

## Chapter 4: Wildfire Risk Assessment

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Wildfire risk to forest lands and homes is inseparable. Forest fires can endanger and burn homes. Fires that start as structural fires can quickly spread to the forest. Although the threat of wildfire is not as great in Clackamas County as in other parts of the state, wildfire officials are cognizant of the growing potential. One of the core elements of the Clackamas Community Wildfire Protection Plan is developing an understanding of the risk and potential losses to life, property, and natural resources during a wildfire in order to identify and implement the most effective strategies for preventing losses from fire, while allowing natural fires to take their course in shaping a more healthy and sustainable forest.

The Healthy Forests Restoration Act, the National Fire Plan, FEMA's Disaster Mitigation Act of 2000, the National Association of State Foresters, and Oregon Department of Forestry provide guidance on conducting a hazard and risk assessment for wildfire. The CCWPP's wildfire risk assessment followed the methodology of the Oregon Department of Forestry. Geographic Information Systems (GIS) was used to analyze and integrate the spatial layers of information for fire hazard, risk, location of values, and protection capabilities. Structural vulnerability should be the final piece of this risk assessment, but couldn't be adequately mapped at a county-wide level and was to be assessed at the local plan level. The hazard layer was comprised of several additional layers including fuels, slope, and weather.

### Risk Assessment Objectives

- I. Develop and conduct a wildfire risk assessment to accurately portray vulnerable populations, property, and infrastructure.
- II. Utilize fire district boundaries to identify Communities-at-Risk (CARs), and encourage the identification of more detailed CARs during local planning processes
- III. Coordinate with fire districts to determine risk level of highly vulnerable and/or unprotected areas.
- IV. Develop a risk assessment at a level detailed enough to use in prioritizing fuels treatment and other fire prevention projects, but broad enough to encompass entire county.
- V. Develop a risk assessment that can be adapted to reflect changing forest conditions.
- VI. Develop an appropriate point distribution system for risk assessment (protection capability, structural vulnerability, values, etc.) consistent with fire district priorities.
- VII. Utilize state, county, and local data to create a seamless risk assessment that can be used as a foundation for fire districts can build their own more localized risk assessments for their community fire plans.

### Risk Assessment Accomplishments

The primary Risk Assessment Actions on which progress has been include:

- 1.) Improved the understanding of local wildfire risks.
  - ✓ Determined Local Communities at Risk and encourage the creation of Firewise Communities (Map #2)

- ✓ Refined Wildland Urban Interface Map (Map#3)
- 2.) Improved structural location data.
  - ✓ GPS units were used to capture structure locations in the vulnerable Wildland Urban Interface (Map #7).

## **Risk Assessment Priority Actions**

The Risk Assessment Action Plan has been updated since 2005 to reflect accomplishments and ensure that the action plan remains relevant to current issues (Table 1-1.2012 Clackamas CWPP Action Plan). The high priority risk assessment actions to be addressed by the wildfire planning team will be to:

- 1) Maintain and Update the Fuels Reduction and Communities at Risk Maps and databases.
- 2) Continue to track structural vulnerability data throughout the County through structural triage assessments.
- 3) Update the Overall Wildfire Risk Assessment as obtaining new data becomes possible. New vegetation data is needed in order to update the fuel hazard layer which is critical to the overall risk assessment.

## **Communities at Risk**

Different scales of CAR's are necessary to direct large-scale State and Federal planning efforts as well as local outreach projects. The Clackamas CWPP addresses wildfire hazards county-wide (not just those areas in close proximity to state or federal lands) and as such, identified each local fire district or department as individual Communities at Risk.

### **Local Communities at Risk/ Strategic Planning Area**

Clackamas CWPP partners also acknowledge that there are locally recognized Communities at Risk that have unique wildfire hazards to be addressed at the more local scale. Communities that have been identified as being particularly vulnerable to wildfires are illustrated in Map # 2 CWPP Communities at Risk and in the individual fire district maps. Map #2 also shows Active and Inactive Firewise Communities. The Communities at Risk are also listed in Table 4-1. Fire professionals considered the following factors to determine the local CARs including:

- Need for defensible space
- Access limitations (narrow driveways, lack of address signage, one way in/one way out)
- Steep slopes that can hinder access and accelerate the spread of wildfire
- Lack of water available for wildland fire fighting
- Heavy fuels on adjacent public lands
- Potential ignition sources from recreationists and transients
- Agricultural and backyard burning
- Lack of community outreach/awareness
- Communication issues

**Table 4-1. Local Communities at Risk in Clackamas County**

<b>Aurora Fire District</b>	<ul style="list-style-type: none"> <li>• Eilers/ Myley Rd.</li> <li>• Butteville Road</li> </ul>	<ul style="list-style-type: none"> <li>• Whiskey Hill/ Meridian Rd.</li> <li>• Cedarbrook Lane</li> </ul>
<b>Canby Fire District</b>	<ul style="list-style-type: none"> <li>• Adkins Circle</li> <li>• Sundowner</li> <li>• Dutch Vista/ Madrona</li> <li>• Public Works Infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• North Side Molalla River Bluff</li> <li>• South End</li> <li>• Molalla State Park</li> </ul>
<b>Clackamas County Fire District #1</b>	<ul style="list-style-type: none"> <li>• Forest Park/ Leisure Woods</li> <li>• Diane Drive Shelly Rd.</li> <li>• Redland Rd./ Fishers Mill Area</li> <li>• Clarkes/ Beavercreek</li> </ul>	<ul style="list-style-type: none"> <li>• Scouters Mountain</li> <li>• Mount Talbert</li> <li>• Holocomb</li> <li>• 3 Creeks</li> <li>• Beaver Lake</li> </ul>
<b>Colton Fire District</b>	<ul style="list-style-type: none"> <li>• Deardorf</li> <li>• Boomer Springs/ Schieffer</li> <li>• Walton/ Tiffany</li> <li>• Fernwood/ Young Road Area</li> </ul>	<ul style="list-style-type: none"> <li>• Dhooghe</li> <li>• Holt Rd.</li> <li>• Hunter Rd.</li> <li>• Ellwood Engstrom Area</li> </ul>
<b>Estacada Fire District</b>	<ul style="list-style-type: none"> <li>• Garfield/ Porter Community/ Eagle Creek Youth Camp</li> <li>• Dodge/ Hillock Burn Area</li> <li>• George Community</li> <li>• Paradise Park, Twin Island, Star Rd.</li> </ul>	<ul style="list-style-type: none"> <li>• McIver Park, Parkview, Riverlake Community</li> <li>• Metzler Park</li> <li>• Ranger Woods</li> <li>• Silver Fox RV Park</li> <li>• Redland Rd./ Viola Area, Fellows Rd.</li> </ul>
<b>Gladstone Fire Department</b>	<ul style="list-style-type: none"> <li>• Parkway Woods</li> <li>• Billy Goat Island</li> <li>• Dahl Beach</li> </ul>	<ul style="list-style-type: none"> <li>• Risley Wetlands</li> <li>• Meldrum Bark Park</li> </ul>
<b>Hoodland Fire District</b>	<ul style="list-style-type: none"> <li>• Government Camp/ Summit Meadows</li> <li>• USFS Summer Homes</li> <li>• Rhododendron/ Zig Zag/ Woodland</li> <li>• Lolo Pass</li> <li>• Marmot</li> </ul>	<ul style="list-style-type: none"> <li>• Cherryville/ Alder Creek</li> <li>• Welches/ Wemme</li> <li>• Barlow Trail (Timberline Rim Division 1-4)</li> <li>• Brightwood/ Sleepy Hollow (Timberline Rim Div. 5)</li> </ul>
<b>Lake Oswego Fire Department</b>	<ul style="list-style-type: none"> <li>• Iron Mountain Bluff</li> <li>• Palisades</li> <li>• Cooks Butte</li> <li>• Mountain Park</li> </ul>	<ul style="list-style-type: none"> <li>• Tryon Creek State Park</li> <li>• Spring brook Park</li> <li>• Waluga</li> </ul>
<b>Molalla Fire District</b>	<ul style="list-style-type: none"> <li>• Rosewood</li> <li>• Alder Creek</li> <li>• Sawtell/ Trout Creek/ Lebo/ Novak/Hardy/ Maplegrove Rd. Area</li> <li>• Dickey Prairie Rd.</li> </ul>	<ul style="list-style-type: none"> <li>• Fernwood/ Ramsby/ Munson/ Callahan Rd. Area</li> <li>• Blue Road</li> <li>• Big Rock Loop</li> <li>• Royal Oaks</li> <li>• Molalla Heights</li> </ul>
<b>Sandy Fire District</b>	<ul style="list-style-type: none"> <li>• Wildcat Mountain</li> <li>• Cedar Creek/ Sandy Rim</li> </ul>	<ul style="list-style-type: none"> <li>• Firwood</li> <li>• Bull Run Area</li> </ul>
<b>Silverton Fire District</b>	<ul style="list-style-type: none"> <li>• Boy Scout Camp</li> <li>• South Butte Creek Rd.</li> <li>• South Maple Grove</li> <li>• South Wildcat Rd.</li> </ul>	<ul style="list-style-type: none"> <li>• Marquam Circle Area</li> <li>• Groshong Rd.</li> <li>• Prospect</li> </ul>

<b>Tualatin Valley Fire District</b>	<ul style="list-style-type: none"> <li>• I-205 Corridor</li> <li>• Ladd Hill</li> <li>• Wilderness Park/ Camassia Park</li> <li>• Skyline Ridge</li> <li>• Mary S. Young Park</li> <li>• Burnside Park and Maddax Woods</li> <li>• Buck/ Barlow Open Space</li> <li>• Wildwood Open Space</li> <li>• Wilson Creek Natural/ Rosemont Area</li> </ul>	<ul style="list-style-type: none"> <li>• Hidden Springs</li> <li>• Robinwood Park</li> <li>• Boeckman Creek</li> <li>• Frobase Rd.</li> <li>• Prospertiy Park/ Borland Rd.</li> <li>• Hill Top Rd./ Sunnyslope</li> <li>• White Oak Savannah</li> <li>• Wheatland Rd. Area</li> <li>• Frog Pond/ Newland Creek</li> <li>• Petes Mountain</li> </ul>
<b>Unprotected Lands</b>	<ul style="list-style-type: none"> <li>• Ripplebrook Guard Station</li> <li>• Timberlake Job Corps</li> <li>• 3 Lynx</li> <li>• Joe Graham/ Clackamas Lake Guard Station</li> <li>• Elk Prarie</li> <li>• Upper Sawtell Unprotected</li> </ul>	<ul style="list-style-type: none"> <li>• East Highland</li> <li>• Wapinitia</li> <li>• Lower Highland</li> <li>• Ramsbey Unprotected</li> <li>• Laid Rd.</li> <li>• Butte Creek Unprotected</li> </ul>

## Wildland Urban Interface (Map #3)

The 2012 Clackamas CWPP risk assessment subcommittee used the federal register and HFRA's guidance for determining the WUI. In an effort to identify the areas where "humans and their development intermix with wildland fuel," they identified the areas that have an urban density of at least one structure per forty acres *and* have hazardous fuels (Fuel Type III: tall flammable grass, heavy flammable brush, or heavy timber).

### Overall Wildfire Risk

The Overall Wildfire Risk Assessment is shown in Map #4. The primary landscape-level change would be additional development in the WUI, which is captured in the Wildland Urban Interface Map. The data used to determine the Overall Wildfire Risk Assessment are outlined in Table 4-2.

**Table 4-2. Risk Assessment Elements**

The Assessment considers four categories in determining the relative severity of fire risk. Structural Vulnerability is a fifth category that will be examined in local plans but is not considered at the state or county level due to limited available data.

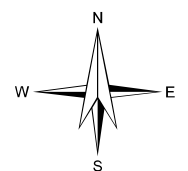
<b>Assessment Categories</b>	<b>Elements</b>
Hazard	Fuels (developed from vegetation information), Slope, Aspect, Elevation, Weather
Risk	Historic Fire Occurrence (derived from state and federal fire agency databases) and an estimation of ignition risk based on expert opinion and home density
Values	Life/Property as determined by home density (homes per 10 acres) and community infrastructure
Protection Capability	Fire Response Time (determined from fire district boundaries and district-reported response times) and Community Preparedness
Structural Vulnerability	Roof type, Defensible space, and Access

# CCWPP Communities at Risk 2017

-  Communities at Risk
-  Fire Districts
-  Oregon Department of Forestry
-  Mt Hood National Forest
-  City Boundaries
-  Firewise Communities - Active
-  Firewise Communities - Not Active

Fire agencies identified local Communities at Risk as those being particularly vulnerable to wildfires due to access, water, communications, terrain, ignition sources, public awareness and heavy vegetation.

## Map #2



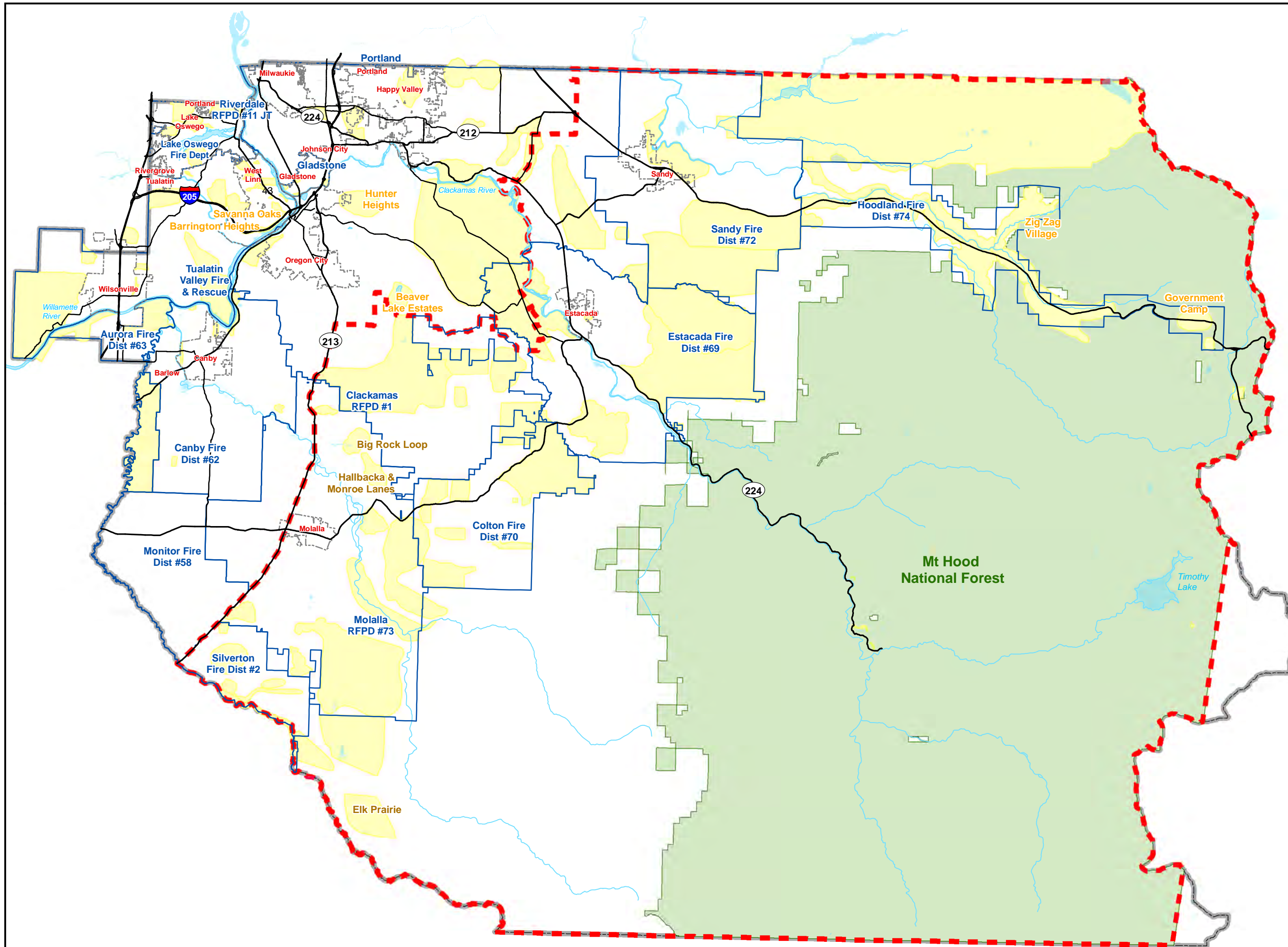
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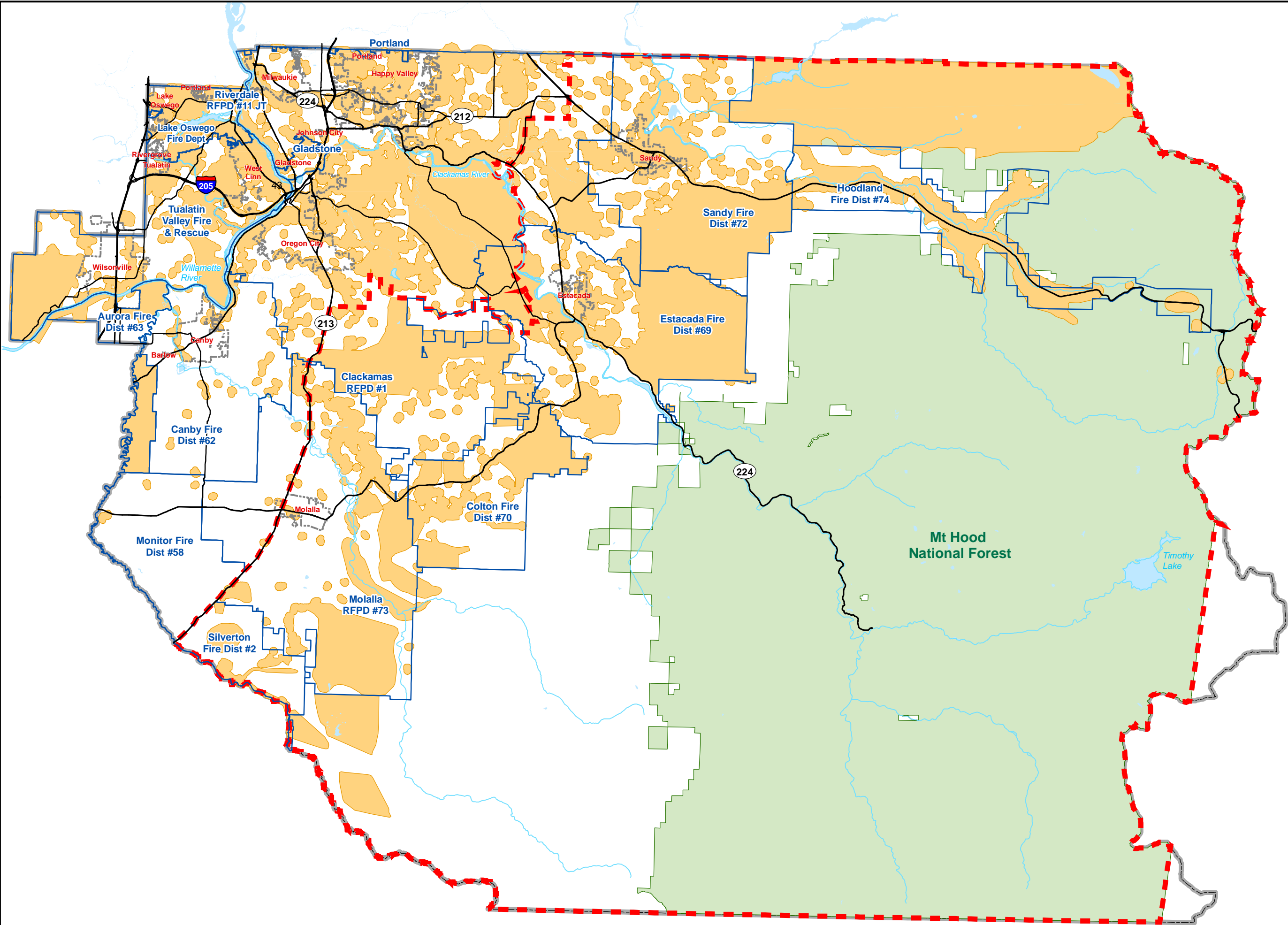
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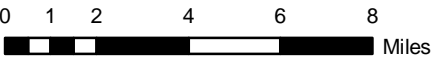
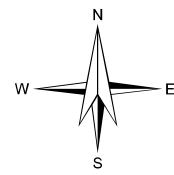


# Wildland Urban Interface (WUI) 2017

- WUI
- Fire Districts
- Oregon Department of Forestry
- Mt Hood National Forest
- City Boundaries

WUI areas contain 4 structures per 40 acres and are within Fuel Type III (tall flammable grass, heavy flammable brush, or heavy timber). Each area meeting these criteria had to be larger than 5 acres to be included. The resulting areas were buffered to 660' and some areas were expanded to include entire locally-defined Communities at Risk (CARs). WUI was not changed in 2017 due to insufficient new fuels data.

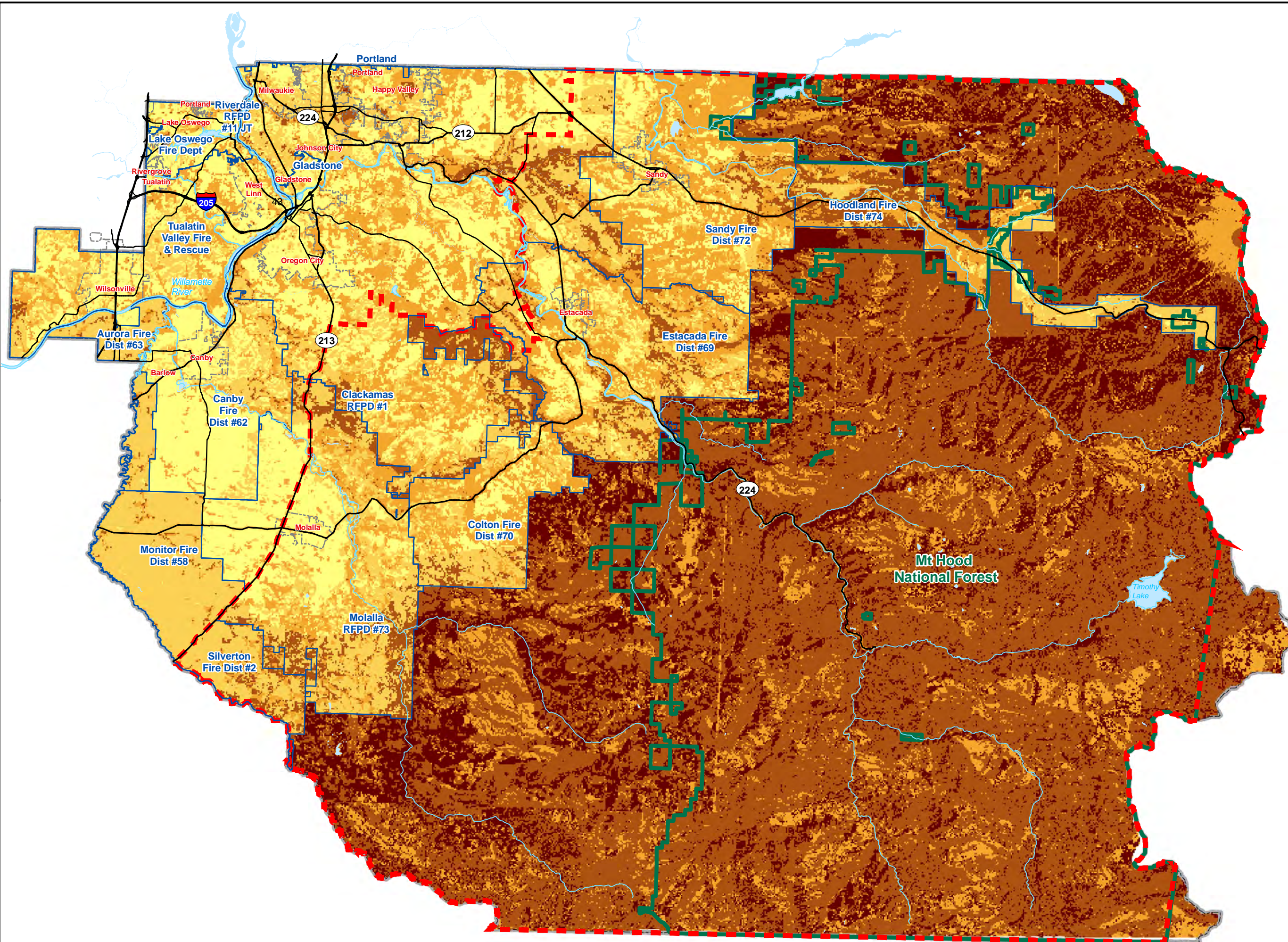
Map #3



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# Overall Risk of Wildfire in Clackamas County

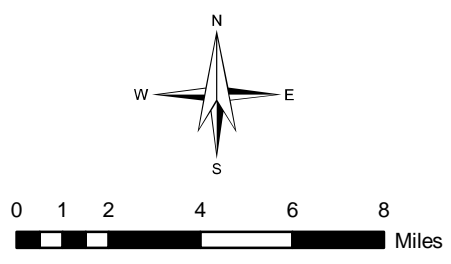
- Fire Districts
- Oregon Department of Forestry
- Mt Hood National Forest
- City Boundaries

## Overall Wildfire Risk

- Value
- Low
  - Low - Moderate
  - Moderate
  - Moderate - High
  - High

Overall Risk of Wildfire in Clackamas County determined from state-wide risk assessment model outlined in 2004 by the Oregon Department of Forestry using topography, weather, fuels, historic fire and ignition risk, community values and protection capabilities. Overall risk was not updated in 2017 due to insufficient new data.

## Map #4



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