CHAPTER 1
INTRODUCTION

COMMUNITY NEWS

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County maps wildfire dangers

The state teams up with local agencies to draft comprehensive wildfire plan

By STEPHEN BEAVEN
THE OREGONIAN

The Oregon Department of Forestry has begun working with fire departments and other local agencies from throughout Multnomah County on a comprehensive plan to limit the danger of wildfires.

The department has created a map of Multnomah County neighborhoods that are particularly susceptible to wildfires, showing danger zones that stretch from Forest Park on the west side of the county to Powell Butte on the east side.

The effort, which started in August, is believed to be the first comprehensive wildfire plan for the entire county and will include community outreach efforts as well as tips for mitigating the threat of a fast-moving blaze.

The project is especially helpful for local fire departments that don't have enough staffing for a fire-prevention program of this size.

"Everybody has a plan to manage the fire problems in their area," said Jim Klum, deputy chief of emergency operations at the Gresham Fire Department. "But we just don't have the staff to do a comprehensive plan for any area other than ours."

Still, the fire departments in Portland, Gresham and elsewhere provided key information to help identify areas that are most at risk.

Multnomah County wildfire risk areas

Source: Oregon Department of Forestry

DAVID BADDERS/THE OREGONIAN

Cindy Kolomechuk, a community wildfire planner with the Forestry Department, developed the map with the help of fire departments throughout the county.

"Most of our fire districts, they've been thinking about this for awhile," she said. "It isn't very difficult to sit around and have them draw circles around particularly vulnerable areas and articulate why they're vulnerable."

High-risk areas have been identified based on a number of factors. Dry vegetation is the most obvious fuel — and the biggest risk — for wildfires.

But the plan for Multnomah County also took into consideration the nearby water supply in certain areas, private bridges that haven't been upgraded and the accessibility of local roads. Finding homes in rural areas can also present firefighters with difficulty.

The is not the first community wildfire protection plan the Department of Forestry has undertaken in Oregon. The department has been creating such plans for counties throughout the state for several years, Kolomechuk said.

In addition to fire departments, the Forestry Department has worked with other local agencies, including Metro, Portland Parks and Recreation, the U.S. Forest Service and Multnomah County

Please see WILDFIRE, E2

CHAPTER 1: INTRODUCTION

Fires are a natural part of the forest ecosystem in Multnomah County, Oregon. In fact, they have shaped the forests valued by Multnomah County residents and visitors. However, decades of forest management, fire suppression and climate change have significantly altered forest composition and structure. The result is an increase in the wildfire hazard as forest vegetation has accumulated to create a more closed, tighter forest environment that tends to burn more intensely than in the past. Rising temperatures and changes to precipitation patters result in drought conditions, making forests more susceptible to ignitions.

The exposure to wildfire hazards is also increasing, as recent population growth has spurred more residential development close to the forests in what is referred to as the wildland urban interface (WUI). As development encroaches upon forests with altered fire regimes that are more conducive to larger, more intense fires, the risk to life, property, and natural resources continues to escalate. The Multnomah County Community Wildfire Protection Plan (MCWPP) provides direction and helps facilitate a wildfire-based approach to managing our forestlands and the human development in the interface.

In August, 2010, the Wildfire Planning Steering Committee was established to provide oversight and guidance for the development of the MCWPP. Membership included representation from the county's Fire Defense Board and the public agencies responsible for natural resource management and fire protection. The Steering Committee actually began as the "Wildfire Technical Committee, " established by Portland City Council in 2009 to implement the Action Plan of the City's *Wildfire Readiness Assessment*: *Gap Analysis Report* (2009)[1] and manage future wildfire mitigation and fuels reduction projects associated with the Portland Natural Hazards Mitigation Plan.

The MCWPP addresses the requirements of the FEMA Pre-Disaster Mitigation program, and is aligned with multi-jurisdictional Natural Hazard Mitigation Planning efforts throughout the County. The MCWPP is intended and designed to update (and replace) the Wildfire Annex of the Multnomah County Natural Hazards Mitigation Plan (NHMP). Cities in Multnomah County are encouraged to use the MCWPP process to guide and update the Wildfire sections in their NHMP's.

This plan also meets criteria set forth in the National Fire Plan, and the Healthy Forest Restoration Act (HFRA), and will begin laying the foundation for implementation of Senate Bill 360: the Oregon Forestland-Urban Fire Protection Act of 1997. This MCWPP is designed to promote two broad concepts: intergovernmental cooperation and personal responsibility. Addressing state and federal legislation will enable the County to leverage grant funds to implement the action plan.

Plan Mission, Goals and Objectives

The Multnomah County CWPP Steering Committee has developed a mission statement, goals and objectives to guide the planning process. The MCWPP improves upon historical fire planning efforts by providing a county-wide approach for determining wildfire hazards, implementing best practices for wildfire prevention, and strengthening emergency response capabilities in the event of a wildfire.

[1] See www.portlandonline.com/wildfire

Mission:

The mission of the Multnomah CWPP is to integrate wildfire awareness into public outreach and education, emergency operations and vegetation management programs to promote actions that create safe communities and a more wildfire resilient landscape.

Goals:

The activities identified in the CWPP are in accordance with the multi-hazard mitigation planning goals outlined in the County's Natural Hazard Mitigation Plan. As such, the Steering Committee agreed to adopt these goals with a few modifications.

Promote public awareness, understanding, and actions to reduce risk.

- Capitalize on existing programs to implement a public involvement strategy that focuses on actions to reduce risk to structures and wildland areas as well as actions to take in the event of a wildfire such as emergency evacuation and communication procedures.
- Cultivate leadership within communities to implement wildfire mitigation activities and organize community response efforts.
- Encourage communities to take responsibility for reducing wildfire hazards.
- Provide information on tools, partnership opportunities, and funding resources to assist in implementing mitigation activities.

Reduce risk to people, property and environment.

- Review emergency operations procedures and identify opportunities to improve capacity and coordination among all agencies including natural resources and parks staff involved in wildfire response, especially in rural areas.
- Identify opportunities to inform, coordinate, and complement natural resource plans, policies and initiatives to implement best practices for wildfire protection in balance with sustainable ecological management and economic activities throughout Multnomah County.
- Recommend actions to restore fire adapted ecosystems and create fire resilient landscapes in the wildland urban interface and in natural areas.
- Integrate fuels reduction activities into public and private forest and inter-face management to contribute to resilient ecosystems.

Maintain a comprehensive, countywide risk assessment.

- Develop and utilize a wildfire hazard assessment to inform and guide wildfire prevention activities including public outreach, fuels reduction and development standards.
- Identify critical facilities, infrastructure, watersheds and other community assets in high hazard areas that have significant economic, social or cultural value and prioritize these areas for mitigation.

Support a disaster resilient economy.

- Identify biomass utilization opportunities to offset expense of fuels reduction activities.
- Implement activities that assist in protecting lives and reducing economic losses by making homes, businesses, infrastructure, critical facilities, and other property to minimize the risk of damages caused by wildfires.

Develop and maintain collaborative partnerships and funding strategies for implementing the CWPP.

- Strengthen communication and coordinate participation among and within public agencies, citizens, non-profit organizations, business, and industry to gain a vested interest in implementation.
- Provide a consolidated reference documenting wildfire hazards, prevention and response efforts, and resource sharing information for all participating agencies.
- Encourage agency personnel and resources to commit to plan implementation by integrating actions listed in the CWPP into budgets and workplans.
- Develop a CWPP that addresses National Fire Plan, Healthy Forest Restoration Act criteria and meets the intent of Senate Bill 360 to increase eligibility for future state and federal grant opportunities.
- Engage elected officials, fire districts and departments, and community leaders early in the process to garner political, social and economic support for the CWPP.

MCWPP Objectives & Action Plans

The MCWPP Steering Committee identified the following key objectives and assembled technical subcommittees to develop prioritized mitigation action plans to address them. For a complete listing, please see Table 1-1. MCWPP Action Plan.

The CWPP is a non-regulatory document with no funding associated with it. Therefore, the action items are to be completed as time and resources allow. The proposed actions are arranged by priority and include a listing of potential partners. The actions are given a target timeline for completion: Short-Term~1-2years; Long-Term ~3-5 years or longer, and implementation is largely dependent on securing funding for staff and resources.

- *Chapter 5: Wildfire Risk Assessment* analyzes the potential losses to life, property, and natural resources. Objectives of the risk assessment are to identify Communities-at-Risk and the Wildland-Urban Interface, and conduct a wildfire risk assessment that can be used in project prioritization.
- *Chapter 6: Hazardous Fuels Reduction and Biomass Utilization* identifies priority projects for reducing hazardous fuels and researches opportunities to add value to extracted vegetation and maintain a sustainable fuels reduction program. The fuels reduction projects focus on protecting life and property and infrastructure while moving toward a more fire-adapted ecosystem.
- *Chapter 7: Emergency Response Operations* evaluates and coordinates response capabilities among local governments and structural and wildland fire agencies to ensure effective response to a wildfire event.
- *Chapter 8: Wildfire Prevention and Community Involvement* includes objectives to develop ongoing strategies for increasing citizen awareness and action for fire prevention.
- *Chapter 9: Structural Ignitability and Regulatory Alignment* relates to reducing structural vulnerability by reviewing all local and state regulatory and non-regulatory standards relating to development and vegetation management and making recommendations to enhance wildfire safety.

Table 1-1. Multnomah County CWPP Action Plan

Action Item	Priority	Timeframe	Lead
Risk Assessment			
Improve consistency and relevancy of "wildland" fires ignition data.	High	Short Term	Local Fire Agencies, Oregon Dept. of Forestry
Develop a series of recommendations for tracking structural vulnerability data throughout the County and revise the Wildfire Hazard Analysis and the Wildland Urban Interface to reflect the new information.	High	Ongoing	Local Fire Agencies, Oregon Dept. of Forestry
Integrate large historical fires into the wildfire hazard analysis.	High	Ongoing	Oregon Dept. of Forestry, United States Forest Service
Work with local fire agencies to develop more detailed risk assessments using local and community-derived data.	High	Ongoing	Local Fire Agencies/Oregon Dept. of Forestry
Fuels Reduction & Biomass Utlization			
Develop and maintain an inventory of potential fuels reduction projects in high-risk areas, fuel reduction prescriptions, and a list of prioritized future projects.	High	Ongoing	Wildfire Techincal Committee
Work directly with communities targeted for fuels reduction treatments to gain support for the project prior to implementation.	High	Ongoing	Local Fire Agencies
Integrate defensible space practices into Naturescaping programming and other vegetation management programs targeted at homeowners to ensure consistent and complimentary messaging in high-risk areas of the Wildland Urban Interface.	High	Short Term	Wildfire Techincal Committee
Align fuels reduction efforts with invasive weed management programs.	High	Short Term	Wildfire Techincal Committee, 4 County Coordinated Weed Management Agecny
Develop a "Prescription Team" to develop a landscape Desired Future Condition (DFC) and recommendations for achieving the DFC for high priority fuels reduction projects that meet multiple objectives (wildfire, maintaining shrub layer for habitat, etc.).	High	Ongoing	Wildfire Techincal Committee, 4 County Coordinated Weed Management Agecny
Develop and monitor experimental projects that utilize innovative strategies to achieve ecologically healthy, visually appealing landscapes that are resilient to wildfires.	High	TBD	Wildfire Techincal Committee
Obtain funding to implement fuels reduction projects.	High	Ongoing	Wildfire Techincal Committee
Develop cost sharing opportunities designed to decrease the financial burden on the property owner.	High	Ongoing	Oregon Dept. of Forestry, Multnomah County
Develop an emergency communications plan for Metro Parks, Portland and other Cities' Parks, and Portland Water Bureau staff to ensure that employees can communicate during a wildfire event.	High	Short Term	Multnomah County Emergency Management, Portland Fire & Rescue
Inventory and map evacuation routes in Metro Parks, Portland and other Cities' Parks, and Natural Areas and communicate this information to adjacent communities and emergency response professionals.	High	Short Term	Multnomah County Emergency Management
Develop a wildfire fuels assessment and initial response training and safety program for Parks staff.	High	Ongoing	Portland Fire & Rescue
Develop a supply/demand information sheet that aligns potential biomass utilization opportunities for specific types of extracted vegetation.	High	Ongoing	Oregon Dept. of Forestry
Utilize strategies that add value to extracted vegetation, and enhance economic development (consider timing and timber market prices).	High	Ongoing	Wildfire Techincal Committee

Table 1-1. Multnomah County CWPP Action Plan

Action Item	Priority	Timeframe	Lead
Emergency Operations			
Work with partners to train all incident personnel for basic wildland firefighting and the Incident Command System (e.g. firefighters, park technicians, etc.).	High	Ongoing	Local Fire Agencies
Identify and address any shortages in wildland training and qualifications in line leadership positions such as Operations Section Chief, DIVS and TFLD.	High	Short Term	Local Fire Agencies, ODF
Examine mutual aid agreements (and/or amend as needed via MOU) for protocol regarding resource sharing and potential cost reimbursement for Extended Attack (after first 12 hours). Consider developing and integrating a process for rapid equipment sharing.	High	Ongoing	Multnomah County Fire Defense Board
Provide clear direction for Incident Commanders regarding when and how to ask for additional resources and/or mutual aid from other jurisdictions.	High	Short Term	Multnomah County Fire Defense Board
Conduct a preseason meeting with neighboring jurisdictions to discuss upcoming wildfire season, staffing levels, communications plan, resources, and other important information including finances, roles and responsibilities.	High	Ongoing	Oregon Dept. of Forestry, Multnomah County Fire Defense Board
Conduct annual tri-county (Washington, Clackamas and Multnomah) CWPP meetings.	High	Ongoing	Multnomah County Emergency Management
Inventory wildfire fighting equipment (dozers, tenders, radios) in Multnomah County (and mutual aid agencies) and document the procurement process. Once developed, coordinate resource sharing with Clackamas, Washington, Columbia and Hood River counties.	High	Ongoing	Multnomah County Fire Defense Board
Utilize MCEM's cache of field programmable VHF radios and ensure that they have current Mt. Hood NF, CRGNSA and ODF frequencies.	High	Ongoing	Multnomah County Emergency Management
Develop a wildfire communications plan that considers interoperability and outlines protocol for radio communication during an event. Test Communications Plans at different levels to clarify command structure and ensure firefighter safety.	High	Short Term	Multnomah County Emergency Management
Establish an agreed upon fire danger rating system and develop agency protocols. Consider adopting the "National Fire Danger Rating System"(NFDRS) and install signs at key points in the County. Communicate the daily fire danger rating to all field staff throughout the fire season.	High	Short Term	Local Fire Chiefs
Inventory potential staging areas, Incident Command Posts and Incident Bases (fire camp) locations throughout the County and document process and contacts for access. Consider developing an annual mobilization plan with updated contact information.	High	Ongoing	Multnomah County Emergency Management
Work with Metro to develop a wildland training and accreditation program for technical staff. Utilize Metro as a partner in equipment sharing programs.	Medium	Short Term	Metro
Obtain funding to secure a cache of electronic mapping devices (I-phones, etc) integrated with GPS.	Medium	Ongoing	Multnomah County Emergency Management
Explore possibility of retrofitting those existing Mobile Command Units that lack the ability to handle large-scale wildfire and ensure agreements are in place to share these resources.	Medium	Short Term	Multnomah County Fire Defense Board
Consider pre-positioning Type 3 logistical incident support trailers throughout the county during fire season.	Low	Ongoing	Multnomah County Fire Defense Board

Table 1-1. Multnomah County CWPP Action Plan

Action Item	Priority	Timeframe	Lead
Wildfire Prevention and Community Involvement			
Develop consistent standards for defensible space and fire-resistant building materials in Multnomah County.	High	Short Term	Multnomah County Fire Defense Board
Communicate standards for defensible space and fire-resistant building materials to primary decision makers and stakeholders in Multnomah County.	High	Short Term	Local Fire Agencies
Encourage the Multnomah County Fire Defense Board to form a Fire Prevention Cooperative or partner with regional Fire Prevention Co-ops to implement the actions outlined in the CWPP.	High	Ongoing	Multnomah County Fire Defense Board
Identify funding opportunities through grant programs and philanthropic organizations.	High	Ongoing	Wildfire Techincal Committee
Implement a model Firewise and ecologically sound landscaping project at Portland Fire & Rescue Station 27 in Forest Park.	High	Short Term	Portland Fire & Rescue, Wildfire Techincal Committee
Provide presentations to organizations that meet regularly and have high visibility in the community: Neighborhood Associations, Granges, Rotaries, Sierra Club, BARK, etc.	High	Short Term	Oregon Dept. of Forestry
Develop and distribute Wildland Urban Interface information to Communities at Risk.	High	Ongoing	Local Fire Agencies
Utilize active community organizations' social media network to engage residents including electronic newsletters and links on websites.	High	Ongoing	Local Fire Agencies
Promote the use of the 2-11 telephone information system to inform residents about what actions to take during wildfires and other emergencies.	High	Ongoing	Local Fire Agencies
Encourage and empower local fire districts to conduct community meetings by developing "plug and play" community meeting kits.	Medium	Short Term	Oregon Dept. of Forestry
Partner with local businesses to build capacity.	Medium	Ongoing	Local Fire Agencies
Target a broader audience by engaging nontraditional partners such as organizations that hold "living sustainably" programs as well as the insurance and real estate industry.	Medium	Ongoing	Local Fire Agencies
Empower community leaders to remain engaged and continue to motivate the community.	Medium	Ongoing	Local Fire Agencies
Encourage Communities at Risk to become certified Firewise Communities.	Medium	Ongoing	Oregon Dept. of Forestry
Consider implementing a Firewise incentive contest to promote wildfire prevention messaging through television, newspaper and radio.	Low	Long Term	Local Fire Agencies, ODF
Develop an effective outreach campaign to inform and educate homeowners about Oregon's Forestland-Urban-Interface Act (SB 360) when it takes effect in Multnomah County.	Low	Long Term	Local Fire Agencies, ODF
Work with landowners in highly visible wildfire risk areas to provide temporary and permanent signage.	Low	Ongoing	Local Fire Agencies, ODF

Table 1-1. Multnomah County CWPP Action Plan

Action Item	Priority	Timeframe	Lead
Structural Ignitability			
Modify the current Multnomah County Land use Planning access and water supply forms to reflect both County standards as well as minimum state fire code requirements to offer clarity to the applicant.	High	Short Term	Multnomah County Land Use and Transportation
Work with Multnomah County to include the local fire agency to the list of stakeholders that must sign off and approve prior to both land use and building permit final acceptance.	High	Short Term	Multnomah County Land Use and Transportation
Work with Multnomah County to allow alternative building construction and materials in areas unable to meet access and fire flow requirements.	High	Ongoing	Multnomah County Land Use and Transportation
Encourage Multnomah County Land Use Planning to meet individually with local fire agencies to establish relationships, articulate expectations, and reduce wildfire hazards to future development.	High	Ongoing	Multnomah County Land Use and Transportation
Obtain structural ignitability data by conducting structural triage assessment (access, water, defensible space, building materials) with GPS units for homes in Communities at Risk.	High	Short Term	Oregon Dept. of Forestry
Work with CWPP partners to engage the Columbia Gorge Commission in discussions about the risk of wildfire, and the benefits of fire-resistant building materials and defensible space.	High	Short Term	Oregon Dept. of Forestry
Implement road addressing and signage for emergency response and include the length of the driveway on the signs.	High	Ongoing	Local Fire Agencies
Develop a program to offer no-cost wildland/urban interface evaluations for both new development and existing homeowners.	High	Long Term	Local Fire Agencies
Become more familiar with the Wildland Urban Interface Code and determine whether or not adoption would be beneficial and appropriate in Multnomah County (particularly RR5).	High	Long Term	Local Fire Chiefs
Map all roads, bridges and driveways in the local Communities at Risk and prioritize homes that have dead-ends, and cannot support emergency service vehicles (grade, length, vegetation, turn-arounds) for defensible space and fuels reduction projects.	Medium	Long Term	Local Fire Agencies, Multnomah County Land Use and Transportation
Inventory bridges, determine whether or not they have had an engineer certification and develop a system to track required 5-year engineer inspections.	Medium	Long Term	Local Fire Agencies, Multnomah County Land Use and Transportation
Explore an Access Enforcement Program for the local fire agencies that would address heavy fuels or lack of maintenance render access roads unusable, the RFPD can require improvement.	Medium	Long Term	Local Fire Agencies, Multnomah County Land Use and Transportation

Planning Area Boundaries

The MCWPP addresses the wildfire hazard across the entire county, and includes action plans for each of the structural fire protection agencies. Multnomah County is served by 3 Incorporated Fire Districts and 6 Rural Protection Fire Districts, Oregon Dept. of Forestry (ODF), the Bureau of Land Management (BLM), the US Forest Service (USFS) Mt Hood National Forest and the Columbia River Gorge National Scenic Area (see Map #1: Multnomah County Fire Agencies).

Multnomah County is one of the few counties in the state that encompasses BLM, USFS, and ODF-managed land. These agencies have participated (to varying degrees) in the development of the MCWPP and will undoubtedly provide support for plan implementation. The MCWP also covers areas that are outside of structural fire protection boundaries. These are considered "unprotected areas" are at particularly high risk due to their geographic location and lack of protection capability. A more detailed description of the fire agencies in Multnomah Cousnty is provided in Resource A. Local Fire Agency Action Plans.

County Profile

Multnomah County is the smallest county in Oregon (465 square miles). It is bound by Columbia County and the Columbia River on the North, Washington County on the West, Clackamas County on the south and Hood River County on the east. Multnomah County is a mix of highly dense urban settings within the city limits of Portland in the west and open, rural land outside the urban growth boundary. It contains the Columbia Gorge National Scenic Area and a portion of the Mt. Hood National Forest. Several additional large volcanoes surround the County, including Mount St. Helens and Mount Adams. The County lies about 70 miles east of the Pacific Coast.

Although development is concentrated in the urban areas, population density in the more rural areas continues to grow. In addition, the Mt Hood National Forest draws thousands of recreationalists into the more remote forest lands of the county. The exposure of people to wildfire hazards underscores the importance of effective wildfire prevention programs.

Fire Policies and Programs

Various local, state, and federal policies and programs have provided frameworks and criteria to be used in the development of community fire plans. Most notably, the National Fire Plan (2001) and the Healthy Forest Initiative (2003) mandate rural communities to assess risk and develop action plans. Below is a listing of program criteria and MCWPP compliance.

Healthy Forest Restoration Act (2003) - federal bill signed by President Bush to promote fuels reduction projects on federal land, the development of community plans, and biomass energy production. HFRA contains a variety of provisions to expedite hazardous fuel reduction and forest restoration projects on specific types of federal land that are at risk of wildland fire or insect and disease epidemics. The act helps rural communities, states, tribes, and landowners restore healthy forest and rangeland conditions on tribal, state, and private lands. It also:

- Encourages biomass removal from public and private lands;
- Provides technical, educational, and financial assistance to improve water quality and address watershed issues on non-federal lands;
- Authorizes large-scale silvicultural research;

- Authorizes acquisition of Healthy Forest Reserves on private land to promote recovery of threatened and endangered species and improve biodiversity and carbon sequestration;
- Directs the establishment of monitoring and early warning systems for insect or disease outbreaks; and
- Provides guidance for the development of Community Wildfire Protection Plans (CWPPs). HFRA directs communities to engage in a collaborative process to develop CWPPs that identify and prioritize hazardous fuels reduction projects and address structural ignitability (see Table 1-2. below.).

National Fire Plan and 10-Year Comprehensive Strategy (2001) –interagency plan that focuses on firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability. The National Fire Plan (NFP) was established after a landmark fire season in 2000, with the intent of actively responding to severe wildland fires and their impacts to communities while assuring sufficient firefighting capacity for the future.

The NFP is a long-term commitment intended to help protect human lives, communities, and natural resources, while fostering cooperation and communication among federal agencies, states, local governments, tribes, and interested public citizens. The Western Governors Association completed a 10-Year Comprehensive Strategy in August 2001 (NFP 2001) and an Implementation Plan in May 2002 (NFP 2002). The NFP focuses on 1) firefighting, 2) rehabilitation, 3) hazardous fuels reduction, 4) community assistance, and 5) accountability.

Table 1-2. HFRA and NFP Requirements and MCWPP Compliance

Federal Program	Requirements	Plan Elements
HFRA	Collaborative process	Chapter 2: Planning Process
	Identify and prioritize areas for hazardous fuels reduction	Chapter 6: Hazardous Fuels Reduction
	Identify strategies to reduce structural ignitability	Chapter 9: Structural Ignitability: Policies and Programs
NFP	Identify Communities-at-Risk	Chapter 5: Wildfire Risk Assessment
	Identify Wildland Urban Interface	

Oregon Forestland-Urban Fire Protection Act of 1997 (Senate Bill 360)—state bill intended to facilitate development of an effective WUI protection system in Oregon by 1) establishing policies regarding WUI protection, 2) defining the WUI in Oregon and establishing a process and system for classifying the interface, 3) establishing standards for WUI property owners so they can manage or minimize fire hazards and risks, and 4) providing the means for establishing adequate, integrated fire protections systems in WUI areas, including education and prevention efforts.

Due to limited resources and the complex nature of SB 360 implementation, ODF has been unable to implement Senate Bill 360 in all counties statewide at this time. Although Multnomah County has not yet been selected for SB 360 implementation, the MCWPP process is laying the groundwork for implementation by coordinating agencies that have a vested interest in reducing wildfire hazards, implementing a wildfire prevention public outreach campaign, improving understanding of fire safe construction and practices in regulatory agencies, and promoting a more wildfire-based approach to managing the forests in Multnomah County.

Oregon Statewide Land Use Planning Goals—provide the foundation of Oregon's strong statewide program for land use planning. The goals express the state's policies on land use and related topics, such as citizen involvement, housing, and natural resources, and must be incorporated into local Comprehensive Land Use Plans. Multnomah County has adopted all 19 Land Use Planning Goals, including Goals 4 and 7, which address development as it relates to natural hazards and forest preservation.

Goal 4: Forest Lands

The purpose of Goal 4 is to conserve forest lands by maintaining the forest land base, to provide for recreational opportunities and agriculture, and to protect the state's forest economy by enabling economically efficient forest practices. These forest practices should assure that the continuous growing and harvesting of forest tree species (the leading use on forest land) is consistent with sound management of soil, air, water, and fish and wildlife resources (http://www.lcd.state.or.us/LCD/docs/goals/goal4.pdf).

Goal 7: Areas Subject to Natural Hazards

Goal 7 directs local governments to adopt comprehensive plans (inventories, policies, and implementing measures) to reduce risk to people and property from natural hazards. Goal 7 also indicates that new hazard inventory information provided by federal and state agencies shall be reviewed by the Oregon Department of Land Conservation and Development (DLCD) in consultation with affected state and local government representatives. (http://www.lcd.state.or.us/goalpdfs/goal07.pdf.)

Multnomah County Land Use Planning

The Multnomah County's zoning ordinances (Chapters 33, 34, 35, 36 & 38) were enacted to implement the goals and policies of its Comprehensive Plan and related rural area plans for the West Hills, Sauvie Island/Multnomah Channel, East of Sandy River, West of Sandy River and Columbia River Gorge National Scenic Area. In addition, the County's Chapter 29 provides development requirements for fire apparatus access and fire flow as specified in the Oregon Fire Code (OFC). For more information, please see Chapter 9: Structural Ignitability.

Federal Emergency Management Agency Disaster Mitigation Act (2000)—specifies criteria for state and local hazard mitigation planning. Federal Emergency Management Agency (FEMA) requirements under Title 44 CFR Part 201 of the Disaster Mitigation Act of 2000 specify criteria for state and local hazard mitigation planning which require local and Indian tribal governments applying for Pre-Disaster Mitigation (PDM) funds to have an approved local mitigation plan. Activities eligible for funding include management costs, information dissemination, planning, technical assistance, and mitigation projects. The Multnomah County Natural Hazard Mitigation Plan is currently undergoing its first 5 year review and update.

Unprotected Areas Policy

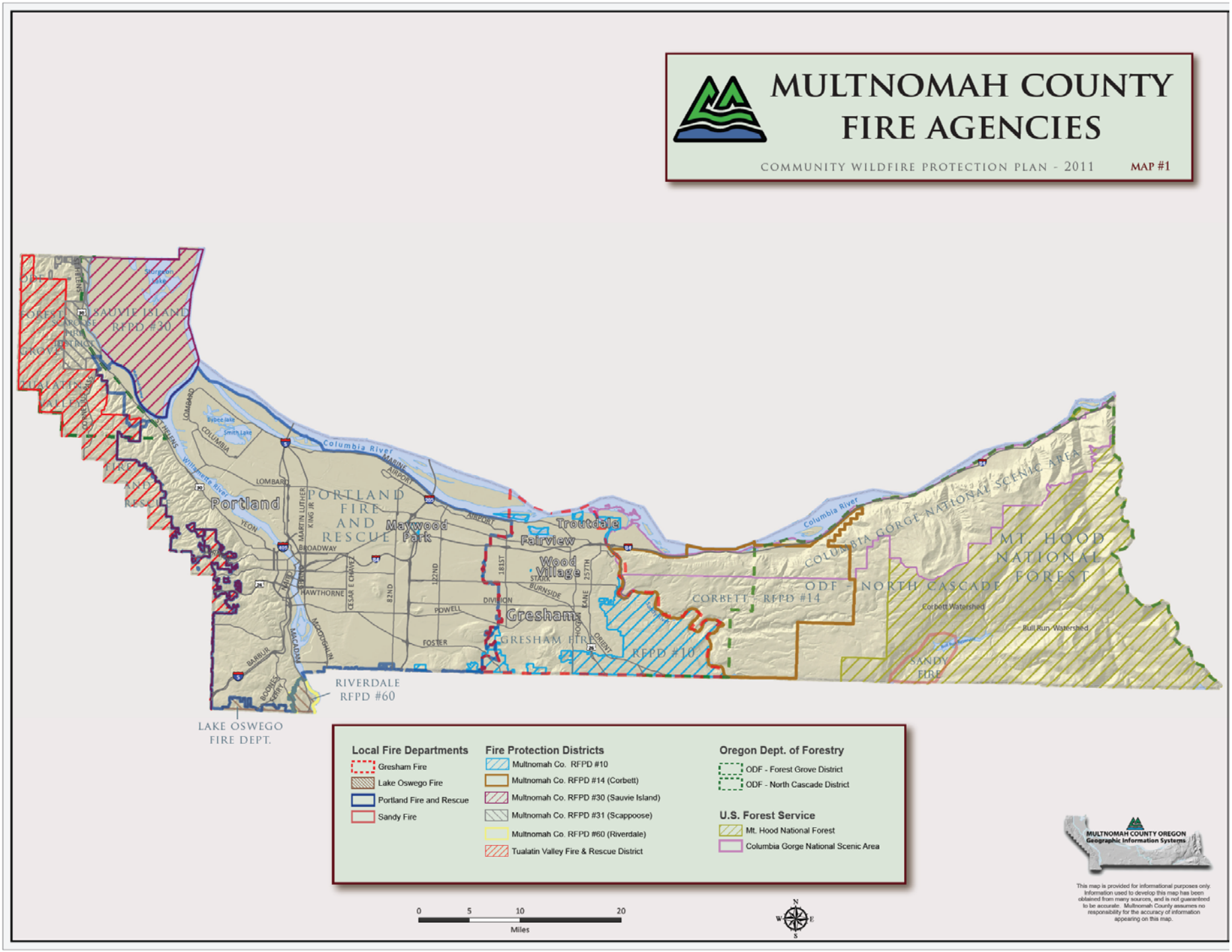
In 2004, the Governor's Fire Service Policy Council convened a task force to discuss the issue of areas that are vulnerable to wildfire but are without publicly-funded protection. State firefighting actions on these lands are made possible only after the Governor invokes the Conflagration Act. The task force agreed that protection should be provided only if the county is 1) completing a community wildfire protection plan; 2) has adopted the Department of Land Conservation and Development's Goal 4 requiring fire defense standards for new construction in forest zones; and 3) is changing property tax statement language for ODF assessment from "fire protection" to ODF

"non-structural fire suppression" so homeowners and insurers are not lead to believe they have structural fire protection.

There are approximately 92,864 acres of structurally unprotected lands in Multnomah County, with the majority (88,379 acres) is located in the eastern part of the county and includes the USFS Columbia River Gorge national Scenic Area and the Mount Hood National Forest. The most vulnerable unprotected residential community in Multnomah County is Warrendale & Dodson. This community includes about 200 structures and is located along Interstate 84, which is the only East/ West Interstate Freeway in Oregon. Warrendale & Dodson has some of the most extreme wildfire hazards due to the heavy fuels on adjacent USFS lands, steep slopes, east winds, and potential ignition sources from I-84 and the railroad. For more information on unprotected areas, please see Resource A-7. Community at Risk: Unprotected Areas.

Existing Efforts, Studies, and Planning Documents

There are numerous land use and emergency management plans that relate to the Multnomah County Community Wildfire Protection Plan. These include the Multnomah County Emergency Operations Plan (EOP), ODF Forest Grove District &ODF North Cascade District Fire Operations Plans, BLM Salem District Resource Management Plan, Columbia Gorge National Scenic Area Fire Management Plan and wildfire planning annexes of Fire District Emergency Operations Plans, all of which are referenced in greater detail in Chapter 7: Emergency Operations.


MULTNOMAH COUNTY
FIRE AGENCIES
COMMUNITY WILDFIRE PROTECTION PLAN - 2011
MAP #1
SAUVIE ISLAND
RFPD #30
Columbia River
Willamette River
Portland
PORTLAND
FIRE
AND
RESCUE
Maywood
Park
Troutdale
Fairview
Wood
Village
Gresham
GRESHAM FIRE
RFPD #10
CORBETT - RFPD #14
ODF - NORTH CASCADE
COLUMBIA GORGE NATIONAL SCENIC AREA
MT. HOOD
NATIONAL
FOREST
Corbett Watershed
Bull Run Watershed
SANDY
FIRE
RIVERDALE
RFPD #60
LAKE OSWEGO
FIRE DEPT.
Local Fire Departments
Gresham Fire
Lake Oswego Fire
Portland Fire and Rescue
Sandy Fire
Fire Protection Districts
Multnomah Co. RFPD #10
Multnomah Co. RFPD #14 (Corbett)
Multnomah Co. RFPD #30 (Sauvie Island)
Multnomah Co. RFPD #31 (Scappoose)
Multnomah Co. RFPD #60 (Riverdale)
Tualatin Valley Fire & Rescue District
Oregon Dept. of Forestry
ODF - Forest Grove District
ODF - North Cascade District
U.S. Forest Service
Mt. Hood National Forest
Columbia Gorge National Scenic Area
0 5 10 20
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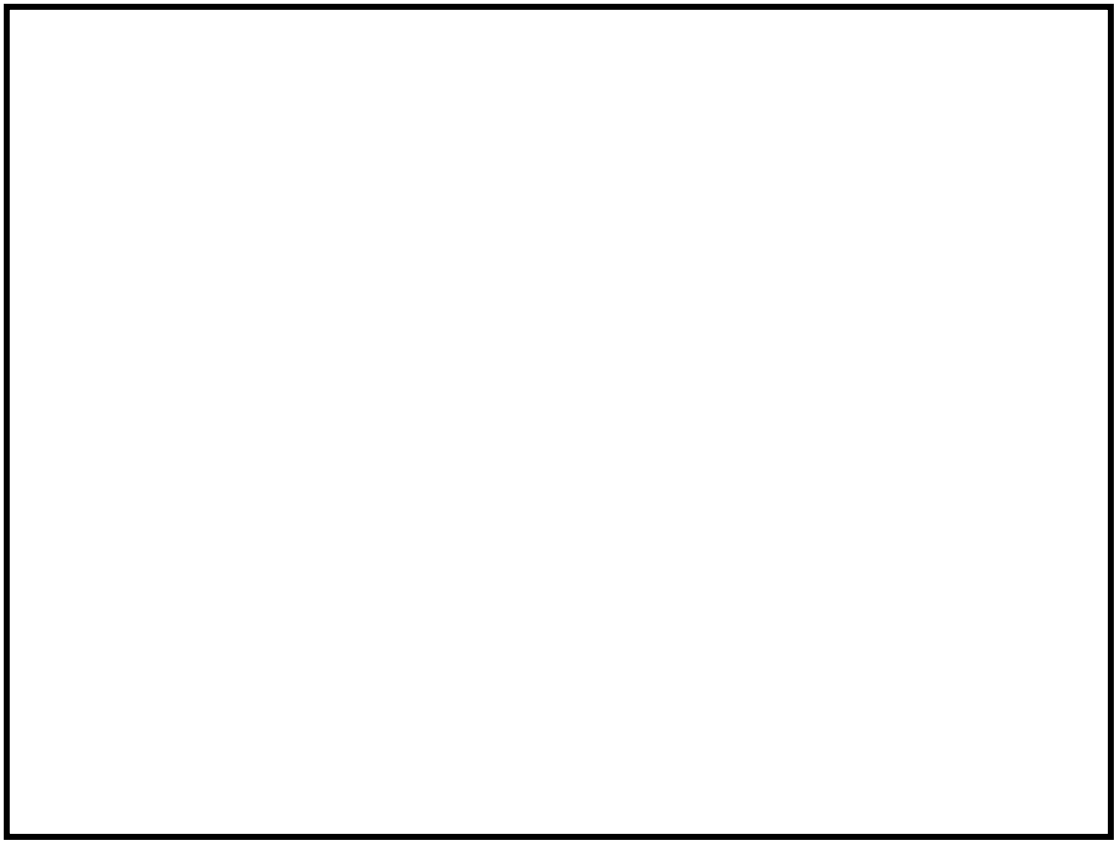
MULTNOMAH COUNTY OREGON
Geographic Information Systems
This map is provided for informational purposes only. Information used to develop this map has been obtained from many sources, and is not guaranteed to be accurate. Multnomah County assumes no responsibility for the accuracy of information appearing on this map.

CHAPTER 2
PLANNING PROCESS



The Multnomah County Steering Committee convened monthly to guide the development of the MCWPP

CHAPTER 2: PLANNING PROCESS

Multnomah County Community Wildfire Protection Plan Framework

A variety of community wildfire planning models have been developed to address the federal legislation promoting community wildfire protection planning. The Wildfire Planning Steering Committee used the steps outlined in "Preparing a Community Wildfire Protection Plan: A Handbook for Wildland Urban Interface Communities" to develop a comprehensive and effective CWPP.[2] Table 2-1 provides a summary of the planning process.

Table 2-1 Community Wildfire Protection Plan Steps

Community Wildfire Protection Planning Steps
Step 1: Convene Decision makers
Step 2: Involve Federal Agencies
Step 3: Engage Interested Parties
Step 4: Establish a Community Base Map
Step 5: Develop a Community Risk Assessment
Step 6: Establish Community Priorities and Recommendations
Step 7: Develop an Action Plan and Assessment Strategy
Step 8: Finalize Community Wildfire Protection Plan

Collaborative Process

The development of the Multnomah County Community Wildfire Protection Plan (MCWPP) required coordination of multiple agencies and organizations to define common goals and work together to achieve a successful and useful plan. A Steering Committee provided oversight and guidance to the planning and implementation of the fire plan with representation from the county's fire protection districts and the public agencies responsible for fire protection. The Wildfire Planning Steering Committee identified five areas of focus for the MCWPP and developed technical subcommittees to address them: risk assessment, structural ignitability policies and programs, emergency operations, fuels reduction and biomass utilization, and wildfire prevention and community involvement.

Wildfire Planning Steering Committee / Wildfire Technical Committee

The Wildfire Planning Steering Committee, with representation from the county's Fire Defense Board and the public agencies responsible for fire protection, met monthly to provide oversight and guidance for the development of the MCWPP. The Steering Committee actually began as the "Wildfire Technical Committee, " established by Portland City Council in 2009 to implement the

[2] "Preparing a Community Wildfire Protection Plan: A Handbook for Wildland–Urban Interface Communities" was sponsored by the Communities Committee, National Association of Counties, National Association of State Foresters, Society of American Foresters, and the Western Governors' Association and is available at *http://www.safnet.org/policyandpress/cwpphandbook.pdf*.

Action Plan of the City's *Wildfire Readiness Assessment*: *Gap Analysis Report* (2009)[3] and manage future wildfire mitigation and fuels reduction projects associated with the Portland Natural Hazards Mitigation Plan. The WTC helped to implement a $1.3 million FEMA grant designed to reduce fuels in Forest Park, Powell Butte and along the Willamette Escarpment. After successfully implementing this project, the WTC began broadening their focus to take a more inclusive, county-wide approach to wildfire.

In August, 2010 the WTC transitioned into Wildfire Planning Steering Committee to guide the development of the Multnomah County Community Wildfire Protection Plan. Oregon Department of Forestry provided overall planning facilitation. The Wildfire Planning Steering Committee invited new partners to the table including Metro, the Columbia Gorge National Scenic Area, the Mount Hood National Forest and the Bureau of Land Management. In addition, some members of the WTC were assigned to technical subcommittees, including the City Nature Division of Portland Parks & Recreation (PP&R), Portland Bureau of Environmental Services (BES), and Portland Bureau of Planning and Sustainability (BPS).

Technical Subcommittees

The Steering Committee appointed technical subcommittees to address the five areas of focus. The progress of the technical subcommittee activities relies on strong coordination among diverse partners and stakeholders. Representatives from fire agencies, industries, businesses, natural resource agencies, and citizens participated in the subcommittees. Each subcommittee developed a series of objectives and action items or strategies to meet their objectives. The objectives developed by these subcommittees are presented as chapters in the MCWPP.

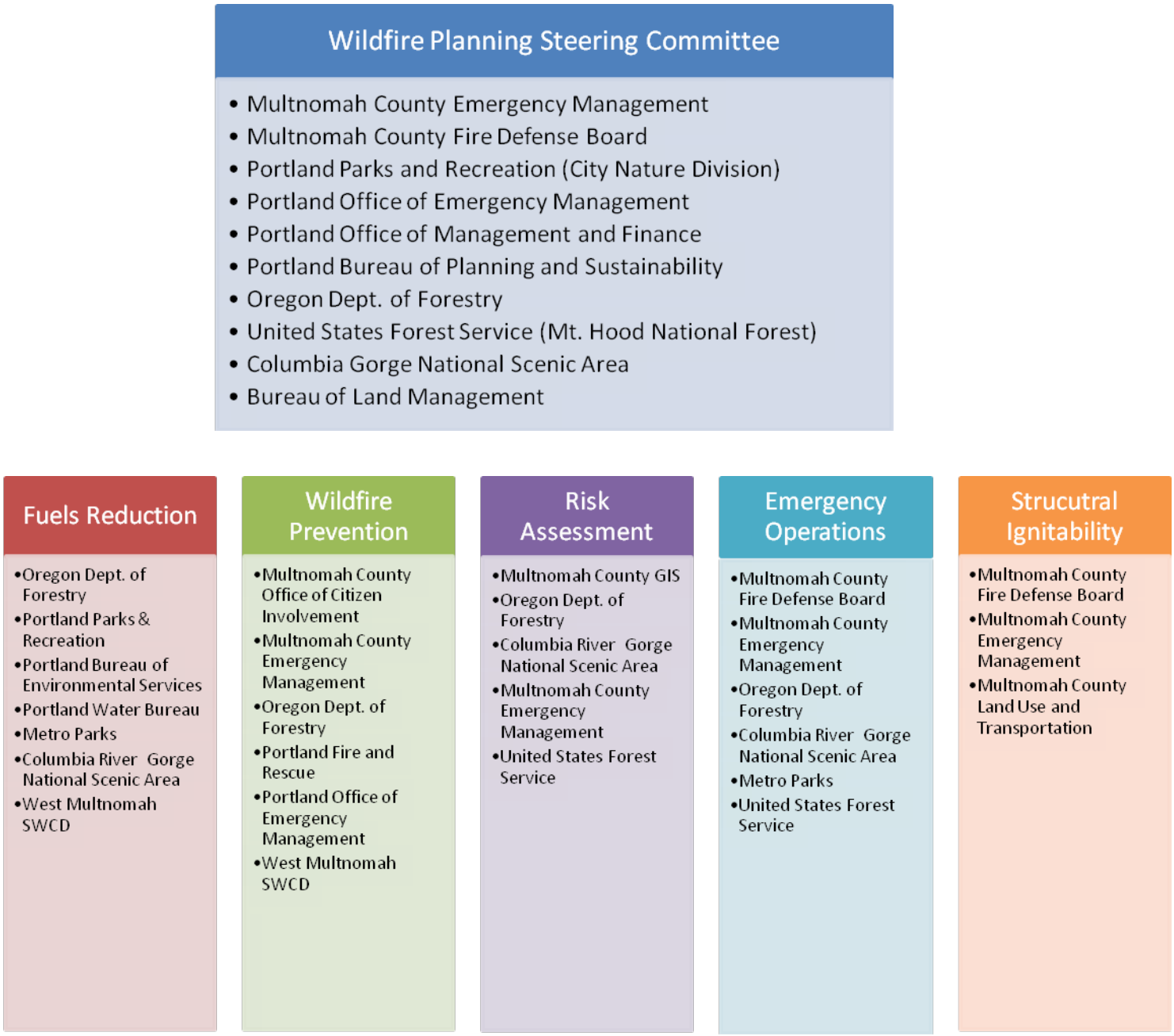
- *Chapter 5: Wildfire Risk Assessment* analyzes the potential losses to life, property, and natural resources. Objectives of the risk assessment are to identify Communities-at-Risk and the Wildland-Urban Interface, and conduct a wildfire risk assessment that can be used in project prioritization.
- *Chapter 6: Hazardous Fuels Reduction and Biomass Utilization* identifies priority projects for reducing hazardous fuels and researches opportunities to add value to extracted vegetation and maintain a sustainable fuels reduction program. The fuels reduction projects focus on protecting life and property and infrastructure while moving toward a more fire-adapted ecosystem.
- *Chapter 7: Emergency Response Operations* evaluates and coordinates response capabilities among local governments and structural and wildland fire agencies to ensure effective response to a wildfire event.
- *Chapter 8: Wildfire Prevention and Community Involvement* includes objectives to develop ongoing strategies for increasing citizen awareness and action for fire prevention.
- *Chapter 9: Structural Ignitability and Regulatory Alignment* relates to reducing structural vulnerability by reviewing all local and state regulatory and non-regulatory standards relating to development and vegetation management and making recommendations to enhance wildfire safety.

[3] See www.portlandonline.com/wildfire

Organizational Structure

Throughout the planning and coordination of the MCWPP, the committees and fire districts identified a structure that would help them sustain these efforts in the long-term. This structure is illustrated in Figure 2-1 below.

Figure 2-1 MCWPP Planning Organizational Structure



Local Fire Agency Coordination

The local fire agencies that provide structural and wildland urban interface protection are the cornerstone of community resiliency. These organizations know their communities very well and are committed to protecting them from wildfires and other hazards. In addition, they are aware of larger-scale countywide issues that require collaboration and coordination from the partners engaged in this planning process. In an effort to make the Multnomah County Community Wildfire Protection Plan relevant and useful for the local fire agencies, while addressing the countywide needs, the following process was used.

Countywide Fire Defense Board Coordination

A Multnomah County Wildfire Planning Workshop was held in January, 2011 to present the action items developed by technical subcommittees as well as the risk assessment maps and solicit feedback. Over forty attendees participated in this workshop. Oregon Department of Forestry set the stage by giving a report on the planning process thus far. The participants were then divided into groups of ten, and visited a series of stations to review action plans generated by the Technical Subcommittees. Each station was facilitated by a Steering Committee member to ensure that the action plans accurately represent the needs and issues of the local fire agencies.

MCWPP Communities at Risk Action Plans (Resource A)

Each fire agency was interviewed to discuss needs at the Fire Department/District scale. Primary issues shared by most agencies include: funding for wildland training, communications equipment, and the need for a more coordinated and comprehensive wildfire prevention program in Multnomah County. Each fire agency has its own section in Resource A: Local Fire Agency Action Plans to help guide wildfire preparedness and prevention efforts. Contact information is also provided here.

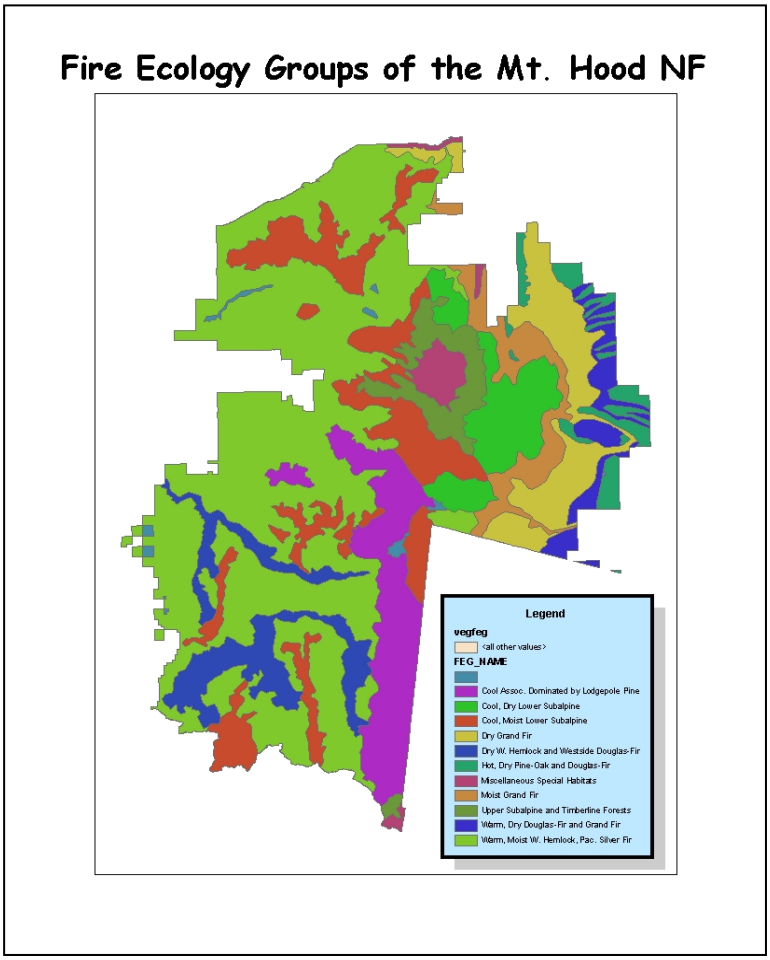
Fire agencies also recognize that there are Local Communities and Risk (CARs) within their areas of protection that have specific issues to be addressed. Oregon Department of Forestry worked with the fire agencies to develop action plans specific to each of the CARs. For more information, please see Chapter 4: Communities at Risk in Multnomah County.

Public Outreach Process

Community involvement is a key component to the MCWPP. Multnomah County Emergency Management and Oregon Department of Forestry worked with local fire agencies to host a series of five public outreach events between March and May 2011 to promote the principles included in the Multnomah County Wildfire Protection Plan. The community wildfire meetings provided fire prevention education materials to over 125 concerned residents. The local fire agencies identified the highest priority Communities at Risk (CARs) to target for these public outreach events.

The community meetings provided an opportunity to gather input from community members about their perceptions of wildfire risk, community priorities, and resources residents want to protect from wildfire. Outcomes of the meeting included the identification of opportunities to reduce wildfire risk, increased education for residents about living with wildfire and creating defensible space, and increased support for and awareness of the CWPP and fire department protection services.

CHAPTER 3
FOREST CONDITIONS AND WILDFIRE



CHAPTER 3: WILDFIRE HISTORY AND FOREST CONDITIONS

History of Wildfire in Multnomah County

Oregon Department of Forestry documents from the 1940's show average annual acres lost to fires across Oregon to be over 2,000 acres. Multnomah County has escaped the recent large fire occurrences of other western Oregon counties. However, weather, fuels buildup, and climatic changes have provided conditions conducive for a large fire event. Residential development in Multnomah County is heavily interwoven with forest land, so a relatively small fire of only a few hundred acres would pose a significant risk to many residents and their homes.

By conservative estimates, there are a quarter million homes in the wildland-urban interface (WUI) of Oregon. In Multnomah County, there are approximately ?? structures in the WUI.. This demographic shift has underscored the problem of unprotected and under-protected areas. The longstanding mission of Fire Service Programs to put out fires quickly at the lowest cost has been complicated by the presence of homes and people in the forest.

Local, Regional and State Fire History

City of Portland Area

1889, Balch Creek Canyon Fire started with what is now known as the NW Industrial area burned westerly over Portland's West hills towards the Cascade Mountains in a roughly 2 mile by 7 mile swath, or approximately 9000 acres. Source: Portland Fire & Rescue

August 7th, 1939 began in the Dutch Creek Canyon area near Scappoose, just west of Forest Park on August 7th, 1939. The flames spread to Pisgah Mountain Home, an Asylum with about 60 elderly inmates. Despite the efforts of over 200 firefighters, 20 mph winds fanned the fire to jump the canyon into a large timber stand. As the fire spread into Washington County, near North Plains, the Northwest Oregon Forest Protective Association deployed over 1500 men to fight the blaze. Although many farmers and timber operators lost homes and equipment, the most serious loss was to forested timberlands. Over 14,000 acres were lost. Investigators attributed the destruction to a carelessly tossed cigarette. Source: The Chronicle Area news Archives

1940, Bonny Slope Fire kindled in the southern portion of what's now known as Forest Park and burned westerly along the ridges then turned somewhat north as it crested the west hills towards the housing development now known as Forest Heights. It burned approximately an area approximately 1,000 acres. Source: Portland Fire & Rescue

August 19, 1951 Burma Road Fire was a quick-moving urban wildfire started in Forest Park near Leif Erikson Road. The fire raced up and over view point ridge flames 50ft. high were recorded as the fire consumed over 100 acres in the span of one evening. Over 500 City of Portland staff battled the blaze. Firefighters made a fire lane on Thompson Road on Skyline Ridge to carry equipment and personnel to the fire. The fire burned to the southwest broke over to Forest Heights. When the fire was finally extinguished 3,000 acres in the heart of forest park were burned. Source: Portland Fire & Rescue

August 8th, 2001 & 2002 Mocks Crest Fire caused Residents living on the Willamette blvd bluff near university of Portland nearly lost their homes and a large part of their community. In a dramatic team effort firefighters and citizens stopped the 5 Alarm wildland urban interface fire just before it overwhelmed the structures in its path. It burned approximately 38 acres. This area ignited again the following year, burning 10 acres. Source: Portland Fire & Rescue

August 2002, and September 2003 Powell Butte had three relatively small wildland urban interface fires that totaled 54.75 acres. Source: Portland Fire & Rescue

Columbia River Gorge

September 19th, 1971 Sky Hook: 1,831 acres (no further information could be found)

October 10th, 1991 Falls Fire quickly grew to between 800 and 1,000 acres in the Columbia River Gorge Thursday October 10th and threatened the historic Multnomah Falls Lodge. The fire stretched over about two miles of steep terrain, from Multnomah Falls west to Bridal Veil Falls at about midslope on the mountainside. It was burning hot and close to the ground. The fire broke out Wednesday night and was moving west, driven by 20 mph winds. In its path lay the community of Bridal Veil, east of Portland, where residents were notified early Thursday of the impending danger, the Multnomah County sheriff's office said. Crews sprayed fire retardant foam on the roof of the log and stone lodge. Interstate 84, the main highway route between Portland and Salt Lake City, remained open, but U.S. 30, the Columbia Gorge Scenic Highway, was closed between Larch Mountain and Multnomah Falls. Over 975 acres were burned. Source: Desert News

September, 2003 Cascade Locks Fire started in the east end of the City of Cascade Locks when a tree fell on a power line. The blaze was driven by strong easterly winds and traveled more than a mile, burning over 300 acres on both sides of I-84 and threatened the downtown area. Two residential buildings were burned, and many more were threatened. No one was killed or injured, but residents had to be evacuated. Source: Cascade Locks Wildfire Protection Plan

Herman Creek Fire, 2003 burned over 500, took 3 homes and jumped I-84 five times.

September 24th, 2005 Vista House Fire was ignited .5 miles east of the Vista House , just off the Historical Columbia River Highway about 1 mile south of I-84. The exact cause of fire ignition is unknown, but since it started down a non-designated trail the most probable source is a recreationist. The fire grew to be about 10 acres in size, with Corbett RFPD providing initial attack.

Broughton Mills Fire, 2007 started on the next to an abandoned mill below the town of Underwood Washington. The fire destroyed five homes, and cost millions to extinguish.

August 27, 2009 Microwave Fire ignited in the area between Mosier and Hood River on August 26th, 2009. This area is characterized by steep, inaccessible terrain which made firefighting efforts extremely challenging.

Crews were able to chase the fire to the cliff edges on both flanks during the night. By first light, hand crews had hiked into position to finish the line, these crews had about 95% of the line tied in when the team transition began. The lines held until a strong West wind hit the fire on the cliff at about 11:30 AM. This caused the fire to spot 1/8 mile over the heads of the fire crews. The crews were instantly behind the main head of the fire trying to catch up as the fire went through fifteen homes. There was a voluntary evacuation and no homes were lost. The blaze was

contained on September 3rd after burning over 2,100 acres. The cost of suppression efforts was $2.75 million.

Oregon Wildand Urban Interface Fires

The most recent Wildland Urban Interface Fire in Oregon was the Oak Knoll fire, which occurred in August 24th, 2010 in Ashland, Oregon. The fire started in grass and quickly destroyed 11 homes and damaged several others in Ashland's Oak Knoll subdivision before it was controlled by firefighters that night. A homeless man was arrested and charged with crimes in connection with the damage.

Wildland Urban Interface (WUI) Fires such as the Oak Knoll Fire can cause catastrophic losses because they threaten homes and properties. Oregon has a history of large wildfires (Table 3-1), but these fires did not become disasters until homes and infrastructure was placed in their paths. In addition, adding development to forested areas introduces potential ignition sources for wildland fires. The following narrative provides descriptions for some of the most destructive WUI fires in recent history, while Table 3-3 provides a more historical account of the most destructive WUI fires in Oregon.

Table 3-1. Large historic fires in Oregon (1848-1966)

Year	Fire	# of Acres Burned
1848	Nestucca	290,000
1849	Siletz	800,000
1853	Yaquina	482,000
1865	Silverton	988,000
1868	Coos Bay	296,000
1933	Tillamook	240,000
1936	Bandon	143,000
1939	Saddle Mountain	190,000
1945	Wilson River/Salmonberry	180,000
1951	North Fork/Elkhorn	33,000
1966	Oxbow	44,000

Source: "Atlas of Oregon," William G. Loy, et al, University of Oregon Books, 1976. Oregon Department of Forestry, "Tillamook Burn to Tillamook State Forest," revised 1993.

1987 Bland Mountain Fire This fire broke out near Canyonville in southwest Oregon. It e burned 10,300 acres, destroyed 14 homes and caused two deaths.

August 4th, 1990: Awbrey Hall Fire was one of Oregon's most destructive fires in recent history as it destroyed 21 homes, caused approximately $9 million in damage and cost over $2 million to suppress. In 1996, Bend's Skeleton Fire burned over 17,000 acres and damaged or destroyed 30 homes and structures. In that same year, 218,000 acres were burned, 600 homes were threatened,

and 44 homes were lost statewide.[4] Table 3-2 lists the major wildfires that occurred in Oregon between 1848 and 1966.

1992 Sage Flat Fire led off Oregon's destructive 1992 fire season by burning five homes and 991 acres northeast of Sisters in early June.

1996 Skeleton Fire burned nearly 18,000 acres on the eastern flank of Bend, and 30 structures were damaged or destroyed. An Oregon Department of Forestry summary of wildfires noted, "This wind-driven fire accomplished most of its damage in just a few hours, but for a time kindled fears that its destructive toll would be far worse than Awbrey Hall's. Awbrey Hall had burned from north to south and skirted the western edge of the city, whereas Skeleton started on the eastern edge and burned west, heading for the heavily populated southern half of the city."

Oregon Fires, 2000

During the 2000 fire season, more than 7.5 million acres of public and private lands burned in the US, resulting in loss of property, damage to resources, and disruption of community services. Taxpayers spent more than $1.6 billion to combat 90,000 fires nationwide.[5] Many of these fires burned in wildland/urban interface areas and exceeded the fire suppression capabilities of those areas. The magnitude of the 2000 fires was the result of two primary factors: (1) severe drought, accompanied by a series of storms that produced thousands of lightning strikes and windy conditions; and (2) the effects of wildfire suppression over the past century that has led to buildup of brush and small diameter trees in the nation's forests and rangelands.[6] Table 3-3 illustrates fire suppression costs for state, private, and federal lands protected by the Oregon Department of Forestry (ODF) between 1985 and 2000.

Oregon Fires 2002

The summer of 2002 marked the most destructive wildfire season in recorded history,736 fires (totaling 84,752 acres) on ODF-protected lands. Some 258 fires (totaling 81,395 acres) were lightning-caused and 478 fires (totaling 3,357 acres) were human-caused. In 2001, there were 924 statistical fires (totaling 50,404 acres). Some 376 fires (totaling 46,772 acres) were lightning-caused and 548 fires (totaling 3,632 acres) were human-caused. Prior to 2002, the worst fire season in recent history occurred in 1987 with at least 1,087 fires totaling 19,427 acres.[7] Table 3-2 reports the fire statistics for the largest fires in Oregon as of August 2002.

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[4] *Planning for Natural Hazards: The Oregon Technical Resource Guide,* (July 2000), Department of Land Conservation and Development, Ch. 7.

[5] Wilkinson, Todd. "Prometheus Unbound," (May/June 2001), Nature Conservancy.

[6] National Interagency Fire Center, *National Register of Urban Wildland Interface Communities Within the Vicinity of Federal Lands that are at High Risk from Wildfire.* (May 2001) http://www.nifc.gov.

[7] Oregon Department of Forestry. (August, 2002) http://www.odf.state.or.us/

Table 3-2 USFS reported fire statistics for 2002

Incident Name	State	*Lead Agency	Size (acres)	Personnel	Structures Lost
Biscuit	OR	FS	500,068	3,221	13
Tiller Complex	OR	FS	66,355	1,785	0
Apple	OR	FS	10,200	1,129	0
Quartz Mt. Complex	WA	FS	1,074	28	0

Source: USDA Forest Service

- **Apple** (Umpqua National Forest): This fire, 21 miles east of Glide, encompassed 9,800 acres. Twenty residences were threatened.
- **Tiller Complex** (Umpqua National Forest): This 65,824 acre fire, consisted of eight large and numerous small fires and was located on the Tiller Ranger District and in the Rogue-Umpqua Divide Wilderness Area, 25 miles east of Canyonville. Sixty-seven residences were threatened.
- **Biscuit Fire** (Siskiyou National Forest): This fire was the biggest blaze in Oregon history. The huge blaze cost more than $100 million to fight, and was located in southern Oregon and northern California. The fire began on July 13, 2002 and reached 500,023 acres by August 2002. Estimated to be one of Oregon's largest in recorded history, the Biscuit Fire encompassed most of the Kalmiopsis Wilderness. The boundary of the Biscuit Fire stretched from 10 miles east of the coastal community of Brookings, Oregon; south into northern California; east to the Illinois Valley; and north to within a few miles of the Rogue River. There were 274 structures threatened by this fire. Four residences and nine outbuildings were lost.[8]

[8] http://www.fs.fed.us/r6/rogue-siskiyou/biscuit-fire/index.shtml/

Table 3-3. Oregon's most destructive wildand urban interface fires

Oregon's Most Destructive Wildland Urban Interface Fires					
Year	**Location**	**Acres Burned**	**County**	**Structures Burned**	**Cost**
1936	Bandon	Unknown	Coos	484	Unknown
1987	Bland Mountain	10,300	Douglas	14	Unknown
1990	Awbrey Hall	3,400	Deschutes	22	$2.2 million
1992	Sage Flat	991	Deschutes	5	$1.2 million
1992	East Evans Creek	10,135	Jackson	4	$8.2 million
1992	Lone Pine	30,727	Klamath	3	$500,00
1994	Hull Mountain	8,000	Jackson	44	$10 million
1996	Skeleton	17,700	Deschutes	17	$2 million
2002	Eyerly	23,573	Jefferson	37	$10.7 million
2002	Cache Mountain	4,200	Deschutes	2	$4.3 million
2002	Sheldon Ridge	12,761	Wasco	8	$3.3 million
2002	Squire Peak	2,804	Jackson	6	$2 million
2002	Biscuit	499,965	Josephine/Curry	14	$150 million

Source: Forest Log, National Interagency Coordination Center situation reports

Multnomah County Fire Ignitions

Lightning-Caused Fires

Lightning-caused fires in Multnomah County occur less frequently then compared to southern and eastern Oregon. Recent ten year averages from ODF show lighting as the cause of one to two fires yearly on private land. However, in some years, lightning has ignited a few fires from one storm event in Multnomah County. These multiple fire events sometimes cause a shortage of resources and contingency move-ups from other parts of the state become necessary.

Human-Caused Fires

Human caused fires are responsible for the majority of fires in Multnomah County. The North Cascade District of ODF lists fires caused by discarded cigarettes as the number one cause of fires on forest lands in Multnomah County. The second leading cause of fires in the North Cascade District is debris burning in residential areas. Equipment use is identified as the third leading cause of fires, and refers to sparks generated from lawnmowers, chainsaws, and other equipment.

Table 3-4 Wildfire Ignitions on ODF protected lands from 1960-2011

Cause	Percentage
Debris Burning - Logging	5%
Lightning	5%
Juveniles	7%
Railroad	7%
Recreation	7%
Arson	11%
Equipment Use - Non-Logging	14%
Debris Burning - Non Logging	18%
Human-Caused Miscellaneous	26%

* *Fire data is only for ODF protected lands in Multnomah County. During the CWFP process it became evident that one of the action items for the plan was to address the inconsistencies in reporting.*

Fire Regime and Condition Class

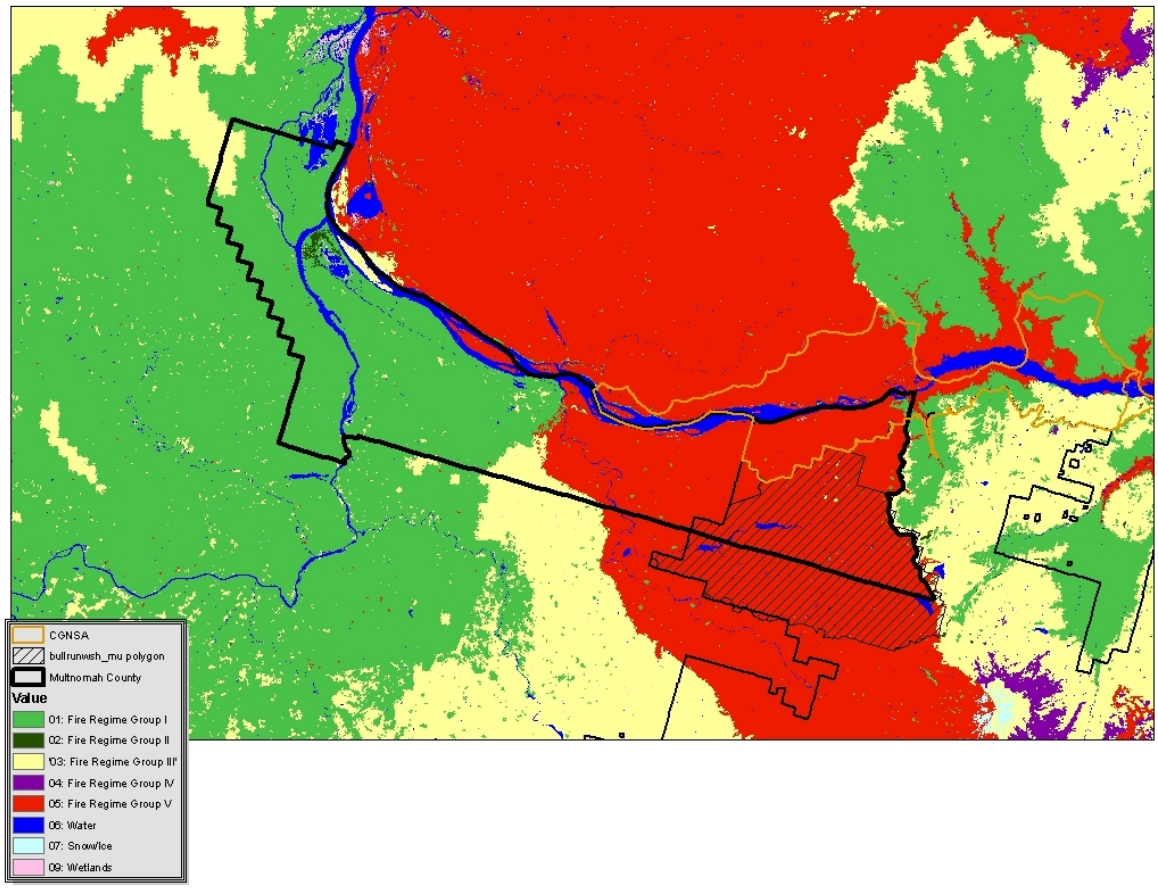
A fire regime refers to an integration of disturbance attributes including type, frequency, duration, extent and severity (Pickett and White 1985). Natural fire regimes have been altered by management activities including fire exclusion, livestock grazing, and timber harvesting. Historic climate variability and potential global climate change have and may further impact fire regimes.

Five fire regime classes, have been identified to aid fire management analysis efforts, as discussed in "Mapping Historic Fire Regimes for the Western United States: Integrating Remote Sensing and Biophysical Data" (Hardy et al 1998). They reflect fire return intervals and severity.

The five fire regimes developed by Hardy, et al were modified and further stratified by a group of fire managers and ecologists on October 10, 2000 to reflect Pacific Northwest (Oregon and Washington) conditions. *Note that there may be variation among the species listed under each Fire Regime:*

- Fire Regime I: <35 years non-lethal, low-severity (mostly forested areas). (Ponderosa pine, Oregon white oak, pine-oak woodlands, Douglas-fir and dry site white fir plant associations)
- Fire Regime II: <35 years stand replacing (grassland and shrublands). (shrub-steppe community)
- Fire Regime III: 35-100+ years, mixed severity. (moist/high elevation white fir, tanoak, western hemlock series)
    - Fire Regime IIIa: < 50 years, mixed severity. (dry site tanoak series)
    - Fire Regime IIIb: 50-100+ years, mixed severity. (low elevation, wet site white fir, wet site tanoak, and low elevation western hemlock series)
    - Fire Regime IIIc: 100-200 years, mixed severity. (high elevation, white fir series)
- Fire Regime IV: 35-100+ years stand replacing. (Shasta red fir and Port-Orford cedar associations)
- Fire Regime V: 200+ years stand replacement (Western hemlock, silver fir and mountain hemlock series)

Figure 3-1. Fire Regimes in Multnomah County



The CRGNSA Fire Regime Map (above) is a general classification for the role that natural fire in a pre-European setting played, including aboriginal burning. It categorizes what fire effects would be expected and the frequency in certain areas without the intervention of modern civilization. Fire Regime is often used as a reference point to determine the level of departure due to fire exclusion or other mechanical changes.

The western half of Multnomah County was characterized by frequent low severity fires before European settlement. Indigenous burning contributed to these sustainable fires that cleaned up much of the underbrush and vegetation. In recent history much of this area has departed greatly from that condition. Because of the low frequency of fires and build up of vegetation, much of the area is in a condition that could exhibit high intensity stand replacement fire.

The eastern half of the County is dominated by a high severity fire regime. This type of fire regime has infrequent severe crown fires or surface fires that cause high tree mortality; or stand replacement fires that typically result in total stand mortality and moderate-to-high loss of the duff-litter layer. Unlike "moderate" fire severity regimes, the landscape following "high" severity fire regimes are usually dominated by a lack of residual (remnant survivor) trees. Stand structure is void of an overstory and this results in an even-aged stand. These fires are generally associated with drought years, east wind weather events (which lower humidity), and an ignition source such as lightning. Fires are often of short duration, but of high intensity and severity (Krusemark, et al. 1996).

Condition Class

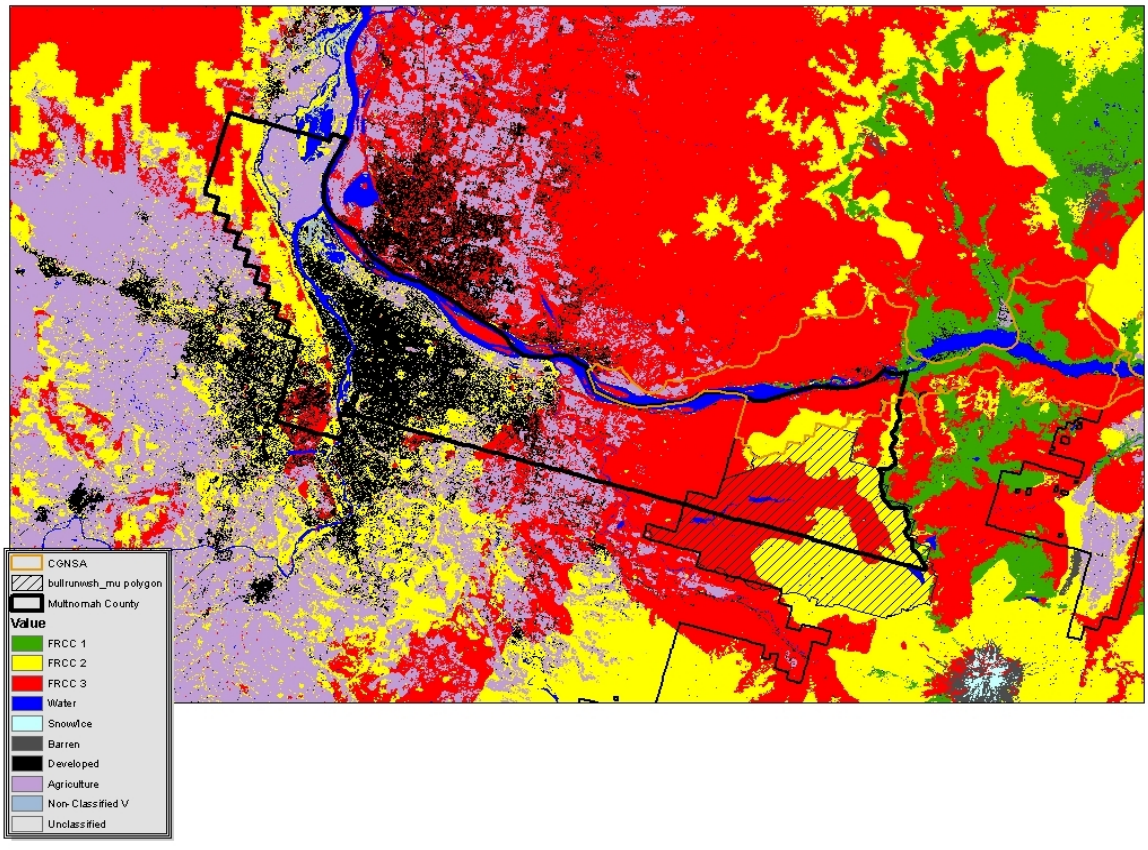
Condition Class is a relative description of the degree of departure from historical fire regimes and generally describes how 'missed' fires have affected key ecosystem vegetative components.

- *Condition Class 1* = Fire frequencies are within or near the historical range, and have departed from historical frequencies by no more than one return interval; vegetation attributes are intact and functioning within the historic range**.** The risk of losing key ecosystem components is low.
- *Condition Class 2* **=** Fire frequencies and vegetation attributes have been moderately altered from the historical range and fire frequencies have departed from historical frequencies by more than one return interval. The risk of losing key ecosystem components is moderate.
- *Condition Class 3* = Fire frequencies and vegetation attributes have been significantly altered from the historical range and fire frequencies have departed from historical frequencies by multiple return intervals. The risk of losing key ecosystem components is high.

The condition class scale was developed to exhibit the departure in severity, intensity, and frequency of fires burning in the ecosystem in its current condition as compared to fire's historic or reference condition.

Figure 3-2 defines the condition class for forests in Multnomah County. Despite the fact that the western and eastern forests in Multnomah County are at opposite ends of the Fire Regime spectrum, they are both considered to be in a highly altered state, displaying characteristics of either Conditions Class 2 or 3.

Figure 3-2. Condition Class in Multnomah County



CHAPTER 4
COMMUNITIES AT RISK IN MULTNOMAH COUNTY

Concentrations of homes vulnerable to wildfires are considered Communities at Risk.

CHAPTER 4. COMMUNITIES AT RISK IN MULTNOMAH COUNTY

Communities at Risk

The CWPP process is designed to identify and prioritize areas for wildfire prevention and response efforts. These "areas" are referred to as Communities at Risk (CAR). Title 1 of the Healthy Forest Restoration Act, states that communities may identify themselves as being "at risk" based on an analysis following the National Association of State Foresters Field Guidance on Identifying and Prioritizing Communities-at-Risk (June 27, 2003) or during development of their Community Wildfire Protection Plans.

A statewide task force was formed in February 2004 as part of the Oregon Department of Forestry's Fire Program Review to develop a statewide assessment of *Communities at Risk*. The task force brought together a number of stakeholder organizations. The statewide *Communities at Risk* assessment also provides guidance for communities in the process of developing or updating local risk assessments to align with the state methodology.

Oregon Dept. of Forestry Communities-at-Risk in Multnomah County (2001)

- Fairview
- Gresham
- Lake Oswego
- Maywood Park
- Multnomah RFPD#10
- Multnomah County
- Multnomah RFPD#14
- Portland
- Riverdale RFPD
- Sauvie Island RFPD
- Scappoose RFPD
- Troutdale
- Tualatin Valley Fire and Rescue
- Wood Village

The Multnomah County MCWPP further refines the ODF Communities-At-Risk by considering common service boundaries for fire protection. This improves upon the ODF listing of CARS because it reduces redundancy and organizes communities into more functional units.

Multnomah County has 3 Incorporated Fire Districts and 6 Rural Protection Fire Districts that cover unincorporated Multnomah County. These fire districts collect taxes and either hire staff (usually very much supplemented by volunteers) or contract for services through the larger adjacent Fire Districts.

MCWPP Communities-at-Risk in Multnomah County Map #2

- Portland Fire & Rescue
- Gresham Fire
- Scappoose RFPD
- Corbett RFPD #14
- Tualatin Valley Fire & Rescue
- Sauvie Island RFPD # 30
- RFPD #10 (Gresham Fire)
- RFPD # 1 (Portland Fire &Rescue)
- RFPD # 60 (Lake Oswego Fire)
- Unprotected Areas

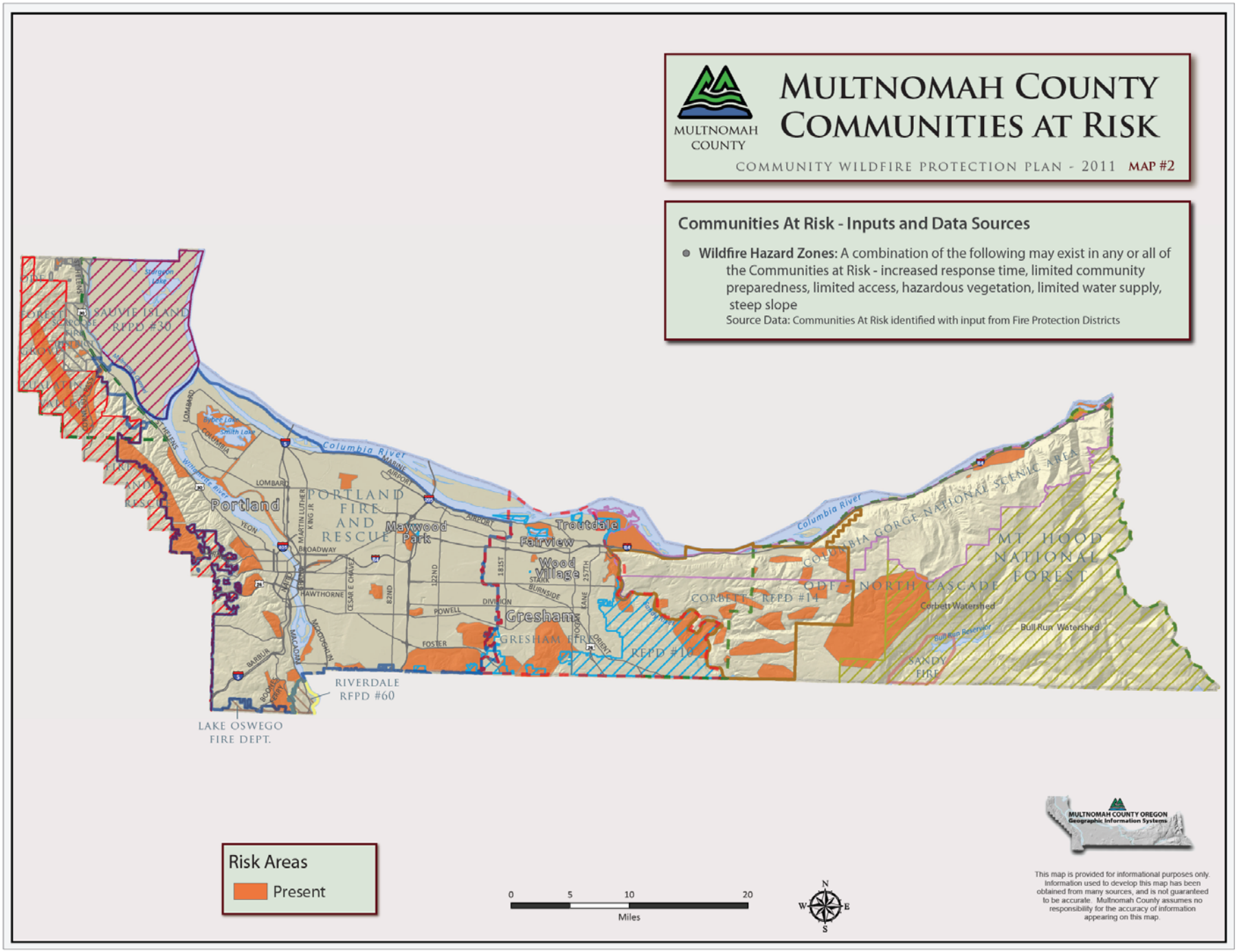
Local Communities at Risk

Although each fire agency in Multnomah County is considered a Community at Risk, wildfire hazards vary within fire district boundaries, as most districts/depts. encompass a variety of communities that have very different development patterns, vegetation types, and protection capability. Local fire agency personnel identified 57 areas that were at particular high risk to wildfire and are considered *Local Communities at Risk*. It is recommended that fire agencies target these areas for site-specific wildfire planning and project implementation. Although each Local Community at Risk has unique wildfire hazards and potential impediments to emergency response, the following issues are common to the majority of high-risk strategic planning areas.

- Structural Ignitability
- Access Limitations
- Protection Capability
- Water Supply
- Recreation/Transients
- Debris Burning
- Fuels Loading
- Community Preparedness

Table 4-1 Local Communities at Risk in Multnomah County

Portland Fire & Rescue Bureau	• Skyline Ridge • Mount Tabor • Kelly Butte • Powell Butte • Johnson Creek Watershed • Oaks Bottom • Springwater & Flavel • Sullivan's Gulch • Willamette Bluffs Escarpment • Forest Heights	• Smith/Bybee Lake • Forest Park • Linnton • NW Portland (Peddock mansion area) • Tryon Creek • Terwilliger Curves • Zoo & Hoyt Arboretum • Riverdale • Bull Run Watershed
Port of Portland Fire	• Elrod Road	• Government Island (Unprotected)
Gresham Fire Dept.	• Walters Hill/Gresham Butte • Ritchie Road • Oxbow Park • Lower Sandy River Bend	• 1000 Acres • Blue Lake • Wisteria Lane • Wistful Vista
Scappoose Fire District	• Holbrook Road • Logie Trail Road	• Gilkenson Road
Rural Fire Protection District # 14 (Corbett Fire)	• Trout Creek Road • Tout Creek Camp • Aims Road • Mannthay Road • Deverell Road • Gordon Creek • North Oxbow • Camp Angeles • Corbett Watershed • Brower/Palmer Mill	• Ricker/O Regan Roads • Howard Road • Alder Meadows • Maffet Road • Red Elder • Haines/Thompson Mill • Columbia Historic Hwy • Latourell/Alex Barr • Bridal Veil Lakes
Tualatin Valley Fire & Rescue	• Skyline Ridge • Cornelius Pass	
Unprotected Areas	• Warrendale-Dodson • Bonneville • Small portion of Forest Park	• Ainsworth • Eagle Creek • Government Island
Sauvie Island	• Entire Island	


MULTNOMAH COUNTY
MULTNOMAH COUNTY COMMUNITIES AT RISK
COMMUNITY WILDFIRE PROTECTION PLAN - 2011 MAP #2
Communities At Risk - Inputs and Data Sources
Wildfire Hazard Zones: A combination of the following may exist in any or all of the Communities at Risk - increased response time, limited community preparedness, limited access, hazardous vegetation, limited water supply, steep slope
Source Data: Communities At Risk identified with input from Fire Protection Districts
Columbia River
Portland
PORTLAND FIRE AND RESCUE
Maywood Park
Troutdale
Fairview
Wood Village
Gresham
GRESHAM FIRE
SAUVIE ISLAND RFPD #30
TUALATIN VALLEY FIRE AND RESCUE
RIVERDALE RFPD #60
LAKE OSWEGO FIRE DEPT.
COLUMBIA GORGE NATIONAL SCENIC AREA
MT. HOOD NATIONAL FOREST
ODF - NORTH CASCADE
CORBETT RFPD #14
Corbett Watershed
Bull Run Watershed
SANDY FIRE
RFPD #10
Risk Areas
Present
0 5 10 20
Miles
N
W
E
S
MULTNOMAH COUNTY OREGON
Geographic Information Systems
This map is provided for informational purposes only. Information used to develop this map has been obtained from many sources, and is not guaranteed to be accurate. Multnomah County assumes no responsibility for the accuracy of information appearing on this map.

CHAPTER 5
WILDFIRE RISK ASSESSMENT

"Related to wildfire assessment, it is clear that one-size-does-not-fit-all. However, nearly all assessment models consider **risk, hazard, protection capabilities** and **values protected**. In addition, an assessment of the **vulnerability of values at risk** is needed for community down to parcel level assessments."

-Oregon Dept. of Forestry

CHAPTER 5: WILDFIRE RISK ASSESSMENT

Forest fires and structural fires in the Wildland Urban Interface are inextricably tied. Fires originating on forest land can endanger and burn homes. House fires can spread from residential areas to the forest. Although the threat of wildfire is not as great in Multnomah County as in other parts of the state, wildfire officials are cognizant of the growing potential. One of the core elements of the Multnomah Community Wildfire Protection Plan is to develop 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 methodology used in the CWPP to conduct a wildfire risk assessment follows Oregon Department of Forestry's guidance for determining wildfire risk. An interagency team, including representatives from Multnomah County, Oregon Department of Forestry, and the US Forest Service, and the Columbia River Gorge National Scenic Area participated in the assessment.

Multnomah County used Geographic Information Systems (GIS) in creating the risk assessment. GIS is a computer-based system that can be used to analyze and integrate spatial layers of information, such as fire hazard, risk, location of values, protection capabilities, and the location of vulnerable structures with physical factors such as slope, aspect, and vegetation to assess the relative level of wildfire risk within the County and produce visually informative maps.

Members of the Risk Assessment Subcommittee include:

Multnomah County Emergency Management (MCEM)

Multnomah County Department of Geographic Information Systems (MCGIS)

Oregon Dept. of Forestry (ODF)

United States Forest Service Mt. Hood National Forest (Mt. Hood NF) and the Columbia River Gorge National Scenic Area (CRGNSA)

Risk Assessment Objectives

- Identify critical facilities, infrastructure and economic centers in high hazard areas.
- Identify the cause and location of historic and potential wildland fires in the county.
- Develop a hazard assessment that improves upon the statewide assessment for the purposes of prioritizing projects for implementation.
- Streamline assessment process by using best available data for developing a hazards assessment in a timely manner.
- Identify opportunities to improve hazard layers as data and resources are available.
- Capitalize on expertise of all the partners to share the workload of data gathering and analysis.
- Distribute the hazard assessment to partner agencies and organizations that can integrate the wildfire hazard assessment into plans and procedures.

Risk Assessment Action Items

1. **Improve consistency and relevancy of "wildland" fires ignition data.**
    a. Develop a standard for reporting "wildland" and "natural cover" fires within current reporting systems and communicate this standard to all fire districts,
    b. Work with the SFMO to require size of fire and duration of fire in fire reports.

Timeline:	2 Years
Lead:	Local Fire Agencies, ODF
Partners:	State Fire Marshall's Office (SFMO)
Priority:	High
Progress:	

2. **Develop a series of recommendations for tracking structural vulnerability data throughout the County and revise the Wildfire Hazard Analysis and the Wildland Urban Interface to reflect the new information.**
    a. Work with fire districts to use GPS units for obtaining home locations and structural vulnerability data such as building materials, access constraints, water supply and defensible space.

Timeline:	Ongoing
Lead:	Local Fire Agencies, ODF
Partners:	MCGIS
Priority:	High
Progress:	

3. **Integrate large historical fires into the wildfire hazard analysis.**

Timeline:	Ongoing
Lead:	ODF, USFS, CRGNSA
Partners:	MCGIS
Priority:	Medium
Progress:	

4. **Work with local fire agencies to develop more detailed risk assessments using local and community-derived data.**

Timeline:	Ongoing
Lead:	Local Fire Agencies, ODF
Partners:	MCGIS
Priority:	Medium
Progress:	

Wildland Urban Interface

WUI as Defined by HFRA and the Federal Register

The Federal Register states, "the urban-wildland interface community exists where humans and their development meet or intermix with wildland fuel." In an effort to further refine the federal register definition HFRA has identified two levels of the WUI designation: *Interface* and *Intermix* communities. In both interface and intermix communities, housing must meet or exceed a minimum density of one structure per 40 acres.

- The *Interface Community* exists where structures directly abut wildland fuels. There is a clear line of demarcation between residential, business, and public structures, and wildland fuels. Wildland fuels do not generally continue into the developed area, and development is usually denser than in *intermix* communities. Fire protection is generally provided by a local government fire department with the responsibility to protect the structure from both an interior fire and an advancing wildland fire.
- The *Intermix Community* exists where structures are scattered throughout a wildland area. There is no clear line of demarcation; wildland fuels are continuous outside of and within the developed area. Fire protection districts funded by various taxing authorities normally provide life and property fire protection, and may also have wildland fire protection responsibilities.

WUI as defined by the MCWPP

The purpose of the Multnomah County Wildland Urban Interface is to guide wildfire prevention efforts around homes (education and defensible space), and to identify adjacent forest lands that could benefit from larger scale fuels reduction treatments. The Multnomah County WUI is not intended for site-specific planning, and areas identified as inside the WUI should be ground-truthed before designing any wildfire prevention or fuels reduction programs.

The Risk Assessment Subcommittee used the federal register and HFRA's guidance for determining the WUI, by considering home density within 500 feet of hazardous vegetation (Fuel Type III), topography and from the Fire Districts regarding specific communities to target for wildfire prevention programs (please see *strategic planning areas* in Chapter ??). It is important to note that some Strategic Planning Areas included tracts of land that support infrastructure, critical watersheds, or parks that require wildfire protection, and as such are included in the Wildland Urban Interface.

Because wildfire prevention and fuels treatments will be managed differently in urban communities than in communities adjacent to heavily forested landscapes, the risk assessment subcommittee used developed a WUI relevant to the geographic context.

In more urban areas, the WUI extended approximately 2 blocks from the 500 foot vegetation buffer, as these homes have the most direct impact on either spreading fire to forests, or being damaged from an encroaching wildfire.

In areas with communities and/or infrastructure adjacent to heavily forested landscapes, Effective fuels modification strategies in more heavily forested Timber/Agricultural areas can extend up to and beyond 1.5 miles, depending on topography. For this reason, the WUI was extended to 1.5 miles beyond structures or to all the way ridge tops, when appropriate.

Using best available data (Metro RLIS building footprint database), 47,603 buildings in Multnomah County are within the WUI. This concentration of exposure underscores the necessity for wildfire prevention programs.

Risk Assessment Methodology and Results

The Multnomah County Wildfire Hazard and Risk Assessment (Assessment) is a tool to illustrate the relative level of risk to life, property, and natural resources in any area of the county. It is intended to identify locations for focused resources allocation to most effectively reduce wildfire risk. It would take nearly unlimited resources to reduce all of the hazards and risks in the county, therefore the Assessment provides decision makers with valuable information about where to focus limited resources to most effectively reduce the risks to communities and citizens.

As projects are implemented through the CWPP, the maps and priorities developed through the risk assessment will change, but they will always point to those areas identified as having the highest relative ranking for risk and hazard. The project is intended as a tool to rank, not define, the absolute hazard or risk for any area in the county.

It can be tempting to rely on technology to provide all of the answers, but it is important to recognize the limits of the data and modeling, and to educate users about such limitations. This has been critical in gaining acceptance by the professionals dealing with fire.

Multnomah County used "Identifying and Assessment of Communities-at-Risk in Oregon, Draft Version 4.0" dated October 18, 2004, and developed by ODF, with cooperators through a statewide steering committee, as a template to conduct the Assessment. This methodology was designed to conduct a statewide risk assessment for wildfire as well as provide guidance for county and local plans. It uses a five-tiered methodology to integrate physical hazards such as vegetation and topography as well as human risk factors such as potential ignition sources (Table 5-1). The results obtained are intended to provide a broad view of the county and its relative risks. More detailed local assessments, conducted as part of each fire department/district's community plans, can be used to improve this analysis.

A county-wide map was produced at each step of the risk assessment process. These maps were reviewed and the methodology was often revised based on expert opinion within our risk assessment subcommittee. As stated earlier, the state document was used as a template or a guide for our county Assessment and was not intended to provide all of the answers. It has been recognized that each county will have some unique factors that will require different applications of the data. As with any assessment using multiple data sources, there were questions about the data and in some cases the methods. The county assessment used the best available data and the best available methods at the time it was developed. The subcommittee has documented data limitations lessons learned, and recommendations for improvement to inform future revisions to the Assessment. The maps presented in this chapter are final maps from each stage of the county risk assessment as well as the combined final assessment map for overall risk of wildfire in Multnomah County. It is this map that will assist in prioritizing fuels reduction projects and other work in the future.

Table 5-1. 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.

Assessment Categories	Elements	Score
Wildfire Hazard	Fuels (developed from vegetation information), Slope, Aspect, Elevation, Weather	0-80
Wildfire 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	0-40
Community Values	Life/Property as determined by home density (homes per 10 acres) and community infrastructure	0-50
Protection Capability	Fire Response Time (determined from fire district boundaries and district-reported response times) and Community Preparedness	0-40
Structural Vulnerability	The Wildland Urban Interface was determined as the area having the highest degree of structural ignitability.	0-90

Layer 1. Wildfire Hazard Methodology *(0-80 points)*

Fuels (0-30 points)

The primary fuels (vegetation) data that was used was derived from the United States Forest Service Landfire program, 2005. The data included thirty different classifications for vegetation types created at a 30-meter grid spatial resolution raster data set. In order to use this dataset with the ODF methodology, which only allows for three fuels types, the subcommittee was charged with grouping the vegetation types into the three fuel classes taken from the Oregon Administrative Rules (OAR) 629-044 "Criteria for Determination of Wildfire Hazard Zones" and are consistent with the National Forest Fire Laboratory (NFFL) fuel models used by many agencies

Non-forested areas receive 0 points for fuels. Fuel models 1 (grass), 5 (low/less flammable brush), and 8 (short-needle timber litter) received a *Fuel Hazard Factor* of 1 and therefore 5 points. Fuel models 2 (grass/timber), and 6 (moderate brush, conifer reproduction, open sage, and juniper) receive a *Fuels Hazard Factor* of 2 and 15 points. There is very little *Fuels Hazard Factor* 2 found in Multnomah County. Fuel models 3 (tall/flammable grasses), 4 (heavy/flammable brush), and 10 (mature timber with slash) receive a *Fuels Hazard Factor* of 3 and 30 points. Vegetation comprising *Fuels Hazard Factor* 3 typically produce a flame length of over 8 feet, a wildfire that exhibits frequent spotting, torching, or crowning, and which results in a burned area that normally cannot be entered for over one hour. It is these fuel types that are found in our highest risk areas. The ODF Methodology provides some guidance on assessing crown fire potential, but the subcommittee found that this process was cumbersome and did not pertain to the geographic conditions in Multnomah County. As such, no points were associated directly with crown fire potential, with the potential for crown fires being weighted more heavily as *Fuels Hazard Factor* 3.

Topographic Characteristics *(0-10 points)*

Topographic characteristics include slope, aspect, and elevation. Slopes are broken into three classes with break points at 25 and 40 percent slope values. . The slope layer has values ranging from 0 (least slope) to 3 (most slope). Aspect is also divided into three classes where 0 was assigned to the north-facing slopes, 3 to west and east-facing slopes, and 5 to the southern slopes. Finally, elevation point values are assigned from highest to lowest elevation with areas over 5000 feet receiving 0 points, 3501-5000 feet receiving 1 point, and the lowest elevations receiving 2 points. These three characteristics are combined for a possible 10 points.

Weather *(0-40 points)*

The number of days per season that forest fuels are capable of producing a significant fire event is important to consider. The reference for establishing the wildfire weather hazard factor is provided by the Oregon Department of Forestry, which was developed following an analysis of daily wildfire danger rating indices in each regulated use area of the state. A weather value was assigned by county: 1 on the coast, 2 in the Willamette Valley, and 3 for eastern and much of southern Oregon. These values translate to 0, 20 and 40 points respectively, with Multnomah County receiving 20 points.

The statewide methodology gave Multnomah County a general score of 20 without regard to local knowledge and closer examination of the topographic influences present. The subcommittee determined that the topographic influences present from the Columbia River Gorge were significant and warranted an alternative method for determining the Weather Hazard Factor Value. Wind was chosen as the most significant climatic factor to evaluate due to its impact on firefighting operations in the wildland environment. Specifically, the Columbia River Gorge routinely has significant east wind events at all times of year that have the potential to influence wildfire behavior in the Multnomah County area.

The Committee reviewed the average daily wind speeds collected from weather stations throughout the County and found that the east wind began to dissipate westward across the County and as the landscape moved to a more gentle grade. Three wind factor zones were created to represent the east wind effect.

- East Zone – I-205 east with a score of 40
- Central Zone – Between I-205 and I-5 with a score of 30
- West Zone – I-5 West with a score of 20

Table 4-4. Wind Data Locations and Findings

Wind speeds were recorded from the following available weather stations to determine the effect of the east wind throughout Multnomah County as it relates to fire danger.

Location	Elevation	Description
Cascade Locks	128 ft.	Highest average wind speed; station located in a low elevation; wind pattern increases in October through November as the east winds increase.
Larch Mountain	1150 ft.	Located on the Washington side of the Columbia River; protected on the east by the western cascade foothills; wind speeds do not vary much at this station although data is missing from mid October through November for unknown reasons.
Troutdale Airport	30 ft.	Wind speed is typically lower here than others but starts to spike quickly from mid-October through November similar to Cascade Locks.
Portland International Airport	20 ft.	Consistent wind all year with a little spike that corresponds with Troutdale.
Hillsboro Airport	200 ft.	Appears to have less exposure from east wind due to distance from Columbia Gorge effect. Location is somewhat protected from east winds by the Tualatin Mountains
Miller	1031 ft.	Located in Columbia County, NW of Multnomah County; exposure to east wind during large scale east winds events but significantly less than those within Columbia Gorge and outflow areas.
South Fork	2257 ft.	Located in the Tillamook State Forest, West of Multnomah County in Tillamook County but high enough elevation to capture any prevailing East winds.

Conclusions:

- The Gorge obviously has an influence on wind speeds and that wind speed decreases with elevation
- Topographic influences near a station will alter the measured winds at a given location
- There is better data for the East and of the County that the West
- Wind speeds form the East generally increase in October and November when NW Oregon is historically at its peak for Fire Danger

Hazard Results: Map #4

The composite hazard map represents those physical characteristics that can affect fire behavior. In Multnomah County, vegetation and weather conditions are the primary physical characteristics that drive hazard ratings. The most dominate variable in the composite hazard map is the weather hazard factor, which was developed to account for the east wind generated from the Columbia River Gorge. As noted in the documentation above, the zones demarked by the weather hazard factor are distinguished in the overall hazard composite as nearly straight vertical lines demarking the east zone, central zone and west zone. Although weather likely does not follow straight lines as illustrated in the map, the subcommittee used the best available data

to display these geographic zones. Because the east zone scores 40 points, eastern Multnomah County has a higher hazard score, relative to the central and west county.

The other significant contributing factor to the composite hazard map is the vegetation or fuel type. Multnomah County is very fortunate to have obtained fairly accurate fuels data that could be used in this Assessment. The vegetation is the primary driver for the high hazard scores in central and west county, as the weather hazard factor score decreases west of Interstate 205. It is interesting to note that Forest Park (west county) received a high hazard score despite the fact that it received few points from the weather hazard factor, an indication that Forest Park has a high concentration of flammable vegetation.

Layer 2. Wildfire Risk Methodology *(0-40 points)*

Historic Fire Occurrence (0-20 points)

Risk is the likelihood of a fire occurring, was determined from historic wildfire occurrence and ignition risk.

The statewide assessment guidance uses a density grid of fire occurrence per 1000 acres per 10 years. However, this analysis did not provide adequate resolution for identifying areas that are at relatively higher risk in Multnomah County. The subcommittee used 100 acres per 10 years instead of 1,000 acres per ten years, as the scale more accurately represents the data because it brings out the highest concentration and lowest concentration of fires.

The historic data was acquired from the Oregon Department of Forestry, the US Forest Service, and the State Fire Marshall's Office (SFMO). The ODF and USFS agencies reported "statistical fires" (a wildland fire for which the agency has primary responsibility and required fire suppression action) and the data used from the SFMO were only natural cover fires. The data is not consistent in representing the size of fires, so size was not be incorporated into the assessment; only points of historic fire occurrence were be considered.

Based on discussions of data availability the subcommittee chose to use 13 years of data: 1996-2009. Although ODF and USFS have documentation for a period much longer than 13 years, the SFMO data only goes back to 1996, which was a limiting factor in considering historic fire occurrence. Although the subcommittee agrees that larger historic fires are relevant for future fire potential, the data are collected in polygons rather than point data sets which present a challenge in integrating the data into the current methodology. This data limitation is included in the Action Plan as a consideration for improving this layer in future hazard assessments.

The fire departments and districts throughout Multnomah County have varied capacity for reporting fire occurrence. In addition, fire professionals have different perceptions of what a "wildland" or "natural cover" fire means due to the natural cover categories being very broad.. For the data that was available, a large number of reported wildfires occurred in urban areas. The subcommittee was concerned with the number of fires reported in the highly urban area, inaccurately representing a higher risk in highly urban areas. In an effort to distinguish potential fire risk in urban areas that are actually in close proximity to potentially flammable vegetation, 200 foot buffers were created around parks, natural areas and vacant lots to identify these homes with a higher risk than those in closed city blocks. Firewise principles advise creation of defensible space from 100-300 feet around homes, so a 200 foot buffer was chosen as a good average defensible space. The fire history data in high urban density areas that did not fall within 200 feet of a park or vacant land were removed. The

analysis provided a more realistic picture of potential fire risk, and was further refined to remove any other fire history data urban areas that were at no risk to wildfire.

Ignition Sources *(0-20 points)*

In addition to historic fire occurrence, ignition risk was used to help determine overall risk of fire occurrence. Historic fire occurrence is not necessarily a good indicator of future fires, depending on the cause of the fire.

Urban Density *(0-10 points)*

ODF methodology uses Urban Density as an indicator of potential fire ignition (under the assumption that people start fires as a high percentage of wildland fires in Oregon are human caused) with the higher density areas receiving the most points. As discussed above, the highly urbanized areas do not constitute wildfire ignition risk unless there are fuels available to ignite. For this reason, we decided to give density scores only to those homes within 200 feet of a park, natural area or vacant lot. Again the data was then refined to remove any highly urban areas that were not in close proximity to hazardous vegetation. We also decided to modify the scoring; 0 highly urban, 3 rural, 5 suburban, 7 urban so that rural areas are not given a zero, because lack of urban density does not mean there is zero risk for fire ignition. With debris burning still being allowed in rural areas there is a higher risk.

Other Ignition Sources *(0-10 points)*

Other potential ignition sources that were identified include major highways and railroads with a buffer of 500 feet as well as parks and open spaces open to the public with a buffer of 500 feet. The following were used as "other ignition sources."

- Hwy 84 from NE 122nd St east to Hood River County.
- Hwy 30 from Interstate 405 north to Columbia County
- Cornelius Pass Road from Highway 30 south to Washington County
- Union Pacific Railroad east from NE 122nd St to Hood River County and Interstate 405 north to Columbia County
- Public Accessible Parks and Open Spaces

Scoring was calculated as follows:

- ✓ 1 of the above present: 3 points
- ✓ 2 of the above present: 6 points
- ✓ 3 of the above present: 10 points

Risk Results: *Map #5*

The risk composite map uses historic fire occurrence and potential ignition sources as indicators of future fire occurrence. There are many limitations to the data including the inability to include larger historic fires, inconsistency in data reporting, and lack of available fuels in highly urban areas that are generally scored higher based on urban density. The subcommittee attempted to reduce the weighting of the last factor (urban density) by removing the highly urban areas that are not close to hazardous vegetation and therefore have no potential for wildfires, but some urban areas still scored higher in the risk composite map because Multnomah County is known for having many parks (and vegetation) in close proximity to urban areas, and urban fire departments have a higher capacity for reporting fires. Also, the perception of a "wildland fire" in urban areas is likely very different than in rural fire districts.

The Corbett area unrealistically shows a very low risk because there is very low urban density and this rural fire district is all volunteer and has a very low capacity for reporting fires. Also, the areas west of Corbett are primarily USFS and BLM land, which are publicly accessible and therefore received a higher score due to ignition potential.

The subcommittee attempted to eliminate the inconsistencies in the map and actual fire risk, but using the methodology and available data, glaring inconsistencies in this illustration of potential fire risk remain. However, because this layer is given low weighting relative to the other layers considered in the assessment, these errors are overshadowed with more accurate information in the Overall Wildfire Hazards Map.

Layer 3. Community Values Methodology *(0-50 points)*

The ***values*** considered for this Assessment are a combination of life/property and community infrastructure.

An address point layer has been developed for the county that shows known structure locations. It is this data that was used to create the home density layer (homes per 10 acres). Similar to the previous data layers, the highly urbanized areas that constitute no wildfire potential were removed from this analysis. There are many possible county-wide values. Community infrastructure was chosen to include with home density. For purposes of this Assessment, the county's community infrastructure that is critical in emergency response included hospitals, fire stations, cell tower sites, police stations, 9-11 centers, power substations, and emergency transportation routes (state highways and freeways). The Bull Run watershed and the Corbett Watershed were also included as important assets to be protected.

Values Results: *Map #6*

Beyond general life and property, "values protected" is very subjective. The risk assessment subcommittee chose critical buildings and infrastructure that would support emergency response efforts. Many of these buildings, like fire stations and police stations, exist near each other in populated areas. This layer scores areas based on the number of "assets" in a given location, so urban areas that have home density in combination with infrastructure and emergency response facilities received a higher score. Again the Corbett area and the Forest Park areas received low ratings; not because there are no values to protect here, but rather because there is little home density in combination with infrastructure. The Corbett and Bull Run watersheds are considered "infrastructure" and therefore received a higher score.

Layer 4. Protection Capability Methodology *(0-40 points)*

The ***protection capability*** layer is dominated by the boundaries of the rural fire protection districts. The ODF methodology suggests using 2 categories, fire response and community preparedness. However since there has been very little coordinated wildfire prevention in Multnomah County to this point, the community preparedness factor was not included in this analysis. The ODF methodology also includes an additional category, for areas that can be covered by wildland agencies within 20 minutes; however, all wildland agencies responding to an event in Multnomah County would likely be great than 20 minutes. So 40 points were allocated to areas beyond structural fire department boundaries.

Fire Response (0-40 possible):

- Areas inside a fire district with structural response under 10 minutes receive 0 points
- Areas inside a fire district with structural response over 10 minutes receive 10 points

- Areas outside of a fire district with a wildland agency only response receive 40 points

Protection Capabilities Results: *Map #7*

This layer was created with careful input from each of the fire departments and districts, Oregon Department of Forestry and the United States Forest Service regarding their response time capabilities. Fire agency participants engaged in this exercise indicated that it seemed that fire district boundaries carried much more weight in the Assessment than whether or not a district is able to provide adequate protection in a reasonable amount of time because it is difficult to foresee the availability of staff and resources on any given day. Also, response times are expected to be long outside of the fire districts, especially if a fire occurs in the off-season.

Layer 5. Structural Vulnerability Methodology *(0-90 points)*

An assessment of structural vulnerability, or the likelihood that structures will be destroyed by wildfire, is best determined by on-site visits. This was not practical at the county level. The subcommittee decided to use the Wildland Urban Interface as the area that would be at highest risk to structural vulnerability because it includes homes are adjacent to potential hazardous vegetation, and many communities built close to forested and natural areas are rural and have limited access and water supply. The Wildland Urban Interface was given 90 points to account for the structural vulnerability implicit in this designation. A more detailed discussion regarding the Wildland Urban Interface is provided previously in this chapter and is shown in Map #3: Multnomah County Wildland Urban Interface.

Overall Risk of Wildfire in Multnomah County: Map #8

The goal of the county Assessment is to determine relative risk within the county. In this map, the weight that protection capability has is very clear, as is the designation of the WUI or the structural vulnerability layer. The areas of higher natural hazard are also evident, but the values and risk layers (which had the most questionable results) are not as evident in the final composite map. This map represents the county's perception of low, moderate, high, and extreme hazard areas. Point totals from the five categories in the Assessment would fall into the following categories at the state level: Low (0-80), Moderate (81-140), High (141-170) and Extremely High (171-257). Table 4-5 shows the number of acres in Multnomah County within each hazard classification category.

Table 4-5 Hazard Level Acreage

Hazard Level	Acres
Low	18,285
Moderate	59,169
High	84,344
Extreme	115,177

All numbers rounded to nearest acre. Grand total here: 276,975. 0 acres Versus a 435.23 sq mile (from US Census) to acre conversion = 278,547.2 acres ; the difference is due to rivers taken out of our map.

Risk Assessment Limitations

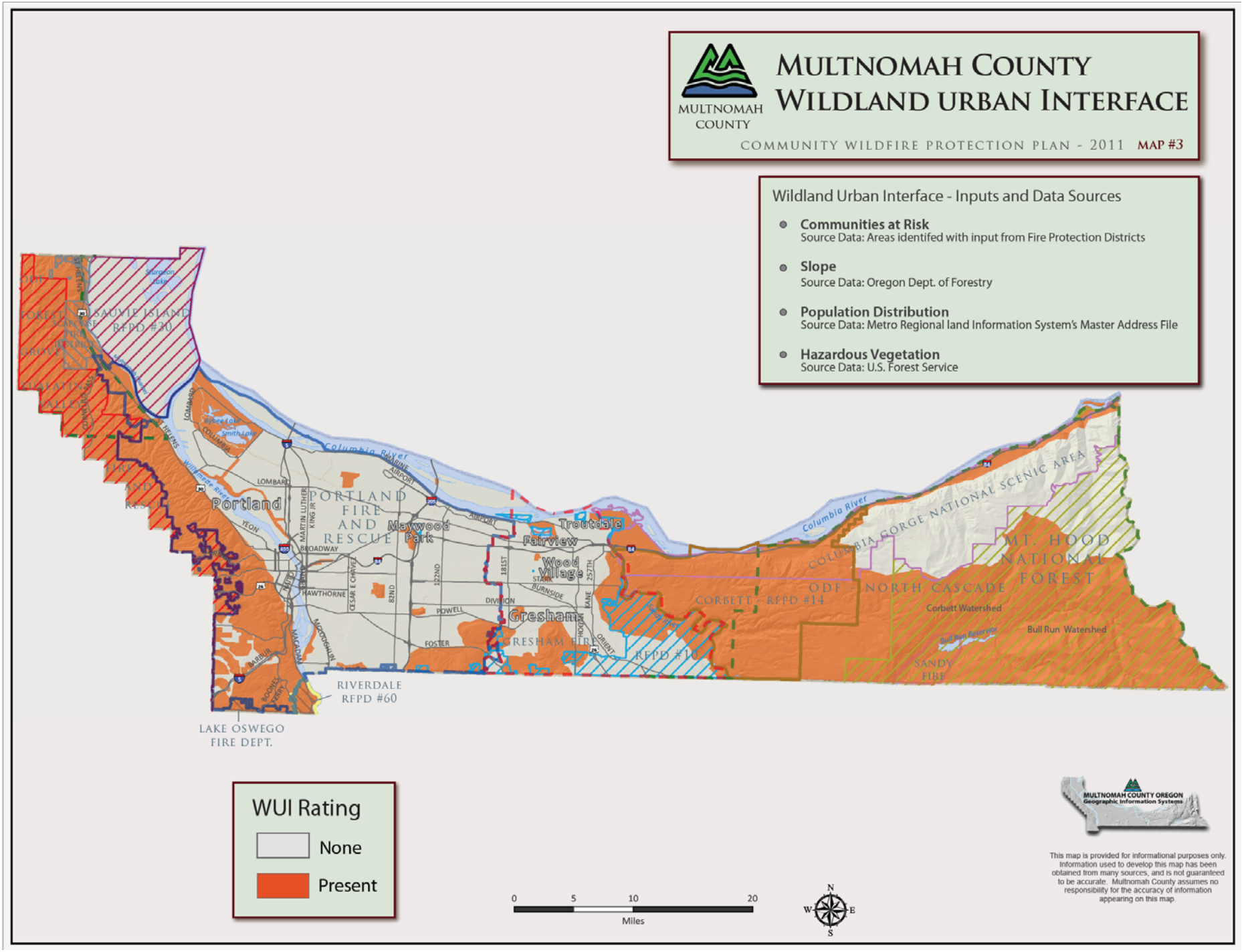
Best Available Data

All participating agencies and departments provided data for the Assessment. It was a challenge to integrate this data since all of the agencies do not collect and report data in the same formats. For example, those conducting the statewide assessment compiled the fire history data that was used at

the county level. They discovered that some sources had 30 to 40 years of usable data while others only had 10 years. Also, what is considered a statistical or countable incident differs greatly between urban fire departments and forest management agencies. As mentioned in the analysis, the larger historical fires were not incorporated into the assessment and could provide some useful information regarding the potential of large scale wildfires in Multnomah County. The weather hazard factor was determined using the best available wind data throughout the county. However some weather stations are not consistent in data reporting and there are not enough stations located throughout the county to give an incredibly accurate account of wind and other weather factors that may affect wildfire hazards. Also, structural vulnerability was estimated using the WUI designation, but would be greatly improved upon with specific data regarding building type, roofing material, access and defensible space.

Landscape Level vs. Site-Specific Assessment

Fire was viewed as a landscape level event, taking into account site-specific factors. Of five categories, three categories (hazard, risk, and values) are landscape level layers, while two of the categories (protection capability and structural vulnerability) take into account site-specific conditions. The site-specific layers were generalized for small scale mapping and identifying potential sites for prioritizing work. However, the large scale mapping of individual neighborhoods can incorporate the site-specific information. This allows experts to develop customized plans for reducing the hazard and risk of a neighborhood or an individual tax lot.


MULTNOMAH COUNTY
MULTNOMAH COUNTY WILDLAND URBAN INTERFACE
COMMUNITY WILDFIRE PROTECTION PLAN - 2011 MAP #3
Wildland Urban Interface - Inputs and Data Sources
Communities at Risk
Source Data: Areas identifed with input from Fire Protection Districts
Slope
Source Data: Oregon Dept. of Forestry
Population Distribution
Source Data: Metro Regional land Information System's Master Address File
Hazardous Vegetation
Source Data: U.S. Forest Service
SAUVIE ISLAND RFPD #30
Portland
PORTLAND FIRE AND RESCUE
Maywood Park
Troutdale
Fairview
Wood Village
Gresham
GRESHAM FIRE RFPD #10
CORBETT - RFPD #14
ODF - NORTH CASCADE
COLUMBIA GORGE NATIONAL SCENIC AREA
MT. HOOD NATIONAL FOREST
Corbett Watershed
Bull Run Watershed
SANDY FIRE
RIVERDALE RFPD #60
LAKE OSWEGO FIRE DEPT.
Columbia River
Willamette River
WUI Rating
None
Present
0 5 10 20
Miles
N
W
E
S
MULTNOMAH COUNTY OREGON
Geographic Information Systems
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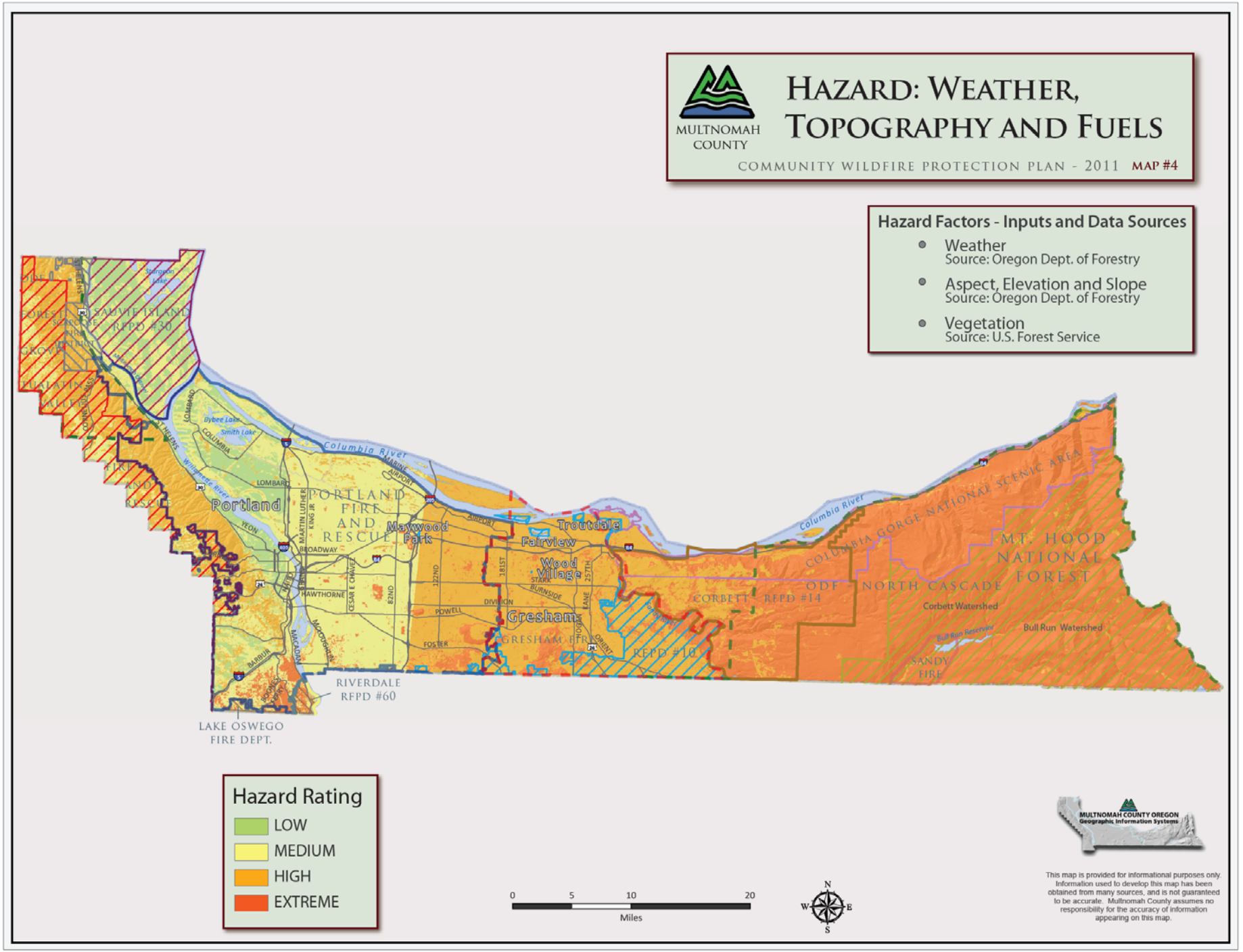
MULTNOMAH COUNTY
HAZARD: WEATHER, TOPOGRAPHY AND FUELS
COMMUNITY WILDFIRE PROTECTION PLAN - 2011 MAP #4
Hazard Factors - Inputs and Data Sources
Weather
Source: Oregon Dept. of Forestry
Aspect, Elevation and Slope
Source: Oregon Dept. of Forestry
Vegetation
Source: U.S. Forest Service
Columbia River
Portland
PORTLAND FIRE AND RESCUE
Maywood Park
Troutdale
Fairview
Wood Village
Gresham
GRESHAM FIRE
RFPD #10
SANDY FIRE
COLUMBIA GORGE NATIONAL SCENIC AREA
MT. HOOD NATIONAL FOREST
ODF - NORTH CASCADE
CORBETT - RFPD #14
Corbett Watershed
Bull Run Watershed
Bull Run Reservoir
SAUVIE ISLAND RFPD #30
RIVERDALE RFPD #60
LAKE OSWEGO FIRE DEPT.
Hazard Rating
LOW
MEDIUM
HIGH
EXTREME
0 5 10 20
Miles
N
W
E
S
MULTNOMAH COUNTY OREGON
Geographic Information Systems
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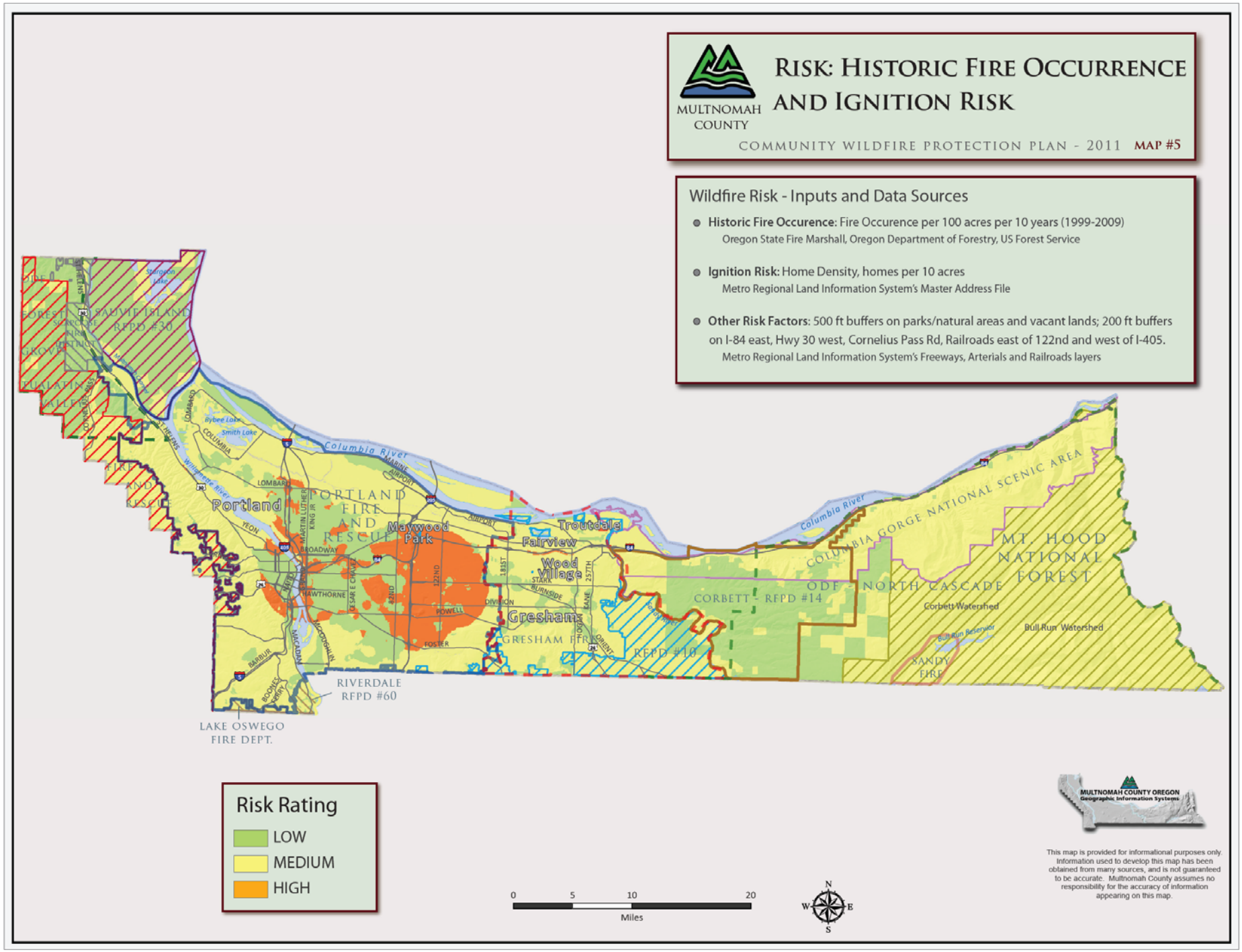
MULTNOMAH COUNTY
RISK: HISTORIC FIRE OCCURRENCE AND IGNITION RISK
COMMUNITY WILDFIRE PROTECTION PLAN - 2011 MAP #5
Wildfire Risk - Inputs and Data Sources
Historic Fire Occurence: Fire Occurence per 100 acres per 10 years (1999-2009)
Oregon State Fire Marshall, Oregon Department of Forestry, US Forest Service
Ignition Risk: Home Density, homes per 10 acres
Metro Regional Land Information System's Master Address File
Other Risk Factors: 500 ft buffers on parks/natural areas and vacant lands; 200 ft buffers on I-84 east, Hwy 30 west, Cornelius Pass Rd, Railroads east of 122nd and west of I-405.
Metro Regional Land Information System's Freeways, Arterials and Railroads layers
Columbia River
Willamette River
Portland
PORTLAND FIRE AND RESCUE
Maywood Park
Troutdale
Fairview
Wood Village
Gresham
GRESHAM FIRE
RFPD #10
CORBETT - RFPD #14
ODF - NORTH CASCADE
COLUMBIA GORGE NATIONAL SCENIC AREA
MT. HOOD NATIONAL FOREST
Corbett Watershed
Bull Run Watershed
Bull Run Reservoir
SANDY FIRE
SAUVIE ISLAND RFPD #30
RIVERDALE RFPD #60
LAKE OSWEGO FIRE DEPT.
Risk Rating
LOW
MEDIUM
HIGH
0 5 10 20
Miles
N
W
E
S
MULTNOMAH COUNTY OREGON
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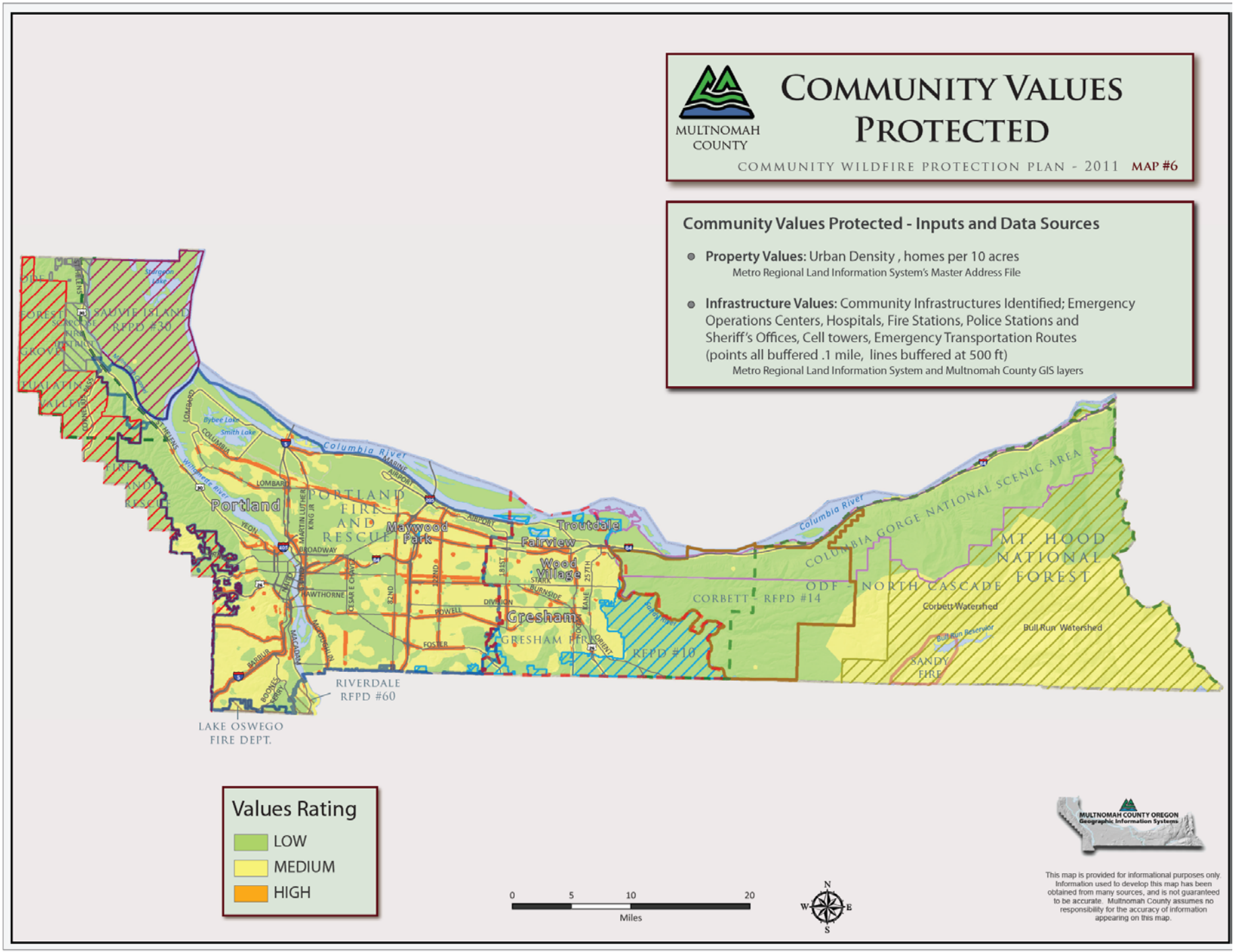
MULTNOMAH COUNTY
COMMUNITY VALUES PROTECTED
COMMUNITY WILDFIRE PROTECTION PLAN - 2011 MAP #6
Community Values Protected - Inputs and Data Sources
Property Values: Urban Density , homes per 10 acres
Metro Regional Land Information System's Master Address File
Infrastructure Values: Community Infrastructures Identified; Emergency Operations Centers, Hospitals, Fire Stations, Police Stations and Sheriff's Offices, Cell towers, Emergency Transportation Routes (points all buffered .1 mile, lines buffered at 500 ft)
Metro Regional Land Information System and Multnomah County GIS layers
Columbia River
Columbia Gorge National Scenic Area
Mt. Hood National Forest
Portland
Portland Fire and Rescue
Maywood Park
Troutdale
Fairview
Wood Village
Gresham
Gresham Fire
Corbett - RFPD #14
ODF - North Cascade
Corbett Watershed
Bull Run Watershed
Bull Run Reservoir
Sandy Fire
RFPD #10
Riverdale RFPD #60
Lake Oswego Fire Dept.
Sauvie Island RFPD #30
Columbia
Broadway
Hawthorne
Powell
Division
Foster
Stark
Burnside
Airport
Values Rating
LOW
MEDIUM
HIGH
0 5 10 20
Miles
N
W
E
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MULTNOMAH COUNTY OREGON
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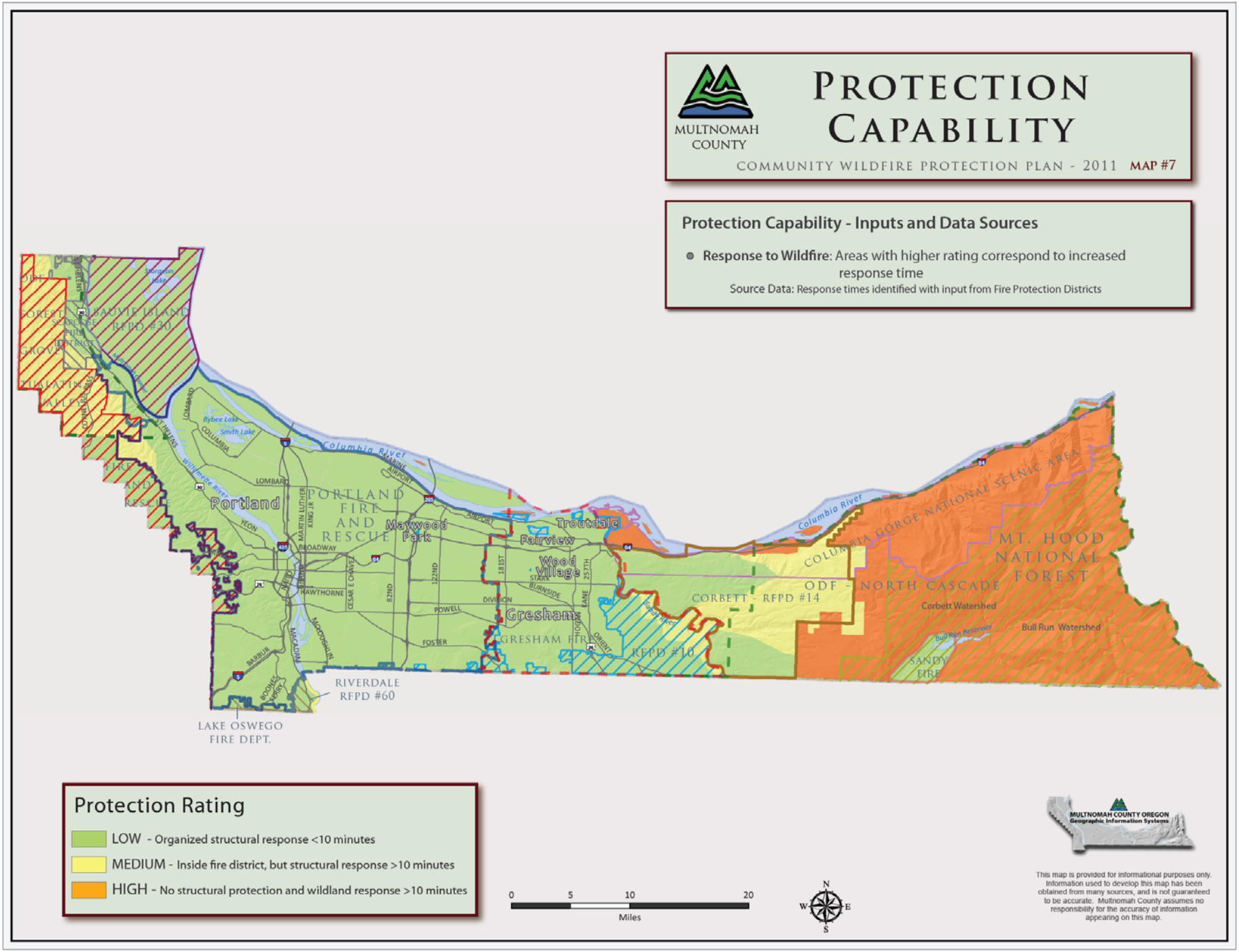
MULTNOMAH COUNTY
PROTECTION CAPABILITY
COMMUNITY WILDFIRE PROTECTION PLAN - 2011 MAP #7
Protection Capability - Inputs and Data Sources
Response to Wildfire: Areas with higher rating correspond to increased response time
Source Data: Response times identified with input from Fire Protection Districts
Columbia River
Willamette River
Portland
PORTLAND FIRE AND RESCUE
Maywood Park
Troutdale
Fairview
Wood Village
Gresham
GRESHAM FIRE
RFPD #10
CORBETT - RFPD #14
ODF - NORTH CASCADE
MT. HOOD NATIONAL FOREST
COLUMBIA GORGE NATIONAL SCENIC AREA
Corbett Watershed
Bull Run Watershed
Bull Run Reservoir
SANDY FIRE
BAUVIE ISLAND RFPD #30
RIVERDALE RFPD #60
LAKE OSWEGO FIRE DEPT.
Protection Rating
LOW - Organized structural response <10 minutes
MEDIUM - Inside fire district, but structural response >10 minutes
HIGH - No structural protection and wildland response >10 minutes
0 5 10 20
Miles
N
W
E
S
MULTNOMAH COUNTY OREGON
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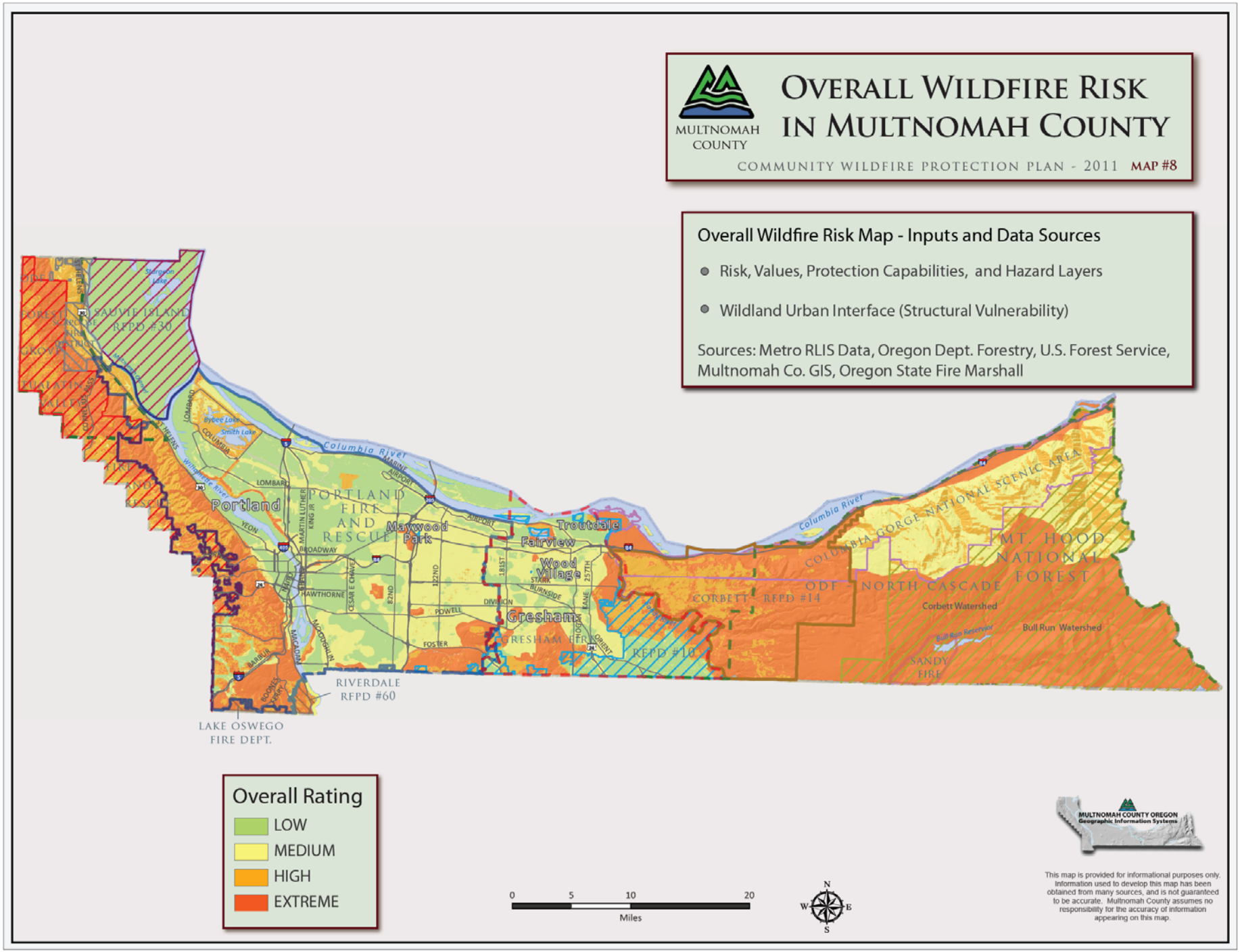
MULTNOMAH COUNTY
OVERALL WILDFIRE RISK IN MULTNOMAH COUNTY
COMMUNITY WILDFIRE PROTECTION PLAN - 2011 MAP #8
Overall Wildfire Risk Map - Inputs and Data Sources
Risk, Values, Protection Capabilities, and Hazard Layers
Wildland Urban Interface (Structural Vulnerability)
Sources: Metro RLIS Data, Oregon Dept. Forestry, U.S. Forest Service, Multnomah Co. GIS, Oregon State Fire Marshall
Columbia River
Portland
PORTLAND FIRE AND RESCUE
Maywood Park
Troutdale
Fairview
Wood Village
Gresham
GRESHAM FIRE
SAUVIE ISLAND RFPD #30
RIVERDALE RFPD #60
LAKE OSWEGO FIRE DEPT.
CORBETT RFPD #14
ODF
NORTH CASCADE
COLUMBIA GORGE NATIONAL SCENIC AREA
MT. HOOD NATIONAL FOREST
Corbett Watershed
Bull Run Watershed
SANDY FIRE
Overall Rating
LOW
MEDIUM
HIGH
EXTREME
0 5 10 20
Miles
N
W
E
S
MULTNOMAH COUNTY OREGON
Geographic Information Systems
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