific fire response and mitigation capacities within Benton County, and the concerns the county faces, as documented in the chapters of this plan, the CWPP sets out to achieve the following vision and mission. The mechanisms for achieving the vision and mission are policies and strategies described under the Goals and Objectives, below. The strategies contribute to meeting the goals and objectives. It is not intended that all strategies be completed or undertaken simultaneously; some strategies are on-going. Lead and partner agencies work together to complete as many strategies as possible. The five highest priority strategies in the table are identified by blue, bolded font.

BENTON COUNTY'S **VISION FOR WILDIRE MANAGEMENT AND ADAPTABILITY**

For the County's populace to be wildfire aware and prepared for fire emergencies and for all properties to be adapted to local wildfire risk.

MISSION OF THE COMMUNITY WILDFIRE PROTECTION PLAN

To provide direction in the cooperative and collaborative coordination of agencies and communities through education, communication, and implementation of defined responsibilities to promote pre-fire risk mitigation and life safety preparation, while fostering landscapes that can absorb, respond, recover from, and more successfully adapt to adverse events.

GOAL 1

To Marshal Obtainable Resources And Mobilize Capabilities To Improve The Safety Of People, Protect Structures And Infrastructure, Preserve Natural Resources, And Restore Fire-Balance To Ecosystems Of The County

OBJECTIVE 1.1

REDUCE HAZARDOUS FUELS AND CONSTRUCT WITH FIRE RESISTANT MATERIALS, thereby reducing the potential for severe wildfire behavior and lessening post-fire damage

Strategies	Preparedness	Response	Mitigation	Recovery	Status/Timeline ST = Short term (1-3 yrs) MT = Mid term (4-10 yrs) LT = Long Term (10+ yrs) OG =ongoing	Partners	Lead Agency
<ul style="list-style-type: none"> • Actions (not all Strategies will have Actions) 							
<p>Policy 1.1.1 INCORPORATE THE PRACTICE OF creating and maintaining DEFENSIBLE SPACE AND STRUCTURAL RESISTANCE TO FIRE for existing and new structures in the WUI, and other urban and rural locations.</p>							
<p>1.1.1a Disseminate information about fire resistant construction and adaptations that can lower flammability of structures; provide comparison of fire resistant costs vs. traditional material</p> <ul style="list-style-type: none"> • Provide information on the governments’ Building Division websites and to potential building permit customers • Partner with local builders to disseminate information to customers 	X				OG	Builders, Construction Companies	Benton County, Cities of Monroe, Philomath, Adair, Albany, and Corvallis
<p>1.1.1b Evaluate all city and county facilities to identify defensible space opportunities and fire resistant structural adaptations; prioritize projects</p> <ul style="list-style-type: none"> • Within the first year, identify all city and county facilities • In first year, evaluate all structures in SPA1, in second year all structures in SPA 2, in third year all structures in SPA 3, in fourth year all structures in SPA 4, in fifth year all structures in SPA 5 • After each evaluation prioritize the locations and evaluate incorporating into facilities’ budgets and finding grant money 	X		X		LT	Fire Departments and Fire Districts	Benton County, Cities of Monroe, Philomath, Adair, Albany and Corvallis

Strategies <ul style="list-style-type: none"> • Actions (not all Strategies will have Actions) 	Preparedness	Response	Mitigation	Recovery	Status/Timeline ST = Short term (1-3 yrs) MT = Mid term (4-10 yrs) LT = Long Term (10+ yrs) OG =ongoing	Partners	Lead Agency
1.1.1c Establish a property evaluation program for home owners; encourage wildfire safety adaptation through grant funding when available <ul style="list-style-type: none"> • Disseminate new pamphlet of OSU Defensible Space techniques for the Willamette Valley 	X		X		OG	Oregon State University	Oregon Dept. of Forestry, Rural Fire Protection Districts
1.1.1d Support a yearly brush and branch chipping service to each Firewise Community, or community actively pursuing a Firewise Community designation <ul style="list-style-type: none"> • Poll each community in early March of each year to see if they will participate in the year’s chipping • Provide begin date and end date to participating communities and signage • When the stockpiling ending date is reached, review each area to inspect the piles prior to chipping beginning • Inspect each pile after being chipped • Request review of the year’s event from the chipper and each participating community chair, compile a report and send to the commissioners 	X		X		OG	Firewise Communities	Benton County
1.1.1e Create additional disposal opportunities for yard debris using alternative methods to burning <ul style="list-style-type: none"> • Partner with Republic Services to provide dumpster(s) to one community prior to fire season • Create a yearly campaign around Republic Services free yard debris disposal day 	X		X		ST	Republic Services	Benton County
Policy 1.1.2 Increase SAFETY ALONG EVACUATION ROUTES in WUIs through landscape modification.							
1.1.2a Identify public access roads that contain an overgrowth of vegetation; prioritize a project list	X		X		LT		Benton County Public Works, City’s Public Works Department
1.1.2b Encourage home owners to clear vegetation and improve road grades along driveways	X		X		MT	Homeowners	Benton County, Cities of Monroe, Philomath, Adair, Albany, and Corvallis

Strategies	Preparedness	Response	Mitigation	Recovery	Status/Timeline ST = Short term (1-3 yrs) MT = Mid term (4-10 yrs) LT = Long Term (10+ yrs) OG =ongoing	Partners	Lead Agency
<ul style="list-style-type: none"> • Actions (not all Strategies will have Actions) 							
1.1.2c Identify landscaping constraints on access roads to critical infrastructure (as identified in the All Hazards Mitigation Plan ¹⁹); prioritize a project list	X		X		MT	Property owners	Benton County Public Works, City's Public Works Department
Policy 1.1.3 PRIORITIZE ECOLOGICALLY RESILIENT²⁰ FUEL TREATMENTS in forest and farm land to reduce the intensity, severity, and effects of wildfire.							
1.1.3a Prioritize county-wide forest treatments; give priority to forests adjacent to WUI areas and critical infrastructure; engage property owners to create wildfire buffers	X		X		LT	Commercial forestry companies, Oregon State University	Oregon Department of Forestry
1.1.3c Use the State's Fire Risk Map data (when completed) as a tool for prioritizing fuel reduction projects	X		X		ST		Oregon Department of Forestry
1.1.3d Manage and remove dead and dying vegetation caused by natural disasters in order to remove wildfire fuels	X		X		OG		All landowners, public and private
<ul style="list-style-type: none"> • Support prescribed burning as an effective tool to reduce hazardous fuels in the WUI within applicable regulations 							
Policy 1.1.4 Guide investment toward projects that both PROMOTE ECOSYSTEM RESTORATION AND IMPROVEMENT as well as fire adaptation							
1.1.4a Promote oak woodland and prairie restoration on lands not managed for industrial forestry	X		X		OG	Other environmental groups	Soil and Water Conservation District, Greenbelt Land Trust, Native Plant Society, Nature Conservancy
1.1.4b Encourage the restoration of forest diversity and native forest habitat on all lands not utilized for agriculture, silviculture, or residential use	X		X		OG	Other environmental groups, Oregon Department of Forestry	Soil and Water Conservation District, Greenbelt Land Trust, Native Plant Society, Nature Conservancy
1.1.4c Restore and preserve wetlands and riparian areas	X		X		OG		The Wetlands Conservancy, Willamette Riverkeeper

¹⁹ <https://www.co.benton.or.us/sheriff/page/natural-hazards-mitigation-plan-nhmp>

²⁰ Ecological resilience: also called ecological robustness, the ability of an ecosystem to maintain its normal patterns of nutrient cycling and biomass production after being subjected to damage caused by an ecological disturbance.

Strategies	Preparedness	Response	Mitigation	Recovery	Status/Timeline ST = Short term (1-3 yrs) MT = Mid term (4-10 yrs) LT = Long Term (10+ yrs) OG =ongoing	Partners	Lead Agency
1.1.4d Remove invasive species whenever possible to prevent spread after wildfire events		X		X	OG		

OBJECTIVE 1.2 – Enhance safe and effective RESPONSE TO WILDFIRES

Strategies	Preparedness	Response	Mitigation	Recovery	Status/Timeline ST = Short term (1-3 yrs) MT = Mid term (4-10 yrs) LT = Long Term (10+ yrs) OG =ongoing	Partners	Lead Agency
Policy 1.2.1							
IMPROVE EVACUATION and emergency access ROUTES							
1.2.1a Complete a county-wide evacuation assessment to identify existing and needed critical transportation routes (needed to allow emergency access to all locations within the county and allow evacuation of residents)							
<ul style="list-style-type: none"> This strategy is to ensure that transportation improvements are prioritized to the areas most in need and distributed across the county. Partial funding for this assessment has been secured for this project through the Oregon Legislature. Would likely require additional funding, a request for proposals from qualified professionals, and contract/project management by Benton County. Map evacuation routes for all neighborhoods and provide maps to the dwellings in these neighborhoods 	X				ST	Cities of Monroe, Philomath, Adair, Albany, and Corvallis, Oregon Department of Transportation	Benton County

Strategies	Preparedness	Response	Mitigation	Recovery	Status/Timeline ST = Short term (1-3 yrs) MT = Mid term (4-10 yrs) LT = Long Term (10+ yrs) OG =ongoing	Partners	Lead Agency
<ul style="list-style-type: none"> Actions (not all Strategies will have Actions) <p>1.2.1b Evaluate the critical transportation routes identified through 1.2.1a for inadequacies (e.g., connectivity/alternative routes, road width, turnouts, turnarounds); prioritize infrastructure improvements and develop funding-ready project descriptions for high priority projects; seek funding [See Table ____, Transportation Project List]</p> <ul style="list-style-type: none"> This could be done by individual jurisdictions (Benton County, ODOT, Corvallis, Philomath, etc.) but ideally would be a coordinated effort across jurisdictions. 	X				MT	Cities of Monroe, Philomath, Adair, Albany, and Corvallis, Oregon Department of Transportation	Benton County
<p>Policy 1.2.2 Seek opportunities to IMPROVE INTERAGENCY WILDFIRE COMMUNICATION and interagency emergency response systems</p>							
<p>1.2.2a Establish a consistent communication strategy among intergovernmental and industrial forestry partners using appropriate conduits and delivery mechanisms</p> <ul style="list-style-type: none"> Get monthly updates of fuels reduction projects planned by ODF, USFWS, BLM, OSU Forests, USFS, the cities and the county) such as thinning and prescribed burns; compile and list on county’s website and disseminate to the Fire Defense Board 	X				MT		
<p>1.2.2b Collaborate on opportunities to secure additional fire equipment, training, and infrastructure to boost wildfire response capability for rural, volunteer, and city fire departments</p>	X				OG		

Objective 1.3 – Provide timely REHABILITATION EFFORTS to reduce environmental, social, and economic impacts of fire

Strategies	Preparedness	Response	Mitigation	Recovery	Status/Timeline ST = Short term (1-3 yrs) MT = Mid term (4-10 yrs) LT = Long Term (10+ yrs) OG =ongoing	Partners	Lead Agency
Policy 1.3.1							
IDENTIFY short and long-term RECOVERY EFFORTS AND OPPORTUNITIES for cross-jurisdictional coordination							
1.3.1a Coordinate with the State Wildfire Recovery Task Force (when established)		X		X	OG		
1.3.1b Provide recovery workshops for businesses, farming and agriculture operations, and homeowners and provide post-fire recovery materials		X		X	OG		
1.3.1c Educate citizens on imminent post-wildfire threats to human life and safety, property, and critical natural or cultural resources				X	OG		
1.3.1d Identify opportunities to re-establish native ecosystems			X	X	OG		
1.3.1e Explore regulatory and policy opportunities to coordinate post-fire treatments between private, county, state and federal lands immediately following a fire event, giving priority to WUI areas		X	X	X	MT		

GOAL 2

PROMOTE PUBLIC AWARENESS, UNDERSTANDING, AND ACTIONS TO REDUCE RISK FROM WILDFIRE.

OBJECTIVE 2.1

PROVIDE access to, promote, and develop materials and **PROGRAMS IN PREVENTION AND EDUCATION** that improves community wildfire awareness and safety.

Strategies	Preparedness	Response	Mitigation	Recovery	Status/Timeline ST = Short term (1-3 yrs) MT = Mid term (4-10 yrs) LT = Long Term (10+ yrs) OG =ongoing	Partners	Lead Agencies
<ul style="list-style-type: none"> • Actions (not all Strategies will have Actions) 							
Policy 2.1.1 REINFORCE PROGRAMS ON WILDFIRE PREPAREDNESS in the county that center on the topics of the Firewise program, Fire Adapted Communities, Defensible Space, reducing Structural Vulnerability, and the Oregon State Evacuation Levels “Be Ready, Be Set, and Go” through coordination between all groups and individuals that are providing education							
2.1.1a Develop a coordinated multi-agency seasonal outreach campaign that includes county- and city-specific educational materials to promote effective risk reduction practices and communicate landowner assistance programs in the WUI	X				OG		Fire Defense Board, Benton County, Oregon Department of Forestry, Cities of Monroe, Philomath, Albany, Corvallis, and Adair
2.1.1b Increase awareness of the Firewise program and develop more communities that are Firewise.	X				OG		
2.1.1c Educate the community on the evacuation process, and key functions such as functions of a temporary evacuation point, shelter in place, and Oregon Level 1, 2, and 3 evacuation orders (Be Ready, Be Set, GO)	X	X			OG		
2.1.1d Partner with Oregon State University to utilize their expertise, education opportunities, and outreach capability to promote homeowner responsibility for wildfire preparedness	X				OG		
2.1.1e Partner with each Rural Fire Protection District to provide training within each jurisdiction	X				OG		
Policy 2.1.2 PROVIDE resources for volunteers within an organized program ²¹ that will provide OUTREACH TO THE COMMUNITY on wildfire safety							
2.1.2a Establish a sub-committee to coordinate and sustain effective countywide public education and outreach activities	X				ST		
2.1.2b Provide access to trainings and resources	X				OG		

²¹ A program similar to the Master Gardener program

GOAL 3

Manage The CWPP Document To Be A Flexible And Living A Document That Incorporates A Joint Multi-Agency And Interested Party Approach To Wildfire Planning.

OBJECTIVE 3.1

REVIEW AND UPDATE CWPP on a scheduled and as-needed basis

<p>Strategies</p> <p>• Actions (not all Strategies will have Actions)</p>	Preparedness	Response	Mitigation	Recovery	<p>Status/Timeline</p> <p>ST = Short term (1-3 yrs) MT = Mid term (4-10 yrs) LT = Long Term (10+ yrs) OG =ongoing</p>	Partners	Lead Agencies
<p>Policy 3.1.1 ENSURE that the CWPP IS UPDATED on a consistent and regular timetable</p>							
<p>3.1.1a Formalize a CWPP Project Committee, consisting of key stakeholders, to sustain the Community Wildfire Protection Plan</p>	X				ST		Benton County
<p>3.1.1b Request the Technical Advisory Committee and Community Advisory Committee assess the CWPP on a yearly basis</p> <ul style="list-style-type: none"> • Set annual meeting for the second Friday of every January • Update committee member list 4 months before the meeting – add interested parties to list 	X				ST		CWPP Project Committee
<p>3.1.1c Update project tables at every yearly assessment – identify projects started, completed, and anticipated to be initiated next</p>	X				ST		CWPP Project Committee
<p>3.1.1d Outline accomplishments each year</p>	X				ST		CWPP Project Committee
<p>3.1.1e Conduct a major update of the CWPP every 5 years</p>	X				MT	CWPP Project Committee	Benton County
<p>Policy 3.1.2 MONITOR state and Federal CHANGES TO WILDFIRE PROGRAMS AND INCORPORATE changes to the CWPP as necessary</p>							

Strategies	Preparedness	Response	Mitigation	Recovery	Status/Timeline ST = Short term (1-3 yrs) MT = Mid term (4-10 yrs) LT = Long Term (10+ yrs) OG =ongoing	Partners	Lead Agencies
3.1.2a Monitor Senate Bill 762 (2021) projects and incorporate any resultant data into the CWPP	X				ST		Benton County
<ul style="list-style-type: none"> Monitor State rule-making for the section of SB 762 requiring establishment of baseline levels of wildfire protection for lands outside of current protections – Apply to Greenberry Gap Incorporate map of county wildfire risk 							

OBJECTIVE 3.2

CONSIDER changes to the REGULATORY FRAMEWORK surrounding wildfire safety

Strategies	Preparedness	Response	Mitigation	Recovery	Status/Timeline ST = Short term (1-3 yrs) MT = Mid term (4-10 yrs) LT = Long Term (10+ yrs) OG =ongoing	Partners	Lead Agencies
Policy 3.2.1							
Promptly PROVIDE UPDATES to land use regulations, plans, and building codes in response to new (mandatory) legislative requirements							
3.2.1a Track mandatory code updates and work with advisory committees to incorporate those changes into the Development Code	X				LT		Benton County, Cities of Monroe, Philomath, Adair, Albany, and Corvallis
Policy 3.2.2							
REVIEW AND EVALUATE the potential of INCORPORATING VOLUNTARY LEGISLATIVE CHANGES furthering fire preparedness into land use regulations, plans, and building codes							
3.2.2a Review and develop recommendations for requiring the use of structural fire resistant materials within the WUI	X		X		MT		Benton County, Cities of Monroe, Philomath, Adair, Albany, and Corvallis
3.2.2b Evaluate the possibility of requiring defensible space around all dwellings in the WUI	X		X		MT		Benton County,

Strategies <ul style="list-style-type: none"> Actions (not all Strategies will have Actions) 	Preparedness	Response	Mitigation	Recovery	Status/Timeline ST = Short term (1-3 yrs) MT = Mid term (4-10 yrs) LT = Long Term (10+ yrs) OG =ongoing	Partners	Lead Agencies
							Cities of Monroe, Philomath, Adair, Albany, and Corvallis
3.2.2c Analyze the potential for adopting rules to constrain expansion of WUI zones	X		X		LT		Benton County, Cities of Monroe, Philomath, Adair, Albany, and Corvallis
3.2.2d Evaluate requiring any new construction utilizing county and city funds to create defensible space and use fire resistant construction materials; implement if feasible	X		X		MT		Benton County, Cities of Monroe, Philomath, Adair, Albany, and Corvallis

To be included here in Final Draft:

Projects Tables

CHAPTER 5 CHANGING DYNAMICS

Historic Wildfire Conditions in Oregon

Wildfires are nothing new in Oregon’s history, whether it is the Bandon Fire of 1936 or the four Tillamook Burns between 1933 and 1951. The largest wildfires in Oregon’s recent history are actually believed to have taken place in the 1800s. The Silverton Fire of 1865 is listed as Oregon's largest fire at over 900,000 acres. A number of other fires apparently reached 400,000 to 800,000 acres in those early days, though accurate mapping is limited.

The era of giant fires started coming to an end with the creation of the Forest Service and Oregon Department of Forestry, which actuated almost a century of aggressive suppression. However, putting out every fire led to a buildup of fuels in the forest that, combined with rising temperatures, has led to the return of megafires in Oregon beginning with the 2002 Biscuit fire (500,000 acres) in Southern Oregon and B&B Complex (90,000 acres) on Santiam Pass.

In the decade before Biscuit and B&B — from 1992 to 2001 — Oregon wildfires burned an average of 198,000 acres per year, according to the Northwest Interagency Coordination Center. In the years from 2002 through 2010, the number jumped to an average 438,616 acres burned each year. In the decade from 2011 through 2020, the number jumps higher to an average 713,438 acres burned each year.

In addition, the fires have become increasingly dangerous. While Oregon was sparsely populated back in the 1800s, the situation has changed, with Oregon's fast-growing population pushing into the WUI. This places more structures, infrastructure, people, and domesticated animals in harm’s way.

Summary of Acres Burned in Oregon since 2002²²

YEAR	ACRES BURNED	YEAR	ACRES BURNED
2002	1,109,512	2011	359,567
2003	262,677	2012	1,316,887
2004	170,100	2013	425,470
2005	289,146	2014	1,073,516
2006	661,819	2015	773,782
2007	758,922	2016	303,951
2008	252,671	2017	762,597
2009	231,322	2018	897,262
2010	208,447	2019	79,732
Total	3,944,616	2020	1,141,612
Average of 2003 through 2012	438,291	Total	7,134,376
		Average of 2011 through 2020	713,438

²² Assembled from annual Wildland Fire Summaries reports by the National Interagency Fire Center

Oregon's ecosystems and their diversity are among the state's most remarkable features. Wildfires and anthropogenic fires have always been part of these forests, rangelands and grasslands.

- Low-intensity fires were historically frequent in dry interior Oregon forests, and were key to maintaining wildfire resilience, forest structure and ecosystem health
- Wildfires were typically much less frequent, but much more intense in western Oregon and coastal conifer forests, while burning by Indigenous peoples tends toward higher frequency and lower intensity in grasslands, woodlands, and savannas.

Ecologists estimate that prior to Euro-American settlement large, stand-replacing crown fires burned Pacific Northwest coastal forests every 200-500 years. Smaller surface fires revisited dry interior forests as often as every 4-20 years. West-side Cascade wildfire intervals and intensity fell somewhere in the range between.

Grasslands such as those found in the Willamette Valley were characterized by frequent, low-intensity fires ignited by Indigenous peoples. These historical surface fires were quite extensive, burning in late summer and early fall. These low-intensity fires:

- cultivated and maintained cultural resources such as camas and tarweed
- reduced hazardous fuels
- promoted regeneration of fire-tolerant and dependent species such as Oregon white oak and Ponderosa pine
- maintained open, park-like savanna characterized by larger, fire resistant trees
- cycled nutrients back into the soil
- decreased disease and insect impacts
- provided habitats for wildlife species

In western Oregon forested ecosystems, historical fire intervals are often long enough that some forests are still within their historical range of variability for wildfire. Due to the interactive influence of Indigenous burning and wildfires caused by lightning, there is a high degree of variability of vegetation and historic fire return intervals based on aspect, elevation, and soil type.

Research²³ findings over the last 10 years reveal the following:

- The total area burned annually by wildfire in the United States has increased since the 1980s. Nine of the 10 years with the most acreage burned have occurred since 2000, including the peak year of 2015. While there is a trend of increasing acreage burned, there is no clear trend in wildfire frequency.
- Since the 1980s, the number and size of large (>1,000 acres) wildfires and the total area burned in the western United States has increased. These trends are found in most, but not all, western U.S. ecoregions and states, including Oregon. Across the West, fire seasons have started earlier and lasted longer during the year.

²³ Fire FAQs—Have the size and severity of forest wildfires increased in Oregon and across the West? [Max Bennett, Stephen A. Fitzgerald, Daniel Leavell, Carrie Berger](#) Oregon State University Extension, EM 9194, Revised October 2018, <https://catalog.extension.oregonstate.edu/em9194>

- Very large fires (also called “megafires”) represent a small number of the total fires but comprise the majority of the area burned. For example, from 1970 to 2002 on U.S. Forest Service lands, 1.1 percent of all fires burned 97.5 percent of total area. During this same period, firefighters successfully extinguished 97 to 99 percent of all wildfires on Forest Service lands while they were still small (<300 acres).
- Trends in fire severity²⁴ vary by region, vegetation type, and historical fire regime (the spatial pattern, intensity, and frequency of occurrence in which fires naturally occur over time in a particular region). Historically, frequent fire limited fuel buildup in these forests, but decades of fire exclusion (and in some areas, poor management) have resulted in large fuel accumulations. Widespread and intense drought stress also has increased tree mortality in some dry forests, leading to higher dead fuel loads and drier surface conditions.
- In the Pacific Northwest, the proportion of fire burning at any severity level does not appear to have changed from 1985 to 2010. During this period, wildfires in both moist and dry forests have typically included a mix of low-, moderate-, and high-severity fire. In moist forests that historically experienced high-severity fire, high-severity fire accounted for about 45 percent of the acres burned in the 1985–2010 period, with most of the high-severity fire occurring in patches of over 250 acres. In dry forests that historically experienced low- and moderate-severity fire, these severity levels accounted for roughly 75 percent of the acres burned during the 1985–2010 period. However, the proportion of high-severity fire, about 25 percent, and the size of high-severity patches were greater than would be expected in a low-severity fire regime, suggesting that dry forests have departed from historical patterns of burn severity.

Why wildfires have gotten worse

Management

The combination of how people have managed forested areas over the past 150+ years and climate change have resulted in the major wildfires today, and a lot of these habits could have been avoided. People need to change their way of life and the actions they take in terms of fire prevention in order to see a difference in fire severity in the future.

The Indigenous people of the Pacific Northwest shaped their lands with many intentional practices long before settlers came to the continent. One of the most important was controlled burning, which cleared areas of crowded trees, undergrowth and pests, making space for new growth and wildlife. Indigenous burning has historically been the primary mechanism of fire management in and around human communities. Colonial settler habits, such as livestock grazing and land clearing for agriculture provided barriers to how far a fire could burn before running out of fuel. However, settlement and disease upended Indigenous populations and culture, stifling these practices. For

²⁴ What is fire severity? Fire severity refers to the effects of a fire on the environment, focusing on the loss of vegetation and impacts on soils.

Low severity: <25 percent of overstory trees are killed, limited effects on soils

Moderate severity: 25–75 percent of overstory trees killed and/or moderate effects on soils

High severity: >75 percent of overstory trees killed and/or extensive mineral soil exposure

hundreds of years after, fire suppression became the favored means of management, which brought back woods dense with fuels and higher wildfire risks.

As large timber was removed during World War II in the Pacific Northwest, smaller trees began to grow in and crowd forest areas. As firefighters encouraged fire suppression by fighting wildfires yearly, more undergrowth was being developed and trees began filling in and growing to touch each other. Although wildfire fighting is not a negative act and has been crucial to saving large areas of land and the lives of many people, this suppression of the fire is actually an ultimate cause as to why the fires are worsening over time. Although not as obvious, by saving forests over time, humans have actually created perfect conditions for the spread of mega fires. This protective action results in the landscape having way more trees than the forest floor can handle. With this, as well as other major factors such as diseases killing forests and climate change, it is predicted that the area burned since 2000 could double or triple in decades to come.

Population Increase

Even with such danger in place, the way in which people have situated their homesites as the general population of Oregon has increased has become very problematic. Thousands have built homes and communities in zones full of vegetation that have the potential to be a part of some of the largest wildfires in the area. As seen during the 2020 wildfire season, this caused near total losses of towns such as Talent, Vida, and Detroit, and risks major displacement of even larger towns and cities in the future. This scenario makes population growth in the WUI an environmental issue.

Because conditions have worsened so much in just the past century, many who recently have settled in Oregon and the rest of the Northwest did not understand the risk they were putting themselves into in regards to wildfires. This can similarly be related to the risk that millions have unwillingly put themselves into by living near the Cascadia Subduction zone. The love and protection of the forests in Oregon has allowed for massive forest growth, which is perfect grounds for fires to break out. As humans build individual homes and communities within these beautiful wooded areas, they are placing themselves in danger's way without realizing how much of a risk there is to their economic well-being, property safety, and health.

Weather and Climate Change

Weather conditions contribute significantly to determining fire behavior. Wind, moisture, temperature, and relative humidity ultimately determine the rates at which fuels dry and vegetation cures, and whether fuel conditions become dry enough to sustain ignition. Once conditions are capable of sustaining a fire, atmospheric stability and wind speed and direction can have significant effects on fire behavior. Winds increase airflow, adding more oxygen to fires, allowing them to burn hotter and increasing the rate at which fire spreads across the landscape.

Additionally, the effects of climate change have begun to become apparent in the local fire season²⁵. Trends have shown rising temperatures throughout the year are causing the fire season to

²⁵ Fire season is defined under ORS 477.505

(1) "When conditions of fire hazard exist in a forest protection district or any part thereof, the state forester may designate for that district or any part thereof the date of the beginning of a fire season for that year. The fire season shall continue for that district or part thereof until ended by order of the state forester when conditions of fire hazard no longer exist in that district or part thereof."

(2) "The state forester may, during the same year and for the same district under circumstances similar to those described in subsection (1) of this section, designate one or more subsequent fire seasons."

begin earlier, and persist longer, with more extreme high temperatures and extreme low humidity measurements. This shift allows fuels to cure²⁶ for longer periods throughout the summer months and increases periods of “High” fire danger and “Extreme” fire danger during the fire season.

Climate changes are already visible in Oregon, resulting in:

- *Higher Summer Temperatures.* Higher summer temperatures and earlier spring snowmelt are increasing the risk and workload to suppress forest fires.

²⁷Oregon is projected to warm by 4-9 degrees (F) by 2100, with the amount depending, in part, on whether global emissions can be curtailed or follow the current path. The number of days with temperatures higher than 86 degrees in many Oregon locations – excluding the cooler mountains and the coast – are expected to increase by 30 days a year by mid-century.

By 2100, the Willamette River Basin is projected to be between 1° C (2° F) and 7° C (13° F) warmer than today. This conclusion is based on two greenhouse gas (GHG) concentration pathways, also called emissions scenarios, with output from 20 global climate models.

- Warming from increasing anthropogenic GHG concentrations dominates the long-term variability in temperature. Projected temperature increases on the decadal scale (or decades-long scale) exceed natural variability such that the Willamette River Basin does not experience the climate of the latter 20th century during any decade from the present through 2100 (and beyond).
 - The summer months of July through September, already the warmest months of the year, are projected to warm most under climate change, by about 2° C (3.6° F) more than in winter.
- *Declining Winter Snowpack.* Increasing temperatures are affecting the form of precipitation, and therefore Oregon’s mountain snowpack. This is altering the timing, duration, volume, and quality of water runoff throughout the state. As mean annual temperature increases, the percentage of precipitation that falls as rain instead of snow will increase. Oregon is classified as 75 percent mixed-rain-and-snow for the twentieth century climate. By 2080, all of Oregon, except for parts of the Blue Mountains, is projected to become rain-dominant.²⁸ Annual precipitation is not projected to change significantly, but more will fall as rain instead of snow.

The State Forester designates a representative for each district to decide when to go into fire season. The district foresters jointly decide with their neighboring districts when to declare fire season based on several factors, most importantly fuel moistures. When fuel moistures become low enough they constitute “conditions of fire hazard”. Also considered is expected weather patterns.

²⁶ Drying and browning of herbaceous vegetation due to mortality or senescence, and also loss of live fuel moisture content of woody fuel following mechanically-caused mortality (e.g., woody debris slash. From the Glossary of Wildland Fire Terminology, National Wildfire Coordinating Group, 2008

²⁷ ABOUT WW2100 MODELING SCENARIOS The Willamette Water 2100 project modeled 22 scenarios, a reference or base case, and a suite of alternative scenarios. The Reference Case scenario represents future conditions in the Willamette River Basin, under expected trends in population and income growth, existing policies and institutions, and a mid-range climate change projection. A suite of 18 alternative scenarios explore the influence of a single model driver or policy setting at a time. They each vary a single element or assumption from the Reference Case. Three alternative scenarios vary multiple scenario elements from the Reference Case and represent plausible thematic narratives such as “Extreme” or “Worst Case.” Refer to the scenarios page for a detailed description of the WW2100 modeling scenarios, their purpose, and their assumptions. <https://inr.oregonstate.edu/ww2100>

²⁸ Oregon’s 2017 Integrated Water Resource Strategy

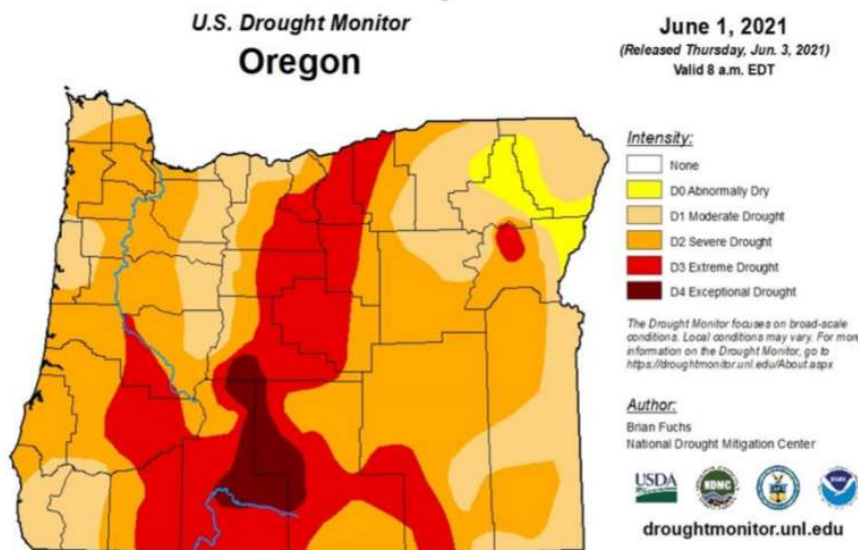
- The majority of climate scenarios show a general trend of wetter winters and drier summers in the Willamette River Basin. However, unlike with temperature projections that uniformly show temperatures will rise, climate models do not unanimously simulate either a drier or a wetter future.
- Increases in winter precipitation stem mainly from heavier precipitation during wet periods, not an increase in the frequency of precipitation.
- Natural variability will remain large relative to the greenhouse gas response, even at the decadal scale, so that yearly and decadal precipitation both above and below the historical averages should still be expected.
- Sub-basins with little snow currently, such as Middle Willamette, are projected to receive virtually no snow in the future. The small projected increases in total winter precipitation provide little offset to the loss in snow due to projected warming
- For every 1° C (~2° F) increase in annual mean temperature, there is a roughly 15 percent decrease in summer flow in the lower Willamette River Basin. However, as temperatures get significantly higher than the historical average, the spring snowpack is essentially absent. Thus, additional temperature increases have only a marginal effect on streamflow.

As of early June 2021, nearly all mountain snowpack had melted, with the exceptions of the volcanic peaks in the Cascades. Snow melted in April and May 2021 at a high rate that exceeded historical melt rates at most locations. The peak seasonal snowpack occurred in March 2021 and was below average for the southern half of the state and near to above average for the northern half.

- *Increased Occurrence of Drought.* Drought is not an abnormal occurrence in Oregon, with notable recorded droughts since the 1930s. In 2015, the state had recorded its warmest year and experienced the lowest snowpack on record. Dry conditions in May through July 2017 were the fifth-warmest on record in 123 years, contributing to an intense wildfire season across the state.

The term “drought” is applied to a period in which an unusual scarcity of rain causes a serious hydrological imbalance. Unusually dry winters, or significantly, less rainfall than normal, can lead to relatively drier conditions, and leave reservoirs and water tables lower. Drought leads to problems with irrigation, and may contribute to additional fires, or additional difficulties in fighting fires. Most fuel types (not including grasses), however, require two or three years of drought before the fuel becomes dangerously dry. Drought contributes to the frequency and intensity of fires.

The year of 2021 may prove to break all records. Precipitation for the 2021 water year (Oct 1, 2020 through June 2, 2021) ranges from 40 to 85 percent of average in Oregon. The sum of March through May precipitation resulted in the driest spring on record for much of western and north-central Oregon.



The Changing Wildfire Environment

Longer Fire Seasons²⁹

Oregon’s fire seasons have become longer, more severe and increasingly complex, impacting agencies’ ability to respond to the wildfire workload and sustain core agency businesses while proactively protecting Oregonians, forests and communities from wildfire. In the Pacific Northwest, the length of fire seasons in the 1970s used to be 23 days. The ten-year average is now approximately 102 days.

Table 3.2 - Increase in length of fire season³⁰ 2011-2020
(10-year average: 101.5 days fire season in effect)

Year	Fire Season start date	Fire Season end date	Length (days)
2011	7/11	10/3	84
2012	7/11	10/16	97
2013	7/2	9/25	85
2014	7/1	10/14	105
2015	6/16	10/26	132
2016	7/5	10/4	91
2017	7/3	10/11	100
2018	6/21	10/29	130
2019	6/17	9/18	93
2020	7/6	10/12	98

²⁹ From the 2019-21 Governor’s Budget, Oregon Department of Forestry, Agency Summary Narrative

³⁰ It is important to keep in mind that these data are for Oregon Department of Forestry declared fire season and does not include all dates/restrictions covered by local fire departments or areas where federal agencies (specifically the U.S. Forest Service) have fire suppression responsibility. However, for Benton County, lands protected by Oregon Department of Forestry include about 69% of the entire county, the majority of wildlands.

Increased Wildfire Complexity

In Oregon, acres across all ownerships burned by wildfire are on the rise, increasing from a 10-year average of 156,000 acres burned during the 2000s to 452,000 acres burned in the 2010s. This trend is occurring nationally. Catastrophic wildfires cause significant public safety concerns. During the 2017 fire season, over 10,000 Oregonians were evacuated from their homes and unhealthy air quality conditions persisted across much of the state. This occurred again in 2020³¹ when severe drought, extreme winds and multiple ignitions fueled the most destructive wildfires in state history. Roughly, 1.07 million acres burned during the 2020 season, the second most on record.

The most striking thing from the 2020 fires was the number of homes lost. From 2015 to 2019, which included major wildfire years, Oregon lost a combined 93 homes, according to the Northwest Interagency Coordination Center. In 2020, 4,021 homes burned down.

Homes destroyed by wildfire:

2020: 4,021

2019: 2

2018: 14

2017: 16

2016: 1

2015: 60

Whether ignited by downed power lines, arson or the explosive spread of active wildfires, flames ripped through a number of Oregon towns from Sept. 7 to 9, 2020. From the Santiam Canyon to Southern Oregon, the Oregon Coast to the Clackamas River, the damage was widespread across the state's west side. In the past, Oregon's largest wildfires stayed mostly in remote forest or grassland. In 2012, for example, 1.2 million acres burned in Oregon — the most in state history - but the large number was fueled by giant grass fires in remote parts of the state where few people live.

In addition to the increased risk for causing wildfires, the presence of dwellings can significantly alter fire control strategies and can increase the cost of wildfire protection by 50 to 95 percent. In order to protect dwellings, firefighters must devote manpower and resources to activities like establishing fire perimeters, conducting burnouts around structures and addressing combustible materials commonly found around residential structures – like gas, propane and electrical lines. Isolated rural dwellings particularly increase suppression costs. The incremental cost of protecting two homes instead of one within six miles of a wildfire is estimated to be over \$31,000. For comparison, the incremental cost of protecting 100 homes instead of 99 homes within six miles of wildfire is estimated at \$319.

Greater Wildfire Smoke Impacts

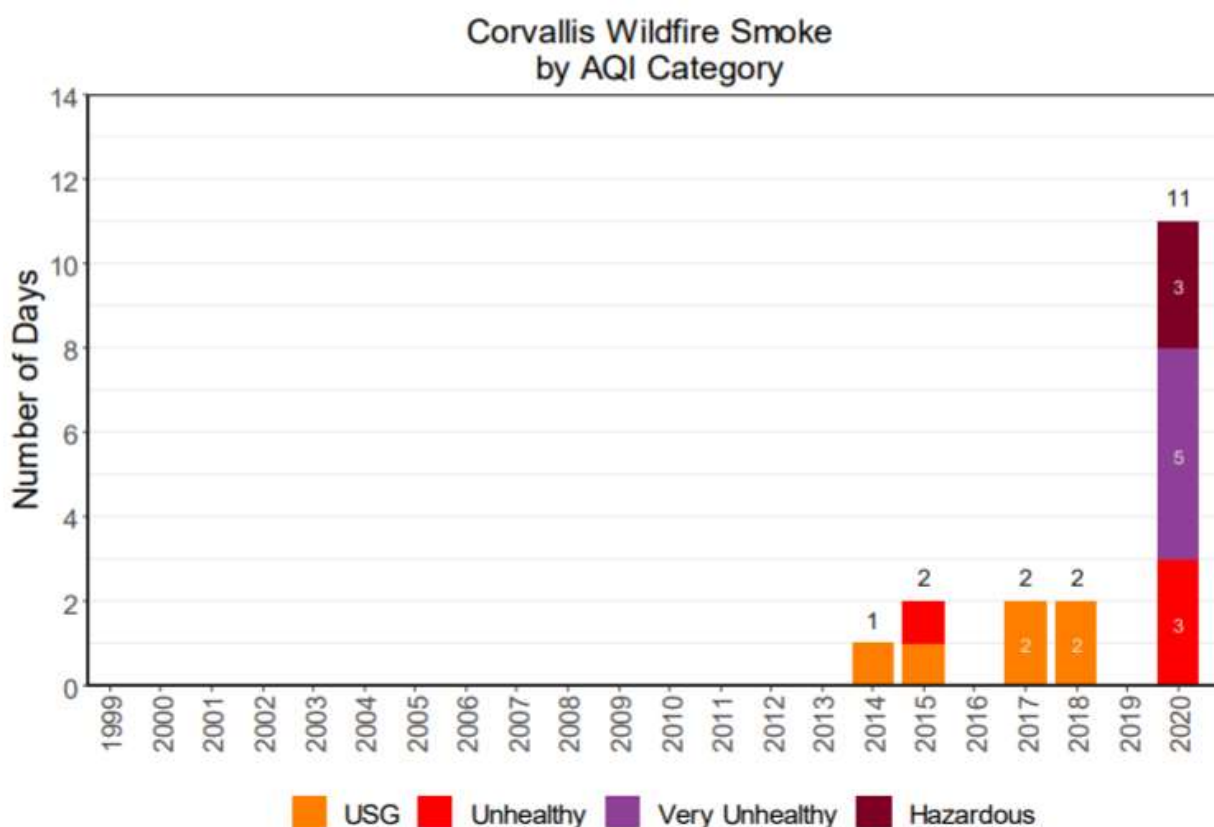
Wildfire smoke significantly imperils public health. Wildfire smoke emits a wide variety of pollutants measured as particulate matter (PM2.5 and PM10), black carbon, nitrogen dioxide, carbon monoxide, volatile organic compounds, polycyclic aromatic hydrocarbons and metals. According to the Oregon Health Authority's publication, *Wildfire Smoke and Your Health*, of these pollutants, PM2.5 may represent the greatest health concern since it can be inhaled deeply into the lungs and a fraction may even reach the bloodstream. Volatile organic compounds can cause early symptoms such as watery eyes, respiratory tract irritation and headaches. Higher levels of ozone (smog) can

³¹ Zach Urness, Salem Statesman Journal Oct. 30, 2020

also be formed from an increase in the precursor pollutants: nitrogen dioxide and volatile organic compounds.

Wildfire smoke impacts are increasing across the state. There are more Unhealthy for Sensitive Groups, Unhealthy, Very Unhealthy and Hazardous (\geq USG) days per year and more years with at least one \geq USG event. The most significant air quality impacts from fires are in Southern Oregon. Eastern Oregon is also experiencing more \geq USG than in the past. Portland did not experience smoke impacts at all from 1985 until 2015, and then four out of the next six years had smoke impacts.

The 2020 wildfire season was shorter than past years but far more intense. Oregon experienced some of the highest PM_{2.5} concentrations on record with historic wildfires in the Cascades. In particular, the Willamette Valley and Portland had several days in the hazardous health category for the first time. For at least a week in September, unhealthy to hazardous Air Quality Index (AQI) levels were present across the west side of the state. The graph below shows the number of days with an Air Quality Index (EPA) \geq USG for Corvallis since 1999.



Increased Suppression and Other Costs

Commensurate with increased occurrence, complexity and numbers of acres burned, fire suppression costs are increasing. According to the Oregon Department of Forestry, the agency’s 10-year average of suppression costs more than doubled over the past decade with gross large fire costs of \$8 million to over \$34 million. The 2013 season had been the costliest season ever, with costs rising over \$120 million and the most acres burned since 1951. This was eclipsed by the cost to fight the 2020 fires— \$354 million. The increase is due to factors such as rising fire equipment and resource costs as well as climate conditions, contraction in forest-sector industries that are

important on-the-ground partners in fire protection, fuel buildup, and the higher cost and complexity of providing fire protection in the growing WUI.

The 2020 wildfires constituted the biggest and most expensive disasters in Oregon history. The current total cost for debris cleanup — which includes hazard trees, ash, and debris— is estimated at \$622 million. Debris and hazardous materials have left entire communities with overwhelming wreckage.

2020 Fires Summary³²

In 2020, wildfires in Oregon burned more than 1.2 million acres statewide, with some of the largest and most devastating fires worsened by a severe windstorm on Labor Day that spanned eight counties (Clackamas, Douglas, Jackson, Klamath, Lane, Lincoln, Linn, and Marion). Taken together, these fires destroyed more than 5,000 homes and commercial structures, took the lives of nine Oregonians, and displaced thousands of Oregonians. What makes 2020 fires different is the fact that they were much closer to cities and towns than in recent years.

The impact to communities across the state was devastating. Entire communities were wiped out and Oregonians were left without homes, jobs, or even local businesses. With over a million acres burned and thousands of homes and businesses destroyed, the impacts of the 2020 wildfire season on jobs and local economies will last for months and years to come.

Based on a Preliminary Damage Assessment (PDA) conducted by FEMA, the Oregon Office of Emergency Management (OEM), and other state agencies and local governments, the state estimates a total cost of \$1.15 billion in wildfire/wind damage, response costs, and debris removal.

The economic destruction was also significant. Many people were displaced, including a large population of undocumented workers with limited English proficiency. Businesses that employed thousands of Oregonians were wiped out, leaving some Oregonians unemployed. Private industry structures including restaurants, shops, grocery stores, and other businesses were destroyed.

Beyond the urban destruction, the flames destroyed the livelihoods of Indigenous peoples. The impact of the increasingly intense fires around the U.S. West is felt directly by Indigenous communities, who have managed the land for millennia. Fires burned Tribal reservations and sacred lands and areas used under treaty rights, destroying hunting, fishing, and gathering territory. This is a result of the suppression of traditional forest management techniques.

³² Recovering & Rebuilding From Oregon's 2020 Wildfires, Report Presented by the Governor's Wildfire Economic Recovery Council, January 4, 2021 <https://www.oregon.gov/gov/policy/Documents/WERC-2020/Wildfire%20Report%20FINAL.pdf>

9	1.2 million	4,021	1,193	2,100	\$1.15 billion	\$32.2 million
Lives lost ¹	Acres of land burned	Homes or housing structures destroyed ²	Structures destroyed	People sought sheltered	Estimated cost of wildfire response ³	FEMA Individual Assistance payments to Oregonians (as of January 5, 2021)

¹ The statewide reported number, in accordance with the State Medical Examiner.

² Number of homes destroyed statewide, across all fires and all eight affected counties. Over half of the homes destroyed statewide were in Jackson County. 1,600-1,700 manufactured homes were lost, with the vast majority in Jackson County.

³ Estimates are based on initial assessments from local and state agencies conducted in October of 2020 and consider response and emergency protective measures. These estimates also reflect costs to repair and/or replace damaged public infrastructure to pre-disaster condition. In addition, these costs are likely to be eligible for partial reimbursement through the FEMA Public Assistance grant program. All cost share calculations are based on the current 75/25% cost share available through FEMA Public Assistance. Once the minimum obligation threshold of \$570 million is reached, there is a potential for an increase in federal cost share to 90/10%. The non-federal cost share can be met through state or local funding, or a combination of the two. Estimates do not include damaged/destroyed privately-owned infrastructure, property or economic losses.

Solutions

By implementing the idea of patchwork back into the natural landscape of Oregon and the rest of the Pacific Northwest, any natural occurring wildfire would be limited in size and would not reach the "mega fire size" like the many that happened in 2020. Although it sounds counterintuitive, by letting the forest burn with managed wildfires, performing prescribed burns, and performing other mechanical thinning techniques, hazardous fuels can be reduced. Performing these techniques near urban areas close to wildfire prone forests can save mass displacement from occurring, which would be a huge turning point in the safety of thousands.

Prescribed burning is an idea that has been researched thoroughly for many years and is a common management tool used worldwide for the prevention of wildfires and the reduction of risk to the biodiversity loss. Prescribed burns are conducted according to state regulations set forth under the Clean Air Act to limit negative impacts to human health and are very beneficial to limiting the effects of wildfire. Regulatory compliance is required in order for prescribed burning to occur, and generally involves working through ODF and DEQ. Understanding what tools are needed to be effective with these burnings and knowing how often to complete them is important.

Benton County Fires

The Timberhill Fire

The Timberhill Fire was reported on Friday, September 5, 2014, at 8:34 pm, in conditions typical of Fire Season in Benton County: the weather was hot and dry, the temperature was 81°F, relative humidity was 19% and winds were 12-19 mph NNW.

The fire started as the result of human activity in dry grass in the Timberhill Natural Area in North Corvallis, about 250 yards east-northeast of the intersection of 29th Street and Bunting Drive. The Timberhill Natural Area is comprised of open meadows with tall grasses, scattered stands of oak, hawthorn, and fir trees, and associated woody brush such as blackberry. The natural area is surrounded on all sides by residential neighborhoods, with homes numbering in the hundreds.



Due to the hot weather, strong winds, and low humidity, the fire rapidly grew to 87 acres, and prompted evacuations of 221 residences. The fire burned in Corvallis City Limits, across six different properties and, fortunately, only one structure was damaged.

Fire crews swiftly responded with 35 engines, 1 dozer, a five-person hand crew, and numerous overhead and fire supervisors. Responding were engines from 15 fire departments: Corvallis, Oregon Dept. of Forestry, Philomath, Monroe, Kings Valley, Alsea, Adair, Polk County #1, Junction City, Albany, Lebanon, Tangent, Halsey, Shedd, Brownsville, and Scio, as well as the Corvallis Police Department, the Benton County Sheriff, and the REACH helicopter.

The Timberhill Fire cost more than \$72,000.00 to suppress and was not declared out until September 13, 2014.

Local Wildfires Statistics

The Oregon Department of Forestry has been keeping track of fires in Benton County since 1960. The Timberhill Fire (identified as the Chip Ross Fire in the next table) was the largest fire to burn in Benton County since 1960, but it was not the only one. Fires occur yearly, but they have usually been put out when still small. National statistics indicate that more than 95% percent of wildfires are contained in the first 24 hours of initial response, meaning tens of thousands of fires are extinguished before becoming large wildfires. This percentage has been surpassed by the emergency response personnel in Benton County. The table below is a summary of the full table contained in **Appendix E**. The summary table below shows all fires that were 10 acres or greater; none of the fires in Benton County reached the size considered large³³ by the US Forest Service.

Only 10% of the total fires (619) listed in the full table were directly attributed to a natural cause, lightning; 8.9% are listed as miscellaneous with no explanation as to what this includes. The remainder were attributed to smoking (12%), recreational use (9.4%), the railroad (3.2%), juveniles (2.7%), equipment use (20.5%), debris burning (28.8%), and arson (2.7%). Nationally on average, human-caused wildfires make up 87% of all wildfire occurrences annually. Many of these wildfires occur in proximity to roadways, communities and recreational areas, posing considerable threat to public safety.

Fire Year	Fire Number	Fire Name	*Fuel Model	Report Date	General Cause	Total Acres
2016	4	Coon Rd Fire	A	8/4/2016 17:50	Equipment Use	29.50
2016	18	Lasky Powerline Fire	L	8/29/2016 11:30	Debris Burning	11.56
2015	9	Hoskins Field	A	7/30/2015 12:57	Equipment Use	17.00
2014	16	Chip Ross Fire	L	9/5/2014 20:35	Juveniles	86.00
2013	33	Honey Grove Hobbit	J	4/25/2013 15:05	Miscellaneous	24.90
2009	2	Tum Tum Central	J	7/24/2009 15:50	Equipment Use	34.00
2002	28	Fort Hoskins	F	9/4/2002 16:01	Equipment Use	23.17
2002	47	Fuller Creek	F	6/12/2002 13:45	Debris Burning	69.00
2002	57	Denzer Bridge	J	11/4/2002 15:00	Arson	25.30
2001	38	Laskey Creek	L	3/22/2001 15:55	Debris Burning	65.00
1988	P36	88551P36	J	9/8/1988 12:45	Arson	30.00
1988	P48	88551P48	L	10/22/1988 14:30	Miscellaneous	21.00
1988	P52	88551P52	I	12/16/1988 12:00	Debris Burning	79.00
1987	103	87551103	H	8/27/1987 12:00	Smoking	12.00
1985	P17	85551P17	H	5/16/1985 12:00	Debris Burning	10.00
1984	P07	84551P07	J	8/28/1984 17:10	Debris Burning	18.00
1983	P06	83551P06	J	5/27/1983 11:00	Debris Burning	26.00

³³ **Large Fire:** 1) For statistical purposes, a fire burning more than a specified area of land e.g., 300 acres. 2) A fire burning with a size and intensity such that its behavior is determined by interaction between its own convection column and weather conditions above the surface.

1981	110	81551110	X	9/11/1981 16:40	Equipment Use	35.00
1977	117	77551117	X	9/7/1977 17:20	Debris Burning	25.00
1977	P20	77551P20	X	4/5/1977 20:10	Debris Burning	10.00
1976	P15	76551P15	X	9/8/1976 15:50	Juveniles	45.00
1974	100	74551100	F	10/9/1974 16:30	Debris Burning	13.00
1973	18	73551018	X	8/8/1973 16:19	Equipment Use	42.00
1972	18	72551018	X	8/10/1972 14:54	Miscellaneous	56.00
1972	38	72551038	G	10/4/1972 13:45	Debris Burning	23.00
1970	47	70551047	X	8/19/1970 9:00	Debris Burning	10.00
1970	62	70551062	F	9/12/1970 17:00	Miscellaneous	15.00
1965	44	65551044	X	3/6/1965 14:00	Debris Burning	50.00
1965	46	65551046	X	3/10/1965 13:00	Debris Burning	15.00
1964	3	64551003	X	5/24/1964 8:00	Debris Burning	49.00
1964	26	64551026	X	9/5/1964 14:00	Debris Burning	35.00
1962	115	62551115	X	8/20/1962 15:00	Debris Burning	65.00
1962	117	62551117	X	8/24/1962 12:00	Smoking	22.00
1962	121	62551121	X	8/30/1962 15:00	Juveniles	30.00
1962	124	62551124	X	9/4/1962 12:00	Smoking	12.00
1961	134	61551134	X	9/25/1961 14:00	Debris Burning	18.00
1961	137	61551137	X	10/1/1961 11:00	Smoking	40.00

***Fuel Model Key**

A	Annual grasses (cheat)	J	Slash, medium
B	Dense Chaparral	K	Slash, thinning, P.C., Scattered
C	Open pine, grass under	L	Grass Perennial
F	Dense Brush (lighter than B)	R	Hardwood, summer
G	Conifer, Old growth	T	Sagebrush, medium dense
H	Conifer, Second growth	U	Closed canopy pine
I	Slash, heavy	X	Non wildland fuel

CHAPTER 6 PARTNER AGENCIES & GROUPS

Fire protection in Benton County is the responsibility of many districts and agencies, working in coordinated partnership. Structural fire protection in the county falls to ten districts, with the benefit of mutual aid agreements among the districts. In addition, forestlands are protected by partnerships between Oregon Department of Forestry, Siuslaw National Forest, Oregon State University Research Forests, and the Western Oregon Forest Protective Association. A new partnership, the cooperation with communities that have attained Firewise Communities USA status, is described following the fire-fighting agency section. On the pages that follow, each partner's capability and current issues of concern are described.

Fire Districts

Adair Rural Fire Protection District

Albany Fire Department

Alsea Rural Fire Protection District

Blodgett-Summit Rural Fire Protection District

City of Corvallis Fire Department & Corvallis Rural Fire Protection District

Hoskins-Kings Valley Rural Fire Protection District

Monroe Rural Fire Protection District

Philomath Fire & Rescue

Other Agencies

Oregon Department of Forestry – West Oregon District

Oregon State University Extension Service and the Research Forests

Siuslaw National Forest

West Oregon Forest Protective Association

Firewise Communities

Pioneer Village

Vineyard Mountain

Ridgewood Estates

Chinook

Skyline West

Wren

South Benton (Monroe)

Overview of Fire Protection System

Oregon has a Fire Service Mobilization Plan developed by the Oregon State Fire Marshal's Office and approved by the State Fire Defense Board as mandated by The Emergency Conflagration Act (ORS 476.501 to 476.610). The Plan provides an organized structure and operating guidelines for rapid deployment of Oregon's fire service forces under a common command structure. The plan establishes operating procedures for emergencies beyond the capabilities of the local fire service resources.

Mutual aid agreements are made with nearby districts and the Oregon Department of Forestry to supplement resources of a fire agency or district during a time of critical need. Mutual aid is given only when equipment and resources are available.

Oregon has a common communication channel for fire services' use during multiple-agency responder incidents. This system is called Fire NET. It utilizes a system of 23 mountain-top microwave base stations and a master control console to form a radio and telephone access communication network throughout the state.

Benton County has a 911 Emergency Communication System in place to link citizens with emergency response agencies. The system receives telephone requests for fire, medical or police services and dispatches those calls through a computer aided dispatch system to the appropriate agencies for response. Referenced in this arrangement is a rural addressing system that identifies home locations by address. Rural address numbers are displayed at the entrance to most homesites along access routes to assist in emergency response.

Fire agency personnel are often the first responders during emergencies. In addition to structural fire protection, they are called on during wildland fires, floods, landslides, and other events.

Statewide Fire Resource Mobilization

The Office of the Oregon State Fire Marshal assists and supports the Oregon fire services during major emergency operations through the Emergency Conflagration Act (ORS 476.510). The Conflagration Act was developed in 1940 as a civil defense measure and can be invoked only by the Governor. Under the Act, local firefighting forces will be mobilized when the State Fire Marshal believes that a fire is causing, or may cause, undue jeopardy to life and/or property and the Act is invoked. State funding for use of the resources is provided when the Act is invoked.

The Emergency Conflagration Act required the State Fire Marshal to prepare a plan for the most practical utilization of the state's firefighting resources in time of grave fire emergency. The resulting plan, called the Oregon Fire Service Mobilization Plan provides the organizational structure and operating guidelines for mobilization and direction of fire service forces, promotes effective communication among the fire service agencies, coordinates the efforts of the participating agencies through use of a common command structure and common terminology, and ensures prompt, accurate, and equitable apportionment of fiscal responsibility for fire suppression or other emergency response activity.

The Fire Service Mobilization Plan may be used separately from the Conflagration Act to mobilize local structural fire agencies for any emergency exceeding local mutual aid resources. However, reimbursement for responding resources is assured only when the Governor invokes the Conflagration Act.

Local Response Guide to Wildland Fire during Extreme Fire Behavior Events

The Benton County Fire Defense Board (BCFDB) recognizes that during extreme fire conditions there is a need to quickly extinguish wildland fires in the county. Fires that grow beyond local control could adversely affect all fire control agencies and quickly overwhelm countywide resources. The BCFDB recognizes the need for an aggressive initial attack, in the beginning stages of the fire, especially during extreme fire conditions. To that end, The BCFDB has developed a plan that will send a fire apparatus from each Department or District in the county on the initial dispatch. The goal is to bring multiple resources into and under local control as quickly as possible to stop a wildfire in the incipient stage.

The purpose of the response guide is to provide a reference for all agencies involved in the dispatching and mitigation of wildland fires in Benton County. The Guide does not set policy for individual agencies and is not intended to replace the decisions of the Fire Chief or Incident Commander for any event.

There are two different models utilized by the Benton County Fire Defense Board Chief to establish a high-risk response.

Model 1

If any two of the three following conditions are met, then a fire day should be in effect.

- Anytime the temperature is above 90 degrees.
- Anytime the wind velocity is above 15 miles per hour.
- Anytime the relative humidity falls below 25%.

Model 2

If the Burn Index is 38 or higher, then a high fire danger exists. The Burn Index can be obtained from the Oregon Department of Forestry (Philomath) by calling 541-929-3266.

It is the responsibility of the Benton County Fire Defense Board Chief to notify Dispatch when either model goes into effect. All County agencies would then respond with their pre-designated apparatus. Each agency will be responsible for assigning their apparatus and personnel for out-of-district response. The plan does not prohibit the Incident Commander on scene from ordering more resources or from canceling all or part of the responding resources.

Authority for Wildfire Emergency Evacuation

The state of Oregon has an existing authority that would authorize a city or county to designate an official or agency to order mandatory evacuations of residents and other individuals after a state of emergency is declared. An evacuation will only be ordered when necessary for public safety or for the efficient conduct of activities that minimize or mitigate the effects of the emergency. Under “home rule” provisions of the Oregon Constitution, local governments also may adopt specific ordinances ordering mandatory evacuation of an area in a fire emergency.³⁴

If the Governor declares an emergency under ORS 401.165, the Governor may specifically order evacuation of persons from the area covered by the order. Sheriffs, State, or local law enforcement may carry out the Governor’s orders or those authorized by local ordinances. Fire officials and firefighters would have authority to enforce the Governor’s order or an emergency evacuation

³⁴ Oregon Revised Statutes 401.165, Declaration of state of emergency by city or county

order as detailed in Oregon Statutes³⁵ under the Mobilization Plan when the Conflagration Act has been invoked by the Governor.

Protecting public health and safety is a fundamental government interest which justifies summary action in emergencies. A Governor's order or local ordinance ordering evacuation is constitutional so long as the order or evacuation ordinance has a real and substantial relationship to public safety and contains an opportunity for prompt post-evacuation review of the action.

Local Firefighting Agencies

The firefighting resources and capabilities information provided in this section is a summary of information provided by the fire chiefs or representatives of the wildland firefighting agencies listed.

³⁵ ORS 476.510-476.610, Protection of life and property from fire in case of emergency

ADAIR RURAL FIRE PROTECTION DISTRICT



District Summary: Adair Rural Fire Protection District was founded in 1974 and encompasses Adair Village and the surrounding approximately 18 square miles. The district boundary extends from one mile south of Adair Village to the northern County line. On the east, it is bounded by the Willamette Pacific rail line, and on the west, it takes in the Tampico Road and Soap Creek Road areas.

The main fire station is located at 6021 Marcus Harris Road in Adair Village and the second station is at 37096 Soap Creek Road. Both stations have installed emergency backup generators within the past few years, and the substation has added 20K gallons of water storage.

The District responds to all types of emergencies including fire, medical, and rescue and is staffed by 13-17 volunteer firefighters. All firefighters are required to be trained to NFPA Firefighter 1 and EMS First Responder levels. The rescue squad vehicle serves as an emergency medical quick response unit and the Corvallis Fire Department ambulance provides full emergency ambulance service.

Issues of Concern: The majority of residential growth in this district is occurring within the City Limits of Adair Village. In 2010, the City annexed 127 acres, which will result in the addition of approximately 400 new homes, thus an increase in calls. Homes on acreage exist in the rural areas, with a low potential for new dwellings due to restrictive zoning. The District's primary areas of concern for wildland fire are Trillium Lane, Coffin Butte, Soap Creek, and Arboretum Roads.

Inadequate access into new and existing structures in the rural area continues to be problematic for the District, particularly the lack of standards and a maintenance program for private bridges. This issue has been mitigated to some extent by requiring 9-10K gallons of water storage for each new rural development; but the relative high cost of load-rating the bridges (~\$4K/each) has proved to be a barrier.

Due to the District's reliance on volunteer help, maintaining a viable work force is a continuing challenge. New recruits are rare and the availability of daytime responders is limited. Despite obstacles, this District has progressed from ISO³⁶ 4 to ISO 3 in recent years.

³⁶ Insurance Services Office, <https://www.isomitigation.com/>

ALBANY FIRE DEPARTMENT



District Summary

The City of Albany Fire Department includes portions of the City located in Benton County. Protection of the rural areas of northeast Benton County is provided by the North Albany Rural Fire District and Palestine Rural Fire District under contract, a total of 26 square miles. Albany's 2015 population in Benton County was 7,286 with approximately 1,684 residents in North Albany Rural and 989 residents in Palestine Rural fire protection districts.

The Albany Fire Department operates out of five stations with the Benton County station located on Gibson Hill Rd. The Department is a career organization with 72 firefighting personnel, and 4 administrative staff that respond to emergencies in command roles. All personnel are trained for wildland response and suppression vehicles are equipped to address wildland risks.

Issues of Concern

North Albany has experienced tremendous growth in the last twenty years and continues to be one of the fastest-growing areas in Benton County. Some of the new development has taken place in areas that were previously allowed to develop with inadequate considerations for access and/or with inadequate consideration given to water availability, fire resistant construction, and other techniques that would minimize the wildland fire risks.

There is also a lack of defensible space surrounding existing structures and steep road grades that make it difficult or impossible to gain access to structures. Long narrow driveways with no turnarounds or safety zones and no alternate escape routes are also common, as well as prolonged response times due to lengthy travel distances from the closest fire station.

ALSEA RURAL FIRE PROTECTION DISTRICT



District Summary

The Alsea Rural Fire Protection District commences in the east at Marys Peak Road and Highway 34. It extends twenty-three miles to the west and terminates at Fall Creek Road. To the southwest, the District includes portions of the Alsea-Deadwood Highway into Lobster Valley. The total District coverage is approximately 88 square miles. The primary station is located in Alsea with an additional sub-station located in Lobster Valley. The District currently has 22 volunteers. The responders are on an on-call basis with the station unmanned most of the time. Building and equipment maintenance is largely provided by the volunteers.

Issues of Concern

The last two decades have seen little or no growth in the community. A number of forest-related industries, including the U.S. Forest Service Office, have closed due to economic conditions.

The original CWPP noted a need for water hydrants in a forest interface portion of the unincorporated community of Alsea, and this project was completed with Title III grant funding in 2010.

In the past five years, Alsea area residents have organized around issues of emergency preparedness and response. They have made progress in providing infrastructure and planning for natural disasters that could impact this isolated community. Recent efforts have resulted in an emergency generator for the Alsea water system, and community planning for wildfire evacuation.

BLODGETT-SUMMIT RURAL FIRE PROTECTION DISTRICT



District Summary

The Blodgett-Summit RFPD provides emergency medical and fire protection to the communities of Blodgett and Summit on the western edge of Benton County. The district covers 32 square miles and contains approximately 226 dwellings and 450 residents. Most of the area is in timber or grazing land. There are 18 miles of paved roads and 12 miles of gravel roads. The department also responds to medical emergencies in an additional 30 square miles outside of our district but within Benton County. The district includes approximately 7 miles of US Highway 20, a major transportation route between the Willamette Valley and the Central Coast and Coast Range for tourists, commerce, and commuters. The district is crossed by BPA high-voltage lines and the Willamette Pacific Railroad.

Issues of Concern

Major concerns for the District include: wildland fires, high-speed motor vehicle collisions on Highway 20, logging and farming accidents, local flooding of the Marys River, Tum Tum Creek, and Norton Creek, black ice, ice storms, and wind storms, railroad-associated fires and hazardous materials spills, suicide by young people, isolation in the event of a major earthquake, residential access issues due to narrow and long driveways and inadequate bridges, and seasonal problems with water sources. The District has two stations; a main station in Blodgett off Highway 20 and a second station located on Happy Hollow Road in Summit. There are currently 8 volunteers, and the District depends on the support of Philomath Fire and Rescue, Corvallis Fire Department, and the Oregon Department of Forestry.

CITY OF CORVALLIS FIRE DEPARTMENT & CORVALLIS RURAL FIRE PROTECTION DISTRICT



District Summary

The Corvallis Fire Department provides fire protection and prevention services to the City of Corvallis and the surrounding Rural Fire Protection District. The City is approximately 14 square miles and the rural district approximately 44 square miles in Linn and Benton Counties. Corvallis Fire Department protects the property of Oregon State University within the city and in the rural district. Corvallis Fire Department serves as the transporting Advanced Life Support (ALS) Ambulance for a 765 square mile Ambulance Service Area (ASA). The rural district stretches from the valley floor to the ridgeline of the Coast Range foothills. It is a mix of residential, cultivated agriculture, and forestlands.

Residential growth within the city has been consistent for the past several years, with primary areas of growth south, west, and north of the City. Rural district growth has been greatest in the Rural Residential zoning north of Corvallis.

Issues of Concern

Access and water supply have been topics of concern in the Corvallis district. The Skyline West area, annexed in the late 1980s, has long posed concerns for the Department: one-way-in-one-way-out access of inadequate width, and the absence of fire hydrants to serve a forested subdivision of 220 homes. In 2016 the community, with the assistance of CFD, addressed wildfire safety issues throughout the subdivision, becoming a recognized Firewise Community. A second egress route is currently in planning stages, providing emergency access to Oak Creek Drive.

Since the 2009 adoption of the original CWPP, outreach and education efforts of Oregon Department of Forestry and local fire districts have resulted in the recognition of three additional subdivisions in the Corvallis Rural Fire District as Firewise Communities: Vineyard Mountain, Ridgewood Estates, Chinook District, and Oakwood Heights.

Access and egress, which encompasses bridge and road standards, and rural water supply remain significant concerns for new and existing developments. The adoption of a WUI Code and consistent Code adoption and application statewide needs to be addressed. When providing mutual aid to surrounding jurisdictions Corvallis Fire needs to be able to continue to address normal calls for service and maintain transport ambulance availability for the Ambulance Service Area. Corvallis Fire would also like to see a renewed public education effort to inform property owners of the steps they can take to mitigate hazardous conditions on their properties.

HOSKINS-KINGS VALLEY RURAL FIRE PROTECTION DISTRICT



District Summary

The Hoskins-Kings Valley Rural Fire Protection District (HKV-RFPD) covers about 30 square miles of northwestern Benton County. The District contains approximately 175 households and a population of about 500 scattered throughout a mix of timberland and farmland. The District currently has 12 - 15 volunteers that provide a combination of fire suppression and EMS services.

Issues of Concern

The Kings Valley area is in danger of a large wildland/interface fire. There are many homes in a wildland setting and very few access points. The District is working on establishing water sites every 5 miles to provide adequate water resources throughout the entire area.

MONROE RURAL FIRE PROTECTION DISTRICT



District Summary

The Monroe Rural Fire Protection District is a combination fire department with a force of 25 - 30 volunteers and one paid position. The current population of the fire district is approximately 3,500, with the city of Monroe being approximately 850 of that total population. The District provides emergency medical services, fire protection and hazardous materials response for the communities of Monroe, Alpine, Bellfountain and a surrounding rural area of approximately 84 square miles. The fire district maintains three stations with the primary station located in Monroe, and sub-stations in the communities of Alpine and Bellfountain. The fire district maintains a continuous program of fire prevention & suppression along with medical intervention including CPR training and public education within the community.

Issues of Concern

Residential growth has been primarily outside the Monroe city limits in the rural area and is generally on 1 to 5 acre parcels. There is currently a developer in negotiations with the city to place a 250 home development within the city limits of Monroe, which would add approximately another 750 people to the total fire district population.

Within the State of Oregon, fire districts are forced to operate under tax limitation measures 5 and 47/50. These measures either limit our ability to increase the taxable income or limit our ability to increase taxable income through new tax levies. This combined with the increasing costs of fuel, vehicle replacement, maintenance, equipment, and training have made the financial aspects of running a fire district extremely challenging today and impossible in the near future.

Staffing of the fire district is another challenge, with decreasing volunteer involvement, the rise in calls for help, and financial constraints making it difficult to maintain the District's current level of service and operations standards.

PHILOMATH FIRE & RESCUE



District Summary

Philomath Fire and Rescue is a combination city and rural department consisting of seven career firefighting staff, a paid Administrative Assistant, ten resident volunteers, and twenty-five District and Community volunteers. The District is 58 square miles and has a population of approximately 8,500, with a 2015 population of 4,650 within the City Limits. The district runs from the western edge of the valley floor to the foothills of the Coast Range; and the district's main station is in downtown Philomath. Two additional substations are located in Wren, five miles west on US Highway 20, and on Llewellyn Road five miles south of Philomath. Philomath Fire and Rescue responds to fire and EMS calls and provides public education and Community Risk Reduction functions. Philomath Fire & Rescue provides automatic aid for all fire and EMS calls within the Blodgett-Summit and Hoskins-Kings Valley Rural Fire Protection Districts.

Issues of Concern

Increased residential building in the rural parts of this district has led to areas and properties with poor access in the event of an emergency, due to single-access subdivisions and unrated bridges of questionable construction. The residential subdivision of Pioneer Village was the County's first recognized Firewise Community (2011), and continues to maintain high awareness of wildfire issues. The community of Wren is also a designated Firewise Community (2016) and has a standing Emergency Planning Committee made up of local citizens. Several limited access neighborhoods exist in the Philomath district, and planning for secondary access will continue.

In 2016 Philomath's main station implemented seismic upgrades. Like many local districts, volunteer recruitment, training, and retention are an ongoing challenge.

OREGON DEPARTMENT OF FORESTRY – WEST OREGON DISTRICT



District Summary

The West Oregon District, which contains three unit offices (Philomath, Dallas, Toledo), is one of five districts within the Northwest Oregon Area.

The District provides forest fire prevention, detection, and suppression on approximately 1.1 million acres of forestland in portions of five counties (Benton, Lincoln, Polk, Tillamook, and Yamhill), 285,000 acres of which is in Benton County; contributes to a complete and coordinated forest protection system on a local and statewide basis; provides for cooperative work to public and private landowners to supplement the fire protection system; provides for environmental protection on commercial forestland through the administration of the Forest Practices Act; administers assistance programs to private forestlandowners through the Private Forests Program; and intensively manages 37,672 acres of State Forestland. The Oregon Department of Forestry does not provide any structural protection.

The District accomplishes this work with a biennial budget of approximately \$10.2 million and employment of 23 permanent and 24 seasonal and temporary employees.

The District is able to cover the majority of the service area with a four repeater radio system: Marys Peak, Euchre Mountain, Hebo Mountain, and Prairie Peak.

The West Oregon District has mutual aid agreements with all seven rural fire protection districts in Benton County as well as a closest forces agreement with the Siuslaw National Forest.

Issues of Concern

Changing weather patterns have increased the length and severity of fire season across the state. It is becoming more common for wildfires to occur before seasonal fire crews begin work in the spring, and after fire crews end in the fall. Fire suppression is more difficult due to a lack of capacity in these colder season months.

OREGON STATE UNIVERSITY RESEARCH FORESTS



Forest Summary

The OSU Research Forests on the outskirts of the Corvallis community total about 11,500 acres comprised of the McDonald, Dunn and Cameron Forests. The Research Forests are used for teaching and research, income, and recreation by the community. They also provide important wildlife habitat and are the water sources of several creeks and streams. Timber is harvested on a sustainable basis and provides income to the College of Forestry to support teaching and research initiatives. The OSU Research Forests are a prime example of a sustainable “working forest.” Because of their close proximity to the City of Corvallis, the Forests receive approximately 155,000 non-motorized recreation visits each year, mostly on the McDonald Forest. The Forests are surrounded by several WUI communities and subdivisions, especially around the McDonald Forest. In 2015, Vineyard Mountain Estates residents, Oregon Department of Forestry, Benton County Public Works, and the OSU Research Forest collaborated to construct an egress route for residents through the Forest from the end of Cardinal Drive.

Issues of Concern

Wildfire is a huge concern for the Research Forests because of the many long-term research projects, recreational values, and potential loss of forest cover. Currently, the Research Forests depend on the Oregon Department of Forestry for initial attack on any fires. Research Forest staff members have hand fire tools in all vehicles and are trained on how to use them, but the University possess no pumpers or other fire-fighting apparatus. Thus, Research Forest staff members provide a support role when a wildfire breaks out.

There are two major areas of concern. The first is the high population of WUI residents that surround the Research Forests. Carelessness and resultant fire starts in the WUI could readily spread into the Forests since much forested land is directly uphill from these residential areas. The Timber Hill Fire of 2014 is a good example of this potential threat.

In recent years, the Oregon Department of Forestry has been working with homeowners to conduct fuel reduction projects in the WUI adjacent to the Forests. The Research Forests are in the process of evaluating fire risk on their perimeters with the goal of conducting fuel reduction on the Forests’ side to complement the fuel reduction work going on by adjacent homeowners. However, not all adjacent landowners may be supportive of fuel reduction on the Forests side because it may affect the aesthetics in their back yards.

The second area of concern is the number of recreational users. The OSU Research Forests welcome recreational uses on the Forests. Fires and smoking are not allowed on the Forests. A majority of recreationists abide by these rules, but remnants of party fires, fireworks, and cigarette butts on hiking trails and other places regularly found. In July 2016, the Peavy Fire erupted on the McDonald Forest, burning 3.5 acres. It was a human-caused wildfire with the potential to put the rest of the Forest at risk as well as threaten homes and property in the adjacent WUI. Although this was a human-caused fire, the quick action by nearby hikers who called it in kept the fire small.

SIUSLAW NATIONAL FOREST



Forest Summary

The Siuslaw National Forest is approximately 630,000 acres. It is located along the Oregon Coast from Tillamook to Coos Bay and extends into the coast range. The Forest spans eight different counties. In Benton County, there is approximately 18,000 acres of Forest Service land.

The Forest has two districts, the Central Coast Ranger District and the Hebo Ranger District. The Forest has fire personnel and equipment located at three Stations: Hebo, Alsea (Benton County), and Mapleton. Resources are shared as needed across the Forest and the Forest has a cooperative agreement with OREGON DEPARTMENT OF FORESTRY for initial attack.

Issues of Concern

These issues echo concerns of the Oregon Department of Forestry. Changing weather patterns have increased the length and severity of fire season across the state. It is becoming more common for wildfires to occur before seasonal fire crews begin work in the spring, and after fire crews end in the fall. Fire suppression is more difficult due to a lack of capacity in these colder season months.

CITY OF CORVALLIS WATERSHED



Forest Summary

The city of Corvallis owns 2,352 acres in the lower elevations of the Rock Creek Watershed, which covers approximately 10,000 acres on the northeast flanks of Marys Peak. In 2006, the City of Corvallis hired a consultant to assess the current forest conditions and work with the Watershed Commission and citizens to develop a stewardship plan for the city-owned lands in the watershed. The resulting document promoted forest health and ecosystem biodiversity while addressing current resources needs. Recommended management actions for the city's property includes: control of invasive species, improvement of wildlife habitat by creating snags and selective thinning of overstocked plantations and some middle-aged stands, establishment of an expanded reserve system to more effectively protect streams and other sensitive resources, improving fish passage through infrastructure, establishing a stream monitoring plan to study water quality issues, allowing non-motorized public access to Old Peak Road, and annual public tours of the City's forest to promote public involvement.

Issues of Concern

It is the policy of the City of Corvallis to protect their watershed lands from wildfire and to manage forest stands to reduce fire risk. The City has a policy of active suppression of any fires and cooperates with the Oregon Department of Forestry for fire protection and monitoring. To minimize fire hazards and risks, the water plant staff regularly mow roadsides and around facilities to reduce fine fuels, clear blow-downs on roads to maintain vehicle access, and patrol roads for trespass. Public access closure of the watershed eliminates the most probable cause of fires.

Although the Stewardship Plan calls for several fire preventative measures and immediate suppression of wildfires, there are no silvicultural recommendations for fuels modification or reduction. The city's watershed is critical to the community and should be protected from wildfire to the greatest extent possible. It is also imperative that neighboring landowners, including the U.S. Forest Service, take responsibility for wildfire protection as well to help prevent a fire moving from a neighboring property into the watershed or vice versa. The potential impacts of a large stand-replacing fire in this area could negatively affect the City of Corvallis via potential flooding, erosion, and degradation of water quality. A severe wildfire in this watershed could cause serious injury to this resource by removing vegetation, creating ash and sediments, and impairing soil properties. Mitigation treatments prior to a fire event are a high priority and are imperative to conserving the functionality of the watershed following a wildland fire.

West Oregon Forest Protective Association

Association Summary: The West Oregon Forest Protective Association (WOFPA) was formed when the former Benton County Fire Patrol, Lincoln County Fire Patrol, and Polk County Fire Patrol merged together in 1962. The earlier landowner fire patrol association began forming in the district as early as 1910.

WOFPA's primary objectives are the protection of forest resources within its area from possible damages caused by the destructive forces of fire and/or other causes as determined by vote of the Board of Directors and the achievement of effective communications with other organizations and agencies to ensure wise policy decision affecting forest protection.

To accomplish this, the WOFPA works with the West Oregon District to ensure an adequate budget is prepared to provide for the protection of their members' lands. The Association maintains a close liaison of public and private landowners and provides feedback to Oregon Department of Forestry on the protection services they provide.

Currently, the association is comprised of 33 landowner members and 5 affiliate members.

Firewise Communities



USA/Recognition Program

Since the 2009 adoption of the CWPP, seven communities have received Firewise Community recognition. One area is in the process of organizing one or multiple Firewise Communities – this is the Oak Creek Valley area.

The Firewise Community USA Recognition Program was created in 2002 to engage neighborhoods in preparing and protecting their homes against the threat of wildfire. This program is administered by the National Fire Protection Association (NFPA) and is co-sponsored by the USDA Forest Service and National Association of State Foresters. Individuals and communities participate on a voluntary basis. The program provides a collaborative framework to help neighbors in a geographic area get organized, find direction, and take action to increase the ignition resistance of their homes and community and to reduce wildfire risks at the local level. Any community that meets a set of voluntary criteria on an annual basis and retains an “In Good Standing Status” may identify itself as being a Firewise® Site. The program encourages ongoing self-directed efforts by involving residents in fuels reduction events and annual re-certification.

How does the Firewise USA® program work?

Organization

Neighbors form a board or committee that is comprised of residents and other applicable wildfire stakeholders, such as elected officials, the local fire department, state forestry agency, or emergency manager. This group collaborates on identifying the Firewise site’s boundary and size. Sites need to have a minimum of eight individual single-family dwelling units and are limited to a maximum of 2,500. Multiple sites can be located within a single large master-planned community/HOA.

Planning

The group obtains a written wildfire risk assessment from the state forestry agency or fire department. The assessment is a community-wide view that identifies areas of successful wildfire risk reduction and areas where improvements could be made. Emphasis is on the general conditions of homes and related structural ignition zones. The assessment is a living document and needs to be updated at a minimum every five years.

The group then develops an action plan, which is a prioritized list of risk reduction projects and investments for the participating site, along with suggested homeowner actions and education

activities that participants will strive to complete annually, or over a period of multiple years. Action plans should be updated at a minimum of at least every three years.

Approval

State liaisons approve applications, with final processing completed by the NFPA.

Community Investment

Each Firewise Community is required to annually invest the equivalent of one volunteer hour per dwelling unit in wildfire risk reduction actions per year.

Benton County's recognized Firewise Communities

(Dates indicate year of first certification)

Pioneer Village, 2011

Vineyard Mountain, 2011

Ridgewood Estates, 2012

Chinook, 2013

Skyline West, 2016

Wren, 2016

South Benton, 2021

This successful program has been utilized through the management of Oregon Department of Forestry with fuels reduction grant programs, and with financial assistance in annual chipping events provided by Benton County.