



REVISED
CITY COUNCIL
May 17, 2022
Council Chambers • 411 SW 9th Street

**COUNCIL
MEMBERS**

George Endicott
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Jay Patrick
Council President

Krisanna
Clark-Endicott
Councilor

Clifford Evelyn
Councilor

Ed Fitch
Councilor

Shannon Wedding
Councilor

Cat Zwicker
Councilor

MAY 17, 2022

SPECIAL MEETING AGENDA

6:00 PM

I. CALL TO ORDER / ESTABLISH A QUORUM

II. PROCLAMATIONS

A. National Public Works Week

III. ACTION ITEMS

A. Authorize participation in the Oregon Department of Transportation's \$110,000,000 federal infrastructure grant opportunity and commit City matching resources in the amount of \$10,000,000.

IV. PRESENTATIONS

A. Fire Season Preview and Fireworks

V. OTHER BUSINESS

VI. ADJOURN

Regular Council meetings are broadcast live on COTV11 – BendBroadband Channel 11 beginning at 6:00 p.m. on the 2nd and 4th Tuesdays of each month. Rebroadcasts are scheduled for the non-meeting Tuesdays at 6:00 p.m.

The City of Redmond encourages all citizens to participate in its programs and activities. This meeting location is accessible to people with disabilities. Requests for accommodation may include sign language interpreter service, assistive listening devices, materials in an alternate format or any other accommodation. If any accommodations are needed, please contact the ADA Coordinator at 541-504-3036 or access@ci.redmond.or.us. Requests should be made as soon as possible, but at least 3 business days prior to the scheduled meeting.

The City of Redmond does not discriminate on the basis of disability status in the admission or access to, or treatment, or employment in, its programs or activities

City of Redmond PROCLAMATION

A proclamation designating May 15-21, 2022, as

NATIONAL PUBLIC WORKS WEEK

WHEREAS, public works services provided in our community are an integral part of our citizens' everyday lives; and

WHEREAS, the support of an understanding and informed citizenry is vital to the efficient operation of public works systems and programs such as water, wastewater, streets, parks, public buildings and cemetery; and

WHEREAS, the health, safety and comfort of this community greatly depends on these facilities and services; and

WHEREAS, those facilities and services could not be provided without the dedicated efforts of public works professionals; and

WHEREAS, it is in the interest of the public for citizens and civic leaders to understand the role that public infrastructure plays in:

1. Protecting the environment;
2. Improving public health and safety;
3. Contributing to economic vitality; and
4. Enhancing the quality of life of the community.

NOW, THEREFORE BE IT RESOLVED THAT Council hereby proclaims the week of May 15-21, 2022, as **NATIONAL PUBLIC WORKS WEEK** in the City of Redmond and supports the goals and ideals of National Public Works Week 2022 to be *"Stronger Together."*

APPROVED by the City Council and **SIGNED** by the Mayor this 17th day of May 2022.

The City of Redmond, Oregon

George Endicott, Mayor

ATTEST:

Trish Pinkerton, Assist. to the Recorder's Office



CITY OF REDMOND

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STAFF REPORT

DATE: May 17, 2022
TO: City Council
Keith Witcosky, City Manager
THROUGH: John Roberts, Deputy City Manager
Chuck Arnold, Economic Development/Urban Renewal Program Manager
FROM: Meghan Gassner, Urban Renewal Program Analyst
SUBJECT: Authorize participation in the Oregon Department of Transportation's \$110,000,000 federal infrastructure grant opportunity and commit City matching resources in the amount of \$10,000,000.

Addresses Council Goal:

- 1.B.i - SUSTAIN OPERATIONS: Explore opportunities to increase efficiencies and economies of scale through sharing of services and resources with other public agencies.
- 3.C - CITY INFRASTRUCTURE: Leverage General Fund revenues by exploring resource development opportunities, grants and other sources of revenue to address City's infrastructure needs.
- 4.D - ECONOMIC DEVELOPMENT: Invest in infrastructure on key opportunity sites that facilitates commercial and industrial site readiness.
- 6.E - COMMUNITY ENHANCEMENT AND PARTICIPATION: Beautify and improve the major transportation corridors within the city.
- 8.D - REGIONAL COOPERATION: Provide leadership and participation on efforts to pursue funding opportunities to implement the Council adopted US 97 Corridor Improvement Plan.
- 9.B - URBAN RENEWAL: Advance objectives in the South Highway 97 Urban Renewal Area including creation of an urban renewal advisory committee, staffing, and pursuit of leverage opportunities for projects and programs.

Report in Brief:

This item requests City Council authorize participation in the \$110,000,000 Oregon Department of Transportation (ODOT) application for a federal infrastructure grant opportunity in the amount of \$10,000,000. This grant will assist with mobility improvements to South Highway 97, Highway 126/9th Street, and SW 19th Street.

Background:

ODOT has requested the City partner with and support the submission of a grant application for the US 97 Redmond South Corridor Freight, Connectivity, and Multimodal Improvements Project (Project). The Project proposes to reconstruct the roadway from Veterans Way to Yew Avenue. Additional elements include improvements to OR 126 and SE 9th Street, as well as the extension of SW 19th Street south of SW Elkhorn Avenue. The grant funding is available via the Infrastructure Investment and Jobs Act (IIJA). The combined request is \$25,000,000 (\$10,000,000 City and \$15,000,000 urban renewal).

Discussion:

Planning for needed improvements to the US 97 corridor has been ongoing for over a decade. Years of public engagement and community outreach culminated in the development of the US 97 Facility Plan (Facility Plan, a.k.a. the South Redmond Corridor Project). The Facility Plan was approved by Council and the Redmond Urban Area Planning Commission on September 24, 2019, via an amendment to the City's Transportation System Plan, and was adopted by the Oregon Transportation Commission in 2022.

This Project incorporates the recommendations from the Facility Plan to improve safety, freight mobility, and multimodal connectivity throughout the US 97 and OR 126 corridors. Specifically, Project elements include: full-depth pavement reconstruction, new traffic signals, roundabouts, ADA improvements, new sidewalks, new protected bicycle lanes, and the extension of SW 19th Street and associated infrastructure south of the Fairgrounds.

Fiscal Impact:

The total cost of the Project is estimated to be \$110,000,000. For this grant application to be competitive, ODOT is requesting the City commit \$25,000,000 in local match dollars.

The \$25,000,000 would be split between \$15,000,000 in South 97 Urban Renewal funds and \$10,000,000 from the Transportation Fund (via System Development Charges and General Fund). Components of this project are included in the Transportation System Plan (TSP) and South 97 Urban Renewal Plan. The South 97 Urban Renewal match component is anticipated to be available over the next 5-10 years and the Transportation Fund match component over the next 5 years.

Project elements and cost estimate:

Project	Amount
US 97 Corridor reconstruction	\$75M
Hwy 126 improvements	\$3.2M
City route improvements	\$31.8M
TOTAL	\$110M

Project funding sources:

Source	Amount	%
State Match	\$5,000,000	5%
Local/City Match	\$25,000,000	23%
<i>Urban Renewal</i>	<i>\$15,000,000</i>	
<i>City CIP</i>	<i>\$10,000,000</i>	
Other Federal Sources	\$27,350,000	25%
Rural/INFRA Request	\$52,650,000	48%
TOTAL	\$110,000,000	100%

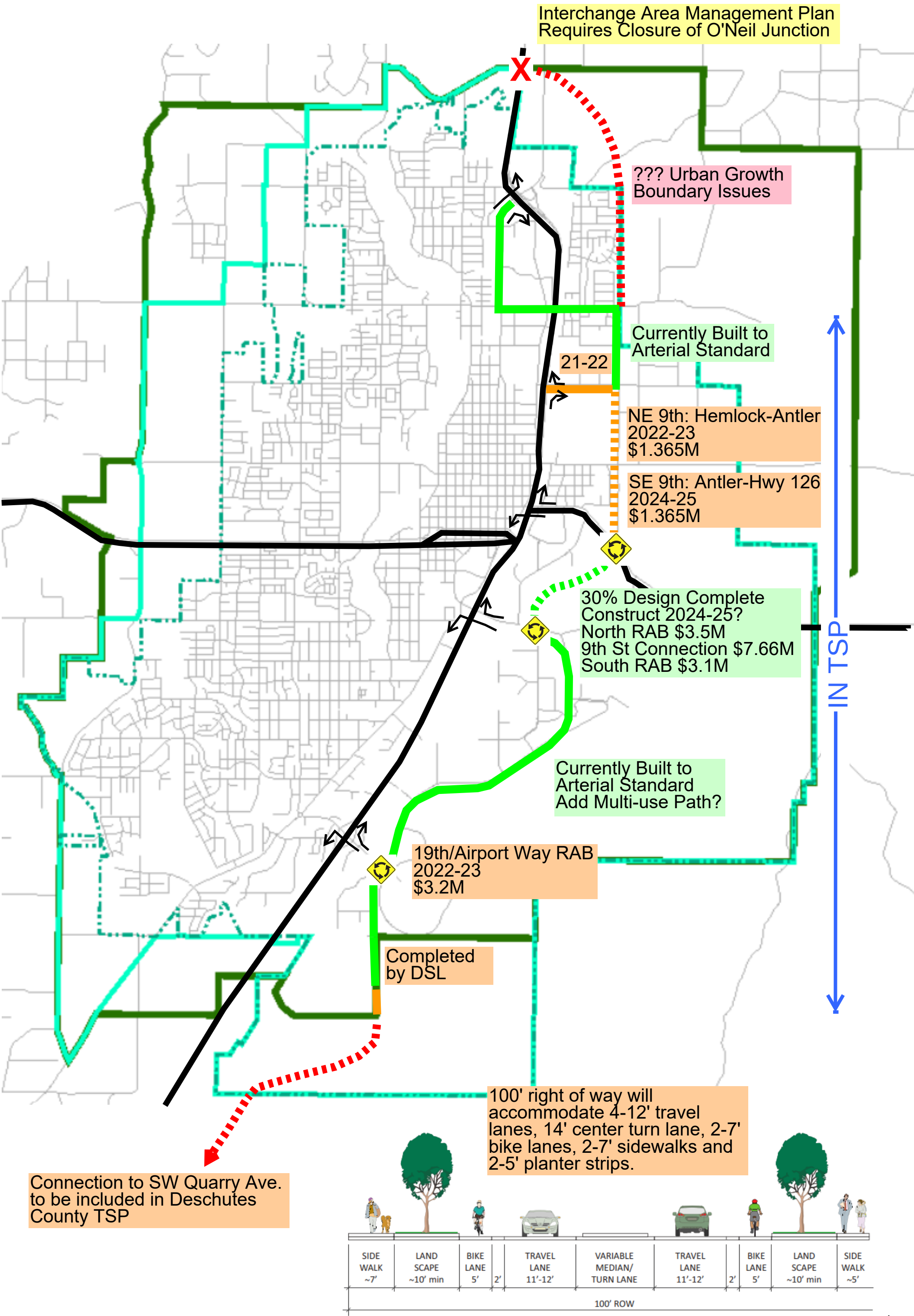
Alternative Courses of Action:

1. Approve the request to participate in the grant application.
2. Request more information.
3. Do not approve the request.

Recommendation / Suggested Motion:

"I move to authorize City participation in the \$110,000,000 Oregon Department of Transportation federal infrastructure grant application and a commitment of \$10,000,000 in City resources as a match and for the City Manager to execute necessary grant agreements."

Eastside Industrial Arterial

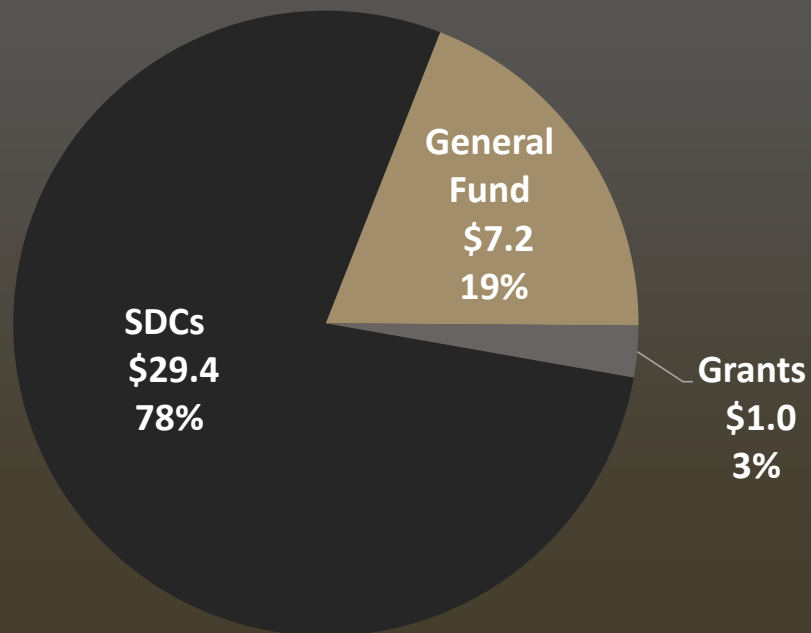




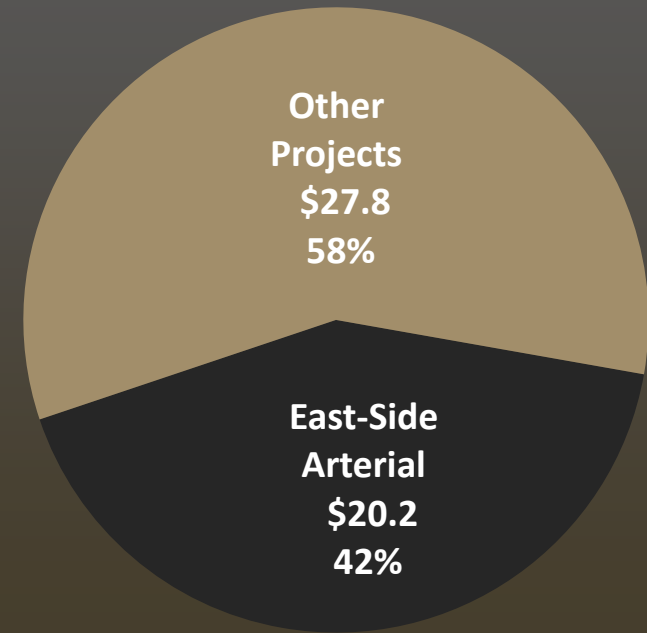
TRANSPORTATION – CAPITAL IMPROVEMENT PROJECTS

(FY 22/23 – 26/27)

RESOURCES \$38 MILLION



PROJECTS \$48 MILLION





EAST-SIDE ARTERIAL COMPONENTS

\$20.2
MILLION

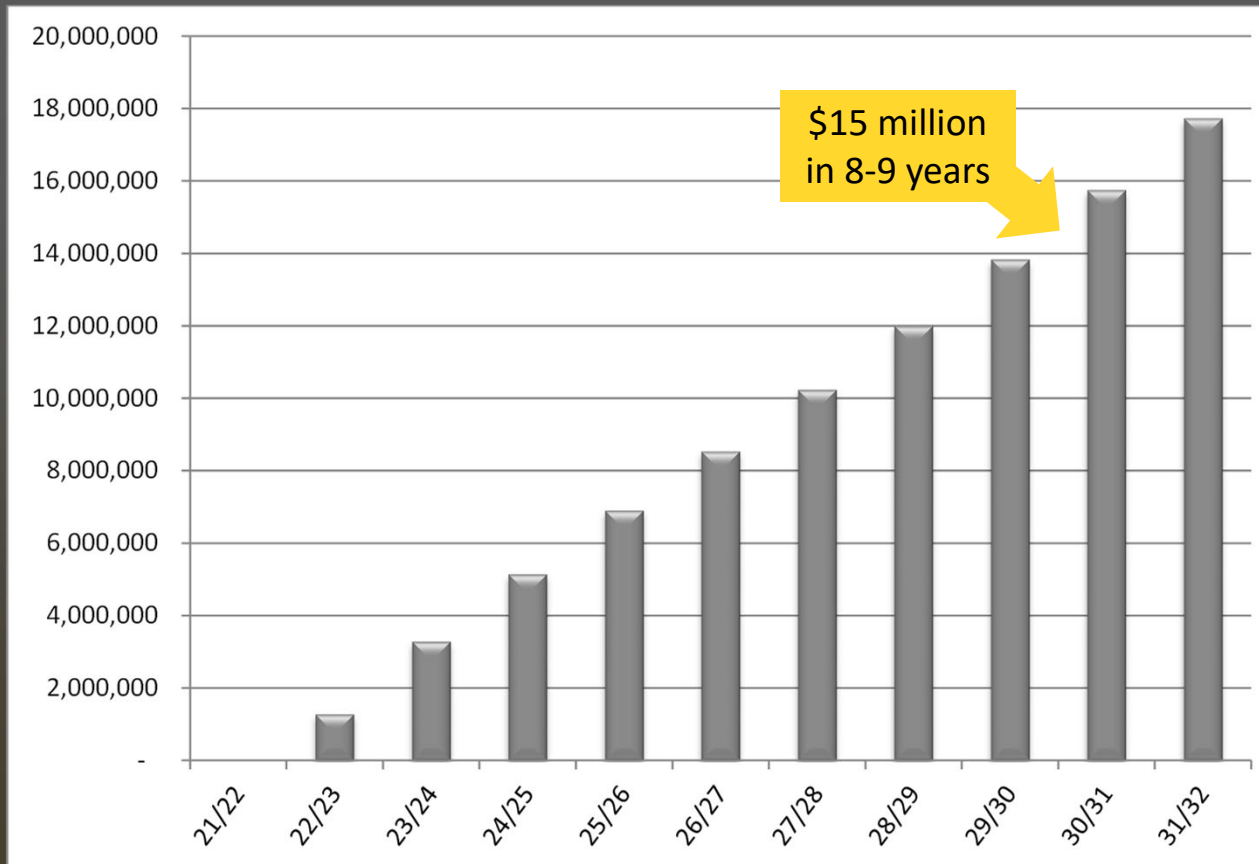
6%

East-Side Arterial Components

SW 19th St./Airport Way Roundabout	3,200,000
NE 9th St.: Antler Ave. to Hemlock Ave.	1,365,000
SE 9th St.: Airport Way-Hwy 126	7,660,000
SE 9th St./Veterans Way Roundabout	3,100,000
SE 9th St./Hwy 126 Roundabout	3,500,000
SE 9th St.:Antler Ave.-Hwy 126	1,365,000
East-Side Arterial Components	20,190,000



SOUTH 97 URBAN RENEWAL BONDING CAPACITY



- Assessed Value:

YEAR	GROWTH
22/23	6.5%
23/24	5.7%
24/25	5.0%
25/26	4.5%
26/27+	4.0%

- Debt:

Interest Rate	5.0%
Amortization	20

- Administration:
\$205k (+3% annually)



US97 South Redmond Corridor Federal Grant Opportunities

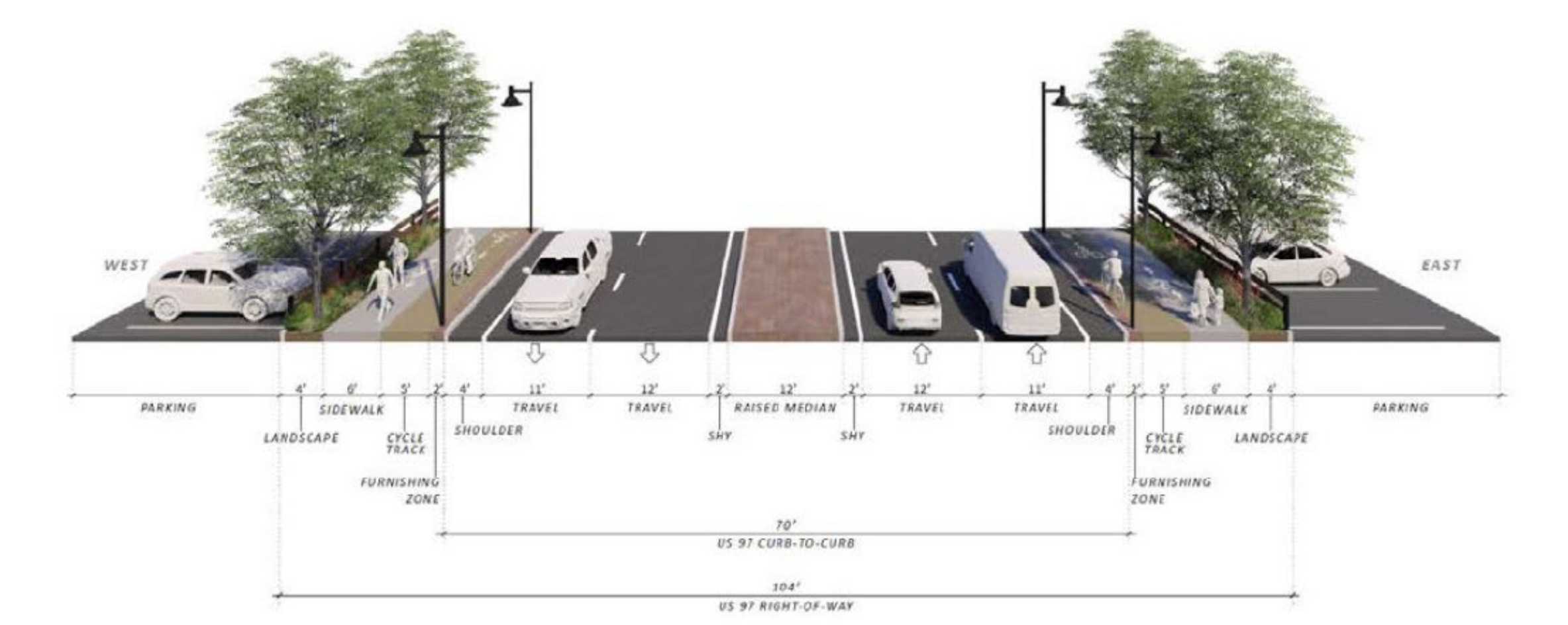
RURAL SURFACE TRANSPORTATION GRANT & INFRASTRUCTURE FOR REBUILDING AMERICA (INFRA)

- RURAL – This is a new grant program for expanding surface transportation infrastructure in rural areas (population <200k). Program goals include increasing connectivity, improving safety and reliability of moving people and freight, generating economic growth, and improving quality of life.
- INFRA – A freight focused program for making significant federal investments in large transportation infrastructure projects (\$ greater than \$100 million) Program is designated to reduce congestion and promote freight mobility.

PROPOSED GRANT PROJECT

- US97 Pavement Rebuild from Veterans – Yew Avenue
- US97 South Redmond Corridor Plan Improvements
- SW Canal Blvd. Improvements
- Roundabout at OR126 & SE 9th
- Roundabout at Veterans/9th/Airport Way & 9th Street Connection
- 19th Street Extension

US97 REBUILD (Veterans - Yew)



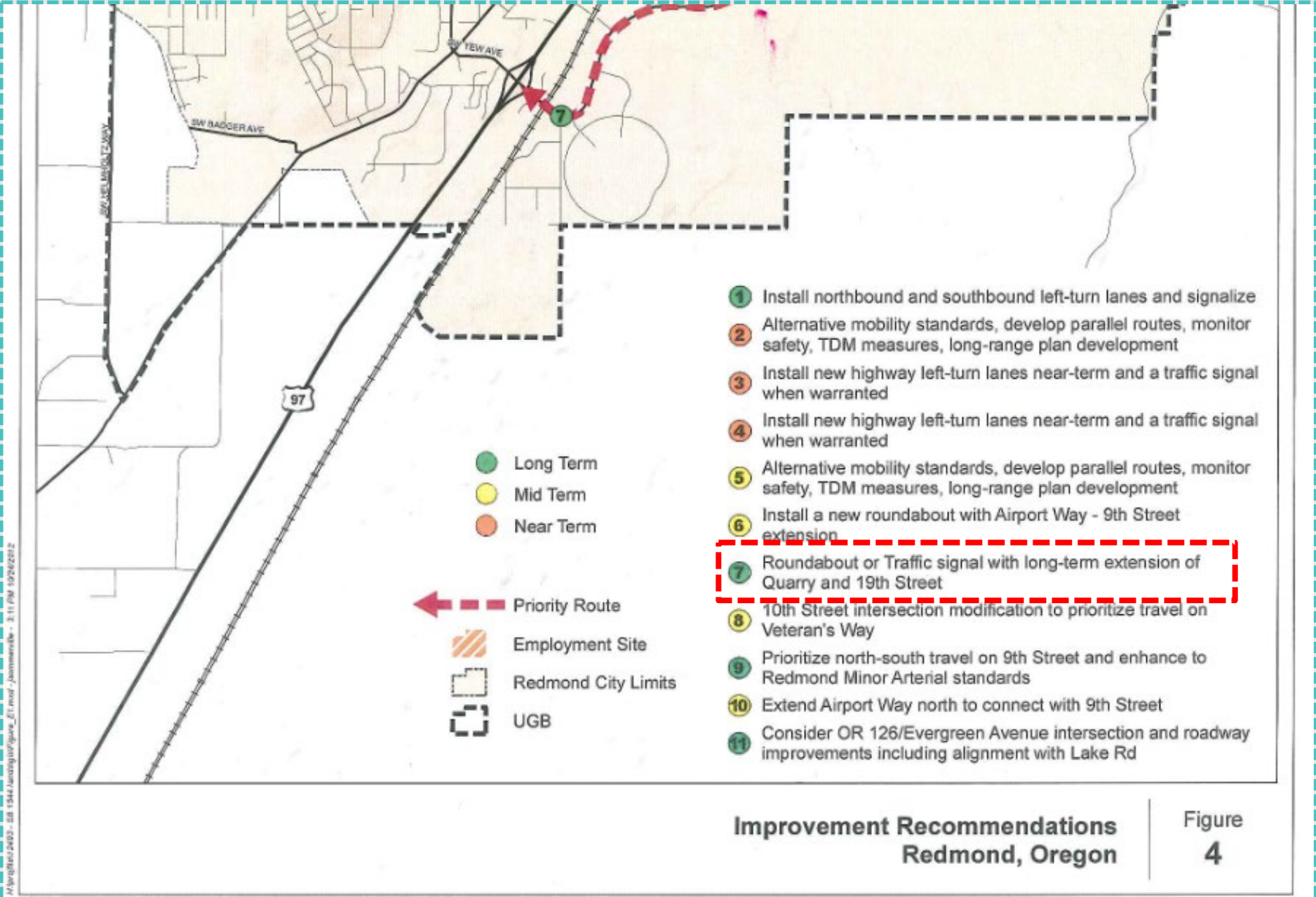
SOUTH REDMOND CORRIDOR



9th STREET IMPROVEMENTS



19th Street Extension



DRAFT PROPOSED PROJECT BUDGET

Funding Allocations	Project Corridors			Total Project	Percent
	US97 Corridor	OR 126 Improvements	City Route Improvments		
State of Oregon	\$ 5,000,000	\$ -	\$ -	\$ 5,000,000	5%
City of Redmond	\$ -	\$ 1,000,000	\$ 24,000,000	\$ 25,000,000	23%
Total non-Federal	\$ 5,000,000	\$ 1,000,000	\$ 24,000,000	\$ 30,000,000	27%
Other Federal	\$ 24,350,000	\$ -	\$ 3,000,000	\$ 27,350,000	25%
INFRA/Rural	\$ 45,650,000	\$ 2,200,000	\$ 4,800,000	\$ 52,650,000	48%
Total Cost	\$ 75,000,000	\$ 3,200,000	\$ 31,800,000	\$ 110,000,000	100%

- ODOT Contribution - \$32,350,000
- City of Redmond Contribution - \$25,000,000
(\$15 Million Urban Renewal, \$10 million Capital Improvements)
- GRANT - \$52,650,000

Next Steps

- Redmond City Council Consideration & Redmond Urban Renewal Resolution of Commitment of Funds
- Application Deadline May 23rd
 - Narrative Application
 - Benefit Cost Analysis
 - Letters of Support
 - Potential Additional Funding Contributions???
- Lobbying / National Support

QUESTIONS?



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STAFF REPORT

DATE: May 17, 2022
TO: Redmond City Council
THROUGH:
FROM: Keith Witcosky, City Manager
SUBJECT: Fire Season Preview and Fireworks

Addresses Council Goal:

6. COMMUNITY ENHANCEMENT AND PARTICIPATION

Create an image and identity that generates community pride and ensures a high level of livability.

Report in Brief:

This item initiates a discussion with City Council about the upcoming fire season, community awareness of fire danger and the use of fireworks. This topic will continue on May 24, 2022, when representatives from Redmond Fire and Rescue and Deschutes County Emergency Services present their fire season forecast.

Background:

In 2021, Oregon experienced more fire devastation than anytime in recent history. Also in 2021, the combination of both COVID and summer heat where temperatures reached 111 degrees in late June, led City Council to ban the use of legal (and illegal) fireworks. At that time, hot and dry temperatures exacerbated drought conditions which persist in 2022.

In May 2022, the National Significant Wildfire Potential Outlook rated Central Oregon as an area with increased significant fire potential, particularly during dry and windy conditions (see attachment).

The context for this item is for City Council to begin to discuss these environmental conditions in relation to the tradition where community members, community groups, and businesses rely on 4th of July fireworks sales as a source of fundraising, pride, etc.

By no later than mid-June it will be important for City Council to determine whether the private use and private sales of fireworks should be restricted in summer 2022.

Discussion:

Fiscal Impact:

There is no direct fiscal impact to the City of Redmond in relation to this item.

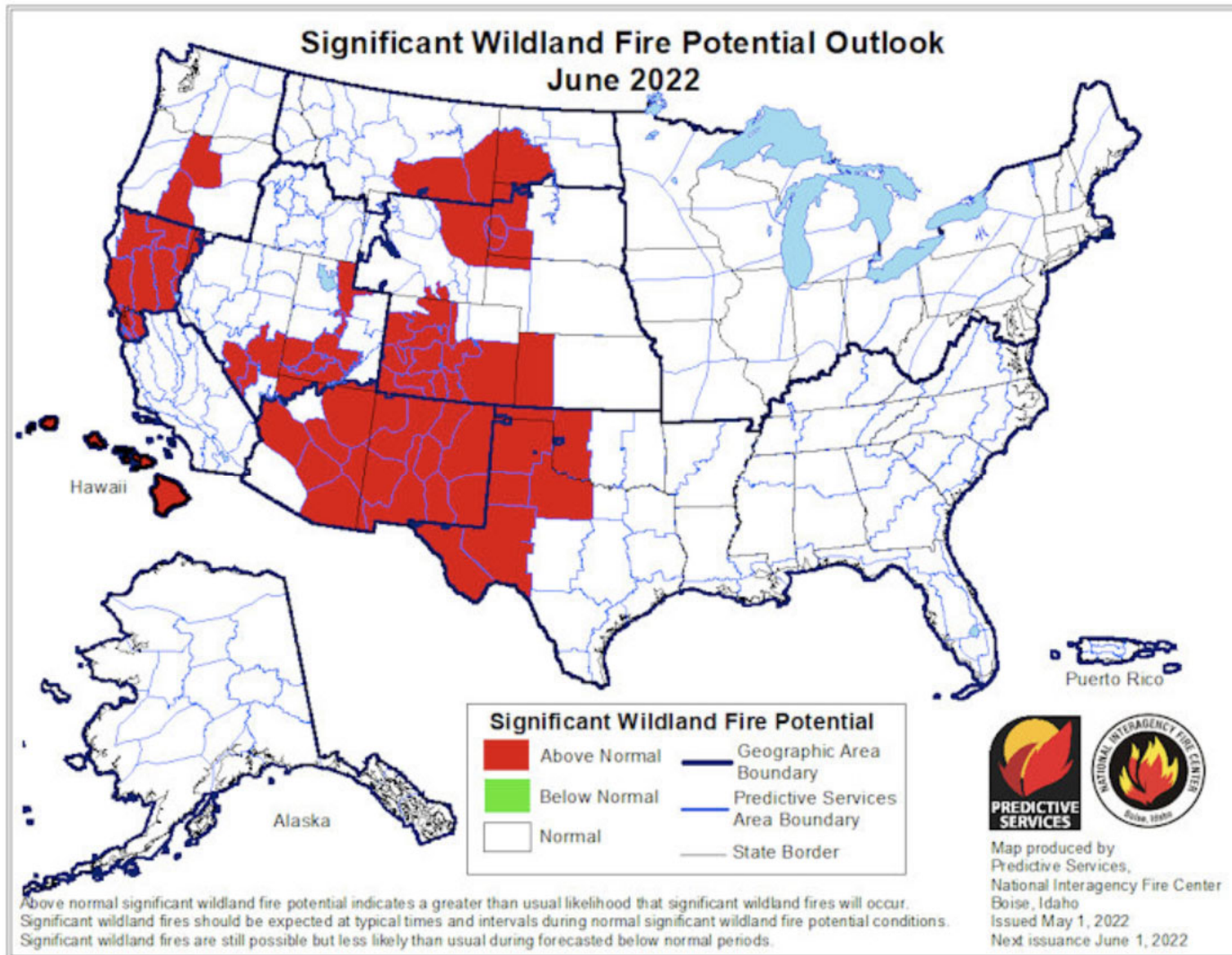
Alternative Courses of Action:

No action will occur at this meeting. This is informational only.

The discussion will continue at the May 24, 2022 Council meeting.

Recommendation / Suggested Motion:

None.





Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



Generated: April 20, 2022

Weather and vegetation conditions vary daily and seasonally. For current conditions and local fire restrictions, contact your local fire district or visit: www.keeporegongreen.org/current-conditions

INTRODUCTION

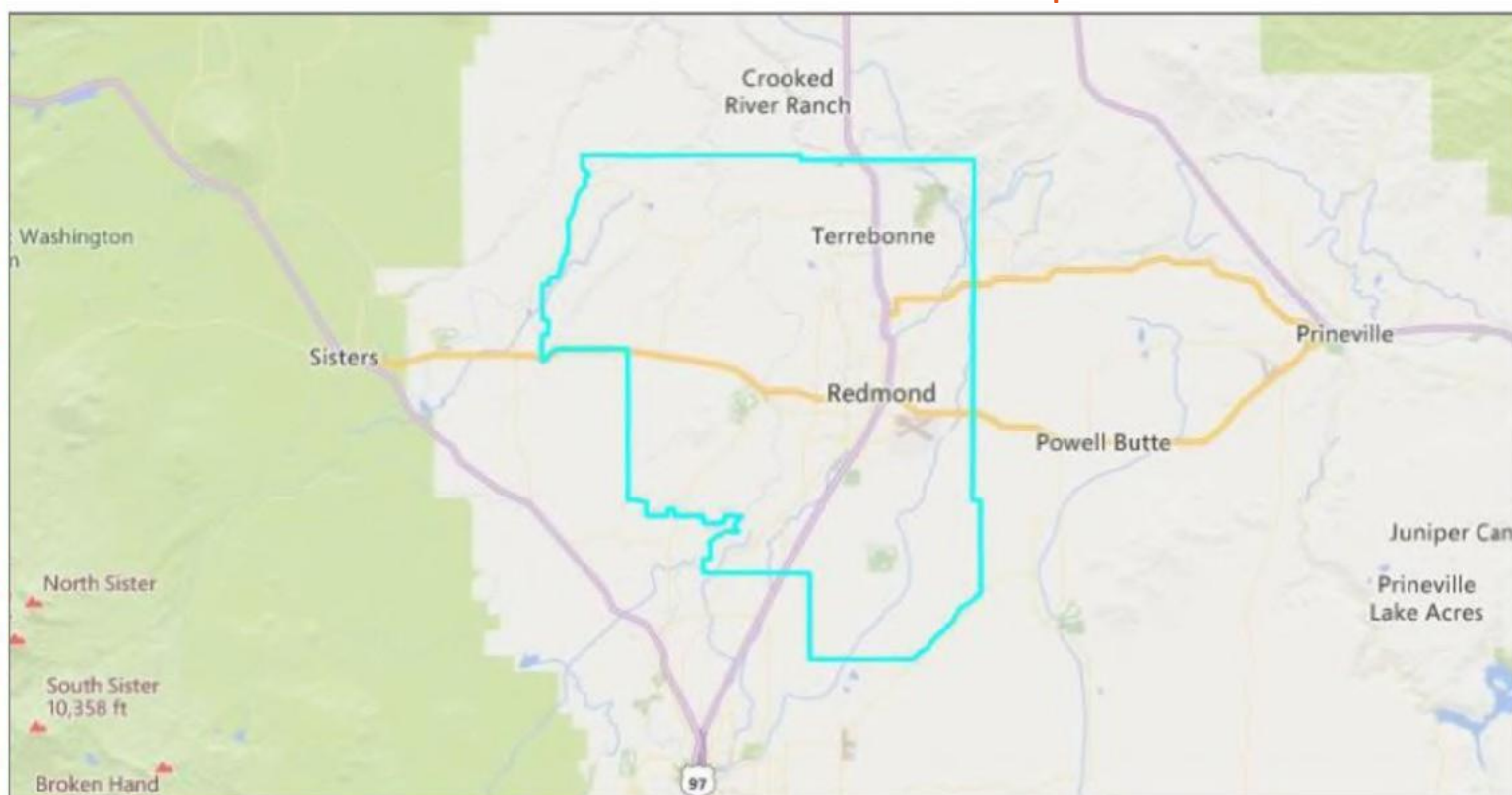
This report summarizes wildfire risk in **Greater Redmond CWPP FINAL** from the [Advanced Oregon Wildfire Risk Explorer map viewer](#) (OWRE). Wildfire risk combines the likelihood of a fire occurring with the exposure and susceptibility of valued resources and assets on the landscape.

Nearly all areas in Oregon experience some level of wildfire risk. Conditions vary widely with local topography, fuels, and local weather, especially local winds. In all areas, under warm, dry, windy, and drought conditions, expect higher likelihood of fire starts, higher fire intensities, more ember activity, a wildfire more difficult to control, and more severe impacts.

Greater Redmond CWPP
FINAL in Oregon



Greater Redmond CWPP FINAL Reference Map



REPORT CONTENTS

2	Guidelines	11	Burn Probability	24	Probability of >8ft Flames
3	Concepts	13	Fire Intensity - Flame Lengths	25	Potential Impact to People and Property
4	Land Ownership & Management	15	Overall Impact	26	Potential Impact to Infrastructure
5	Communities	17	Hazard to Potential Structures	27	Potential Impact to Wildlife
6	Fire History - Fire Ignitions	19	Existing Vegetation Type	28	Potential Impact to Forest Vegetation
7	Fire History - Fire Perimeters	21	Risk To Assets	31	Potential Impact to Timber Resources
8	Housing Density - Where People Live	22	Risk To People and Property	32	Fuel Model Groups
9	Overall Wildfire Risk	23	Probability of >4ft Flames		



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



Generated: April 20, 2022

GUIDELINES

The OWRE Advanced Report provides wildfire risk information for a customized area of interest to support Community Wildfire Protection Plans (CWPPs), Natural Hazard Mitigation Plans (NHMPs), and fuels reduction and restoration treatments in wildfire-prone areas in Oregon. Here are some things you need to know about this information:

The Advanced OWRE map viewer provides **wildfire risk assessment** data primarily from the 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, produced by the US Forest Service with a coalition of local fire managers, planners, and natural resource specialists in both Washington and Oregon. The assessment uses the most current data (incorporating 2017 fires) and state-of-the-art fire modeling techniques, and is the most up-to-date wildfire risk assessment for Oregon. The assessment characterizes risk of large wildfires (>250 acres). Data also comes from the 2013 West Wide Wildfire Risk Assessment, Oregon Department of Forestry (ODF), and other sources.

Wildfire risk is modeled at a landscape scale. The data does not show access for emergency response, home construction materials, characteristics of home ignition zones, or NFPA Firewise USA® principles. For CWPP and NHMP updates you may want to **consider two scales**:



- first, use data from the OWRE to characterize and understand the fire environment and fire history in your area broadly at a landscape scale, focusing on watersheds or counties;
- then, overlay local knowledge, focusing on communities, fire protection capabilities, local planning areas, and defensible space concepts for neighborhoods and homes.

The OWRE Advanced Report will provide the landscape context of the current fire environment and fire history upon which you can build your local plans toward resilience by preparing and mitigating the larger landscape wildfire risk.

The OWRE Advanced Map Viewer and Report will not replace local knowledge of communities you may consider high risk. Continue to use local Fire Department and ODF knowledge to generate CWPP concern areas. OWRE will produce broad scale maps for your CWPP area as a whole, but maps and data will contain some inaccuracies, which are most prevalent at fine scales.

Recommended additional information sources for wildfire planning:

- Oregon Department of Forestry CWPP list - <https://www.oregon.gov/ODF/Fire/Pages/CWPP.aspx>
- Oregon Explorer Communities Reporter - demographic and other data for counties and communities
<https://oe.oregonexplorer.info/rural/CommunitiesReporter/>
- Wildland Urban Interface Toolkit - https://www.usfa.fema.gov/wui_toolkit/wui_planning.html
- Wildland Urban Interface Wildfire Mitigation Desk Reference Guide -
<https://www.nwcg.gov/sites/default/files/publications/pms051.pdf>
- Oregon Spatial Data Library - <https://spatialdata.oregonexplorer.info/geoportal/>
- NFPA Firewise USA® - teaching people how to adapt to living with wildfire and encouraging neighbors to work together and take action to prevent losses. - <https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA>
- Headwaters Economics - Full Community Costs of Wildfire -
<https://headwaterseconomics.org/wildfire/homes-risk/full-community-costs-of-wildfire/>

This Advanced Wildfire Risk Report was generated from the Advanced Oregon Wildfire Risk Explorer map viewer at: tools.oregonexplorer.info/OE_HtmlViewer/index.html?viewer=wildfireplanning. This site is intended for wildfire professionals and planners. For a basic summary of wildfire risk geared toward a public audience, visit the basic OWRE map viewer: tools.oregonexplorer.info/OE_HtmlViewer/index.html?viewer=wildfire.



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



Generated: April 20, 2022

WILDFIRE RISK ASSESSMENT CONCEPTS & DATA

The Advanced Oregon Wildfire Risk Explorer (OWRE) map viewer organizes data into folders based on wildfire risk concepts. All OWRE advanced reports will include information about Overall wildfire risk, Burn probability, Flame length, Overall potential impact, Hazard to potential structures, Fire history, Land management, and Estimated housing density. Users can select additional data layers of interest, which will appear after the layers listed above.

Wildfire Risk

Overall wildfire risk takes into account both the likelihood of a wildfire and the exposure and susceptibility of mapped valued resources and assets combined. The dataset considers (1) the likelihood of wildfire >250 acres (likelihood of burning), (2) the susceptibility of resources and assets to wildfire of different intensities, and (3) the likelihood of those intensities. Blank areas either have no currently mapped assets or resources and/or are considered a non-burnable fuel in terms of wildfire. Note that agricultural lands are considered non-burnable in this map, even though fires can occur in these areas and may spread into more typically considered burnable areas such as forested lands. Data layers include: Overall wildfire risk, Wildfire risk to assets, and Wildfire risk to people and property.

Wildfire Threat

Wildfire threat shows the likelihood of a large wildfire, the average intensity and the likelihood of higher intensities, conveyed by flame length. Data layers include: Burn probability, Average flame length, Probability of exceeding 4' flames, and Probability of exceeding 8' flames. Additional data layers that show wildfire threat are found under the Fire History and Active Fires folder, where historical fire starts and historical fire perimeters are located.



Wildfire Potential Impacts

Wildfire potential impacts shows the actual exposure of mapped resources and assets. The data layers do not incorporate the likelihood of burning, they only show the consequence of wildfire if it were to occur. Data layers include: Overall potential impact, Potential impact to people and property, Potential impact to infrastructure, Potential impact to timber resources, Potential impact to wildlife, and Potential impact to forest vegetation. The layers (Potential impact to timber resources, wildlife, and forest vegetation) may be useful when targeting fuels treatment. These layers are influencing the "Benefit" areas in the Overall wildfire risk map - they show areas where there is ecological opportunity to restore historical or desired conditions and/or potentially reduce the risk of catastrophic wildfire with managed fire use or other management. The Potential impact to forest vegetation optional report element is coupled with historical fire regime information to give basic context when comparing historical and current conditions.

Hazard to Potential Structures

Hazard to potential structures depicts the hazard to hypothetical structures in any area if a wildfire were to occur. This differs from Potential Impacts, as those estimates consider only where people and property currently exist. In contrast, this layer maps hazard to hypothetical structures across all directly exposed (burnable), and indirectly exposed (within 150 meters of burnable fuel) areas in Oregon. As with the Potential Impacts layers, the data layer does not take into account wildfire probability, it only shows exposure and susceptibility.

Fire Model Inputs and Fuelscape

These layers are the fuels and topography used to run the fire model in the 2018 Pacific Northwest Quantitative Wildfire Risk Assessment. Data layers include: Fuel models, Fuel model groups, Forest canopy base height, Forest canopy height, Forest canopy cover, Forest canopy bulk density, Slope, Elevation and Aspect. Fuel models and groups characterize local surface vegetation composition relative to carrying fire more precisely than a basic land cover or vegetation maps. Fuel models indicate the type of potential wildfire based on the fuels that will ignite and spread fire. Canopy data layers characterize vegetation structure for fire modeling: base height, cover, and bulk density estimates can show where there may be propensity for ladder fuels (ground vegetation and trees that reach up to tree branches and upper forest canopy), and where contiguous forest canopies have potential for canopy fire. Note that not all of these layers are available to select for use in the OWRE advanced reports, but all of them are available for download and they are described in the metadata. Also note that weather, the third part of the three major elements that determine wildfire occurrence and intensity, is not included in this data distribution - please see the full report to understand the weather parameters used in the assessment.

For more detailed information, please see the full 2018 PNW Quantitative Wildfire Risk Assessment report:

oe.oregonexplorer.info/externalcontent/wildfire/reports/20170428_PNW_Quantitative_Wildfire_Risk_Assessment_Report.pdf



Oregon Wildfire Risk Explorer- Advanced Report

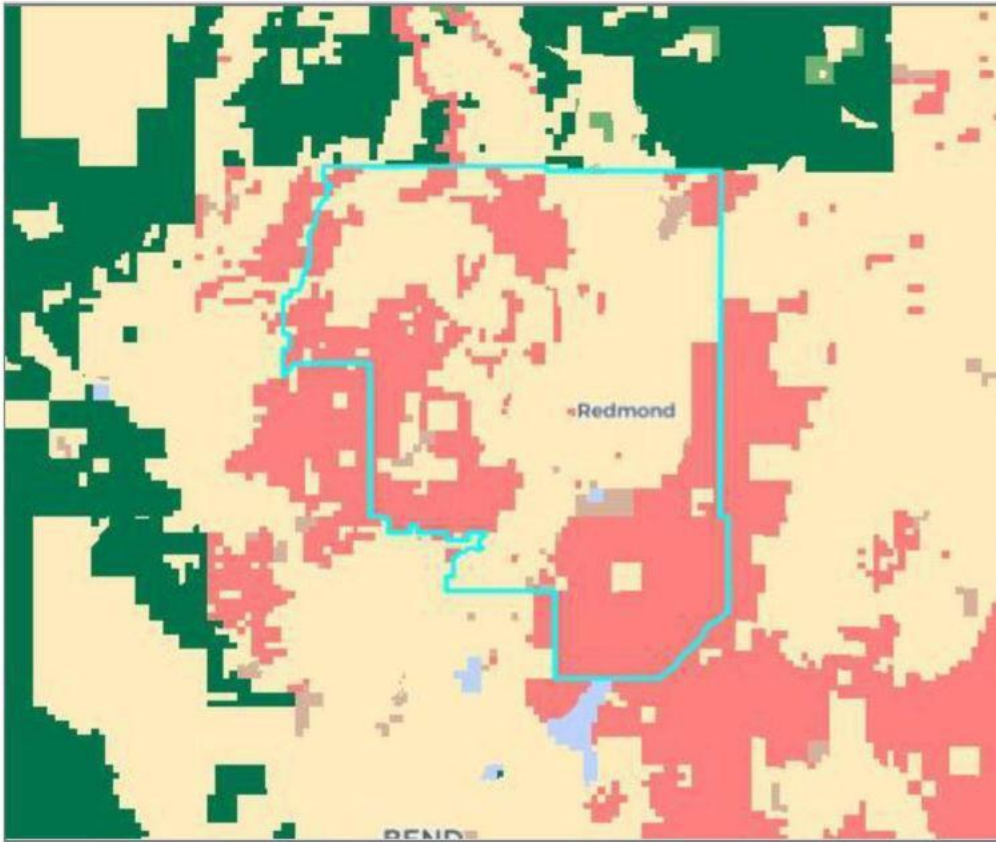
Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



Generated: April 20, 2022

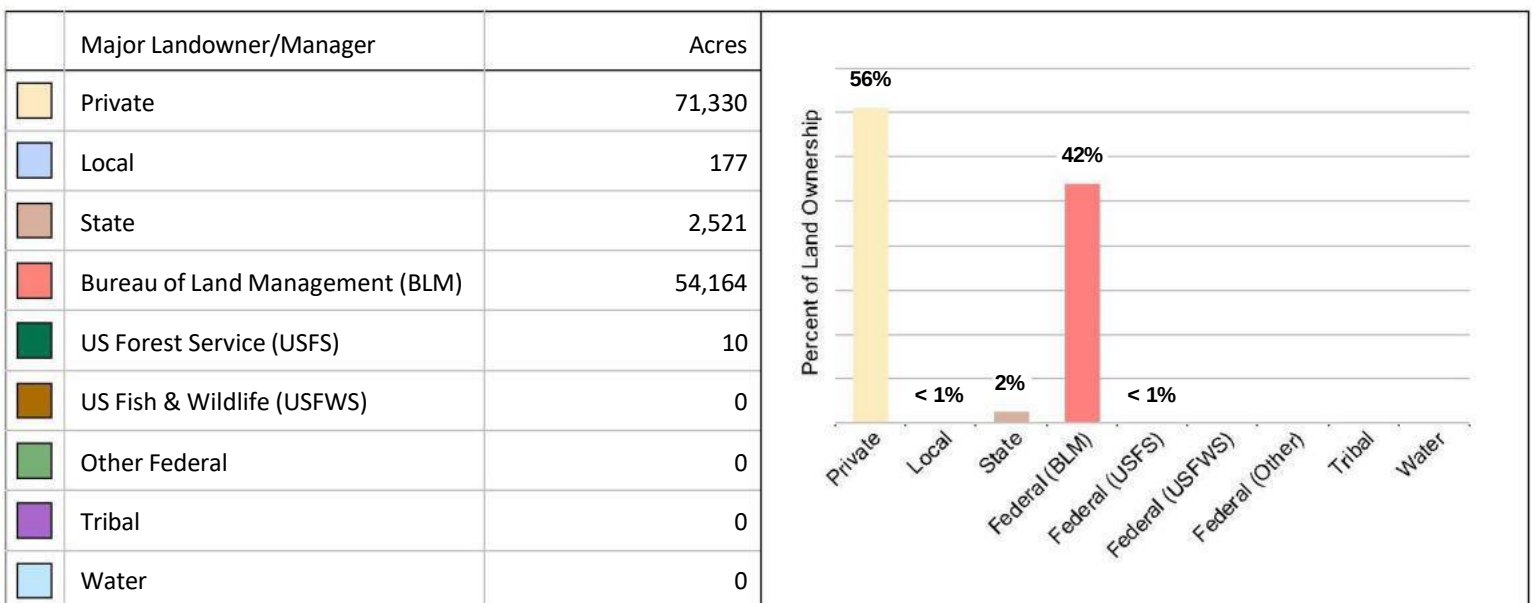
LAND OWNERSHIP AND MANAGEMENT



Knowing the land ownership and management in an area is important for hazard planning and awareness when wildfires occur. Oregon has a complete and coordinated wildfire management system between local, private, tribal, state, and federal agencies. These entities participate to fight fire in local areas and throughout the state according to their jurisdictions and protection responsibilities. Different land owners and managers have a variety of highly valued resources and assets to protect. Agencies differ in land use and overall management, including fire management.

The map, table and charts below show the breakdown of ownership types in your area.

Greater Redmond CWPP FINAL



Source: Bureau of Land Management, 2015

* Values may add up to over 100% due to rounding precision



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



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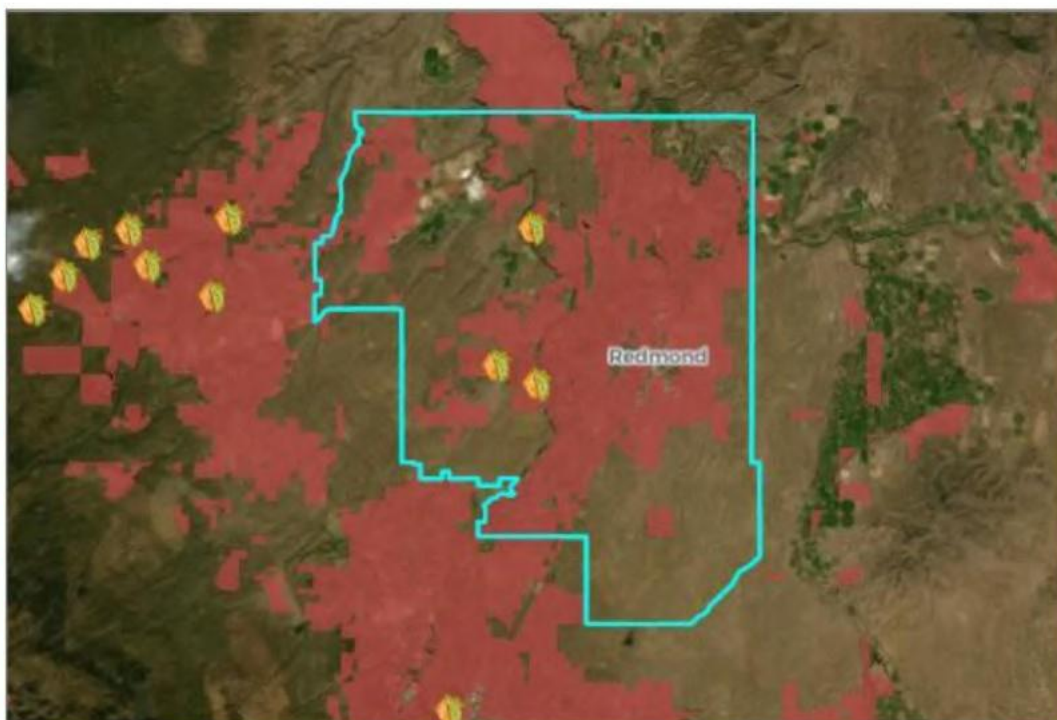
OREGON WUI COMMUNITY HAZARD RATINGS

Counting locally identified communities and neighborhoods, there are up to 6.9 million acres of Wildland Urban Interface (WUI) areas in Oregon. These areas were identified using a base WUI dataset from Radeloff, V.C., et. al, 2017 (published by USFS RDA), which incorporated 2010 census and 2011 land cover data. Locally mapped communities from Community Wildfire Protection Plans (CWPPs) from 2008 through 2013 were associated with the WUI geography. Department of Land Conservation & Development 2017 Oregon Land Use Zoning was also included for recent residential and developed or developing rural growth since the 2010 census. A cross-check was also made with the "100 Communities at Risk" report from the QWRA. Note that this WUI acreage contrasts with the 2.4 million acres from the West Wide Risk Assessment (Where People Live/Wildland Development Areas). The source Radeloff et. al WUI data used census block housing counts and land cover as opposed to WWRA Landsat night lights and housing densities. Acreage is larger in this Oregon WUI due to some rural areas having built environments along roads that spline two or more large census blocks, and we erred on the side of inclusion to add those entire areas to the dataset and not disrupt the original WUI geography. Also very small rural town centers that can potentially be encompassed by catastrophic wildfire, are kept whole in the Oregon WUI dataset.

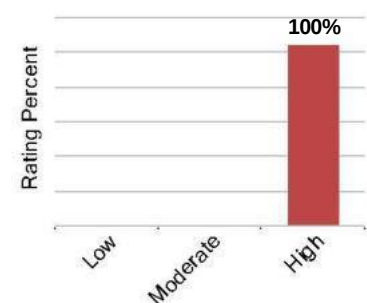
Burn Probability from the QWRA was used to assign a wildfire hazard rating to the built environment and homes in these areas. Hazard levels are based on modeled vegetation, not on building construction materials or ingress/egress issues. For a comprehensive analysis of wildfire risk and understanding of the potential threat of wildfire to your community, view the WUI combined with local fire starts and information in your Community Wildfire Protection Plan. A Community Wildfire Protection Plan (CWPP) is the product of collaboration between local communities and agencies interested in reducing wildfire risk and addressing response in a comprehensive plan. It also allows counties to prioritize and mitigate high risk areas, enhance safety and better protect themselves and their forested landscapes from wildfire.

Even in areas where risk is high, defensible space and Firewise USA® principles can be incredibly useful in minimizing the risk to homes in the Wildland Urban Interface.

Greater Redmond CWPP FINAL



WUI Hazard Area Acres in Greater Redmond CWPP FINAL



	Rating	Acres
	Low	0
	Moderate	0
	High	57,590
	Firewise Site	



Oregon Wildfire Risk Explorer- Advanced Report

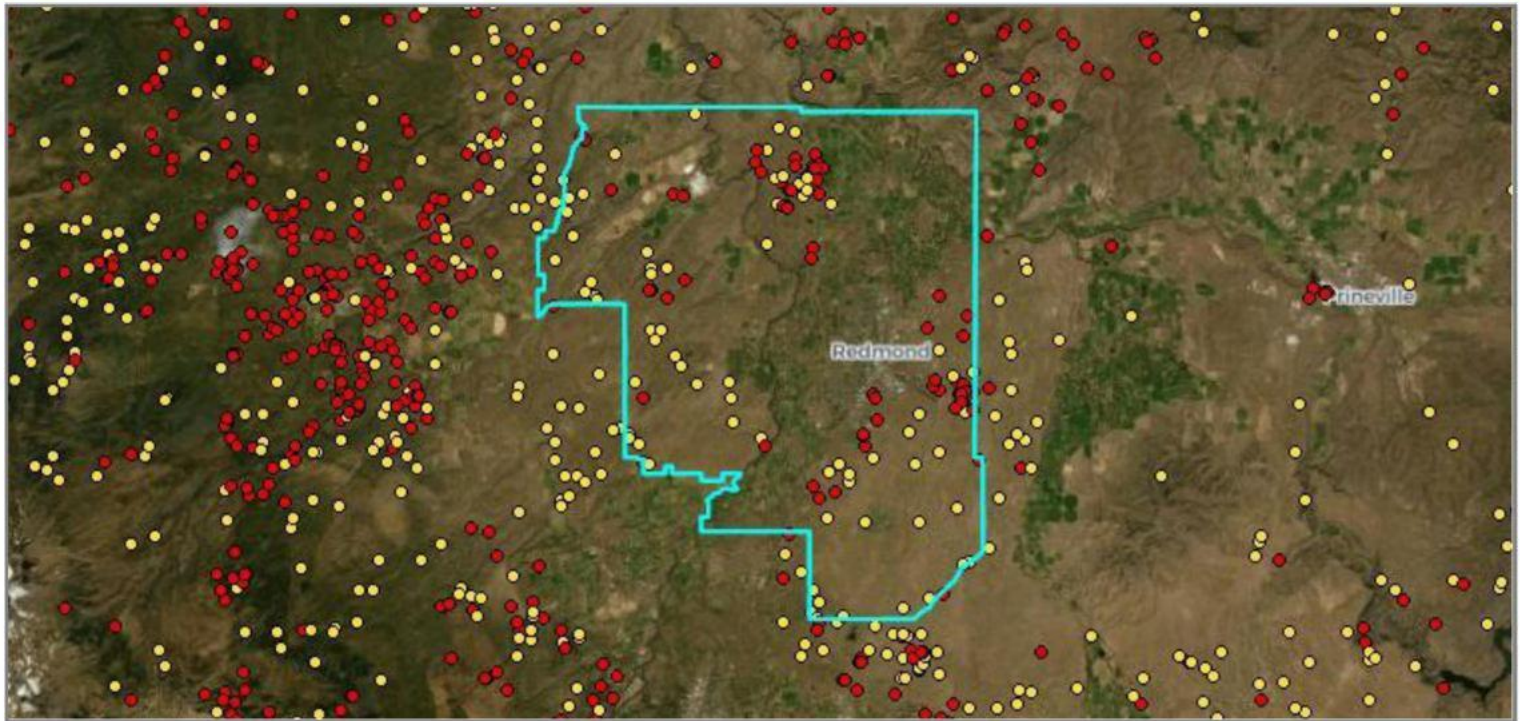
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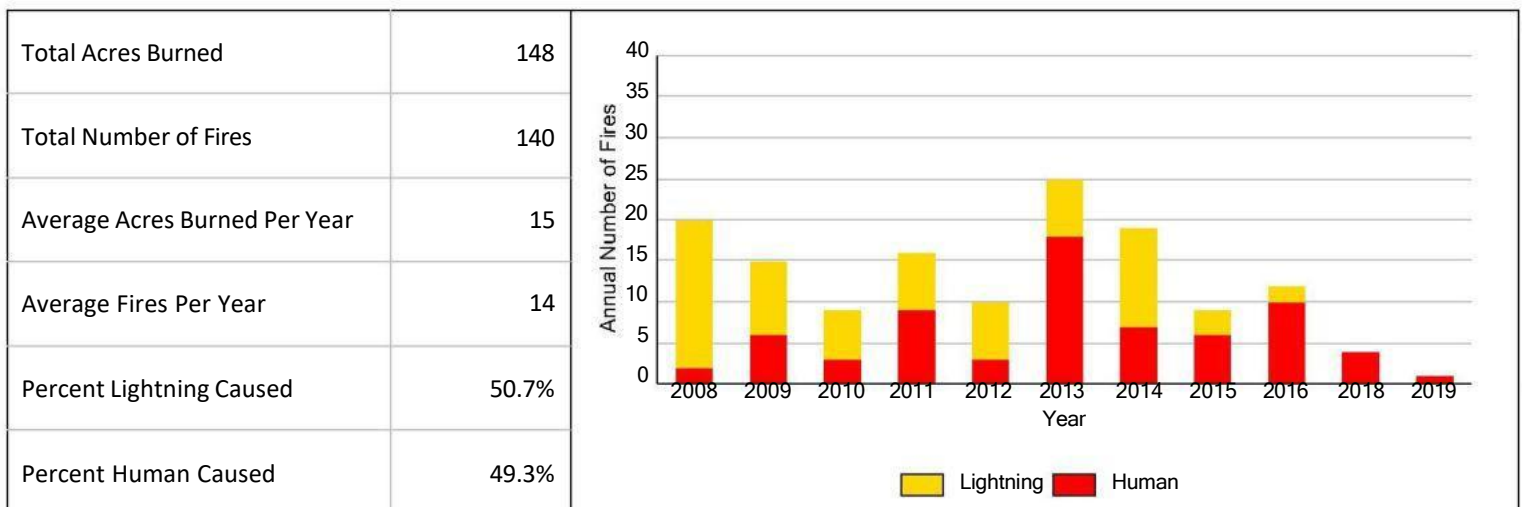


Generated: April 20, 2022

FIRE HISTORY - FIRE IGNITIONS



Greater Redmond CWPP FINAL fire starts between 2008-2019



Knowing where and why fires start is the first step in awareness, prevention, and mitigation. Viewing local fire starts in conjunction with burn probability (provided later in this report) provides a comprehensive view of local fire history and potential.

Statewide, 71% of fires recorded by ODF are human-caused, and many of these fires are near populated areas. Lightning caused fires make up only 29% of fire starts, but tend to burn more acres as they are often located in remote areas.

The map, table and charts on this page show the cumulative number fire starts in your area.

Source: Short, K. and Oregon Department of Forestry, 2019



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



Generated: April 20, 2022

FIRE HISTORY - FIRE PERIMETERS

Although most wildfires in Oregon are human-caused and suppressed quickly while small, Oregon has experienced many large wildfires. The map and table below show the footprints of fires that have occurred in your area since 2000.



Wildfires in Greater Redmond CWPP FINAL

Wildfire Name	Year	Acres Burned
JAGUAR 0514 RS	2018	10
MM 144	2011	55
CROOKED	2007	304
BRAND	2005	98
SMITH	2005	16

Source: National Interagency Fire Center: <https://www.nifc.gov/>

For more information about previous large wildfires, see: National Interagency Fire Center
https://www.nifc.gov/fireInfo/fireInfo_main.html



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



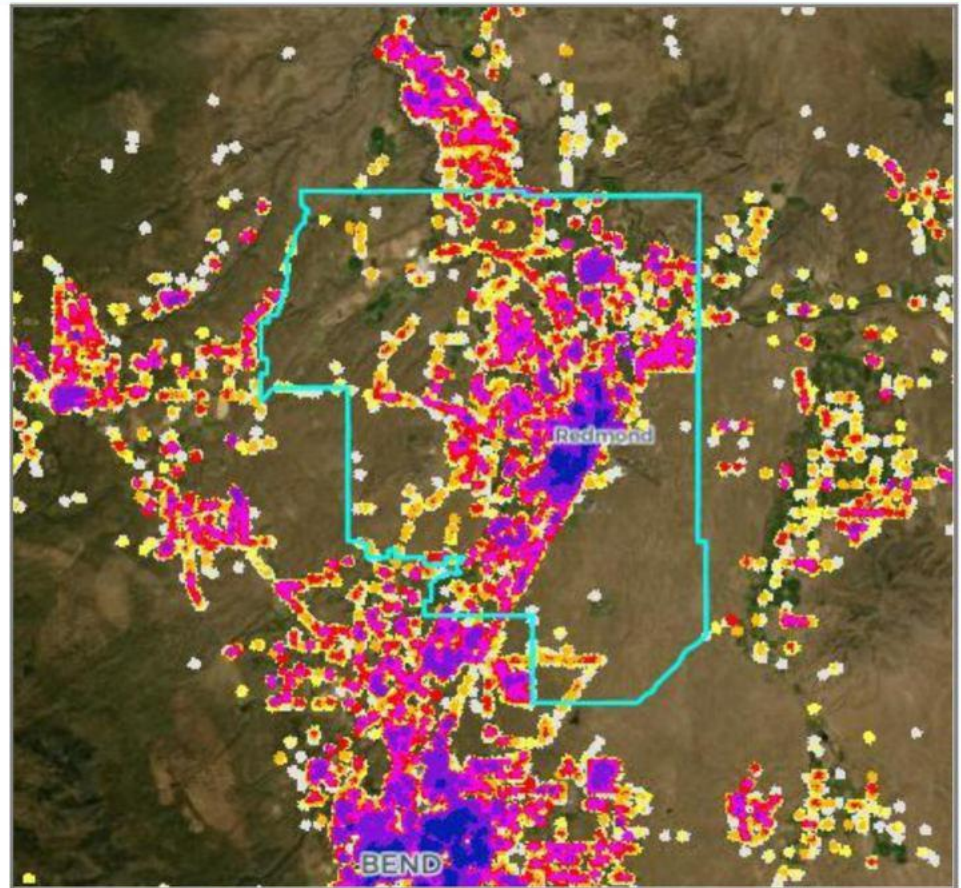
Generated: April 20, 2022

HOUSING DENSITY - WHERE PEOPLE LIVE

Areas where people live are a primary concern when assessing wildfire risk. Especially critical is the Wildland Urban Interface (WUI) - areas where houses and other development meet or mix with undeveloped natural areas, with a close proximity of houses and infrastructure to flammable wildland vegetation.

In the U.S., the number of homes in the WUI increased by 13.4 million since 1990. This expansion of the WUI poses particular challenges for wildfire management, creating more structures and populations at risk in environments where firefighting is often difficult. In Oregon, nearly 2.4 million acres are considered WUI areas, about 3.8% of the state. Of the nearly 1.7 million homes in Oregon, over 603,000, or 36%, are in the WUI.

The map and table on this page shows the location and density of where people live in your area.



Greater Redmond CWPP FINAL housing density

Category	Acres	%*
 <1 house per 40 acres	6,138	5
 1 per 40 acres to 1 per 20 acres	5,709	4
 1 per 20 acres to 1 per 10 acres	8,827	7
 1 per 10 acres to 1 per 5 acres	8,294	6
 1 per 5 acres to 1 per 2 acres	8,696	7
 1 per 2 acres to 3 per acres	5,309	4
 > 3 per acres	1,366	1

Source: 2013 West Wide Wildfire Risk Assessment, ODF

* Values may add up to over 100% due to rounding precision



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



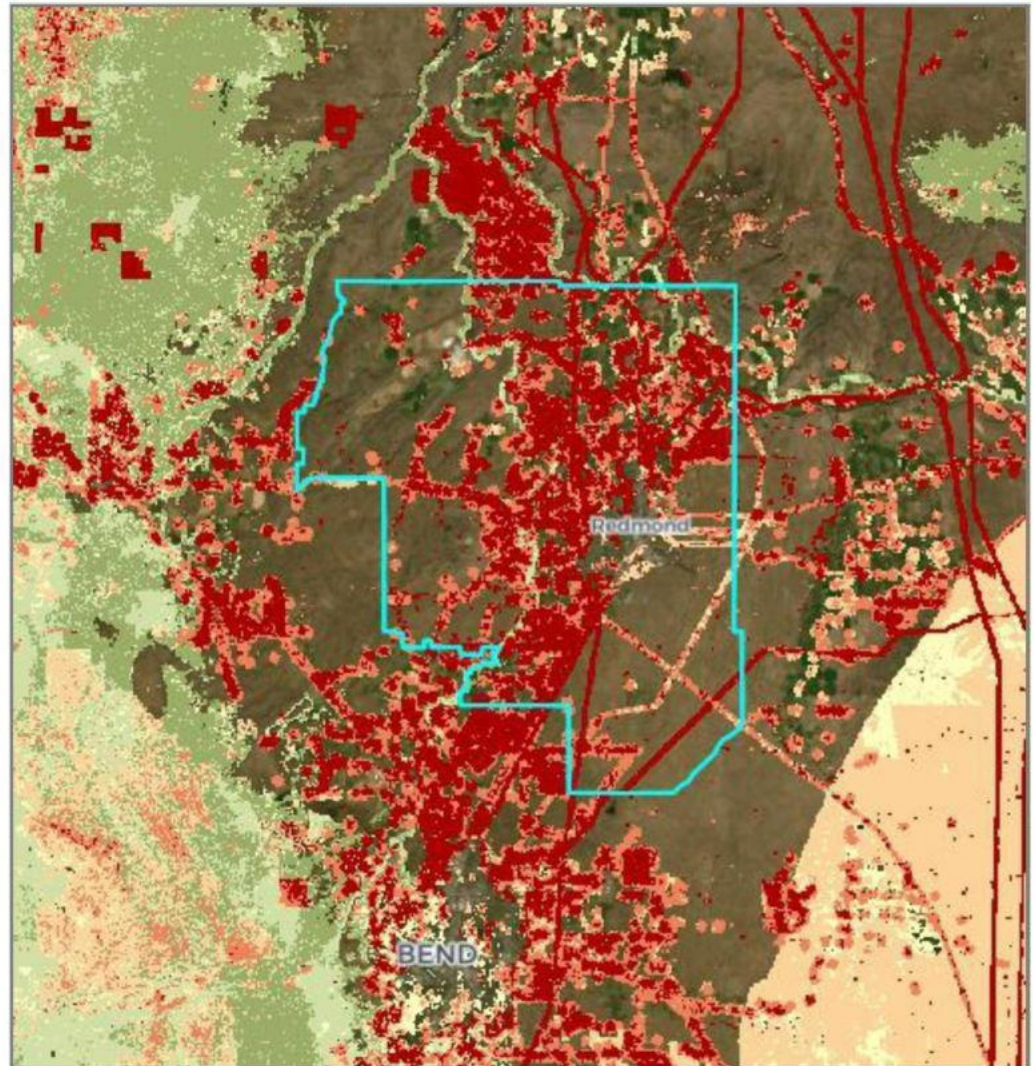
Generated: April 20, 2022

OVERALL WILDFIRE RISK

Overall wildfire risk combines both the likelihood of a wildfire and the expected impacts of a wildfire on highly valued resources and assets. (See other sections for more information on Burn probability and Overall potential impact.) Overall wildfire risk also reflects the susceptibility of resources and assets to wildfire of different intensities, and the likelihood of those intensities.

Mapped resources and assets include critical infrastructure, developed recreation, housing unit density, seed orchards, sawmills, historic structures, timber, municipal watersheds, vegetation condition, and terrestrial and aquatic wildlife habitat.

The data values in the overall wildfire risk map and chart reflect a range of impacts from a very high negative value, where wildfire is detrimental to one or more resources or assets, to positive, where wildfire has an overall benefit (e.g., forest health or wildlife habitat).



Overall wildfire risk: Legend

	Very High	Wildfire risk is very highly negative (top 5% of values).
	High	Wildfire risk is highly negative (80th to 95th percentile).
	Moderate	Wildfire risk is moderately negative (50th to 80th percentile).
	Low	Wildfire risk is slightly negative(29th to 50th percentile).
	Low Benefit	Wildfire is slightly beneficial (14.5 to 29th percentile).
	Benefit	Wildfire is beneficial overall (0-14.5th percentile).
	Non-burnable	There are no highly valued resources or assets mapped in the area, or it is considered non-burnable (urban, agriculture, etc).



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



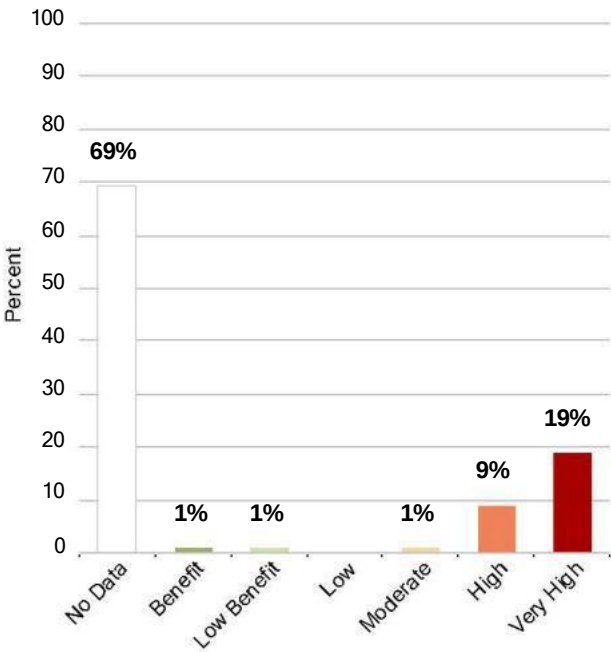
Generated: April 20, 2022

This page contains additional information about overall wildfire risk, including a table of classes by ownership to determine the distribution of categories across ownerships, and a chart of overall percentages of classes across the area. The inset box displays sub-watershed summaries for landscape-scale prioritization.

Overall wildfire risk in Greater Redmond CWPP FINAL: estimated acres by ownership

Category	Total	Private	Local	State	BLM	USFS	USFWS	Other Fed	Tribal
Very High	24,848	17,468	18	515	6,847	0	0	0	0
High	11,361	6,590	4	125	4,642	0	0	0	0
Moderate	1,608	1,043	3	24	538	0	0	0	0
Low	158	112	0	2	44	0	0	0	0
Low Benefit	775	560	2	42	171	0	0	0	0
Benefit	877	507	1	178	191	0	0	0	0
No Data	88,572	45,062	144	1,629	41,725	12	0	0	0
Total Area	128,199	71,342	172	2,515	54,158	12	0	0	0

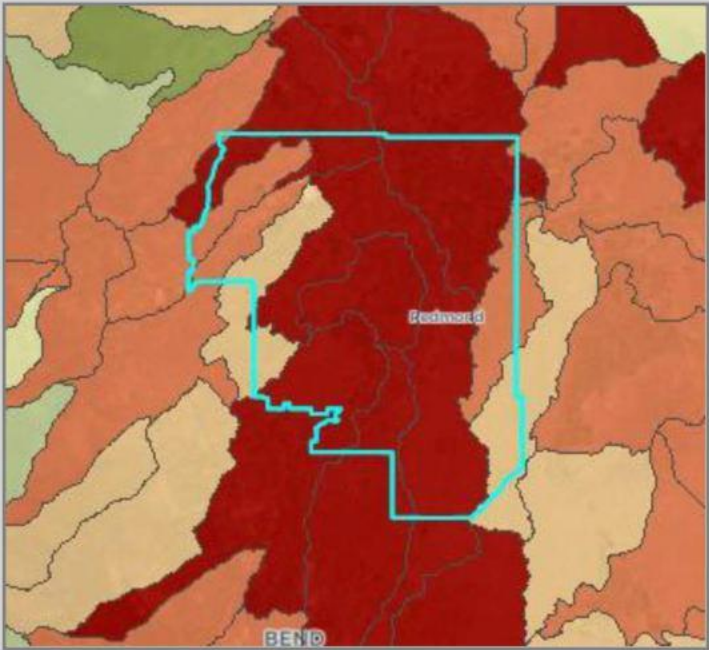
Overall wildfire risk in Greater Redmond CWPP FINAL *



Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

* Values may add up to over 100% due to rounding precision

Overall wildfire risk in Greater Redmond CWPP FINAL: sub-watershed summary map. Overall wildfire risk is summarized at the sub-watershed (6th field Hydrologic Unit Code, HUC12) level. Watershed summaries enable you to view the landscape context and identify and compare sub-watersheds for prioritization.





Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)

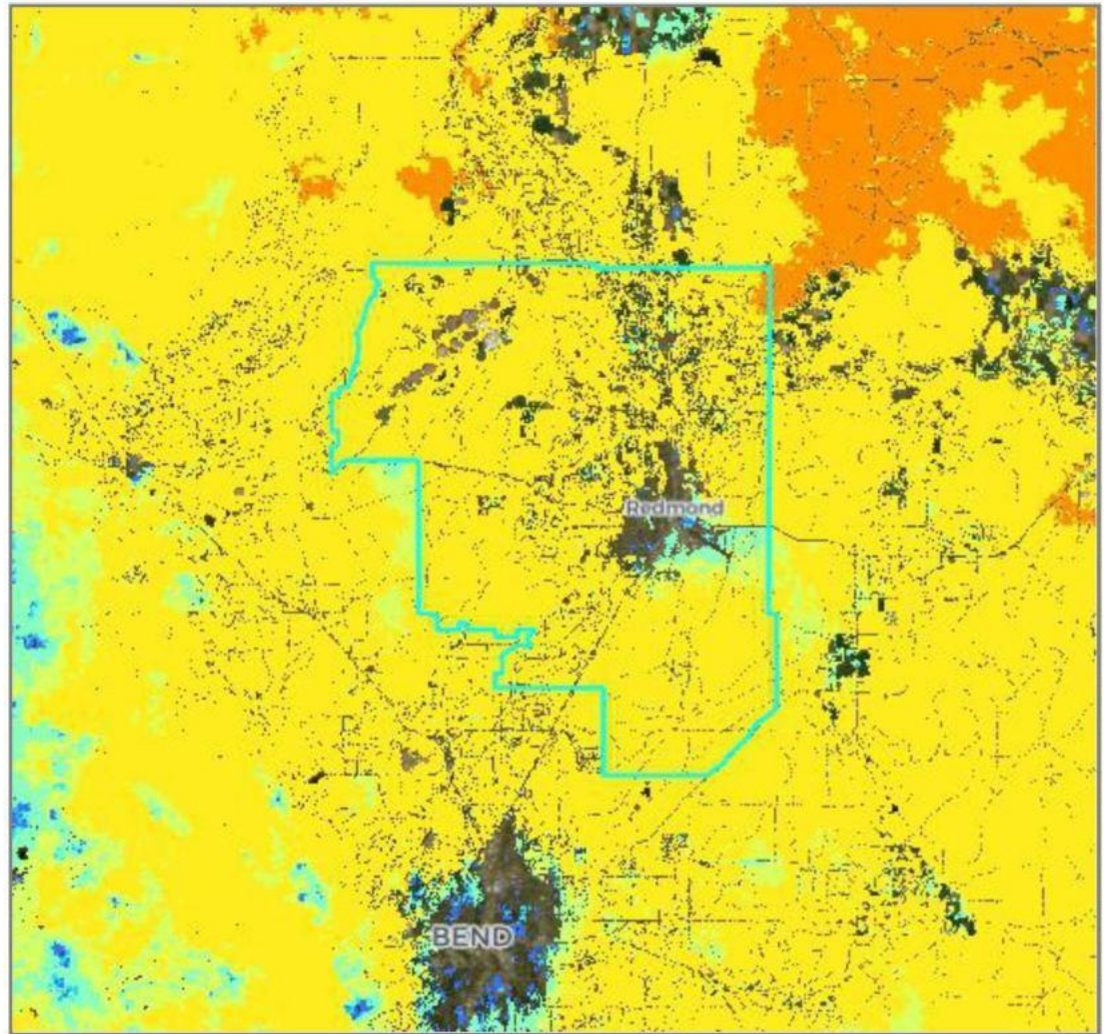


Generated: April 20, 2022

BURN PROBABILITY

Burn probability shows the annual likelihood of a wildfire greater than 250 acres in size occurring, considering weather, topography, fire history, and fuels (vegetation). This estimate includes fire history from 1992 through recently disturbed fuels from large Oregon wildfires in notable years 2013, 2014, 2015, and 2017.

Only large wildfires over 250 acres in size are included because they are the most influential on the landscape and they can be simulated using computer software. Most fire occurrences are less than 250 acres (see fire history section). Although these smaller fires have a low impact on the broader landscape, they can have significant local impacts, especially in areas with human activity and infrastructure.



Burn probability

Very High	Greater than 1 in 50 chance of a wildfire >250 acres in a single year (>96th percentile).
High-Very High High	Between 1 in 500 and 1 in 50 chance of a wildfire >250 acres in a single year (29th to 96th percentile).
Moderate-High Moderate	Between 1 in 5,000 and 1 in 500 chance of a wildfire >250 acres in a single year (11th to 29th percentile).
Low-Moderate Low	Less than approximately 1 in 5,000 chance of a wildfire >250 acres in a single year (up to the 11th percentile).
Non-burnable	This area contains non-burnable fuel types such as water, urban, agriculture, barren rock, etc.



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



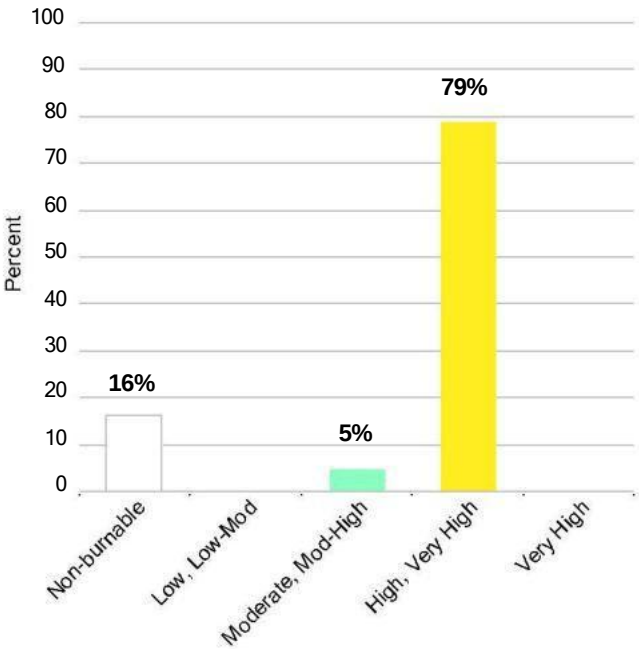
Generated: April 20, 2022

This page contains additional information about burn probability, including a table of classes by ownership to determine the distribution of categories across ownerships, and a chart of overall percentages of classes across the area. The inset box displays sub-watershed summaries for landscape-scale prioritization.

Burn probability in Greater Redmond CWPP FINAL: estimated acres by ownership

Category	Total	Private	Local	State	BLM	USFS	USFWS	Other Fed	Tribal
Very High	0	0	0	0	0	0	0	0	0
High, Very High	100,673	48,297	107	2,085	50,172	12	0	0	0
Moderate, Mod-High	6,278	4,192	48	191	1,847	0	0	0	0
Low, Low-Mod	378	373	0	0	5	0	0	0	0
Non-Burnable	20,871	18,480	17	237	2,137	0	0	0	0
Total Area.	128,200	71,342	172	2,513	54,161	12	0	0	0

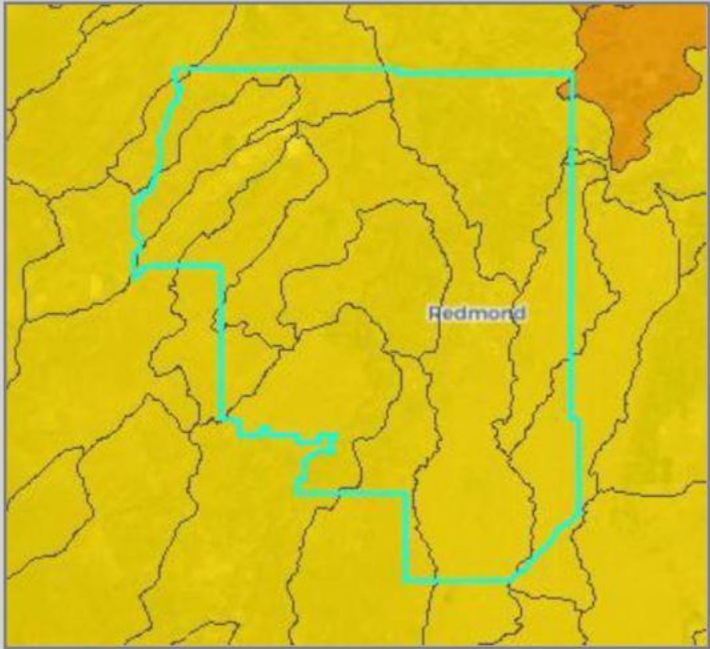
Burn probability in Greater Redmond CWPP FINAL *



Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

* Values may add up to over 100% due to rounding precision

Burn probability in Greater Redmond CWPP FINAL: sub-watershed summary map. Burn probability is summarized at the subwatershed (6th field Hydrologic Unit Code, HUC12) level. Watershed summaries enable you to view the landscape context and identify and compare sub-watersheds for prioritization.





Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



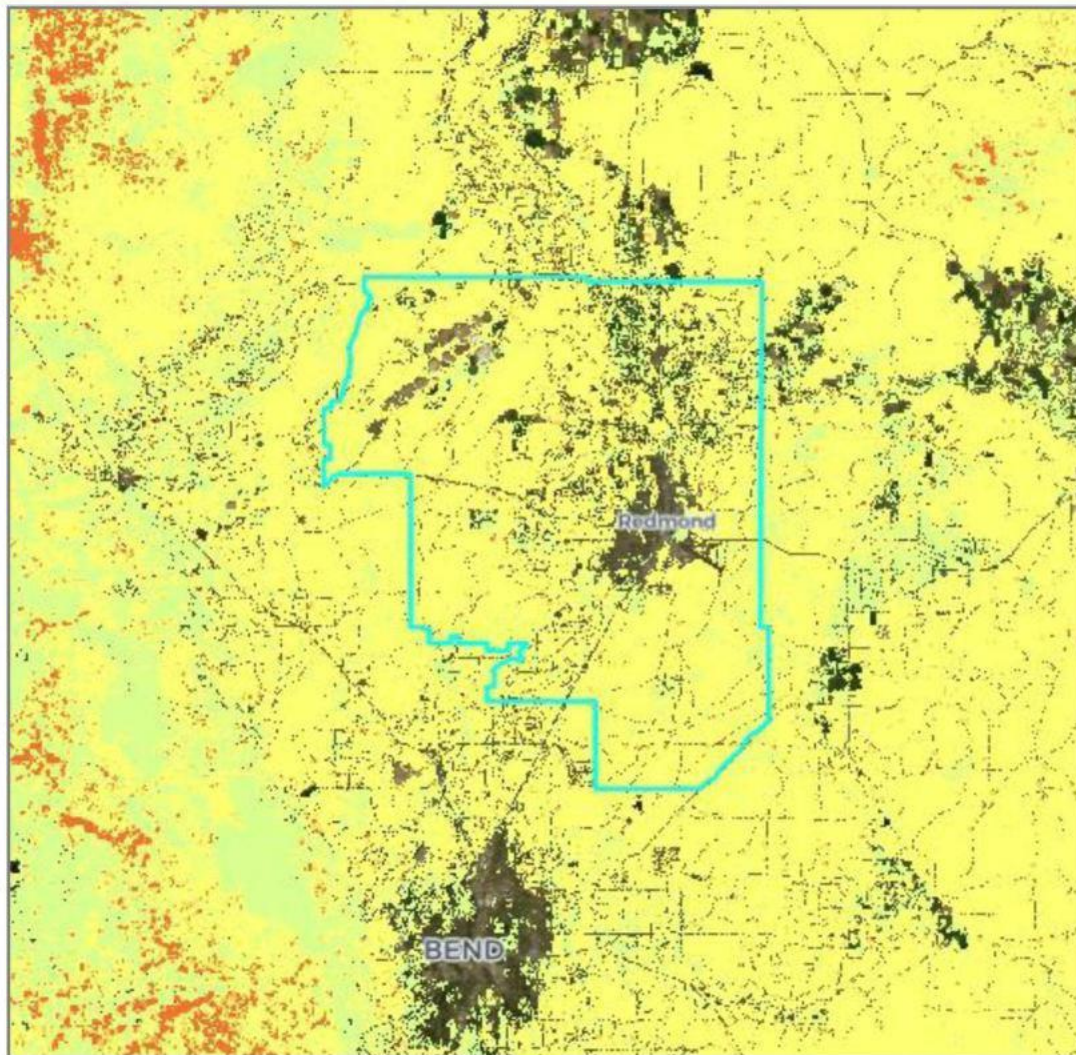
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FIRE INTENSITY - FLAME LENGTHS

Flame length is an indication of fire intensity, which is a primary factor to consider for gauging potential impacts to values at risk and for firefighter safety. It can also guide mitigation work to reduce the potential for catastrophic fires by reducing fire intensity and flame length.

Under normal weather conditions average flame lengths within your area are shown, and the associated table describes the expected fire behavior in each average flame length category.

Conditions vary widely with local topography, fuels, and local weather, especially local winds. In all areas, under warm, dry, windy, and drought conditions, expect higher likelihood of fire starts, higher fire intensities, more ember activity, a wildfire more difficult to control, and more severe impacts.



Average fire intensity - flame lengths under normal weather conditions

	> 11 foot	Fires may exhibit greater than 11-foot average flames with major fire movement, tree crowning, longer-range spotting and ember travel.
	8-11 foot	Fires may exhibit 8-11 foot average flames with tree torching and increased ember travel.
	4-8 foot	Fires may exhibit 4-8 foot average flames, and embers may travel moderate distances.
	4 foot	Fires may exhibit 4 foot average flames.
	Non-burnable	This area contains non-burnable fuel types such as water, urban, agriculture, barren rock, etc.



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



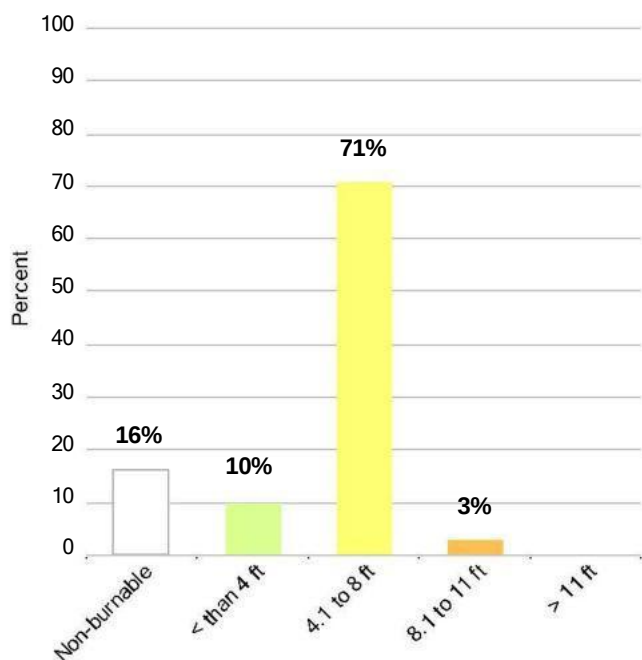
Generated: April 20, 2022

This page contains additional information about fire intensity, including a table of classes by ownership to determine the distribution of categories across ownerships, and a chart of overall percentages of classes across the area. The inset box displays sub-watershed summaries for landscape-scale prioritization.

Greater Redmond CWPP FINAL average fire intensity - flame lengths estimated acres by ownership

Category	Total	Private	Local	State	BLM	USFS	USFWS	Other Fed	Tribal
> 11 ft	349	268	0	1	78	2	0	0	0
8 - 11 ft	3,325	1,990	0	68	1,267	0	0	0	0
4 - 8 ft	90,892	40,631	26	1,982	48,243	10	0	0	0
> 0 - 4 ft	12,762	9,974	128	224	2,436	0	0	0	0
Non-burnable	20,871	18,480	17	237	2,137	0	0	0	0
Total Area	128,199	71,343	171	2,512	54,161	12	0	0	0

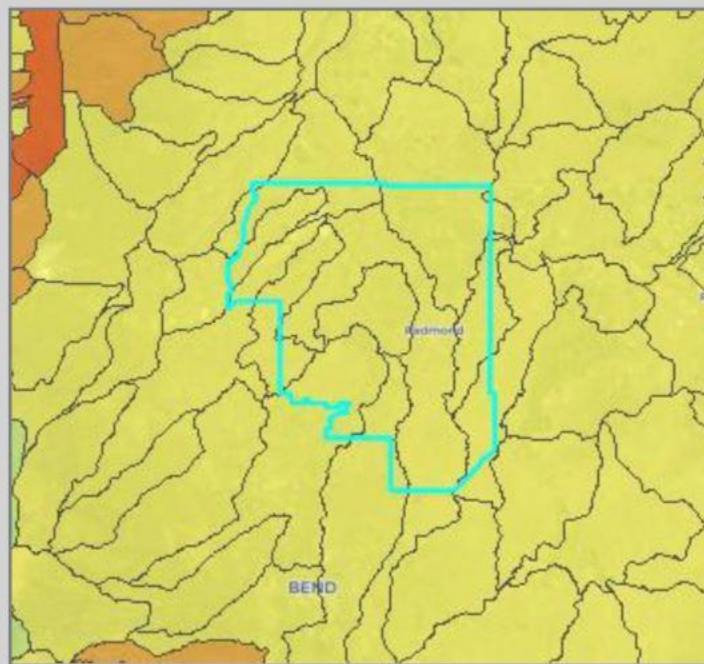
Fire intensity - flame length in Greater Redmond CWPP FINAL *



Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

* Values may add up to over 100% due to rounding precision

Fire intensity in Greater Redmond CWPP FINAL: sub-watershed summary map. Fire intensity is summarized at the subwatershed (6th field Hydrologic Unit Code, HUC12) level. Watershed summaries enable you to view the landscape context and identify and compare sub-watersheds for prioritization.





Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



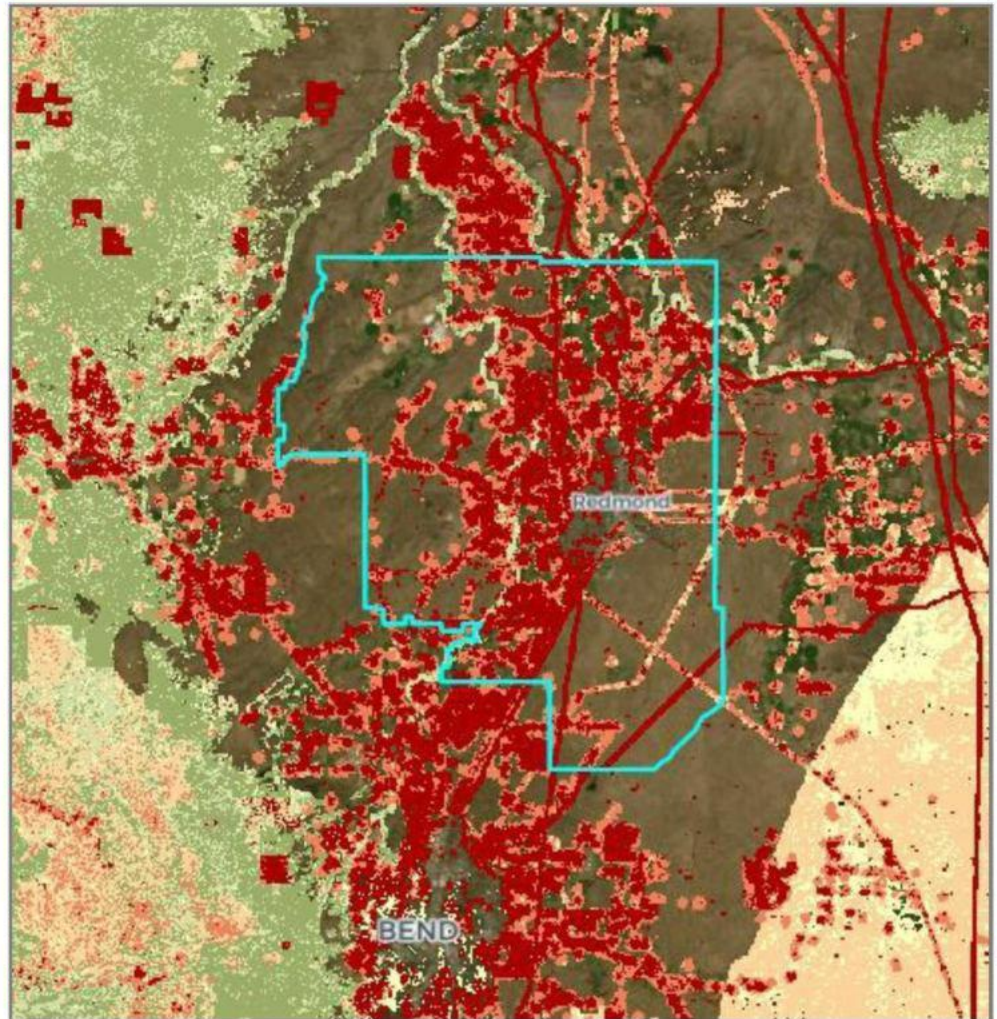
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OVERALL POTENTIAL IMPACT

Overall potential impact represents the exposure or consequence of wildfire on all mapped highly valued assets and resources combined, including critical infrastructure, developed recreation, housing density, seed orchards, sawmills, historic structures, timber, municipal watersheds, vegetation condition, and selected terrestrial and aquatic wildlife habitat.

The Potential Impact data layers characterize exposure and susceptibility only, and do not include the likelihood of an area burning. This differentiates the Potential Impact layers from Wildfire Risk layers, which account for the burn probability in the risk rating.

The data values reflect a range of impacts from a very high negative consequence, where wildfire is detrimental (e.g., high exposure to structures, infrastructure, or sensitive habitat), to a positive impact of wildfire, where wildfire will produce an overall benefit (e.g., improving forest health or wildlife habitat).



Overall potential impact (if a wildfire were to occur)		
	Very High	Overall potential impact is very highly negative (top 5% of values).
	High	Overall potential impact is highly negative (80-95th percentile).
	Moderate	Overall potential impact is moderately negative (50-80th percentile).
	Low	Overall potential impact is slightly negative (30-50th percentile).
	Low Benefit	Overall potential impact is slightly beneficial at low flame lengths (15-30th percentile).
	Benefit	Overall potential impact is slightly beneficial, with a cumulative positive impact of fire (0-15th percentile).
	No Data (blank)	There are no highly valued resources or assets mapped in the area or it is non-burnable (urban, agriculture, barren,etc).



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



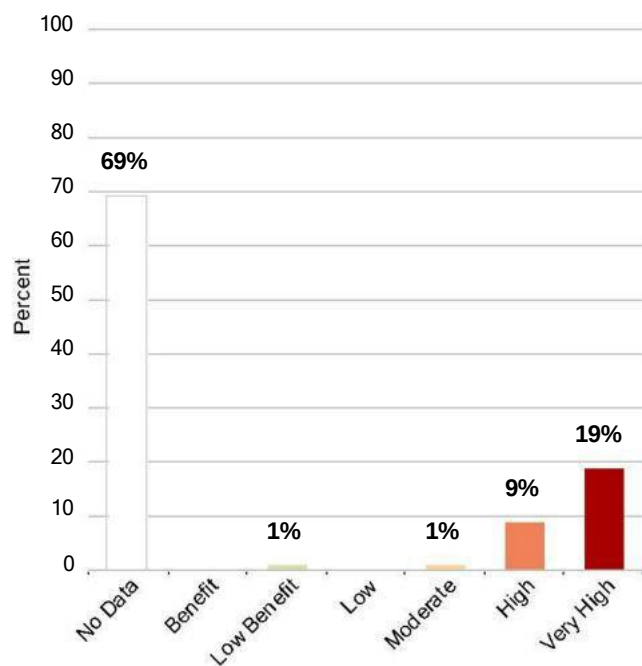
Generated: April 20, 2022

This page contains additional information about overall potential impact, including a table of classes by ownership to determine the distribution of categories across ownerships, and a chart of overall percentages of classes across the area. The inset box displays sub-watershed summaries for landscape-scale prioritization.

Greater Redmond CWPP FINAL overall potential impact estimated acres by ownership

Category	Total	Private	Local	State	BLM	USFS	USFWS	Other Fed	Tribal
Very High	24,582	17,370	20	524	6,668	0	0	0	0
High	11,801	6,886	2	107	4,806	0	0	0	0
Moderate	1,393	844	2	25	522	0	0	0	0
Low	191	110	0	8	73	0	0	0	0
Low Benefit	1,254	819	1	152	282	0	0	0	0
Benefit	405	252	2	68	83	0	0	0	0
No Data	88,572	45,062	144	1,629	41,725	12	0	0	0
Total Area	128,198	71,343	171	2,513	54,159	12	0	0	0

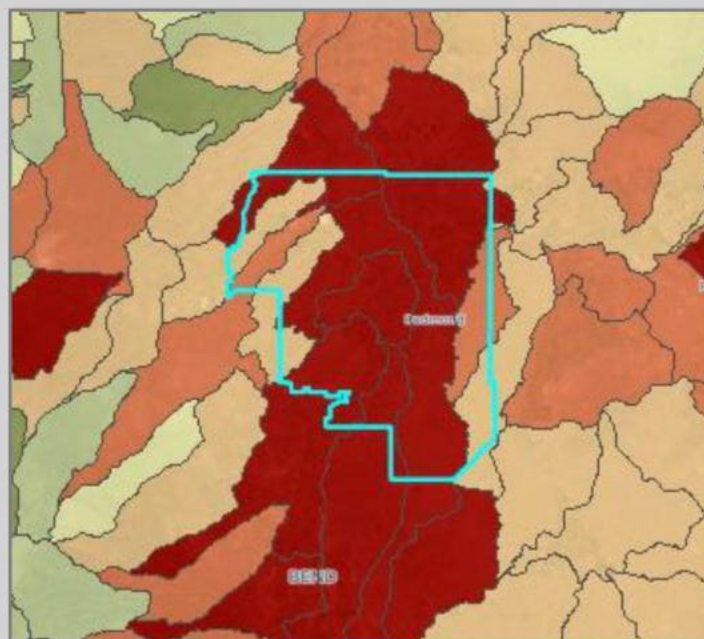
Overall potential impact in Greater Redmond CWPP FINAL *



Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

* Values may add up to over 100% due to rounding precision

Overall potential impact in Greater Redmond CWPP FINAL: sub-watershed summary map. Overall potential impact is summarized at the sub-watershed (6th field Hydrologic Unit Code, HUC12) level. Watershed summaries enable you to view the landscape context and identify and compare sub-watersheds for prioritization.





Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



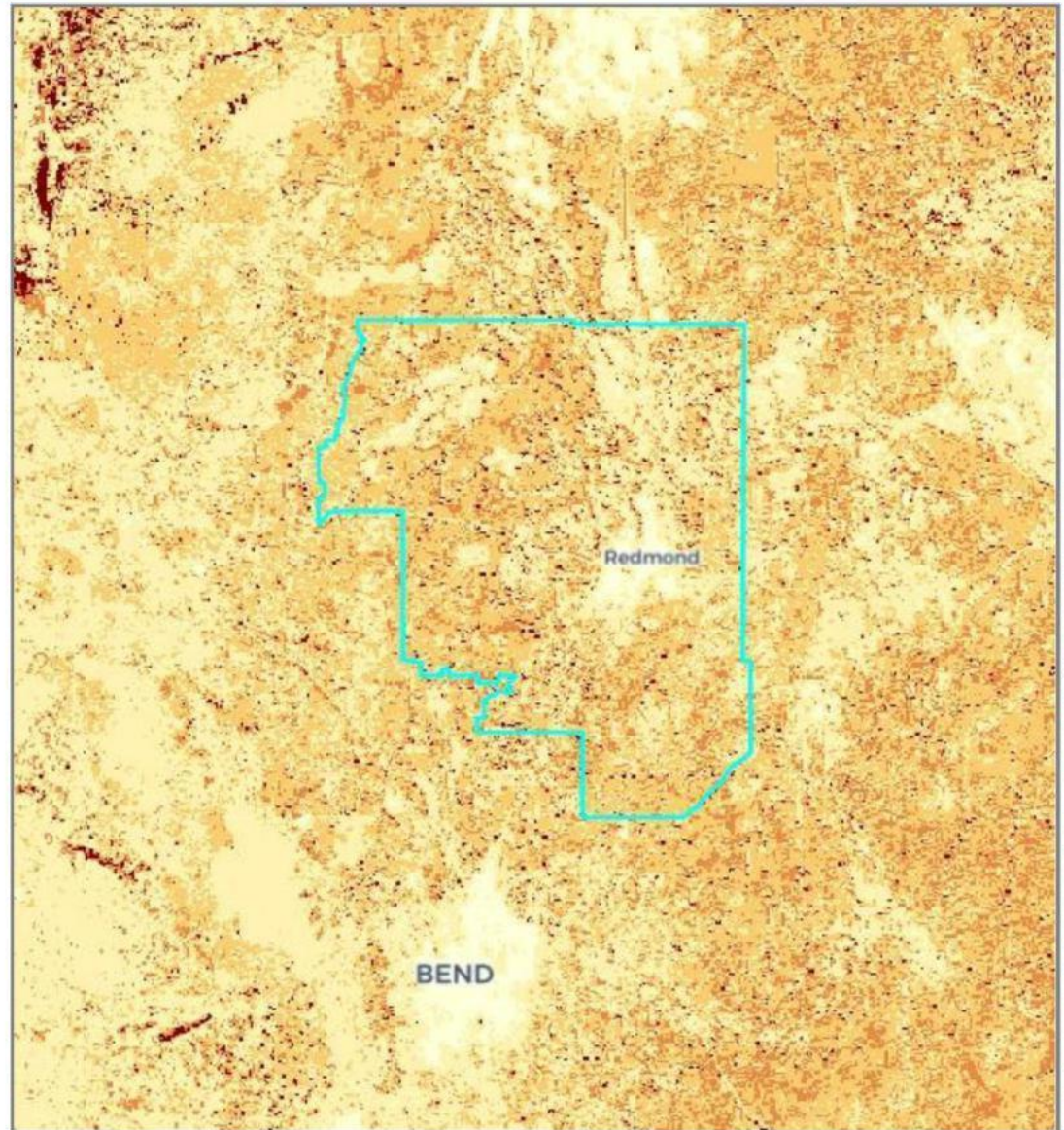
Generated: April 20, 2022

HAZARD TO POTENTIAL STRUCTURES

Hazard to potential structures depicts the hazard to a hypothetical structure (not necessarily an existing structure) if a wildfire were to occur. Hazard to potential structures differs from overall estimates of wildfire impact or risk, as those estimates only consider where existing structures are currently located.

Community planners can use this information when planning development outside of existing developed, urban or WUI areas. This data provides model-based consideration of wildfire hazard when developing Fire Adapted Communities in Oregon.

As with the other data layers, this layer characterizes the fire environment only and does not consider other important factors in determining structural fire risk such as building construction materials and vegetation within close proximity of a structure.



Hazard to potential structures

	Very High	Potential hazard is very high (top 5 percent).
	High	Potential hazard is high (80th to 95th percentile).
	Moderate	Potential hazard is moderate (50th to 80th percentile).
	Low	Potential hazard is low (up to the 50th percentile).
	Non-Burnable	Fuel in the area is largely non-burnable or very sparse.



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



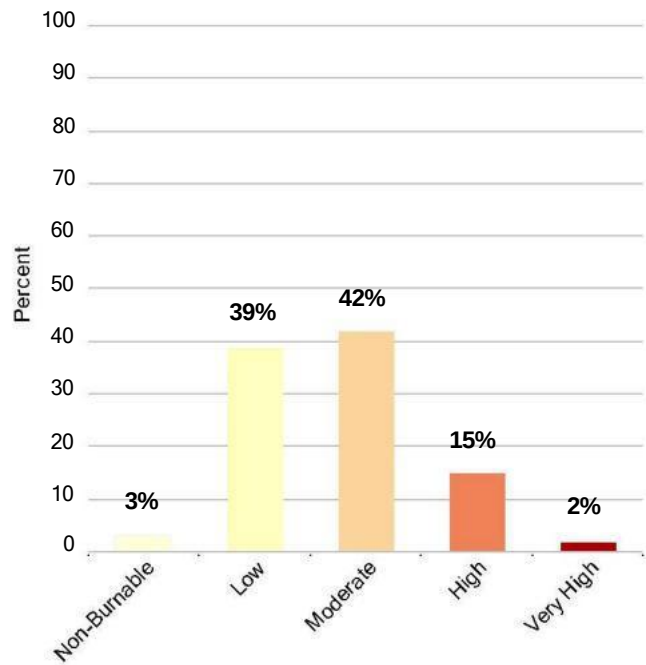
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This page contains additional information about hazard to potential structures, including a table of classes by ownership to determine the distribution of categories across ownerships, and a chart of overall percentages of classes across the area. The inset box displays sub-watershed summaries for landscape-scale prioritization.

Hazard to potential structures in Greater Redmond CWPP FINAL: estimated acres by ownership

Category	Total	Private	Local	State	BLM	USFS	USFWS	Other Fed	Tribal
Very High	2,300	1,362	0	26	910	2	0	0	0
High	19,405	9,352	2	379	9,671	1	0	0	0
Moderate	53,408	22,289	13	1,143	29,954	9	0	0	0
Low	49,501	34,824	157	957	13,563	0	0	0	0
Non-Burnable	3,585	3,515	0	7	63	0	0	0	0
Total Area	128,199	71,342	172	2,512	54,161	12	0	0	0

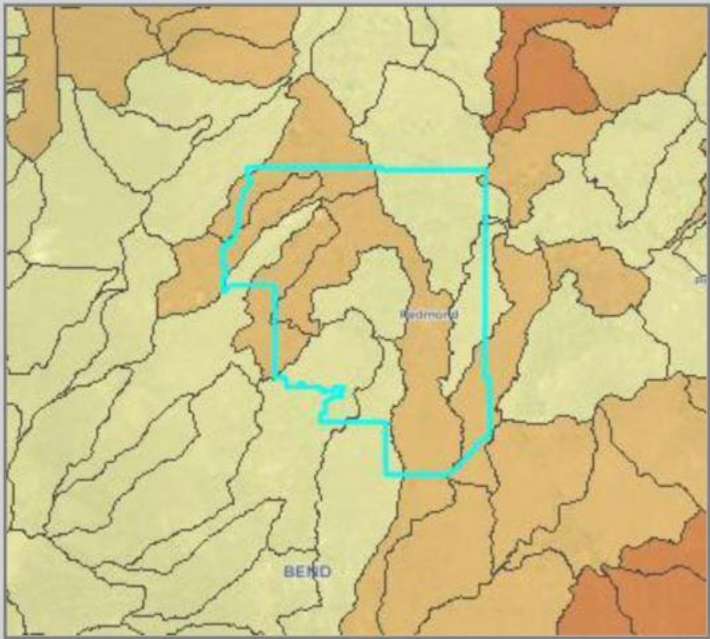
Hazard to potential structures in Greater Redmond CWPP FINAL *



Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

* Values may add up to over 100% due to rounding precision

Hazard to potential structures in Greater Redmond CWPP FINAL: sub-watershed summary map. Hazard to potential structures is summarized at the subwatershed (6th field Hydrologic Unit Code, HUC12) level. Watershed summaries enable you to view the landscape context and identify and compare sub-watersheds for prioritization.





Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



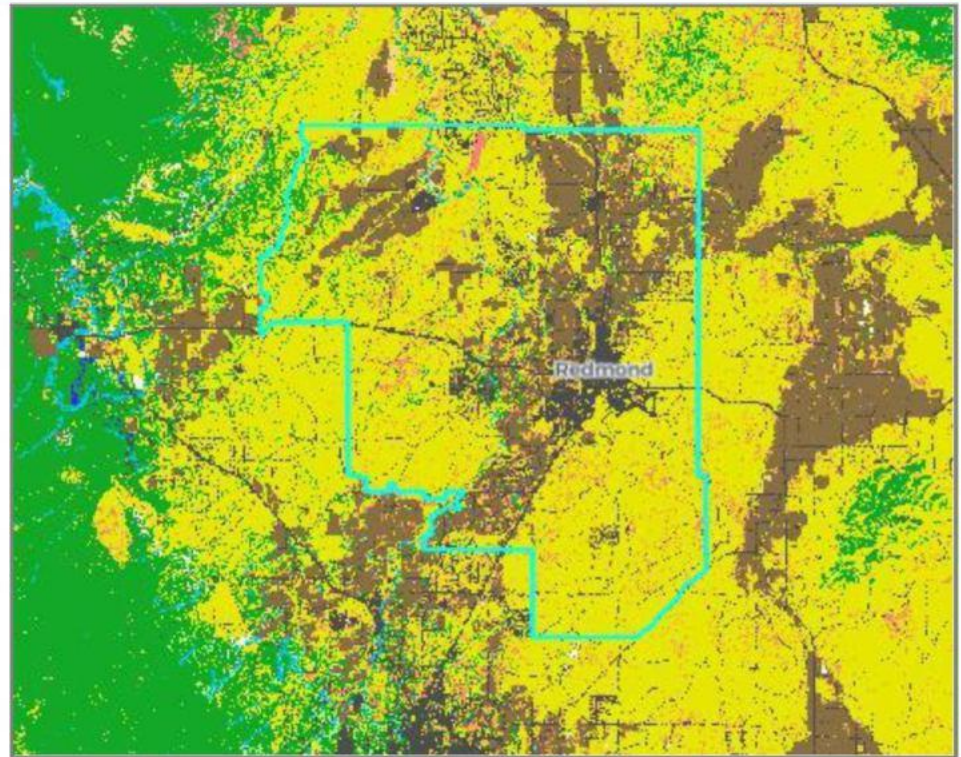
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EXISTING VEGETATION TYPE

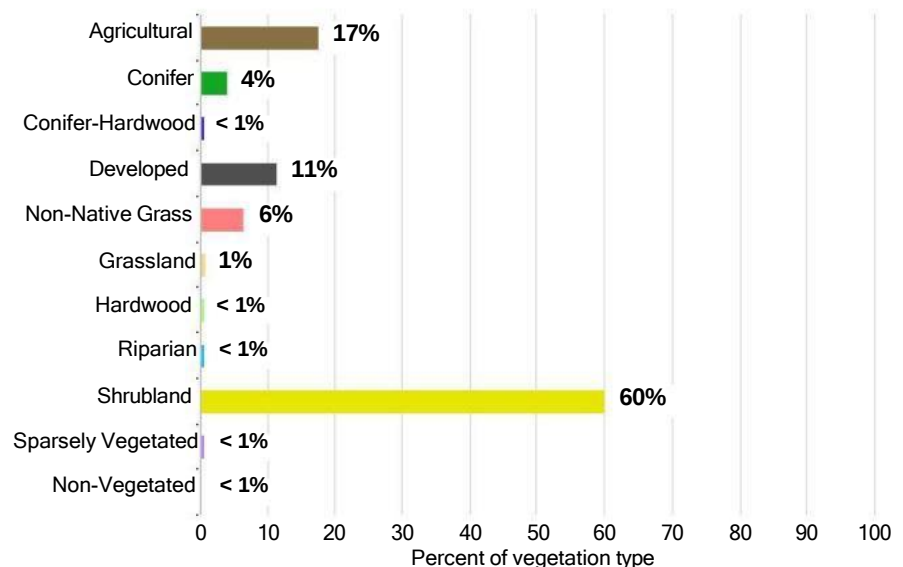
Vegetation is an important influence on potential wildfire behavior. The dominant vegetation type helps us understand the corresponding historical fire regime, a designation of fire frequency and severity. Fire frequency, or burn probability, suggests how often wildfire occurs (see Burn probability data layer). Fire severity tells us how much impact wildfires are likely to have on the vegetation and other elements of an ecosystem (see Potential impact to forest vegetation data layer). The living and dead vegetation below forest canopies (shrubs, grasses, leaf litter, dead tree snags, etc.) also strongly influence fire behavior and impacts in a location (see Fuel models).

Higher frequency fire areas generally have lower severities. Vegetation is continually or often thinned by fire and the remaining vegetation and other ecosystem elements can be considered adaptive or resilient to fire. Examples include Ponderosa pine forests and oak woodlands.

Lower frequency fire regimes experience less fire, but generally have higher severities, with vegetation and other ecosystem elements which can be considered sensitive. Examples include coastal forests, subalpine forests and many stream headwaters and riparian areas.



Vegetation Types in Greater Redmond CWPP FINAL





Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



Generated: April 20, 2022

Greater Redmond CWPP FINAL vegetation type

Category	Description	Acres	%*
Non-vegetated or recently disturbed	Non-vegetated	153	< 1
Agricultural	Agricultural	22,340	17
Conifer	Conifer	4,916	4
Conifer-Hardwood	Conifer-Hardwood	1	< 1
Developed	Developed	14,310	11
Exotic Herbaceous	Non-Native Grass	8,106	6
Grassland	Grassland	762	< 1
Hardwood	Hardwood	314	< 1
Riparian	Riparian	533	< 1
Shrubland	Shrubland	76,759	60
Sparsely Vegetated	Sparsely Vegetated	4	< 1

Existing Vegetation Type Data Dictionary <https://www.landfire.gov/evt.php>

Source: LANDFIRE <https://www.landfire.gov>

Resource:

US Forest Service Fire Regime Table

https://www.fs.fed.us/database/feis/fire_regime_table/fire_regime_table.html#PacificNorthwest

* Values may add up to over 100% due to rounding precision



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



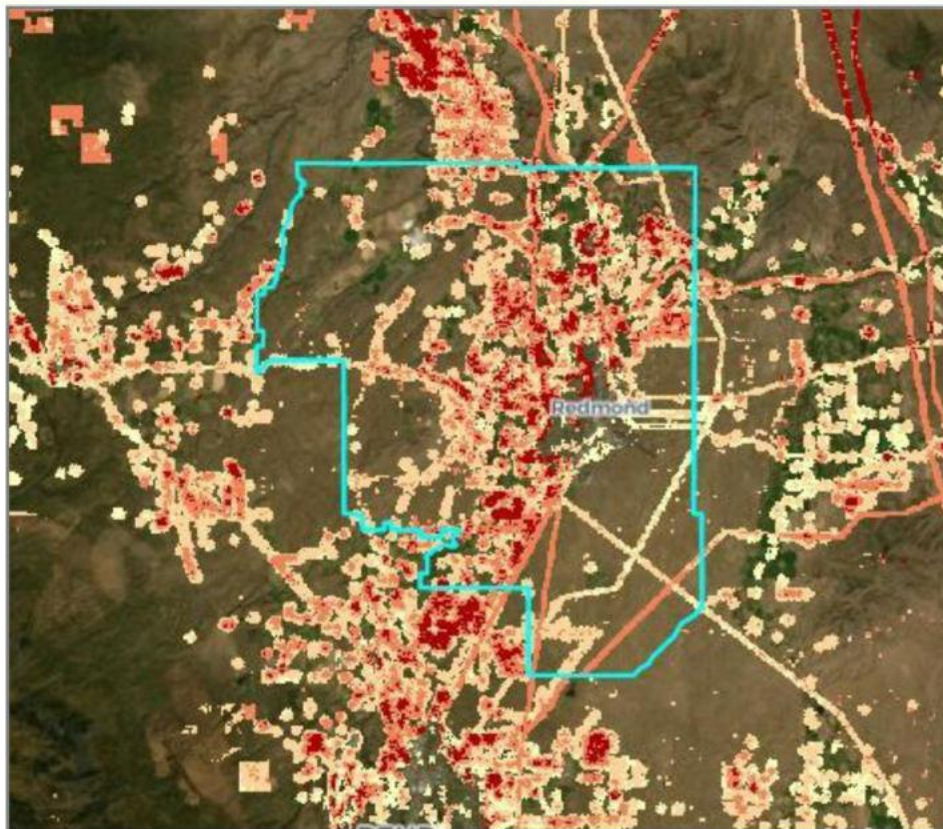
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WILDFIRE RISK TO ASSETS

Wildfire risk combines both the likelihood of a wildfire (or Burn probability) and the expected effects of a wildfire on highly valued resources and assets. See the description of Overall wildfire risk for more details.

Wildfire risk to assets maps wildfire risk only in places with the following assets: critical infrastructure, developed recreation, housing unit density, seed orchards, sawmills, and historic structures. Note that these resources and assets were mapped at a broad scale across all of Oregon and Washington, and maps contain errors and omissions, especially at fine scales.

The values in the maps and charts reflect a range of negative impacts from low to very high. Positive benefits of wildfire are not mapped in this layer, assuming that any impact of wildfire to human development is negative.



Wildfire Risk to Assets in Greater Redmond CWPP FINAL

Category	Description	Acres	%*
 Very High	Wildfire risk is very highly negative to all combined mapped assets (top 5%).	4,516	4
 High	Wildfire risk is highly negative (80-95th percentile).	13,043	10
 Moderate	Wildfire risk is moderately negative (50-80th percentile).	18,170	14
 Low	Wildfire risk is slightly negative (0-50th percentile).	2,103	2
 No Data	There are no highly valued resources or assets mapped in the area, or it is considered non-burnable.	90,365	70

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

* Values may add up to over 100% due to rounding precision



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



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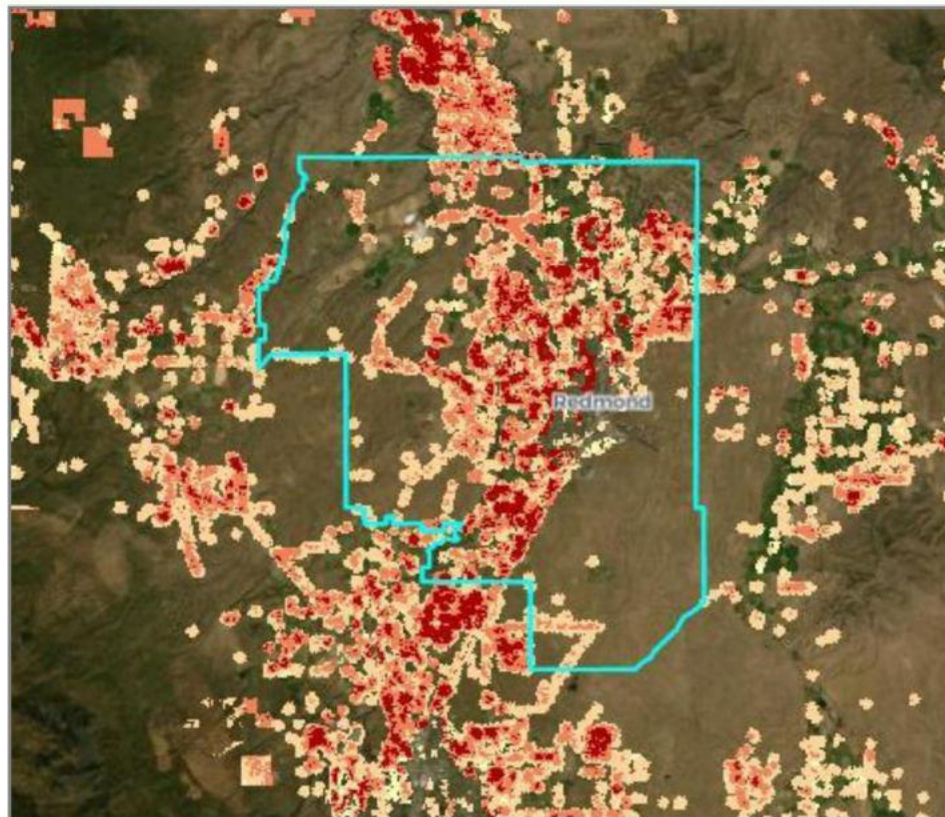
WILDFIRE RISK TO PEOPLE AND PROPERTY

Wildfire risk combines both the likelihood of a wildfire (or burn probability) and the expected effects of a wildfire on highly valued resources and assets. See the description of overall wildfire risk for more details.

Wildfire risk to people and property includes only housing unit density as mapped in the Where people live layer and US Forest Service private inholdings.

Note that these resources and assets were mapped at a broad scale across all of Oregon and Washington, and maps contain errors and omissions, especially at fine scales.

The values in the maps and charts reflect a range of negative impacts from low to very high. Positive benefits of wildfire are not mapped in this layer, assuming that any impacts of wildfire to human development is a negative impact.



Wildfire Risk to People and Property in Greater Redmond CWPP FINAL

Category	Description	Acres	%*
 Very High	Wildfire risk is very highly negative to people and property (top 5%).	5,552	4
 High	Wildfire risk is highly negative (80-95th percentile).	12,789	10
 Moderate	Wildfire risk is moderately negative (50-80 percentile).	13,514	11
 Low	Wildfire risk is slightly negative (0-50 percentile).	319	< 1
 No Data	There are no highly valued resources or assets mapped in the area, or it is considered non-burnable.	96,024	75

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

* Values may add up to over 100% due to rounding precision



Oregon Wildfire Risk Explorer- Advanced Report

Greater Redmond CWPP FINAL

128,202 Acres: (200 Sq. Miles)



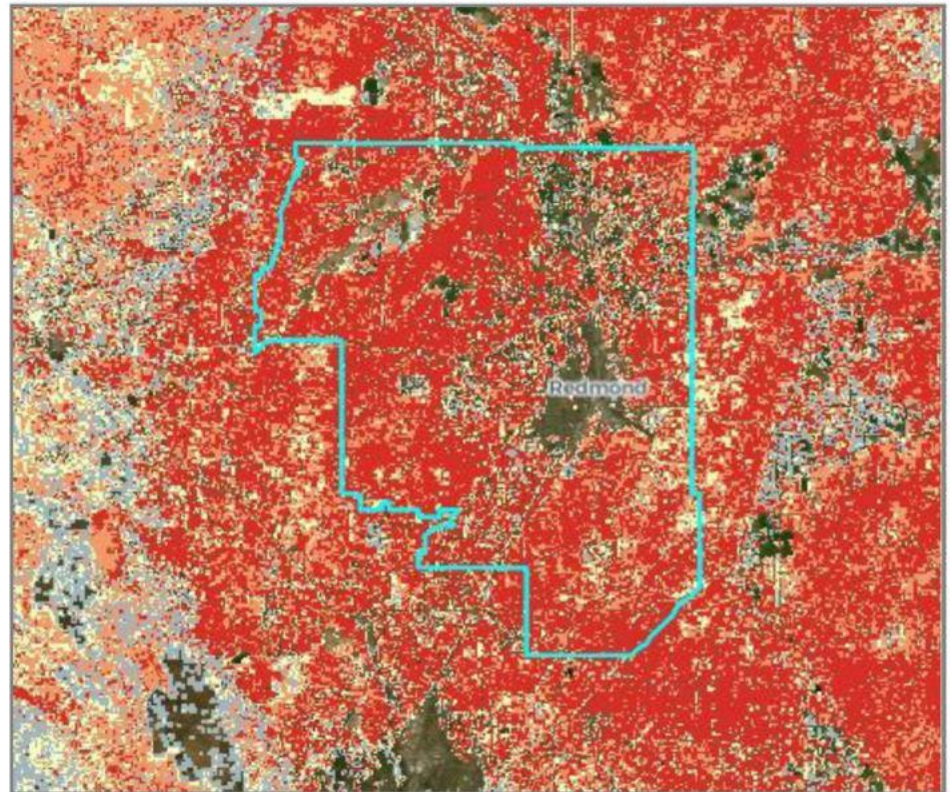
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PROBABILITY OF EXCEEDING 4 FOOT FLAME LENGTHS

Flame length is an indication of fire intensity, which is a primary factor to consider for firefighter safety and for gauging potential impacts to values at risk. Fires with greater flame lengths are more intense and difficult to control. At higher flame lengths, firefighters cannot directly approach. As flame lengths increase, tree torching and spotting is expected and ember travel is increased.

Fires with greater than 4' flames are too intense for firefighters to work at the front of the flame using hand tools, and heavier equipment such as bulldozers may be necessary.

Using this layer to help target locations of higher flame length potential, a local assessment might reveal opportunity to reduce fire intensity as a goal of fuels treatment projects by using managed fire and/or other active management activities. Values are expressed as a percent likelihood. These probabilities do not take into account the likelihood of burning (see Burn probability).



Greater Redmond CWPP FINAL probability of exceeding 4' flames

Category	Description	Acres	%*
75-100%	If a fire occurs, there is a very high (>75%) chance that flame lengths will be greater than 4'.	66,289	52
50-75%	If a fire occurs, there is a high (50-75%) chance that flame lengths will be greater than 4'.	22,222	17
25-50%	If a fire occurs, there is a moderate (25-50%) chance that flame lengths will be greater than 4'.	11,027	9
0-25%	If a fire occurs, there is a low (<25%) chance that flame lengths will be greater than 4'.	7,005	5
0%	This area contains non-burnable fuel types such as water, urban, agriculture, barren rock, etc.	21,653	17

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

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PROBABILITY OF EXCEEDING 8 FOOT FLAME LENGTHS

Flame length is an indication of fire intensity, which is a primary factor to consider for firefighter safety and for gauging potential impacts to values at risk. Fires with greater flame lengths are very intense and are expected to be highly difficult to control -- too intense for firefighters to work at the front of the flame, and they can severely impact values at risk. Tree torching and spotting is expected and ember travel is increased.

Fires with >8' flame lengths may be very difficult to control with little ability to work at the front of the flame, and greater risk of torching, crowning and spotting.

Using this layer to help target locations of higher flame length potential, a local assessment might reveal opportunity to reduce fire intensity as a goal of fuels treatment projects by using managed fire and/or other active management activities.

Values are expressed as a percent likelihood. These probabilities do not take into account the likelihood of an area burning.



Greater Redmond CWPP FINAL probability of exceeding 8' flames

Category	Description	Acres	%*
75-100%	If a fire occurs, there is a very high (>75%) chance that flame lengths will be greater than 8'.	135	< 1
50-75%	If a fire occurs, there is a high (50-75%) chance that flame lengths will be greater than 8'.	2,094	2
25-50%	If a fire occurs, there is a moderate (25-50%) chance that flame lengths will be greater than 8'.	4,828	4
0-25%	If a fire occurs, there is a low (<25%) chance that flame lengths will be greater than 8'.	87,176	68
0%	This area contains non-burnable fuel types such as water, urban, agriculture, barren rock, glacial areas, etc.	33,965	26

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

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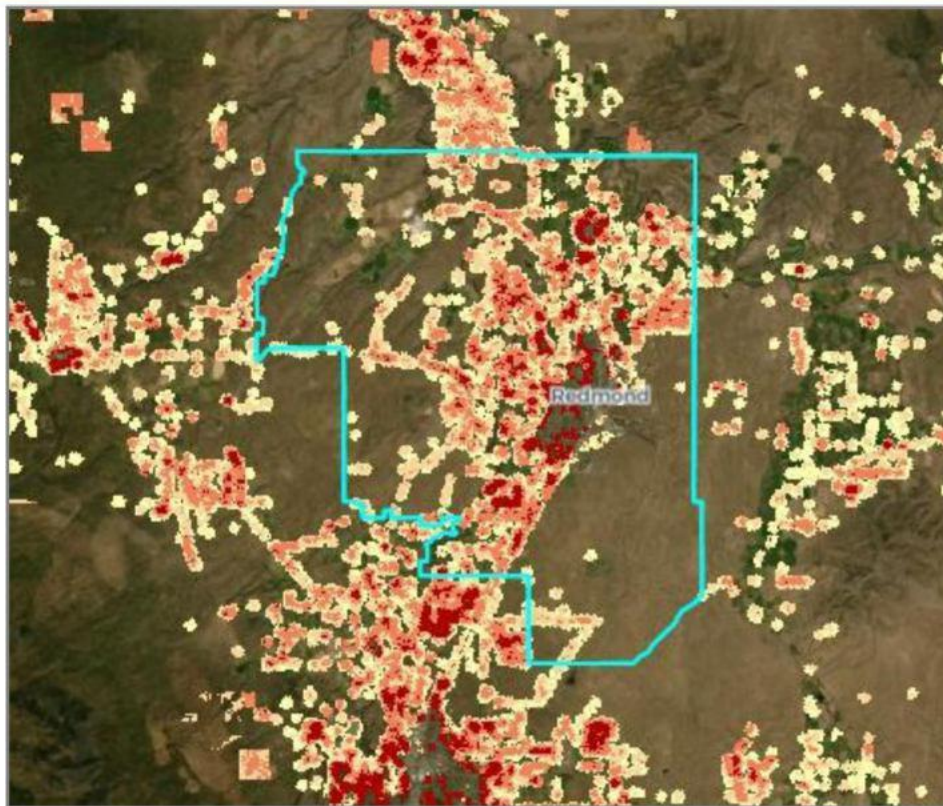
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POTENTIAL IMPACT TO PEOPLE AND PROPERTY

Potential impact to people and property represents the exposure or consequence of wildfire on mapped highly valued assets including housing unit density and USFS private inholdings.

The Potential Impact data layers characterize exposure and susceptibility only, and do not include the likelihood of an area burning. This differentiates the Potential Impact layers from Wildfire Risk layers, which account for the burn probability in the risk rating.

The data values reflect a range of impacts from very high to low negative consequences. Positive benefits of wildfire are not mapped in this layer, assuming that any impact of wildfire to human development is negative.



Greater Redmond CWPP FINAL potential impact to people and property, if a wildfire were to occur.

Category	Description	Acres	%*
Very High	Potential impact is very highly negative to people and property (top 5%).	3,086	2
High	Potential impact is highly negative (80-95th percentile).	10,717	8
Moderate	Potential impact is moderately negative (50-80th percentile).	12,153	9
Low	Potential impact is slightly negative (0-50th percentile).	6,217	5
No Data	There is no people and property mapped in the area or it is considered non-burnable (urban, agriculture, barren, etc).	96,024	75

Source: 2018 Pacific Northwest Quantitative Wildfire Risk Assessment, US Forest Service

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POTENTIAL IMPACT TO INFRASTRUCTURE

Potential impact to infrastructure represents the exposure or consequence of wildfire on mapped highly valued assets including critical infrastructure, developed recreation, housing unit density, seed orchards, sawmills, and historic structures.

The Potential Impact data layers characterize exposure and susceptibility only, and do not include the likelihood of an area burning. This differentiates the Potential Impact layers from Wildfire Risk layers, which account for the burn probability in the risk rating.

The resulting values reflect a range of impacts from a very high to low negative consequences. Positive benefits of wildfire are not mapped in this layer, assuming that any impact of wildfire to infrastructure is negative.



Greater Redmond CWPP FINAL potential impact to infrastructure, if a wildfire were to occur.

Category	Description	Acres	%*
 Very High	Potential impact is very highly negative (top 5%).	542	< 1
 High	Potential impact is highly negative (80-95th percentile).	2,030	2
 Moderate	Potential impact is moderately negative (50-80th percentile).	2,918	2
 Low	Potential impact is slightly negative (0-50th percentile).	3,942	3
 No Data	There is no infrastructure mapped in the area or it is considered non-burnable (urban, agriculture, barren, etc).	118,765	93

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POTENTIAL IMPACT TO WILDLIFE

Potential impact to wildlife represents the exposure or consequence of wildfire on mapped wildlife habitat for the following species: northern spotted owl, marbled murrelet, sage grouse, chinook salmon, coho salmon, steelhead trout, bull trout, redband trout, coastal cutthroat, and Lahontan cutthroat trout.

The Potential Impact data layers characterize exposure and susceptibility only, and do not include the likelihood of an area burning. This differentiates the Potential Impact layers from Wildfire Risk layers, which account for the burn probability in the risk rating.

The data values reflect a range of impacts from a very high negative consequences, where wildfire is detrimental (for example, sensitive habitat with fire-intolerant species), to a positive impacts of wildfire, where wildfire will produce an overall benefit (for example, improving wildlife habitat for fire-dependent species).



Greater Redmond CWPP FINAL potential impact to wildlife habitat, if a wildfire were to occur.

Category	Description	Acres	%*
Very High	Potential impact is very highly negative (top 5%).	0	0
High	Potential impact is highly negative (80-95th percentile).	21	< 1
Moderate	Potential impact is moderately negative (50-80th percentile).	155	< 1
Low	Potential impact is slightly negative (17-50th percentile).	192	< 1
Low Benefit	Potential impact is slightly beneficial to wildlife at low flame lengths (8-17th percentile).	594	< 1
Benefit	Potential impact is beneficial, with a cumulative positive impact on wildlife habitat (0-8th percentile).	1,769	1
No Data	There is no wildlife habitat mapped in the area, or it is considered non-burnable (urban, agriculture, barren, etc).	125,468	98

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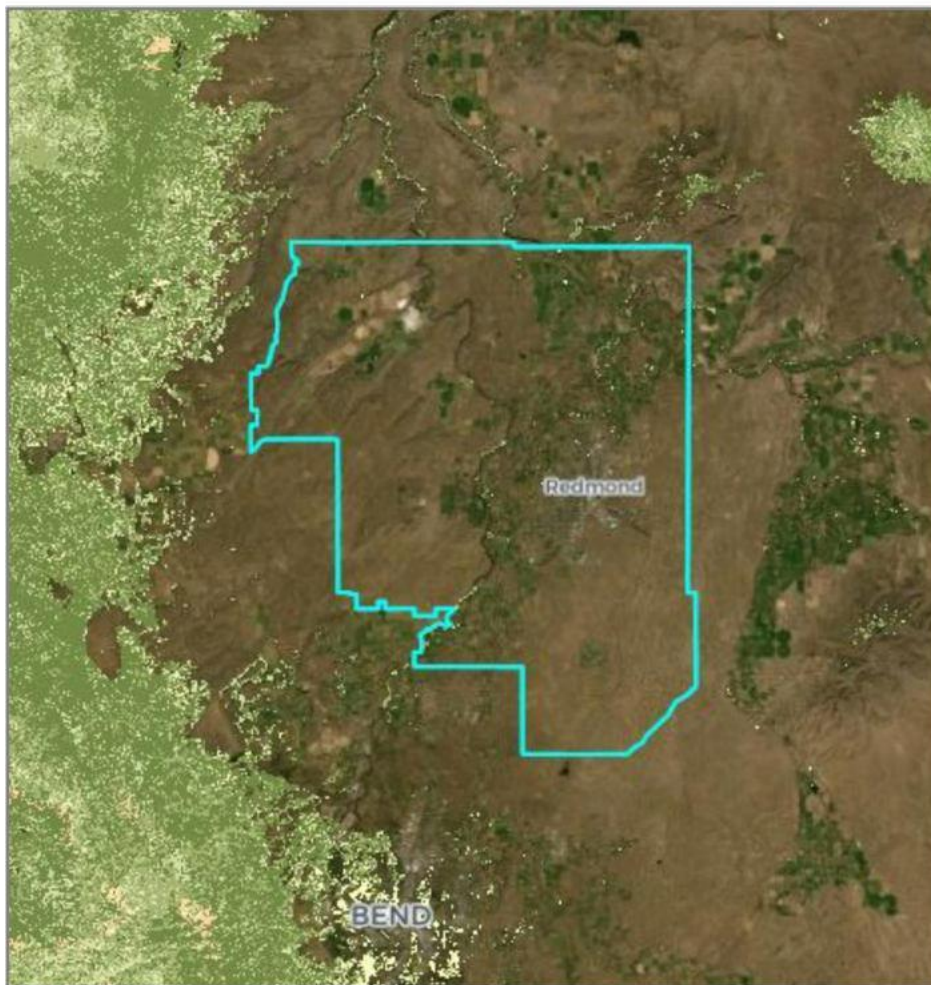
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POTENTIAL IMPACT TO FOREST VEGETATION

Potential impact to forest vegetation represents the exposure or consequence of wildfire on mapped forest vegetation. This layer provides information about departure of current vegetation condition relative to historical vegetation and reference conditions, and considers the natural role of fire to specific fire regime groups.

The Potential Impact data layers characterize exposure and susceptibility only, and do not include the likelihood of an area burning. This differentiates the Potential Impact layers from Wildfire Risk layers, which account for the burn probability in the risk rating.

The data values reflect a range of impacts from a very high negative rating, where wildfire will move the landscape further from historical or desired conditions, to positive, where wildfire will bring the landscape closer to historical or desired conditions. Note that wildfire impacts on rangeland and grassland vegetation were not simulated due to a lack of spatial data and adequate characterization of wildfire impacts on vegetation outside of forested communities.





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Greater Redmond CWPP FINAL potential impact to forest vegetation, if a wildfire were to occur.

Category	Description	Acres	%*
Very High	Potential impact is very highly negative (top 3%). Fire has a highly detrimental effect on the landscape, moving the landscape further from historical/desired conditions.	130	< 1
High	Potential impact is highly negative (87-97th percentile). Fire has a detrimental effect on the landscape, moving the landscape further from historical/desired conditions.	65	< 1
Moderate	Potential impact is moderately negative (52-87th percentile). Fire will move the landscape further from historical/desired conditions.	4	< 1
Low	Potential impact is slightly negative (19-52th percentile). Fire will move the landscape further from historical/desired conditions.	10	< 1
Low Benefit	Potential impact is slightly beneficial to forest vegetation at low flame lengths, potentially producing a "fuel treatment" effect (0.6-19th percentile).	0	0
Benefit	Potential impact is beneficial, with a cumulative positive impact on forest vegetation (0-0.6th percentile). There is potential for fire to bring the landscape closer to	0	0
No Data	There is no vegetation mapped in the area, or it is considered non-burnable (urban, agriculture, barren,etc).	127,988	100

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FIRE REGIME GROUPS

A fire regime is a description of the general characteristics of a fire area, including frequency, intensity, size, pattern, season, and severity of effects of wildfire in an ecosystem over an extended period of time, dependent on topography, weather, vegetation, and fire history. How intensely a fire burns determines the effects and severity. Overall impacts of fires will depend on the historical fire regime and the influence of changes to that regime through changes in forest structure, composition, and processes.

Existing vegetation has departed from historical conditions in some areas, which affects the current fire environment. This departure depicts relative degrees of alterations of key ecosystem components such as species composition, structural stage, stand age, canopy closure, and fuel loadings. The potential impact to forest vegetation layer (and other potential impact layers) shows the areas where wildfire will move the landscape further from historical conditions, and where there are opportunities to use managed fire, active management, or other fuel treatments to bring the landscape closer to historical conditions.

Historically, higher fire frequency areas have lower fire severities. Vegetation in these areas is considered adaptive or resilient to fire due to this frequency. Examples include Ponderosa pine forests and dry mixed conifer forests. Lower frequency fire regime areas generally have higher severities, with vegetation and ecosystem elements usually considered sensitive due to their lack of exposure to fire. Examples include coastal forests, subalpine forests, alpine meadows, and many stream headwaters and riparian areas (see Existing vegetation).

Fire frequency suggests how often wildfire occurs (see Burn probability and Fire history data layers). Fire severity tells us how much impact wildfires are likely to have on the vegetation and other elements of an ecosystem (see Potential Impact data layers). The living and dead vegetation below forest canopies (shrubs, grasses, leaf litter, dead tree snags, etc.) also influences fire behavior (intensity and spread) and severity (impacts or effects). See Fuel models and Flame length data layers).

The national classification of fire regime groups commonly used includes five groups of fire frequency and severity pairs: I - frequent fire (0-35 years), low severity; II - frequent fire (0-35 years), stand replacement severity; III - 35-100+ years, mixed severity; IV - 35-100+ years, stand replacement severity; and V - 200+ years, stand replacement severity. Oregon has all of these historical fire regimes.

Maps of fire regime groups from LANDFIRE can be found here:

https://www.landfire.gov/geoareasmaps/2012/CONUS_FRG_c12.pdf.

Find more information about fire regime groups here: <https://www.landfire.gov/frg.php>.

Fire Regime table for major vegetation areas (in the Pacific Northwest):

https://www.fs.fed.us/database/feis/fire_regime_table/fire_regime_table.html#PacificNorthwest



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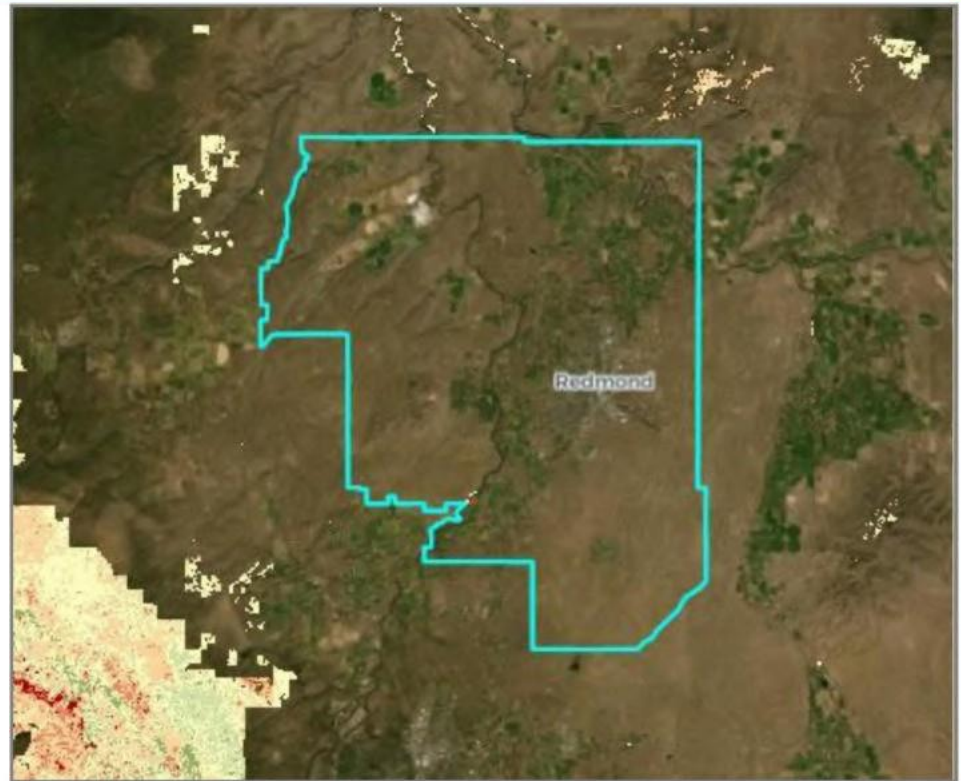
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POTENTIAL IMPACT TO TIMBER RESOURCES

Potential impact to timber resources represents the exposure or consequence of wildfire on mapped highly valued timber on US Forest Service, Tribal, private lands, BLM, and state-managed lands.

The Potential Impact data layers characterize exposure and susceptibility only, and do not include the likelihood of an area burning. This differentiates the potential impact layers from Wildfire Risk layers, which account for the burn probability in the risk rating.

The data values reflect a range of impacts from a very high negative rating, where wildfire is detrimental (for example early seral stage and/or sensitive forests), to positive, where wildfire may produce an overall benefit (for example, understory thinning treatment for fire-adapted species).



Greater Redmond CWPP FINAL potential impact to timber resources, if a wildfire were to occur.

Category	Description	Acres	%*
Very High	Potential impact is very highly negative (top 5%).	0	0
High	Potential impact is highly negative (80-95th percentile).	0	0
Moderate	Potential impact is moderately negative (50-80th percentile).	2	< 1
Low	Potential impact is slightly negative (19-50th percentile).	5	< 1
Low Benefit	Potential impact is slightly beneficial to timber resources at low flame lengths (9-19th percentile).	0	0
Benefit	Potential impact is beneficial, with a cumulative positive impact on timber resources (0-9th percentile).	0	0
No Data	There are no timber resources mapped in the area, or it is considered non-burnable (urban, agriculture, barren,etc).	128,191	100

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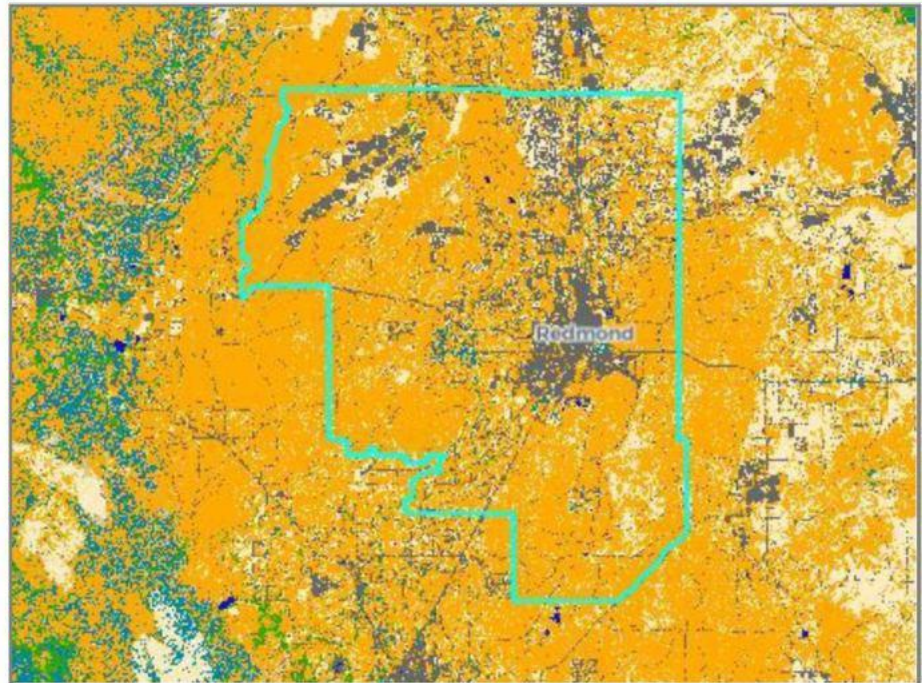


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FUEL MODEL GROUPS

Fuel models describe the fire-carrying materials that make up surface fuels, such as grasses, shrubs and litter (see next page). Fuel models are developed from climate characteristics, existing vegetation type, cover, height, and other vegetation characteristics, and help us understand the fuels igniting and carrying fire. These fuel models can be grouped into broad categories of burnable fuels based on descriptions of live and dead vegetation that represent distinct fuel types, size classes, and load distributions (amounts), shown in the map and chart below.

Fuels and other elements of the fuelscape in the risk assessment were extensively reviewed and refined by local expert consultation, and the fuelscape was updated to account for wildfires that occurred through 2017.



Greater Redmond CWPP FINAL fuel model groups (see next page for descriptions of codes)

Category	Description	Acres	%*
 Grass	Fuel models 101-104, (GR1; GR2; GR3; GR4)	19,612	15
 Grass/Shrub	Fuel models 121-123, (GS1; GS2; GS3)	86,125	67
 Non-burnable-other	Fuel Models 91-93,99, (NB1; NB2; NB3; NB9)	19,948	16
 Non-burnable-water	Fuel Models 98, (NB8)	338	< 1
 Slash-blowdown	Fuel Models 202, (SB2)	0	0
 Shrub	Fuel Models 141-147, (SH1; SH2; SH3; SH4; SH5; SH6; SH7)	240	< 1
 Timber Litter	Fuel Models 181-189, (TL1; TL2; TL3; TL4; TL5; TL6; TL7; TL8; TL9)	1,248	< 1
 Timber-Understory	Fuel Models 161-163, 165, (TU1; TU2; TU3; TU5)	687	< 1

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Table of Fuel Model Groups

40 Scott and Burgan Fire Behavior Fuel Models Description and Data Dictionary <https://www.landfire.gov/fbfm40.php>
<https://www.landfire.gov/DataDictionary/f40.pdf>

Group	Description
Grass Fuel models 101-104, (GR1; GR2; GR3; GR4)	GR1: Short, sparse dry climate grass is short, naturally or heavy grazing, predicted rate of fire spread and flame length low GR2: Low load, dry climate grass primarily grass with some small amounts of fine, dead fuel, any shrubs do not affect fire behavior GR3: Low load, very coarse, humid climate grass continuous, coarse humid climate grass, any shrubs do not affect fire behavior GR4: Moderate load, dry climate grass, continuous, dry climate grass, fuelbed depth about 2 feet
Grass/Shrub Fuel models 121-123, (GS1; GS2; GS3)	GS1: Low load, dry climate grass-shrub shrub about 1 foot high, grass load low, spread rate moderate and flame length low GS2: Moderate load, dry climate grass-shrub, shrubs are 1-3 feet high, grass load moderate, spread rate high, and flame length is moderate GS3: Moderate load, humid climate grass-shrub, moderate grass/shrub load, grass/shrub depth is less than 2 feet, spread rate is high and flame length is moderate
Non-Burnable-Other	Fuel Models 91-93, 99, (NB1; NB2; NB3; NB9) NB1: Urban NB2: Snow/Ice NB3: Agriculture NB9: Barren
Non-burnable-Water	Fuel Model 98, (NB8): Water
Slash-blowdown	Fuel Model 202, (SB2): Moderate load activity fuel or low load blowdown, 7-12 t/ac, 0-3 inch diameter class, depth about 1 foot, blowdown scattered with many still standing, spread rate and flame low
Shrub Group Fuel Models 141-147, (SH1; SH2; SH3; SH4; SH5; SH6; SH7)	SH1: Low load dry climate shrub, woody shrubs and shrub litter, fuelbed depth about 1 foot, may be some grass, spread rate and flame low SH2: Moderate load dry climate shrub, woody shrubs and shrub litter, fuelbed depth about 1 foot, no grass, spread rate and flame low SH3: Moderate load, humid climate shrub, woody shrubs and shrub litter, possible pine overstory, fuelbed depth 2-3 feet, spread rate and flame low SH4: Low load, humid climate timber shrub, woody shrubs and shrub litter, low to moderate load, possible pine overstory, fuelbed depth about 3 feet, spread rate high and flame moderate SH5: High load, humid climate grass-shrub combined, heavy load with depth greater than 2 feet, spread rate and flame very high SH6: Low load, humid climate shrub, woody shrubs and shrub litter, dense shrubs, little or no herbaceous fuel, depth about 2 feet, spread rate and flame high SH7: Very high load, dry climate shrub, woody shrubs and shrub litter, very heavy shrub load, depth 4-6 feet, spread rate somewhat lower than SH6 and flame very high



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Timber Litter Group	TL1: Low load compact conifer litter, compact forest litter, light to moderate load, 1-2 inches deep, may represent a recent burn, spread rate and flame low TL2: Low load broadleaf litter, broadleaf, hardwood litter, spread rate and flame low TL3: Moderate load conifer litter, moderate load conifer litter, light load of coarse fuels, spread rate and flame low TL4: Small downed logs moderate load of fine litter and coarse fuels, small diameter downed logs, spread rate and flame low TL5: High load conifer litter, light slash or dead fuel, spread rate and flame low TL6: Moderate load broadleaf litter, spread rate and flame moderate TL8: Large downed logs, heavy load forest litter, larger diameter downed logs, spread rate and flame low TL8: Long needle litter, moderate load long needle pine litter, may have small amounts of herbaceous fuel, spread rate moderate and flame low TL9: Very high load broadleaf litter, may be heavy needle drape, spread rate and flame moderate
Fuel Models 181-189, (TL1; TL2; TL3; TL4; TL5; TL6; TL7; TL8; TL9)	

Timber-Understory Group	TU1: Low load dry climate timber grass shrub, low load of grass and/or shrub with litter, spread rate and flame low TU2: Moderate load, humid climate timber-shrub, moderate litter load with some shrub, spread rate moderate and flame low TU3: Moderate load, humid climate timber grass shrub, moderate forest litter with some grass and shrub, spread rate high and flame moderate TU5: Very high load, dry climate shrub, heavy forest litter with shrub or small tree understory, spread rate and flame moderate
Fuel Models 161-163, 165, (TU1; TU2; TU3; TU5)	

This report was generated from the Advanced Oregon Wildfire Risk Explorer map viewer: tools.oregonexplorer.info/OE_HtmlViewer/index.html?viewer=wildfireplanning. For more information on wildfire risk in a specific location, you can generate a Homeowner's report from the Oregon Wildfire Risk Explorer map viewer.

How to Cite:

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URL: https://tools.oregonexplorer.info/OE_HtmlViewer/index.html?viewer=wildfireplanning

Primary data Source: USDA Forest Service Pacific Northwest Quantitative Wildfire Risk Assessment (2018)

The Oregon Wildfire Risk Explorer site, tools and reports are the result of a collaboration among the following organizations and others:



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