



Washington County, Oregon

Community Wildfire Protection Plan

August 6, 2007

Mission Statement: To reduce the wildfire risk for Washington County residents, landowners, businesses, communities, local governments, and state and federal agencies while maintaining appropriate wildfire response capabilities and sustainable natural resource management policies, the Community Wildfire Protection Plan will identify urban interface areas and hazardous fuel conditions, identify and prioritize fuel reduction treatments, encourage and facilitate citizen and community wildfire hazard education, promote wildfire mitigation activities, and foster development of a wildfire mitigation ethic.



August 2005 Murphy Road Wheat Field Fire - Washington County, Oregon

This plan was developed by the Washington County Community Wildfire Protection Plan planning committee in cooperation with the Washington County Fire Defense Board and Northwest Management, Inc. (Tel: 208-883-4488 or www.Consulting-Foresters.com)

Acknowledgments

This Community Wildfire Protection Plan represents the efforts and cooperation of a number of organizations and agencies working together to improve preparedness for wildfire events while reducing factors of risk.



Washington County Fire Defense Board



METRO

Hillsboro Fire Department
Banks Fire District #13

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Foreword

The **Washington County Community Wildfire Protection Plan** was developed in 2007 by the Washington County Fire Defense Board, the Oregon Department of Forestry, and the Office of Consolidated Emergency Management for Washington County with project facilitation and support provided by Northwest Management, Inc. of Moscow, Idaho. Funding for the project was provided by the Board of County Commissioners for Washington County from the Secure Rural Schools Title III program. This Community Wildfire Protection Plan will be reviewed annually and updated at least every five years starting from the year of adoption.

The Community Wildfire Protection Plan expands on the wildfire chapter of the Washington County Natural Hazards Mitigation Action Plan, which was approved by FEMA in 2005. Although published as a separate document, the Community Wildfire Protection Plan should be considered a supplement to the wildfire chapter of the Natural Hazards Mitigation Action Plan.

Executive Summary

This Community Wildfire Protection Plan (CWPP) for Washington County, Oregon, is the result of analyses, professional collaboration, and assessments of wildfire risks and other factors focused on reducing wildfire threats to people, structures, infrastructure, and unique ecosystems in Washington County. The subsequent chapters discuss the planning process, demographics, potential wildfire risk, and project recommendations for Washington County.

A Community Wildfire Protection Plan is a collaborative process meant to identify and prioritize mitigation projects that will help reduce the risk from wildfire. The CWPP planning process was created as a pre-disaster mitigation tool to assist communities in identifying areas of high fire risk, developing realistic projects that will alleviate those risks, and increasing eligibility for funding opportunities to implement proposed projects and recommendations. The planning process requires the participation of a multi-jurisdictional committee made up of local government officials, city and county departments, fire district and department representatives, state and federal agency representatives, local organizations, and others. Leading the planning effort for Washington County was the Office of Consolidated Emergency Management, the Washington County Fire Defense Board, and the Oregon Department of Forestry. Northwest Management, Inc. was hired to guide the planning process and author the plan based on the committee's recommendations. Project Co-Managers from Northwest Management, Inc. were Vaiden Bloch and Tera R. King. Funding for this project was provided by the Board of County Commissioners for Washington County from the Secure Rural Schools Title III program.

Monthly committee planning meetings were held from December 2006 through August 2007 to develop in-depth wildfire risk assessments and formulate prioritized mitigation projects. From the inception of the project, public involvement in the planning process was a primary goal of the committee. A public mail survey of local homeowners as well as six public meetings and a public comment period on the draft were conducted to facilitate this goal.

The following is a summary of the action item recommendations made by the planning committee. These projects have been prioritized using the numerical scoring system outlined in Chapter 5. The listed projects are discussed in more detail in Chapter 5.

Action Items for Safety and Policy

High Priority

Ranked in Priority Order:

- 1) Review the County's burn permit and fire restriction enforcement policies and try to improve their applicability on the ground.
- 2) Provide for the development of consistent regulations and standards in the wildland urban interface (as identified in this plan) by coordinating the adoption of this CWPP by all local jurisdictions.
- 3) Form a "Building Code Maintenance and Enforcement" committee to deal with issues regarding the maintenance of building code standards pertaining to emergency access and response after initial inspections.

Unranked:

- Incorporate the Washington County Community Wildfire Protection Plan as a supplement to the Washington County Natural Hazard Mitigation Plan.
- Incorporate the Washington County Community Wildfire Protection Plan as a supplement to the Washington County Comprehensive Plan, where applicable.
- Amend the existing Washington County Fire Resource Management Plan to include the County's responsibilities and procedures for communications, initial organization, transition to incident management team, and policy decisions during large wildfire incidents.

- Assess areas currently outside of existing fire district boundaries for annexation due to increasing population or high fire risk.
- Provide for regular coordination between the State Fire Marshal's Office, Washington County Land Use & Transportation, and the Washington County Fire Defense Board by each entity participating in monthly Fire Defense Board meetings.
- Reestablish the West Metro Fire Prevention Coop.
- Begin pre-planning emergency evacuation routes with specifications for varying conditions.
- Support prescribed burning as an effective tool to reduce hazardous fuels in the WUI within applicable regulations.

Medium Priority

- Distribute Firewise-type brochures with building permit applications.

Action Items for People and Structures

High Priority

- 1) Implementation of youth and adult wildfire educational programs.
- 2) Maintenance of home site defensible space.

Medium Priority

- Prepare for wildfire events in high risk areas by conducting assessments and developing area-specific "Response Plans" to include participation by all affected jurisdictions and landowners.
- Wildfire risk assessments of homes in the wildland-urban interface.
- Implementation of home site defensible space treatments.
- Implementation of community defensible zone treatments in rural subdivisions or housing clusters.

Action Items for Infrastructure Enhancements

High Priority

- 1) Create a mechanism to most effectively utilize Washington County Land Use & Transportation, Sheriff's Office, and Oregon Department of Transportation resources during wildfire emergencies and/or evacuations.
- 2) Implement a fuels management and reduction program along Western Oregon Electric Coop powerline corridor.

Medium Priority

- Make access improvements to substandard bridges and culverts and limiting road surfaces.
- Coordinate with private landowners regarding the use of Knox Boxes on gates to improve emergency response times.

Action Items for Resource and Capability Enhancements

High Priority

Ranked in Priority Order:

- 1) Obtain funding for updated brush trucks for local department use.
- 2) Develop an annual countywide training program to benefit all fire response agencies in Washington County including funding to assist fire departments' ability to attend.
- 3) Obtain funding to outfit fire departments with onboard GPS mapping/location systems to improve response efficiency.

Unranked:

- Obtain an updated brush truck and structural engine for the Gaston Rural Fire Protection District.
- Obtain hand tools, medical supplies, training equipment, station administrative equipment, and new wildland fire personal protective gear for the Gaston Rural Fire Protection District.
- Obtain two updated structural engines (Type 1) and two updated brush trucks (Type 3) for Washington County Fire District #2.
- Obtain a dual purpose brush unit for the Cornelius Fire Department.
- Obtain AED's, suction, firefighting hose and appliances, foam, hand tools, and training equipment for Washington County Fire District #2.
- Obtain a brush truck for Forest Grove Fire and Rescue.
- Map, develop GIS database, and provide signage for onsite water sources such as hydrants, underground storage tanks, and drafting or dipping sites on all ownerships across the County.
- Obtain a Type III brush unit for Banks Fire Protection District #13.

Medium Priority

- Obtain slip-on type and portable wildland firefighting pump units, a fold-a-tank, hose, and hand tools for Metro Regional Parks and Greenspaces and Tualatin Hills Park and Recreation District.

Proposed Projects

High Priority

Priority #1

- Dixie Mountain Home Defensible Space (TR)
- Gales Creek Home Defensible Space (FG, SC)
- Elk Mountain Home Defensible Space (BA)
- Parrett Mountain Home Defensible Space (TV)
- Fern Hill Home Defensible Space (CO, GA, FG)

Priority #2

- ODF Forest Park Roadside Fuels Treatment (BA)
- Cedar Canyon Road Roadside Fuels Treatment (BA)
- Pihl Road Roadside Fuels Treatment (BA)
- Dairy Creek Road Roadside Fuels Treatment (TR, WA)
- Green Mountain Road Roadside Fuels Treatment (BA)
- Northstar Gould Lane Roadside Fuels Treatment (BA)
- East Side Sellers Road Roadside Fuels Treatment (BA)

Medium Priority

- Hayward Road Home Defensible Space (BA)
- Hornings Hideaway Hayward Road Home Defensible Space (WA)
- Timber Home Defensible Space (BA)
- Chrysler Home Defensible Space (BA)
- Cherry Grove – Henry Hagg Lake Home Defensible Space (SC, GA)
- Northstar Gould Lane Home Defensible Space (BA)
- East Side Sellers Road Home Defensible Space (BA)
- Hidden Mountain Home Defensible Space (BA)
- Dixie Mountain Community Defensible Zone (TR)
- Timber Community Defensible Zone (BA)
- Gales Creek Community Defensible Zone (FG, SC)
- Chrysler Community Defensible Zone (BA)
- Elk Mountain Community Defensible Zone (BA)
- Parrett Mountain Community Defensible Zone (TV)
- Fern Hill Community Defensible Zone (CO, GA, FG)
- Cherry Grove – Henry Hagg Lake Community Defensible Zone (SC, GA)
- Northstar Gould Lane Community Defensible Zone (BA)
- East Side Sellers Road Community Defensible Zone (BA)
- Hidden Mountain Community Defensible Zone (BA)
- Power Line Corridor Fuels Reduction (CO, FG, BA, TR)
- Pumpkin Ridge Road Roadside Fuels Treatment (TR, WA)
- Vernonia Road Roadside Fuels Treatment (BA)
- Timber Road Roadside Fuels Treatment (BA)
- Timber - Glenwood Road Roadside Fuels Treatment (BA, FG)
- Hidden Mountain Roadside Fuels Treatment (BA)
- Hayward Road Roadside Fuels Treatment (BA)
- Hells Canyon Road Roadside Fuels Treatment (TV)
- Buxton – Bacona Road Roadside Fuels Treatment (BA)
- Highway 47 Roadside Fuels Treatment (BA)
- Henry Hagg Lake Access Roadside Fuels Treatment (SC, GA)
- Johnson Road Roadside Fuels Treatment (BA)
- Stimson Mill Fuels Reduction (GA)
- ODF Forest Park Fuels Reduction (BA)

Key: CK-Cochran, SC-Scoggins, BA-Banks, FG-Forest Grove, GA-Gaston, CO-Cornelius, TR-Tupper Ranch, WA-Washington, HI-Hillsboro, and TV-Tualatin Valley,

In addition to the specific action item recommendations noted above, the planning committee identified a number of general wildfire-related issues facing the county. These items are noted below and discussed in detail in Section 4.8.

- Urban and Suburban Growth
- Rural Fire Protection
- Debris Burning
- Pre-planning in High Risk Areas
- Fire Department Annexations
- Fireworks
- Accessibility

Chapter I

1 Overview of this Plan and its Development

This Community Wildfire Protection Plan (CWPP) for Washington County, Oregon, is the result of analyses, professional collaboration, and assessments of wildfire risks and other factors focused on reducing wildfire threats to people, structures, infrastructure, and unique ecosystems in Washington County. The planning committee responsible for implementing this project was led by the Washington County Fire Defense Board. Agencies and organizations that participated in the planning process included:

- Washington County Fire Defense Board
- The Office of Consolidated Emergency Management for Washington County
- Washington County Commissioners and County Departments
 - Emergency Management
 - Land Use and Transportation
- Oregon Department of Forestry
- Incorporated Cities of Washington County
- Cornelius Fire Department
- Hillsboro Fire Department
- Tualatin Valley Fire and Rescue
- Banks Fire District #13
- Washington County Fire District #2
- Forest Grove Fire and Rescue
- Gaston Rural Fire Protection District
- Metro Parks and Greenspaces
- Tualatin Hills Park and Recreation District
- Bureau of Land Management
- Northwest Oregon Forest Protective Association
- Northwest Management, Inc.

The Washington County Fire Defense Board, Washington County Emergency Management, and Oregon Department of Forestry solicited competitive bids from companies to lead the assessment and writing of the **Washington County Community Wildfire Protection Plan**. Northwest Management, Inc. was selected to provide this service to the County. Northwest Management, Inc. (NMI) is a professional natural resources consulting firm located in Moscow, Idaho. Established in 1984, NMI provides natural resource management services across the USA. The Project Co-Managers from Northwest Management, Inc. were Mr. Vaiden Bloch and Mrs. Tera R. King.

1.1 Goals and Guiding Principles

1.1.1 Planning Philosophy and Goals

1.1.1.1 Washington County Fire Mitigation Planning Effort and Philosophy

The goals of the planning process include integration with the National Fire Plan, the Healthy Forests Restoration Act, and the Disaster Mitigation Act. The plan utilizes the best and most appropriate science from all partners as well as local and regional knowledge about wildfire risks and fire behavior, while meeting the needs of local citizens and recognizing the significance wildfire can have on the regional economy.

The Community Wildfire Protection Plan builds on and supplements the wildfire chapter of the Washington County Natural Hazard Mitigation Plan.

1.1.1.1.1 Mission Statement

To reduce the wildfire risk for Washington County residents, landowners, businesses, communities, local governments, and state and federal agencies while maintaining appropriate wildfire response capabilities and sustainable natural resource management policies, the Community Wildfire Protection Plan will identify urban interface areas and hazardous fuel conditions, identify and prioritize fuel reduction treatments, encourage and facilitate citizen and community wildfire hazard education, promote wildfire mitigation activities, and foster development of a wildfire mitigation ethic.

1.1.1.1.2 Vision Statement

The Washington County Community Wildfire Protection Plan seeks to create a community where locally-developed and supported wildfire prevention and mitigation strategies are implemented to reduce wildfire risks to people, property, and the environment. The plan further seeks to ensure the community balances its wildfire prevention and mitigation strategies with the maintenance of appropriate wildfire response capabilities and sustainable natural resource management practices.

1.1.1.1.3 Goals

- Identify and map Wildland Urban Interface (WUI) boundaries for communities adjacent to forest lands
- Reduce the area of WUI land burned and losses experienced because of wildfires where these fires threaten communities in the wildland-urban interface
- Identify and evaluate hazardous fuel conditions with an emphasis near communities adjacent to forest lands, prioritize areas for hazardous fuel reduction treatments, and recommend the types and methods of treatment to protect the communities
- Recommend additional strategies for private, state, and federal lands to reduce hazardous fuel conditions and lessen the life safety and property damage risks from wildfires
- Educate communities about the unique challenges of wildfire in the wildland-urban interface
- Address structural ignitability and recommend measures that homeowners and communities can take to reduce the ignitability of structures

- Better inform Washington County residents and landowners of best practices to prepare themselves and their property for a wildfire situation
- Improve fire agency awareness of wildland fire threats, vulnerabilities, and mitigation opportunities and options
- Assist fire agencies in the targeting of high risk areas for enhanced wildfire incident response planning
- Provide opportunities for meaningful discussions among community members and local, state, and federal government representatives regarding their priorities for local fire protection and forest management
- Improve county and local fire agency eligibility for funding assistance (National Fire Plan, Healthy Forest Restoration Act, FEMA, and other sources) to reduce wildfire hazards, prepare residents for wildfire situations, and enhance fire agency response capabilities
- Meet or exceed the requirements of the National Fire Plan and FEMA for a county level Community Wildfire Protection Plan

1.1.2 Federal Emergency Management Agency Philosophy

Effective November 1, 2004, a hazard mitigation plan approved by the Federal Emergency Management Agency (FEMA) is required for Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Program (PDM) eligibility. The HMGP and PDM programs provide funding, through state emergency management agencies, to support local mitigation planning and projects to reduce potential disaster damages.

The local hazard mitigation plan requirements for HMGP and PDM eligibility are based on the Disaster Mitigation Act (DMA) of 2000, which amended the Stafford Disaster Relief Act to promote an integrated, cost effective approach to mitigation. Local hazard mitigation plans must meet the minimum requirements of the Stafford Act-Section 322, as outlined in the criteria contained in 44 CFR Part 201. The plan criteria cover the planning process, risk assessment, mitigation strategy, plan maintenance, and adoption requirements.

FEMA only reviews a local hazard mitigation plan submitted through the appropriate State Hazard Mitigation Officer (SHMO). Draft versions of local hazard mitigation plans are not reviewed by FEMA. FEMA reviews the final version of a plan prior to local adoption to determine if the plan meets the criteria, but FEMA will not approve it prior to adoption.

A FEMA designed plan is evaluated on its adherence to a variety of criteria.

- Adoption by the Local Governing Body
- Multi-jurisdictional Plan Adoption
- Multi-jurisdictional Planning Participation
- Documentation of Planning Process
- Identifying Hazards
- Profiling Hazard Events
- Assessing Vulnerability: Identifying Assets
- Assessing Vulnerability: Estimating Potential Losses
- Assessing Vulnerability: Analyzing Development Trends
- Multi-jurisdictional Risk Assessment
- Local Hazard Mitigation Goals
- Identification and Analysis of Mitigation Measures
- Implementation of Mitigation Measures

- Multi-jurisdictional Mitigation Strategy
- Monitoring, Evaluating, and Updating the Plan
- Implementation through Existing Programs
- Continued Public Involvement

The Washington County Community Wildfire Protection Plan expands on the wildfire chapter of the Washington County Natural Hazards Mitigation Action Plan, which was approved by FEMA in 2005. Although published as a separate document, the Community Wildfire Protection Plan should be considered a supplement to the wildfire chapter of the Natural Hazards Mitigation Action Plan.

1.1.3 United States Government Accountability Office (GAO)

Since 1984, wildland fires have burned an average of more than 850 homes each year in the United States and, because more people are moving into fire-prone areas bordering wildlands, the number of homes at risk is likely to grow. The primary responsibility for ensuring that preventative steps are taken to protect homes lies with homeowners. Although losses from wildland fires made up only 2 percent of all insured catastrophic losses from 1983 to 2002, fires can result in billions of dollars in damages.

Once a wildland fire starts, various parties can be mobilized to fight it including federal, state, county, local, and tribal firefighting agencies and, in some cases, the military. The ability to communicate among all parties - known as interoperability - is essential but, as GAO reported previously, is hampered because different public safety agencies operate on different radio frequencies or use incompatible communications equipment (GAO 2005).

GAO was asked to assess, among other issues, (1) measures that can help protect structures from wildland fires, (2) factors affecting use of protective measures, and (3) the role technology plays in improving firefighting agencies' ability to communicate during wildland fires.

The two most effective measures for protecting structures from wildland fires are: (1) creating and maintaining a buffer, called defensible space, from 30 to 100 feet wide around a structure, where vegetation and other flammable objects are reduced or eliminated; and (2) using fire-resistant roofs and vents. In addition to roofs and vents, other technologies – such as fire-resistant windows and building materials, chemical agents, sprinklers, and geographic information systems mapping – can help in protecting structures and communities, but they play a secondary role.

Although protective measures are available, many property owners have not adopted them because of the time or expense involved, competing concerns such as aesthetics or privacy, misperceptions about wildland fire risks, and lack of awareness of their shared responsibility for fire protection. Federal, state, and local governments, as well as other organizations, are attempting to increase property owners' use of protective measures through education, direct monetary assistance, and laws requiring such measures. In addition, some insurance companies have begun to direct property owners in high risk areas to take protective steps.

Existing technologies, such as audio switches, can help link incompatible communication systems, and new technologies, such as software-defined radios, are being developed following common standards or with enhanced capabilities to overcome incompatibility barriers. Technology alone, however, cannot solve communications problems for those responding to wildland fires. Rather, planning and coordination among federal, state, and local public safety agencies is needed to resolve issues such as which technologies to adopt, cost sharing, operating procedures, training, and maintenance. The Department of Homeland Security is leading federal efforts to improve communications interoperability across all levels of

government. In addition to federal efforts, several states and local jurisdictions are pursuing initiatives to improve communications interoperability (GAO 2005).

1.1.4 Additional State and Federal Guidelines Adopted

This Community Wildfire Protection Plan will include compatibility with FEMA requirements for a Hazard Mitigation Plan, while also adhering to the guidelines proposed in the National Fire Plan, and the Healthy Forests Restoration Act (2004). This Community Wildfire Protection Plan has been prepared in compliance with:

- The National Fire Plan: A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan–May 2002.
- Healthy Forests Restoration Act (2004).
- The Federal Emergency Management Agency’s Region 10 guidelines for a Local Hazard Mitigation Plan as defined in 44 CFR parts 201 and 206, and as related to a fire mitigation plan chapter of a Natural Hazards Mitigation Plan.

The objective of combining these three complimentary guidelines is to facilitate an integrated wildland fire risk assessment, identify pre-hazard mitigation activities, and prioritize activities and efforts to achieve the protection of people, structures, the environment, and significant infrastructure in Washington County while facilitating new opportunities for pre-disaster mitigation funding and cooperation.

1.1.4.1 National Fire Plan

The goals of this Community Wildfire Protection Plan include:

1. Improve Fire Prevention and Suppression
2. Reduce Hazardous Fuels
3. Restore Fire-Adapted Ecosystems
4. Promote Community Assistance

Its three guiding principles are:

1. Priority setting that emphasizes the protection of communities and important watersheds at-risk
2. Collaboration among governments and stakeholders
3. Accountability through performance measures and monitoring for results

This Community Wildfire Protection Plan fulfills the National Fire Plan’s 10-Year Comprehensive Strategy. The projects and activities recommended under this plan are in addition to other federal, state, and private / corporate forest and rangeland management activities. The implementation plan does not alter, diminish, or expand the existing jurisdiction, statutory and regulatory responsibilities and authorities or budget processes of participating federal and state agencies.

By endorsing this implementation plan, all signed parties agree that reducing the threat of wildland fire to people, communities, and ecosystems will require:

- Maintaining firefighter and public safety continuing as the highest priority.
- Communities and individuals in the wildland-urban interface to initiate personal stewardship and volunteer actions that will reduce wildland fire risks.

- A sustained, long-term and cost-effective investment of resources by all public and private parties, recognizing overall budget parameters affecting federal, state, county, and local governments.
- A unified effort to implement the collaborative framework called for in the strategy in a manner that ensures timely decisions at each level.
- Accountability for measuring and monitoring performance and outcomes, and a commitment to factoring findings into future decision making activities.
- The achievement of national goals through action at the local level with particular attention on the unique needs of cross-boundary efforts and the importance of funding on-the-ground activities.
- Management activities, both in the wildland-urban interface and in at-risk areas across the broader landscape.
- Active forestland management, including thinning that produces commercial or pre-commercial products, biomass removal and utilization, prescribed fire and other fuels reduction activities to simultaneously meet long-term ecological, economic, and community objectives.

The National Fire Plan identifies a three-tiered organizational structure including 1) the local level, 2) state/regional and tribal level, and 3) the national level. This plan adheres to the collaboration and outcomes consistent with a local level plan. Local level collaboration involves participants with direct responsibility for management decisions affecting public and/or private land and resources, fire protection responsibilities, or good working knowledge and interest in local resources. Participants in this planning process include local representatives from federal and state agencies, local governments, landowners and other stakeholders, and community-based groups with a demonstrated commitment to achieving the strategy's four goals. Existing resource advisory committees, watershed councils, or other collaborative entities may serve to achieve coordination at this level. Local involvement, expected to be broadly representative, is a primary source of planning, project prioritization, and resource allocation and coordination. The role of the private citizen should not be underestimated as all phases of risk assessment, mitigation, and project implementation are greatly facilitated by their involvement.

1.1.4.2 National Association of State Foresters

1.1.4.2.1 Identifying and Prioritizing Communities at Risk

This plan is written with an intent to provide decision makers (elected and appointed officials) the information they need to prioritize projects across the entire county. These decisions may be made by the board of commissioners or other elected body or through the recommendations of ad hoc groups tasked with making prioritized lists of communities at risk as well as project areas. It is not necessary to rank communities or projects numerically, although that is one approach. Rather, it may be possible to rank them categorically (high priority set, medium priority set, and so forth) and still accomplish the goals and objectives set forth in this planning document.

The following was prepared by the National Association of State Foresters (NASF), June 27, 2003, and is included here as a reference for the identification and prioritizing of treatments between communities.

Purpose: To provide national, uniform guidance for implementing the provisions of the “Collaborative Fuels Treatment” MOU, and to satisfy the requirements of Task e, Goal 4 of the Implementation Plan for the 10-Year Comprehensive Strategy.

Intent: The intent is to establish broad, nationally compatible standards for identifying and prioritizing communities at risk, while allowing for maximum flexibility at the state and regional level. Three basic premises are:

- Include all lands and all ownerships.
- Use a collaborative process that is consistent with the complexity of land ownership patterns, resource management issues, and the number of interested stakeholders.
- Set priorities by evaluating projects, not by ranking communities.

The National Association of State Foresters (NASF) set forth the following guidelines in the Final Draft Concept Paper; Communities at Risk, December 2, 2002.

Task: Develop a definition for “communities at risk” and a process for prioritizing them, per the Implementation Plan for the 10-Year Comprehensive Strategy (Goal 4.e.). In addition, this definition will form the foundation for the NASF commitment to annually identify priority fuels reduction and ecosystem restoration projects in the proposed MOU with the federal agencies (section C.2 (b)).

1.1.4.2.2 Conceptual Approach

1. NASF fully supports the definition of the Wildland Urban Interface (WUI) previously published in the Federal Register. Further, proximity to federal lands should not be a consideration. The WUI is a set of conditions that exists on, or near, areas of wildland fuels nationwide, regardless of land ownership.
2. Communities at risk (or, alternately, landscapes of similar risk) should be identified on a state-by-state basis with the involvement of all agencies with wildland fire protection responsibilities: state, local, tribal, and federal.
3. It is neither reasonable nor feasible to attempt to prioritize communities on a rank order basis. Rather, communities (or landscapes) should be sorted into three, broad categories or zones of risk: high, medium, and low. Each state, in collaboration with its local partners, will develop the specific criteria it will use to sort communities or landscapes into the three categories. NASF recommends using the publication “Wildland/Urban Interface Fire Hazard Assessment Methodology” developed by the National Wildland/Urban Interface Fire Protection Program (circa 1998) as a reference guide. (This program, which has since evolved into the Firewise Program, is under the oversight of the National Wildfire Coordinating Group (NWCG)). At a minimum, states should consider the following factors when assessing the relative degree of exposure each community (landscape) faces.
 - **Risk:** Using historic fire occurrence records and other factors, assess the anticipated probability of a wildfire ignition.
 - **Hazard:** Assess the fuel conditions surrounding the community using a methodology such as fire condition class, or [other] process.
 - **Values Protected:** Evaluate the human values associated with the community or landscape, such as homes, businesses, and community infrastructure (e.g. water systems, utilities, transportation systems, critical care facilities, schools, manufacturing and industrial sites, and high value commercial timber lands).

- **Protection Capabilities:** Assess the wildland fire protection capabilities of the agencies and local fire departments with jurisdiction.
4. Prioritize by project not by community. Annually prioritize projects within each state using the collaborative process defined in the national, interagency MOUs, “For the Development of a Collaborative Fuels Treatment Program.” Assign the highest priorities to projects that will provide the greatest benefits either on the landscape or to communities. Attempt to properly sequence treatments on the landscape by working first around and within communities, and then moving further out into the surrounding landscape. This will require:
 - First, focusing on the zone of highest overall risk but considering projects in all zones. Identify a set of projects that will effectively reduce the level of risk to communities within the zone.
 - Second, determining the community’s willingness and readiness to actively participate in an identified project.
 - Third, determining the willingness and ability of the owner of the surrounding land to undertake, and maintain, a complementary project.
 - Last, setting priorities by looking for projects that best meet the three criteria above. It is important to note that projects with the greatest potential to reduce risk to communities and the landscape may not be those in the highest risk zone, particularly if either the community or the surrounding landowner is not willing or able to actively participate.
 5. It is important, and necessary, that we be able to demonstrate a local level of accomplishment that justifies to Congress the value of continuing the current level of appropriations for the National Fire Plan. Although appealing to appropriators and others, it is not likely that many communities (if any) will ever be removed from the list of communities at risk. Even after treatment, all communities will remain at some, albeit reduced, level of risk. However, by using a science-based system for measuring relative risk, we can likely show that, after treatment (or a series of treatments); communities are at “*reduced risk*.”

Using the concept described above, the NASF believes it is possible to accurately assess the relative risk that communities face from wildland fire. Recognizing that the condition of the vegetation (fuel) on the landscape is dynamic, assessments and re-assessments must be done on a state-by-state basis, using a process that allows for the integration of local knowledge, conditions, and circumstances, with science-based national guidelines. We must remember that it is not only important to lower the risk to communities, but once the risk has been reduced, to maintain those communities at a reduced risk.

Further, it is essential that both the assessment process and the prioritization of projects be done collaboratively, with all local agencies with fire protection jurisdiction taking an active role.

1.1.4.3 Healthy Forests Restoration Act

On December 3, 2003, President Bush signed into law the Healthy Forests Restoration Act of 2003 to reduce the threat of destructive wildfires while upholding environmental standards and encouraging early public input during review and planning processes. The legislation is based on sound science and helps further the President’s Healthy Forests Initiative pledge to care for America’s forests and rangelands, reduce the risk of catastrophic fire to communities, help save the lives of firefighters and citizens, and protect threatened and endangered species.

Among other things the Healthy Forests Restoration Act (HFRA):

- Strengthens public participation in developing high priority projects;
- Reduces the complexity of environmental analysis allowing federal land agencies to use the best science available to actively manage land under their protection;
- Creates a pre-decisional objections process encouraging early public participation in project planning; and
- Issues clear guidance for court action challenging HFRA projects.

The Washington County Community Wildfire Protection Plan was developed to adhere to the principles of the HFRA while providing recommendations consistent with the policy document. This should assist the federal land management agencies (US Forest Service and Bureau of Land Management) with implementing wildfire mitigation projects in Washington County that incorporate public involvement and the input from a wide spectrum of fire and emergency services providers in the region.

1.1.5 Integration with Other Local Planning Documents

During development of this Community Wildfire Protection Plan, several planning and management documents were reviewed in order to avoid conflicting goals and objectives. Existing programs and policies were reviewed in order to identify those that may weaken or enhance the mitigation objectives outlined in this document. The following sections identify and briefly describe some of the existing Washington County planning documents and ordinances considered during development of this plan.

1.1.5.1 Forested and Wildland Interface Areas Fire Protection Plan of the City of Portland

This plan is primarily designed for the detection and suppression of forest and brush fires in forested, rural and urban areas of the city of Portland, and all areas with which the City has a contract to furnish fire suppression. Additionally, the fire suppression provisions of this plan may be activated when a fire outside the City becomes a threat to areas within. This plan is important as it applies to Forest Park and other forested areas adjacent to Washington County.

1.1.5.2 Washington County Comprehensive Plan – Framework Plan for the Urban Area

The Washington County Comprehensive Plan provides the basis for the future growth and development of the County. The Comprehensive Framework Plan is applicable to unincorporated properties inside the regional urban growth boundary and the urban growth boundaries of Banks, Gaston and North Plains. The Comprehensive Framework Plan (Framework Plan) is intended to reflect the present and future needs of the urban unincorporated properties in Washington County. The Framework Plan contains certain specific standards designed to regulate that growth and development.

The policies and strategies of the Framework Plan are intended to provide a means to accommodate growth and development in a way that is consistent with the physical and economic limitations, legal requirements, and existing resources of the County. The framework of policies and strategies is based on an analysis of the detailed findings contained in the Resource Document, applicable state and regional law, and a countywide development concept prepared with public input. It is the intent of the Framework Plan to provide a policy framework and factual basis to guide the preparation of detailed community plans.

1.1.5.3 Washington County Comprehensive Plan – Rural/Natural Resource Plan Element

The Rural/Natural Resource Plan Element of the Washington County Comprehensive Plan provides the framework for guiding future land use decisions in Washington County in areas outside of the established urban growth boundaries (UGB). Plan designations and Significant Natural Resource designations for properties outside of a UGB must be consistent with the Rural/Natural Resource Plan Element.

The Rural/Natural Resource Plan Element is intended to provide the mechanism for guiding resource conservation and development in the rural/natural resource areas in a way that is consistent with the capabilities of the natural resources, the physical limitations of the land, and the state and regional legal land use planning requirements. These requirements include the statewide planning goals, state statutes, administrative rules, and Metro goals and policies.

1.1.5.4 Oregon Forestland-Urban Interface Fire Protection Act of 1997

The Oregon Forestland-Urban Interface Fire Protection Act of 1997 (often referred to as Senate Bill 360) enlists the aid of property owners toward the goal of turning fire-vulnerable urban and suburban properties into less-volatile zones where firefighters may more safely and effectively defend homes from wildfires. Basically, the law requires property owners in identified forestland-urban interface areas to reduce excess vegetation, which may fuel a fire, around structures and along driveways. In some cases, it is also necessary to create fuel breaks along property lines and roadsides.

Forestland-urban interface areas are identified in each county by a classification committee. A committee is composed of five members -- three appointed by the county, one by the state fire marshal and one by the state forester. The process of identifying forestland-urban interface areas follows steps and definitions described in Oregon Administrative Rules 629-044-1005 through 629-044-0145. Briefly, the identification criteria include:

- Lands within the county that are also inside an Oregon Department of Forestry protection district.
- Lands that meet the state's definition of "forestland."
- Lands that meet the definition of "suburban" or "urban;" in some cases, "rural" lands may be included within a forestland-urban interface area for the purpose of maintaining meaningful, contiguous boundaries.
- Lots that are developed, that are 10 acres in size or smaller, and which are grouped with other lots with similar characteristics in a minimum density of four structures per 40 acres.

Once forestland-urban interface areas are identified, a committee applies fire-risk classifications to the areas. The classifications range from "low" to "extreme," and the classification is used by a property owner to determine the size of a fuel break that needs to be established around a structure.

After a committee completes its draft identification and classification maps, a public hearing is held to formally exhibit the committee's findings and hear testimony. The maps are finalized by the committee after the hearing, and the findings are filed with the county clerk and the Oregon Board of Forestry. At that point, the Oregon Department of Forestry assumes administrative responsibility and notifies the owners of properties within the county's forestland-urban interface areas. Property owners have two years after receiving their letter of notification to comply with the fuel-reduction standards described in OAR 629-044-1050 through 629-044-1085.

1.1.5.5 Oregon's Statewide Planning Goals and Guidelines

Goal 4: Forest Lands (OAR 660-015-0000(4))

To conserve forest lands by maintaining the forest land base and to protect the state's forest economy by making possible economically efficient forest practices that assure the continuous growing and harvesting of forest tree species as the leading use on forest land consistent with sound management of soil, air, water, and fish and wildlife resources and to provide for recreational opportunities and agriculture.

Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces (OAR 660-015-0000(5))

To protect natural resources and conserve scenic and historic areas and open spaces. Local governments shall adopt programs that will protect natural resources and conserve scenic, historic, and open space resources for present and future generations. These resources promote a healthy environment and natural landscape that contributes to Oregon's livability.

Goal 6: Air, Water and Land Resources Quality (OAR 660-015-0000(6))

To maintain and improve the quality of the air, water and land resources of the state. All waste and process discharges from future development, when combined with such discharges from existing developments shall not threaten to violate, or violated applicable state or federal environmental quality statutes, rules and standards. With respect to the air, water and land resources of the applicable air sheds and river basins described or included in state environmental quality statutes, rules, standards and implementation plans, such discharges shall not exceed carrying capacity of such resources, considering long range needs; degrade such resources; or threaten the availability of such resources.

Goal 7: Areas Subject to Natural Hazards (OAR 660-015-0000(7))

To protect people and property from natural hazards. Local governments shall adopt comprehensive plans to reduce risk to people and property from natural hazards. Natural hazards for purposes of this goal are: floods (coastal and riverine), landslides, earthquakes and related hazards, tsunamis, coastal erosion, and wildfires. Local governments may identify and plan for other natural hazards.

1.1.5.6 Oregon Fire Code – Metro Code Committee

Applies to the following jurisdictions in Washington County: Banks Fire District #13, Cornelius Fire Department, Forest Grove Fire and Rescue, Gaston Fire District, Hillsboro Fire Department, Tualatin Valley Fire and Rescue, and Washington County Fire District #2.

The jurisdictions identified have elected to administer and enforce the Oregon Fire Code under the authority granted to them by ORS 476.030 or ORS 476.060. The Oregon Fire Code is the International Fire Code, 2003 Edition, as published and copyrighted by the International Code Council, which has been amended and adopted by the Oregon State Fire Marshal's Office. In order to further the Oregon State Fire Marshal's goal of promoting fire code consistency throughout the state, the identified jurisdictions have agreed to reduce local amendments.

1.1.5.7 Washington County Article IV: Development Standards

Forest Structure Siting and Fire Safety Standards

The identified standards apply to all new dwellings and structures in the Exclusive Forest and Conservation (EFC) District. The purpose of the standards is to ensure that structures are sited

in a manner compatible with forest operations and agriculture, to minimize wildfire hazards and risks, and to conserve values found on forest lands.

Dwellings sited on forest land can present conservation and management problems on forest lands. Three primary problems can occur. First, the resident's activities and values may conflict with commercial forest management objectives. Second, the physical presence of the dwelling and related improvements can impede or restrict forest and farm operations. Finally, wildfire protection can become complicated and expensive where dwellings are present.

The siting of a new dwelling on forest land is an important consideration in trying to minimize these problems. The location can mean the difference between the continued growing and harvesting of trees on most forest land or additional forest land being unnecessarily taken out of production. Location and siting conditions can also be the difference between saving or losing a home during a wildland fire as well as losing additional forest land. The resident's activities, the dwelling and related improvements can increase the risk of a fire igniting and threatening forest land. Proper siting can reduce these risks.

1.1.5.8 Oregon Ballot Measure 37 – Washington County Ordinance No. 636

On November 2, 2004, the voters of the state of Oregon adopted Ballot Measure 37 and amended ORS Chapter 197 to require that the County pay compensation for the reduction in fair market value resulting from the enactment or enforcement of certain land use regulations, as specified therein, or modify, remove, or not apply the land use regulation in lieu of compensation. The Washington County Board of County Commissioners enacted Washington County Ordinance No. 636 to provide procedures and standards reasonably necessary to implement Ballot Measure 37.

Chapter 2

2 Documenting the Planning Process

Documentation of the planning process, including public involvement, is necessary to meet FEMA's DMA 2000 requirements (44CFR§201.4(c)(1) and §201.6(c)(1)). This section includes a description of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how all of the involved agencies participated.

2.1 Description of the Planning Process

The Washington County Community Wildfire Protection Plan was developed through a collaborative process involving all of the organizations and agencies detailed in Chapter 1 of this document. The planning process included five distinct phases which were in some cases sequential (step 1 then step 2) and in some cases intermixed (step 4 completed throughout the process):

1. **Collection of Data** about the extent and periodicity of hazards in and around Washington County. This included an area encompassing Columbia, Multnomah, Clackamas, Marion, Yamhill, Tillamook, and Clatsop Counties to ensure a robust dataset for making inferences about hazards in Washington County specifically.
2. **Field Observations and Estimations** about risks, location of structures and infrastructure relative to risk areas, access, and potential treatments.
3. **Mapping** of data relevant to pre-disaster mitigation control and treatments, structures, resource values, infrastructure, risk assessments, and related data.
4. **Facilitation of Public Involvement** from the formation of the planning committee, to a public mail survey, news releases, public meetings, public review of draft documents, and acknowledgement of the final plan by the signatory representatives.
5. **Analysis and Drafting of the Report** to integrate the results of the planning process, providing ample review and integration of committee and public input, followed by signing of the final document.

2.2 The Planning Team

Leading the planning effort from Washington County was the Office of Consolidated Emergency Management Director, Scott Porter, and the Fire Defense Board. The Washington County Fire Defense Board is chaired by Cornelius Fire Department Chief, Chris Asanovic, and is made up of all the local fire chiefs as well as interested county departments and emergency management and response organizations.

Northwest Management Project Co-Managers were Vaiden Bloch and Tera R. King, B.S., with Dr. William Schlosser. Dr. Schlosser's education includes 4 degrees in natural resource management (A.S. geology; B.S. forest and range management; M.S. natural resource economic & finance; Ph.D. environmental science and regional planning). Mrs. King received a Bachelor of Science degree in natural resource management from the University of Idaho and Mr. Bloch has earned a Master of Science degree in forest products and a Bachelor of Science degree in forest management from the University of Idaho.

These individuals led a team of resource professionals that included Washington County government and departments, fire protection districts, Oregon Department of Forestry, Bureau

of Land Management, Metro Parks and Greenspaces, Tualatin Hills Park and Recreation District, Northwest Oregon Forest Protective Association, local landowners, fire mitigation specialists, resource management professionals, and hazard mitigation experts.

The planning team met with many residents of the County during community and infrastructure inspections and hazard abatement assessments. This methodology, when coupled with the other approaches in this process, worked adequately to integrate a wide spectrum of observations and interpretations about the project.

The planning philosophy employed in this project included the open and free sharing of information with interested parties. Information from federal, state, and local agencies was integrated into the database of knowledge used in this project. Meetings with the committee were held throughout the planning process to facilitate a sharing of information between participants.

When the public meetings were held, many of the committee members were in attendance and shared their support and experiences with the planning process and their interpretations of the results.

2.2.1 Multi-Jurisdictional Participation

44 CFR §201.6(a)(3) calls for multi-jurisdictional planning in the development of Hazard Mitigation Plans which impact multiple jurisdictions. This Community Wildfire Protection Plan impacts the following jurisdictions:

- Washington County
- City of Beaverton
- City of Hillsboro
- City of Tualatin
- City of Sherwood
- City of Banks
- City of Cornelius
- City of Tigard
- City of Durham
- City of Forest Grove
- City of Gaston
- City of King City
- City of North Plains

These jurisdictions were represented on the planning committee and in public meetings either directly or through their servicing fire department or district. They participated in the development of hazard profiles, risk assessments, and mitigation measures. The monthly planning committee meetings were the primary venue for authenticating the planning record. However, additional input was gathered from each jurisdiction in the following ways:

- Planning committee leadership visits to scheduled public meetings (e.g., county commission meetings, city council meetings, watershed council meetings) where planning updates were provided and information was exchanged.
- One-on-one visits between the planning committee leadership and representatives of the municipalities (e.g., meetings with county commissioners, city councilors and/or mayors, fire districts, or communities).

- Special meetings with the planning committee leadership requested by the municipality involving elected officials, appointed officials, municipality employees, local volunteers (e.g., fire district volunteers), business community representatives, and local citizenry.
- Written correspondence between the planning committee leadership and each jurisdiction updating the participating agencies on the planning process, making requests for information, and facilitating feedback.

Like other areas of Oregon and the United States, Washington County’s human resources have many demands put on them in terms of time and availability. A few of the elected officials (county commissioners and city mayors) do not serve in a full-time capacity; some of them have other employment and serve the community through a convention of community service. Recognizing this and other time constraints, many of the jurisdictions decided to identify a representative to cooperate on the planning committee and then report back to the remainder of their organization on the process and serve as a conduit between the planning committee and the jurisdiction. In the case of the Washington County Commissioners, Office of Consolidated Emergency Management Director, Scott Porter, was a regular attendee of the planning committee meetings and reported to the Board on the progress of the Washington County CWPP. In another example, several of the local fire chiefs, were charged with informing their representative city councils on the progress of the Community Wildfire Protection Plan.

2.3 Planning Committee Meetings

The following people participated in planning committee meetings, volunteered time, or responded to elements of the Washington County Community Wildfire Protection Plan’s preparation.

NAME	ORGANIZATION
• Brian Coussens	Banks Fire District #13
• Levi Eckhardt	Banks Fire District #13
• Chris Asanovic	Cornelius Fire Department
• Steve Black	Cornelius Fire Department
• Bill Bench	Forest Grove Fire and Rescue
• Robert Mills	Forest Grove Fire and Rescue
• Billy Tuning.....	Gaston Rural Fire District
• Roger Mesenbrink.....	Gaston Rural Fire District
• Dennis Ross.....	Hillsboro Fire Department
• Adam Stellmacher.....	Metro Parks and Greenspaces
• Curt Zonick.....	Metro Parks and Greenspaces
• Tera R. King	Northwest Management, Inc.
• Vaiden Bloch.....	Northwest Management, Inc.
• William Schlosser.....	Northwest Management, Inc.
• Mike Dykzeul.....	Northwest Oregon Forest Protective Association
• Roger VanDyke.....	Northwest Oregon Forest Protective Association
• Scott Porter	Office of Consolidated Emergency Management
• Ann Walker.....	Oregon Department of Forestry
• Brent O’nion	Oregon Department of Forestry
• Dave Johnson	Oregon Department of Forestry
• Greg Juber	Oregon Department of Forestry
• Malcolm Hiatt	Oregon Department of Forestry
• Dan Jones	State Fire Marshal’s Office

- Bruce Barbarasch Tualatin Hills Park and Recreation District
- Dave Chrisman Tualatin Hills Park and Recreation District
- Kyle Spinks Tualatin Hills Park and Recreation District
- Ed Bonollo Tualatin Valley Fire and Rescue
- Keith Lewis Washington County Operations
- Richard Crucchiola Washington County Operations
- Steve Muir Washington County Emergency Management
- Rodney Linz Washington County Fire District #2

2.3.1.1 Committee Meeting Minutes

The planning committee began monthly meetings in December of 2006. These meetings served to facilitate the sharing of information and to lay the groundwork for the Washington County CWPP.

2.3.1.1.1 December 20, 2006 – Forest Grove Fire Station

Agenda Item #1 – Call to Order

Tera called the meeting to order by asking for a roundtable introduction of the committee members. Ann and Scott kicked off the meeting by giving some background on the Community Wildfire Protection Plan (CWPP) project up to this point. The early efforts and commitment of the Fire Defense Board into developing this project will result in a better final product.

Ann also discussed some of the national and state legislation that has led to the need for this type of planning process. Ann also discussed Ballot Measure 37 and briefly, Senate Bill 360. It was noted that this committee should discuss strategies or recommendations regarding these issues. Ann mentioned that an up-to-date map of Ballot Measure 37 claims was available online.

Agenda Item #2 – Overview of Process

In order to give the committee an overview of the whole process and make sure everyone understood the purpose of the CWPP planning process, Northwest Management (NMI) prepared a PowerPoint presentation that went through each of the steps as well as introduced the company to the committee members. Several of the slides in the presentation sparked discussions and questions by the committee. The committee suggested that a representative from the Columbia County CWPP committee (potentially others as well) be invited to a meeting to discuss cross-boundary issues.

Agenda Item #3 – Discuss Mission, Vision, and Goals Statements

Tera handed out a rough draft of potential mission, vision, and goals statements that will help guide the planning process. She noted that these were just suggestions and asked the committee to review the statements and provide comments to NMI by the next committee meeting.

Agenda Item #4 – Public Survey and Press Release

Rough drafts of the first press release and public survey were handed out. Vaiden and Tera went through both the press release and the survey questions making several corrections and additions as committee members suggested ideas for improvement. Although these items were reviewed as a committee, Tera asked that any additional comments and suggestions sent to her by January 3rd. She will make the corrections and send the revised versions to the committee electronically for further review.

Scott said that he had a list of potential media outlets for the press release.

Agenda Item #5 – Resource and Capability Surveys

Vaiden had already discussed the Resource and Capability Survey with a few of the fire chiefs during his previous visit to the county; however, both a blank version of the survey as well as a completed example were handed out to the committee. The purpose of these surveys is not only to provide a summary of agency's capabilities, interagency agreements, and equipment, but also to identify problem areas and current needs. Tera asked that these surveys be filled out by fire departments as well as agencies with fire protection responsibilities by the next committee meeting.

There was also a committee discussion on drawdown issues for local departments. This may become more of an issue as federal agencies lean more towards a "wildfire use" policy on wildland fires rather than aggressive suppression.

Agenda Item #6 – Community Risk Assessments

The purpose of the community risk assessments is to provide a narrative of the fire risk within the county in addition to the mapping and modeling analyses. Vaiden spent a week driving around the county and meeting with available fire agencies to discuss some of the high-risk areas. As a starting point, the rough draft of the assessments has been broken down by fire agency boundaries. Areas not covered by a fire agency were also separated into three separate geographic areas or "communities." The draft community assessments were handed out to the committee members. Also included was a map identifying the boundaries of the different "communities." Vaiden noted that if any of the fire departments or agencies had the time, he would like a personal tour of their jurisdiction.

The committee discussed whether or not the fire agency boundaries were the best way to divide the county. It was decided that this probably was the best way because it was easily understood and each department could provide "expert" information within their jurisdiction. The names of the "communities" may need to be changed due to similarities with town or city names. Tera asked that the committee begin reviewing the content of the assessments and sending edits to NMI in order for them to bring a revised version to the next committee meeting.

The committee also noted that Forest Park (5,000 acres) in Multnomah County should be considered a fire risk. Washington County does have some fire protection responsibilities for the Park. Forest Park does have a Forest Management Plan.

Weather has significant influence on fire risk and fire prone areas in Washington County. If possible, this factor should be included in the risk analysis models to improve accuracy. Some discussion of this should also be in the plan.

Metro was concerned how their lands would be incorporated into the plan, particularly since such small, scattered holdings are unlikely to show up on the countywide maps. It was noted that written descriptions of the fire risk on their lands should be included as well as their relevant management philosophies and programs. Vaiden noted that NMI does have ownership parcels for Metro lands that will be included on the maps.

Agenda Item #7 – Review Wall Maps

Washington County's GIS department has provided NMI with nearly all of the information needed for the mapping products. The maps developed so far were discussed during the PowerPoint presentation. Large wall size maps were also hung up around the room. These maps will be discussed at more length at the next meeting.

Agenda Item #8 – Past, Ongoing, or Proposed Mitigation Activities

Tera pointed out that it was important to discuss mitigation activities or programs already occurring in the County in the CWPP. Any information the committee has regarding past, ongoing, or planned mitigation projects (educational, fuels reduction, policy, existing CWPPs, etc.) needs to be sent to NMI.

Agenda Item #9 – Timeline

Tera discussed the tentative timeline for completion handed out with the agenda. Although the meeting dates may not be exact, this gives a month-by-month rundown of tasks including a June adoption of the plan. It is intended that the committee meetings be scheduled to coincide with the Fire Defense Board meetings whenever possible. The public meetings are tentatively scheduled for the week of February 26th – March 2nd; however, if there are other events that could facilitate some public involvement in the project, these should also be considered. The committee suggested that the upcoming crab feed (January 20th) sponsored by the Cornelius Firefighter's Association draws a big crowd. Neighborhood Watch organizations as well as CPO's may also be good venues.

Agenda Item #10 – Task List and Assignments

Information can be sent to Tera King at king@consulting-foresters.com.

1. Send NMI info on existing mitigation programs, plans, etc. – Committee
2. Send NMI info on legislation relevant to wildfire planning – Committee (Ann, Scott)
3. Reserve meeting room for Jan. 31st – Bob
4. Review/send edits on Mission, Vision, and Goals Statements by next meeting – Committee
5. Send NMI press release edits by January 3rd – Committee
6. Review public survey and send edits to NMI by January 3rd – Committee
7. Send NMI Fire Defense Board letterhead by January 3rd – Chris
8. Send NMI community assessment edits – Committee
9. Send committee all review materials electronically – Tera
10. Set up tour dates with Vaiden – Interested fire depts. or agencies
11. Send NMI completed Resources and Capabilities Surveys by next meeting – Fire depts and agencies
12. Send NMI organization logos by the next meeting – Committee

Agenda Item #11 – Adjournment:

Tera adjourned the meeting at approximately 4 pm; however, she asked that the committee take a look at some of the wall maps before they leave.

Next Meeting: January 31st at 1:00 pm at the Forest Grove Fire Station (same location).

2.3.1.1.2 January 31, 2007 – Forest Grove Fire Station

Agenda Item #1 – Call to Order

Tera called the meeting to order by thanking the committee members for their attendance and continued participation. A sign-in sheet was passed around to record those present.

Agenda Item #2 – Housekeeping Items

There were several items left over from the last meeting that required a status report or further clarification.

Public Survey – Tera explained that the survey has been mailed to a total of 280 randomly selected households throughout the rural areas of the county (urban areas were not included in

the sample). This is the first in a series of mailings. The second mailing, a postcard reminder, will be mailed in two weeks and a third mailing will go out one month from now.

Press Release – Scott emailed the press release to all of the area newspapers as well as local CPO's on January 19th. A shortened version will also be included in an upcoming public works newsletter.

Logos – Tera reminded everyone to send in their logo if they hadn't already.

Resources and Capabilities – Tera noted that several fire departments had already sent in their questionnaires; however, those still outstanding need to be completed as soon as possible.

Columbia and Yamhill County CWPPs – Vaiden reported that Columbia County's CWPP project has been started and that he would like to get in touch with their committee in order to share information. Dave Johnson said that Mike Simek had taken the lead on that project and that he could provide some contact information. Vaiden also reported that Yamhill County was still in the preliminary planning stage, but he was going to try and make one of their upcoming Fire Defense Board meetings in an effort to establish a line of communication for sharing information. It was noted that Yamhill County's next Fire Defense Board meeting was on February 20th and they normally meet every third Tuesday of the month.

Gales Creek Watershed Conference – Vaiden has been working with Malcolm to get a spot for a booth at the Gales Creek Watershed Conference reserved. Malcolm had also suggested that NMI do a 10-15 minute presentation on Washington County's CWPP process. The committee decided this was a good idea as a forum for public involvement. It was suggested that several committee members be at the conference for support and to make introductions. The conference is tentatively scheduled for April 7th.

Cornelius Fire Department Crab Feed – Vaiden brought over a poster to hang up at the Crab Feed earlier in the month. Chris said the Feed was well attended, but no one specifically had asked him any questions about the poster information. Vaiden also hung posters at the North Plains Post Office, the Banks Fire Station, and the Forest Grove Fire Station. NMI brought over a few more posters to hang in other public areas. Rodney offered to hang one at Petrich's Store.

Agenda Item #3 – Revised Mission, Vision, and Goals Statements

Scott had provided several significant changes to the Mission, Vision, and Goals Statements; thus, Tera handed out the revised version. It was noted that these would appear in the document as well as on public meeting materials. Tera asked the committee to review and provide additional edits by February 16th.

Agenda Item #4 – Community Assessments

Vaiden explained that he had made several changes to the community assessments per the discussion at the last meeting as well as comments he had received. The primary change was adding a county overview statement at the beginning rather than repeating the same information for each community. He also made an additional trip out in January to meet with several of the fire departments; however, due to the snow storm some were not able to make it. Tera reiterated the need to solidify the community assessments as much as possible before the public meetings, so she asked that any additional comments or edits be sent to NMI by February 21st.

Agenda Item #5 – Past, Ongoing, and Proposed Projects

Tera asked that description of any current or planned fire mitigation projects be sent to NMI. It is important to show that the County is already being proactive in reducing wildfire risk. Any kind of brief description and a map, if possible, would be helpful. It was noted that ODF and

Metro could probably send shapefiles of their current projects. The BLM currently manages about 3,000 acres in Washington County; however, ODF is responsible for fire protection on these lands. NMI needs to make contact with the BLM to discuss the CWPP process and their current projects.

Agenda Item #6 – Public Meetings

The committee agreed that the public meetings should be scheduled for the week of February 26th thru March 2nd. A combination of daytime and evening meetings would be ideal if possible. Tera is going to work on scheduling the meetings at the following venues: Forest Grove Fire Department, Banks Fire Department, North Plains Fire Department, Rock Creek Tavern, Jackson Bottom Wetlands Park (Clean Water Services), Tualatin River Watershed Council, Groener's Women's Club, Cedar Hill Library, Portland Community College, and area Rotaries. There may also be opportunities for public involvement at the David Hill Project Open House and fire department board meeting in March.

Dave Johnson pointed out that the Northwest Oregon Forest Protective Association, a landowner association, oversees approximately 1.7 million acres and used to play a large role in wildfire protection in the area. They are still heavily involved in local forestry activities as an advisory council. Their Vice President is currently Roger VanDyke from Stimson Lumber Company. It may be worthwhile to include them in the committee and/or public meetings.

Agenda Item #7 – Mapping

NMI provided one new map for committee review. The Fire Prone Landscapes analysis is an additional potential fire risk analysis tool to be used in addition to the other models presented at the last meeting. Tera asked that the committee take a minute to review it before they leave.

Vaiden is still working on acquiring a map of the Measure 37 claims. Scott noted that the Washington County Land Use and Transportation Department would be the best contact.

NMI laid out several other maps including Land Ownership and aerial views to begin the process of mapping specific high risk and potential project areas. After closing the meeting, the committee gathered around the tables and began marking areas of concern and discussing potential project types. Other corrections were also made to the maps including the addition of fire stations and major highways.

Agenda Item #8 – Task List and Assignments

Information can be sent to Tera King at king@consulting-foresters.com.

1. Send NMI info on existing mitigation programs, plans, etc. – Committee
2. Review/send edits on revised Mission, Vision, and Goals Statements by Feb. 16th – Committee
3. Send NMI community assessment edits by Feb. 21st – Committee and agencies
4. Send NMI completed Resources and Capabilities Surveys ASAP – Fire depts. and agencies
5. Send NMI organization logos ASAP – Committee
6. Provide contact info for public involvement venues – Committee
7. Contact Mike Simek for Columbia County – NMI
8. Contact Roger VanDyke from the NW Or Fire Protective Association – NMI
9. Get on agenda for Yamhill County FDB – NMI
10. Email committee revised Community Assessments – NMI
11. Schedule public meetings – NMI
12. Provide info regarding fire fept. board meeting in March – Bob Mills
13. Contact the BLM for information – NMI

14. Contact Scott Ferguson regarding the Forest Grove City Watershed – NMI
15. Contact County Land Use and Transportation Dept for GIS Data – NMI

Agenda Item #9 – Adjournment

Tera adjourned the meeting at approximately 4pm.

Next Meeting: March 14th at 1:00 pm at the Forest Grove Fire Station (same location).

2.3.1.1.3 March 14th, 2007 – Forest Grove Fire Station

Agenda Item #1 – Call to Order

Tera called the meeting to order by thanking the committee members for their attendance and continued participation. A sign-in sheet was passed around to record those present.

Agenda Item #2 – Housekeeping Items

There were several miscellaneous items left over from the last meeting that required a status report or further clarification.

Public Survey – Tera explained that the survey mailings were now complete. To date, we have a 36% response rate with an additional 48 surveys from the Cornelius Fire Department distribution.

Resources and Capabilities – Tera noted that Banks was the only department still outstanding on the summary form.

Yamhill County CWPP – Vaiden will be attending the Yamhill Fire Defense Board meeting on March 20th to provide basic information on the CWPP process as well as give them some examples from Washington County. This may be an opportunity to share information and, possibly, implementation projects across county lines.

Gales Creek Watershed Conference – Vaiden has been working with Malcolm to get a spot for a booth at the Gales Creek Watershed Conference reserved. Malcolm had also suggested that NMI do a 10-15 minute presentation on Washington County's CWPP process as another public involvement strategy. The conference is scheduled for Saturday, April 7th.

Additional Contacts – Scott, Vaiden, and Tera have been working to make additional contact with parties that may/should be interested in participating on the committee. Roger VanDyke with Stimson, Kent Mortensen with the BLM, Mike Simek with ODF, Bruce Barbarasch with Tualatin Hills Park & Rec, and several Washington County LUT people were targeted. The response was positive as suggested by the additional attendance at this meeting as well as several new avenues to collect information.

Agenda Item #3 – Land Use and Transportation

At the public meetings, it was made apparent that several representatives from the County Land Use and Transportation Department should be made aware and possibly serve on the CWPP planning committee. Two representatives from LUT's Operations division were in attendance to see how they could best assist the planning process as well as participate in discussions that may affect their jurisdiction, particularly County road right-of-ways. Keith Lewis with LUT indicated road clearing standards were generally 30-60 feet to the utility poles influence area with 14' above ROW clearing height. This is the general limit or influence area maintained by the County. Outside this are other ownerships not in ROW and not a responsibility of the County.

Agenda Item #4 – Draft Review

Tera and Vaiden handed out copies of the rough draft CWPP. Although several components are still being developed, this gives the committee a chance to review the formatting and some of the background information. Tera walked through the document explaining some of the sections and answering questions. Much of the wildfire extent and ignition profile information is still missing. The last chapter of the document contains tables outlining specific action item recommendations. The committee went through each of these line items and either edited it to fit the county's needs or deleted it altogether. In some cases, the discussions of the action items led to the addition of a recommendation. All of the committees suggested edits will be incorporated into the more complete draft to be prepared for the next meeting.

The committee review period of the draft should last until approximately the first of May, at which point it will be distributed for public review. After a one month public review, the document will be further edited. Adoption should occur in June or early July.

Agenda Item #5 – Public Meetings

Tera, Vaiden, and several members of the committee reported on the public meetings. The general consensus was that although attendance was somewhat low, several good ideas and suggestions were made. All of the potential action items resulting from the public meetings were attached to the agenda for discussion and possible inclusion into the "Recommendations" section of the draft. A short list of these items included:

- Annex Pumpkin Ridge Road area into existing fire districts (North Plains and Banks, possibly partial in Scappoose and TVF&R)
- Need more formal coordination between LUT, fire marshal, and FDB
- Standards only apply to new construction. What can we do about problems with existing construction?
- Homeowner's Insurance
- Access – Industrial Landowners
- Public Education and Awareness – what else should we be doing?
- Fireworks

Agenda Item #6 – Wildland – Urban Interface

One of the requirements of a CWPP is to have a base map identifying wildland urban interface areas. Tera explained the regulations and potential ramifications of the wildland urban interface boundary and discussed several potential methods other counties have used to put this boundary on a map. After an in-depth discussion, the committee agreed that the population density method worked the best because it not only illustrated where the people were in the county, but was also unbiased and easily re-determined. This map and accompanying explanatory language will be included in April's edition of the draft.

Agenda Item #7 – Open Discussion

Vaiden reminded the committee to take a close look at the Treatments Map hanging on the wall. This map has been updated per discussions at the public meetings. These are the projects listed in the "Recommendations" section of the document, so if there are additional edits, please let NMI know immediately.

The committee thought that there should be some kind of discussion in the "Resources and Capabilities" section regarding the County's and fire department's mutual aid agreements. Chris said that he would make NMI copies of these agreements at tomorrow's FDB meeting.

Tera agreed to put the draft document up on NMI's ftp site for download for those members who were not in attendance.

Agenda Item #8 – Task List and Assignments

Information can be sent to Tera King at king@consulting-foresters.com.*

1. Review draft plan!!!! – Committee
2. Send NMI completed Resources and Capabilities surveys ASAP – Banks
3. Send NMI organization logos ASAP – Committee
4. Make additional edits to mapping products (gas lines) – NMI
5. Complete/Edit draft plan, including missing sections and prioritization – NMI
6. Provide more recent industrial landownership GIS layer – Greg
7. Send treatment map to committee as pdf – NMI

Agenda Item #9 – Adjournment:

Tera adjourned the meeting at approximately 3:30 pm.

Next Meeting: April 18th 1:00 pm at the Forest Grove Fire Station (same location).

2.3.1.1.4 April 18th, 2007 – Forest Grove Fire Station

Agenda Item #1 – Call to Order

Tera called the meeting to order by thanking the committee members for their attendance and continued participation. A sign-in sheet was passed around to record those present.

Agenda Item #2 – Housekeeping Items

There were several miscellaneous items left over from the last meeting that required a status report or further clarification.

Resources and Capabilities – Tera noted that Banks was the only local department still outstanding on the summary form. ODF also needs to complete their resources summary.

Yamhill County CWPP – Vaiden reported that he attended the Yamhill FDB meeting in March and it sounds like they are interested in writing a CWPP in the near future. Vaiden also filled them in on how the Washington County CWPP was coming along and asked if they had any concerns or comments, particularly about activities near the border.

Gales Creek Watershed Conference – Vaiden also attended the Watershed Conference on April 7th in Forest Grove and gave a short presentation on the Washington County CWPP process and proposed projects. He talked with several attendees about the plan and how it will affect local landowners.

There was also an additional discussion regarding public reaction to a wildfire incident and how wildfire management teams handle public interaction in the WUI. Poor public communication of wildfire management policies and safety precautions can lead to hostility from landowners. Many homeowners feel that they should be allowed access to their property to fight the fire themselves or at least save some of their assets. If the fire management team has decided to restrict landowner access due to safety reasons, this should be communicated effectively. Additionally, “let it burn” policies can also lead to public hostility, particularly if people are losing homes, timber, crops, or other property. NMI asked the committee if the County and local fire agencies had policies in place to help deal with public interaction during a wildfire incident. This led to a discussion on including a general outline of the County’s evacuation process in the CWPP.

Agenda Item #3 – Northwest Insurance Council

Brad Weekly, Regional Director with the Northwest Insurance Council was scheduled to give the planning committee an overview and basic information on how insurance companies are currently viewing the wildfire hazard situation. Mr. Weekly had to cancel his visit; however, he did provide an outline of the information he was to present as well as his contact information if any of the committee members were interested had additional questions. Tera noted that in prior conversations with Mr. Weekly, he made it fairly clear that although many companies were currently trying to provide policyholders with additional wildfire hazard reduction information, they were not attempting to raise premiums or cancel policies for non-compliance with their mitigation recommendations due to their need to keep their rates competitive.

Agenda Item #4 – Draft Review

Tera and Vaiden handed out copies of the draft Appendices as well as a packet of the edited pages from the main document. Many of the edits made since the draft was presented in March were the inclusions of the missing data tables, wildfire hazard data summaries, the survey results, and the revised recommendation tables in chapter 5. Tera went through many of the edits to point out the changes and explain some of the data. One addition the committee would like to see is a summary of the County's evacuation process. Scott thought he could come up with some information to forward to NMI. Tera also pointed out what information was presented in the Appendices. The committee agreed to have all of their edits in by May 18th.

In order to show the committee FEMA's prioritization scheme, Tera set up all of the action items in a spreadsheet with the formulas pre-calculated. She noted that each of scoring criteria was explained in Chapter 5 of the main document. The ranking was included next to the action item in Chapter 5 with the total scores listed in the Appendices for reference. After viewing how the spreadsheet was set up, the committee decided that this prioritization scheme would work. Tera agreed to post the spreadsheet on the ftp site for the committee to take a closer look.

The ODF noted that several agencies were beginning to use "survivable" rather than "defensible" space. After some discussion, the committee agreed to leave it as "defensible" space in the document for now. As the use of "survivable" space becomes more commonplace, the committee will update it in the plan.

Agenda Item #5 – Public Review Process

The public review process will take place after the committee is finished editing the plan. The draft plan will be available in a public location (or two) in every community. The committee will also put out press releases and flyers to announce their availability. The public review of the document will be open for at least one month (approx. May 25th – June 25th).

Agenda Item #6 – Open Discussion

Curt informed the committee that Metro would be doing some public awareness advertising of their burning program as well as some of the other activities they do, including brush clearing and cleanup. The Oregonian has expressed some interest in the Washington County CWPP. The committee agreed that any publicity of the CWPP would be beneficial and Scott could act as the spokesperson for the group, if necessary.

Tera agreed to put the draft document up on NMI's ftp site for download for those members who were not in attendance or would like to see the whole document.

Agenda Item #7 – Task List and Assignments

Information can be sent to Tera King at king@consulting-foresters.com.*

1. Review draft plan by May 18th!!!! – Committee
2. Send NMI completed Resources and Capabilities surveys ASAP – Banks

3. Send NMI evacuation process info – Scott
4. Send NMI organization logos ASAP – Committee
5. Make additional edits to mapping products (gas lines) – NMI
6. Complete/Edit draft plan, including prioritization – NMI

Agenda Item #8 – Adjournment:

Tera adjourned the meeting at approximately 3 pm.

Next Meeting: TBA

2.4 Public Involvement

Public involvement in this plan was made a priority from the inception of the project. There were a number of ways that public involvement was sought and facilitated. In some cases, this led to members of the public providing information and seeking an active role in protecting their own homes and businesses, while in other cases it led to the public becoming more aware of the process without becoming directly involved in the planning.

2.4.1 News Releases

Under the auspices of the Washington County planning committee, news releases were submitted to *The Oregonian*, *Beaverton Valley Times*, *Forest Grove News Times*, *The Times* (Tigard, Tualatin, and Sherwood), and the *Hillsboro Argus* as well as the Washington County Department of Land Use and Transportation newsletter, “Updates,” and the Washington County Committee for Citizen Involvement for further distribution to the county’s Citizen Participation Organizations. Informative flyers were also distributed around town and to local offices within the communities by the committee members.

Figure 2.1. Press Release sent on January 19, 2007.

Washington County Fire Agencies Plan to Mitigate Wildfire Risk

The Washington County Fire Defense Board, which is comprised of the county's local fire agencies, has launched a process to prepare a county-level Community Wildfire Protection Plan. Some of the goals of this plan are to:

- Identify areas at high risk for wildfire,
- Propose mitigation strategies to reduce the wildfire risk for Washington County residents,
- Improve awareness of wildland fire issues locally,
- Provide educational information regarding wildfire protection techniques for area homes and businesses, and
- Improve local fire agency eligibility for funding assistance.

Working with the county's Office of Consolidated Emergency Management, the Board of County Commissioners, and the Oregon Department of Forestry, the fire defense board has created a planning committee to prepare a plan that will be consistent with the National Fire Plan and the Healthy Forests Restoration Act. The committee includes rural and urban fire agency staff, emergency managers and other local government representatives, Oregon Department of Forestry specialists, land managers, community organization representatives, and others.

Northwest Management, Inc. has been retained by the County to develop the plan. Contractor staff will perform wildfire risk assessments, hazard mapping, and field inspections, conduct interviews, and collaborate with committee members and local fire agencies on plan development. Wildfire mitigation specialists will conduct analyses of fire-prone landscapes and make recommendations for potential treatments. Specific mitigation activities for homes, structures, and infrastructure as well as recommendations for enhanced wildfire resource capabilities will be proposed based on the analyses.

An important step in assessing fire risk in Washington County is to conduct a homeowner's survey. To this end, Northwest Management, Inc., will mail a brief survey form to randomly-selected county homeowners seeking input about home construction materials, proximity to water sources, and other risk factors surrounding homes. This survey is very important to the success of the plan. Those homeowners who receive a survey are urged to complete it, thereby benefiting the community overall.

The planning team will be conducting public meetings in March 2007 to share preliminary findings and solicit public involvement in the planning process. Notification of the dates and locations of these meetings will be made through local newspapers and community-based organizations.

For more information on the Washington County Community Wildfire Protection Plan, contact Scott Porter, director of the Office of Consolidated Emergency Management, at 503-642-0371, or William Schlosser at the Northwest Management, Inc. office in Moscow, Idaho at 208-883-4488.

Figure 2.2. Press Release published in the *Beaverton Times* on February 22, 2007.

Wildfire plan focus of meetings

Washington County's Office of Consolidated Emergency Management will host several meetings in the next week to discuss a new community wildfire protection plan.

Northwest Management Inc. of Idaho has been hired to develop the plan, which includes measuring wildfire risk assessments, hazard mapping, field inspections, conduct interviews and work with fire agencies.

Wildfire mitigation specialists will look at fire-prone landscapes and recommend potential treatments.

Meetings are planned Tuesday and Wednesday in Cedar Mill, Sherwood, Banks, Forest Grove and Gaston. The Cedar Mill meeting is noon Wednesday at the Cedar Mill Community Library, 12505 N.E. Cornell Road.

For more information on the plan, call Scott Porter, director of the Office of Consolidated Emergency Management, 503-642-0371; or Tera King at the Northwest Management in Moscow, Idaho, 208-883-4488.

Figure 2.3. Press Release published in the *Hillsboro Argus* on February 27, 2007.

County seeks public involvement on Community Wildfire Protection Plan

Working with the county's Office of Consolidated Emergency Management, the Board of County Commissioners, and the Oregon Department of Forestry, the Washington County Fire Defense Board has created a committee to prepare a plan to mitigate wildfire hazards in Washington County.

The plan will be consistent with the National Fire Plan and the Healthy Forests Restoration Act and will include risk analysis at the community level with predictive models for where fires are likely to ignite and where they are likely to spread.

Northwest Management Inc. has been retained by the county to develop the plan.

Contractor staff will perform wildfire risk assessments, hazard mapping, field inspections, conduct interviews and collaborate with committee members and local fire agencies on plan development.

Wildfire mitigation specialists will conduct analyses of fire-prone landscapes and make recommendations for potential treatments.

Specific mitigation activities for homes, structures and infrastructure as well as recommendations for enhanced wildfire resource capabilities will be proposed based on the analyses.

The planning team will be conducting public meetings to discuss preliminary findings and to seek public involvement in the planning process Feb. 27-March 1 at the following venues:

Feb. 27 — Banks Fire Station, 300 S. Main, at noon; Gaston Fire Station, 102 E. Main, at 7 p.m.

Feb. 28 — Cedar Mill Community Library, 12505 NE Cornell Road, Portland, at noon; North Plains Fire Station, 31370 NW Commercial, 7 p.m.

March 1 — Tualatin Valley Fire and Rescue, Fire Station 33, 15440 SW Oregon St., Sherwood, at noon; Forest Grove Fire Station, 1919 Ash St., Forest Grove, at 7 p.m.

For more information on the Washington County Community Wildfire Protection Plan, contact Scott Porter, director of the Office of Consolidated Emergency Management, at 503-642-0371.

Figure 2.4. Press Release published in the February edition of the LUT "Updates" newsletter.

The "Updates" newsletter is published by the Washington County Land Use and Transportation Department.

Fire Agencies Plan to Mitigate Wildfire Risk

The Washington County Fire Defense Board is preparing a Wildfire Protection Plan to identify areas at high risk for wildfire, propose strategies to reduce the risk, and improve awareness of wildland fire issues. An important step in assessing fire risk in Washington County is to conduct a homeowner's survey. Northwest Management, Inc., will mail a brief survey form to randomly-selected homeowners seeking input about home construction materials, proximity to water, and other risk factors. If you receive a survey, please complete it; it will benefit us all. For more information, contact Scott Porter, Office of Consolidated Emergency Management, 503-642-0371.

2.4.2 Public Mail Survey

A survey of Washington County homeowners was conducted to collect a broad base of perceptions about wildland fire and individual risk factors. Approximately 285 county residents were randomly selected to receive the survey.

The survey developed for this project has been used in the past by Northwest Management, Inc., during the preparation of other mitigation plans. The survey uses the Total Design Method (Dillman 1978) as a model to schedule the timing and content of letters sent to selected recipients. Copies of each cover letter and survey are included in Appendix II.

The first in the series of mailings was sent on February 1, 2007, and included a cover letter, a survey form, and an offer of receiving a custom GIS map of the area if they would complete and return the survey. The free map incentive was tied into assisting their community and helping their interests by participating in the process. Each letter also informed residents about the

planning process. A return, self-addressed envelope was included in each packet. A postcard reminder was sent to non-respondents on February 12, 2007, encouraging their response. A final mailing, with a revised cover letter urging them to participate, was sent to non-respondents on February 20, 2007.

In addition, members of the Cornelius Fire Department went door-to-door within their district to hand out additional surveys. The results from these surveys were also collected and are included as a separate sample in the appendices.

Surveys were returned during the months of February and March. A total of 113 residents responded to the survey as of April 13, 2007. The effective response rate for this survey was 40%. Statistically, this response rate allows the interpretation of all of the response variables significantly at the 99% confidence level.

2.4.2.1 Survey Results

A summary of the survey's results is presented here and referred back to during the ensuing discussions on the need for various treatments, education, and other information.

Of the 113 respondents in the survey, approximately 22% were from the Sherwood area, 17% were from Forest Grove, 9% each were from Hillsboro, Cornelius, and Banks, 6% from the Gaston area, with the remaining respondents from other areas in the county at a rate of about 1% or 2% per community.

All of the respondents correctly identified that they have emergency telephone 911 services in their area. When asked if their home was protected by a local fire department, only 4 respondents indicated that they were within a fire protection district, when, in fact, they are not. 64% of those that are within a fire protection district said that the average response time by a fire department to their home was less than 10 minutes, 32% thought the average response time was between 10 and 20 minutes, 4% of respondents thought that a fire department would be there within 20 to 30 minutes, and 0% thought it would take 30 to 45 minutes.

Respondents were asked to indicate the type of roofing material covering the main structure of their home. Approximately 87% of respondents indicated their homes were covered with a composite material (asphalt shingles). About 5% indicated their homes were covered with a metal (e.g., aluminum, tin) roofing material, and 5% of the respondents indicated they have a wooden roof (e.g. shake, shingles).

When asked if they have trees within 250 feet of their home, 4% indicated there were none, 39% said less than 10, 34% said between 10 and 25 trees, and 22% indicated more than 25 trees. When asked how many trees were within 75 feet of their home, 4% again said none, 62% said less than 10, 27% said between 10 and 25, and 8% indicated more than 25. 95% of respondents replied that they had a lawn and 89% of those said they kept it green year round.

The average driveway length of respondents to the survey was 538 feet long (.1 miles). The longest reported was three miles. Of those respondents (33%) with a driveway over 400 feet long, 56% do not have turnouts allowing two vehicles to pass. 1% of those respondents with a driveway indicated having a dirt surface, while 44% had gravel or rock and 54% had a paved driveway. Approximately 98% of the respondents indicated an alternate escape route was available in an emergency which cuts off their primary driveway access.

100% of respondents indicated they have some type of tools to use against a wildfire that threatens their home. Table 2.1 summarizes these responses.

Table 2.1. Percent of homes with indicated fire fighting tools in Washington County.

- 74% – Hand tools (shovel, axe, etc.)
- 98% – Portable water tank
- 10% – Fixed/Stationary water tank
- 11% – Pond, lake, swimming pool, or stream water supply close
- 29% – Water pump and fire hose
- 10% – Well or cistern
- 41% – Equipment suitable for creating fire breaks (bulldozer, cat, farm tractor, etc.)

Respondents were asked to complete a fuel hazard rating worksheet to assess their home’s fire risk rating. The following is an example of the worksheet and a summarization of responses (Table 2.2).

Circle the ratings in each category that best describes your home.

Table 2.2. Fuel Hazard Rating Worksheet		Rating	Results
Fuel Hazard	Small, light fuels (grasses, forbs, weeds, shrubs)	1	45%
	Medium size fuels (brush, large shrubs, small trees)	2	36%
	Heavy, large fuels (woodlands, timber, heavy brush)	3	19%
Slope Hazard	Mild slopes (0-5%)	1	71%
	Moderate slope (6-20%)	2	21%
	Steep Slopes (21-40%)	3	6%
	Extreme slopes (41% and greater)	4	2%
Structure Hazard	Noncombustible roof and noncombustible siding materials	1	26%
	Noncombustible roof and combustible siding material	3	39%
	Combustible roof and noncombustible siding material	7	13%
	Combustible roof and combustible siding materials	10	22%
Additional Factors	Rough topography that contains several steep canyons or ridges	+2	Average -2.4 pts
	Areas having history of higher than average fire occurrence	+3	
	Areas exposed to severe fire weather and strong winds	+4	
	Areas with existing fuel modifications or usable fire breaks	-3	
	Areas with local facilities (water systems, rural fire departments, dozers)	-3	

Calculating your risk

Values below are the average response value to each question for those living in both rural and urban areas.

$$\begin{array}{rcl}
 \text{Fuel hazard} & \underline{1.7} & \times \text{ Slope Hazard } \underline{1.4} = \underline{2.4} \\
 \text{Structural hazard} & + & \underline{4.5} \\
 \text{Additional factors} & (+ \text{ or } -) & \underline{-2.4} \\
 \text{Total Hazard Points} & = & \underline{4.5}
 \end{array}$$

Table 2.3. Percent of respondents in each risk category as determined by the survey respondents.

00% – Extreme Risk = 26 + points
03% – High Risk = 16–25 points
28% – Moderate Risk = 7–15 points
70% – Low Risk = 6 or less points

Respondents were asked a series of questions regarding mitigation activities they had recently done or currently do on their property. The first question asked if they conducted a periodic fuels reduction program near their home or farmstead; 80% said that they did. Respondents were also asked if livestock were grazed around their home or farmstead; 13% indicated there were.

Finally, respondents were asked “If offered in your area, would members of your household attend a free or low cost, one-day training seminar designed to share with homeowners how to reduce the potential for casualty loss surrounding your home?” Approximately 37% of respondents indicated a desire to participate in this type of training.

Homeowners were also asked, “How Hazard Mitigation projects should be funded in the areas surrounding homes, communities, and infrastructure such as power lines and major roads?” Responses are summarized in Table 2.4.

Table 2.4. Public Opinion of Hazard Mitigation Funding Preferences.

	100% Public Funding	Cost-Share (Public & Private)	Privately Funded (Owner or Company)
Home Defensibility Projects →	24%	30%	46%
Community Defensibility Projects →	51%	34%	15%
Infrastructure Projects Roads, Bridges, Power Lines, Etc. →	61%	30%	9%

2.4.3 Public Meetings

Public meetings were scheduled in a variety of communities in Washington County during the hazard assessment phase of the planning process. Public meetings were scheduled to share information on the planning process, obtain input on the details of the hazard assessments, and discuss potential mitigation treatments. Attendees at the public meetings were asked to give their impressions of the accuracy of the information generated and provide their opinions of potential treatments.

The initial schedule of public meetings in Washington County included six locations. They were attended by a number of individuals on the committee and from the general public. Total attendance was as follows: seven in Banks and six in Gaston on February 27, 2007, four in Cedar Mill and four in North Plains on February 28, 2007, and four in Sherwood and three in Forest Grove on March 1, 2007. The public meeting announcement sent to the local newspapers, local citizen participation organizations, county departments, fire district representatives, and distributed by committee members is included below in Figure 2.5. The committee also developed a poster and handout information publicizing the Community Wildfire Protection Plan process for use at the Cornelius Fire Department Crab Feed on January 20,

2007. In addition, a representative from Northwest Management, Inc., attended the Gales Creek Watershed Conference on April 7, 2007 to make a presentation on the Washington County CWPP planning process and findings. This afforded a great opportunity to interact with the public, provide wildfire education materials, and gather comments on the CWPP planning process.

Figure 2.5. Public Meeting Flyer.

Community Wildfire Protection Plan

Public Meetings!


Washington County, Oregon

Banks: Tuesday, February 27th, Noon, Banks Fire Station
Gaston: Tuesday, February 27th, 7:00 PM, Gaston Fire Station
Cedar Mill: Wednesday, February 28th, Noon, Cedar Mill Community Library
North Plains: Wednesday, February 28th, 7 PM, North Plains Fire Station
Sherwood: Thursday, March 1st, Noon, TVF&R Station 33
Forest Grove: Thursday, March 1st, 7 PM, Forest Grove Fire Station


These public meetings will address the **Community Wildfire Protection Plan** being developed for Washington County. Public input is being sought to better frame the County's wildfire treatment efforts, fire district resource enhancements, and public land management. These meetings are open to the public and will include slideshow presentations from wildfire mitigation specialists working to develop the Plan.

Each meeting will last for approximately 1 hour.

Please attend and participate!



Derby Fire 2006




07. 28. 2006

Triped Complex 2006

Learn about the assessments of wildfire risk and the wildland-urban interface of Washington County. Discuss **YOUR** priorities for how our community can best mitigate these risks.

For more information on the Community Wildfire Protection Plan project, contact Scott Porter, director of the Office of Consolidated Emergency Management at 503-642-0371, or Tera King at Northwest Management, Inc. 208-883-4488.

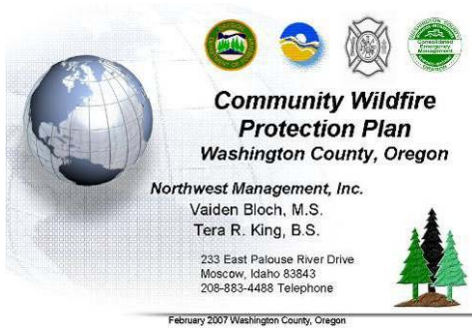


Derby Fire 2006

The following slideshow was presented at each of the public meetings by Tera King and Vaiden Bloch of Northwest Management, Inc. In addition, where possible, a fire district or other planning committee representative opened the meeting with a brief introduction.

Table 2.5. Public meeting slide show.

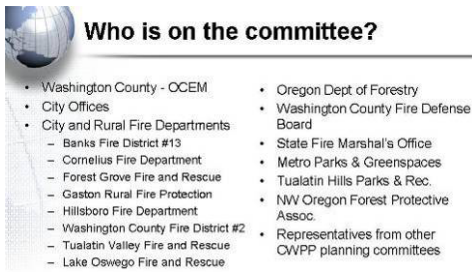
Slide 1



Slide 2



Slide 3



Slide 4



Slide 5



Slide 6



Slide 7



Slide 8



Slide 9



Slide 10



Slide 11

Preparedness

- Emergency Services
- City and Rural Fire Protection
- Wildland Fire Protection
- Local Government
- Local Organizations

Slide 12

How prepared are you (really)?

- How many escape routes do you have?
- Firefighter Access?

Slide 13

How prepared are you (really)?

- Construction Materials?
- Landscaping Techniques?
- Access Issues?
- Power lines?

Slide 14

Types of Projects

- Defensible Space
 - Thinning, pruning, mowing, construction materials, types of landscaping, wood piles, propane tanks, awareness, etc.
- Roadside Fuels Treatments
- Access Issues
 - Bridges, turnouts, road width, turnarounds, overhangs, etc.
- Emergency Response Needs
 - Training, equipment, recruitment, PPEs, etc.
- Policy Issues
 - Building codes, road restrictions, public education, etc.
- Pre-planning Efforts in High Risk Areas

Slide 15



Slide 16

Recommendations

- Safety & Policy
- People, Structures, and Livelihoods
- Infrastructure
- Resources & Capabilities
- Regional Land Management Recommendations

Are we accomplishing these goals?

Slide 17

Planning Guidelines

- Federal Emergency Management Agency (FEMA)
- Healthy Forests Restoration Act (HFI)
- National Fire Plan (NFP)

Slide 18

Public Involvement

- Press Releases about planning efforts
- Informational posters
- Public Mail Survey was sent to about 285 households in the county – 20% Response Rate
- Public Meetings X6
- Public Review of the DRAFT Plans will be facilitated once all sections have been completed and reviewed by the committee

Slide 19

Your Input

- Maps on the Walls – Mark them up!
- Talk to one of the planning committee members.
- Let us know your ideas and concerns.
- Make this YOUR Plan!
- **Thank you for attending and participating! Please visit with us.**

Slide 20

Washington County, Oregon
Community Wildfire Mitigation Plan

Valdun Bloch, M.S.
Tera R. King, B.S.
Northwest Management, Inc.

2.4.4 Documented Review Process

Review and comment on this plan has been provided through a number of avenues for the committee members as well as the members of the general public.

During regularly scheduled committee meetings in 2006-07, the committee met to discuss findings, review mapping and analysis, and provide written comments on draft sections of the document. During the public meetings, attendees observed map analyses and photographic collections, discussed general findings from the community assessments, and made recommendations on potential project areas.

The first draft of the document was prepared after the public meetings and presented to the committee on March 14, 2007, for a full committee review. The draft document was released for public review on July 13, 2007. The public review period remained open until August 3, 2007.

2.4.5 Continued Public Involvement

Washington County is dedicated to involving the public directly in review and updates of this Community Wildfire Protection Plan. The Washington County Commissioners, working through the Office of Consolidated Emergency Management and the Fire Defense Board, are responsible for review and update of the plan as recommended in the “Administration and Implementation Strategy” section of this document.

The public will have the opportunity to provide feedback about the Plan at any time. Copies of the Plan will be kept at the Office of Consolidated Emergency Management. The Plan also includes the address and phone number of the County Emergency Manager who is responsible for keeping track of public comments on the Plan.

A public meeting will also be held as part of each formal plan review or when deemed necessary by the Fire Defense Board. The meetings will provide the public a forum in which

they can express concerns, opinions, or ideas about the Plan. The Office of Consolidated Emergency Management will publicize the public meetings and maintain public involvement through the County Webpage and newspapers.

Chapter 3

3 Washington County Characteristics

3.1 Demographics

The Population Research Center at Portland State University reported that Washington County increased in total population from 445,342 to 500,585 from 2000 to 2006. Washington County has twelve incorporated cities: Banks (pop. 1,435), Beaverton (pop. 82,270), Cornelius (pop. 10,785), Durham (pop. 1,400), Forest Grove (pop. 20,380), Gaston (pop. 630), Hillsboro (pop. 84,485), King City (pop. 2,350), North Plains (pop. 1,755), Tigard (pop. 46,300), Sherwood (pop. 16,115), and part of Tualatin (pop. 22,585). The Portland State University Population Research Center also estimated the 2006 population for Washington County's unincorporated areas at 204,925 (Proehl 2007).

Washington County has a total land area of 726.38 square miles or 464,883.2 acres.

Table 3.1 summarizes some relevant demographic statistics for Washington County according to the 2000 Census.

Table 3.1. Selected demographic statistics for Washington County, Oregon, from Census 2000.

Subject	Number	Percent
Total population	445,342	100.0
SEX AND AGE		
Male	221,712	49.8
Female	223,630	50.2
Under 5 years	35,111	7.9
5 to 9 years	34,317	7.7
10 to 14 years	31,715	7.1
15 to 19 years	29,553	6.6
20 to 24 years	30,254	6.8
25 to 34 years	76,375	17.1
35 to 44 years	75,433	16.9
45 to 54 years	61,343	13.8
55 to 59 years	18,974	4.3
60 to 64 years	12,916	2.9
65 to 74 years	19,218	4.3
75 to 84 years	14,645	3.3
85 years and over	5,488	1.2
Median age (years)	33.0	(X)
18 years and over	325,724	73.1
Male	160,360	36.0
Female	165,364	37.1
21 years and over	309,210	69.4

Table 3.1. Selected demographic statistics for Washington County, Oregon, from Census 2000.

Subject	Number	Percent
62 years and over	46,470	10.4
65 years and over	39,351	8.8
Male	15,739	3.5
Female	23,612	5.3
RELATIONSHIP		
Total population	445,342	100.0
In households	441,241	99.1
Householder	169,162	38.0
Spouse	92,254	20.7
Child	131,800	29.6
Own child under 18 years	111,172	25.0
Other relatives	19,560	4.4
Under 18 years	5,598	1.3
Nonrelatives	28,465	6.4
Unmarried partner	9,747	2.2
In group quarters	4,101	0.9
Institutionalized population	1,519	0.3
Noninstitutionalized population	2,582	0.6
HOUSEHOLDS BY TYPE		
Total households	169,162	100.0
Family households (families)	114,074	67.4
With own children under 18 years	60,200	35.6
Married-couple family	92,254	54.5
With own children under 18 years	46,690	27.6
Female householder, no husband present	15,211	9.0
With own children under 18 years	9,893	5.8
Nonfamily households	55,088	32.6
Householder living alone	41,741	24.7
Householder 65 years and over	11,270	6.7
Households with individuals under 18 years	63,810	37.7
Households with individuals 65 years and over	27,879	16.5
Average household size	2.61	(X)
Average family size	3.14	(X)

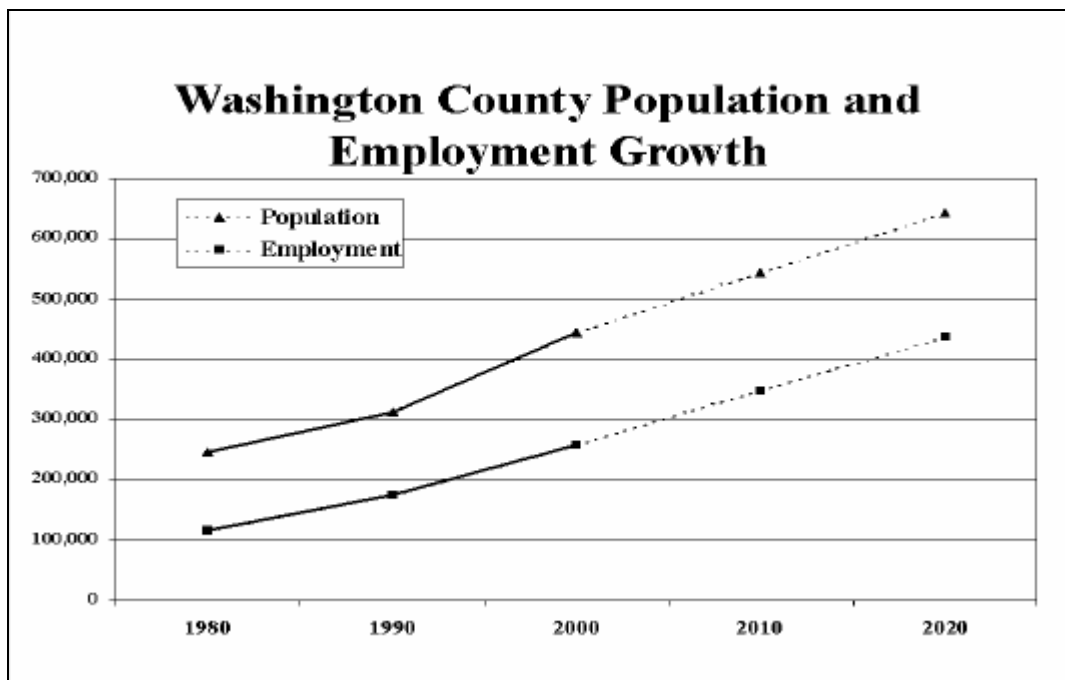
(Census 2000)

The condition of the housing stock, countywide, is generally good, largely because many dwellings were built in the last 20 years. However, there are numerous residences throughout the county in need of structural or other improvements, such as weatherization, to improve safety and reduce operating costs and energy consumption.

Neighborhood residential densities in the urban unincorporated area vary because development occurred at different times, under different market conditions, and in accordance with varied POD (Plan of Development) and zoning designations.

Growth in population, employment and travel demand is expected to continue in Washington County. Forecasts adopted by Metro and developed with local government participation indicate the Washington County population will increase from 445,000 in 2000 to approximately 643,000 (50 percent) by 2020 and employment will increase from 258,000 in 2000 to 438,000 (69 percent) by 2020.

Figure 4.1. Population and Employment Growth in Washington County from 1980 – 2020.



3.2 Socioeconomics

Washington County had a total of 169,162 occupied housing units and a population density of 615.3 persons per square mile reported in the 2000 Census. Ethnicity in Washington County is distributed: white 82.2%, black or African American 1.1%, American Indian or Alaskan Native 0.7%, Asian 6.7%, and Hispanic or Latino 11.2%.

The Washington County median household income in 1999 was \$52,122. Table 3.2 shows the dispersal of households in various income categories in Washington County.

Households	Washington County	
	Number	Percent
Households	169,287	100.0
Less than \$10,000	7,882	4.7
\$10,000 to \$14,999	6,694	4.0
\$15,000 to \$24,999	16,809	9.9
\$25,000 to \$34,999	20,360	12.0
\$35,000 to \$49,999	28,063	16.6
\$50,000 to \$74,999	39,192	23.2

Table 3.2. Income in 1999.	Washington County	
	Number	Percent
\$75,000 to \$99,999	23,093	13.6
\$100,000 to \$149,999	17,968	10.6
\$150,000 to \$199,999	5,093	3.0
\$200,000 or more	4,133	2.4
Median household income (dollars)	52,122	(X)

(Census 2000)

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, directs federal agencies to identify and address any disproportionately high adverse human health or environmental effects of its projects on minority or low-income populations. In Washington County, a significant number, 4.9%, of families are below the poverty level (Table 3.3).

Table 3.3. Poverty Status in 1999 (below poverty level).	Washington County	
	Number	Percent
Families	5,637	(X)
Percent below poverty level	(X)	4.9
With related children under 18 years	4,713	(X)
Percent below poverty level	(X)	7.4
With related children under 5 years	2,806	(X)
Percent below poverty level	(X)	10.2
Families with female householder, no husband present	2,212	(X)
Percent below poverty level	(X)	15.8
With related children under 18 years	2,054	(X)
Percent below poverty level	(X)	20.9
With related children under 5 years	1,093	(X)
Percent below poverty level	(X)	31.7
Individuals	32,575	(X)
Percent below poverty level	(X)	7.4
18 years and over	22,191	(X)
Percent below poverty level	(X)	6.9
65 years and over	2,039	(X)
Percent below poverty level	(X)	5.3
Related children under 18 years	9,718	(X)
Percent below poverty level	(X)	8.3
Related children 5 to 17 years	6,245	(X)
Percent below poverty level	(X)	7.6
Unrelated individuals 15 years and over	12,662	(X)
Percent below poverty level	(X)	15.8

(Census 2000)

The unemployment rate was 3.3% in Washington County in 1999, compared to 4.4% nationally during the same period.

Table 3.4. Employment and Industry.	Washington County	
	Number	Percent
Employed civilian population 16 years and over	233,091	100.0
OCCUPATION		
Management, professional, and related occupations	93,193	40.0
Service occupations	27,909	12.0
Sales and office occupations	63,879	27.4
Farming, fishing, and forestry occupations	2,339	1.0
Construction, extraction, and maintenance occupations	17,214	7.4
Production, transportation, and material moving occupations	28,557	12.3
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	2,885	1.2
Construction	15,052	6.5
Manufacturing	46,896	20.1
Wholesale trade	11,037	4.7
Retail trade	26,821	11.5
Transportation and warehousing, and utilities	9,228	4.0
Information	6,590	2.8
Finance, insurance, real estate, and rental and leasing	19,451	8.3
Professional, scientific, management, administrative, and waste management services	27,680	11.9
Educational, health and social services	36,839	15.8
Arts, entertainment, recreation, accommodation and food services	15,980	6.9
Other services (except public administration)	9,076	3.9
Public administration	5,556	2.4

(Census 2000)

Approximately 84% of Washington County's employed persons are private wage and salary workers, while around 9% are government workers (Table 3.5).

Table 3.5. Class of Worker.	Washington County	
	Number	Percent
Private wage and salary workers	194,948	83.6
Government workers	21,567	9.3
Self-employed workers in own not incorporated business	16,008	6.9
Unpaid family workers	568	0.2

(Census 2000)

3.2.1 Description of Washington County

Information adapted from the Washington County Website

Washington County and the Portland metropolitan area are nationally recognized as one of the most livable areas in the country. Located on the western edge of the city of Portland, Washington County is the second largest and fastest growing urban county in Oregon. The community is Oregon's most ethnically diverse, drawing immigrants from Europe, Central and

South America, Asia, Indo-China, the Pacific nations, and Africa. A result of that diversity is that residents and institutions alike reflect a global perspective.

Focused residential and industrial growth has enabled the county to preserve more than 75% of its agricultural and forestlands through utilization of the nationally acclaimed Urban Growth Boundary.

Washington County residents are the youngest, most affluent, and most highly educated in Oregon. The community enjoys excellent schools, and a uniquely diverse array of cultural and recreational activities. Only an hour's drive from the beach and mountains and less than a half-hour from downtown Portland, Washington County enjoys the benefits of a healthy urban and rural environment.

The county's developed regions are home to traditional suburban and new mixed-use neighborhoods, electronics leaders such as Intel, IBM and Tektronix, and world headquarters for both Nike and Columbia Sportswear. Intel's investment in Washington County exceeds that of any Intel site worldwide. Outside the Urban Growth Boundary, the county transitions to nurseries, wineries and other farm and forest enterprises. Washington County ranks first in manufacturing and third in agricultural production in Oregon.

Two decades of explosive population and employment growth have prompted various sectors to focus much of their energy and resources on meeting physical infrastructure needs. New and expanded roads, bridges, rails, schools, churches, high-tech manufacturing facilities, hospitals and other "brick-and-mortar" projects have helped define Washington County.

3.2.1.1 Land Ownership

A relatively large percentage of the County is privately owned. Private parcels are becoming more and more expensive as the population grows and more property is developed. This factor combined with the mountainous nature of the topography along the northern and western borders of the County is expected to produce significantly higher demands on privately held land in the future.

Table 3.6. Ownership Categories in Washington County.

Land Owner	Acres	Percent
Bureau of Land Management	11,114	2%
City	7,955	2%
Washington County	1,251	<1%
Metro	2,078	<1%
Pacific University	102	<1%
Park	1,481	<1%
Port Authority	870	<1%
Railroad	428	<1%
School District	2,106	<1%
State	48,810	10%
Timber Industry	85,010	18%
Federal	4,068	1%
Utility	200	<1%
Private	299,417	64%
Total	464,890	100%

3.2.1.2 Recreation

Open space outside the urban area will be of growing importance to Washington County residents as they seek open space and recreation opportunities close to where they live. The County possesses a variety of natural resources, especially rivers, which are attractive for rural recreation. Access to these sites and development of trails are needed priorities for rural recreation.

In 2001, the County adopted the State Park Overlay District concurrently with the adoption of a state park master plan for land located near the intersection of Highway 26 and Highway 47, just north of Buxton and south of Hoffman Road. The Banks-Vernonia Linear State Trail passes through the property. The park, named the Stub Stewart Memorial State Park, includes an enhanced trail system, day use facilities, overnight camping with group and equestrian areas, a hike-in camping area, and interpretive signage.

The State Park Overlay District was amended in 2004 to include regional parks. The Cooper Mountain Natural Area Master Plan was developed by Metro and adopted by the Metro Council in December 2005. The natural area is located on the southwest slope of Cooper Mountain, south of Kemmer Road and east of Grabhorn Road. The natural area, which is a regional park, offers views of the Tualatin River Valley and Chehalem Mountains, interpretive facilities, ADA-accessible trail loops, hiking trails, and trails available for equestrian use.

3.2.1.2.1 Tualatin Hills Park and Recreation District

The Tualatin Hills Park and Recreation District is a special service district formed in 1955 by a group of foresighted citizens, and is the largest special park and recreation district in the state of Oregon. The mission of the Tualatin Hills Park and Recreation District is to provide natural areas, high quality park and recreational facilities, services and programs that meet the needs of the diverse communities it serves. The goal of the Tualatin Hills Park and Recreation District is to provide year-round recreational opportunities for citizens of all ages.

The District serves patrons in a 55 square mile area encompassing the city of Beaverton and unincorporated areas in the NE corner of Washington County. The District manages nearly 2,000 acres of developed and natural area parks. Nearly 1,100 acres are designated natural areas which include significant stands of trees such as Douglas-fir, Western red cedar, Oregon white oak, and numerous shrub and smaller trees species. Many natural areas are on steep hillsides or in ravines. Natural areas are accessible to patrons via trails and can be heavily used. Although camping is illegal on these properties, transients occasionally camp and build warming fires on District property. Because most natural areas are surrounded by homes or businesses, District staff and neighbors are concerned about the potential for natural or human-caused wildfire. District staff has begun a dialogue with Tualatin Valley Fire and Rescue about emergency fire response plans and will be working with them to address potential ignition sources in the future.

3.2.1.2.2 Metro Parks, Trails, and Greenspaces

Metro is the directly elected regional government that serves more than 1.3 million residents in Clackamas, Multnomah and Washington Counties and the 25 cities in the Portland, Oregon, metropolitan area. Metro programs and planning tools help protect the region's air, water, parks, natural areas and fish and wildlife habitat.

The Metro Council and its partners across the region work together to build an interconnected system of parks, natural areas, trails, and greenways. The Metro Council adopted a vision for a

cooperative system of regional parks, greenspaces and trails in its 1992 Metropolitan Greenspaces Master Plan. Since then, local governments, businesses, natural resource agencies, schools, citizen groups and thousands of interested citizens have worked together to implement the system.

Voters of the region have twice approved bond measures to acquire and protect natural areas for water quality, wildlife habitat and access to nature for future generations. Additionally, an ambitious effort is taking place to establish a network of regional trails and greenways that connect the cities, centers, parks, natural areas, and neighborhoods of the region. In spring 2004, the Metro Council voted unanimously to provide new funding for expansion of the regional park system. Master plans have been adopted for three new public natural areas.

The Metro Council is currently developing an aggressive management plan for dealing with hazardous fuel conditions on their property. Due to the nature of the greenspaces Metro maintains, it is important to address the potential for wildfire, particularly where Metro property abuts homes and other structures. Some of Metro's upcoming projects include a prescribed burning element to help reduce fuels and return the vegetation to a more natural fire regime.

3.2.1.3 Public Facilities and Services

Public facilities and services generally include sanitary and water facilities, solid waste collection and disposal, fire protection, police protection, energy and communication facilities, health services, educational facilities, and other governmental services.

In the Rural/Natural Resource area of the County, the types and levels of public facilities and services needed to support development are different from those required in the more urbanized portions of the County. Generally, in the rural areas, greater reliance is placed on providing on-site facilities to satisfy needs for water, sewage disposal and drainage management. This is appropriate since rural area development is (and will continue to be) largely dispersed, at a level of intensity that does not require the more capital-intensive facilities evident in the urban areas.

Public facilities and services provided in the Rural/Natural Resource area are the responsibility of a variety of jurisdictions, agencies, and organizations, including Washington County. The County has the additional responsibility and legislative authority to coordinate the activities of these entities in order to ensure that public facilities and services are provided in an efficient manner.

3.2.1.3.1 Water Supply and Distribution

In the Rural/Natural Resource area, most consumers rely on ground water as their sole source of water supply. Outside of most cities, which have community water systems or limited community water districts, individual wells are necessary to supply water for domestic consumption.

All new wells are recorded with the State Watermaster and checked for construction and water quality by the County Health Department. No County permit or approval is required before a new well is drilled, nor is the County necessarily involved when an existing well is altered. Well drillers, however, must be licensed by the State Watermaster and are responsible for sending well drilling logs to the State Engineer's office in Salem.

During the late 1960s and early 1970s, increased demands for water from the Columbia basalt aquifer in the Cooper Mountain-Bull Mountain area resulted in a sharp drop in the area groundwater level. In response to the worsening situation, the State Engineer declared this a

critical ground water area and placed a moratorium on new wells and severe limitations on principal wells drawing from this aquifer.

3.2.1.3.2 Law Enforcement and Emergency Services

In the Rural/Natural Resource area, the public safety and delivery system includes: 1) the "911" emergency telephone system; 2) law enforcement protection by the Washington County Sheriff's Office and the Oregon State Police; and 3) fire protection by seven fire agencies and the Oregon Department of Forestry. The scattered, low-density pattern of development, the lack of water distribution networks, the sheer size of the area, and an inconsistent addressing system result in longer-than-desirable response times by the various service providers. None of these agencies is able, at this time, to afford the increases in staff and equipment necessary to adequately cover the service areas. Future protection of the public health and safety, through maintenance of at least the existing level of service, will require close, on-going cooperation between the County and service providers.

3.2.1.3.3 Energy and Communications

The Rural/Natural Resource area receives electricity from Portland General Electric and West Oregon Electric Co-op with natural gas being provided by Northwest Natural Gas Company. Telephone service is largely provided by Verizon Northwest. None of these organizations anticipates problems in providing service to new customers.

3.2.1.4 Transportation Infrastructure

The transportation system within the County is comprised of a significant number of roads, several airports, rail lines, and an extensive trail system. The road system is comprised of federal and state highways, Oregon Department of Forestry (ODF) roads, county roads, and privately owned roads. Washington County's road system is important in the wildland urban interface because the roads provide a means of escape and access to fight fires and because they may act as barriers to the spread of a fire.

Almost all of the roads in the County were originally built to facilitate logging and farming activities. As such, these roads can generally support timber harvesting equipment, logging trucks, and firefighting equipment. However, many of the new roads were built for home site access, especially for new subdivisions. In most cases, these roads are adequate to facilitate firefighting equipment as they adhere to county road standards; however, private driveways may or may not provide adequate access. Additionally, vegetation growth along roadways can hinder emergency response apparatus within a few years if not maintained to the County's set standards.

Access routes were identified by committee members and amended by the public during public meetings. These routes identify the primary access into and out of the County that are relied on during emergencies. As such, they often receive prioritized treatment when allocating resources for hazard abatement.

The Regional Transportation Plan (RTP) adopted by Metro in August 2000 identifies transportation goals and the major travel systems in Washington County that should be implemented by 2020. The foundation for the RTP is Metro's Region 2040 Growth Concept.

This concept consists of land-use and transportation policies that are intended to help Metro and local jurisdictions manage growth, protect natural resources, and make infrastructure improvements while maintaining the region's quality of life. The RTP identifies programs and

transportation projects to support these design types. The RTP incorporates transportation improvements that best meet the performance standards during peak travel periods.

3.2.1.5 Cultural Resources

The National Park Service maintains the National Register of Historical Places as a repository of information on significant cultural locale. These may be buildings, roads or trails, places where historical events took place, or other noteworthy sites. The NPS has recorded sites in its database. These sites are summarized in Table 3.7.

Item Number	Resource Name	City	Listed
1	Beaverton Downtown Historic District	Beaverton	1986
2	Silas Jacob Beeks House	Forest Grove	1984
3	Stephen and Parthena M. Blank House	Forest Grove	1988
4	M. E. Blanton House	Aloha	1989
5	Clark Historic District	Forest Grove	2002
6	Benjamin Cornelius Jr. House	Forest Grove	1988
7	Harry A. Crosley House	Forest Grove	1993
8	Dundee Lodge	Gaston	1985
9	Augustus Fanno Farmhouse	Beaverton	1984
10	Adman and Johanna Feldman House	Portland	1993
11	First Church of Christ Scientist	Forest Grove	1994
12	Imbrie Farm	Hillsboro	1977
13	Belle Ainsworth Jenkins	Beaverton	1978
14	Zula Linklater House	Hillsboro	1984
15	Isaac Macrum House	Forest Grove	1998
16	Thomas Michos House	Portland	1991
17	Old Scotch Church	Hillsboro	1974
18	Ole and Polly Oleson House	Portland	1991
19	Harold Wass Ray House	Hillsboro	1994
20	Rice-Gates House	Hillsboro	1980
21	James D. Robb House	Forest Grove	1988
22	Schanen Zolling House	Portland	1985
23	Edward Schulmerich House	Hillsboro	1991
24	Shaver-Bilyeu House	Tigard	1993
25	Albert S. Sholes House	Cornelius	1982
26	Charles Shorey House	Hillsboro	1989
27	Alvin T. Smith House	Forest Grove	1974
28	John Sweek House	Tualatin	1974
29	John W. Tigard House	Tigard	1979
30	Tualatin Academy	Forest Grove	1974
31	JS and Melinda Waggener Farmstead	Cornelius	2003
32	Washington County Jail	Hillsboro	1986
33	J. F. Watkins House	Portland	1993
34	West Union Baptist Church	West Union	1974

Item Number	Resource Name	City	Listed
35	Woods and Caples General Store	Forest Grove	1985

(NRHP 2007)

Fire mitigation activities in and around these sites has the potential to affect historic places; however, many of them are located in urbanized areas. In all cases, fire mitigation work should be designed to reduce the potential of damaging the site due to wildfire. Areas where ground disturbance will occur will need to be inventoried depending on the location. Ground-disturbing actions may include, but are not limited to, constructed fire lines (hand line, mechanical line, etc.), new roads to creeks to fill water tankers, mechanical treatments, etc. Only those burn acres that may impact cultural resources that are sensitive to burning (i.e., buildings, peeled bark trees, etc.) would be examined.

3.2.1.6 Communication Sites

Included in the assessment of critical infrastructure is the location of lookouts, repeater towers, and other communication sites. Known items were identified in the County and are summarized in Table 3.8.

Name	Latitude	Longitude
Bald Peak	45.38916	-123.05077
Burntwood	45.47331	-122.84324
Buxton	45.74396	-123.13529
Canterbury	45.41349	-122.78463
Cedar Hills	45.50736	-122.78097
Gales Peak	45.53805	-123.21193
Parrett Mtn	45.32280	-122.86420
Pumpkin Ridge	45.69060	-123.03910
River Road	45.49430	-122.94520
Round Top	45.67720	-123.36250
Top Hill	45.75980	-123.21390
WCCCA	45.53660	-122.85980
Bald Mtn West Repeater	45.28317	-123.43178
Buxton Repeater	45.73956	-123.14011
South Saddle Repeater	45.53956	-123.38206

3.3 Natural Resources

Washington County is a diverse ecosystem with a complex array of vegetation, wildlife, and fisheries that have developed with, and adapted to fire as a natural disturbance process. A century of wildland fire suppression coupled with past land-use practices (primarily timber harvesting, agriculture, and grazing) has altered plant community succession and has resulted in dramatic shifts in the fire regimes and species composition. As a result, forests in Washington County have become more susceptible to large-scale, high intensity fires posing a threat to life, property, and natural resources including wildlife and special status plant populations and

habitats. High-intensity, stand-replacing fires have the potential to seriously damage soils and native vegetation. In addition, an increase in the number of large, high-intensity fires throughout the nation's forest and rangelands, has resulted in significant safety risks to firefighters and higher costs for fire suppression (House of Representatives, Committee on Agriculture, Washington, DC, 1997).

3.3.1 Vegetation and Climate

Vegetation in Washington County is a mix of forestland, riparian, and agricultural ecosystems. An evaluation of satellite imagery of the region provides some insight to the composition of the vegetation of the area. The full extent of the County was evaluated for cover type by the USDA Forest Service in 2001 as determined from Landsat 7 ETM+ imagery in tabular format.

Douglas-fir/western hemlock/western red cedar forest is currently the most represented cover type in Washington County at 44% of the total land base followed by agriculture at 33% and urban at 12%.

Table 3.9. Vegetative Cover Types in Washington County.

Cover	Acres	Percent
Agriculture	155,320	33%
Douglas-fir/White Oak Forest	2,572	1%
Douglas-fir-W. Hemlock-W. Red Cedar Forest	206,609	44%
Grass-shrub-sapling or regenerating young forest	15,387	3%
Hawthorn-Willow Shrubland	259	0%
Mixed Conifer/Mixed Deciduous Forest	29,612	6%
Open Water	1,361	0%
Urban	53,770	12%
Total	464,890	100%

3.3.2 Monthly Climate Summaries in Washington County

3.3.2.1 Beaverton, Oregon

Period of Record : 10/1/1972 to 12/31/2005

Table 3.10. Monthly climate records for Beaverton, Washington County, Oregon.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	46.9	51.1	56.6	61.9	67.6	73.2	79.3	80.0	75.2	64.2	52.7	46.4	62.9
Average Min. Temperature (F)	33.9	35.1	37.4	40.4	45.1	50.0	53.7	53.1	49.3	42.8	37.8	34.0	42.7
Average Total Precipitation (in.)	5.89	4.54	3.88	2.75	2.21	1.58	0.64	0.90	1.51	2.95	5.81	6.54	39.17
Average Total SnowFall (in.)	0.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	2.0
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record. Max. Temp.: 97.5% Min. Temp.: 97.1% Precipitation: 98.3% Snowfall: 97.3% Snow Depth: 96.5%

3.3.2.2 Forest Grove, Oregon

Period of Record: 1/ 1/1928 to 12/31/2005

Table 3.11. Monthly climate records Forest Grove, Washington County, Oregon.

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Temperature (F)	Max.	45.0	50.4	55.9	62.2	69.5	75.0	82.4	82.7	77.0	64.6	52.1	46.0	63.6
Average Temperature (F)	Min.	32.1	33.9	36.5	39.3	44.1	48.9	52.1	51.8	47.9	41.9	36.8	34.0	41.6
Average Precipitation (in.)	Total	7.40	5.48	4.97	2.73	1.90	1.36	0.42	0.68	1.44	3.53	6.85	8.37	45.12
Average SnowFall (in.)	Total	5.3	1.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.5	9.5
Average Depth (in.)	Snow	1	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record. Max. Temp.: 99.4% Min. Temp.: 99.5% Precipitation: 99.4% Snowfall: 98.9% Snow Depth: 97.7%

3.4 Hydrology

Increasing demands are being placed on the limited supply of surface and ground waters in Washington County. In rural areas, demand for water resources comes primarily from uses such as irrigation for agricultural users and domestic consumption. Excessive ground water withdrawals have resulted in water shortages in some parts of the rural areas.

Water quality in some portions of the County has deteriorated because of failing septic systems and soil erosion and water pollution resulting from inadequately controlled run-off. Agricultural runoff in the Tualatin River Basin has contributed to increased turbidity and decreased overall water quality in the middle Tualatin and the lower portions of Gales Creek and Dairy Creek. The health of rural stream systems and in particular headwater areas is a critical component of water quality downstream, which may include urban areas. When maintained in their natural state, Washington County's wetlands control run-off and thus decrease soil erosion and water pollution while reducing potential damage from flooding and helping to recharge ground water supplies.

Natural wetlands also provide excellent habitat for fish and wildlife. Water from torrential winter and spring rains must be released in an orderly manner to replenish water tables and retain water supplies for periods of water shortages.

The Water Resources Commission is a seven-member citizen body established by statute to set water policy for the state and oversee activities of the Water Resources Department in accordance with state law. The Water Resources Department is the state agency charged with administration of the laws governing surface and ground water resources. Under Oregon law, all water is publicly owned. With some exceptions, cities, farmers, factory owners, and other water users must obtain a permit or water right from the Water Resources Department to use water from any source— whether it is underground, or from lakes or streams. Generally speaking, landowners with water flowing past, through, or under their property do not automatically have the right to use that water without a permit from the Department.

The geology and soils of this region lead to rapid to moderate moisture infiltration. Slopes are moderate to steep, however, headwater characteristics of the watersheds lead to a high degree of infiltration as opposed to a propensity for overland flow. Thus sediment delivery efficiency of

first and third order streams is fairly low. The bedrock is typically well fractured and moderately soft. This fracturing allows excessive soil moisture to infiltrate into the rock and thus surface runoff is rare. Natural mass stability hazards associated with slides are low. Natural sediment yields are low for these watersheds. However, disrupted vegetation patterns from logging (soil compaction), farming, road construction, and wildland fire (especially hot fires that increase soil hydrophobic characteristics), can lead to increased surface runoff and debris flow to stream channels.

A correlation to mass wasting due to the removal of vegetation caused by high intensity wildland fire has been documented. Burned vegetation can result in changes in soil moisture and loss of rooting strength that can result in slope instability, especially on slopes greater than 30%. The greatest watershed impacts from increased sediment will be in the lower gradient, depositional stream reaches.

Timberlands in the region have been extensively harvested for the past several decades, therefore altering riparian function by temporarily removing streamside shade and changing historic sediment deposition. Riparian function and channel characteristics have been altered by ranch, farm, and residential areas as well. The current conditions of wetlands and floodplains are variable. Some wetlands and floodplains have been impacted by past management activities.

3.4.1 Tualatin Valley Water District

As the provider of domestic water to an estimated 197,100 people through 55,500+ service connections, the District plays an important role in Washington County. The service area is 45+ square miles located west of Portland in east Washington County, encompassing such communities as Cedar Hills, Oak Hills, Terra Linda, Cedar Mill, Reedville, Rock Creek, Cooper Mountain, The Bluffs, Progress, Metzger, Bonny Slope, Aloha, and Orenco. The service area also includes portions of the cities of Beaverton, Hillsboro, Tigard and Portland. We supply an average of 22 million gallons of water to customers every day, more than 8 billion gallons of water per year.

The District maintains 743 miles of pipe, ranging from 2 to 54 inches. Eight pumping stations are on-line to transmit water from the gravity flow water main to higher elevations within the District. The gravity flow main is a 60-inch main serving the District from Portland's Powell Butte Reservoir. The District's gravity line capacity is 42.3 MGD, with another 10 MGD available from the Joint Water Commission, an amount well over the average and peak daily flow. There is an emergency standby pumping capacity of 20 million gallons a day (MGD) that can be used to back up the gravity flow main.

Within the system, there are 24 covered reservoirs with a combined storage capacity of over 53 million gallons. Some reservoirs are below ground with Park and Recreation District tennis courts, ball, and soccer fields built on top.

The Portland Water Supply comes from two sources: the Bull Run Watershed and the Columbia South Shore Wellfield. Bull Run Watershed in the Cascade Mountain Range east of Portland, with storage capacity of 19-21 billion gallons (water purchased from City of Portland). Rain water collected in the Bull Run Watershed makes up this supply located outside of Sandy, Oregon. This supply is unfiltered and only a disinfection of chlorine and ammonia are added to water to make it drinkable. This water is also adjusted for pH, to make the water less corrosive to piping. The City of Portland operates this watershed and because of its watershed protection program, it is one of only a handful of systems which can remain unfiltered.

The City of Portland has developed a 90-million gallon-per-day (MGD) wellfield, which is used for emergency situations or as an augmentation of the Bull Run supply during periods of high summer usage. Bull Run water is brought from the Watershed to a 50-million gallon storage reservoir on Powell Butte, located on the east side of Portland. Wellfield water can also be pumped and stored at this site.

Joint Water Commission (JWC) is Tualatin Valley Water District and the Cities of Hillsboro, Beaverton, Tigard and Forest Grove. As a member, the District is currently entitled to purchase 10 MGD from JWC facilities. The JWC currently owns a 60 MGD treatment plant, a 20 million gallon reservoir, a pumping plant, and a 42" transmission main. The source is located at the summit of the Coast Mountain Range beginning at an impoundment fed by the Trask River, located between the cities of Hillsboro and Tillamook. The District has purchased 35% of the Barney Reservoir capacity. This supply is collected in the Barney Reservoir, then brought down and discharged into the Tualatin River where it is then withdrawn and run through a rapid sand treatment plant. Chlorine and pH adjustments are added to this water before leaving the plant. This source is currently being expanded and will serve as a major source in the future.

3.5 Air Quality

The primary means by which the protection and enhancement of air quality is accomplished is through implementation of National Ambient Air Quality Standards (NAAQS). These standards address six pollutants known to harm human health including ozone, carbon monoxide, particulate matter, sulfur dioxide, lead, and nitrogen oxides (USDA Forest Service 2000).

The Clean Air Act, passed in 1963 and amended in 1977, is the primary legal authority governing air resource management. The Clean Air Act provides the principal framework for national, state, and local efforts to protect air quality. Under the Clean Air Act, the Organization for Air Quality Protection Standards (OAQPS) is responsible for setting standards, also known as national ambient air quality standards (NAAQS), for pollutants which are considered harmful to people and the environment. OAQPS is also responsible for ensuring these air quality standards are met, or attained (in cooperation with state, Tribal, and local governments) through national standards and strategies to control pollutant emissions from automobiles, factories, and other sources (Louks 2001).

Smoke emissions from fires potentially affect an area and the airsheds that surround it. Climatic conditions affecting air quality in Oregon are governed by a combination of factors. Large-scale influences include latitude, altitude, prevailing hemispheric wind patterns, and mountain barriers. At a smaller scale, topography and vegetation cover also affect air movement patterns. Locally adverse conditions can result from occasional wildland fires in the summer and fall, and prescribed fire and agricultural burning in the spring and fall.

The majority of air quality problems in Washington County are the result of activities within the urbanized area in the eastern half of the County which is in the Portland Air Quality Maintenance Area (AQMA). The AQMA contains significant area that is not within the Metropolitan Urban Growth Boundary. The air in this area sometimes exceeds Federal standards for levels of ozone, carbon monoxide and total suspended particulates.

3.5.1 Oregon State Smoke Management Plan

Under the federal Clean Air Act and state implementing laws, the Oregon Department of Forestry Fire Program is responsible for regulating forestland burning in the state. Controlled burning after timber harvest reduces residual fuel hazards and prepares the site for replanting by releasing nutrients and removing competing vegetation. In spring and fall, meteorologists monitor weather conditions as they coordinate hundreds of burning requests from private and

public forest landowners. ODF's implementation of the Oregon Smoke Management Plan seeks to enable landowners to manage their forests and safely reduce fire hazards while maintaining air quality in populated areas.

Chapter 4

4 Risk and Preparedness Assessments

4.1 *Wildland Fire Characteristics*

An informed discussion of fire mitigation is not complete until basic concepts that govern fire behavior are understood. In the broadest sense, wildland fire behavior describes how fires burn; the manner in which fuels ignite, how flames develop and how fire spreads across the landscape. The three major physical components that determine fire behavior are the fuels supporting the fire, the topography in which the fire is burning, and the weather and atmospheric conditions during a fire event. At the landscape level, both topography and weather are beyond our control. We are powerless to control winds, temperature, relative humidity, atmospheric instability, slope, aspect, elevation, and landforms. It is beyond our control to alter these conditions, and thus impossible to alter fire behavior through their manipulation. When we attempt to alter how fires burn, we are left with manipulating the third component of the fire environment; fuels which support the fire. By altering fuel loading and fuel continuity across the landscape, we have the best opportunity to control or affect how fires burn.

A brief description of each of the fire environment elements follows in order to illustrate their affect on fire behavior.

4.1.1 Weather

Weather conditions contribute significantly to determining fire behavior. Wind, moisture, temperature, and relative humidity ultimately determine the rates at which fuels dry and vegetation cures, and whether fuel conditions become dry enough to sustain an ignition. Once conditions are capable of sustaining a fire, atmospheric stability and wind speed and direction can have a significant affect on fire behavior. Winds fan fires with oxygen, increasing the rate at which fire spreads across the landscape. Weather is the most unpredictable component governing fire behavior, constantly changing in time and across the landscape.

4.1.2 Topography

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

Slope also plays a significant roll in fire spread, by allowing preheating of fuels upslope of the burning fire. As slope increases, rate of spread and flame lengths tend to increase. Therefore, we can expect the fastest rates of spread on steep, warm south and west slopes with fuels that are exposed to the wind.

4.1.3 Fuels

Fuel is any material that can ignite and burn. Fuels describe any organic material, dead or alive, found in the fire environment. Grasses, brush, branches, logs, logging slash, forest floor litter, conifer needles, and buildings are all examples. The physical properties and characteristics of fuels govern how fires burn. Fuel loading, size and shape, moisture content, and continuity and arrangement all have an affect on fire behavior. Generally speaking, the smaller and finer the fuels, the faster the potential rate of fire spread. Small fuels such as grass, needle litter and other fuels less than a quarter inch in diameter are most responsible for fire spread. In fact, “fine” fuels, with high surface to volume ratios, are considered the primary carriers of surface fire. This is apparent to anyone who has ever witnessed the speed at which grass fires burn. As fuel size increases, the rate of spread tends to decrease due to a decrease in the surface to volume ratio. Fires in large fuels generally burn at a slower rate, but release much more energy and burn with much greater intensity. This increased energy release, or intensity, makes these fires more difficult to control. Thus, it is much easier to control a fire burning in grass than to control a fire burning in timber.

When burning under a forest canopy, the increased intensities can lead to torching (single trees becoming completely involved) and potential development of crown fires. That is, they release much more energy. Fuels are found in combinations of types, amounts, sizes, shapes, and arrangements. It is the unique combination of these factors, along with the topography and weather, which determine how fires will burn.

The study of fire behavior recognizes the dramatic and often-unexpected affect small changes in any single component has on how fires burn. It is impossible to speak in specific terms when predicting how a fire will burn under any given set of conditions. However, through countless observations and repeated research, some of the principles that govern fire behavior have been identified and are recognized.

4.2 Wildfire Hazards

The severity of a fire season can usually be determined in the spring by how much precipitation is received, which in turn, determines how much fine fuel growth there is and how long it takes this growth to cure out. These factors, combined with the annual easterly wind events typically in September and October, drastically increase the chance a fire start will grow rapidly and resist suppression activities. Furthermore, grain harvest is also occurring at this time. Occasionally, harvesting equipment causes an ignition that can spread into populated areas and timberlands.

4.2.1 Wildfire Ignition Profile

Detailed records of fire ignition and extent are compiled by the Oregon Department of Forestry, State Fire Marshal’s Office, and the Oregon All Incident Reporting System. Using these data on past fire extents and fire ignition, the occurrence of wildland fires in the region of Washington County has been evaluated.

4.2.1.1 Oregon Department of Forestry Statistics

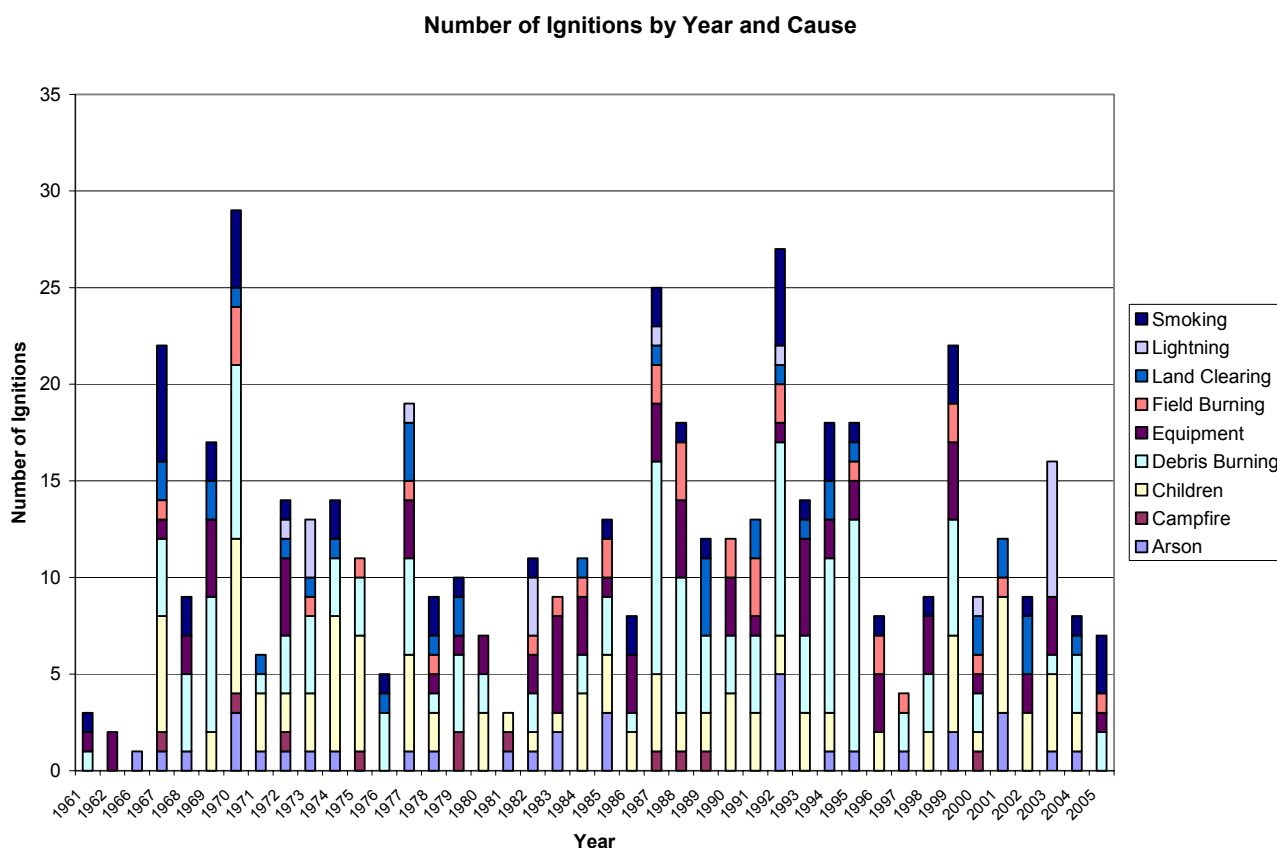
The Oregon Department of Forestry database of wildfire ignitions includes ignition and extent data from 1961 through 2005 within their jurisdiction. An analysis of the ODF reported wildfire ignitions in Washington County reveals that during this period approximately 540 acres burned as a result of 507 wildfire ignitions. (Table 4.1).

Table 4.1. Summary of ignitions in Washington County from the ODF database.

Cause	Acres Burned	Percent	Number of Ignitions	Percent
Arson	22	4%	34	7%
Campfire	20	4%	11	2%
Children	41	8%	106	21%
Debris Burning	58	11%	144	28%
Equipment	110	20%	73	14%
Field Burning	6	1%	34	7%
Land Clearing	18	3%	37	7%
Lightning	2	0%	18	4%
Smoking	264	49%	50	10%
Total	540	100%	507	100%

Within the Oregon Department of Forestry, Forest Grove District, nearly all of the fires are man-caused and the majority of the ignitions are from debris burning. To assist with reducing these types of fires, Washington County imposes a burn ban during ODF's closed fire season each summer. This has helped considerably in reducing fire starts not just within the Forest Grove District, but also in local fire agency boundaries.

Figure 4.2. Wildfire Ignitions within ODF Protection Area 1961-2005.



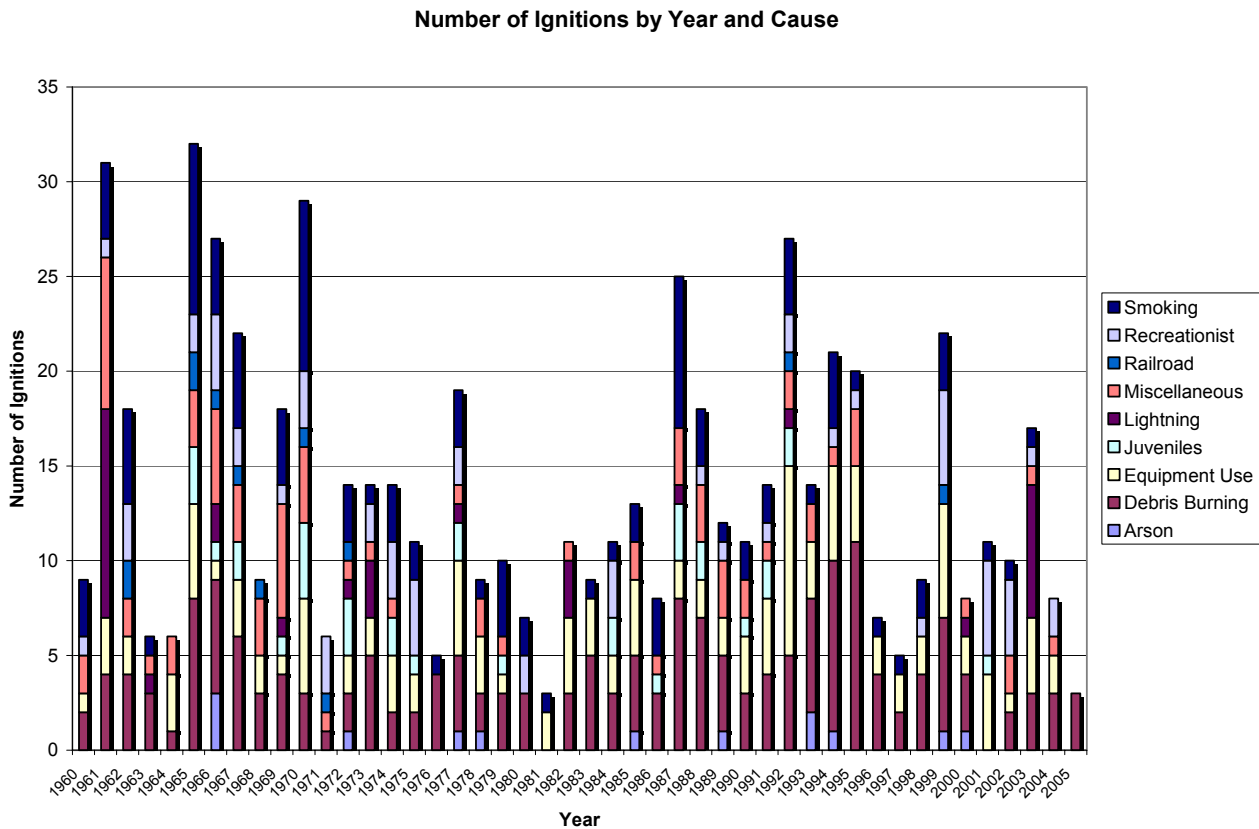
4.2.1.2 State Fire Marshal's Office Statistics

The State Fire Marshal's Office has maintained an extensive wildfire database for the period of 1960 – 2005 throughout the State. According to this database, smoking caused the largest number of acres burned; however, there were significantly more ignitions due to debris burning.

Table 4.2. Summary of ignitions in Washington County from the State Fire Marshal's database.

Cause	Acres Burned	Percent	Number of Ignitions	Percent
Arson	7	1%	13	2%
Debris Burning	215	33%	177	28%
Equipment Use	53	8%	119	19%
Juveniles	5	1%	34	5%
Lightning	12	2%	33	5%
Miscellaneous	53	8%	76	12%
Railroad	23	4%	12	2%
Recreationists	35	5%	61	10%
Smoking	252	38%	108	17%
Total	654	100%	633	100%

Figure 4.3. Wildfire Ignitions recorded by the State Fire Marshal's Office from 1960 to 2005.



Combining the ignition data from ODF and the State Fire Marshal's Office shows that there were 1,194 total ignitions resulting in 1,140 acres burned in Washington County between the years 1960-2005. This data demonstrates that the aggressive initial attack policy employed by both wildfire agencies and local fire agencies keeps most fires from growing over one acre in size. Both databases show that smoking has caused the greatest number of acres to be burned followed by debris burning and equipment use. The ODF database attributes 49% of its total acres burned to smoking; however, 165 of the 264 acres burned due to smoking occurred during the Pebble Creek Fire in 1987. The State Fire Marshal's data also shows a large number of acres burned as result of smoking in 1987, which is also attributed to the Pebble Creek Fire. Both databases list debris burning as the number one cause of ignitions followed by equipment use and children.

The popular belief that equipment caused fires are on a downward trend due to technological advances is not necessarily supported by either the ODF or State Fire Marshal's data. By taking the average number of ignitions reported per year from 2000 to 2005, the total can be projected from 2000 thru 2009. Both databases reported a peak in equipment-related ignitions in the 1990s. Although both databases also show a drastic decrease in occurrences for the 2000s, these figures are within the decade average for the 1960s and 1970s (and 1980s according to the State Fire Marshal's data).

Table 4.3. Summary of Equipment Caused Ignitions by Decade.

Decade	# of Ignitions Reported by ODF	# of Ignitions Reported by State Fire Marshal's Office
1960s	10	21
1970s	9	23
1980s	23	21
1990s	24	41
2000s (projected thru 2009)	9	22

The ODF and State Fire Marshal's data also illustrates that lightning does not play a major role in the wildfire starts or total acres burned in Washington County.

4.2.2 Wildfire Extent Profile

Across the west, wildfires have been increasing in extent and cost of control. The National Interagency Fire Center (2007) reported over 96,000 wildfires in 2006 which burned a total of 9.9 million acres and cost \$900 million in containment (Table 4.4). Data summaries for 2000 through 2006 are provided and demonstrate the variability of the frequency and extent of wildfires nationally.

Table 4.4. National Fire Season Summaries.

Statistical Highlights	2000	2001	2002	2003	2004	2005	2006
Number of Fires	122,827	84,079	88,458	85,943	77,534	66,753	96,385
10-year Average ending with indicated year	106,393	106,400	103,112	101,575	100,466	89,859	87,788
Acres Burned	8,422,237	3,555,138	6,937,584	4,918,088	6,790,692	8,689,389	9,873,745

Table 4.4. National Fire Season Summaries.

Statistical Highlights	2000	2001	2002	2003	2004	2005	2006
10-year Average ending with indicated year	3,786,411	4,083,347	4,215,089	4,663,081	4,923,848	6,158,985	6,511,469
Structures Burned	861	731	2,381	5,781	1,095	--	--
Estimated Cost of Fire Suppression (Federal agencies only)	\$1.3 billion	\$917 million	\$ 1.6 billion	\$1.3 billion	\$890 million	\$876 million	--

The National Interagency Fire Center, located in Boise, Idaho, maintains records of fire costs, extent, and related data for the entire nation. Tables 4.5 and 4.6 summarize some of the relevant wildland fire data for the nation, and some trends that are likely to continue into the future unless targeted fire mitigation efforts are implemented and maintained.

These statistics are based on end-of-year reports compiled by all wildland fire agencies after each fire season, and are updated by March of each year. The agencies include: Bureau of Land Management, Bureau of Indian Affairs, National Park Service, US Fish and Wildlife Service, Forest Service, and all state agencies.

Table 4.5. Total Fires and Acres 1960 - 2004 Nationally.

Year	Fires	Acres	Year	Fires	Acres
2006	96,385	9,873,745	1983	161,649	5,080,553
2005	66,753	8,689,389	1982	174,755	2,382,036
2004	77,534	* 6,790,692	1981	249,370	4,814,206
2003	85,943	4,918,088	1980	234,892	5,260,825
2002	88,458	6,937,584	1979	163,196	2,986,826
2001	84,079	3,555,138	1978	218,842	3,910,913
2000	122,827	8,422,237	1977	173,998	3,152,644
1999	93,702	5,661,976	1976	241,699	5,109,926
1998	81,043	2,329,709	1975	134,872	1,791,327
1997	89,517	3,672,616	1974	145,868	2,879,095
1996	115,025	6,701,390	1973	117,957	1,915,273
1995	130,019	2,315,730	1972	124,554	2,641,166
1994	114,049	4,724,014	1971	108,398	4,278,472
1993	97,031	2,310,420	1970	121,736	3,278,565
1992	103,830	2,457,665	1969	113,351	6,689,081
1991	116,953	2,237,714	1968	125,371	4,231,996
1990	122,763	5,452,874	1967	125,025	4,658,586
1989	121,714	3,261,732	1966	122,500	4,574,389
1988	154,573	7,398,889	1965	113,684	2,652,112
1987	143,877	4,152,575	1964	116,358	4,197,309
1986	139,980	3,308,133	1963	164,183	7,120,768
1985	133,840	4,434,748	1962	115,345	4,078,894
1984	118,636	2,266,134	1961	98,517	3,036,219
			1960	103,387	4,478,188

(National Interagency Fire Center 2007)

Table 4.6. Suppression Costs for Federal Agencies Nationally.

Year	Bureau of Land Management	Bureau of Indian Affairs	Fish and Wildlife Service	National Park Service	Forest Service	Totals
2006	N/A	N/A	N/A	N/A	\$1,501,000,000	N/A
2005	\$161,403,000	\$58,134,000	\$10,330,000	\$31,846,000	\$690,000,000	\$875,713,000
2004	\$147,165,000	\$63,452,000	\$7,979,000	\$34,052,000	\$637,585,000	\$890,233,000
2003	\$151,894,000	\$96,633,000	\$9,554,000	\$44,557,000	\$1,023,500,000	\$1,326,138,000
2002	\$204,666,000	\$109,035,000	\$15,245,000	\$66,094,000	\$1,266,274,000	\$1,661,314,000
2001	\$192,115,000	\$63,200,000	\$7,160,000	\$48,092,000	\$607,233,000	\$917,800,000
2000	\$180,567,000	\$93,042,000	\$9,417,000	\$53,341,000	\$1,026,000,000	\$1,362,367,000
1999	\$85,724,000	\$42,183,000	\$4,500,000	\$30,061,000	\$361,000,000	\$523,468,000
1998	\$63,177,000	\$27,366,000	\$3,800,000	\$19,183,000	\$215,000,000	\$328,526,000
1997	\$62,470,000	\$30,916,000	\$2,000	\$6,844,000	\$155,768,000	\$256,000,000
1996	\$96,854,000	\$40,779,000	\$2,600	\$19,832,000	\$521,700,000	\$679,167,600
1995	\$56,600,000	\$36,219,000	\$1,675,000	\$21,256,000	\$224,300,000	\$340,050,000
1994	\$98,417,000	\$49,202,000	\$3,281,000	\$16,362,000	\$678,000,000	\$845,262,000

(National Interagency Fire Center 2007)

Figures 4.4 and 4.5 below show the extent of wildfires by acreage burned per year in Washington County. The fire suppression agencies in Washington County respond to several wildland fires each year, but few of those fires grow to a significant size. According to national statistics, only 2% of all wildland fires escape initial attack. However, that 2% accounts for the majority of fire suppression expenditures and threatens lives, properties, and natural resources. These large fires are characterized by a size and complexity that requires special management organizations, drawing suppression resources from across the nation. It is these big fires that gobble acres and leave the most lasting effects. They create unique challenges to local communities by their quick development and the scale of their footprint.

Washington County has not experienced a significant wildfire event in the last 47 years; however, this does not mean that the County won't or is at low risk. In fact, many of the fire professionals in Washington County believe it is not "if" there will be a large fire in this area, it is "when." The last big fire event in Washington County was the Tillamook Burn from 1933 to 1951, which burned a combined total of 355,000 acres. If Washington County experienced fire events similar to the Tillamook Burn today, it would have a much more severe impact on the present community. It is important that regional planners as well as local residents understand what has happened in the past in order to be more effective in the future when preparing for the inevitable.

Figure 4.4. Acres burned in ODF Protection Areas 1961-2005.

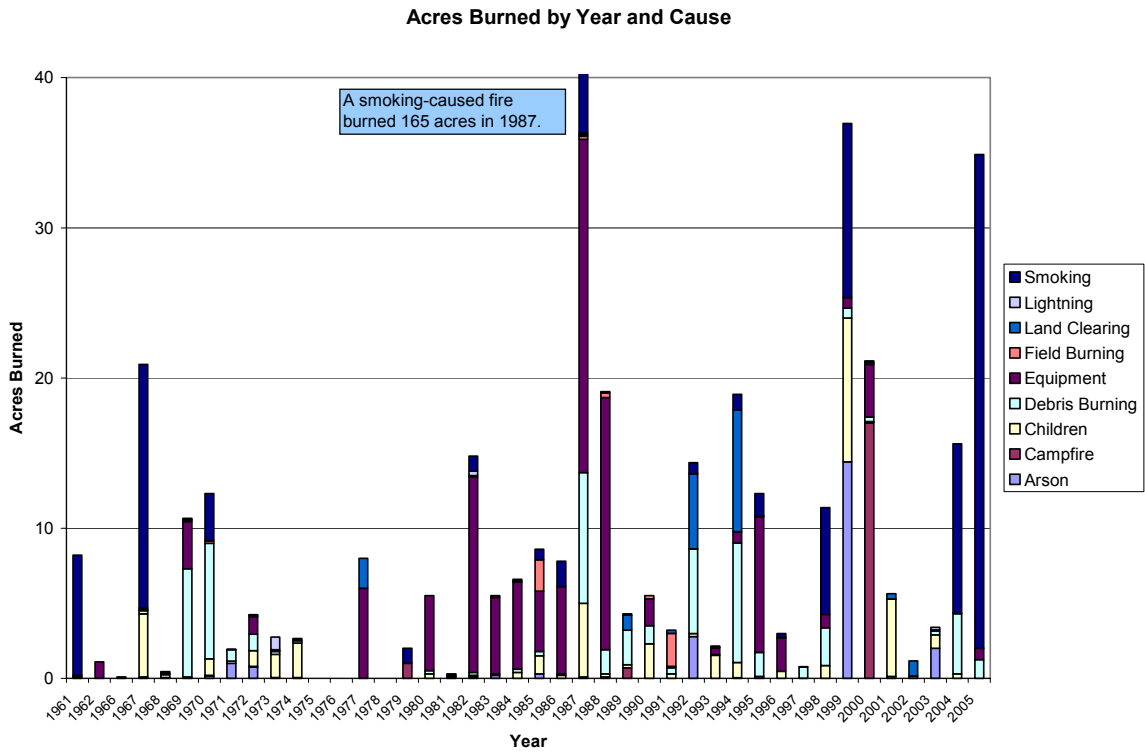
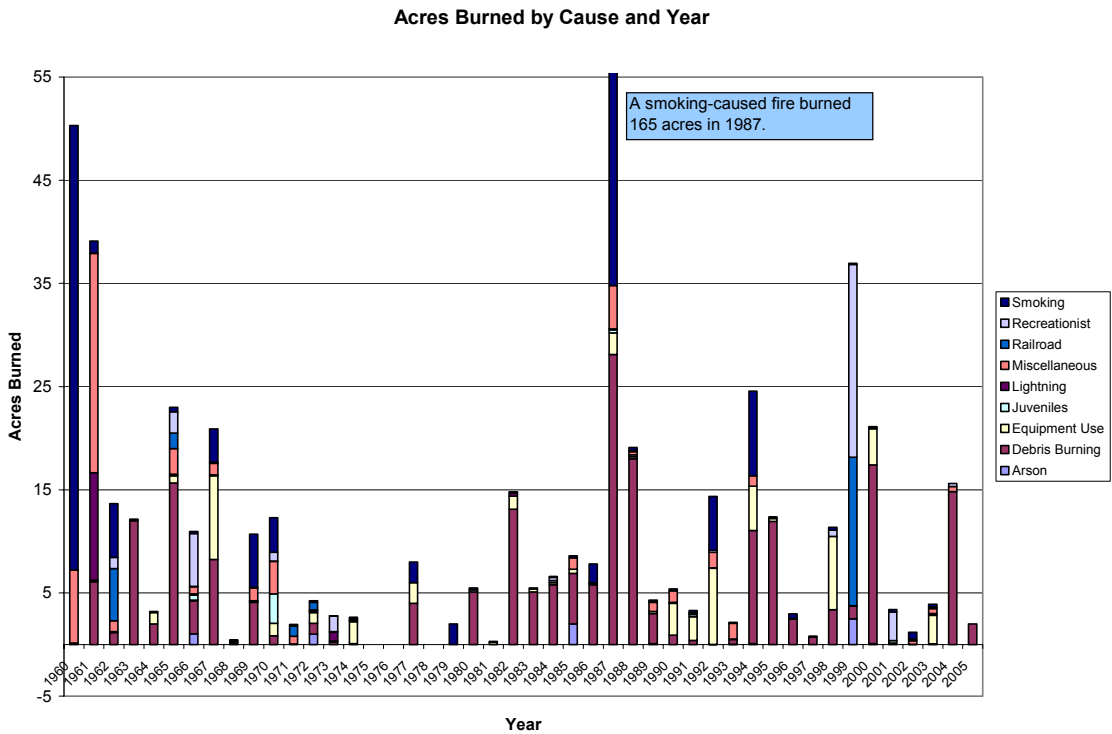


Figure 4.5. Acres Burned as Reported by State Fire Marshal’s Office from 1960 – 2005.



4.2.2.1 Narrative of Tillamook Burn

One spark on a hot August afternoon in 1933 changed people's lives, the landscape, and the future of what is known today as the Tillamook State Forest. A series of devastating wildfires transformed the original forest into a virtual wasteland, but one of the world's largest reforestation projects has returned the area to a sea of green.

The Tillamook Burn became the collective name for a series of large fires that began in 1933 and struck at six-year intervals through 1951, burning a combined total of 355,000 acres. The fires had profound environmental, economic and social repercussions for the coastal counties of northwest Oregon. The logging industry, a mainstay of local economies, ground to a halt. Some species of wildlife native to the area were decimated due to habitat loss while other wildlife populations exploded. Rivers were choked with sediment and debris. Seed cones—the genetic blueprint for a new forest—were annihilated by fire.

In the years since the fires, foresters, professional tree planters and volunteers have worked painstakingly to reestablish the forest and its many resources. Oregon voters passed a constitutional amendment in 1948 authorizing \$12 million in bonds to rehabilitate the land. The long reforestation project, the largest ever undertaken, began in 1949. Helicopters were used for the first time for large-scale aerial seeding. On the ground, forestry crews, prison inmates and school groups planted trees by hand. In total, helping hands planted 72 million seedlings giving the burned-over landscape a new start.

The Tillamook Burn was officially renamed the Tillamook State Forest by Oregon Governor Tom McCall on July 18, 1973. Today the area is covered with young trees, but the charred trunks left by the old burn still testify to the fragility of the forest resources and the ever-present need to be careful with fire.

4.3 Wildfire Hazard Assessment

Washington County and the adjacent counties of Yamhill, Tillamook, Clatsop, Columbia, Multnomah, Clackamas, and Marion, were analyzed using a variety of techniques, managed on a GIS system (ArcGIS 8.2). Physical features of the region were represented by data layers including roads, streams, soils, elevation, and remotely sensed images. Field visits were conducted by specialists from Northwest Management, Inc., and others. Discussions with area residents and fire control specialists augmented field visits and provided insights into forest health issues and treatment options.

This information was analyzed and combined to develop an assessment of wildland fire risk in the region.

4.3.1 Fire Prone Landscapes

Schlosser *et al.* 2002, developed a methodology to assess the location of fire prone landscapes on forested and non-forested ecosystems in the western US. Northwest Management, Inc., has completed similar assessments on over 35 counties and Indian Reservations in Idaho, Montana, Nevada, and Oregon to determine fire prone landscape characteristics.

The goal of developing the Fire Prone Landscapes analysis is to make inferences about the relative risk factors across large geographical regions (multiple counties) for wildfire spread. This analysis uses the extent and occurrence of past fires as an indicator of characteristics for a specific area and their propensity to burn in the future. Concisely, if a certain combination of vegetation cover type, canopy closure, aspect, slope, stream density, and road density have burned with a high occurrence and frequency in the past, then it is reasonable to extrapolate

that they will have the same tendency in the future, unless mitigation activities are conducted to reduce this potential.

The analysis for determining those landscapes prone to wildfire utilized a variety of sources.

Digital Elevation: Digital elevation models (DEM) for this project used USGS 10 meter DEM data provided at quarter-quadrangle extents. These were merged together to create a continuous elevation model of the analysis area.

The merged DEM file was used to create two derivative data layers; aspect and slope. Both were created using the spatial analyst extension in ArcGIS 8.2. Aspect data values retained one decimal point accuracy representing the cardinal direction of direct solar radiation, represented in degrees. Slope was recorded in degrees and retained two decimal points accuracy.

Remotely Sensed Images: Landsat 7 Enhanced Thematic Mapper (ETM+) images were used to assess plant cover information and percent of canopy cover. The Landsat ETM+ instrument is an eight-band multi-spectral scanning radiometer capable of providing high-resolution image information of the Earth's surface. It detects spectrally-filtered radiation at visible, near-infrared, short-wave, and thermal infrared frequency bands from the sun-lit Earth. Nominal ground sample distances or "pixel" sizes are 15 meters in the panchromatic band; 30 meters in the 6 visible, near and short-wave infrared bands; and 60 meters in the thermal infrared band.

The satellite orbits the Earth at an altitude of approximately 705 kilometers with a sun-synchronous 98-degree inclination and a descending equatorial crossing time of 10 a.m. daily.

Image spectrometry has great application for monitoring vegetation and biophysical characteristics. Vegetation reflectance often contains information on the vegetation chlorophyll absorption bands in the visible region and the near infrared region. Plant water absorption is easily identified in the middle infrared bands. In addition, exposed soil, rock, and non-vegetative surfaces are easily separated from vegetation through standard hyper-spectral analysis procedures.

Two Landsat 7 ETM images were obtained to conduct hyper-spectral analysis for this project. The first was obtained in 1998 and the second in 2002. Hyper-spectral analysis procedures followed the conventions used by the Idaho Vegetation and Land Cover Classification System, modified from Redmond (1997) and Homer (1998).

Riparian Zones: Riparian zones were derived from stream layers created during the Interior Columbia Basin Ecosystem Management Project (Quigley *et al.* 2001).

Wind Direction: Wind direction and speed data detailed by monthly averages was used in this project to better ascertain certain fire behavior characteristics common to large fire events. These data are spatially gridded Average Monthly Wind Directions in Oregon. The coverage was created from data summarized from the Interior Columbia Basin Ecosystem Management Project (Quigley *et al.* 2001).

Past Fires: Past fire extents represent those locations on the landscape that have previously burned during a wildfire. Past fire extent maps were obtained from a variety of sources for the North Central Oregon area including the USDA Forest Service and Oregon Department of Forestry.

Fire Prone Landscapes: Using the methodology developed by Schlosser *et al.* (2002, 2003, 2004), and refined for this project, the factors detailed above were used to assess the potential for the landscape to burn during the fire season in the case of fire ignition. Specifically, the entire region was evaluated at a resolution of 10 meters (meaning each pixel on the screen represented a 10 meter square on the ground) to determine the propensity for a particular area (pixel) to burn in the case of a wildfire. The analysis involved creating a linear regression

analysis within the GIS program structure to assign a value to each significant variable, pixel-by-pixel. The analysis ranked factors from 0 (little to no risk) to 100 (extremely high risk) based on past fire occurrence.

A map of Fire Prone Landscapes in Washington County is included in Appendix I.

Table 4.7. Fire Prone Landscape acres in each category for Washington County.


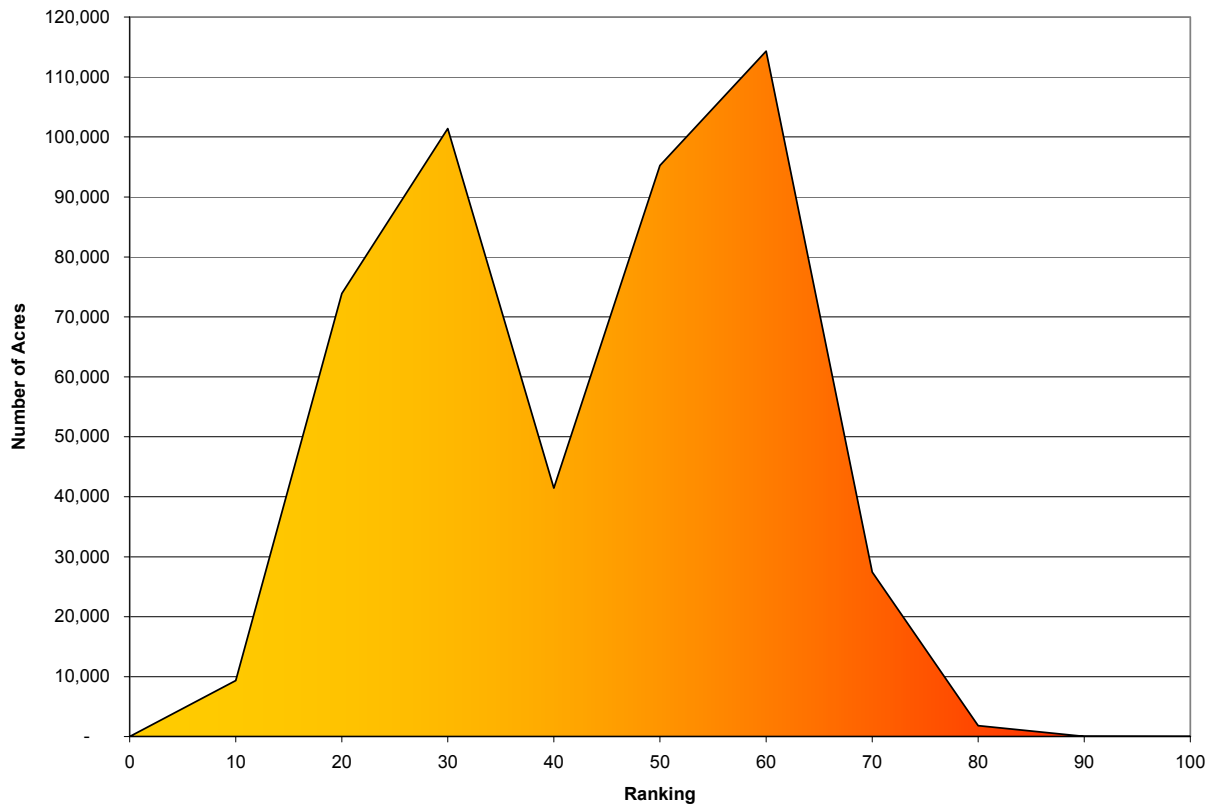
Color Code	Value	Total Acres	Percent of Total Area
	0	14	0%
	10	9,351	2%
	20	73,892	16%
	30	101,387	22%
	40	41,424	9%
	50	95,224	20%
	60	114,316	25%
	70	27,441	6%
	80	1,813	0%
	90	29	0%
	100	-	0%

Figure 4.6. Distribution of Fire Prone Landscapes by ranking scale.



The risk category values developed in this analysis should be considered **ordinal data**, that is, while the values presented have a meaningful ranking, they neither have a true zero point nor

scale between numbers. Rating in the “40” range is not necessarily twice as “risky” as rating in the “20” range. These category values also do not correspond to a rate of fire spread, a fuel loading indicator, or measurable potential fire intensity. Each of those scales is greatly influenced by weather, seasonal and daily variations in moisture (relative humidity), solar radiation, and other factors. The risk rating presented here serves to identify where certain constant variables are present, aiding in identifying where fires typically spread into the largest fires across the landscape.

4.3.2 Historic Fire Regime

In the fire-adapted ecosystems of Oregon, fire is one of the dominant processes in terrestrial systems that constrain vegetation patterns, habitats, and ultimately, species composition. Land managers need to understand historical fire regimes (that is, fire frequency and fire severity prior to settlement by Euro-Americans) to be able to define ecologically appropriate goals and objectives for an area. Moreover, managers need spatially explicit knowledge of how historical fire regimes vary across the landscape.

Many ecological assessments are enhanced by the characterization of the historical range of variability which helps managers understand: (1) how the driving ecosystem processes vary from site to site; (2) how these processes affected ecosystems in the past; and (3) how these processes might affect the ecosystems of today and the future. Obviously, historical fire regimes are a critical component for characterizing the historical range of variability in the fire-adapted ecosystems of Oregon. Furthermore, understanding ecosystem departures provides the necessary context for managing sustainable ecosystems. Land managers need to understand how ecosystem processes and functions have changed prior to developing strategies to maintain or restore sustainable systems. In addition, the concept of departure is a key factor for assessing risks to ecosystem components. For example, the departure from historical fire regimes may serve as a useful proxy for the potential of severe fire effects from an ecological perspective.

A database of fire history studies in the region was used to develop modeling rules for predicting historical fire regimes (HFRs). Tabular fire-history data and spatial data was stratified into ecoregions, potential natural vegetation types (PNVs), slope classes, and aspect classes to derive rule sets which were then modeled spatially. Expert opinion was substituted for a stratum when empirical data was not available.

Fire is one of the dominant disturbance processes that manipulates vegetation patterns in Oregon. The HFR data were prepared to supplement other data necessary to assess integrated risks and opportunities at regional and subregional scales. The HFR theme was derived specifically to estimate an index of the relative change of a disturbance process, and the subsequent patterns of vegetation composition and structure.

4.3.2.1 General Limitations

These data were derived using fire history data from a variety of different sources. These data were designed to characterize broad scale patterns of historical fire regimes for use in regional and subregional assessments. Any decisions based on these data should be supported with field verification, especially at scales finer than 1:100,000. Because the resolution of the HFR theme is 1,000 meter cell size, the expected accuracy does not warrant their use for analyses of areas smaller than about 10,000 acres (for example, assessments that typically require 1:24,000 data).

Table 4.8. Assessment of Historic Fire Regimes in Washington County.

Description	Acres	Percent
0-35 yrs; Low Severity	202,634	44%
0-35 yrs; Stand Replacement	242	0%
35-100+ yrs; Mixed Severity	249,251	54%
35-100+ yrs; Stand Replacement	12,520	3%
Water	242	0%
Total	464,890	100%

A map of Historic Fire Regimes in Washington County is included in Appendix I.

4.3.3 Fire Regime Condition Class

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995). Coarse scale definitions for natural (historical) fire regimes have been developed by Hardy *et al.* (2001) and Schmidt *et al.* (2002) and interpreted for fire and fuels management by Hann and Bunnell (2001). The five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant overstory vegetation. These five regimes include:

- I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75% of the dominant overstory vegetation replaced);
- II – 0-35 year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);
- III – 35-100+ year frequency and mixed severity (less than 75% of the dominant overstory vegetation replaced);
- IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);
- V – 200+ year frequency and high (stand replacement) severity.

As scale of application becomes finer, these five classes may be defined with more detail, or any one class may be split into finer classes, but the hierarchy to the coarse scale definitions should be retained.

A fire regime condition class (FRCC) is a classification of the amount of departure from the natural regime (Hann and Bunnell 2001). Coarse-scale FRCC classes have been defined and mapped by Hardy *et al.* (2001) and Schmidt *et al.* (2001) (FRCC). They include three condition classes for each fire regime. The classification is based on a relative measure describing the degree of departure from the historical natural fire regime. This departure results in changes to one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g., insect and diseased mortality, grazing, and drought). There are no wildland vegetation and fuel conditions or wildland fire situations that do not fit within one of the three classes.

The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime (Hann and Bunnell 2001, Hardy *et al.* 2001, Schmidt *et al.* 2002). The central tendency is a composite estimate of

vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside.

Characteristic vegetation and fuel conditions are considered to be those that occurred within the natural (historical) fire regime. Uncharacteristic conditions are considered to be those that did not occur within the natural (historical) fire regime, such as invasive species (e.g. weeds, insects, and diseases), “high graded” forest composition and structure (e.g. large trees removed in a frequent surface fire regime), or repeated annual grazing that maintains grassy fuels across relatively large areas at levels that will not carry a surface fire. Determination of the amount of departure is based on comparison of a composite measure of fire regime attributes (vegetation characteristics; fuel composition; fire frequency, severity and pattern) to the central tendency of the natural (historical) fire regime. The amount of departure is then classified to determine the fire regime condition class. A simplified description of the fire regime condition classes and associated potential risks are presented in Table 4.9. A map depicting Fire Regime and Condition Class is presented in Appendix I.

Table 4.9. Fire Regime Condition Class Definitions.

Fire Regime Condition Class	Description	Potential Risks
Condition Class 1	Within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics. Composition and structure of vegetation and fuels are similar to the natural (historical) regime. Risk of loss of key ecosystem components (e.g., native species, large trees, and soil) is low.
Condition Class 2	Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe). Composition and structure of vegetation and fuel are moderately altered. Uncharacteristic conditions range from low to moderate. Risk of loss of key ecosystem components is moderate.
Condition Class 3	High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are highly departed (more or less severe). Composition and structure of vegetation and fuel are highly altered. Uncharacteristic conditions range from moderate to high. Risk of loss of key ecosystem components is high.

An analysis of Fire Regime Condition Class in Washington County shows that a significant portion of the County is either moderately departed (54%) or severely departed (14%) from its natural fire regime and associated vegetation and fuel characteristics.

Table 4.10. Assessment of Current Condition Class in Washington County.

	Condition Class	Acres	Percent of Area
1	Condition Class 1	67,233	14%
2	Condition Class 2	253,017	54%
3	Condition Class 3	62,776	14%
5	Agriculture	34,770	7%
6	Urban/Development	46,852	10%
7	Water	242	0%
	Total	464,890	100%

4.4 Washington County's Wildland-Urban Interface

The wildland-urban interface (WUI) has gained attention through efforts targeted at wildfire mitigation; however, this analysis technique is also useful when considering other hazards because the concept looks at where people and structures are concentrated in any particular region. For Washington County, the WUI shows the relative concentrations of structures scattered across the County.

A key component in meeting the underlying need for protection of people and structures is the protection and treatment of hazards in the wildland-urban interface. The wildland-urban interface refers to areas where wildland vegetation meets urban developments, or where forest fuels meet urban fuels (such as houses). These areas encompass not only the interface (areas immediately adjacent to urban development), but also the continuous slopes that lead directly to a risk to urban developments. Reducing the hazard in the wildland urban interface requires the efforts of federal, state, and local agencies and private individuals (Norton 2002). "The role of [most] federal agencies in the wildland-urban interface includes wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical experience. Structural fire protection [during a wildfire] in the wildland urban interface is [largely] the responsibility of Tribal, state, and local governments" (USFS 2001). Property owners share a responsibility to protect their residences and businesses and minimize danger by creating defensible areas around them and taking other measures to minimize the risks to their structures (USFS 2001). With treatment, a wildland-urban interface can provide firefighters a defensible area from which to suppress wildland fires or defend communities against other hazard risks. In addition, a wildland-urban interface that is properly thinned will be less likely to sustain a crown fire that enters or originates within it (Norton 2002).

By reducing hazardous fuel loads, ladder fuels, and tree densities, and creating new and reinforcing defensible space, landowners can protect the wildland-urban interface, the biological resources of the management area, and adjacent property owners by:

- minimizing the potential of high-severity ground or crown fires entering or leaving the area;
- reducing the potential for firebrands (embers carried by the wind in front of the wildfire) impacting the WUI. Research indicates that flying sparks and embers (firebrands) from a crown fire can ignite additional wildfires as far as 1¼ miles away during periods of extreme fire weather and fire behavior (McCoy *et al.* 2001);
- improving defensible space in the immediate areas for suppression efforts in the event of wildland fire.

Three wildland-urban interface conditions have been identified (Federal Register 66(3), January 4, 2001) for use in wildfire control efforts. These include the Interface Condition, Intermix Condition, and Occluded Condition. Descriptions of each are as follows:

- **Interface Condition** – a situation where structures abut wildland fuels. There is a clear line of demarcation between the structures and the wildland fuels along roads or back fences. The development density for an interface condition is usually 3+ structures per acre;
- **Intermix Condition** – a situation where structures are scattered throughout a wildland area. There is no clear line of demarcation, the wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres; and
- **Occluded Condition** – a situation, normally within a city, where structures abut an island of wildland fuels (park or open space). There is a clear line of demarcation between the structures and the wildland fuels along roads and fences. The development density for an occluded condition is usually similar to that found in the interface condition and the occluded area is usually less than 1,000 acres in size.

In addition to these classifications detailed in the Federal Register, four additional classifications have been included to augment these categories:

- **Rural Condition** – a situation where the scattered small clusters of structures (ranches, farms, resorts, or summer cabins) are exposed to wildland fuels. There may be miles between these clusters.
- **High Density Urban Areas** – those areas generally identified by the population density consistent with the location of incorporated cities, however, the boundary is not necessarily set by the location of city boundaries or urban growth boundaries; it is set by very high population densities (more than 7-10 structures per acre or more). Washington County, Oregon, was determined to have a significantly large area of high density urban based on 2006 county parcel information.
- **Infrastructure Area WUI** – those locations where critical and identified infrastructure are located outside of populated regions and may include high tension power line corridors, critical escape or primary access corridors, municipal watersheds, areas immediately adjacent to facilities in the wildland such as radio repeater towers or fire lookouts. These are identified by County level planning committees.
- **Non-WUI Condition** – a situation where the above definitions do not apply because of a lack of structures in an area or the absence of critical infrastructure crossing these unpopulated regions. This classification is not WUI.

In summary, the designations of areas by the Washington County planning committee includes:

- Interface Condition: WUI
- Intermix Condition: WUI
- Occluded Condition: WUI
- Rural Condition: WUI
- Infrastructure Areas: WUI
- High Density Urban Areas: WUI

- Non-WUI Condition: Not WUI, but present in Washington County

Due to the high number of structures in the county, the Washington County parcel master data was used to assign one point per parcel center throughout the County. This information was then used to identify population density designations for the development of the Wildland Urban Interface map.

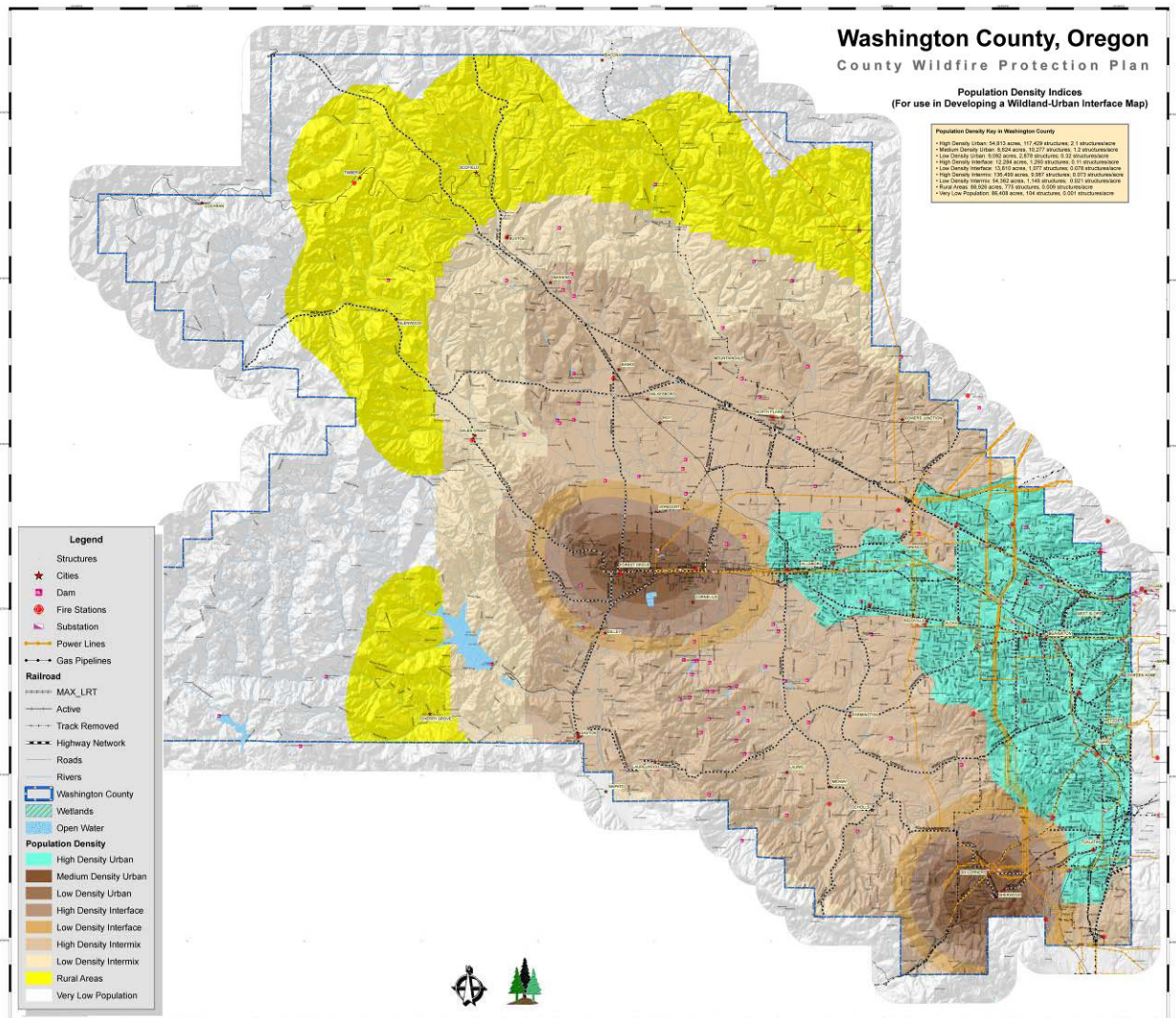
All structures are represented by a “dot” on the map. No differentiation is made between a garage and a home, or a business and a storage building. The density of structures and their specific locations in this management area are critical in defining where the potential exists for casualty loss in the event of a disaster in the region.

By evaluating this structure density, WUI areas can be defined on maps by using mathematical formulae and population density indexes to define the WUI based on where structures are located. The resulting population density indexes create concentric circles showing high density areas, interface, and intermix condition WUI, as well as rural condition WUI (as defined above). This portion of the analysis allows us to “see” where the highest concentrations of structures are located in reference to high risk landscapes, limiting infrastructure, and other points of concern.

The WUI, as defined here, is unbiased and consistent, allows for edge matching with other counties, and most importantly – it addresses all of the County, not just identified communities. It is a planning tool showing where homes and businesses are located and the density of those structures leading to identified WUI categories. It can be determined again in the future, using the same criteria, to show how the WUI has changed in response to increasing population densities. It uses a repeatable and reliable analysis process that is unbiased. This mapping procedure was followed and is presented in the maps included in Appendix I.

The Healthy Forests Restoration Act makes a clear designation that the location of the WUI is at the determination of the County or Reservation when a formal and adopted Community Wildfire Protection Plan is in place. It further states that the federal agencies are obligated to use this WUI designation for all Healthy Forests Restoration Act purposes. The Washington County Community Wildfire Protection Plan development committee evaluated a variety of different approaches to determining the WUI for the County and selected this approach and has adopted it for these purposes. In addition to a formal WUI map for use with the federal agencies, it is hoped that it will serve as a planning tool for the County, the Oregon Department of Forestry, and local fire districts.

Figure 4.7. Wildland Urban Interface Map in Washington County, Oregon.



A map of the Wildland-Urban Interface in Washington County as defined by the Community Wildfire Protection Planning committee is also included in Appendix I.

4.4.1 Potential WUI Treatments

The definition and mapping of the WUI is the creation of a planning tool to identify where structures, people, and infrastructure are located in reference to each other. This analysis tool does not include a component of fuels risk. There are a number of reasons to map and analyze these two components separately (population density vs. fire risk analysis). Primary among these reasons, is the fact that population growth often occurs independent from changes in fire risk, fuel loading, and infrastructure development. Thus, making the definition of the WUI dependent on all of them would eliminate populated places with a perceived low level of fire risk today, which may in a year become an area at high risk due to forest health issues or other concerns.

By examining these two tools separately, the planner is able to evaluate these layers of information to see where the combination of population density overlays on top of areas of high current fire risk and then take mitigative actions to reduce the fuels, improve readiness, directly

address factors of structural ignitability, improve initial attack success, mitigate resistance to control factors, or (more often) a combination of many approaches.

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

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

Most treatments may begin with a home evaluation, and the implicit factors of structural ignitability (roofing, siding, deck materials), and vegetation within the treatment area of the structure. However, treatments in the low population areas of rural lands (mapped as yellow) may look closely at access (two ways in and out) and communications through means other than land-based telephones. On the other hand, a subdivision with densely packed homes (mapped as brown – interface areas) surrounded by forests and dense underbrush, may receive more time and effort implementing fuels treatments beyond the immediate home site to reduce the probability of a crown fire entering the subdivision.

4.5 Washington County Communities At Risk

Individual community assessments have been completed for all of the populated areas in the County. The following summaries include these descriptions and observations. Local place names identified during this plan’s development include:

Table 4.11. Washington County Communities.

Community Name	Planning Description	Vegetative Community	Federal Register Community At Risk? ¹
Aloha	Community	Urban	No
Banks	City	Agricultural	No
Beaverton	City	Urban	No
Bowers Junction	Community	Urban	No
Buxton	Community	Agricultural	Yes
Cedar Mill	Community	Urban	No
Cherry Grove	Community	Forestland	Yes
Cochran	Remnant	Forestland	No
Cornelius	City	Urban	No
Dilley	Community	Agricultural	No
Durham	City	Urban	No
Farmington	Community	Urban	No
Forest Grove	City	Urban	No
Gales Creek	Community	Forestland/Agricultural	Yes
Gaston	City	Forestland/Agricultural	No
Glenwood	Community	Forestland	No

Table 4.11. Washington County Communities.

Community Name	Planning Description	Vegetative Community	Federal Register Community At Risk?¹
Hillsboro	City	Urban	No
King City	City	Urban	No
Laurel	Community	Agricultural	No
Laurelwood	Community	Agricultural	No
Manning	Community	Agricultural	No
Midway	Community	Agricultural	No
Mountaindale	Community	Agricultural	No
North Plains	City	Agricultural	No
Reedville	Community	Urban	No
Roy	Community	Agricultural	No
Scofield	Community	Agricultural	No
Sherwood	City	Urban	No
Tigard	City	Urban	No
Timber	Community	Forestland	No
Tualatin	City	Urban	No
Verboort	Community	Urban	No
Wilkesboro	Community	Agricultural	No

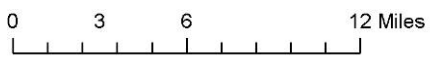
¹Those communities with a “Yes” in the Federal Register Community at Risk column are included in the Federal Register, Vol. 66, Number 160, Friday, August 17, 2001, as “Urban Wildland Interface Communities within the vicinity of Federal Lands that are at high risk from wildfires”. All of these communities have been evaluated as part of this plan’s assessment.

4.6 Strategic Planning Areas in Washington County

In order to facilitate the mutual understanding of wildfire risks specific to commonly referred to areas in Washington County, the planning committee identified Washington County subregions on a map they felt not only had similar fuel conditions, but also would require similar initial attack techniques. These subregions are called ‘Strategic Planning Areas’ or SPAs. Typically, SPA boundaries lie along local fire district boundaries. The names of identified SPAs in Washington County are highlighted in orange in Figure 4.8.

Figure 4.8. Community Assessment Boundaries in Washington County, Oregon.

WASHINGTON COUNTY, OREGON
 CWPP
 STRATEGIC PLANNING AREAS



Map Made By:
 Northwest Management Inc.
 PO Box 9748
 Moscow, Idaho 83843
 208-883-4488
 www.consulting-foresters.com

4.6.1 Washington County Conditions

Washington County, Oregon is within the northwest portion of the Willamette Valley. The southern portion, using Highway 26 as a dividing line, is comprised of major cities encroaching upon primarily agricultural lands. The primary use of these lands has been grain crops (wheat & oats), grass seed, hazelnut orchards, vineyards, Christmas tree plantations, livestock grazing, and natural perennial grasses. All of this area is intermingled with brush patches and small woodlots of Douglas-fir, particularly in areas not suitable for cultivation. Much of this semi-rural area is divided into small tax lots with the majority having structures and/or hobby farms acting as bedroom communities for the larger cities of Portland, Beaverton, and Hillsboro. This area contains many fine flashy fuels that are susceptible to fire during the summer dissected by numerous county roads, driveways and structures.

The highest density area occurs within the eastern third of the County. Much of the urban area has scattered Douglas-fir used as yard decoration in single and multi-family residences. This area extends west all the way to Highway 47 with similar conditions; however, with increasing amounts of timbered areas. There are some smaller acreages of industrial timberlands intermixed; however, these will likely be subdivided in the near future.

North of Highway 26, is also a higher density urban population with scattered agricultural land Douglas-fir woodlots for approximately 6 to 18 miles. All of the county roads traveling north have agricultural use on both sides with increasing and more cohesive timbered areas. Property ownerships range from small lots up to larger acreages, most with structures present. As the timbered areas consolidate, ownership typically becomes industrial lumber companies. These industrial lands are intermingled with other privately held lands that are in all stages of growth from recently clearcut to mature stands of second growth Douglas-fir. Under the Oregon Forest Practices Act, no single clearcut can be over 120 acres and a harvest cannot occur until the adjacent cut on your property is at least 4 years old. This applies only to single ownership blocks. Thus, depending on the management plan for a particular landowner, there could be a number of young age stands adjacent to each other which provides a variety of fuel complexes. Further north, the terrain transitions from flat, rolling hills to a steeper and more mountainous topography.

Recently, the timber market has been fairly good, so many small landowners (2 to 40 acres) have been logging their parcels. This produces a highly dissected mosaic of young growth to mature stands. It has also become evident that many of the small private ownerships are not managing their young stands due to the increasing occurrence of brush, scotch broom, maple, and/or alder out-competing planted seedlings.

West of Highway 47, the landscape is also dominated by agricultural lands intermingled with timberlands. It is predominantly second growth Douglas-fir forestland with lower population densities. This area is considered the foothills of the Coast Range and the topography goes from relatively flat to steep fairly rapidly. Industrial, state, and private parcels make up the majority of acres. The private industrial ownerships resemble a checkerboard of clearcuts at different stages of growth. Much of the state lands are 30 to 60 year old thinnings intermingled with a few small clearcuts.

Washington County has adopted measures that require any homeowner that requests a building permit for new construction or remodeling within a certain area to follow set rules that pertain to using more fire safe construction practices and materials including specifications for driveways and rural addressing.

4.6.2 Overall Mitigation Activities

There are many actions that will help improve safety in a particular area; there are also many mitigation activities that can apply to all residents and all fuel types. General mitigation activities that apply to all of Washington County are discussed below while area-specific mitigation activities are discussed within the individual community assessments.

The safest, easiest, and most economical way to mitigate unwanted fires is to stop them before they start. Generally, prevention actions attempt to prevent human-caused fires. Campaigns designed to reduce the number and sources of ignitions can be quite effective. Prevention campaigns can take many forms. Traditional “Smokey Bear” type campaigns that spread the message passively through signage can be effective. Signs that remind folks of the dangers of careless use of fireworks, burning when windy, and leaving unattended campfires can also be effective.

Active prevention techniques can involve mass media, radio, and the local newspapers. Fire districts in other counties have contributed to the reduction in human-caused ignitions by printing a weekly “run blotter,” similar to a police blotter, in the paper. The blotter briefly describes the runs of the week and is followed by a “tip of the week” to reduce the threat from wildland and structure fires. The federal government and the Oregon Department of Forestry have been champions of prevention, and could provide ideas for such tips. When fire conditions are high, brief public service messages could warn of the hazards of misuse of fire or any other ignition sources.

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Washington County must be made aware that home defensibility starts with the homeowner. Once a fire has started and is moving toward a structure, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the building. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners on the steps to take in order to create an effective defensible space. Residents of Washington County should be encouraged to work with local fire departments and fire management agencies within the County to complete individual home site evaluations. Home defensibility steps should be enacted based on the results of these evaluations. Beyond the homes, forest management efforts must be considered to slow the approach of a fire that threatens a community. The public survey conducted during preparation of this Community Wildfire Protection Plan indicated that approximately 37% of the respondents are interested in participating in wildfire education programs.

Development of community evacuation plans is necessary to assure an orderly evacuation in the event of a threatening wildland fire. Designation and posting of escape routes would reduce chaos and escape times for fleeing residents. Community safety zones should also be established in the event safe evacuation is impossible and ‘sheltering in place’ becomes the better option. Efforts should be made to educate homeowners through existing homeowners associations or citizen participation organizations.

Also of vital importance is the accessibility of homes to emergency apparatus. The fate of a home will often be determined by homeowner actions prior to the event. Home survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning along driveways and creating a turnaround area for large vehicles.

Recreational facilities near communities, such as parks and open spaces managed by Washington County, Oregon State Parks, Metro, and the Tualatin Hills Park and Recreation District, or in the surrounding forests should be kept clean and maintained. In order to mitigate

the risk of an escaped campfire, escape proof fire rings and barbeque pits should be installed and maintained. In some cases, restricting campfires during dry periods may be necessary. Surface fuel accumulations in nearby forests can also be kept to a minimum by periodically conducting pre-commercial thinning, pruning and limbing, and possibly controlled burns.

Other actions to reduce fire hazards are thinning and pruning timbered areas, creating a fire resistant buffer along roads and power line corridors, and strictly enforcing fire-use regulations. Ensuring that areas beneath power lines have been cleared of potential high risk fuels and making sure that the buffer between the surrounding forest lands is wide enough to adequately protect the poles as well as the lines is imperative.

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

Furthermore, building codes can be revised to provide for more fire conscious construction techniques such as using fire resistant siding, roofing, and decking.

4.6.3 Overview of Fire Protection System

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

Mutual aid agreements are made with nearby districts and the Oregon Department of Forestry to supplement resources of a fire agency or district during a time of critical need. Mutual aid is given only when equipment and resources are available and dispatch will not jeopardize local firefighting capabilities.

Fire calls are organized and assigned through a centralized county dispatch system, WCCCA (Washington County Consolidated Communications Agency). WCCCA provides 9-1-1 service and public safety communications for police, fire and emergency medical services for the participating jurisdictions and other governments under contract. WCCCA dispatches all emergency calls in Washington County through a computer aided dispatch system (CAD).

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

4.6.4 Banks Strategic Planning Area

The Banks Strategic Planning Area (SPA) lies in the north central portion of Washington County, bordered on the north by Columbia County. The communities of Timber, Scofield, Buxton, Manning, Banks and Wilkesboro are located in the Banks SPA. The Banks SPA is a predominantly forested area with over 90% covered with commercial timberland. Land ownership includes industrial and non-industrial private forest, state-owned forest, state park, private agricultural, and BLM (Oregon and California Lands). Agricultural and meandering

riparian land occupies most of the southern part of the SPA in and around the towns of Banks, Manning and Wilkesboro, as well as areas along the West Fork of Dairy Creek. Many residences have been built in the forested areas along timbered forest routes, some with one-way in, one-way out roads. These structures lie adjacent to or mingle with wildland fuels.

4.6.4.1 Fire Potential

The wildland fuels in the Banks SPA consist primarily of mixed conifer and deciduous forest as well as agricultural development, riparian areas and pasture. The topography is rolling to steep in the mountain areas and flat to gently rolling in the river valleys and bottomland. In the forested area, the timber is a patchwork of age classes created from timber harvest and reforestation. Clearcutting followed by planting is the most common harvest and regeneration method practiced in the region. Slash generated from timber harvest is often piled after logging and burned in the wet season after it has cured for an appropriate length of time. Large expanses of forest are even aged due to the reforestation practices commonly used. This creates a situation in the younger stands where mixed ground fuels associated with low lying branches in the overstory increases the potential for a ground fire to climb into the canopy. In the older, more mature timber stands shade has played a role in the stands' development. The understory vegetation and lower branches are reduced due to the lack of available light. The reduced ground vegetation and ladder fuels reduces the ease with which a ground fire can move into the canopy.

L. L. Stub Stewart State Park, a 1600 acre state park opened in July 2007. The park provides overnight camping for individuals and groups and a system of trails in close proximity to the Portland metropolitan area. It is the first full-service park developed for the Oregon State Park system in 30 years. The park is expected to see nearly full capacity camping and recreation throughout the season. Camping, picnicking, hiking, and day use facilities are developed throughout the park area adjoining wildland fuels. Expanded access to and use of this area will place additional pressure on emergency services and increase the potential for wildfires.

Mixed throughout the forested area in this SPA, especially near the main roads and towns, openings have been cut out of the forest for development of farmsteads and home sites. Small land clearings for pasture development as well as for cash crops, open space, and orchards are common. Unlike clear-cut and planting, these openings most often remain as openings rather than regenerated forests as would be the case in a managed forest. This situation is both good and a cause for concern. On the good side, the forest is discontinuous, creating many fuel breaks, which can slow a fast moving wildfire and ease suppression efforts. The concern is that with more development adjacent to wildland fuels, the fire potential increases due to increased human activity. Road signs and rural identification address numbers are generally present at road intersections and driveways. For the most part, bridges are adequately signed with weight ratings.

On the southern part of the SPA, agriculture and ranching is more developed and continuous. These activities dominate the landscape resulting in a discontinuous fuel pattern. A majority of the crops found in the bottomlands are seasonal, especially the grain crops and hay, which are mowed or plowed regularly. Agricultural and riparian lands adjacent to forested lands are a concern. Depending on the time of year, slope, and weather; grasses, brush, and agricultural fuels can be easily ignited. This type of ground fire could transition into a large wildfire when the fire risk would otherwise be low. A wind-driven fire in the agricultural fuels and dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. Fires burning in some types of unharvested or fallow fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels. Larger flame lengths and intense heat make fires

in these fields difficult to control. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing fire.

4.6.4.2 Ingress-Egress

The primary ingress and egress in the Banks SPA is Highway 26, the Sunset Highway, which runs between the Portland Metro area and the Oregon Coast. Highway 26 passes through the SPA from the southeast corner to the northwest corner. Secondary ingress-egress routes that feed into Highway 26 include State Route 47, Timber Road, State Route 6, and Green Mountain Road. State Route 47 (Banks Vernonia Highway) is the main road through the northern part of the community to the town of Vernonia in Columbia County. This is a well-traveled, two-lane highway. Timber Road is a narrow two-lane paved route that accesses the community of Timber and outlying areas. Timber Road creates a link between Highway 26 and State Route 6. State Route 6 (Wilson River Highway), an alternative main highway to the Oregon Coast, accesses the far south side of the SPA and is also a main ingress-egress route for the communities of Cochran and Forest Grove. Green Mountain Road is a two-lane county road that accesses the northeastern part of the SPA.

4.6.4.3 Infrastructure

Residents within the city limits of Banks have access to a municipal water system. Those outside the city limits and in unincorporated communities typically rely on personal or multiple home well systems.

Logging roads provide good access throughout most of the commercial timberland enabling adequate access for fire suppression equipment. These roads have been designed for logging trucks, and in general, will accommodate large fire equipment.

The Port of Tillamook Bay Railroad operates a rail line that passes through the Banks SPA en route from Tillamook to the city of Banks.

Above ground public transmission lines crisscross the community. Most travel along roads and highways. Power and phone service into forested areas are both above and below ground. Power and communications could be interrupted to some of these areas in a wildfire situation.

4.6.4.4 Fire Protection

Banks Fire District #13 provides fire and rescue services to the Banks SPA. Mutual aid agreements supplement that service when needed. The Banks SPA is heavily timbered. The Oregon Department of Forestry responds to wildfires occurring on forestlands while Banks Fire District #13 responds to both structural and wildland fires. The main Banks Fire District station is located in the city of Banks with satellite stations in other areas.

4.6.4.5 Risk Assessment

Residents within the Banks SPA have a high risk of experiencing a wildland fire due to the extensive forestland present in the community and the current trend towards rural home site development. As this trend continues, pressure will increase on fire protection services and require improved infrastructure and education. The age of the surrounding timber stands can be a factor in determining whether a non-threatening ground fire will spread to the canopy and become a dangerous crown fire. Clearings and fuel breaks will disrupt a slow moving wildfire enabling successful suppression. During a fast moving wildfire situation, evacuation of people and containment of the fire are the priorities.

Agricultural and ranching activities throughout the area increase the risk of a man-caused wildfire spreading to forested areas. Large expanses of fallow fields or non-annual cash crops provide areas of continuous fuels that have potential to threaten several homes and farmsteads. Under extreme weather conditions, escaped agricultural fires could threaten individual homes or a town site; however, this type of fire is usually quickly controlled. High winds increase the rate of fire spread and intensity of fires. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners can maintain an adequate defensible space around structures by watering their yards, clearing brush, and mowing grass and weeds.

4.6.4.6 Mitigation Activities

As with all other communities, constructing a defensible space around homes, businesses, and other structures is one of the most effective ways to protect them from wildfire. In the forested areas of the Banks SPA, this will include constructing a defensible space around structures and along access routes, pruning and thinning trees, mowing and removing weeds and other vegetation, and moving flammable items such as propane tanks and wood piles a safe distance away. Maintaining a clean and green yard around home sites is an effective fire mitigation measure. Additionally, using fire resistant siding, decking, and roofing will help reduce the ignitability of structures.

Most of the forest routes in the SPA have moderate to high fire risk due to continuous fuels along the roadway. In the event of a wildland fire, it is likely that one or more of the escape routes would become impassable. Signing of unrestricted alternate routes would reduce confusion and save time in a wildfire situation.

Roads and driveways accessing rural residential areas may or may not have adequate road widths for firefighting equipment depending on when the residences were constructed. Oregon Fire Code, which Washington County has also adopted, now requires compliance with minimum guidelines for access when building new developments. Construction prior to code adoption did not require minimum road widths.

Designing a plan to help firefighters control fires in fallow fields and on agricultural lands that lie adjacent to forest and riparian areas would significantly lessen the fire danger to communities. Mitigation associated with this type of fire might include plowing a fire resistant buffer zone around fields and along pre-designated areas to tie into existing natural or manmade barriers or implementing a prescribed burning regime.

Roads and rail lines can be made more fire resistant by frequently mowing along the edges to reduce the fuels or planting more fire resistant grasses in these highly prone areas. Aggressive initial attack on fires occurring along travel routes will help ensure these ignitions do not spread to nearby home sites.

Maintaining developed water drafting sites and mapping alternative water resources such as underground tanks will increase the effectiveness and efficiency of emergency response in a wildfire situation.

4.6.5 Cochran Strategic Planning Area

The Cochran Strategic Planning Area (SPA) lies in the far northwest corner of Washington County, bordered on the north by Clatsop and Columbia Counties and on the west by Tillamook County. Lying on the eastern slope of the Coast Range, the community is exclusively commercial timberlands owned by private industrial timber companies, non-industrial private timberland owners and the Oregon Department of Forestry. The large private timber companies

include Longview Fiber, Stimson Lumber Co., and Mid-Valley Resources Inc. There are no towns and very few if any, rural residential home sites in the community. The area identified on maps called Cochran is a railroad siding/road intersection and log loading area owned by Port of Tillamook Bay Railroad. The western portion of this community was completely burned over in the 1933 Tillamook Fire

4.6.5.1 Fire Potential

Fuels in the Cochran SPA consist of mixed conifer and deciduous forest on moderate to steep terrain indicating a high wildfire potential under dry conditions. Large expanses of the forest are old second growth forests containing mature timber in the more actively managed areas. The timber is a mosaic of even-aged patches created by clear-cutting followed by planting. This is the most common harvest regeneration method practiced in the region. It creates a situation in the younger stands where there are mixed ground fuels associated with low-lying branches in the overstory, increasing the potential for a ground fire to easily escape to the canopy with little effort. In the older, more mature timber stands, shade has played a role in the stands' development. The understory vegetation and lower branches are reduced due to the lack of available light, thus reducing the ground vegetation and lower ladder fuels and reducing the ease with which a ground fire can move into the canopy. Slash generated from timber harvest is often piled after logging and burned in the wet season or, in some cases, burned off with a prescribed broadcast burn.

4.6.5.2 Ingress-Egress

Primary access routes through the Cochran SPA include Highway 26, State Route 6, Standard Grade Road, and Cochran Road. Highway 26, a paved two-lane highway, passes through the far north end of the community. State Route 6 (Wilson River Highway), also a paved two-lane highway, passes through the southern end of the SPA. Both highways are main roads through the Coast Range to the Oregon Coast. Standard Grade Road is a main access forest road through the west side of the SPA and meets Cochran Road on the north side of the SPA boundary near the Cochran Port of Tillamook Bay Railroad siding. There are numerous logging roads that lead off of these primary and secondary access roads to provide good access throughout the SPA.

4.6.5.3 Infrastructure

There is very little developed infrastructure in the Cochran SPA other than access routes listed above and the Port of Tillamook Bay rail line that closely parallels Cochran Road. There are a number of streams located throughout the SPA that have good road access for water handling equipment.

A high voltage transmission line passes through the south side of this SPA. The line's route is through dense forestland, which during a wildfire situation could be affected, causing a major power outage to surrounding areas. Above ground public transmission lines crisscross the SPA. Most travel along roads and highways. Power and phone service into forested areas are both above and below ground. Power and communications could be interrupted to some of these areas in a wildfire situation.

4.6.5.4 Fire Protection

The Cochran SPA is predominantly managed forest land with a significant percentage of the area under State ownership. Fire protection falls primarily under the jurisdiction of the Oregon

Department of Forestry. In addition to ODF protection, nearby fire districts assist ODF in extinguishing wildfires in this area through mutual aid agreements.

4.6.5.5 Risk Assessment

The Cochran SPA is at a high risk of wildfire under a high fire danger situation, due solely to the vast amount of forest fuels present in the area. The primary concern is a small fire growing into a larger conflagration. As was seen in the nearby Tillamook Fire of 1933, the potential for a massive wildfire is present given the right circumstances. Forest management provides opportunity for improvement of the wildfire situation by designing harvest areas and roads that will break up fuel continuity, and reduce stocking that will help keep ground fires from moving into the timber canopy and creating an intense crown fire. Forest management can increase the wildfire potential by creating excessive fuel loads during logging and thinning, by increasing the presence of ladder fuels through even aged management, and by starting fires with logging equipment and hold over fires from slash burning activities.

4.6.5.6 Mitigation Activities

Insuring that all campgrounds and other highly used areas are defensible by mowing and watering is one of the most effective forms of mitigation in recreational areas. Prevention signs outlining potential ignition sources and the consequences of wildfire can also be effective educational tools. Campfire use and firework restrictions can help reduce potential ignition sources. Limiting use of ATVs, motorcycles, and other off-road vehicles to designated roads and trails will also reduce the likelihood of an ignition from this type of source.

Under high fire danger conditions, wildfire in the Cochran SPA would most likely grow to a major conflagration. Under normal conditions, fire starts are easily extinguished. Mitigation activities that would be most beneficial should be directed toward enabling safe response and escape during a major wildfire situation. This would include fuels treatments along main access routes to allow firefighting equipment to enter the area unobstructed, and safe unobstructed escape in dangerous situations. Access routes should be clearly marked indicating the direction to safety zones. Ponds and water impoundments should be developed and clearly mapped for fire services and helicopter operations.

4.6.6 Cornelius Strategic Planning Area

The Cornelius Strategic Planning Area (SPA) lies in the center of Washington County. The terrain is mostly flat on the north and rises sharply to the Chehalem Mountains in the south. The city of Cornelius is located here and is the only city in the SPA. Except for the urban area, the SPA is mostly agricultural, with areas of industrial and non-industrial forestland to the south. Land ownership is predominantly privately held with a small amount owned by city government and Metro Parks. The Cornelius SPA is a plaid of agricultural fields, small farmsteads, large acreage home sites, scattered small home sites, open space, and riparian areas. In every direction, nursery stock plantations, orchards, vineyards, and occluded stands of trees can be seen. Meandering through the SPA and bordering the city are stream channels and riparian areas lined with woodlands containing dense accumulations of grass, shrubs, and timber. Many of these riparian woodlands abut structures and subdivisions. Metro Parks manages two large open space parks next to the city of Cornelius. These heavily wooded riparian areas lie adjacent to residential and industrial areas.

In the more heavily timbered areas to the south, many home sites and small farmsteads have been built in the forested areas along timbered forest routes; some with one-way in, one-way out roads. These structures lie adjacent to or mingle with wildland fuels.

4.6.6.1 Fire Potential

The wildfire potential in the Cornelius SPA is relatively low throughout the agricultural areas and high to extremely high in the forested areas and along the wooded riparian areas and open space parks. The agricultural areas for the most part have discontinuous and seasonal fuel patterns. Crops such as hay, wheat, and alfalfa would be considered wildland fuels for a short time during the year. Once mowed or plowed, the risk of these fuels carrying a wildfire is fairly low. During the dry season, while grain crops and grasses are curing, wildfires can occur, threatening structures and potentially escaping into wooded areas causing a more serious problem. Fires burning in some types of unharvested fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels. Fallow agricultural fields burn very intensely due to an increased amount of fuel build-up from previous year's dead grasses. Larger flame lengths and intense heat make fires in these fields difficult to control. Fuels such as nursery stock, vineyards, and orchards would be considered wildland fuels year round, but their physical layout and management places them at low risk even during extreme fire weather. Agricultural and riparian lands lying next to forested lands are a concern. Depending on the time of year, slope and weather, grasses, brush, and agricultural fuels can ignite more easily and have the potential to move a non-threatening ground fire into the forest creating a wildland fire.

4.6.6.2 Ingress-Egress

The Cornelius SPA is accessed east and west by State Route 8 (Tualatin Valley Highway). This is a major highway that passes through the city of Cornelius. There are many access routes running north and south through the SPA; all are paved two-lane roads through the agricultural backcountry. Roads within the timbered areas near the Fern Hill Estates area on the south side of the SPA are limited to a few narrow arterial roads. The main routes include Winters Road, Gnos Road, and Herger Road. There are also a multitude of paved and graveled secondary roads that crisscross the timbered areas. Many are deadend, timber covered lanes leading to home sites or logging units.

4.6.6.3 Infrastructure

Residents within the city limits of Cornelius have access to a municipal water system. Those outside the city limits and in unincorporated area typically rely on personal or multiple home well systems.

Above ground public transmission lines crisscross the community. Most travel along roads and highways. Power and phone service into forested areas are both above and below ground. Power and communications could be interrupted to some of these areas in a wildfire situation.

The Pacific and Western Railroad operates a rail line that passes through the Cornelius SPA. Trains on this line travel from Salem through Beaverton, Hillsboro, Cornelius, and terminates at the Stimson-Forestex Mill northwest of Gaston.

Logging roads provide good access throughout most of the commercial timberland area within the community, enabling adequate access for fire suppression equipment. These roads have been designed for logging trucks, and in general, will provide good access for larger fire equipment.

4.6.6.4 Fire Protection

The Cornelius Fire Department provides fire and rescue services to the Cornelius SPA. Mutual aid agreements supplement that service when needed. The Cornelius SPA is mostly agricultural and open space with areas of heavy timber and other wildland fuels. The main fire station is located in the city of Cornelius.

4.6.6.5 Risk Assessment

Wildfire risk in the agricultural and urban areas of the Cornelius SPA is low due primarily to the seasonal nature of the fuels present and their continuity. These areas do, however, have high potential to develop fire starts that could move into nearby woodlands, riparian areas, and forest. The forest areas within the community have a high risk for wildland fire due to the characteristics of the fuels present, and the increased trend in rural forest homesite development taking place. As this trend continues, it will put increased pressure on fire protection services and require improved infrastructure and education. The age of the surrounding timber stand can be a factor in determining whether a non-threatening ground fire will spread to the canopy and become a dangerous crown fire. Clearings and fuel breaks will disrupt a slow moving wildfire enabling successful suppression. During a fast moving wildfire situation, evacuation of people and containment of the fire are the priorities.

4.6.6.6 Mitigation Activities

As with all other Strategic Planning Areas, constructing a defensible space around homes, businesses, and other structures is one of the most effective ways to protect them from wildfire. In the forested lands of the Cornelius SPA, this will include constructing a defensible space around structures and along access routes, pruning and thinning trees, mowing and removing weeds and other vegetation, and moving flammable items such as propane tanks and wood piles a safe distance away. Maintaining a clean and green yard around home sites is also an effective fire mitigation measure. Additionally, using fire resistant siding, decking, and roofing will help reduce the ignitability of structures.

Most of the forest routes in the SPA are located in areas of moderate to high fire risk due to the close proximity of continuous fuels along the roadway. In the event of a wildland fire, it is likely that one or more of the escape routes would become impassable. Signing of unrestricted alternate escape routes would reduce confusion and save time in a wildfire situation.

Roads and driveways accessing rural residential areas may or may not have adequate road widths for fire fighting equipment depending on when the residences were constructed. Oregon Fire Code now requires compliance with minimum guidelines for access when constructing new development. Construction prior to code development did not necessarily require minimum standards for road widths.

Designing a plan to help firefighters control fires in fallow fields and on agricultural lands that lie adjacent to forest and riparian areas would significantly lessen the fire danger in the community. Mitigation associated with this type of fire might include plowing a fire resistant buffer zone around fields adjacent to forested areas and along pre-designed areas to tie into existing natural or manmade barriers or implementing a prescribed burning regime during less risky seasons of the year.

Roads and rail lines can be made more fire resistant by frequently mowing along the edges to reduce the fuels or planting more fire resistant grasses in these fire prone areas. Aggressive

initial attack on fires occurring along travel routes will help insure that these ignitions do not spread to nearby home sites.

Maintaining developed water drafting sites and mapping alternative water resources such as underground tanks near the heavily populated areas will increase the effectiveness and efficiency of emergency response in a wildfire situation.

4.6.7 Forest Grove Strategic Planning Area

The Forest Grove Strategic Planning Area (SPA) lies in the center of Washington County. The city of Forest Grove, and communities of Roy, Glenwood, Gales Creek, Verboort, and Dilley are located in this SPA. The SPA is approximately 40% commercial forestland and 60% urban and agricultural land. Land ownership includes industrial and non-industrial private forest, state-owned forest, private agricultural, city-owned land, and Metro Parks. The central and eastern portion of the SPA along the Gales Creek and West Fork Dairy Creek drainages is agricultural land mixed with meandering stream channels and scattered forest parcels. The west and far northwest portion of the SPA is all forestland. This SPA has a significant urban interface. Many residences have been built in the forested areas along timbered forest routes, some with one-way in, one-way out roads. These structures lie adjacent to or mingle with wildland fuels.

4.6.7.1 Fire Potential

The wildland fuels in the Forest Grove SPA consist primarily of mixed conifer and deciduous forest as well as agricultural development, riparian areas, and pasture. The topography is rolling to steep in the mountain areas and flat to gently rolling in the river valleys and bottomland. In the forested area, the timber is a patchwork of age classes created from timber harvest and reforestation. Clear-cutting followed by planting is the most common harvest regeneration method practiced in the region. Slash generated from timber harvest is often piled after logging and burned in the wet season after it has cured for an appropriate length of time. Large expanses of the forest are even-aged due to the reforestation practices commonly used. This creates a situation in the younger stands where there are mixed ground fuels associated with low-lying branches in the overstory, increasing the potential for a ground fire to climb into the canopy with little effort. In the older, more mature timber stands, shade has played a role in the stands' development. The understory vegetation and lower branches are reduced due to the lack of available light, thus reducing the ground vegetation and lower ladder fuels and reducing the ease with which a ground fire can move into the canopy.

Throughout the forest areas, especially near the main roads and river bottoms, openings have been cut out of the forest for development of farmsteads and home sites. Small land clearings for pasture development as well as for cash crops and open space and orchards are common. Unlike clear-cut and planting, the openings most often remain as openings rather than regenerated forests as would be the case in the commercial forest. This situation is both good and a cause for concern. On the good side, the wildland fuels are discontinuous, creating many fuel breaks, which can slow a fast moving wildfire and ease suppression efforts. The concern is that with more development adjacent to wildland fuels, the fire potential increases due to increased human activity. Road names and signs and rural identification address numbers are generally present at road intersections and driveways. For the most part, bridges are adequately signed with weight ratings.

On the eastern part of the SPA and along the Gales Creek and West Fork Dairy Creek drainages, agriculture and ranching is more developed and continuous. These activities dominate the landscape resulting in a discontinuous fuel pattern. A majority of the crops found in the bottomlands are seasonal, especially the grain crops and hay since they are mowed or

plowed regularly. Agricultural and riparian lands lying next to forested lands are a concern. Depending on the time of year, slope and weather, grasses, brush, and agricultural fuels can ignite more easily and have the potential to move a ground fire into the forest and create a wildland fire during times when forest fire risk is low. A wind-driven fire in the agricultural fuels and dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. Fires burning in some types of unharvested fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels. Fallow agricultural fields burn very intensely due to an increased amount of fuel build-up from previous year's dead grasses. Larger flame lengths and intense heat make fires in these fields difficult to control. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing fire. If the fields are adjacent to timber or wooded riparian areas, things can get quickly out of hand.

4.6.7.2 Ingress-Egress

Primary ingress and egress routes in the Forest Grove Community include State Route 47 that runs north and south through the SPA, State Route 6 which crosses the northern end of the SPA, and State Route 8 (Tualatin Valley Highway), which runs east and west linking the cities of Forest Grove, Cornelius, and Hillsboro with the Portland metro area. Gales Creek Road is a secondary ingress-egress route that travels northwest out of Forest Grove along Gales Creek.

4.6.7.3 Infrastructure

Residents within the city of Forest Grove have access to a municipal water system. The communities of Roy, Glenwood, Gales Creek, Verboort, Dilley, and other unincorporated communities do not have municipal water systems and rely on personal or multiple home well systems. There are a limited number of fire hydrants in the Gales Creek and Dilly area that supplement water capabilities for fire fighting in those areas. The Tualatin Valley Irrigation District, which covers a major portion of Washington County, has water outlets distributed throughout the area which is another potential water source for fire fighting.

Logging roads provide good access throughout most of the timberland areas within the SPA, enabling adequate access for fire suppression equipment. These roads have been designed for logging trucks, and in general, will provide good access for larger fire equipment.

The Portland and Western Railroad operates a rail line that passes through the Forest Grove SPA. Trains on this line travel from Portland through Bowers Junction, and Banks, through the city of Forest Grove, to the Stimson-Forestex Mill northwest of Gaston.

Two major transmission lines pass through this SPA. One route along the Gales Creek drainage passes through intermittent areas of heavy forest and agricultural land. A second route on the northwest side of the SPA travels west along Highline Road through heavily forested land. During a wildfire situation in the forested areas, a major power outage is possible. Other above ground public transmission lines crisscross the SPA along roads and highways. Power and phone service into forested areas are both above and below ground. Power and communications could be interrupted to some of these areas in a wildfire situation delaying emergency services.

4.6.7.4 Fire Protection

Forest Grove Fire and Rescue provides both structural and wildland fire protection to the Forest Grove SPA. Mutual aid agreements supplement that service when needed. The main fire

station is located in the city of Forest Grove with a substation in the Gales Creek area on NW Old Wilson River Rd. The Oregon Department of Forestry also responds to wildfires in this area.

4.6.7.5 Risk Assessment

Residents within the Forest Grove SPA have a high risk of experiencing a wildland fire due to the extensive forestland present in the SPA, and the current trend in extensive rural forest home site development taking place. This is especially evident in new and existing development in the Soda Springs area, and the foothills along Gales Creek. As this trend continues, it will put increased pressure on fire protection services and require improved infrastructure and education. The age of the surrounding timber stand can be a factor in determining whether a non-threatening ground fire will spread to the canopy and become a dangerous crown fire. Clearings and fuel breaks will disrupt a slow moving wildfire enabling successful suppression. During a fast moving wildfire situation, evacuation of people and containment of the fire are the priorities.

Agricultural activities throughout the area have the potential to increase the risk of a man-caused wildfire spreading to the forested areas. Large expanses of fallow fields or non-annual cash crops provide areas of continuous fuels that have potential to threaten several homes and farmsteads in a wildfire situation. Under extreme weather conditions, escaped agricultural fires could potentially threaten individual homes or a town site; however, this type of fire is usually quickly controlled. High winds increase the rate of fire spread and intensity of rangeland fires. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners can maintain an adequate defensible space around structures by watering their yards, clearing brush, and mowing grass and weeds.

4.6.7.6 Mitigation Activities

As with all other Strategic Planning Areas, constructing a defensible space around homes, businesses, and other structures is one of the most effective ways to protect them from wildfire. In the forested lands of the Forest Grove SPA, this will include constructing a defensible space around structures and along access routes, pruning and thinning trees, mowing and removing weeds and other vegetation, and moving flammable items such as propane tanks and wood piles a safe distance away. Maintaining a clean and green yard around home sites is also an effective fire mitigation measure. Additionally, using fire resistant siding, decking, and roofing will help reduce the ignitability of structures.

Most of the forest routes in the SPA are located in areas of moderate to high fire risk due to the close proximity of continuous fuels along the roadway. In the event of a wildland fire, it is likely that one or more of the escape routes would become impassable. Signing of unrestricted alternate escape routes would reduce confusion and save time in a wildfire situation.

Roads and driveways accessing rural residential areas may or may not have adequate road widths for fire fighting equipment depending on when the residences were constructed. Oregon Fire Code requires compliance with minimum guidelines for access when constructing new development. Construction prior to code development did not necessarily require minimum standards for road widths.

Designing a plan to help firefighters control fires in fallow fields and on agricultural lands that lie adjacent to forest and riparian areas would significantly lessen the fire danger to the SPA. Mitigation associated with this type of fire might include plowing a fire resistant buffer zone around fields and along pre-designed areas to tie into existing natural or manmade barriers or implementing a prescribed burning regime during less risky seasons of the year.

Roads and rail lines can be made more fire resistant by frequently mowing along the edges to reduce the fuels or planting more fire resistant grasses in these highly fire prone areas. Aggressive initial attack on fires occurring along travel routes will help ensure these ignitions do not spread to nearby home sites.

Maintaining developed water drafting sites and mapping alternative water resources such as underground tanks near the heavily populated areas will increase the effectiveness and efficiency of emergency response in a wildfire situation.

4.6.8 Gaston Strategic Planning Area

The Gaston Strategic Planning Area (SPA) lies in the southwest portion of Washington County, bordered on the south by Yamhill County. The city of Gaston and the communities of Laurelwood and Cherry Grove are located in this SPA. Gaston is a heavily timbered community with over 50% of the area covered with commercial timberland. Land ownership includes industrial and non-industrial private forest, forest industry, county parks, and private agricultural. Agricultural and meandering riparian land occupies most of the Tualatin River Valley and its tributaries of Hill, Blackjack, and Scoggins Creeks. Many residences have been built in the forested areas surrounding Henry Hagg Lake, Cherry Grove, and Laurelwood. Many of the residences built in the forest are located along forest routes that have issues with emergency access, escape, and proximity to wildland fuels.

4.6.8.1 Fire Potential

Wildland fuels in the Gaston SPA consist primarily of mixed conifer and deciduous forests as well as agricultural developments, riparian areas, and pastures. The topography is rolling to steep in the mountain areas and flat to gently rolling in the river valleys and bottomland. In the forested area, the timber is a patchwork of age classes created from timber harvest and reforestation. Clear-cutting followed by planting is the most common harvest regeneration method practiced in the region. Slash generated from timber harvest is often piled after logging and burned in the wet season after it has cured for an appropriate length of time. Large expanses of the forest are even-aged due to the reforestation practices commonly used. This creates a situation in the younger stands where there are mixed ground fuels associated with low-lying branches in the overstory, increasing the potential for a ground fire to climb into the canopy with little effort. In the older, more mature timber stands, shade has played a role in the stands' development. The understory vegetation and lower branches are reduced due to the lack of available light, thus reducing the ground vegetation and lower ladder fuels and reducing the ease with which a ground fire can move into the canopy.

Mixed throughout the forest area, especially near the main roads and towns, openings have been cut out of the forest for development of farmsteads and home sites. Small land clearings for pasture development as well as for cash crops and open space and orchards are common. Unlike clear-cut and planting, the openings most often remain as openings rather than regenerated forests as would be the case in the managed forest. This situation is both good and a cause for concern. On the good side, the forest is discontinuous in places, creating fuel breaks, which can slow a fast moving wildfire, easing suppression efforts. The concern is that with more development adjacent to wildland fuels, the fire potential increases due to increased human activity. Road names, signs, and rural identification address numbers are generally present at road intersections and driveways. For the most part, bridges are adequately signed with weight ratings.

Henry Hagg Lake and Scoggins Valley Park are popular recreation areas in the Gaston SPA. Located on Scoggins Creek on the northwest side of the SPA, the area sees intense day use

from the spring through late fall. Picnic and day use facilities are developed throughout the park area adjoining wildland fuels.

A large lumber mill owned by the Stimson Lumber Company lies below Scoggins Dam and Henry Hagg Lake. The mill, its facilities, and log yard are located directly adjacent to wildland fuels. Fires are reported in the mills log decks, chip piles, and facilities annually.

In the Tualatin River Valley and its tributaries of Hill, Blackjack, and Scoggins creeks, agriculture and ranching dominate the landscape creating a discontinuous wildland fuels pattern. Meandering through most of this area are wooded stream channels and riparian areas. A majority of the crops found in the agricultural areas are seasonal, especially the grain crops and hay, since they are mowed or plowed regularly. Agricultural and riparian lands lying next to forested lands are a concern in this area. Depending on the time of year, slope and weather, grasses, brush, and agricultural fuels can ignite with little difficulty and have the potential to move a ground fire into the forest creating a wildland fire. A wind-driven fire in the agricultural fuels and dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. Fires burning in some types of unharvested fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels. Fallow agricultural fields burn very intensely due to an increased amount of fuel build up from previous year's dead grasses. Larger flame lengths and intense heat make fires in these fuel types difficult to control. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing fire. If the fields are adjacent to timber or wooded riparian areas, things can get quickly out of hand.

4.6.8.2 Ingress-Egress

The primary ingress and egress route in the Gaston SPA is Highway 47, which runs north and south through the eastern side of the SPA. Secondary ingress and egress includes Scoggins Valley Road and North Shore Drive, the primary access roads around Henry Hagg Lake and the residences in that area, and Patton Valley Road, which is the main road to Cherry Grove, a small community on the west side of the SPA. There are also a multitude of paved and graveled secondary roads that crisscross the timbered areas. Many are deadend timber covered lanes leading to home sites or logging units.

4.6.8.3 Infrastructure

Residents within the city of Gaston have access to a municipal water system. Those outside the city limits typically rely on personal or multiple home well systems.

Logging roads provide good access throughout most of the timberland areas within the community, enabling adequate access for fire suppression equipment. These roads have been designed for logging trucks, and in general, will provide good access for larger fire equipment.

The Portland and Western Railroad operates a rail line that passes through the Gaston SPA en route from Hillsboro to the Stimson Lumber Mill northwest of Gaston.

Above ground public transmission lines crisscross the community. Most travel along roads and highways. Power and phone service into forested areas are both above and below ground. Power and communications could be interrupted to some of these areas in a wildfire situation.

4.6.8.4 Fire Protection

The Gaston Rural Fire Protection District provides fire protection to the Gaston SPA. Gaston RFPD is a mostly volunteer fire department. Mutual aid agreements supplement that service

when needed. The Gaston SPA has a significant amount of timberland and wildland fuels. Wildfires that occur in these areas are handled by the Oregon Department of Forestry.

4.6.8.5 Risk Assessment

Residents within the Gaston SPA have a high risk of experiencing a wildland fire due to the extensive forestland present in the community and the current trend in extensive rural forest home site development taking place. As this trend continues, it will put increased pressure on fire protection services and require improved infrastructure and education. The age of the surrounding timber stand can be a factor in determining whether a non-threatening ground fire will spread to the canopy and become a dangerous crown fire. Clearings and fuel breaks will disrupt a slow moving wildfire enabling successful suppression. During a fast moving wildfire situation, evacuation of people and containment of the fire are the priorities.

Agricultural activities throughout the area have the potential to increase the risk of a man-caused wildfire spreading to the forested areas. Large expanses of fallow fields or non-annual cash crops provide areas of continuous fuels that have potential to threaten several homes and farmsteads in a wildfire situation. Under extreme weather conditions, escaped agricultural or open range fires could potentially threaten individual homes or a townsite; however, this type of fire is usually quickly controlled. High winds increase the rate of fire spread and intensity of fires. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners can maintain an adequate defensible space around structures by watering their yards, clearing brush, or mowing grass and weeds.

4.6.8.6 Mitigation Activities

Insuring that all campgrounds and other highly used areas are defensible by mowing and watering is one of the most effective forms of mitigation in recreational areas. Prevention signs outlining potential ignition sources and the consequences of wildfire can also be effective educational tools. Campfire use and firework restrictions can help reduce potential ignition sources. Limiting use of ATVs, motorcycles, and other off-road vehicles to designated roads and trails will also help reduce the likelihood of an ignition from this type of source.

Requiring adequate fuel mitigation areas around log yards at the Stimson Mill and stationing firefighting equipment at strategic locations to extinguish or hold log deck fires until emergency services arrive will not only reduce the risk of ignitions, but will also reduce the risk of an accidental ignition spreading to nearby forestlands.

As with all other Strategic Planning Areas, constructing a defensible space around homes, businesses, and other structures is one of the most effective ways to protect them from wildfire. In the forested lands of the Gaston SPA, this should include constructing a defensible space around structures and along access routes, pruning and thinning trees, mowing and removing weeds and other vegetation, and moving flammable items such as propane tanks and wood piles a safe distance away. Maintaining a clean and green yard around home sites is also an effective fire mitigation measure. Additionally, using fire resistant siding, decking, and roofing will help reduce the ignitability of the structures.

Most of the forest routes in the SPA are located in areas of moderate to high fire risk due to the close proximity of continuous fuels along the roadway. In the event of a wildland fire, it is likely that one or more of the escape routes would become impassable. Signing of unrestricted alternate escape routes would reduce confusion and save time in a wildfire situation.

4.6.9 Hillsboro Strategic Planning Area

The Hillsboro Strategic Planning Area (SPA) lies in the east central portion of Washington County and includes the city of Hillsboro. Overall, the Hillsboro SPA is a high-density urban area with very few wildland fuels. The terrain is mostly flat except for depressions along stream courses. Land ownership is predominantly private with a small amount owned by city government, port authority, and Metro Parks. Meandering through the SPA are stream channels and riparian areas lined with woodlands containing dense accumulations of grass, shrubs and timber creating multiple areas of occluded fuels. Many of these riparian woodlands abut up against structures and subdivisions.

4.6.9.1 Fire Potential

The wildfire potential in the Hillsboro SPA is relatively low. Riparian areas and occluded woodland parks and open space have a heavy accumulation of “wildland” fuels. These woodland areas intermingle in places with extensive urban residential and industrial development. Due to the presence of many watchful eyes, and rapid response of fire fighting equipment, a wildfire would be quickly detected and extinguished under normal conditions. However, due to the nature of the fuels in these areas, under extreme fire conditions and with high winds, a large number of homes and lives adjacent to the fuels could be at risk.

4.6.9.2 Ingress-Egress

Primary ingress-egress routes in the Hillsboro SPA include State Route 8 (Tualatin Valley Highway) and Highway 26 (Sunset Highway). Secondary routes include Cornell Road, Glencoe Road, Cornelius Pass Road, and State Route 219 (Hillsboro Highway). State Route 8 is a major four-lane highway that passes through the south side of the SPA linking Hillsboro with Forest Grove and the Beaverton area. Highway 26 travels across the northern side of the community. It is a major four-lane freeway accessing the Portland metro area on the east and the ocean beaches on the west. Cornell Road is a four-lane road running east out of the city, Glencoe road is a two-lane road running north out of the city, Cornelius Pass Road is a two to four-lane road running north-south through the eastern part of the area, and State Route 219 runs south out of Hillsboro. There are many other access routes running through the SPA, most of which are paved two-lane roads that typically become congested at various times during the day.

4.6.9.3 Infrastructure

Most residents within the Hillsboro SPA have access to a municipal water system. Those outside the immediate urban areas typically rely on personal or multiple home well systems.

The Pacific and Western Railroad operates a rail line that passes through the Hillsboro SPA. Trains on this line travel from Salem through Beaverton and Hillsboro, then terminates at the Stimson-Forestex Mill northwest of Gaston.

Above ground public transmission lines crisscross the SPA. Most travel along roads and highways. Power and phone service throughout the SPA is located both above and below ground.

4.6.9.4 Fire Protection

The Hillsboro Fire Department provides fire and rescue services to the Hillsboro SPA. Mutual aid agreements supplement that service when needed.

4.6.9.5 Risk Assessment

Wildfire risk in the Hillsboro SPA is low due primarily to the lack of wildland fuels. Scattered throughout the community, however, are pockets of occluded wildland fuels within the meandering stream channels, parks and open space areas. These areas have high wildland fire risk under extreme fire conditions. Due to the high density of people living next to these areas, there is a potential for high loss of life and property under extreme wildfire conditions.

4.6.9.6 Mitigation Activities

As with all Strategic Planning Areas, identifying the risk is the first step in prevention. Educating people residing in developed areas adjacent to urban parks and wooded stream courses on the existing wildfire potential would be a high priority. Areas of risk need to be identified and a defensible space developed around structures and along access routes to lessen the potential threat. Home and business owners in those areas should be required to prune and thin landscape and maintain a green zone around their structures. Owners of the land where the wildland fuels exist need to be contacted and assisted in reducing wildland fuels adjacent to their neighbors.

4.6.10 Scoggins Strategic Planning Area

The Scoggins Strategic Planning Area (SPA) lies in the far southwest corner of Washington County, bordered on the west by Tillamook County, and on the south by Yamhill County. Lying on the eastern slope of the Coast Range, the SPA includes extensive commercial timberlands owned by city government, private industrial timber companies, non-industrial private timberland owners, BLM (Oregon and California Lands), and the Oregon Department of Forestry. The large private timber companies include Stimson Lumber Co. and Weyerhaeuser. City ownership includes the cities of Hillsboro and Forest Grove for their municipal water supply. There are no towns and very few, if any, rural residential home sites in the SPA. The western portion of this SPA was completely burned over in the 1933 Tillamook Fire

4.6.10.1 Fire Potential

Fuel in the Scoggins SPA consists exclusively of mixed conifer and deciduous forest on moderate to steep terrain indicating a high wildfire potential under dry conditions. Large expanses of the timberlands are second growth containing mature timber. In the actively managed areas, the timber is a mosaic of even-aged patches created by clear-cutting followed by planting. This is the most common harvest regeneration method practiced in the SPA. It creates a situation in the younger stands where there are mixed ground fuels associated with low-lying branches in the overstory, increasing the potential for a ground fire to climb into the canopy with little effort. In the older, more mature timber stands, shade has played a role in the stands' development. The understory vegetation and lower branches are reduced due to the lack of available light, thus reducing the ground vegetation and lower ladder fuels and reducing the probability of a ground fire moving into the canopy. Slash generated from timber harvest is often piled after logging and burned in the wet season or in some cases burned off with a prescribed broadcast burn.

4.6.10.2 Ingress-Egress

The Scoggins SPA is commercial forestland with limited access over main haul-logging roads. Primary access through the southern half of the SPA is up Roaring Creek that leads west out of

Cherry Grove. Access to the northern parts of the SPA is by way of the Scoggins Valley and Henry Hagg Lake Road. There are numerous logging roads that lead off of these primary and secondary access roads to provide good access throughout the SPA.

4.6.10.3 Infrastructure

There is very little developed infrastructure in the Scoggins SPA other than the access routes listed above. There are a number of streams located throughout the SPA that have good road access for water handling equipment.

4.6.10.4 Fire Protection

The Scoggins SPA is comprised of predominantly managed forest land with a significant percentage of this area in state forest ownership. Fire protection falls primarily under the jurisdiction of the Oregon Department of Forestry. In addition to ODF protection, nearby fire districts assist the ODF in extinguishing wildfires in this area through mutual aid agreements.

4.6.10.5 Risk Assessment

The Scoggins SPA is at high risk of wildfire under a high fire danger situation, due solely to the vast amount of forest fuels present in the area. The primary concern is a small fire growing into a larger conflagration. As was seen in the nearby Tillamook fire of 1933, the potential for a massive wildfire is present given the right circumstances. Forest management provides an opportunity for improvement of the wildfire situation by designing harvest areas and roads that will break up fuel continuity, and reduce tree stocking that will help reduce ground fires from moving into the timber canopy and creating an intense crown fire. Forest management can increase the wildfire potential by creating excessive fuel loads during logging and thinning, by increasing the presence of ladder fuels through even-aged management, by starting fires with logging equipment, and by hold over fires from slash burning activities.

4.6.10.6 Mitigation Activities

Under high fire danger conditions, wildfire in the Scoggins SPA would most likely grow to a major conflagration. Under normal conditions, fire starts are easily extinguished. Mitigation activities that would be most beneficial should be directed toward enabling safe response and escape during a major wildfire situation. This would include fuels treatments along main access routes to allow firefighting equipment to enter the area unobstructed, and safe unobstructed escape in dangerous situations. Access routes should be clearly marked indicating the direction to safety zones. Ponds and water impoundments should be developed and clearly mapped for fire service and helicopter operations.

Insuring that all campgrounds and other highly used areas are defensible by mowing and watering is one of the most effective forms of mitigation in recreational areas. Prevention signs outlining potential ignition sources and the consequences of wildfire also can be effective educational tools. Campfire use and firework restrictions can help reduce potential ignition sources. Limiting use of ATVs, motorcycles, and other off-road vehicles to designated roads and trails will also help reduce the likelihood of an ignition from this type of source.

4.6.11 Tualatin Valley Strategic Planning Area

The Tualatin Valley Strategic Planning Area (SPA), lies on the east side of Washington County and is bordered on the east by Clackamas and Multnomah Counties, and on the southeast by

Yamhill County. The Tualatin Valley SPA includes the cities of Beaverton, Durham, Sherwood, Tigard, and Tualatin and the communities of Aloha, Garden Home, Reedville, Six Corners, and Metzger. Overall, the Tualatin Valley SPA is a high-density urban area with some agriculture and occluded woodlands. The terrain is mostly flat to rolling with prominent highlands in the north, central and southern part of the SPA. The land ownership is primarily private with a small amount owned by city and county government, utilities, Tualatin Hills Park and Rec, and Metro Parks. Many of the occluded woodlands abut structures and subdivisions.

4.6.11.1 Fire Potential

The wildfire potential in the Tualatin Valley SPA is relatively low. The occluded woodlands, parks and open space have a heavy accumulation of “wildland” fuels. These woodland areas intermingle in places with extensive urban residential and industrial development. Due to the presence of many watchful eyes, and rapid response of firefighting equipment, a wildfire in the occluded woodlands or parks would be quickly detected and extinguished under normal conditions. However, due to the nature of the fuels in these areas, and under extreme fire conditions with high winds, a large number of homes and lives adjacent to the fuels could be at risk.

4.6.11.2 Ingress-Egress

Primary ingress-egress routes in the Tualatin Valley SPA includes State Route 8 (Tualatin Valley Highway), State Route 10 (Beaverton Hillsdale Highway/Farmington Road), State Route 210 (Scholls Ferry Road), Tualatin-Sherwood Road, and Highway 26 (Sunset Highway) which run east and west. State Route 99W runs through the south central part of the SPA and State Route 217 runs through the central part of the SPA. Interstate 5 runs through the far southeast corner of the SPA. There are many other access routes; all are paved, two-lane roads usually congested at various times during the day.

The Pacific and Western Railroad operate a rail line that passes through the Cornelius SPA. Trains on this line travel from Salem through Beaverton, Hillsboro, Cornelius, and terminates in the Stimson-Forestex Mill northwest of Gaston.

4.6.11.3 Infrastructure

Most residents within city limits and in unincorporated areas of the SPA have access to a municipal water system. Those without service from a municipal systems typically rely on personal or multiple home well systems.

Above ground public transmission lines crisscross the SPA. Most transmission lines travel along roads and highways. Power and phone service throughout the SPA is located both above and below ground.

The Pacific and Western Railroad operates several rail lines passing through the Tualatin Valley SPA. Trains on these lines travel through Sherwood, Tualatin, and Beaverton on their way to the Stimson-Forestex Mill northwest of Gaston.

4.6.11.4 Fire Protection

Tualatin Valley Fire and Rescue provides fire and rescue services to the Tualatin Valley SPA as well as areas outside the county. Mutual aid agreements supplement that service when needed.

4.6.11.5 Risk Assessment

Wildfire risk in the urban portions of the Tualatin Valley SPA is low due to the lack of wildland fuels in the cities. However, scattered throughout the SPA, are pockets of occluded wildland fuels, wooded highlands, parks and open space areas with high wildland fire potential. These areas include the Bull Mountain, Cooper Mountain and Parrett Mountain areas and parks as well as open space and developed waterways maintained by Metro Parks, the Tualatin Hills Park and Recreation District, and city park departments. In many of these areas, housing developments and industry abut wooded stream channels and large woodlots creating high wildland fire risk under extreme fire conditions. Due to the high density of people living next to these areas; there is a potential for high loss of life and property under extreme wildfire conditions.

4.6.11.6 Mitigation Activities

As with all Strategic Planning Areas, identifying the risk is the first step in prevention. Educating the people residing in developed areas adjacent to urban parks and wooded stream courses on the existing wildfire potential would be a high priority. Areas of risk need to be identified and a defensible space developed around structures and along access routes to lessen the potential threat. Home and business owners in those areas should be required to prune landscape plants and maintain a green zone around their structures. Wildland fuel owners need to be contacted, educated, encouraged, and assisted in reducing wildland fuels adjacent to their neighbors.

4.6.12 Tupper Ranch Strategic Planning Area

The Tupper Ranch Strategic Planning Area (SPA) lies in the far northeast corner of Washington County, bordered on the north by Columbia County, and on the east by Multnomah County. Lying on the western slope of the Tualatin Mountains, the SPA is predominantly comprised of commercial timberlands owned by city government, private industrial timber companies, non-industrial private timberland owners, BLM (Oregon and California Lands), and a small holding owned by the Oregon Department of Forestry. The large private timber companies include Longview Fiber and Stimson Lumber Co. There are no towns in the Tupper Ranch SPA, but there are a significant number of developed rural residential home sites and small acreage farmsteads along the main wooded drainages.

4.6.12.1 Fire Potential

Fuels in the Tupper Ranch SPA consist exclusively of mixed conifer and deciduous forests on moderate to steep terrain indicating a high wildfire potential under dry conditions. The timber is a mosaic of even-aged patches created by clear-cutting followed by planting. This is the most common harvest regeneration method practiced in the SPA. It creates a situation in the younger stands where there are mixed ground fuels associated with low lying branches in the overstory, increasing the potential for a ground fire to climb into the canopy with little effort. In the older, more mature timber stands, shade has played a role in the stands' development. The understory vegetation and lower branches are reduced due to the lack of available light, thus reducing the ground vegetation and lower ladder fuels and reducing the ease with which a ground fire can move into the canopy. Slash generated from timber harvest is often piled after logging and burned in the wet season or, in some cases, burned off with a prescribed broadcast burn.

4.6.12.2 Ingress-Egress

The Tupper Ranch SPA is comprised of commercial forestland with access provided by paved and gravel roads traveling up the major creek bottoms and ridgelines. Primary access is along the Dairy Creek Road, Fern Flat Road, Dixie Mountain Road, and Pumpkin Ridge Road. There are numerous logging roads that lead off of these main roads to provide good access throughout the community.

4.6.12.3 Infrastructure

There is very little developed infrastructure in the Tupper Ranch SPA other than the access routes listed above. There are a number of streams located throughout the SPA that have good road access for water handling equipment.

A major transmission line corridor passes through the northeastern side of the SPA.

The Pacific and Western Railroad operate a rail line that passes through the Tupper Ranch SPA. Trains on this line travel from Portland north into Columbia County to the north. Along this route, trains pass through a tunnel. This area tends to have a high occurrence of ignitions, which, if not responded to immediately, could spread into nearby forestlands.

4.6.12.4 Fire Protection

The Tupper Ranch SPA is predominantly managed forestland with a significant percentage of the area in BLM and industrial ownership. Fire protection falls primarily under the jurisdiction of the Oregon Department of Forestry. Nearby fire districts assist the ODF in extinguishing wildfires in this area through mutual aid agreements.

4.6.12.5 Risk Assessment

The Tupper Ranch SPA is at a high risk to wildfire under a high fire danger situation, due solely to the vast amount of forest fuels present in the area. The primary concern is a small fire growing into a larger conflagration. As was seen in the nearby Tillamook fire of 1933, the potential for a massive wildfire is present given the right circumstances. Forest management provides opportunity for improvement of the wildfire situation by designing harvest areas and roads that will break up fuel continuity, and reduce tree stocking that will help reduce the risk of ground fires moving into the timber canopy creating an intense crown fire. Forest management can increase the wildfire potential by creating excessive fuel loads during logging and thinning, by increasing the presence of ladder fuels through even-aged management, by starting fires with logging equipment, and by hold over fires from slash burning activities.

4.6.12.6 Mitigation Activities

Under high fire danger conditions, wildfire in the Tupper Ranch SPA would most likely grow to a major conflagration. Due to the remoteness of much of this SPA, it takes fire agencies and other resources longer to respond to calls. Mitigation activities that would be most beneficial should be directed toward enabling safe response and escape during a major wildfire situation. This would include fuels treatments along main access routes to allow firefighting equipment to enter the area unobstructed, and safe unobstructed escape in dangerous situations. Access routes should be clearly marked indicating the direction to safety zones. Ponds and water impoundments should be developed and clearly mapped for fire service and helicopter operations.

As with all other Strategic Planning Areas, constructing a defensible space around home sites and other structures is one of the most effective ways to protect them from wildfire. This would include constructing a defensible space around structures and along access routes, pruning and thinning trees, mowing and removing weeds and other vegetation, and moving flammable items such as propane tanks and wood piles a safe distance away. Maintaining a clean and green yard around home sites is an effective fire mitigation measure. Additionally, using fire resistant siding, decking, and roofing will help reduce the ignitability of structures.

Most of the forest routes in the SPA are located in areas of moderate to high fire risk due to the close proximity of continuous fuels along the roadway. In the event of a wildland fire, it is likely that one or more of the escape routes would become impassable. Signing of unrestricted alternate escape routes would reduce confusion and save time in a wildfire situation.

4.6.13 Washington Strategic Planning Area

The Washington Strategic Planning Areas (SPA) lies in the east central part of Washington County. The city of North Plains and the communities of Mountaindale, Farmington, Laurel, Midway, Scholls, and Laurel are located in this SPA. This central portion of the SPA is predominantly agricultural land with large areas of forested land to the north and south. Scattered throughout the SPA are wooded stream channels and woodland patches. The Hillsboro SPA lies in the very center of the Washington SPA almost dividing it in half. Land ownership is mostly private with a small portion owned by timber companies, BLM, county government, and Metro Parks. This SPA has a significant urban interface in the Bald Peak, Neugerbauer Road, and Jaquith Road areas on the south side of the SPA, and the Pumpkin Ridge, Dairy Creek, and Mason Hill Road areas on the north side of the community. Many residences have been built in the forest in these areas along timbered forest routes with marginal emergency access and defensible space. These structures lie adjacent to or mingle with wildland fuels.

4.6.13.1 Fire Potential

The wildfire potential in the Washington SPA is relatively low throughout the agricultural areas and high to extremely high in the forested areas and along the wooded riparian areas and open space parks. The agricultural areas for the most part have discontinuous and seasonal fuel patterns. Crops such as hay, wheat and alfalfa would be considered wildland fuels for a short time during the year. Once mowed or plowed, the risk of these fuels carrying a wildfire is fairly low. During the dry season while grain crops and grasses are curing, wildfires can occur, threatening structures and potentially escaping into wooded areas causing a more serious problem. Fires burning in some types of unharvested fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels. Fallow agricultural fields burn very intensely due to an increased amount of fuel build-up from previous year's dead grasses. Larger flame lengths and intense heat make fires in these fields difficult to control. Fuels such as nursery stock, vineyards and orchards would be considered wildland fuels year round, but their physical layout and management places them at low risk even during extreme fire weather. Agricultural and riparian lands lying next to forested lands are a concern. Depending on the time of year, slope and weather, grasses, brush and agricultural fuels can ignite more easily and have the potential to move a non-threatening ground fire into the forest creating a wildland fire

Forested areas in this SPA consist primarily of mixed conifer and deciduous trees on rolling to steep terrain. The timber is a patchwork of age classes created from timber harvest and reforestation. Clear-cutting followed by planting is the most common harvest regeneration

method practiced in the region. Slash generated from timber harvest is often piled after logging and burned in the wet season after it has cured for a few years. Large expanses of the forest are even-aged due to the reforestation practices commonly used. This creates a situation in the younger stands where there are mixed ground fuels associated with low-lying branches in the overstory, increasing the potential for a ground fire to easily escape to the canopy with little effort. In the older, more mature timber stands, shade has played a role in the stands' development. The understory vegetation and lower branches are reduced due to the lack of available light, thus reducing the ground vegetation and lower ladder fuels and reducing the ease with which a ground fire can move into the canopy.

Throughout the forest areas, especially near the main roads and river bottoms, openings have been cut out of the forest for development of farmsteads and rural home sites. Small land clearings for pasture development as well as for cash crops, open space, and orchards are common. Unlike clear-cut and planting, the openings most often remain as openings rather than regenerated forests as would be the case in the managed forest. This situation is both good and a cause for concern. On the good side, the forest is discontinuous, creating many fuel breaks, which can slow a fast moving wildfire, easing suppression efforts. The concern is that with more development adjacent to wildland fuels, the fire potential increases due to increased human activity. Road names and signs and rural identification address numbers are generally present at road intersections and driveways. For the most part, bridges are adequately signed with weight ratings.

4.6.13.2 Ingress-Egress

Primary ingress and egress routes in the Washington SPA include Highway 26 (Sunset Highway) passing through the northern part of the SPA, State Route 219 (Hillsboro Highway) passing through the southern part of the SPA from north to south, State Route 10 (Farmington Road) and State Route 8 (Tualatin Valley Highway) which runs east and west linking the cities of Forest Grove, Cornelius and Hillsboro with the Portland Metro area. Secondary access includes Dairy Creek, Pumpkin Ridge, and Jackson School Roads on the north, and State Route 10 (Farmington Road) and State Route 210 (Scholls Ferry Road) on the south.

4.6.13.3 Infrastructure

Residents within the city of North Plains and the community of Laurel has access to municipal water systems. Those outside these areas and in unincorporated areas typically rely on personal or multiple home well systems.

Logging roads provide good access throughout most of the timberland areas within the SPA, enabling adequate access for fire suppression equipment. These roads have been designed for log trucks, Portland and Western Railroad operates two rail lines that pass through the Washington SPA. The first crosses through the center of the SPA en route from Beaverton through Hillsboro and on to the Stimson mill near Gaston. The second line passes through the city of North Plains en route from Bowers Junction to Banks.

Above ground public transmission lines crisscross the SPA. Most travel along roads and highways. Power and phone service into forested areas are both above and below ground. Power and communications could be interrupted to some of these areas in a wildfire situation.

4.6.13.4 Fire Protection

Washington County Fire District No. 2 provides fire and rescue services to the Washington SPA.. Because of the outlying areas of responsibility, the District has mutual aid agreements

with the Oregon Department of Forestry, Tualatin Valley Fire & Rescue, Hillsboro Fire Department, Banks Fire District, Forest Grove Fire Department, Gaston Fire District, Newberg Fire Department, and Cornelius Fire Department.

4.6.13.5 Risk Assessment

The Washington SPA has been experiencing significant residential growth over the last several years and indications are that this trend will continue into the foreseeable future.

Water supply and access continues to be the main focus along with fire protection systems for new construction in “high risk” wildland urban interface areas. Access, water and indefensible ground covering involving existing structures are a problem in a large portion of this SPA.

Residents within the Bald Peak, Neugerbauer Road and Jaquith Road areas on the south side of the SPA, and the Pumpkin Ridge, Dairy Creek and Mason Hill Road areas on the north side of the SPA have a high risk of experiencing a wildland fire due to the extensive forestland present in many areas, and the current trend in extensive rural forest home site development taking place. As this trend continues, it will put increased pressure on fire protection services and a need for improved infrastructure and education. The age of the surrounding timber stand can be a factor in determining whether a non-threatening ground fire will spread to the canopy and become a dangerous crown fire. Clearings and fuel breaks will disrupt a slow moving wildfire enabling successful suppression. Under a fast moving wildfire situation, escape and containment is the priority.

Agricultural activities throughout the area have the potential to increase the risk of a human-caused wildfire spreading to the forested areas. Large expanses of fields or non-annual cash crops provide areas of continuous fuels that have potential to threaten several homes and farmsteads in a wildfire situation. Under extreme weather conditions, escaped agricultural or open range fires could potentially threaten individual homes or a townsite; however, this type of fire is usually quickly controlled. High winds increase the rate of fire spread and intensity of fires.

4.6.13.6 Mitigation Activities

As with all other Strategic Planning Areas, constructing a defensible space around homes, businesses, and other structures is one of the most effective ways to protect them from wildfire. In the forested areas of the Washington SPA, this will include constructing a defensible space around structures and along access routes, pruning and thinning trees, mowing and removing weeds and other vegetation, and moving flammable items such as propane tanks and wood piles a safe distance away. Maintaining a clean and green yard around home sites is also an effective fire mitigation measure. Additionally, using fire resistant siding, decking, and roofing will help reduce the ignitability of structures.

Most of the forest routes in the SPA are located in areas of moderate to high fire risk due to the close proximity of continuous fuels along the roadway. In the event of a wildland fire, it is likely that one or more of the escape routes would become impassable. Signing of unrestricted alternate escape routes would reduce confusion and save time in a wildfire situation.

Roads and driveways accessing rural residential areas may or may not have adequate road widths for fire fighting equipment depending on when the residences were constructed. Oregon Fire Code requires compliance with minimum guidelines for access when constructing new development. Construction prior to code development did not necessarily require minimum standards for road widths.

Designing a plan to help firefighters control fires in fallow fields and on agricultural lands that lie adjacent to forest and riparian areas would significantly lessen the fire danger to the SPA. Mitigation associated with this type of fire might include plowing a fire resistant buffer zone around fields and along pre-designed areas to tie into existing natural or manmade barriers or implementing a prescribed burning regime during less risky seasons of the year.

Roads and rail lines can be made more fire resistant by frequently mowing along the edges to reduce the fuels or planting more fire resistant grasses in these highly fire prone areas. Aggressive initial attack on fires occurring along travel routes will help insure these ignitions do not spread to nearby home sites.

Maintaining developed water drafting sites and mapping alternative water resources such as underground tanks near the heavily populated areas will increase the effectiveness and efficiency of emergency response in a wildfire situation.

4.7 Firefighting Resources and Capabilities

Fire agency personnel are often the first responders during emergencies. In addition to structural fire protection, they are called on during wildland fires, floods, landslides, and other events. There are many individuals in Washington County serving fire agencies in various capacities. The following is a summary of the agencies and their resources and capabilities. A map of the Washington County fire districts and department boundaries is presented in Appendix I.

4.7.1 Inter/Intra-County Mutual Aid Agreements

Large fire incidents can easily overwhelm the fire suppression capabilities of any firefighting agency and significantly degrade its ability to protect life and property. Recognizing that potential, the firefighting agencies of Washington County have entered into intra-county and inter-county mutual aid agreements to leverage support and share resources.

The 2005 Washington County Intra-County Mutual Aid Agreement involves the Cornelius Fire Department, Cornelius Rural Fire Protection District, Forest Grove Fire and Rescue, Forest Grove Rural Fire Protection District, Gaston Rural Fire Protection District, Hillsboro Fire Department, Banks Rural Fire Protection District, Tualatin Valley Fire and Rescue, Oregon Department of Forestry, and Washington County Fire District #2. The agreement commits the agencies to automatic assignment of their resources to large incidents, regardless of political jurisdiction. Automatic assignment is made according to the “closest available resource doctrine” formalized in the agreement. The agreement also commits the agencies to prepare for large scale emergencies or simultaneous emergencies requiring the utilization of multi-jurisdictional forces for containment, suppression, or mitigation in accordance with the articles outlined in the agreement. This mutual cooperation provides the most expedient and affordable service to the agencies’ respective communities.

The county’s firefighting agencies have also committed to resource sharing through inter-county mutual aid agreements between neighboring Fire Defense Boards. The Washington County Fire Defense Board has entered into such agreements with the Fire Defense Boards of Yamhill, Multnomah, and Columbia Counties, and with some agencies in Clackamas County. These agreements facilitate the sharing of equipment and personnel across county lines.

4.7.2 Statewide Fire Resource Mobilization

The Office of the Oregon State Fire Marshal assists and supports the Oregon fire services during major emergency operations through the Emergency Conflagration Act (ORS 476.510).

The Conflagration Act was developed in 1940 as a civil defense measure and can be invoked only by the Governor. Under the Act, local firefighting forces will be mobilized when the State Fire Marshal believes that a fire is causing, or may cause, undue jeopardy to life and/or property and the Act is invoked. State funding for use of the resources is provided when the Act is invoked.

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

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

4.7.3 Incident Management Teams

Tualatin Valley Fire and Rescue and the Hillsboro Fire Department have Overhead Teams that are available to assist other fire districts upon request. These teams include Command and General Staff personnel that can take command of an incident or provide assistance to an existing on-scene incident commander.

4.7.4 Authority for Fire Emergency Evacuations

The state of Oregon has an existing authority that would authorize state, county, or city police or fire officials to order the mandatory evacuation of an area due to an imminent threat of fire causing human health, death, or injury. If the Governor declares an emergency under ORS 401.055, the Governor may specifically order evacuation of persons from the area covered by the order. Under "home rule" provisions of the Oregon Constitution, local governments also may adopt specific ordinances ordering mandatory evacuation of an area in a fire emergency. Sheriff's or state or local police officers may carry out the Governor's orders or those authorized by local ordinances. Fire officials and firefighters would have authority to enforce the Governor's order or an emergency evacuation ordinance only if expressly authorized to do so by the order or ordinance.

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

4.7.5 Local Fire Department and District Summaries

The firefighting resources and capabilities information provided in this section is a summary of information provided by the fire chiefs or representatives of the wildland firefighting agencies listed. Each organization completed a survey with written responses. Their answers to a variety of questions are summarized here. These synopses indicate their perceptions and information summaries.

4.7.5.1 Gaston Rural Fire Protection District

Chief: Roger Mesenbrink
Telephone: 503-985-7575
Address: 102 E. Main St. Gaston, OR 97119

District Summary: Gaston RFD is 55 sq. miles. The District is responsible for responding to medical, car accidents, structural fire, and wildland fire calls. There are other miscellaneous calls that the district is responsible for. Gaston RFD is a combination district made up of four paid staff comprised of one chief, one administrative assistant, and two full time firefighters. The firefighters are on shift Monday-Friday from 0630-1830. There are twenty-five volunteers that make up the rest of the fire district personnel.

Priority Areas:

Residential Growth:

There has been moderate residential growth throughout the District. The District is experiencing growth in the outlying areas. There is talk of significant growth to take place in the city of Gaston next to the school.

Communications:

Communications throughout the district are pretty good. There are some communication issues during mutual aid calls with Yamhill County. In some rural forestland areas, it is sometimes necessary to switch radios, but the district is usually able to communicate with dispatch. Also, all agencies in Washington County use the same radio system.

Fire Fighting Vehicles:

At this time, the District has one brush rig in use. The brush rig is undersized for the purposes the District would like to use it for.

Burn Permit Regulations:

Throughout the seasonal burn ban, the District responds to several backyard burns. People generally use the excuse of not knowing the burn ban is in effect. Many of the fires the District responds to are started by people being careless.

Effective Mitigation Strategies: The fire district has adopted the Metro Fire codes. Builders receive the Metro Codes from the county upon their request for permits. These codes deal with access to structures, which is one of the primary problems in the area. The codes are used throughout the county, which helps keep all departments on the same page. The codes are also enforceable. It is more difficult to apply codes or other restrictions on existing structures. An effective mitigation strategy for reaching owners of existing structures is mailing them fact sheets highlighting access issues as well as other home defensible space issues.

Education and Training: Training is ongoing for the department. The district firefighters train every Monday. In addition to this training, the district is part of the Western Washington County Training Association. The Association offers many classes throughout the year. There is also a winter fire school offered one weekend a year at a local college.

Outside of district training, Gaston's firefighters occasionally drill with the surrounding departments. The District is also invited to attend classes and drills offered in Yamhill County. Conversely, Gaston RFD assists or teaches drills or academy subjects to Yamhill firefighters.

Cooperative Agreements: Gaston RFD typically responds to mutual aid calls with districts in western Washington County. The District also has a mutual aid agreement with the Oregon Department of Forestry.

Current Resources:

Station #1: Gaston

Table 4.12. Equipment List for Gaston Rural Fire Protection District.				
Year	Make	Model	Tank Capacity	Pump Capacity
1991	Ford	F-350 Brush Rig	300 gal	250 gpm
1993	Ford	Structural Engine	1000 gal	1250 gpm
1989	Ford	Tender	3000 gal	1250 gpm
1993	Spartan	Structural Engine	1000 gal	1250 gpm
1983	Ford	Structural Engine	1000 gal	1250 gpm

Future Considerations: There will always be changes in the District. The District's goal is to keep up with changing times to allow for the greatest amount of protection for the people. It is important to the District to stay current on all training to ensure the best service to the taxpayers. This requires retention of volunteers as well as recruitment. The growing population requires a growing force.

The District also participates in fire prevention training at local schools. It is important to get kids involved and allow them to learn and to see what we do. The more interaction the District has with children, the more they learn.

Needs:

Vehicles - The 1991 F-350 brush rig is in need of replacement. The brush rig is overweight for its purpose. The 1983 Ford Engine also needs replacement. It is outdated even with the numerous upgrades it has received.

Equipment - The District is in need of wildland fire protection clothing. Much of the District's current protection clothing does not meet the standard for conflagration. There is also need for items such as: new hand tools, medical supplies, training equipment, training aids such as projectors and DVD's, as well as other station equipment.

4.7.5.2 Washington County Fire District #2

Chief: Dennis England
 Phone: 503-647-9900
 e-Mail: C2-england@comcast.net
 Address: 31370 NW Commercial Street, North Plains, OR 97133

District Summary: Washington County Fire District No.2 is responsible for structure and wildland fire protection for 122 square miles in the center of Washington County, including the city of North Plains. There are two fire stations in the district. One station is located at the south end of the District in the Midway area. The other is located at the north end in the city of North Plains. It is a combination department with eight career and 45 volunteer firefighters divided between the two fire stations. The District's primary area of concern is structural fire protection, wildland protection, and EMS, but due to the nature of the District there is a high amount of wildland urban interface area. District #2 is capable of handling most Type 4 wildland incidents. Much of the District is consider rural; thus, the District has mutual aid agreements with the Oregon Department of Forestry, Tualatin Valley Fire & Rescue, Hillsboro Fire Department,

Banks Fire District, Forest Grove Fire Department, Gaston Fire District, Newberg Fire Department, and Cornelius Fire Department.

Priority Areas:

Residential Growth:

The entire District has been experiencing significant residential growth over the last several years and indications are that this trend will continue into the foreseeable future.

Water supply and access continues to be the main focus along with fire protection systems for new construction in “high risk” wildland urban interface areas. Access, water, and indefensible ground surrounding existing structures are problems in a large portion of the District.

Communications:

Communication capabilities in the District are adequate, but at times the District still experiences areas of no service due to topography. While responding to mutual aid calls with departments to the west, topographical features limit radio communications between responding jurisdictions. WCCCA, the main dispatch center, and other agencies at times find it difficult to impossible to communicate in some areas even on other frequencies.

Firefighting Vehicles:

Due to limited funding, the District’s vehicle replacement process has been placed on hold until 2008. The age and capabilities of the existing vehicles and equipment have been a major concern for the past several years. The District is in severe need of replacing its front line Type 1 pumper at the Midway station and both Type 3 brush rigs.

Burn Permit Regulations:

A lack of education, carelessness, and lack of understanding of proper techniques to dispose of brush, agricultural debris from farming operations, slash, and other burnable materials is at times a problem for District #2. Permits and validations need to be better addressed though a better tracking system.

Effective Mitigation Strategies: The District continues to struggle with expansion in the District and has been successful in upgrading some equipment and resources through the use of state and federal grants as well as monies received from contract services to state and federal agencies during major wildland incidents. The intent of the District is to continue to replace aging equipment. Over the past five years, the District has replaced only one vehicle due to budgetary constraints.

Future plans include returning to 24-hour coverage, vehicle replacement, and expansion of volunteer programs. With increased staff, the District can reduce response time to outlying areas. A large amount of this area is also served by ODF (Oregon Department of Forestry).

Development of consistent building codes for designated “high risk” wildland-urban interface areas is needed. These codes should focus on the use of fireproof or fire retardant roofing, siding materials, and roof ventilation systems that inhibit entry of airborne burning materials into roof and attic areas. Recommendations to persons building new homes to consider earthen terraces and patios constructed of non-flammable materials instead of highly flammable wooden decks, should be developed. Additional considerations should also be made for the possible regulation of non-“Fire Wise” landscaping treatments and the mandatory inclusion of defensible space with green zones in these “high risk” areas.

Education and Training: Washington County Fire District #2 continues to emphasize the importance of continued training for firefighters. District personnel participate in training activities provided through the county training association and training activities conducted by District #2. A countywide training program should be developed. It would benefit District #2 and the other departments by creating a more standardized level of training and familiarizing each agency with the other’s equipment, personnel, and operating procedures.

District #2 participates in community education by providing “Fire Safe” materials at both of stations and, upon request, with on-site evaluations of property to assist homeowners in making their property more defensible in the event of a wildland fire. Additionally, the district participates with the local schools in child fire safety education. District #2 familiarizes children with the appearance of firefighters in full turnout gear and uses puppet shows to instruct them in home safety.

Cooperative Agreements: Washington County Fire District #2 has mutual aid agreements, through the “Western Washington County Fire Chiefs Association” and with the three fire departments to the west of the District (Gaston, Forest Grove, and Banks), the two fire departments to the north (Oregon Department of Forestry and Scapoose), the two departments to the south (Newberg and Yamhill), and TVF&R to the east. District #2 enjoys good working relationships with these agencies and the cooperative nature of the mutual agreement.

Current Resources:

Station 17: North Plains

Table 4.13. Equipment List for Washington County District #2, Station 17 North Plains.				
Year	Make	Model	Tank Capacity	Pump Capacity
2003	Spartan	Structure Engine Type 1	1,000 gal	1,500 gpm
1989	Ford, L9000	Structure Engine Type 1	1,000 gal	1,250 gpm
1977	Seagraves	Structure Engine Type 1	1,000 gal	1,250 gpm
1988	Kenworth	Tender Type 2	3,000 gal	1,000 gpm
1978	Ford F-600	Brush Rig Type 3	500 gal	300 gpm

Station 1:, Midway

Table 4.14. Equipment List for Washington County District #2, Station 19 Midway.				
Year	Make	Model	Tank Capacity	Pump Capacity
1989	Ford L 9000	Structure Engine Type 1	1,000 gal	1,250 gpm
1980	Seagraves	Structure Engine Type 1	1,000 gal	1,250 gpm
1973	Seagraves	Structure Engine Type 1	1,000 gal	1,250 gpm
1989	Kenworth	Tender Type 2	3,000 gal	500 gpm
1987	Ford F-700	Brush Rig Type 3	500 gal	300 gpm

Needs:

Vehicles - The 1973 Seagraves and the 1989 Ford L9000 are severely in need of replacement due to frequent breakdowns. Both the 1978 Ford F-600 and 1987 Ford F-700 brush rigs are outdated and do not perform at peak.

Equipment - Both District stations are in need of equipment including: wildland PPE, firefighting hose and appliances, foam, hand tools, and portable pumps. Training equipment and programs to update and keep staff current.

Future Considerations: Washington County Fire District No.2 will continue to be actively engaged in upgrading and modernizing existing vehicles and equipment assets. Protecting the community and the firefighters is the District's paramount objective. The addition of staff at both stations is in the initial stages of planning at this time (December 2006), with planned implementation within the next one to three years. Replacement of apparatus and added staffing at both stations will provide the community with the best possible service. The added material and training at both stations will allow the District to keep pace with firefighter and community needs.

As previously stated, there is a need in the County for consistency concerning new construction in "high risk" wildland urban interface areas and standardization of the burn permit regulations. Some individuals may view these new regulations as unnecessarily restrictive, but the changes could reduce insurance rates and the loss of life and property within the communities.

4.7.5.3 Forest Grove Fire and Rescue

Chief: Robert A. Mills
 Telephone: 503-992-3240
 e-Mail: rmills@ci.forest-grove.or.us
 Address: 1919 Ash Street Forest Grove, OR 97116

District Summary: Forest Grove Fire and Rescue is a joint operation between the city of Forest Grove and the Forest Grove Rural Fire Protection District. The city of Forest Grove has a city manager form of government which is directed by a mayor and city council. The mayor and city councilors are elected by the citizens within Forest Grove. The Forest Grove Rural Fire Protection District is governed by a five-member board of directors who are elected by the patrons of the fire district.

The city of Forest Grove covers approximately 5 square miles while the Forest Grove Rural Fire Protection District covers approximately 80 square miles for a total protection area of approximately 85 square miles.

The assessed value of property within the city of Forest Grove is \$896,939,579. The population of the city is 19,200. The assessed value of the District is \$310,649,719. The population in the fire district is approximately 8,000. The total assessed value of both the city and the fire district is \$1,207,589,298. The total population is 27,200.

LEGAL JURISDICTION	POPULATION	AREA Sq Mi	PROPERTY VALUE
City of Forest Grove	19,200	5	\$ 896,939,579
Forest Grove RFPD	8,000	80	\$ 310,649,719
TOTALS	27,200	85	\$1,207,589,29

In 2004, Forest Grove Fire and Rescue responded to 2002 calls in the city, 326 calls in the fire district and 108 mutual aid calls for a total of 2,436. Of these calls, 68% were medical.

The department employs twenty (20) full time personnel. These personnel operate out of our main station in Forest Grove. The department runs three 24-hour shifts of five personnel on each shift which consists of one Fire Lieutenant, two Firefighter/Paramedics, and two Firefighters. The senior management consists of a Fire Chief, Assistant Chief/Training Officer, Division Chief/Fire Marshal, and an Administrative Assistant. The department has one Fire Inspector under the direction of the Fire Marshal. It also has a sub-station in Gales Creek that is unmanned and operates by volunteers only with back-up coming from the Forest Grove main station.

The department has 45 volunteers who work out of two stations, the main station in Forest Grove and the substation in Gales Creek. There is a Volunteer Assistant Chief, three Volunteer Battalion Chiefs, and one Captain in charge of the support volunteers. There are 38 volunteer firefighters and two support volunteers.

Priority Areas:

Residential Growth:

The west side of the city has the most growth and the fire district is growing in all directions, most notably in the north district. Measure 37 claims may change the complete picture if individuals are able to build subdivisions on their land.

Communications:

The fire district uses the 800 MHZ system and its resources are dispatched through the Washington County Consolidated Communications Agency. There is poor reception on the west end of the District.

Fire Fighting Vehicles:

Vehicles are on a replacement schedule and are in very good shape

Burn Permit Regulations:

FGF&R does not use a permit system.

Effective Mitigation Strategies: Forest Grove Fire and Rescue (FGF&R) personnel have gone out into the District and used Firewise materials for landscaping treatments and defensible spaces with green zones. They worked with Washington County on driveway standards.

FGF&R has areas in the district that can take up to 30 minutes to respond to and these areas are of concern, but there are not enough funds to build and staff more stations to decrease these long response times.

Education and Training: FGF&R continues to train its career and volunteer personnel every Monday night and on some weekends. Some training is done with other departments as time permits.

Cooperative Agreements: FGF&R has mutual and automatic aid agreements with all Washington County fire agencies including the Oregon Department of Forestry. FGF&G also has mutual aid agreements with Yamhill and Clackamas Counties.

Current Resources:

Forest Grove Main Station

Table 4.15. Equipment List for Forest Grove Fire and Rescue Main Station.				
Year	Make	Model	Tank Capacity	Pump Capacity
2000	HME	Pumper	1,000	1,500
1991	Spartan	Pumper	1,000	1,250
1990	Spartan	Pumper	1,000	1,250
1988	International	Water Tender	3,000	1,000
1991	International	Water Tender	3,000	1,000
2000	Ford	Pickup	200	250
2000	Ford	Pickup	200	250
1999	Chevrolet	Pickup	200	250
1995	International	Support Unit	200	250

Year	Make	Model	Tank Capacity	Pump Capacity
2004	International	Rescue		
2000	HME	Aerial Ladder	300	2,000

Gales Creek Station (not manned)

Year	Make	Model	Tank Capacity	Pump Capacity
2006	HME	Pumper	900	1,250
1987	Ford	Pumper	1,000	1,000
1997	Chevrolet	Pickup	200	250

Future Considerations: Forest Grove Fire and Rescue will continue to replace apparatus on a scheduled basis as long as funds are available.

Measure 37 claims could impact service delivery in the District as farmland and timberland are converted to housing projects or subdivisions.

Needs: FGF&R need a more stable way to fund the fire department. Measures 47 and 50 have greatly impacted funding for the Oregon fire service with property tax limitations.

4.7.5.4 Hillsboro Fire Department

Chief: Gary Seidel
 Telephone: 503 681-6166
 e-Mail: garys@ci.hillsboro.or.us
 Address: 240 South First Ave, Hillsboro, OR 97123

District Summary: The city of Hillsboro is located in central Washington County, 17 miles west of the city of Portland. Hillsboro is bordered on the north by the city of North Plains and unincorporated areas, on the east by the city of Beaverton and incorporated areas, on the south by unincorporated areas, and on the west by the city of Cornelius and unincorporated areas.

Incorporated in 1876, Hillsboro occupies an area of 22 square miles and, with a 2006 population of 84,445, is the largest city in Washington County and the fifth largest in Oregon. Hillsboro is also the County Seat. Washington County has a 2000 population of 445,342, about 58% of which live in the 16 incorporated cities within the county.

The city’s location is Latitude: N 45° 31’ 23”, Longitude: W 122° 59’ 18”. The Hillsboro Airport sits at an elevation of 204’ above sea level, and the downtown area sits at 196’ above sea level. The monthly average low temperature is 33°F, and the monthly average high is 81°F. The average humidity is 62% on a July afternoon and 82% on a January afternoon. Annual precipitation is 37.39". The coldest month is January; the warmest month is August; and the wettest month is December.

Hillsboro is located in the Tualatin River Valley, and its dominant natural landscape features are the Tualatin River and its various feeder creeks, including Dairy, McKay, and Rock; and the Jackson Bottom Wetlands. The city is relatively flat, but the Coast Range is visible off to the west, Bull and Cooper Mountains are visible to the south, and Portland’s West Hills and the Cascade Range’s Mount Hood are visible to the east.

Hillsboro and eastern Washington County are heavily developed, with light manufacturing and retail industries dominating. Hillsboro is the heart of the “Silicon Forest,” with high technology

companies as its largest employers. Washington County is very rural to the west of Hillsboro, with agriculture as the dominant industry.

Major highways in Hillsboro include State Highway 26, called the Sunset Highway, which runs across the north edge of the city and links Portland to the coast; and State Highway 8, called the Tualatin Valley Highway, which runs east-west through the city, connecting Beaverton and Forest Grove.

The Hillsboro Airport, which is operated by the Port of Portland, is the second busiest airport in the state (second only to Portland International Airport), and the busiest “general aviation” airport in Oregon. An 870-acre executive airport with two runways (6,600' and 4,000') and three full-service, fixed-base provides all the facilities necessary to support jet and propeller-driven aircraft and helicopters. The Hillsboro Airport is also the site of the annual Rose Festival Air Show.

The Portland and Western Railroad provides limited freight service through Hillsboro. The Tri-County Metropolitan Transit District (Tri-Met) provides light rail commuter service from Hillsboro to Portland and east Multnomah County, and bus service throughout the tri-county region.

Hillsboro is home to a research facility associated with Oregon Health and Sciences University, which includes the Regional Primate Center.

Priority Areas:

Residential Growth: Hillsboro is a rapidly growing community with an average population growth rate of 5.1% over the last 20 years. As of 1999, 30,123 residential dwelling units existed in the city. These are typically subdivision and multifamily properties of a diverse age – ranging from 100 year-old properties to new structures. Many neighborhoods are situated along creek ways which are buffered by heavy vegetation and fuels within riparian areas. The riparian areas along creeks present the most significant wildland-interface fire protection issues in the community

Communications: The Hillsboro Fire Department is served by the Washington County Consolidated Communications Agency (WCCCA). WCCCA serves as the public safety answering point (PSAP) and communications agency for all fire protection and law enforcement agencies within the Washington County. Communications are provided through an 800 MHz trunked radio backbone with repeaters located throughout the County. The agency is currently adding additional repeater sites to improve coverage, radio capacity and signal strength in the County.

Coverage within the Hillsboro service area is adequate in most cases. Some interference exists within large buildings, but for the purposes of wildland/interface operations, the City enjoys adequate signal strength, coverage and trunking capacity. The system also provides wireless data with mobile data terminals available in tactical resources and a proprietary paging system.

Interoperability within the 800 MHz spectrum exists among the two other 800 MHz systems in the Portland Metro area – Clackamas County Communications and Portland Bureau of Emergency Communications. Interoperability exists through shared talkgroups and a gateway system available through WCCCA. The urban area recently developed its Tactical Interoperability Communications Plan and received an above average score in a Department of Homeland Security review for interoperability in December of 2006.

The Hillsboro Fire Department also maintains VHF communications in all emergency equipment. This provides interoperability with the Oregon Department of Forestry

through shared channels on their VHF backbone and with other structural resources through the Oregon State Fire Marshal's (OSFM) "Fire Net." Fire Net operates on the VHF frequency 154.280 MHz and consists of 23 mountain-top microwave base stations and master consoles to form a radio and telephone access communications network. During large incidents where structural resources are mobilized through the State Conflagration Act, the State Fire Marshal activates Incident Management Team which includes a Communications Unit. The OSFM Communications Unit provides communications services including the incident communications plan, gateway services, repeater services and radio caches for supervisory personnel on the incident.

Firefighting Vehicles: The Hillsboro Fire Department maintains a modern fleet of front line and reserve structural resources. Each fire station provides a Type 1 Engine as basic structural and interface protection. These engines provide pump and roll capability with wildland fixtures and appliances and class A foam capability. The Department also maintains 1-Type III Engine and a Type III Tender.

Burn Permit Regulations: Hillsboro is situated within a DEQ air quality control area and back yard burning is regulated by DEQ. The Hillsboro Fire Department does not issue agricultural burning permits as it lies within the Urban Growth Boundary and income-producing agricultural properties are virtually non-existent. The agency collaborates with all county agencies to establish a countywide burn ban during high-risk periods.

Effective Mitigation Strategies: There are currently no community wildfire mitigation campaigns in effect in Hillsboro. The Hillsboro Fire Department actively promotes fire safety through our public education programs; however, due to other priorities in the City, wildfire safety is promoted through public education announcements in the printed media and on the department's Website.

Education and Training: All firefighter personnel are position-trained to a minimum of Interface Firefighter as described in the Oregon Fire Service Mobilization Plan. Additionally, Hillsboro firefighters are trained to position-specific qualifications for interface positions based upon their assigned position in the fire department. Fire lieutenants are trained to the Engine Boss standards and all Battalion Chiefs are qualified as Strike Team Task Force Leaders.

The Hillsboro Fire Department actively participates in the Oregon State Fire Marshal's Office Incident Management Teams. The Department currently has members qualified in the following ICS position consistent with the mobilizations plan: 5 Division/Group Supervisors, 2 Safety Officers, 3 Planning Section Chiefs, 2 Operations Sections Chiefs, and 2 Incident Commanders.

Cooperative Agreements:

Washington County Mutual and Automatic Aid: The Hillsboro Fire Department is a party to the 2006 Washington County Intra-County Mutual Aid Agreement. This agreement provides for automatic aid between all agencies without formal request. This plan is implemented through automatic computer dispatching instructions determined by the parties to the agreement. The agreement also codifies the "closest unit response" policy collectively agreed upon by all Washington County fire chiefs.

Inter-County Agreements. Hillsboro, through its participation in the Washington County Mutual Aid Agreement also participates in Inter-County Mutual Aid Agreements established with Multnomah, Yamhill, Columbia, and Clackamas Counties. These agreements provide additional surge capacity during large incidents and expand the closest unit response policy to neighboring counties. These agreements are utilized as an interim measure to respond to resource shortages while the Conflagration Act is being invoked. The agreement is not intended to replace state resources when Washington County resources are exhausted.

Oregon Fire Service Mobilization Plan: The Oregon Fire Service Mobilization Plan was developed by the State Fire Marshal's Office to comply with ORS 476.5190 - 476.610, The Emergency Conflagration Act. This plan organizes counties, establishes fire defense board at the county and state level, encourages that mutual aid agreements be maintained among all local fire agencies', provides minimum training and equipment standards, resource typing, mobilization procedures, and common communications among all structural fire agencies. The plan also requires that each county maintain a county fire plan to mobilize equipment for large incidents and that all counties maintain firefighting resource lists. Currently, all Washington County structural agencies participate in state mobilizations to large interface incidents.

Current Resources:

Station #1

Table 4.17. Equipment List for Hillsboro Fire Department Station #1.				
Year	Make	Model	Tank Capacity	Pump Capacity
2005	Spartan	Type 1 Engine - Fire Pumper	1,000	1,500
2004	Ford	Type 3 Engine (Brush Unit)	350	390
1976	Seagraves	Type 1 Fire Pumper	1,000	1,250
2003	Chevrolet	Command Vehicle	NA	NA

Station #2

Table 4.18. Equipment List for Hillsboro Fire Department Station #2.				
Year	Make	Model	Tank Capacity	Pump Capacity
2005	Spartan	Type 1 Engine - Fire Pumper	1000	1,500
1994	Spartan	Type 1 Engine - Fire Pumper	1000	1,500

Station #3

Table 4.19. Equipment List for Hillsboro Fire Department Station #3.				
Year	Make	Model	Tank Capacity	Pump Capacity
1998	Spartan	Type 1 Fire Pumper	1000	1,500
1983	Spartan	Type 1 Fire Pumper	1000	1,250

Station #4

Table 4.20. Equipment List for Hillsboro Fire Department Station #4.				
Year	Make	Model	Tank Capacity	Pump Capacity
1991	Spartan	Type 1 Fire Pumper	1,000	1,500
1987	GMC	Type 3 Tender	2,000	250

Needs: While Hillsboro is primarily an urban area, parks, riparian areas and other open spaces present risk from fire which Hillsboro Fire management considers important from a pre-response planning perspective. While these areas are typically narrow and long, they contain adequate fuels to present the risk of extension to adjacent housing under certain conditions. The higher degree of human activity in these areas (typically juvenile) due to nearby populations increases the likelihood of an event and consequently elevating the risks to nearby structures. Access, fire suppression priorities, communications, organization, and procedures should be identified in the interface plan.

Other Countywide Considerations: Wildland interface incidents have the potential to generate large complex fire incidents within Washington County. The Oregon Fire Service Mobilization Plan is a statewide plan, which primarily focuses on the interface risk. The plan also directs counties to organize into fire defense districts and charges the governing boards of these districts to develop plans to manage large incidents involving state resources and multiple operational periods. In 2001, the Washington County Fire Defense Board developed the Washington County Fire Resource Management Plan to address this responsibility. This plan primarily deals with the process to access state resources and the roles and responsibilities in managing countywide levels of service during the incident. The plan falls short in that it does not address the responsibilities, roles, and procedures specific to the actual incident. Issues such as communications, initial organization, transition to an incident management team, local roles and responsibilities, procedures and critical policy decisions should be addressed in order to provide a truly comprehensive plan.

4.7.5.5 Tualatin Valley Fire and Rescue

Chief: Jeffrey Johnson
 Telephone: 503-642-0303
 e-Mail: chief.johnson@tvfr.com
 Address: 20665 SW Blanton Street, Aloha, OR 97007-1042

District Summary: Tualatin Valley Fire & Rescue (TVF&R) is Oregon’s second largest fire service provider. TVF&R protects over 418,000 citizens within 210 square miles. The service area includes the following cities and portions of unincorporated counties:

Beaverton	Durham	King City	Rivergrove
Sherwood	Tigard	Tualatin	West Linn
Wilsonville	Clackamas County	Multnomah County	Washington County

TVF&R has nineteen career and three volunteer stations strategically located throughout the district, ensuring a quick and immediate response.

The firefighter/EMTs and paramedics of Tualatin Valley Fire & Rescue are trained and prepared for all types of emergencies. TVF&R believes that responding to fires, medical emergencies, and rescue situations provide the greatest return on the taxpayers’ investment. Over 60% of the district’s firefighters are also paramedics. With at least one paramedic on every engine and truck, individuals with even the most serious conditions can be stabilized and treated prior to being transported to a hospital.

The fire district also has specialty rescue teams. Hazardous Materials Regional Response Teams respond to chemical leaks and hazardous spills, while the Water Rescue Team responds to boating or other accidents on local lakes and rivers. For situations involving cave-ins, building collapses, and trapped victims, the District relies on its Technical Rescue Team. The Office of Consolidated Emergency Management (OCEM) for Washington County is based at the District’s Administration Complex and includes the Emergency Managers of Beaverton, Hillsboro, Tigard, Washington County, and Tualatin Valley Fire & Rescue. Together they formulate integrated and comprehensive plans for local and regional disaster preparedness, response, recovery, and mitigation.

Current Resources:

Station #60 8585 NW Johnson Street, Portland, OR 97229

Table 4.21. Equipment List for Tualatin Valley Fire and Rescue Station #60.				
Year	Make	Model	Tank Capacity	Pump Capacity

Table 4.21. Equipment List for Tualatin Valley Fire and Rescue Station #60.

Year	Make	Model	Tank Capacity	Pump Capacity
2000	Pierce	Dash AWS	750 Gallons	1,500 GPM
1988	Pierce	Arrow	750 Gallons	1,500 GPM
1996	Dodge	RAM 3500 4X4	300 Gallons	94 GPM

Station #61 13730 SW Butner Road, Beaverton, OR 97005

Table 4.22. Equipment List for Tualatin Valley Fire and Rescue Station #61.

Year	Make	Model	Tank Capacity	Pump Capacity
2002	Pierce	Dash Skyboom 61'	750 Gallons	1,500 GPM
2006	International	7400	530 gallons	500 GPM

Station #62 3608 SW 209th Avenue, Aloha, OR 97007

Table 4.23. Equipment List for Tualatin Valley Fire and Rescue Station #62.

Year	Make	Model	Tank Capacity	Pump Capacity
2002	Pierce	Dash Skyboom 61'	750 gallons	1,500 GPM
1998	Pierce	Saber	500 gallons	1,000 GPM
2006	International	7400	530 gallons	500 GPM

Station #368 11646 NW Skyline Blvd, Portland, OR 97231 (Multnomah County)

Table 4.24. Equipment List for Tualatin Valley Fire and Rescue Station #368.

Year	Make	Model	Tank Capacity	Pump Capacity
1998	Pierce	Saber	500 gallons	1,000 GPM
1995	Freightliner	Tender	2,800 gallons	750 GPM
1997	Chevrolet	3500 Brush Unit	300 gallons	94 GPM

Station #64 3355 NW 185th Avenue, Portland, OR 97229

Table 4.25. Equipment List for Tualatin Valley Fire and Rescue Station #64.

Year	Make	Model	Tank Capacity	Pump Capacity
2005	Pierce	Quantum	750 gallons	1,500 GPM
1985	International		2,500 gallons	500GPM
1996	Dodge	3500 4X4 Brush	300 gallons	94 GPM

Station #65 8661 SW Canyon Drive, Portland, OR 97225

Table 4.26. Equipment List for Tualatin Valley Fire and Rescue Station #65.

Year	Make	Model	Tank Capacity	Pump Capacity
1998	Pierce	Quantum	750 gallons	1,500 GPM
1996	Pierce	Quantum	750 gallons	1,500 GPM

Station #66 13900 SW Brockman Road, Beaverton, OR 97005

Table 4.27. Equipment List for Tualatin Valley Fire and Rescue Station #66.

Year	Make	Model	Tank Capacity	Pump Capacity
2005	Pierce	Quantum	750 gallons	1,500 GPM

Station #67 13810 SW Farmington Road, Beaverton, OR 97005

Table 4.28. Equipment List for Tualatin Valley Fire and Rescue Station #67.

Year	Make	Model	Tank Capacity	Pump Capacity
2005	Pierce	Quantum	750 gallons	1,500 GPM
1998	Pierce	105' Dash Truck	175 gallons	350 GPM

Station #68 3260 NW 147th Place, Portland, OR 97229**Table 4.29. Equipment List for Tualatin Valley Fire and Rescue Station #68.**

Year	Make	Model	Tank Capacity	Pump Capacity
2002	Pierce	Dash AWS	750 gallons	1,500 GPM

Station #69 9940 SW 175th Avenue, Aloha, OR 97007**Table 4.30. Equipment List for Tualatin Valley Fire and Rescue Station #69.**

Year	Make	Model	Tank Capacity	Pump Capacity
2001	Pierce	Dash AWS	750 gallons	1,500 GPM
1997	International	H & W	1,000 gallons	1,250 GPM
1997	Chevrolet	3500 Brush Unit	300 gallons	94 GPM

Station #33 15440 SW Oregon Street, Sherwood, OR 97140**Table 4.31. Equipment List for Tualatin Valley Fire and Rescue Station #33.**

Year	Make	Model	Tank Capacity	Pump Capacity
2001	Pierce	Dash AWS	750 gallons	1,500 GPM
2000	Pierce	Saber	500 gallons	1,000 GPM
1999	Ford	F450 Power Stroke	340 gallons	94 GPM
1998	International	Navistar	3,000 Gallons	750 GPM

Station #34 19365 SW 90th Court, Tualatin, OR 97062**Table 4.32. Equipment List for Tualatin Valley Fire and Rescue Station #34.**

Year	Make	Model	Tank Capacity	Pump Capacity
1998	Pierce	Quantum	750 Gallons	1,500 GPM
2000	Pierce	Dash AWS	750 Gallons	1,500 GPM

Station #35 17135 SW Pacific Highway, Tigard, OR 97224**Table 4.33. Equipment List for Tualatin Valley Fire and Rescue Station #35.**

Year	Make	Model	Tank Capacity	Pump Capacity
1998	Pierce	Quantum	750 gallons	1,500 GPM
2006	International	7400 4X4	530 gallons	500 GPM

Station #51 8935 SW Burnham Road, Tigard, OR 97223**Table 4.34. Equipment List for Tualatin Valley Fire and Rescue Station #51.**

Year	Make	Model	Tank Capacity	Pump Capacity
1998	Pierce	Quantum	750 gallons	1,500 GPM
2000	Pierce	Dash 100' Platform	150 gallons	500 GPM
1998	Pierce	Quantum Heavy Rescue	139 gallons	300 GPM
1979	International	Tender	2,500 gallons	750 GPM

Station #52 29875 SW Kinsman, Wilsonville, OR 97070 (Clackamas County)

Table 4.35. Equipment List for Tualatin Valley Fire and Rescue Station #52.				
Year	Make	Model	Tank Capacity	Pump Capacity
2001	Pierce	Dash AWS	750 gallons	1,500 GPM
2000	Pierce	Saber	500 gallons	1,000 GPM
1996	Dodge	Ram Brush Unit	300 gallons	94 GPM
2001	International	Tender	2,800 gallons	750 GPM

Station #53 8480 SW Scholls Ferry Road, Beaverton, OR 97008

Table 4.36. Equipment List for Tualatin Valley Fire and Rescue Station #53.				
Year	Make	Model	Tank Capacity	Pump Capacity
2000	Pierce	Quantum	750 gallons	1,500 GPM
2006	Pierce	7400 4X4	530 gallons	500 GPM

Station #56 8455 SW Elligsen Road, Wilsonville, OR 97070

Table 4.37. Equipment List for Tualatin Valley Fire and Rescue Station #56.				
Year	Make	Model	Tank Capacity	Pump Capacity
2002	Pierce	61' Skyboom	750 gallons	1,500 GPM
2006	Pierce	7400 4X4	530 gallons	500 GPM
2003	International	Tender	3,000 gallons	750 GPM

Station #57 24242 SW Mountain Road, West Linn, OR 97068 (Clackamas County)

Table 4.38. Equipment List for Tualatin Valley Fire and Rescue Station #57.				
Year	Make	Model	Tank Capacity	Pump Capacity
2002	Pierce	Dash AWS	750 gallons	1,500 GPM
1997	Chevrolet	3500 Brush Unit	300 gallons	94 GPM

Station #58 6050 Failing Street, West Linn, OR 97068

Table 4.39. Equipment List for Tualatin Valley Fire and Rescue Station #58.				
Year	Make	Model	Tank Capacity	Pump Capacity
1981	Pierce	Arrow	750 gallons	1,500 GPM
1981	Pierce	Arrow	750 gallons	1,500 GPM

Station #59 1860 Willamette Falls Drive, West Linn, OR 97068 (Clackamas County)

Table 4.40. Equipment List for Tualatin Valley Fire and Rescue Station #59.				
Year	Make	Model	Tank Capacity	Pump Capacity
1986	Pierce	Arrow	750 gallons	1,250 GPM

Station #358 111 South Station Lane, West Linn, OR 97068 (Clackamas County)

Table 4.41. Equipment List for Tualatin Valley Fire and Rescue Station #358.				
Year	Make	Model	Tank Capacity	Pump Capacity
1990	Ford	F350 4 X4	200 gallons	75 GPM
1985	International	Tender	3,500 gallons	500 GPM

Station #359 2215 Long Street, West Linn, OR 97068 (Clackamas County)

Table 4.42. Equipment List for Tualatin Valley Fire and Rescue Station #359.

Year	Make	Model	Tank Capacity	Pump Capacity
1985	Pierce	55' Telesquirt	500 gallons	1,500 GPM

Future Considerations: Tualatin Valley Fire & Rescue is currently in the process of acquiring property for additional fire stations due to expanded growth. There are plans for new stations to be located at SW Walnut/SW Gaarde Street in Tigard, the Bethany area, and SW Roy Rogers Road/SW Beef Bend Road.

4.7.5.6 Cornelius Fire Department

Chief: Chris Asanovic
 Telephone: 503-357-3840
 e-Mail: casanovic@ci.cornelius.or.us
 Address: 1311 N. Barlow Street, Cornelius, Or 97113

District Summary: Cornelius Fire Department is a joint operation between the city of Cornelius and the Cornelius Rural Fire Protection District. The City of Cornelius has a city manager form of government, which is directed by a mayor and city council. The citizens within Cornelius elect the mayor and city councilors. The Cornelius Rural Fire Protection District is governed by a five-member board of directors who are elected by the patrons of the fire district.

The city of Cornelius covers approximately 3 square miles while the Cornelius Fire Protection District covers approximately 38 square miles for a total protection area of approximately 41 square miles.

The assessed value of property within the city of Cornelius is \$443,575,945. The population of the city is 10,785. The assessed value of the District is \$132,850,387. The population in the fire district is approximately 3,000. The total assessed value of both the city and fire district is \$576,426,332. The total population is 13,785.

LEGAL JURISDICTION	POPULATION	AREA Sq Mi	PROPERTY VALUE
City of Cornelius	10,785	3	\$443,575,945
Cornelius RFPD	3,000	38	\$132,850,387
Totals	13,785	41	\$576,426,332

In 2004, Cornelius Fire Department responded to 733 calls in the city, 142 calls in the fire district, and 167 mutual aid calls for a total of 1,042. Of these calls 68 % were medical.

The department employs four (4) full time personnel. These personnel operate out of a station in Cornelius. The department runs a staggered 8.5-hour shift allowing for at least one paid person to staff the station from the hours of 6 am until 6 pm. The career staff consists of a Fire Chief, a Lieutenant in charge of fleet and station maintenance, a Lieutenant/Training Coordinator, and a Firefighter/Code Enforcement Officer. The Cornelius Fire Department also shares an administrative assistant with the Cornelius Police Department.

The department has twenty seven (27) volunteer firefighters. The volunteer firefighters are alerted to every call received by the Cornelius Fire Department. The volunteers routinely sleep at the station for coverage over the nighttime hours. The Cornelius Fire Department also has six (6) intern firefighters. These interns work a 24/48 shift while they attend school. The interns respond to calls during their 24 hour shift and are also encouraged to respond to calls on their off hours.

Priority Areas:

Residential Growth:

Cornelius has had substantial growth in the last several years. The city and district continue to grow in all directions. Phase 6 of Hobbs Farms subdivision is under way to the northeast. Nature's Ridge subdivision is also being completed to the northeast. These areas extend to the urban growth boundary and also transition to our wildland urban interface area.

Commercial/Industrial Growth:

The city of Cornelius has annexed a section of the Tualatin Valley Highway. Continued development has occurred along this stretch of highway. Currently, a new Coastal Supply outlet is being built and is buffered with farmland. In the west end of the city, ground has broken on the development of a Wal-Mart store.

Communications:

We use the 800 MHZ radio system and are dispatched through the Washington County Consolidated Communications Agency. The Cornelius Fire Department also maintains VHF communications in all emergency equipment. The Cornelius Fire Department has updated to VHF 154 narrow band thanks to the 2007 VHF Grant awarded by the state.

Fire Fighting Vehicles:

Vehicles are on a replacement schedule and are in good shape. The Cornelius Fire Department fleet is aging, however, with the newest engine being a 2001 model and the oldest being a 1985 model. Our newest brush vehicle is a 1986 1-ton Chevy pick-up. The oldest brush vehicle is a 1983 6 x 6 military truck.

Sub-Station:

Due to the latest Insurance Services Office rating, the need for a substation has grown as a priority. In the district there are 101 residents that will be a class 10 (unprotected). This substation will serve the urban interface area to the southwest end of the district; however, no date or funding has been obtained.

Effective Mitigation Strategies: The Cornelius Fire Department (CFD) has allotted annual budget funding for temporary positions. These positions, or Fire Prevention Technicians, complete a range of tasks during their four-month employment. As part of the Fire Prevention Technicians duties they drive the rural district and speak with property owners about driveway concerns, look for address concerns and make mapping updates, conduct required annual hydrant flushing and testing, and help with the maintenance of the station and fleet.

Education and Training: The Cornelius Fire Department continues to train their career, volunteer, and intern personnel every Monday night, some weeknights, and some weekends. They try to conduct some training with other departments as time permits. All training follows the guidelines set forth by the State of Oregon OSHA and DPSST.

Cooperative Agreements: Mutual and automatic aid agreements exist with all Washington County fire agencies including the Oregon Department of Forestry. The Cornelius Fire Department is a party to the 2006 Washington County Intra-County Mutual Aid Agreement. The agreement provides for automatic aid between all agencies without formal request.

Inter-County Agreements: The Washington County Fire Defense Board has a mutual aid agreement with several neighboring counties including Clackamas, Columbia, Multnomah, and Yamhill. These agreements provide additional resources during large incidents.

Oregon Fire Service Mobilization Plan: The Oregon Fire Service Mobilization Plan was developed by the State Fire Marshal's Office to comply with ORS 476.5190-476.610 known as The Emergency Conflagration Act. This plan organizes counties, establishes fire defense boards at the county level, encourages that mutual aid agreements be maintained among all the local fire agencies, provides minimum training and equipment standards, resource typing, mobilization procedures, and common communications among all structural agencies. The plan requires that each county maintain a county fire plan to mobilize equipment for large incidents and that all counties maintain firefighting resource lists. Currently, all Washington County structural agencies participate in state mobilizations to large interface incidents.

Current Resources:

YEAR	App #	MAKE	MODEL	TANK	PUMP (GPM)
2000	E-813	HME	Pumper	1000	1500
1991	E-814	Spartan	Pumper	1000	1500
1984	E-815	Spartan	Pumper	1000	1250
1992	Squirt 8	Pierce	Tele-Squirt	500	1500
1988	WT-8	Volvo	Water Tender	3000	950
1985	Cascade 8	Volvo	Support Vehicle	NA	NA
1983	BR-8	AM General	Brush Vehicle	750	250
1987	BR-812	Chevrolet	Brush Vehicle	250	250
2003	Rescue 8	HME	Heavy Rescue	NA	NA
2003	PU-811	Ford	Pick-up/Command Vehicle Brush Vehicle	250	100
2005	PU-810	Ford	Pick-up/Command Vehicle	250	100
	LR-8		Light Rig	NA	NA

Future Considerations: The Cornelius Fire Department will continue to replace apparatus on a scheduled basis as long as funds are available.

Measure 37 claims could impact the service delivery in our District as farmlands and timberlands are converted to housing projects or subdivisions.

Needs: The City of Cornelius/Cornelius Rural Fire Protection District need to find a stable way to fund the fire department. Measures 47 and 50 have greatly impacted the funding for the Oregon fire service through tax limitations. The funding will be a way to replace the aging fleet and prepare for future expansion of the Department.

The Cornelius Rural Fire Protection District plans to work towards lowering its ISO rating and bettering the response of the Cornelius Fire Department to the urban interface area in the rural district.

The City Council has set the goals of 1) achieve a more stable financial basis for the City of Cornelius and 2) increase the ratio of commercial/industrial assessed valuation relative to residential valuation, increase local employment, and create a healthier business climate.

4.7.5.7 Banks Fire Protection District #13

Chief: Brian Coussens
 Telephone: 503-324-6262
 e-Mail: brian@banksfire.org
 Address: 300 South Main, Banks, OR 97106

District Summary: The Banks Fire District covers 136 square miles and an estimated population of 9,000 people. The stations are located in Banks, Timber, and Buxton. Banks Fire District has 70 volunteers, 2 paid staff, and 7 interns.

Priority Areas:

Residential Growth:

The district sees an increase of about 3% per year. Ballot Measure 37 may change this dramatically.

Communications:

The district runs on VHF and 800 MHz systems. The reception is very poor in most of the district due to the mountainous terrain. Radio dead spots are a major safety

concern. Calls can be run via cell phones in some areas that do not have VHF or 800 MHz reception.

Burn Permit Regulations:

Currently, the district has agricultural burning permits only and a burn ban during the fire season.

Effective Mitigation Strategies: The annual burn ban and community awareness projects work well.

Education and Training: All firefighters are at least 130/190 certified (officers exceed).

Cooperative Agreements: The Banks Fire District has mutual aid agreements with ODF and all other Washington County fire agencies as well as the Vernonia District in Columbia County.

Current Resources:

Location	Type	Tank Capacity	Pump Capacity
Banks	Type I Engine	750 gal	1,250 gpm
Buxton	Type I Engine	1,000 gal	1,250 gpm
Timber	Type I Engine	1,000 gal	1,250 gpm
Banks	Type I Engine	750 gal	1,250 gpm
Banks	Command Vehicle		
Banks	Type III Engine	300 gal	120 gpm
Banks	Type II Tender	3,000 gal	1,000 gpm
Banks	Type II Tender	3,000 gal	1,000 gpm
Banks	Rescue Vehicle		

Future Considerations: Rural subdivisions under Measure 37 will create special challenges. The Banks Fire District already has two new fire stations under construction at the end of narrow roads. The county has been little help in regulating road access or requiring improvements. Full time staffing may be required within the next five years.

Needs: The highest priority is another brush unit. The district has only one Type II and it needs to be upgraded to a Type III. This unit is 17 years old and won't be in service much longer.

4.7.6 Wildland Fire District Summaries

4.7.6.1 Metro Regional Parks and Greenspaces

Agency Contact: Adam Stellmacher and/or Curt Zonick
 Telephone: 503-797-1834
 e-Mail: stellmachera@metro.dst.or.us and/or zonickc@metro.dst.or.us

Current Resources:

Year	Make	Model	Tank Capacity	Pump Capacity
1997	Dodge Ram	4x4 Type 6 Wildland Engine	150	45
1998	Ford F-150	4x4 Type 6 Wildland Engine	75	45

4.7.6.2 Oregon Department of Forestry

Chief: Malcolm E. Hiatt
 Telephone: 503-359-7450
 e-Mail: mhiatt@odf.state.or.us
 Address: 801 Gales Creek Road, Forest Grove, OR 97116-1199

District Summary: ODF provides wildfire response to the western portion of Washington County. There are currently two full time, year round personnel and twelve summer seasonals.

Cooperative Agreements: ODF has cooperative, mutual aid, and reciprocal agreements with industry contractors, Washington County fire departments, the USFS, the BLM, and the states of Washington, California, Idaho, Montana, and Alaska as well as British Columbia, Canada.

Current Resources:

The Oregon Department of Forestry through pre-established procedures, processes, and cooperator agreements can mobilize in very short time frames industrial cooperator equipment, aircraft, firefighting crews, and Type I Incident Management Teams. Industrial cooperator equipment can include logging equipment, bull dozers, water tenders, and other firefighting equipment. The Oregon Department of Forestry has two retardant planes and one lead plane under contract each summer starting around mid-July to the first part of August until early fall depending on the weather conditions. Aircraft under contract to the United States Forest Service can also be called upon by ODF if they are available. There are over 200 20-person contract firefighting crews available in Oregon and Washington. There are multiple state and county 10-person inmate firefighting crews in Oregon also. Fourteen of these state 10-person inmate firefighters are available within about two hours to any location in Washington County from the South Fork inmate camp, jointly operated by the State Department of Corrections and the Oregon Department of Forestry, located between Forest Grove and Tillamook. ODF maintains three Type I Incident Management Teams statewide that are available for dispatch to any area of Oregon with an estimated time of arrival of 8-10 hours maximum from time of dispatch. To support these management teams, ODF maintains field: kitchens, geographic information systems, showers, fire cache, and communications units. ODF also has access to the USFS fire cache system for ordering extra hose, pumps, and other firefighting and logistical equipment.

Forest Grove Station

Table 4.46. Equipment List for ODF Forest Grove Station.				
Year	Make	Model	Tank Capacity	Pump Capacity
2006	Ford F-450, 4x4	Type 6 Wildland Engine	300	95 GPM
2007	Ford F-450, 4x4	Type 6 Wildland Engine	300	95 GPM
1997	International 6x2	Type 5 Wildland Engine	500	200 GPM
2004	International 6x2	Type 5 Wildland Engine	500	200 GPM
1997	Ford F-350 4X4	Type 6 Wildland Engine	150	30 GPM
1994	GMC 6X2	Type 4 Wildland Engine	1,000	50 GPM
2005	Ford F-550 4X4	Type 6 Wildland Engine	300	95 GPM

Haskins Creek Guard Station (Fire Season Only)

Table 4.47. Equipment List for ODF Haskins Creek Guard Station.				
Year	Make	Model	Tank Capacity	Pump Capacity
2004	Ford F-450, 4x4	Type 6 Wildland Engine	300 gal.	95 GPM

Table 4.47. Equipment List for ODF Haskins Creek Guard Station.

Year	Make	Model	Tank Capacity	Pump Capacity
1995	Chevrolet Top Kick, 6x2	Type 5 Wildland Engine	500 gal.	200 GPM

The 2006 and 2007 Type 6 Engines are currently under construction and should be in service sometime in 2007. ODF is replacing 1994 and 1996 Ford F-350s with 200 gallon tanks. The 1995 Type 5 Engine is due for replacement in 2008.

4.8 Issues Facing Washington County Fire Protection

4.8.1 Urban and Suburban Growth

One challenge Washington County faces is the increasing number of houses being built in the urban/rural fringe compared to twenty years ago. Since the 1970s, Oregon's growing population has expanded further and further into traditional resource lands such as forestland. The "interface" between urban and suburban areas and the resource lands created by this expansion has produced a significant increase in threats to life and property from fires, and has pushed existing fire protection systems beyond original or current design or capability. Many property owners in the interface are not aware of the problems and threats they face and owners have done very little to manage or offset fire hazards or risks on their own property. Furthermore, human activities increase the incidence of fire ignition and potential damage.

4.8.2 Rural Fire Protection

People moving from urban to more rural areas frequently have high expectations for structural fire protection services. Often, new residents do not realize they are living outside of a fire protection district, or that the services provided are not the same as in an urban area. The diversity and amount of equipment and the number of personnel can be substantially limited in rural areas. Fire protection may rely more on the landowner's personal initiative to take measures to protect his or her property. Therefore, public education and awareness may play a greater role in rural or interface areas. However, great improvements in fire protection techniques are being made to adapt to large, rapidly spreading fires that threaten large numbers of homes in interface areas.

4.8.3 Debris Burning

Local burning of trash and yard debris has been identified as a significant and growing problem as well as the number one cause of wildfires throughout Washington County. Not only are some people regularly burning outside of the designated time frame, but escaped debris fires impose a very high fire risk to neighboring properties and residents. A growing portion of local fire department calls are in response to debris fires or "backyard burning" that either have escaped the landowner's control or are causing smoke management problems. It is likely that regulating this type of burning will always be a challenge for local authorities and fire departments; however, improved public education regarding the county's burning regulations and permit system as well as potential risk factors would be beneficial.

4.8.4 Pre-planning in High Risk Areas

Although conducting home, community, and road defensible space projects is a very effective way to reduce the fire risk to communities in Washington County, recommended projects cannot all occur immediately and many will take several years to complete. Thus, developing pre-planning guidelines including who and how local fire agencies and departments will respond to

specific areas is very beneficial. These response plans should include an assessment of the structures, topography, fuels, available evacuation routes, available resources, response times, communications, water resource availability, and any other factors specific to an area. All of these plans should be available to the local fire departments as well as dispatch personnel.

4.8.5 Fire Department Annexations

There are several rural areas in Washington County currently being developed for residential property that are not within a fire protection district. In many cases, the homeowners are not aware that they do not have structural fire protection. One way to remedy this growing hazardous situation is for the County Commissioners to conduct a periodic review of all unprotected areas and make recommendations for high risk or heavily populated areas to be annexed into an existing fire district or to create a new district.

4.8.6 Fireworks

Ignitions due to carelessness with fireworks are an issue every summer in Washington County as well as many other areas across the country. Even with strict restrictions, prohibitions, and stepped up law enforcement patrols, fireworks inevitably cause wildfires. Lighting off fireworks is a popularly accepted tradition and people will travel to neighboring states or Indian reservations to purchase the biggest and the best available, even though most are illegal in Oregon. The problem is that fire departments and law enforcement officials cannot respond to every fireworks complaint or violation due to “more important” activities occurring simultaneously. Moreover, the sheer number of fireworks-related calls inhibits them from responding to each one, particularly during the Fourth of July celebrations.

4.8.7 Accessibility

Fire chiefs throughout Washington County have identified home accessibility issues as a primary concern in some parts of the County. Many driveways built before the adoption of the County’s stringent road construction codes do not meet current accessibility standards for large emergency vehicles. In addition, some roads that were built according to the standard have now become overgrown by vegetation; effectively restricting safe access, particularly in a wildfire situation. Lack of accessibility restricts engagement by fire suppression resources.

Many of the drainages in the northeastern corner of the County as well as in the Henry Hagg Lake area are currently experiencing significant residential growth. Roads accessing these areas are typically graveled County roads bordered by forest fuels. Roadside fuels management along many of these road corridors has been identified as a high priority project by the planning committee. A map of these project areas is included in Appendix I.

4.9 Current Wildfire Mitigation Activities in Washington County

4.9.1 Building Codes

County, state, and local jurisdictions have established building codes that help reduce the fire risk in wildland urban interface areas. These codes apply to new development, dwellings and structures, retrofitting, and siting. Some of the fire mitigation standards covered by the existing codes include:

- Locating in a fire protection district or ensuring fire protection through contract;
- Identification of water supply;

- Provision of adequate road access;
- Establishing fire breaks;
- Meeting slope/grade requirements;
- Using fire retardant roofs in wildfire hazard zones; and
- Installing spark arresters on chimneys.

Additionally, many jurisdictions in Washington County administer and enforce the Oregon Fire Code. Oregon Fire Code “Fire Code Applications Guide” was prepared to provide good faith guidance to building officials, contractors, business owners, the public, and fire marshals on local interpretations and practices that are considered to be in compliance with the Oregon Fire Code.

4.9.2 Oregon Department of Forestry

The Oregon Department of Forestry (ODF) is active in the Washington Fire Defense Board and assists local fire departments through mutual aid agreements and by providing wildland firefighting training. Trainees can obtain their red card (wildland fire training documentation) and attend extensive workshops combining elements of structural and wildland firefighting, defending homes, and operations experience.

ODF has been involved with emergency managers to provide support during non-fire events and, for years, ODF has worked with industrial partners (big timber companies) to share equipment in the case of extremely large fires.

4.9.3 Washington County Fire Defense Board

The Washington County Fire Defense Board is comprised of all the local fire chiefs within the County and also includes ex-officio representatives from the State Fire Marshal’s Office and the Oregon Department of Forestry. Pursuant to the Oregon Fire Service Mobilization Plan, the Fire Defense Board is charged with the following responsibilities:

- Develop a fire service plan with provisions permitting local departments to respond with mutual aid forces upon request of other local departments in the County.
- Administer the State Fire Mobilization Plan within the County.
- Maintain response procedures for alert, transfer, and dispatch of fire fighting equipment and personnel.
- Maintain liaison with other agencies capable of augmenting firefighting resources.
- Maintain inventories of fire fighting equipment in the County.
- Develop dispatch plans for mobilization requests and conduct exercises as necessary to ensure efficient operations.
- Develop expedient procedures for providing and dispatching incident command overhead teams and logistical support.
- Hold regular meetings.

The Washington County Fire Defense Board meets regularly with representatives from a number of other agencies in the County to coordinate prevention and response activities and issues. Those agencies/individuals include the Metro West Ambulance, the Washington County Consolidated Communications Agency (County 911), the Washington County Emergency

Medical Services Coordinator, Washington County Emergency Management, and the Washington County Building Services Division.

4.9.4 Homeowner Wildfire Awareness Contest

The Oregon Department of Forestry and numerous other supporters are sponsoring a pilot program to raise public awareness about wildfire hazards around the home and what homeowners can do to provide protection for their property by creating survivable space. The 2007 pilot program was a contest targeting homeowners in Washington County wildland urban interface. The winner of the contest received a complete safety makeover outside their home to make it as wildfire survivable as possible. A 30-minute television broadcast of the project from start to finish was aired on local stations to provide additional wildfire awareness to the entire community.

4.9.5 Public Education Programs

Many of the county's fire departments and agencies are actively working on public education and homeowner responsibility by visiting neighborhoods and explaining hazards to citizens. Oftentimes, they hand deliver informative brochures and encourage citizens to clearly mark their address on the roadway to ensure more rapid and accurate response to calls and better access. The Firewise and FireFree Programs are also being cited to help fire response organizations communicate fire hazards to the public.

Chapter 5

5 Treatment Recommendations

Critical to implementation of this Community Wildfire Protection Plan are the identification and implementation of an integrated schedule of treatments targeted at achieving a reduction in the number of human caused fires and the impact of wildland fires on Washington County. This section of the plan identifies and prioritizes potential mitigation actions, including treatments, that can be implemented in the County to pursue that goal. As there are many land management agencies and thousands of private landowners in Washington County, it is reasonable to expect that differing schedules of adoption will be made and varying degrees of compliance will be observed across all ownerships.

The land management agencies in Washington County, including the Oregon Department of Forestry, are participants in the planning process and have contributed to its development. Where available, their schedule of land treatments has been considered in the planning process to improve the correlation between their identified planning efforts and the efforts of Washington County.

Washington County encourages the building of disaster resistance in normal day-to-day operations. By implementing plan activities through existing programs and resources, the cost of mitigation is often a small portion of the overall cost of a project's design or program.

All risk assessments were made based on the conditions existing during 2006. Thus, the recommendations in this section have been made in light of those conditions. However, the components of risk and the preparedness of the County's resources are not static. It will be necessary to fine-tune this plan's recommendations regularly to adjust for changes in the components of risk, population density changes, infrastructure modifications, and other factors.

5.1 Maintenance and Monitoring

As part of the policy of Washington County, the Community Wildfire Protection Plan will be reviewed at special meetings of the planning committee, open to the public and involving all municipalities/jurisdictions, where action items, priorities, budgets, and modifications can be made or confirmed. The Washington County Office of Consolidated Emergency Management (or other designee of the Washington County Commissioners) is responsible for scheduling, publicizing, and leading of the review meetings. During these meetings, participating jurisdictions will report on their respective projects and identify needed changes and updates to the existing plan. Maintenance of the plan will be detailed at this meeting, documented, and attached to the formal plan as an amendment. Complete re-evaluation of the plan will be made every five years. The five year review will include updates to the GIS data and mapping, re-evaluation of other Washington County planning documents, re-evaluation of wildfire extent and ignition profiles, and revision of community assessments.

5.2 Prioritization of Mitigation Activities

Generally speaking, the prioritization of projects will be based on a process that creates a balanced approach and recognizes the following hierarchy of protection in order (highest first):

- People
- Infrastructure
- Local and Regional Economy

- Traditional Way of Life
- Ecosystems

The prioritization process will include a special emphasis on benefit-cost analysis review. The process will reflect that a key component in any funding decision is a determination that the project will provide an equivalent or more in benefits over the life of the project when compared with the costs.

Use of federal or state hazard mitigation funding typically requires that a rigorous benefit-cost analysis be used to establish project priorities. FEMA's three grant programs that offer federal mitigation funding to state and local governments (the post-disaster Hazard Mitigation Grant Program (HMGP), the pre-disaster Flood Mitigation Assistance (FMA) and Pre-disaster Mitigation (PDM) grant programs) all include the benefit-cost criteria. The County and other local governments desiring to use federal or state mitigation program funds must be aware of the program requirements and ensure compliance with their benefit-cost and project prioritization expectations.

The County will consider all pre-disaster mitigation proposals brought forward by department heads, city officials, fire districts, and local civic groups. Often the types of projects the County can afford to do on its own are related to improved codes and standards, department planning and preparedness, and education. These types of projects may not meet the traditional project model, selection criteria, and benefit-cost model. The elected officials of other local jurisdictions will evaluate opportunities and establish their own unique priorities to accomplish mitigation activities where existing funds, staffing, and resources are available and there is community interest in implementing mitigation measures. If no federal funding is used in these situations, the prioritization process may be less formal.

The prioritization of new projects and deletion of completed projects will be conducted in conjunction with the periodic and five-year reviews of the plan. The process will be facilitated by the Office of Consolidated Emergency Management.

5.2.1 Prioritization Scheme

A numerical scoring system is used to prioritize projects. This prioritization serves as a guide for the County when developing mitigation activities. The project prioritization scheme has been designed to rank projects on a case-by-case basis. In many cases, a very good project in a lower priority category could outrank a mediocre project in a higher priority. The County mitigation program does not want to restrict funding to only those projects that are high priority because what may be a high priority for a specific community may not be a high priority at the County level. Regardless, the project may be just what the community needs to mitigate disaster. The flexibility to fund a variety of diverse projects based on varying criteria is a necessity for a functional mitigation program at the County and community level.

To implement this case-by-case concept, a more detailed process for evaluating and prioritizing projects has been developed. Any type of project, whether countywide or site-specific, will be prioritized in this more formal manner. This prioritization scheme has been used in statewide all hazard mitigation plans. Since planning projects are somewhat different than non-planning projects, different criteria will be considered when prioritizing them.

The factors for the non-planning projects include:

- Benefit / Cost
- Population Benefit
- Property Benefit

- Economic Benefit
- Project Feasibility (environmentally, politically, socially)
- Hazard Magnitude/Frequency
- Potential for repetitive loss reduction
- Potential to mitigate hazards to future development
- Potential project effectiveness and sustainability

The factors for the planning projects include:

- Benefit / Cost
- Vulnerability of the community or communities
- Potential for repetitive loss reduction
- Potential to mitigate hazards to future development

Since some factors are considered more critical than others, two ranking scales have been developed. A scale of 1-10, with 10 being the best, is used for cost, population benefit, property benefit, economic benefit, and vulnerability of the community. Project feasibility, hazard magnitude/frequency, potential for repetitive loss reduction, potential to mitigate hazards to future development, and potential project effectiveness and sustainability are all rated on a 1-5 scale, with 5 being the best. The highest possible score for a non-planning project is 65 and for a planning project is 30.

The guidelines for each factor are as follows:

5.2.1.1 Benefit / Cost (BC)

The analysis process will include summaries as appropriate for each project as well as benefit / cost analysis results. Projects with a negative BC analysis result will be ranked as a 0. Projects with a positive BC analysis will receive a score equal to the projects BC analysis results divided by 25. Therefore a project with a BC ratio of 125:1 would receive 5 points, a project with a BC ratio of 250:1 (or higher) would receive the maximum points of 10.

FEMA regulations found at 44 CFR 201.4(c)(4)(iii) detail criteria for prioritizing communities and local jurisdictions that would receive planning and project grants under available funding programs, which should include consideration for communities with the highest risks, repetitive loss properties, and most intense development pressures. Further, the regulations state that for non-planning grants, a principal criterion for prioritizing grants shall be the extent to which benefits are maximized according to a BC review of proposed projects and their associated costs. For many of the initiatives identified in this plan, the County may seek financial assistance under FEMA's HMGP or PDM programs. Both of these programs require detailed BC analysis as part of the FEMA award process. Washington County is committed to implementing mitigation strategies with benefits which exceed costs. For projects which do not require this type of analysis, the County reserves the right to define "benefits" according to parameters that would otherwise be considered subjective, while still meeting the needs and goals of the plan.

5.2.1.2 Population Benefit

Population benefit relates to the ability of the project to prevent the loss of life or injuries. A ranking of 10 has the potential to impact 90% or more of the people in the municipality (county, city, or district). A ranking of 5 has the potential to impact 50% of the people, and a ranking of 1 will not impact the population. The calculated score will be the percent of the population impacted positively multiplied by 10. In some cases, a project may not directly provide population benefits, but may lead to actions that do, such as in the case of a study. Those

projects will not receive as high of a rating as one that directly affects the population, but should not be considered to have no population benefit.

5.2.1.3 Property Benefit

Property benefit relates to the prevention of physical losses to structures, infrastructure, and personal property. These losses can be attributed to potential dollar losses. Similar to cost, a ranking of 10 has the potential to save \$100,000,000 or more in losses. Property benefit of less than \$100,000,000 will receive a score of the benefit divided by \$100,000,000, times 10. Therefore, a property benefit of \$20,000,000 would receive a score of 2 ($[20,000,000 \div 100,000,000] \times 10 = 2$). In some cases, a project may not directly provide property benefits, but may lead to actions that do, such as in the case of a study. Those projects will not receive as high of a rating as one that directly affects property, but should not be considered to have no property benefit.

The property benefits used to prioritize Washington County action items were calculated based on assessed values of buildings provided by the Washington County Assessor's office.

5.2.1.4 Economic Benefit

Economic benefit is related to the savings from mitigation to the economy. This benefit includes reduction of losses in revenues, jobs, and facility shut downs. Since this benefit can be difficult to evaluate, a ranking of 10 would prevent a total economic collapse, a ranking of 5 would prevent losses to about half the economy, and a ranking of 1 would not prevent any economic losses. In some cases, a project may not directly provide economic benefits, but may lead to actions that do, such as in the case of a study. Those projects will not receive as high of a rating as one that directly affects the economy, but should not be considered to have no economic benefit.

5.2.1.5 Vulnerability of the Community

For planning projects, the vulnerability of the community is considered. A community with higher vulnerability than other jurisdictions to a hazard or hazards being studied or planned for will receive a higher score. A community that is the most vulnerable would receive a score of 10, and one that is the least, a score of 1.

5.2.1.6 Project Feasibility (Environmentally, Politically, and Socially)

Project feasibility relates to the likelihood that such a project could be completed. Projects with low feasibility would include projects with significant environmental concerns or public opposition. A project with high feasibility has public and political support without environmental concerns. Those projects with very high feasibility would receive a ranking of 5 and those with very low would receive a ranking of 1.

5.2.1.7 Hazard Magnitude/Frequency

The hazard magnitude/frequency rating is a combination of the recurrence period and magnitude of a hazard. The severity of the hazard being mitigated and the frequency of that event must both be considered. For example, a project mitigating a 10-year event that causes significant damage would receive a higher rating than one that mitigates a 500-year event that causes minimal damage. For a ranking of 5, the project mitigates a high frequency, high

magnitude event. A 1 ranking is for a low frequency, low magnitude event. Note that only the damages being mitigated should be considered here, not the entire losses from that event.

5.2.1.8 Potential for repetitive loss reduction

Those projects that mitigate repetitive losses receive priority consideration here. Common sense dictates that losses that occur frequently will continue to do so until the hazard is mitigated. Projects that would reduce losses that have occurred more than three times receive a rating of 5. Those that do not address repetitive losses receive a rating of 1.

5.2.1.9 Potential to mitigate hazards to future development

Proposed actions that can have a direct impact on the vulnerability of future development are given additional consideration. If hazards can be mitigated at the onset of the development, the County will be less vulnerable in the future. Projects that would have a significant affect on all future development receive a rating of 5. Those that do not affect development should receive a rating of 1.

5.2.1.10 Potential project effectiveness and sustainability

Two important aspects of all projects are effectiveness and sustainability. For a project to be worthwhile, it needs to be effective and actually mitigate the hazard. A project that is questionable in its effectiveness will score lower in this category. Sustainability is the ability for the project to be maintained. Can the project sustain itself after grant funding is spent? Is maintenance required? If so, are or will the resources be in place to maintain the project. An action that is highly effective and sustainable would receive a ranking of 5. A project with effectiveness that is highly questionable and not easily sustained would receive a ranking of 1.

5.2.1.11 Final ranking

Upon ranking a project in each of these categories, a total score can be derived by adding together each of the scores. The project can then be ranked high, medium, or low based on the following:

Project Ranking Priority Score - Non-Planning Projects

- High 40-65
- Medium 25-39
- Low 1-24

Project Ranking Priority Score - Planning Projects

- High 18-30
- Medium 12-17
- Low 1-11

5.3 Possible Wildfire Mitigation Activities

As part of the implementation of wildfire mitigation activities in Washington County, a variety of management tools may be used. Management tools include but are not limited to the following:

- Homeowner and landowner education
- Policy changes for structures and infrastructure in the Wildland Urban Interface

- Home site defensible zone through fuels modification
- Community defensible zone through fuels alteration
- Access improvements
- Emergency response enhancements (training, equipment, locating new fire stations, new fire districts, pre-planning)
- Regional land management recommendations for private, state, and federal landowners

Sound risk management is a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. Net gains to the public benefit will be an important component of all mitigation decisions. Maintaining private property rights will also be a guiding principle in mitigation decision-making.

5.4 Safety and Policy

Wildfire mitigation efforts must be supported by a set of policies and regulations at the county level that maintain a solid foundation for safety and consistency. The recommendations enumerated here serve that purpose. Because these items are regulatory in nature, they will not necessarily be accompanied by cost estimates. These recommendations are policy related and therefore are recommendations to the appropriate elected officials; debate and formulation of alternatives will serve to make these recommendations suitable and appropriate.

Table 5.1. Action Items in Safety and Policy.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
5.1.a: Incorporate the Washington County Community Wildfire Protection Plan as a supplement to the Washington County Natural Hazard Mitigation Plan.	Protection of people and structures by dovetailing this planning process with other County planning documents.	Lead: Washington County Office of Consolidated Emergency Management	Ongoing: Incorporate the goals and projects outlined in this plan into the Natural Hazard Mitigation Plan.
	Priority: High		
5.1.b: Review the County's burn permit and fire restriction enforcement policies and try to improve their applicability on the ground.	Protection of people and structures by reducing the fire ignition risk in fire prone areas.	Lead: Fire Defense Board Support: Washington County, Oregon Department of Forestry, and Oregon Department of Environmental Quality	Year 1 (2007): Consider and develop policy to address burn permit system and enforcement to help reduce the number of accidental ignitions.
	Priority: High		
5.1.c: Incorporate the Washington County Community Wildfire Protection Plan as a supplement to the Washington County Comprehensive Plan, where applicable.	Protection of people and structures by dovetailing this planning process with other County planning documents.	Lead: Washington County Dept. of Land Use and Transportation	Ongoing: Incorporate the goals and projects outlined in this plan into the Comprehensive Plan.
	Priority: High		
5.1.d: Amend the existing Washington County Fire Resource Management Plan to include responsibilities and procedures for communications, initial organization, transition to incident management team, and policy decisions during large wildfire incidents.	Protection of people and structures by improving the ability of emergency services personnel and the county to respond to large wildfire incidents involving state resources and multiple operational periods.	Lead: Fire Defense Board	Year 1 (2007): Review current Fire Resource Management Plan and identify missing or outdated elements. Year 1 – 2 (2007-08): Begin revision process.
	Priority: High		

Table 5.1. Action Items in Safety and Policy.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
<p>5.1.e: Form a “Building Code Maintenance and Enforcement” committee to deal with issues regarding the maintenance of building code standards pertaining to emergency access and response after initial inspections (e.g. road widths, vegetation, bridges, onsite water sources, etc.)</p>	<p>Protection of people and structures by helping to alleviate emergency access and response issues after initial construction.</p>	<p>Lead: Fire Defense Board</p>	<p>Year 1 (2007): Develop an action plan and contact potential committee members.</p> <p>Year 1 – 2 (2007-08): Develop a system to provide for the enforcement and regular maintenance of building code standards on private property. This plan should also include the development of annual flyers, a 5 year self-assessment packet for landowners, and an incentive program (e.g. insurance, taxes, etc.). Committee will also need to develop a database to track new construction, real estate transactions, maintenance cycles, and landowner notification system.</p>
	<p>Priority: High</p>		
<p>5.1.f: Distribute Firewise-type brochures with building permit applications.</p>	<p>Protection of people and structures by improving homeowners’ awareness of fire defensibility techniques and rural living responsibilities.</p>	<p>Lead: Washington County Land Use and Transportation Support: Fire Defense Board</p>	<p>Year 1 (2007): Obtain copyrights to the approved pamphlet or begin designing an original document.</p> <p>Ongoing: Distribute pamphlets.</p>
	<p>Priority: Medium</p>		
<p>5.1.g: Assess areas currently outside of existing fire district for annexation due to increasing population or high fire risk.</p>	<p>Protection of people and structures by improving the ability of emergency response personnel to keep up with the expanding population.</p>	<p>Lead: Washington County Commissioners Support: Fire Defense Board and State Fire Marshal’s Office</p>	<p>Year 1 (2007): Study areas of high growth and/or high risk for possible annexation into existing fire district.s.</p> <p>Year 2 (2008): Implement study results and recommendations.</p>
	<p>Priority: High</p>		
<p>5.1.h: Provide for regular coordination between the State Fire Marshal’s Office, Washington County Land Use & Transportation, and the Washington County Fire Defense Board by each entity participating in monthly Fire Defense Board meetings.</p>	<p>Protection of people and structures by improving communication among local jurisdictions.</p>	<p>Lead: Fire Defense Board</p>	<p>Year 1 (2007): Formally invite additional LUT employees to Fire Defense Board meetings.</p> <p>Year 2 (2008): Collaboratively develop a process to notify local and state fire marshals of new construction occurring outside of existing fire district boundaries.</p>
	<p>Priority: High</p>		
<p>5.1.i: Provide for the development of consistent regulations and standards in the wildland urban interface (as identified in this plan) by coordinating the adoption of this CWPP by all local jurisdictions.</p>	<p>Protection of people and structures by creating consistent standards throughout the County.</p>	<p>Lead: Fire Defense Board Support: CWPP Planning Committee, Office of Consolidated Emergency Management, and incorporated cities of Washington County.</p>	<p>Year 1 (2007): Notify jurisdictions regarding the purpose and benefits of the Community Wildfire Protection Plan.</p>
	<p>Priority: High</p>		

Table 5.1. Action Items in Safety and Policy.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
5.1.j: Reestablish the West Metro Fire Prevention Coop.	Protection of people and structures by organizing a committee to lead fire prevention and risk reduction efforts.	Lead: Fire Defense Board Support: Ex-members and/or organizations of the West Metro Fire Prevention Coop (Connie King, President).	Year 1 (2007): Contact ex-members to see if there is interest in re-organizing the Coop. Begin holding regular meetings and planning activities.
	Priority: High		
5.1.k: Begin pre-planning emergency evacuation routes with specifications for varying conditions.	Protection of people and structures by improving the ability of emergency response personnel to efficiently and effectively conduct an evacuation.	Lead: Washington County Office of Consolidated Emergency Management Support: Washington County Land Use and Transportation and Fire Defense Board	Year 1 (2007): Organize a committee to review potential evacuation routes and begin developing wildfire scenarios in high risk areas. Develop evacuation plans dependent on the different scenarios discussed. Year 2 (2008): Record hazard dependent evacuation plans in usable document and/or database to be available during an emergency.
	Priority: High		
5.1.l: Support prescribed burning as an effective tool to reduce hazardous fuels in the WUI within applicable regulations.	Protection of people and structures by improving the ability of land managers to effectively reduce the risk of wildfire on their property.	Lead: Fire Defense Board	Year 1 (2007): Provide support for land owners/managers seeking opportunities to use prescribed fire as a management tool to reduce wildfire risk.
	Priority: High		

5.5 *People and Structures*

The protection of people and structures will be tied together closely as the loss of life in the event of a wildland fire is generally linked to a person who could not, or did not, flee a structure threatened by a wildfire or to a firefighter combating that fire. Many of the recommendations in this section will define a set of criteria for implementation while others will be rather specific in extent and application.

Many of the recommendations in this section involve education and increasing wildlife awareness among Washington County residents. These recommendations stem from a variety of factors including items that became obvious during the analysis of the public surveys, discussions during public meetings, and observations about choices made by residents living in the wildland-urban interface. Over and over, a common theme was present that pointed to a situation of landowners not recognizing risk factors:

- Fire District personnel pointed to numerous examples of inadequate access to homes of people who believe they have adequate ingress.
- Discussions with the general public indicated an awareness of wildland fire risk, but they could not generally identify risk factors.
- A large number of the respondents to the public mail survey (37%) indicated that they want to participate in educational opportunities focused on the WUI and what they can do to increase their home's chances of surviving a wildfire.

Residents and policy makers of Washington County should recognize certain factors that exist today, that in their absence would lead to an increase in the risk factors associated with wildland fires in Washington County. The items listed below should be acknowledged and recognized for their contributions to the reduction of wildland fire risks:

Forest Management has a significant impact on the fuel composition and structure in Washington County. The forest management programs of the Oregon Department of Forestry and numerous industrial forestland companies in the region have led to some reduction of wildland fuels where they are closest to homes and infrastructure; however, there is significant room for growth in these organizations' fuels reduction programs. Furthermore, forests are dynamic systems that will never be completely free from risk. Treated stands will need repeated treatments to reduce the risk to acceptable levels in the long term.

Agriculture is a significant component of Washington County's economy. Much of the interface area is made up of a mosaic of agricultural crops. The original conversion of these lands to agriculture from forestland, was targeted at the most productive soils and juxtaposition to water. Many of these productive ecosystems were consequently at some of the highest risk to wildland fires because biomass accumulations increased in these productive landscapes. The result today is that much of the landscape historically prone to frequent fires has been converted to agriculture, which is at a much lower risk than prior to its conversion. The preservation of a viable agricultural economy in Washington County is integral to the continued management of wildfire risk in this region.

Table 5.2. Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
<p>5.2.a: Implementation of youth and adult wildfire educational programs.</p>	<p>Protection of people and structures by increasing awareness of WUI risks, how to recognize risk factors, and how to modify those factors to reduce risk.</p>	<p>Cooperative effort including:</p> <ul style="list-style-type: none"> • Oregon Department of Forestry • State and private forestry offices • Bureau of Land Management • Local school districts • Washington County Fire Defense Board • Northwest Oregon Forest Protective Association • Oregon State University Extension • Local non-governmental community organizations • Keep Oregon Green • Local fire districts and departments in Washington County • Incorporated cities and communities of Washington County 	<p>To start immediately using existing educational program materials and personnel resources. Formal needs assessment should be the responsibility of Fire Defense Board and include the development of an integrated WUI educational series by year 2 (2009). Costs initially to be funded through existing budgets for these activities to be followed with grant monies to continue the programs as identified in the formal needs assessment.</p>
	<p>Priority: High</p>		
<p>5.2.b: Prepare for wildfire events in high risk areas by conducting assessments and developing area-specific “Response Plans” to include participation by all affected jurisdictions and landowners.</p>	<p>Protection of people and structures by pre-hazard planning in high fire risk areas.</p>	<p>Lead: Fire Defense Board Support: Affected landowners</p>	<p>Year 1 (2007): Form a committee or subcommittee within the Fire Defense Board to begin developing specific pre-hazard strategies for dealing with wildfire in areas deemed high risk (i.e. highlighted areas on “Project Map” in Appendices I). Begin notifying affected landowners or other involved organizations for their input.</p> <p>Year 2 – 5 (2008 – 2011): Develop area-specific plans for emergency response to wildfire. Plans should take into account available resources, mobilization techniques, potential problem areas, access issues, topographic issues, water availability, emergency notification numbers, etc.</p>
	<p>Priority: Medium</p>		
<p>5.2.c: Wildfire risk assessments of homes in the wildland-urban interface.</p>	<p>Protection of people and structures by increasing awareness of specific risk factors of individual home sites in the at-risk landscapes. Only after these are completed can home site treatments follow.</p>	<p>Lead: Oregon Department of Forestry Support: Fire Defense Board</p> <p>Actual work may be completed by wildfire mitigation consultants.</p>	<p>Cost: Approximately \$100 per home site for inspection, written report, and discussions with the homeowners.</p> <p>There are approximately 75,556 parcels outside of the urban growth boundaries in Washington County. Roughly 7,556 (10%) of these structures would benefit from a home site inspection and budget determination for a total estimate of \$755,600.</p> <p>Action Item: Secure funding and contract to complete the inspections during years 1 & 2 (2007-08)</p> <p>Home site inspection reports and estimated budget for each home site’s treatments will be a requirement to receive funding for treatments through grants.</p>
	<p>Priority: Medium</p>		

Table 5.2. Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
<p>5.2.d: Implementation of home site defensible space treatments.</p>	<p>Protect people, structures, and increase firefighter safety by reducing the risk factors surrounding homes in the WUI of Washington County.</p>	<p>Lead: Oregon Department of Forestry Support: Fire Defense Board and local landowners <i>Complete concurrently with 5.2.b.</i></p>	<p>Actual cost level will be based on the outcomes of the home site assessments.</p> <p>Estimate that treatments will cost an average of \$700 (\$1,000 on forested lots and \$400 for non-forested lots) per home site for a defensible space of about 200'. Approximately 3,778 home site treatments (50% of those assessed) throughout the County would add up to an estimated cost of \$2,644,600.</p> <p>Home site treatments can begin with the securing of funding for the treatments and immediate implementation in 2007 and will continue from year 1 through 5 (2007 - 2008).</p>
	<p>Priority: Medium</p>		
<p>5.2.e: Implementation of community defensible zone treatments in rural subdivisions or housing clusters.</p>	<p>Protect people, structures, and increase firefighter safety by reducing the risk factors surrounding high risk communities in the WUI of Washington County.</p>	<p>Lead: Oregon Department of Forestry Support: Fire Defense Board, local landowners, developers, and homeowner's associations</p>	<p>Actual funding level will be based on the outcomes of the home site assessments and cost estimates.</p> <p>Years 2 - 5 (2008-11): Treat high risk wildland fuels from home site defensible space treatments to an area extending 400 feet to 750 feet beyond home defensible spaces, where steep slopes and high accumulations of risky fuels exist near homes and infrastructure. Should link together home treatment areas. Treatments target high risk concentrations of fuels and not 100% of the area identified. To be completed only after or during the creation of home defensible spaces have been implemented.</p> <p>Approximate average cost on a per parcel basis is \$2,800 (average 4 acres per home at \$700 per acre) depending on extent of home defensibility site treatments, estimate 1,889 homes (50% of treated homes) in need of this type of treatment for a cost estimate of \$5,289,200.</p>
	<p>Priority: Medium</p>		
<p>5.2.f: Maintenance of home site defensible space.</p>	<p>Protect people, structures, and increase firefighter safety by reducing the risk factors surrounding homes in the WUI of Washington County.</p>	<p>Lead: Oregon Department of Forestry Support: Fire Defense Board, local landowners, developers, and homeowner's associations</p>	<p>Home site defensibility treatments must be maintained periodically to sustain benefits of the initial treatments.</p> <p>Each site should be assessed 5 years following initial treatment</p> <p>Estimated re-inspection cost will be \$300 per home site on all sites initially treated or recommended for future inspections (\$1,133,400).</p> <p>Follow-up inspection reports with treatments as recommended every five years.</p>
	<p>Priority: High</p>		

An overview and regional maps of project areas are available in Appendix I.

5.6 Infrastructure

Critical infrastructure refers to the communications, transportation (road and rail networks), energy transport supply systems (gas and power lines), and water supply that service a region or a surrounding area. All of these components are important to northwest

Oregon and to Washington County specifically. These networks are, by definition, a part of the wildland-urban interface in the protection of people, structures, **infrastructure**, and unique ecosystems. Without supporting infrastructure, a community's structures may be protected, but the economy and way of life lost. As such, a variety of components will be considered here in terms of management philosophy, potential policy recommendations, and mitigation recommendations.

Table 5.3. Action Items for Infrastructure Enhancements.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
<p>5.3.a: Create a mechanism to most effectively utilize Washington County Land Use & Transportation, Sheriff's Office, and Oregon Department of Transportation resources during wildfire emergencies and/or evacuations.</p>	<p>Protection of people and structures by improving the efficient use of all available resources during an emergency.</p>	<p>Lead: Office of Consolidated Emergency Management Support: Fire Defense Board, Washington County, and Oregon Department of Transportation</p>	<p>Year 1 (2007): Organize a committee to review policies and contact information for all emergency response organizations as well as other agencies or departments that may have available resources such as reader boards, heavy equipment, trained personnel, etc. Set up a mechanism for the different agencies or departments to report available resources to dispatcher's office during wildfire emergencies.</p>
<p>5.3.b: Implement a fuels management and reduction program along Western Oregon Electric Coop powerline corridor.</p>	<p>Protection of people and structures by reducing the risk of an ignition along the power line and decreasing the risk of losing these lines in the event of wildland fire in the vicinity.</p>	<p>Lead: Western Oregon Electric Coop Support: Fire Defense Board, Oregon Department of Forestry, and adjacent landowners.</p>	<p>Year 1 (2007): Conduct necessary landowner meetings, feasibility studies, and environmental surveys to determine viability of project and options. Year 2 (2008): Develop forest plan for thinning and widening corridor and hire necessary contractors. Year 3 – 6 (2009-12): Implement project plan. Target at least 200' from each side of the powerline at an estimated cost of approximately \$600 per acre treated (820 acres) equaling \$491,736.</p>
<p>5.3.c: Make access improvements to substandard bridges and culverts and limiting road surfaces (e.g. privately owned bridges, Gales Creek Road, etc.).</p>	<p>Protection of people, structures, infrastructure, and economy by improving access for residents and firefighting personnel in the event of a wildfire. Reduce the risk of a road failure that leads to the isolation of people or the limitation of emergency vehicle and personnel access during an emergency.</p>	<p>Lead: Washington County Land Use and Transportation Support: Office of Consolidated Emergency Management and Fire Defense Board</p>	<p>Year 1 (2007): Update existing assessment of travel surfaces, bridges, and culverts in Washington County as to location. Secure funding for implementation of this project (grants). Year 2 (2008): Conduct engineering assessment, the cost of which may be shared between county, state, and private based on landownership associated with road locations. Year 2 (2008): Post weight restriction signs on all limiting crossings, copy information to fire districts and wildland fire protection agencies in affected areas. Estimate cost at roughly \$10,000 for signs and posting. Year 3 (2009): Set up a mechanism to help identify limiting road surfaces in need of improvements to support wildland firefighting vehicles and other emergency equipment on private roads. Some public education regarding the need for engineered bridges and signage may be necessary. Develop plan for improving limiting surfaces including budgets, timing, and resources to be protected for prioritization of projects (benefit/cost ratio analysis). Create budget based on full assessment.</p>

Table 5.3. Action Items for Infrastructure Enhancements.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
<p>5.3.d: Coordinate with private landowners regarding the use of Knox Boxes on gates to improve emergency response times.</p>	<p>Protection of people and structures by improving emergency response access through locked gates.</p>	<p>Lead: Fire Defense Board Support: Local industrial lumber companies , Bureau of Land Management, and other private landowners</p>	<p>Ongoing: Organize a public education campaign (potential coordination with other agencies) to inform public landowners of the benefits of Knox Boxes on locked gates and the importance of sharing this type of information with local fire departments.</p> <p>Coordinate with local industrial lumber companies to ensure emergency response personnel have access through company gates.</p>

Priority: Medium

5.7 Resource and Capability Enhancements

There are a number of resource and capability enhancements identified by the rural and wildland firefighting districts in Washington County. All of the needs identified by the districts are in line with increasing the ability to respond to emergencies and are fully supported by the Community Wildfire Protection Plan committee.

The implementation of each item will rely on either the isolated efforts of the rural fire districts or a concerted effort by the County Fire Defense Board to achieve equitable enhancements across all of the districts. Given historic trends, individual departments competing against neighboring departments for grant monies and equipment will not necessarily achieve countywide equity. However, the County Office of Consolidated Emergency Management may be an organization uniquely suited to work with all of the districts in Washington County and adjacent counties to assist in the prioritization of needs across district and even county lines. Once prioritized, the Office of Consolidated Emergency Management and the Fire Defense Board are in a position to assist these districts with identifying, competing for, and obtaining grants and equipment to meet these needs.

Table 5.4. Action Items for Firefighting Resource and Capability Enhancements.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
5.4.a: Obtain an updated brush truck and structural engine for the Gaston Rural Fire Protection District.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Gaston Rural Fire Protection District	Year 1 (2007): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2007-08): Acquire and deliver needed materials and equipment.
5.4.b: Obtain hand tools, medical supplies, training equipment, station administrative equipment, and new wildland fire personal protective gear for the Gaston Rural Fire Protection District.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Gaston Rural Fire Protection District	Year 1 (2007): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2007-08): Acquire and deliver needed materials and equipment.
5.4.c: Obtain two updated structural engines (Type I) and two updated brush trucks (Type 3) for Washington County Fire District #2.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Washington County Fire District #2	Year 1 (2007): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2007-08): Acquire and deliver needed materials and equipment.
5.4.d: Obtain AED's, suction, firefighting hose and appliances, foam, hand tools, and training equipment for Washington County Fire District #2.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Washington County Fire District #2.	Year 1 (2007): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2007-08): Acquire and deliver needed materials and equipment.
5.4.e: Develop a countywide training program to benefit all fire response agencies in Washington County.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Fire Defense Board	Year 1 (2007): Develop program plans and guidelines. Obtain funding and support from all districts and departments. Year 2 (2008): Purchase needed equipment and begin scheduling training sessions.
5.4.f: Obtain a brush truck for Forest Grove Fire and Rescue.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Forest Grove Fire and Rescue	Year 1 (2007): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2007-08): Acquire and deliver needed materials and equipment.
5.4.g: Map, develop GIS database, and provide signage for onsite water sources such as hydrants, underground storage tanks, and dipping sites on all ownerships across the County.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Fire Defense Board Support: County Watermaster	Year 1 (2007): Begin development of database and compilation and digitization of existing map books. Coordinate effort with County Water Master. Year 1- 2 (2007-08): Begin training dispatch and individual departments and districts to use new database and mapping system.

Table 5.4. Action Items for Firefighting Resource and Capability Enhancements.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
5.4.h: Obtain funding to outfit fire departments with onboard GPS mapping/location systems to improve response efficiency.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Fire Defense Board Support: County Watermaster, Office of Consolidated Emergency Management and individual fire departments and districts.	Year 1 (2007): Verify stated need still exists, develop budget, and locate funding and equipment sources. Year 1 or 2 (2007-08): Acquire and deliver needed materials and equipment. Possible coordination with Action Item 5.4.k.
5.4.i: Obtain slip-on type and portable wildland firefighting pump units, a fold-a-tank, hose, and hand tools for Metro Regional Parks and Greenspaces and Tualatin Hills Park and Recreation District.	Protection of people and structures by improving Metro's ability to fight fire. Priority: Medium	Lead: Metro Regional Parks and Greenspaces and Tualatin Hills Park and Recreation District	Year 1 (2007): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2007-08): Acquire and deliver needed materials and equipment.
5.4.j: Obtain a Type III brush unit for Banks Fire Protection District #13.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Banks Fire Protection District #13	Year 1 (2007): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2007-08): Acquire and deliver needed materials and equipment.
5.4.k: Obtain funding for updated brush trucks to be allocated to local departments depending on need.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Fire Defense Board and ODF. Support: Local fire departments and districts	Year 1 (2007): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2007-08): Acquire and deliver needed materials and equipment.
5.4.l: Obtain a dual purpose brush unit for the Cornelius Fire Department.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Cornelius Fire Department	Year 1 (2007): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2007-08): Acquire and deliver needed materials and equipment.
5.4.m: Work on obtaining a more stable funding mechanism for the Cornelius Fire Department.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Cornelius Fire Department	Year 1 & 2 (2007 - 08): Verify stated need still exists and work with the city of Cornelius as well as constituents to develop a stable mechanism to fund the department in a more sustainable fashion.

5.8 Proposed Project Areas

5.8.1 Proposed Home Defensible Space Projects

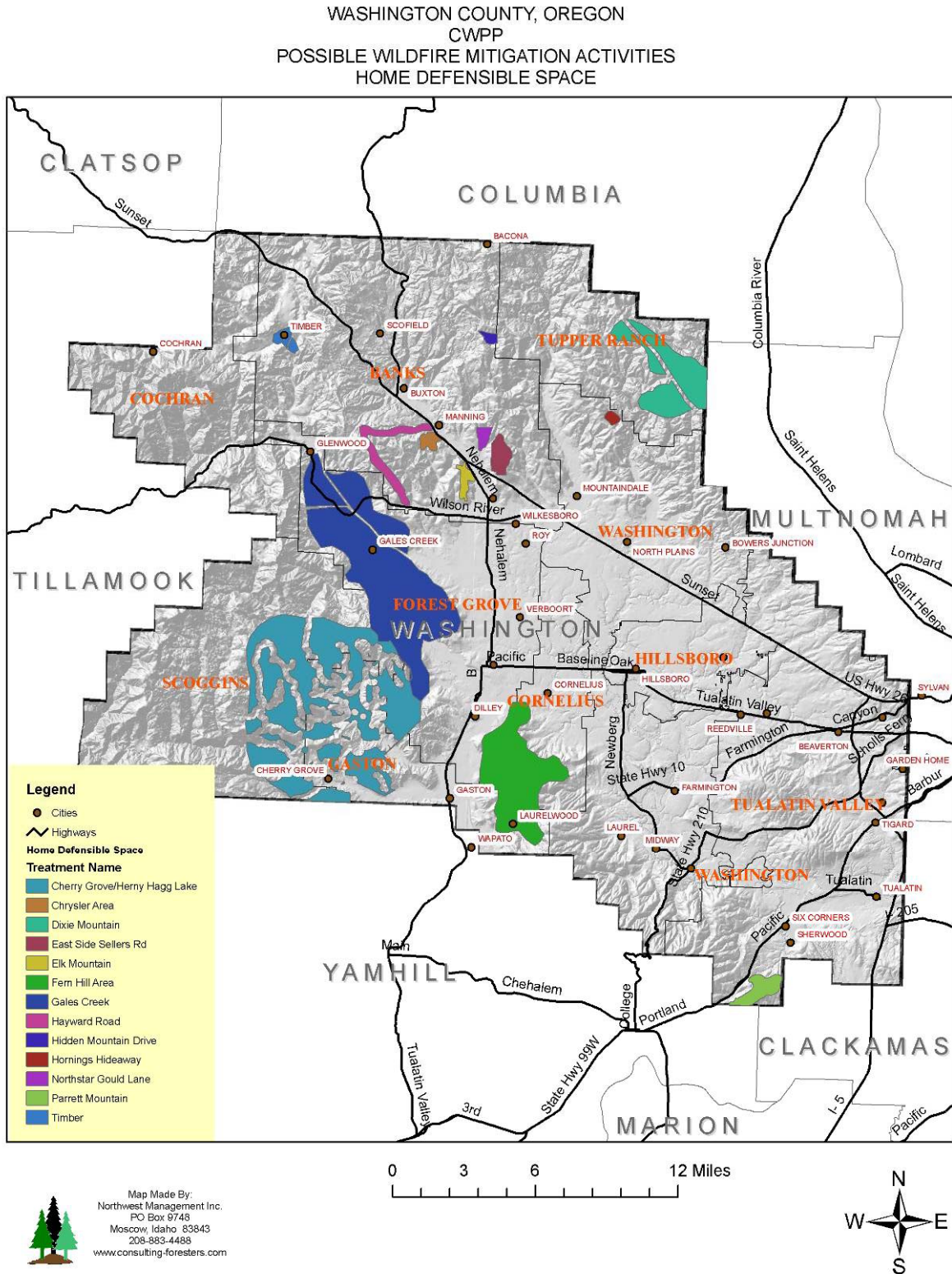
The following home defensible space project areas were identified by the CWPP planning committee as having multiple factors contributing to the potential wildfire risk to residents, homes, infrastructure, and the ecosystem. Treatments within the project areas will be site-specific, but will likely include homeowner education, creation of a wildfire defensible space around structures, and access corridor improvements. Specific site conditions may call for other types of fuels reduction and fire mitigation techniques as well. The estimated project cost was calculated by assuming an average treatment cost of \$700 per parcel (\$400 per parcel for non-forested areas and \$1000 per parcel in forested areas).

The Oregon Department of Forestry, Bureau of Land Management, and/or the Washington County Fire Defense Board may take the lead on implementation of many of these projects; however, project boundaries were purposely drawn without regard to land ownership in order to capture the full breadth of the potential wildland fire risk. Coordination and participation by numerous landowners will be required for the successful implementation of the identified projects. Additional planning information on these projects is included in the Appendices.

Table 5.5. Proposed Home Defensible Space Project Areas.

Project Areas	Total Parcels	Estimated Project Cost	Priority Ranking
Hayward Road Project	67	46,900	Medium
Hornings Hideaway Project	6	\$4,200	Medium
Dixie Mountain Project	114	\$79,800	High
Timber Project	119	\$83,300	Medium
Gales Creek Project	823	\$576,100	High
Chrysler Project	60	\$42,000	Medium
Elk Mountain Project	133	\$93,100	High
Parrett Mountain Project	147	\$102,900	High
Fern Hill Project	571	\$399,700	High
Cherry Grove - Henry Hagg Lake Project	622	\$435,400	Medium
Northstar Gould Lane Project	39	\$27,300	Medium
East Side Sellers Road Project	76	\$53,200	Medium
Hidden Mountain Project	16	\$11,200	Medium

Figure 5.1. Map of Proposed Home Defensible Space Projects



5.8.2 Proposed Community Defensible Zone Projects

The following community defensible zone projects were identified by the planning committee as high wildfire risk areas beyond the immediate vicinity of the home defensible space projects. The community defensible zone projects include common spaces or additional public or private property surrounding more densely populated areas.

The proposed community defensible zone projects are intended to treat high risk wildland fuels to an area extending beyond home defensible spaces, where steep slopes and high accumulations of risky fuels exist near homes and infrastructure. These projects should link home site treatments areas together. Community defensible zone treatments should target high risk concentrations of fuels and not necessarily 100% of the area identified. These projects should be completed only after or during home defensible space project implementation.

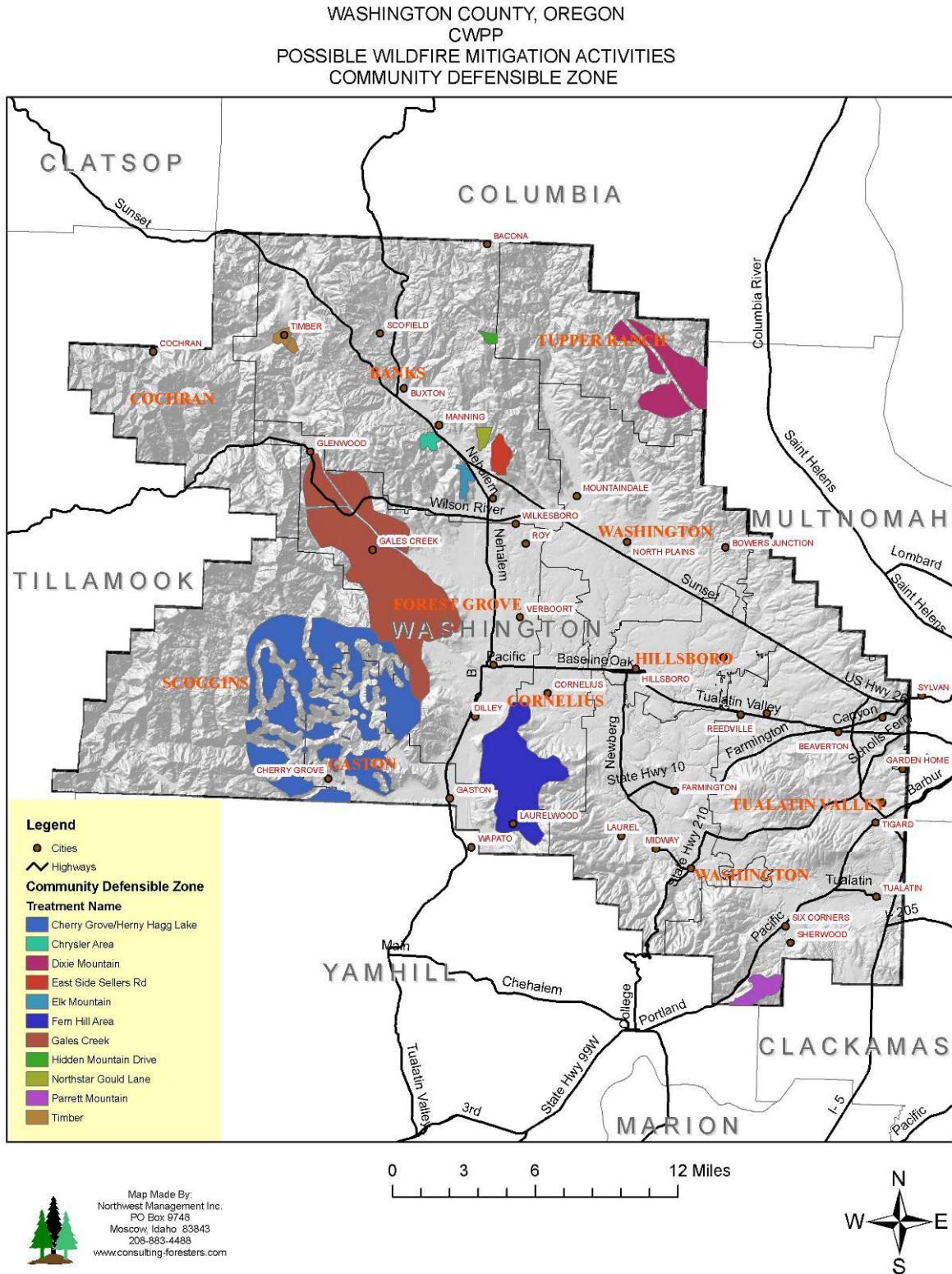
The estimated project costs were calculated based on treating an additional four acres per parcel at approximately \$700 per acre. Cost estimates assume that no revenue was generated by the removal of timber or other product. Community defensible zone projects may include, but are not limited to; commercial or precommercial thinning, prescribed burning, installation of greenbelts or fuel breaks, and general forest health improvements.

The Oregon Department of Forestry, Bureau of Land Management, and/or the Washington County Fire Defense Board may take the lead on implementation of many of these projects; however, project boundaries were purposely drawn without regard to land ownership in order to capture the full breadth of the potential wildland fire risk. Coordination and participation by numerous landowners will be required for the successful implementation of the identified projects. Additional planning information on these projects is included in the Appendices.

Table 5.6. Proposed Community Defensible Zone Project Areas.

Project Areas	Total Parcels	Estimated Project Cost	Priority Ranking
Dixie Mountain Community Project	114	\$223,440	Medium
Timber Community Project	119	\$223,240	Medium
Gales Creek Community Project	823	\$1,611,120	Medium
Chrysler Community Project	60	\$448,000	Medium
Elk Mountain Community Project	133	\$260,680	Medium
Parrett Mountain Community Project	147	\$288,120	Medium
Fern Hill Community Project	571	\$1,119,160	Medium
Cherry Grove - Henry Hagg Lake Community Project	622	\$290,080	Medium
Northstar Gould Lane Community Project	39	\$76,440	Medium
East Side Sellers Road Community Project	76	\$344,960	Medium
Hidden Mountain Community Project	16	\$31,360	Medium

Figure 5.2. Map of Proposed Community Defensible Zone Projects



5.8.3 Proposed Fuels Reduction Projects

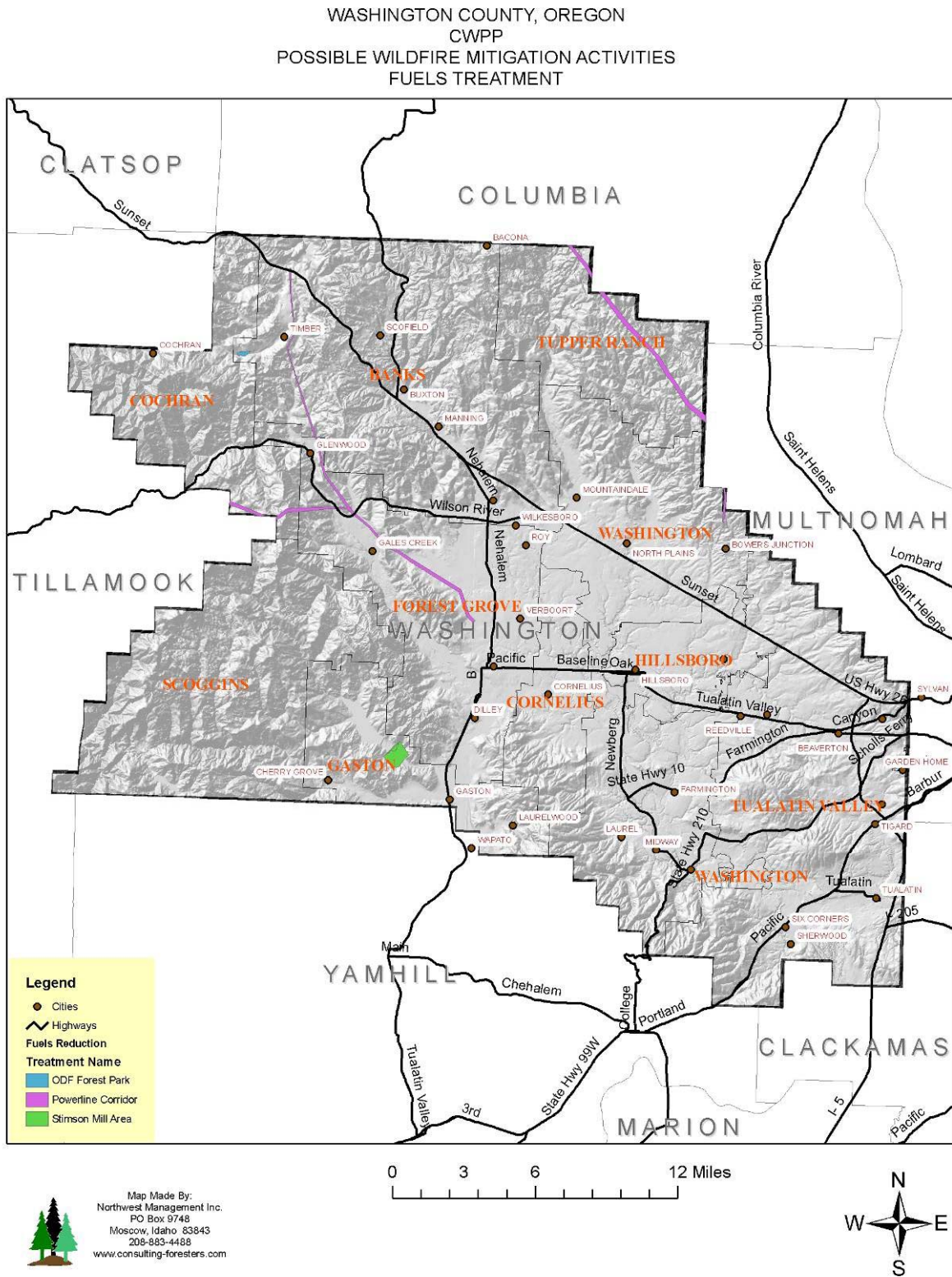
The following proposed fuels reduction projects were identified by the planning committee to be specific areas at high risk to wildfire due not only to the forest fuels, but also due to increased likelihood of an ignition. High use recreational areas or industrial operations in or near forestland fuels have an increased likelihood of an ignition from human or mechanical sources. The proposed fuel reduction projects will likely include more general fuels treatments such as forest health improvements in the surrounding area in conjunction with enhanced fire safety precautions. Installation of escape proof fire pits, barbeque stands, designated trails, and restricted use of fireworks can help reduce the ignition risk in recreational areas, while having numerous fire extinguishers on site and creating a maintained fuel break between mechanical operations and forestlands can decrease the ignition risk in industrialized areas.

The estimated project cost was based on \$250 per acre of treatment. Cost estimates assume that no revenue was generated by the removal of timber or other product. The Oregon Department of Forestry, Bureau of Land Management, and/or the Washington County Fire Defense Board may take the lead on implementation of many of these projects; however, project boundaries were purposely drawn without regard to land ownership in order to capture the full breadth of the potential wildland fire risk. Coordination and participation by numerous landowners may be required for the successful implementation of the identified projects.

Table 5.7. Proposed Fuels Reduction Project Areas.

Projects Areas	Total Acres	Estimated Project Cost	Priority Ranking
Stimson Mill Fuels Project	395	\$98,750	Medium
Power Line Corridor	2,295	\$573,750	Medium
ODF Forest Park Fuels Project	49	\$12,250	Medium

Figure 5.3. Map of Proposed Fuels Reduction Projects



5.8.4 Proposed Roadside Fuels Treatment Projects

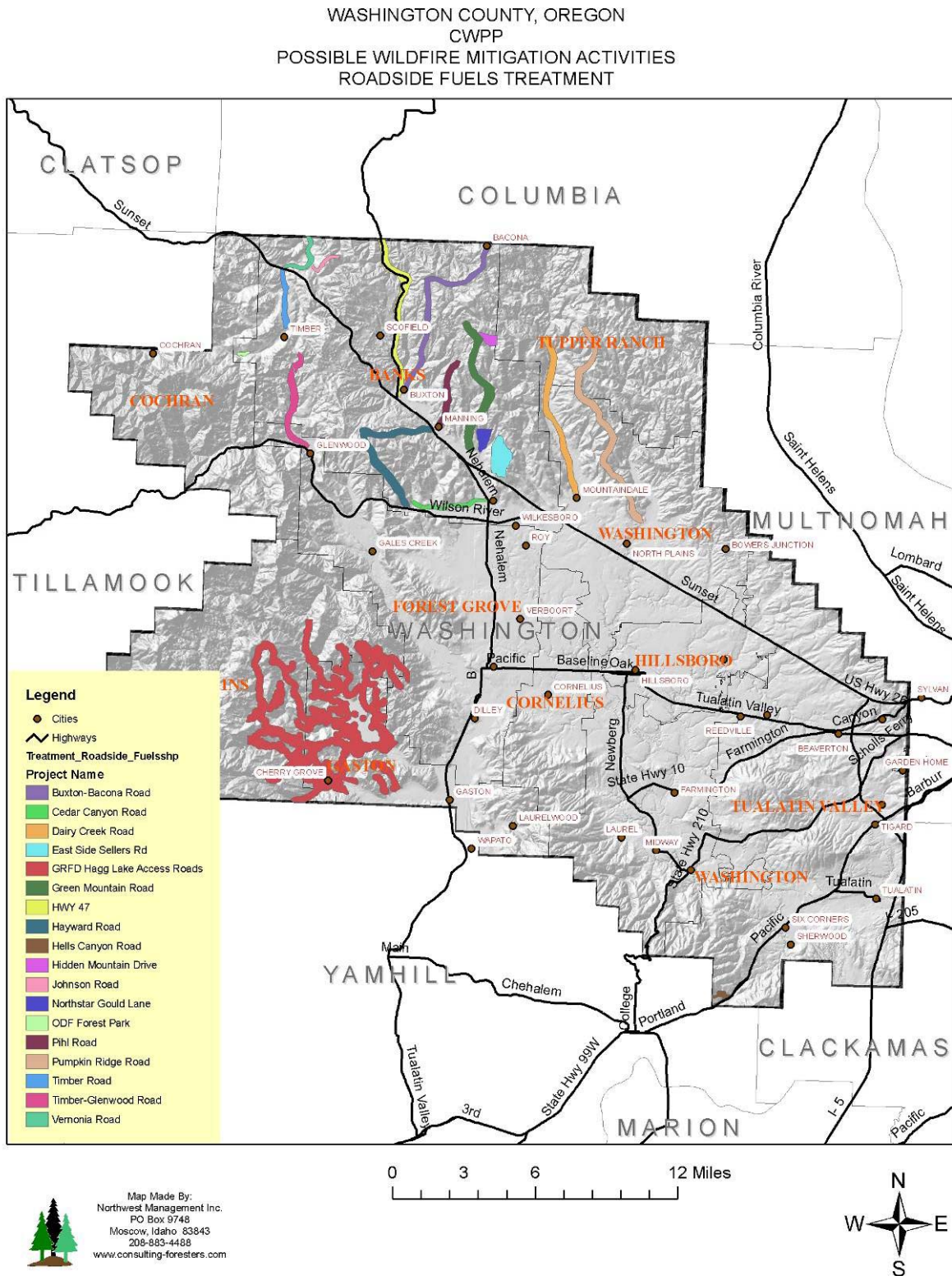
The proposed roadside fuels treatment projects are access corridors identified by the planning committee as being potentially unsafe for both ingress by emergency responders and egress in the event of an emergency evacuation due to wildfire. Treatments within the project areas will be site-specific, but will likely include precommercial or commercial thinning within 200 feet from each side of the road, herbicide applications, and brush removal with the intent to create a fuel break along the road corridor. Prescriptions may include more intense removal of trees and other vegetation within 5 to 100 feet of the road and reduced intensity removal farther out. This technique will help lessen the intensity of a wildfire and may bring a crown fire to the ground before it reaches the road. Specific site conditions may call for other types of fuels reduction and fire mitigation techniques as well. The estimated project cost was calculated by assuming an average treatment cost of \$700 per acre of treatment.

The Oregon Department of Forestry, Bureau of Land Management, Washington County Fire Defense Board, and or the Washington County Land Use and Transportation may take the lead on implementation of many of these projects; however, project boundaries were purposely drawn without regard to land ownership in order to capture the full breadth of the potential wildland fire risk. Coordination and participation by numerous landowners will be required for the successful implementation of the identified projects. Additional planning information on these projects is included in the Appendices.

Table 5.8. Proposed Roadside Fuels Treatment Projects.

Roadside Fuels Treatments	Approximate Miles	Approximate Acres	Estimated Project Cost	Priority Ranking
Hayward Road Project	9	226	\$158,200	Medium
Hells Canyon Road Project	1	29	\$20,300	Medium
Johnson Road Project	2	38	\$26,600	Medium
ODF Forest Park Road Project	1	25	\$17,500	High
Pumpkin Ridge Road Project	15	366	\$256,200	Medium
Vernonia Road Project	3	64	\$44,800	Medium
Timber Road Project	3	65	\$45,500	Medium
Cedar Canyon Road Project	4	94	\$65,800	High
Pihl Road Project	4	90	\$63,000	High
Timber-Glenwood Road Project	5	124	\$86,777	Medium
Buxton-Bacona Road Project	9	208	\$145,600	Medium
Dairy Creek Road Project	7	180	\$126,000	High
Highway 47 Project	7	176	\$123,200	Medium
Green Mountain Road Project	7	158	\$110,600	High
Henry Hagg Lake Access Roads Project	117	2,847	\$1,992,900	Medium
Northstar Gould Lane	3	65	\$45,317	High
East Side Sellers Road	4	95	\$66,545	High
Hidden Mountain	2	45	\$31,500	Medium

Figure 5.4. Map of Proposed Roadside Fuels Treatment Projects



5.9 Regional Land Management Recommendations

Wildfires will continue to ignite and burn depending on the weather conditions and other factors enumerated earlier. However, active land management that modifies fuels, promotes healthy forestland conditions, and promotes the use of natural resources (consumptive and non-consumptive) will insure that these lands have value to society and the local region. The Oregon Department of Forestry, Metro Parks and Greenspaces, Tualatin Hills Park and Recreation District, industrial forestland owners, private forestland owners, and all agricultural landowners in the region should be encouraged to actively manage their wildland-urban interface lands in a manner consistent with reducing fuels and risks in this zone.

The following sections help identify where some of the land management agencies in Washington County have planned, current, or proposed fuel reduction projects. Where possible, these projects have also been mapped and are presented in Appendix I. Knowing where agency projects are located can help other agencies prioritize their own fuels reduction projects. Simultaneous fuels reduction projects occurring on adjacent properties is not only encouraged, but this can also help cut down on costs.

5.9.1 Bureau of Land Management

The Bureau of Land Management (BLM) currently has three planned timber sales that, due to the slash treatment techniques being applied, will help reduce some of the potential wildfire risk on their property as well as on adjacent parcels. Each sale, Plentywater, Plenty Agua, and Scoggins, consist of several units. Provisions have been made to dispose of the slash created by the Plentywater and Scoggins sales by piling and burning in locations a reasonable distance from the property lines. The Plenty Agua sale slash treatments will consist primarily of landing piles to be burned upon completion of logging. Within twenty-five feet of designated property lines and the roadbed, slash will be scattered over the site to a depth of no more than one foot measured from mineral soil. This provision has been included on this sale for the specific purpose of reducing the fire hazard.

5.9.2 Metro Parks and Greenspaces

5.9.2.1 Cooper Mountain Natural Area

Metro has owned and managed the Cooper Mountain Natural Area (CMNA) since around 1996. The CMNA is located west of Beaverton. The site is comprised of approximately 250 acres of contiguous mature and regenerating coniferous forest, oak woodland and upland prairie. Most of the site was clear-cut in 1995, just prior to Metro ownership, and is dominated by 7-year-old planted Douglas-fir, ponderosa pine and western red cedar amid a dense matrix of native and exotic shrubs, including oceanspray, serviceberry, snowberry, Oregon grape, Himalayan blackberry and Scotch broom.

Nested within the coniferous forest/shrub matrix are several 10-20 acre oak woodlands with mature oak trees. Small (1-10 acre) upland prairies occur within the woodlands. Several regionally rare or endangered grasses and wildflowers occur within the prairie and oak woodland units and these habitats are considered sensitive and a high priority for protection at the site and in the Willamette Valley.

Metro has managed the site in many ways to both promote a return to more natural, historic conditions, and to reduce dangerous fuel loads.

Since acquiring the site, Metro has periodically cleared older shrub material. Brush control has focused on invasives such as blackberry and broom. However, in the oak units and prairies, selective clearing or thinning of native shrubs has also been implemented to reduce fuel loads and/or prepare these units for prescribed burning by removing ladder fuels under oak and madrone trees.

In 2006, Metro initiated a planned tree thinning program designed to open up overgrown oak and fir stands in parts of the site to release remaining trees and promote the development of larger, healthier trees. This management has ecological benefits but also is serving to reduce wildfire risks by replacing dense, small-caliper trees with more widely spaced, large and more fire-resistant trees.

Metro has conducted prescribed burns to promote the regeneration of native herbaceous communities in the prairie and oak woodland units of the site. In 1997, nearly 25 acres of the site were burned. Smaller burns (13 and 10 acres) were conducted in 2001 and 2006. These fires substantially reduce brush and flashy light fuels such as grasses and thatch for periods of 1-3 years. Metro intends to continue using prescribed fire and brush clearing as well as other techniques to manage fuels on this property in the future.

5.9.2.2 Gotter Prairie

Gotter Prairie is a 122-acre natural area that was acquired by Metro in 1996. It is river bottomland that was farmed by previous owners. Metro is using prescribed burns to restore the site to a mix of wet prairie, emergent wetland and forest. The site's borders are:

North – Tualatin River

East – neighboring property including residences and farmland

South – neighboring farmland and residences

West – neighboring farmland and residences

Access to the property is via a gated gravel road from Scholls Ferry Road. This road leads directly to the burn units.

The fuel complex is seeded grasses ranging in height from two feet to more than four feet. Wood fuel is scarce or nonexistent in the burn units.

Metro's Gotter Prairie property is located on Tualatin River bottomlands. The topography is very flat; there are no steep slopes on either burn unit.

Farms and associated structures are located on several sides of the burn units. The nearest structure is located approximately 500 feet from the nearest burn unit boundary; most structures are closer to 1,000 feet from the units' boundaries. Fields and McFee Creek separate the southerly structures from the burn units. Mowed grassland, woodlands and McFee Creek separate the burn units and easterly structures.

Structures to the east of the burn units are accessed via Scholls Ferry Road (210), and structures to the south and west of the units are accessed via Hillsboro Highway (219).

The fire management strategy for this site is:

- Confine fire to Metro-owned property.
- Fight fire aggressively, but provide for the safety of firefighters and residents first.
- Protect structures on and adjacent to Metro property.
- Avoid damaging soils and existing vegetation on Metro property, particularly plantings of small oaks to the north and east of the burn units, with excessive ground disturbance.

Metro plans to use prescribed burning and brush clearing as well as other techniques to manage the fuel loads on this property. The Gotter Prairie Prescribed Burn Plan summarizes Metro's management plan for the Gotter Prairie property in 2007.

5.9.3 Tualatin Hills Park and Recreation District

The Tualatin Hills Park and Recreation District manages several scattered acreages in the city of Beaverton and unincorporated area in the northeast corner of Washington County. The following are short summaries of these parcels as well as a narrative of some of the fuel and wildfire issues faced by the Park District.

5.9.3.1 Hyland Forest

Hyland Forest is an undeveloped 29.5-acre natural area park sited east of Murray Boulevard and north of Sexton Mountain Road. The mostly upland park is heavily forested with Douglas-fir, although other tree species are intermixed. Most of the Douglas-fir is infected with laminated root rot and every winter brings a few more fallen trees. Invasive plants, including clematis (*Clematis vitalba*), Himalayan blackberry, English ivy, and English holly have become the dominant vegetation in several areas. There are no streams in the park, but there is a small pond and associated emergent wetland in the northeast corner.

Hyland Forest contains an extensive web of packed-earth trails. Some of these have been mulched with gravel and some with wood chips. Walkers, joggers, and children with bikes heavily use the park year round. There has been no evidence of fire pit construction in the Hyland Forest. The park has been the site of numerous restoration projects for invasive plant removal and replanting with native species. No fuel load reduction has taken place other than cutting through fallen trees or to remove trail hazards as needed. When such work is completed, the rounds or log lengths are left on site.

Hyland Forest is easily accessible by foot on all sides with eleven access points, but no trail could be considered vehicle-accessible. Parking on the street is available, especially on the south side along Sexton Mountain Road.

Hyland Forest Park has upscale single-family homes on the north, the west, and south sides from Secretariat Terrace to the east. There is an apartment complex on the southwest corner of Hyland Forest Park. The park is bordered by Sexton Mountain Road on the south from Secretariat Terrace towards the west and bordered on the east by Aralia Place.

5.9.3.2 Tualatin Hills Nature Park

Tualatin Hills Nature Park is a 221.46-acre natural area park in central western Beaverton. Beaverton Creek and three smaller streams flow westward through the park and are generally slow moving. The park is mostly flat and forested with pockets of wetland meadows and shrubland scattered along the streams. A mix of mature deciduous, conifer, and mixed deciduous-conifer trees dominate the remaining forest habitats. Forest understory vegetation is diverse and dominated by mostly native plants. Significant forested habitats within the park include oak forests covering the eastern, southeastern, and northwestern sections of the park, conifer forests in the central, northeastern, central-western interior, and western sections of the park, and mixed oak-ash wetlands in the southwestern section of the park.

The entire eastern edge is a utility corridor where both overhead and buried utilities are located. Single-family dwellings, apartments, and light industrial/office complexes surround the park.

Approximately six miles of paved and soft-surface trails cross through the park, including the Beaverton Powerline Corridor Regional Trail that runs south to north along the eastern edge. An interpretive center, adjoining classroom, and a maintenance yard are located just off SW Millikan Way along the southeast edge. The park is staffed from dawn to dusk daily throughout the year including at least one ranger that walks the entire park daily.

In winter 2006, a windstorm felled approximately four acres of mature conifers in the central section of the park. Plans to open this area include cutting some of the felled logs to open up the trail system again and removing fallen branches from the area to reduce fuel loads. The logs will remain in place to decay.

Fire concerns in the park include fuel loads from the recent windthrown conifers in the central section of the park, grass and/or brush fires originating along SW 170th Avenue, and an occasional homeless campfire. Weed control in the park has included removal of such fire-prone species as Himalayan blackberry and Scotch broom. Fire would likely be confined to the park itself, but protection of the surrounding residences and businesses should be the primary concern.

5.9.3.3 Jenkins Estate

Jenkins Estate is 65.95 acres, approximately 60% of which is natural area composed of a mixture of evergreen and deciduous forests. The evergreen forests are dominated by mature stands of Douglas-fir, while the deciduous forests are dominated by Oregon ash and bigleaf maple. Two unnamed, intermittent streams flow through the park, one originating near the highest elevation of the park near the southern edge. The second stream is a continuation of a storm water ditch along SW Grabhorn Road that crosses through the park from the northeastern edge. The natural area park has approximately three miles of paved, gravel, and dirt paths through numerous upland habitats.

Buildings, managed gardens, modified natural areas, and non-natural areas comprise approximately 21 acres of Jenkins Estate. The park is bordered on the east by SW Grabhorn Road and on the north by SW Farmington Road (SR 10). There are two rock quarry operations that border the southwest edges and a dog kennel is located on the northwest edge. This is a regional park serving as a meeting and conference location and a wedding and party site.

The natural areas of Jenkins Estate are heavily invaded by English ivy and periwinkle with small areas of Himalayan blackberry and Japanese knotweed. Other non-native shrubs such as English holly, cherry laurel, and sweet cherry can be found scattered throughout the natural areas. The Natural Resources Department of the Park District is focused on clearing non-native species, more specifically English ivy, English holly, Himalayan blackberries, and periwinkle, from designated portions of the park. This will help reduce the fire hazard in these areas. The Park District is in the process of completing a management plan that deals specifically with the natural areas of Jenkins Estate.

5.9.3.4 Jordan / Jackie Husen Park Complex

Combined, Jordan Park and Jackie Husen Park are 22.31 acres composed mainly of natural area located on the north side of NW Reeves Street, on the east side of 113th Avenue and west of 102nd Avenue. A demand trail has been established from the NW 107th Avenue entrance extending through the park and emerging on NW Reeves Street. The park complex habitats are composed of approximately 7.25 acres of upland deciduous forest, 10.75 acres of upland mixed forest, 1.0 acre of wetland meadow, 1.3 acres of modified natural area (a flat mowed grassy

area with no shrubs and a few large trees), and a stretch of Cedar Mill Creek that meanders through the complex at a length of 3,475 feet.

The upland deciduous forests are dominated by bigleaf maple and Douglas-fir, with grades of 5 – 50% steepening as they drop to the stream edge. Upland mixed forested habitats are dominated by bigleaf maple, Douglas-fir, western redcedar and red alder, with grades ranging from <5 – 20%. The wetland meadow is dominated by native herbs and a number of young red alders.

The park complex is bordered on the west by NW 113th Avenue and on all other sides by residential neighborhoods. These parks have been established as both neighborhood and community parks.

Portions of the natural areas of Jordan and Jackie Husen Parks are heavily invaded by Himalayan blackberry, mostly within the riparian buffer zone and in the far eastern areas. English ivy has also invaded, but has been kept under control by neighborhood volunteers, as well as volunteer efforts organized through the Park District.

5.9.3.5 Lowami Hart Woods / Brookhaven Park

Lowami and Brookhaven are adjacent parks sited west of Murray Boulevard. and north of Hart Road, with Brookhaven to the north of Lowami. Lowami is an undeveloped 27.8-acre natural area site. Brookhaven contains close to 15 acres of natural area. Johnson Creek is a fish-bearing stream that flows north through both parks, creating forested wetlands in Lowami and reed canarygrass wetlands in Brookhaven. Both sites are otherwise heavily forested with a predominantly Douglas-fir/western red cedar mix. Understory trees and shrubs are dense. No fuels reduction has taken place in these sites other than to remove trail hazards as needed.

Both parks contain many undeveloped (packed-earth) trails and a few wooden bridges across the creek. The parks are heavily used year round, but especially during drier months when the creekside trails aren't as muddy. Lowami has had increasing use as a paintball site with the accompanying small shelter construction and unauthorized fire pit use. Lowami contains several plant species of concern, specifically fawn lily (*Erythronium oregonum*) and western wahoo (*Euonymus occidentalis*). A grove of Oregon white oak along the creek near Hart Road is also of interest. Lowami is accessible by vehicle only from the south along Hart Road where there is official gated access. Another clearing provides reasonable parking. No trail in Lowami could be considered vehicle-accessible

Brookhaven is a much wetter park than Lowami with more extensive wetland areas. It does contain an upland forest component of fir and cedar heavily used by neighbors. The trail system does not directly connect Brookhaven proper with Lowami. Brookhaven has eight legal access points, mostly on the west side. Few of these are actually marked as park access and homeowners have obscured some access pathways with plants.

Both Lowami Hart Woods and Brookhaven Park are surrounded by upscale single-family homes.

5.9.3.6 Madrona Heights / Summercrest West

Madrona Heights and Summercrest West are adjacent parks sited north of Rigert Road and east of 175th Avenue with Madrona Heights to the south of Summercrest West.

Madrona Heights is a 5.7-acre natural area site with no pathways; Summercrest West contains almost 3 acres of natural area with a few faint dirt pathways. Both parks are narrow and

completely undeveloped with an unnamed tributary to South Johnson Creek flowing north in a steep-sided gully. Severe erosion is apparent in the south half of Summercrest West.

Summercrest West bears a good canopy cover of mixed fir forest with a light understory of shrubs and thick ground cover where the land is not eroded. The park has one area that has been completely cleared of shrubs to create a paintball court and four or five pits have been excavated and screened with branches and other debris. Madrona Heights has practically no canopy cover over most of the park, although eight-year-old Douglas-fir trees are beginning to provide some shade. There is a good stand of red alder at the south end with Himalayan blackberry plants growing thickly underneath. No fuel load reduction has taken place in either of these park.

The only official access to Madrona Heights is off Ravine Drive from a private road, Tall Tree Place. The access is not appropriate for any sort of vehicle. The only official access to Summercrest West is a narrow path from 171st Place that is completely landscaped. Both Madrona Heights and Summercrest West are surrounded by upscale single-family dwellings, with backyards and play structures very close to the park's forest canopy.

5.9.3.7 Morrison Woods

Morrison Woods is an 18.53 acre natural area comprised of mature, second growth mixed deciduous and coniferous forest. Western red cedar, Douglas-fir, and big leaf maple are dominant. Large downed wood can be found throughout the site. Approximately 6.75 acres are currently forested with saplings and grass. The property is on the north side of Cooper Mountain and has several steep forested hillsides and ravines.

The property was acquired between 1996 and 1998. Since acquisition, houses have been constructed or are planned to be constructed along all park edges. A small loop trail and a number of unofficial trails allow access to visitors. There is presently no fire plan for the site, however, concerns about protecting the park and adjacent properties from human related fires is a concern.

5.9.3.8 Roger Tilbury Memorial Park

Roger Tilbury Memorial Park is a 14.30-acre natural area park on the southwest slopes of the Tualatin Mountains between Beaverton and Portland. The park is surrounded by single-family homes and part of the northern edge is currently under development with shared-wall condominiums.

The park straddles a perennial headwater stream of Beaverton's North Johnson Creek, which flows westward through the park. A mature, mostly deciduous forest with pockets of conifers is dominant. The understory within this forest ranges from sparse to dense and is comprised mostly of native shrubs and herbs, though Himalayan blackberries are scattered throughout the forest and are densest where sunlight is greatest. Two pockets of conifers are remnants of a Douglas-fir tree farm; thus, the trees were planted in rows. These trees are overgrown such that their crowns are overlapping and very little sunlight reaches the forest floor. The understory is minimal and is comprised of a few scattered shrubs and very few herbs.

There is no fire management plan for this park, however, the Park District would like to be able to confine a fire to Park District property and aggressively protect structures along the tops of the slopes and to the east. The steepness of the terrain may speed the movement of fire through the area and the remnant tree farm may hinder fire management along the northern edge of the park.

5.9.3.9 Mt. Williams Park

Mt. Williams Park is a 25.75 acre natural area park in central Beaverton, Oregon. It is jointly owned by Tualatin Hills Park & Recreation District and the city of Beaverton. This heavily forested park is on the crest of a hill and contains some steep slopes. It is contiguous with other natural areas, many residential properties, and a power line corridor. Douglas-fir is the dominant overstory tree. Forest understory vegetation is diverse and dominated by mostly native plants; however, thickets of Scotch broom and Himalayan blackberries along the power line corridor are numerous and encroaching into the natural area. The power line area also has extensive grasses on steep slopes.

The entire eastern edge of the park is a utility corridor where both overhead and buried utilities pass through the park. Single-family dwellings are present on the north and south edges of the park.

This park is presently undeveloped and closed to the public, but a few informal trails as well as an access road are present. There is also one occupied home within in the park boundaries. Mt. Williams Park will eventually be developed and may include trails and an active recreation area.

Fire concerns in the park include fuel loads due to downed conifers as well as grass and/or brush fires originating along the power line corridor and the occasional homeless campfire. No weed control in the park has been done, but future management should include removal of such fire-prone species as Himalayan blackberry and Scotch broom. Fires should be confined to the park itself, but protection of the surrounding residences and utilities should be a primary concern.

Chapter 6

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6.3 Signature Pages

This Washington County Community Wildfire Protection Plan has been developed in cooperation and collaboration with representatives of the following organizations and agencies.

6.3.1 Washington County Board of Commisioners

WASHINGTON COUNTY

Inter-Department Correspondence

August 28, 2007

TO: Recording Division
FROM: Marian Larkin
SUBJECT: **MINUTE ORDER 07-298**

At its regular meeting on August 28, 2007, the Board moved to approve and adopt the Washington County Community Wildlife Protection Plan with the recommendation to insert a description provided by the Tualatin Hills Park and Recreation District stating the Mount Williams Park and Trail is in the inventory of land managed by Tualatin Hills Park and Recreation District under section 5.9.3 of the Wildfire Plan, and to authorize the director of the Office of Consolidated Emergency Management for Washington County to seek the approval of the other parties to the plan about this addition.

APPROVED WASHINGTON COUNTY
BOARD OF COMMISSIONERS
MINUTE ORDER # 07-298
DATE 8/28/07
BY Marian Larkin
CLERK OF THE BOARD

AGENDA

WASHINGTON COUNTY BOARD OF COMMISSIONERS

Agenda Category: Consent – County Administrative Office

Agenda Title: **APPROVE AND ADOPT THE WASHINGTON COUNTY
COMMUNITY WILDFIRE PROTECTION PLAN (CWPP)**

Presented by: Robert Davis, County Administrator

SUMMARY (Attach Supporting Documents if Necessary)

At its October 3, 2006, meeting, the Washington County Board of Commissioners authorized expenditure of \$60,000 in O&C Timber Safety Net Title III funds to develop a Washington County Community Wildfire Protection Plan (CWPP). Those funds were used to hire Northwest Management, Inc. (NMI), of Moscow, Idaho, to prepare the plan. NMI worked under the direction of the Office of Consolidated Emergency Management and in cooperation with the Washington County Fire Defense Board, the Oregon Department of Forestry and others to develop the plan. The purpose and goals of the CWPP include:

1. Identifying Wildland Urban Interface (WUI) boundaries and hazardous fuel conditions for communities adjacent to forest lands, prioritizing areas for fuel reduction treatments, and recommending the types and methods of treatment to protect the communities;
2. Recommending strategies for private, state and federal lands to reduce hazardous fuel conditions and lessen the life safety and property damage risks from wildfires as well as measures homeowners and communities can take to reduce the ignitability of structures;
3. Improving fire agency awareness of wildland fire threats, vulnerabilities and mitigation opportunities/options; and
4. Improving county and local fire agency eligibility for funding (through the National Fire Plan, Healthy Forest Restoration Act, Federal Emergency Management Agency, and other sources) to reduce wildfire hazards, prepare residents for wildfire situations and enhance fire agency response capabilities.

Public input into the plan was sought through targeted homeowner surveys, a series of public meetings and an opportunity to review the draft plan prior to adoption. The fire agencies of Washington County accepted and approved the plan at the August 16, 2007, meeting of the Washington County Fire Defense Board.

Once approved by the Washington County Board of Commissioners, the plan will become a supplement to the existing Washington County Natural Hazards Mitigation Plan. The Wildfire Protection Plan is at the Clerk's desk for review.

COUNTY ADMINISTRATOR'S RECOMMENDATION:

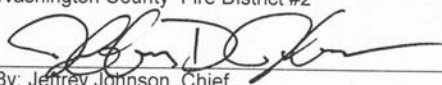

Approve and adopt the Washington County Community Wildfire Protection Plan.

Agenda Item No. 5.a.

Date: 8/28/07

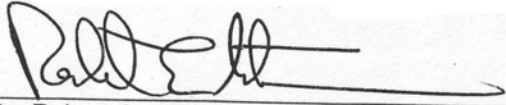
6.3.2 Signatures of Participation by Washington County Fire Districts and Departments

This Community Wildfire Protection Plan and all of its components identified herein were developed in close cooperation with the participating entities listed.

 By: Chris Asanovic, Chief Cornelius Fire Department	<u>8/16/07</u> Date
 By: Robert A. Mills, Chief Forest Grove Fire and Rescue	<u>8-16-07</u> Date
 By: Brian Coussens, Chief Banks Fire District #13	<u>8/16/07</u> Date
 By: Gary Seidel, Chief Hillsboro Fire Department	<u>8/16/07</u> Date
 By: Dennis England, Chief Washington County Fire District #2	<u>8/16/07</u> Date
 By: Jeffrey Johnson, Chief Tualatin Valley Fire and Rescue	<u>8-16-07</u> Date
 By: Roger Mesenbrink, Chief Gaston Rural Fire Protection District	<u>8-16-07</u> Date

6.3.3 Signatures of Participation by other Washington County Entities

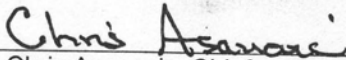
This Community Wildfire Protection Plan and all of its components identified herein were developed in close cooperation with the participating entities listed.



By: Robert Gustavson, Acting District Forester
Oregon Department of Forestry

8-16-07

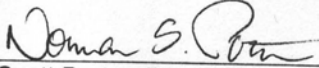
Date



By: Chris Asanovic, Chief
Washington County Fire Defense Board

8/16/07

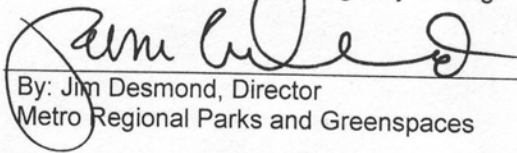
Date



By: Scott Porter, Director
Office of Consolidated Emergency Management

8/16/07

Date

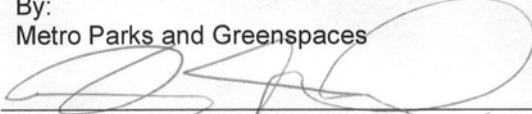


By: Jim Desmond, Director
Metro Regional Parks and Greenspaces

8/16/07

Date

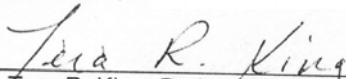
By:
Metro Parks and Greenspaces



By: Doug Menke, General Manager
Tualatin Hills Park and Recreation District

8/20/07

Date



By: Tera R. King, Project Co-Manager
Northwest Management, Inc.

8-19-07

Date

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