

## Chapter 1 - Introduction

### 1.1 What is a Community Wildfire Protection Plan?

The concept of the Community Wildfire Protection Plan (CWPP) was authorized and defined in Title I of the 2003 Healthy Forests Restoration Act (HFRA)<sup>2</sup>. The intention of the HFRA was to “(protect) communities, watersheds, and certain other at-risk lands from catastrophic wildfire, to enhance efforts to protect watersheds and address threats to forest and rangeland health, including catastrophic wildfire, across the landscape, and for other purposes.” Within that goal, the CWPP was created to increase coordination between local, state and federal entities in reducing harm from future wildfires.

The perceived value of CWPP’s has increased since 2003, as climate change and population growth in high-risk wildfire areas has made it increasingly difficult to manage wildfire risk through fire suppression. Coordinated, adaptive strategies have become more prominent, and programs and funding at all levels of government has increased to support mitigation – the actions undertaken to reduce risk *before* a disaster. Within the HFRA, the only required elements of a CWPP are to support multi-governmental coordination, and to address wildfire fuel management and the reduction of structural vulnerability to fire. Over time, CWPP’s in many jurisdictions have evolved in scope to include other ways of addressing risk.



Figure 1 - A diagram showing the four elements of the disaster cycle. This mitigation plan seeks to lessen the effects of future wildfire and wildfire smoke events before they occur.

A CWPP is a mitigation plan, meaning that it focuses on the long-term reduction of risk from future wildfire and wildfire smoke events. Actions in this plan may touch on response and preparation gaps, but specific operational procedures, for example, are located in response or operational plans. This plan is intended to maintain a focus on actions that can be identified and implemented before the next events occur, where they will hopefully reduce the loss to life, property, natural values, and infrastructure in those events.

Not only can mitigation planning save lives and property through pre-disaster action, it is an efficient way to spend money compared to reactive response. According to FEMA analysis, the implementation of

<sup>2</sup> <https://www.govinfo.gov/content/pkg/COMPS-1123/pdf/COMPS-1123.pdf>

mitigation strategies in Wildland Urban Interface (WUI)<sup>3</sup> areas saves three to four dollars over time for every dollar spent<sup>4</sup>.

Local Natural Hazard Mitigation Plans<sup>5</sup> (NHMP) also have chapters for wildfire and wildfire smoke risks. Those plans are larger and broader as they address multiple hazards. In Multnomah County, those plans identify the CWPP as a primary source for wildfire and wildfire smoke mitigation strategies and work in tandem for addressing risk and identifying grant opportunities. There is overlap in information between the plans, but compared to an NHMP, CWPP's address wildfire and wildfire smoke risk in more detail and develop intensive coordination between stakeholders focused on these specific hazards.

## **1.2 CWPP Purpose**

The specific mission and goals of this plan are identified later in this section. While CWPP's are only required under the HFRA to detail strategies for vegetative fuel treatment and structural wildfire protection, plans can be built out to take on a more holistic view of wildfire risk. The graphic below is from the [Fire Adapted Communities Learning Network](#)<sup>6</sup>, and shows how a large number of topic areas can be built into strategies for whole community resilience. This plan addresses almost all of these potential elements.

Creating a community that is more fire adapted is the purpose of the plan. CWPPs are becoming a more prioritized nationwide solution for mitigating wildfire risk, as risk reduction is most efficient when it is collaborative and implementable at the property level.

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<sup>3</sup> WUI areas are those where wildfire fuel intersects with development. This term is defined later in the document and used as a key element in mapping and analyzing wildfire risk.

<sup>4</sup> [Natural Hazard Mitigation Saves Interim Report](#), FEMA, June 2018

<sup>5</sup> The 2017 Multnomah County Multi-Jurisdictional NHMP ([currently being updated](#)) addresses risk from all identified natural hazards in unincorporated Multnomah County and the Cities of Fairview, Gresham, Troutdale, and Wood Village and the Port of Portland and Columbia Corridor Drainage Districts. The City of Portland maintains its own plan, [updated in 2022](#) and called a Mitigation Action Plan (MAP).

<sup>6</sup> The Fire Adapted Communities network has been built over nearly 20 years to provide a clearinghouse of information to the public and local agencies. The webpage is also available in Spanish - <https://fireadapted.org/es/home-es/>

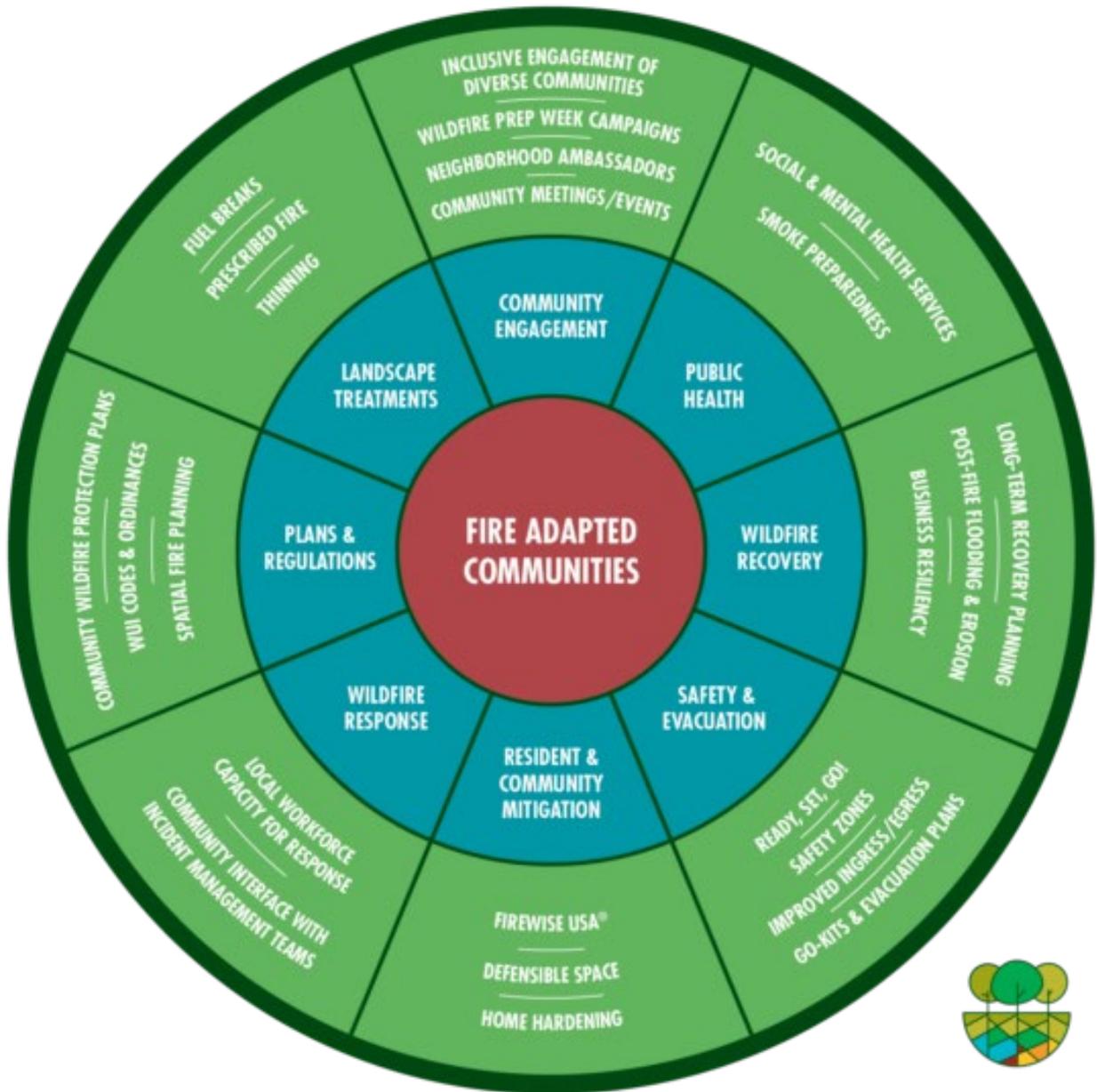


Figure 2 - Fire Adapted Communities Framework Graphic

### 1.3 How This Update Changes the 2011 Plan

The previous version of this plan was completed in July 2011. That plan was the first countywide wildfire protection plan in Multnomah County and originated from a Wildfire Planning Steering Committee formed in 2010. That committee grew from a [2009 Gap Analysis Report](#) published by the City of Portland to implement mitigation strategies identified within the City's Mitigation Action Plan. The 2011 plan addressed risk across Multnomah County and was developed in partnership with the Oregon Department of Forestry.

Some of the strategies originating from the 2009 report are still priorities in 2023. This does not necessarily indicate a lack of successful implementation, as many wildfire and wildfire smoke risk-reduction strategies are long-term and ongoing. Updates to this plan recognize the increased risk and urgency to respond to these hazards as well as to create a more complete evaluation of risk and vulnerability, restore countywide coordination among mitigation planning partners, and identify updated mitigation strategies based on the most up-to-date research and data.

#### *Significant changes to the plan:*

- The addition of a Wildfire Smoke section is the most significant change, as this hazard was not addressed in the 2011 plan. The need for more information sharing and collaboration around wildfire smoke risk had been identified as a gap in local Natural Hazards Mitigation Plans.
- The wildfire risk chapters now uses mapping data collected as part of the Pacific Northwest Quantitative Wildfire Risk Assessment (PNW-QWRA), first published in 2018. The 2011 plan combined data available at that time from different sources to create original risk maps. The 2018 PNW-QWRA data is considered to have superseded that data and is expected to itself be superseded by new statewide mapping released later in 2023.
- This plan includes a more extensive consideration of how risk is being altered by climate change and population growth, and how wildfire and wildfire smoke mitigation efforts should be implemented equitably.
- Chapters have been slightly reorganized to better reflect priorities captured at stakeholder meetings. Mitigation strategies are assigned to a single implementing public agency, rather than having actions with responsibility shared by multiple entities. It is hoped that this change will make implementation strategy more clear and will recognize that strategies are more likely to be successful when scaled to the different resources available to fire districts and city and county agencies.

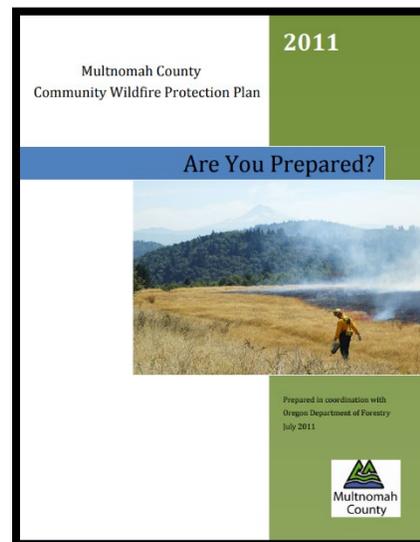


Figure 3 - 2011 Multnomah County CWPP Cover

## ***1.4 Why is the Plan Being Updated Now?***

- The last six years have been a particularly dynamic period of wildfire and wildfire smoke impact in Multnomah County. The 2017 Eagle Creek Fire and the 2020 September Wildfire Smoke Event were catastrophic-level events that have dramatically indicated the need for ongoing planning and coordination among wildfire and wildfire smoke management partners. Concern at the local, state and Federal level is creating new frameworks and funding for mitigating wildfire and wildfire smoke risk that require a current plan to meet effectively.
- The Eagle Creek Fire led to a FEMA post-disaster grant<sup>7</sup> funding that was used to partially fund the update to this plan.
- As noted above, data used in the 2011 version of the plan has been superseded by newer studies, requiring a revised risk assessment.
- Ten years was already seen as an appropriate timeline for plan revision, based on the changes to urban and natural landscapes over that time and shifting prioritizations of risk and vulnerability. At the time the project began, however, there were no requirements or incentives for communities to update their CWPPs on any set timeline. A new grant established in 2022 is the first to require CWPPs be less than ten years old, creating an additional incentive for meeting that plan revision timeline.

## ***1.5 How this CWPP Update is Organized***

The first four chapters of the plan address information related to both wildfire and wildfire smoke, including a brief county profile, description of the update process, regulatory and policy information, and plan implementation goals.

Once the plan moves to defining risk and mitigation strategies, it is divided into separate sections for wildfire and wildfire smoke. This organization is due to the different scope and probability of future impacts between the hazards, and the different stakeholder groups that were involved in developing plan information for each hazard.

While there is some crossover between stakeholder groups, the wildfire portion is most focused on strategies of fire districts and local government land management agencies, while wildfire smoke has a stakeholder group more focused on public health, human services and environmental quality.

Within **the wildfire section**, subsections are organized first by seven plan topic areas, with mitigation strategies classified by each topic for all districts/jurisdictions. This organization is intended to enhance coordination between participating entities that may have similar strategies. The seven topic sections are:

- Organizational Collaboration
- Data and Risk Assessment
- Community Engagement and Resilience Building
- Structural Ignitability

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<sup>7</sup> Fire Mitigation Assistance Grant (FMAG) 5195-6

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- Land and Vegetation Management
- Fire Prevention
- Operational Coordination and Capacity

The next section is also divided into sections for each participating fire district and their associated participating city agencies and the county, which includes a description of communities at risk and priority fuel treatment locations in those locations. Each of these subsections also lists mitigation strategies where that fire district or jurisdiction is the lead. This second listing of strategies is intended to make it easier for each entity and their constituents to track local mitigation priorities.

### Multnomah County Fire Districts and Jurisdictional Partners:

- Cascade Locks Fire
- Corbett Fire (formerly known as Rural Fire Protection District #14)
- Gresham Fire (Including protection services for the Cities of Fairview, Troutdale, and Wood Village, and for Rural Fire Protection District #10)
- Lake Oswego Fire (Including protection services for Riverdale Rural Fire Protection District #11 and the Alto Park Water District)
- Multnomah County
- Portland Fire and Rescue (including protection services in coordination with the Port of Portland)
- Sauvie Island Fire
- Scappoose Fire
- Tualatin Valley Fire and Rescue

Because wildfire smoke risk occurs roughly equally across the entirety of Multnomah County, **the wildfire smoke section** does not break out sections by geography. A Wildfire Smoke Subcommittee developed mitigation strategies through the identification of six guiding priorities, which are how strategies are organized.

1. Preparedness- Actions taken before a wildfire smoke incident to help reduce impacts of the smoke.
2. Community Partnership- Actions that involve engaging with and getting feedback from the community or the organizations that serve the community.
3. Community Outreach- Actions in which information or resources are provided to the community.
4. Caring for the Most Vulnerable- Actions that specifically help to mitigate impacts of wildfire smoke on the populations most sensitive to wildfire smoke.
5. Safety/Shelters- Actions specifically related to emergency shelter spaces and life safety resources and procedures.
6. Collaboration and Coordination- Actions involving multiple agencies or organizations working together.

### ***Using the Maps in this Plan***

Many of the maps included in this plan come from interactive map websites, and can therefore be used to locate elements of risk down to the property level. The static maps in the plan can be used for an overall dimension and location of risk, but it is recommended plan readers use the linked sites to be able to view risk in different ways and at different scales.

Maps which have an interactive web link available to the public have a link at the top. Within the link, the layers used for that map are shown. Example - [Interactive version of this map – \(Administrative Boundaries - Land Management/Ownership\)](#)

To access this data, one should follow the link and then use the named layers to create the map. The maps in this plan typically use a layer at the second level of data organization – click the box for the first layer and then open sub-layers in that category by clicking the arrow to the left of the box.

Not all of the maps have the same interface, but are all ArcGIS Online maps and use the same symbol to open layers, shown to the right. Clicking on this icon will open a panel that will show the layers needed to recreate a map.



The primary interactive mapping applications used in this volume are:

- [Oregon CWPP Planning Tool](#) – Statewide wildfire risk mapping layers, hosted by the Oregon Department of Forestry and Oregon State University. To access layers, first click on the ‘Go To Layers’ button.
- [Oregon Wildfire Risk Explorer](#) – A simplified version of the Oregon CWPP Planning Tool. Not all layers included in this plan are part of this mapping application, but it has been designed to be a version that is easier to navigate and identify and display risk at the property level.
- [Oregon Fire Stations and Fire Districts](#) – A statewide viewer hosted by the Oregon state Fire Marshal showing structural fire protection boundaries and locations of fire stations.

## 1.6 Equitable Planning Goals

Equitable planning for future wildfire and wildfire smoke events requires an understanding of how different members of the community are affected differently by natural disasters. Equitable planning is a response to environmental and climate justice principles, where those with the least resources or barriers to government services are the least able to recover from climate-driven disasters. Social vulnerability increases the risk of catastrophic loss from natural disaster and solutions for mitigating social vulnerability and building community resilience may require multi-method, engaged, place-based approaches<sup>8</sup>. The Federal Emergency Management Agency (FEMA) released its first [Equity Action Plan in 2022](#) to work to reduce disparate impacts to underserved communities.

The location of future fires and exactly who will be the most directly affected cannot be fully anticipated, and building a resilient community requires moving away from one-size-fits-all solutions to find multi-dimensional approaches that recognize the different barriers that exist in accessing government services and resources. Evidence around the world shows that those with less resources and from groups historically underserved by government face greater impacts from wildfire and wildfire smoke, and planning must prioritize not increasing social and economic disparities with each new disaster.

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<sup>8</sup> [Social Vulnerability and Wildfire in the Wildland-Urban Interface – Literature Synthesis](#), Northwest Fire Science Consortium, M. Coughlan, A. Ellison, A. Cavanaugh, Fall 2019

Wildfire smoke is easily connected to disparate community impacts as a hazard that is not limited by geography. All county residents face health risks from wildfire smoke, but risks are highest among those who cannot access cleaner air spaces, have existing health risks, are old or young, and/or already live in areas with ongoing chronic poor air quality. Effective response to this hazard requires focusing services on those facing the highest risks.

Wildfire has a perception of being a hazard more likely to impact wealthier residents, and this is broadly true through much of the western United States, where the highest risk homes are often residences on large rural lots or vacation homes. Studies find that the environmental amenities of living in forests and the ability to purchase fire insurance facilitate the settlement of more financially advantaged families in areas with “moderate to very-high potential for high-intensity wildfires.”<sup>9</sup>

However, emphasis just on the highest risk areas neglects risks to less resourced communities that may not be surrounded by forest but are located in Wildland Urban Interface areas and are at risk from ember-driven structural fire caused by large wildfires. The Alameda Drive Fire in 2020 in southern Oregon is an extremely stark example of this possibility. In that fire, 65% of the destroyed homes were manufactured housing – a major proportion of local affordable housing – lost in a fast-moving wildfire that is believed to have displaced over 3,000 people, disproportionately members of the Medford region’s Hispanic community.

Rural areas of Multnomah County have a larger proportion of older adult residents who may have difficulty receiving alerts and evacuating their homes. Those with mobility limitations may have face greater challenges reducing fire risk on their properties.

And even in locations where residents generally have more financial resources, there will be some with fewer resources, renters, those with disabilities, those who may not speak English as their first language, unhoused residents and other community characteristics that may not be easily captured through census-tract level data analysis<sup>10</sup>.

Neighborhood engagement can help to identify specific needs at the individual property level, and a deeper analysis of locations of vulnerable sites such as group homes, care facilities, mobile home parks and unsheltered resident campsites is needed to fully understand these dimensions of unequal risk.

To ensure equity is addressed in this plan, actions should be continuously evaluated for their impacts in increasing or decreasing risk disparities.

## **1.7 Climate Change Effects**

Climate change is a major driver of wildfire and wildfire smoke risk. Although wildfire has always been a part of the ecology of this region and has been driven by naturally occurring drought cycles, there is scientific consensus that risk is rapidly being increased by warming

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<sup>9</sup> [The unequal vulnerability of communities of color to wildfire](#), *PLoS One*, I. Davies, R. Haugo, J.C. Robertson, P. Levin, November 2, 2018.

<sup>10</sup> The US Forest Service’s [Wildfire Risk to Communities](#) web site overlays census-tract social vulnerability information with wildfire risk data – although with different risk mapping measures than are used in this plan. This site is currently the most accessible available data for matching census tracts with higher rates of underserved populations with wildfire risk areas.

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temperatures. Information used for this plan to define increasing scope and intensity of wildfire and wildfire smoke events primarily comes from the [Sixth Oregon Climate Assessment](#), published in 2022 by the Oregon Climate Change Research Institute (OCCRI) at Oregon State University.

Climate change is shortening the return rate of wildfire by increasing the rate and severity of droughts, causing vegetation to dry more quickly during longer, hotter summers and extending fire seasons later in the year where they are more likely to coincide with extreme wind events. Higher elevations are becoming more susceptible to fire as they have become warmer and drier and have had declining snowpack that normally maintains moisture in vegetation as it melts through the summer.

The effects of climate change are visible when looking at the rise in Oregon acres burned by major fires year to year. Although there are other factors that may be contributing to these more active wildfire seasons, such as wildfire fuel buildup and increasing population living in high-risk areas, there is a directly understood link between warming temperatures and fire weather conditions<sup>11</sup>.

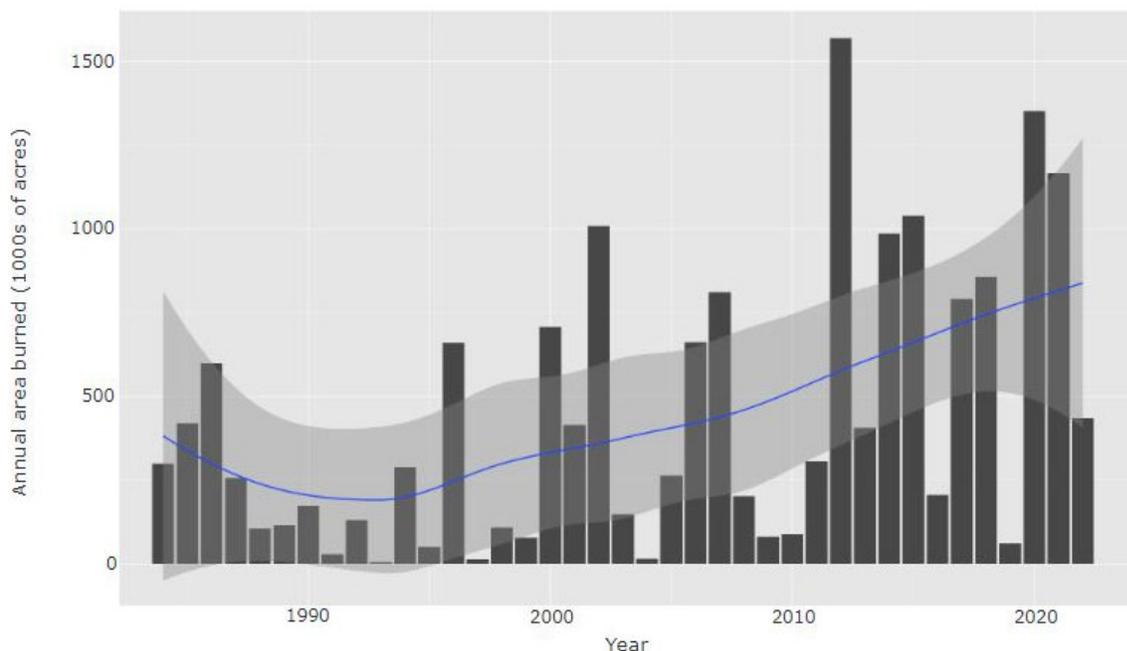
Vapor pressure deficit (VPD)<sup>12</sup> is a measurement of the air's ability to dry out vegetation and is a leading weather phenomenon linked to severe wildfire conditions. As the air becomes drier and windier it causes plants to have to draw more water from the ground, further reducing the amount of moisture in the soil. Climate change has been found to be the cause of between 66-90% of the increase in VPD and subsequent drying conditions that have contributed to major fire seasons<sup>13</sup>.

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<sup>11</sup> [Wildfire climate connection](#), National Oceanic and Atmospheric Administration

<sup>12</sup> [The role of vapor pressure deficit in wildland fire](#), Wildfire Today, Bill Gabbert, January 26, 2015.

<sup>13</sup> [Quantifying contributions of natural variability and anthropogenic forcings on increased fire weather risk over the western United States](#), *Proceedings of the National Academy of Sciences of the United States of America*, Y. Zhuang, R. Fu, B. Santer, A. Hall, November 1, 2021.



**Figure 1.** Annual area burned in Oregon from 1984–2022. Fires smaller than 988 acres (400 ha) were omitted. Data from Eidenshink et al. 2007 updated to October 2022 ([www.mtbs.gov](http://www.mtbs.gov)).

*Figure 4 - Chart from the Sixth Oregon Climate Assessment (OCCRI)*

It is believed that under a scenario where temperatures increase by 3.6 degrees Fahrenheit (two degrees Celsius), there will be a 50% increase in extreme autumn fire weather in western Oregon compared to the 1800s.

Other identified climate change factors that are increasing risk in Multnomah County are:

- An increase in nighttime temperatures
- Warmer temperatures during dry wind events
- Greater variations in annual rainfall, switching between drier winters that leave less moisture through the summer and wetter winters that cause an increased growth of grasses and small shrubs (fine wildfire fuels)
- Increases in tree mortality for species that require a higher water table<sup>14</sup>, and the introduction of new diseases and pests

Increases in wildfire smoke events are magnified by the increase in wildfire risk across the entire region of western North America. Since wildfire smoke can cause chronic health impacts from fires even very far away, an increased number and scope of fires across the western region creates a cumulative increase in impact in Multnomah County. Increased wildfire activity is projected to double unhealthy smoke effects even under only a moderate climate change scenario and triple under a scenario where emissions continue on their current trend.

The smoke effects of the 2020 Oregon fire season was an event surpassing all previous expectations of smoke severity, but such events may become much more frequent. Less dramatic smoke events that still meet thresholds for unhealthy air were once unknown in

<sup>14</sup> Species [identified by Metro](#) as suffering die-offs include red alder, western red cedar and Douglas fir.

Multnomah County, but have occurred every five of the last seven summers through 2022, and are expected to only become more frequent as fire seasons continue to grow longer.

## **1.8 CWPP Mission and Goals**

The mission of this plan is to *collaboratively identify and implement strategies for reducing harm from future wildfire and wildfire smoke disasters before they happen.*

The goals identified to support this mission are to:

- Promote public awareness and understanding of wildfire and wildfire smoke risks by collecting multi-jurisdictional risk reduction analysis in one volume.
- Reduce risk to people, property, infrastructure, and the natural environment.
- Develop and maintain collaborative partnerships and funding goals for the implementation of wildfire and wildfire smoke mitigation strategies.
- Increase local resilience to disasters through adaptive strategies, community capacity building, and post-event recovery planning.
- Build long-term, implementable action plans that are responsive to increased risk from changing climate conditions and changes in community population, development, and demographics.
- Prioritize mitigation strategies based on the reduction of disparate impacts to those with barriers to government services and subsequent disaster resilience and recovery.