



Columbia County, Washington

Community Wildfire Protection Plan

July 9th, 2008

Mission Statement: To make Columbia County residents, communities, state agencies, local governments, and businesses less vulnerable to the negative effects of wildland fires through the effective administration of wildfire hazard mitigation grant programs, hazard risk assessments, wise and efficient fuels treatments, and a coordinated approach to mitigation policy through federal, state, regional, and local planning efforts. Our combined prioritization will be the protection of people, structures, infrastructure, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy.



This plan was developed by the Columbia County Community Wildfire Protection Plan Planning committee in cooperation with Northwest Management, Inc., 233 E. Palouse River Dr., P.O. Box 9748, Moscow, ID, 83843, Tel: 208-883-4488, www.Consulting-Foresters.com

Acknowledgments

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



Columbia County Commissioners
and the employees of Columbia County



WASHINGTON STATE DEPARTMENT OF
Natural Resources

Washington State Department of Natural Resources



USDI Bureau of Land Management



USDA Forest Service



USDI Fish & Wildlife Service

Town of Starbuck

City of Dayton



U.S. Army Corps of Engineers



Blue Mountain Resource Conservation & Development Council

Columbia County Fire Districts

&

Local Businesses and Citizens of Columbia County

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Chapter I

1 Overview of this Plan and its Development

This Community Wildfire Protection Plan (CWPP) for Columbia County, Washington, is the result of analyses, professional cooperation and collaboration, assessments of wildfire risks and other factors considered with the intent to reduce the potential for wildfires to threaten people, structures, infrastructure, and unique ecosystems in Columbia County, Washington. The planning committee responsible for implementing this project was led by the Columbia County Commissioners and the Blue Mountain RC&D. Agencies and organizations that participated in the planning process included:

- Columbia County Commissioners and County Departments
- City of Dayton
- Town of Starbuck
- Columbia County Fire Districts
- Washington Department of Natural Resources
- Washington Department of Fish and Wildlife
- USDA Forest Service
- U.S. Corps of Engineers
- Guy Bennett Lumber Company
- Bonneville Power Administration
- Confederated Tribes of the Umatilla Indian Reservation
- Columbia County Grain Growers
- Puget Sound Energy
- Blue Mountain RC&D
- Columbia Conservation District
- Local Citizens and Landowners
- Northwest Management, Inc.

The Columbia County planning committee met regularly during 2007 to establish the committee structure, goals, and strategies. In December 2006 and January 2007, Columbia County had joined with neighboring Garfield County and Asotin County and solicited competitive bids for a company to coordinate and manage the assessment, development, and writing of the **Columbia County Community Wildfire Protection Plan**. Northwest Management, Inc. was selected to provide this service to the Tri – County area. 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 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

In Washington the SHMO is:

Mark Stewart
Washington Military Department
Emergency Management Division
Building 20, M/S: TA-20
Camp Murray, WA 98430-5122

The Columbia County Community Wildfire Protection Plan fulfills all of the requirements for a wildfire chapter of a local hazard mitigation plan.

1.1.2 United States Government Accounting 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 and state and local governments, not the federal government. 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, 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.

1.1.3 Additional State and Federal Guidelines Adopted

This Community Wildfire Protection Plan will include compatibility with the guidelines proposed not only by FEMA, but also the National Fire Plan, the Washington Statewide Implementation Plan, and the Healthy Forests Restoration Act (2004). This Community Wildfire Protection Plan has been prepared in compliance with:

- Federal Emergency Management Agency
- 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.
- The Washington Statewide Implementation Strategy for the National Fire Plan–July 2002.

- Healthy Forests Restoration Act (2004)

The objective of combining these four 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 Columbia County while facilitating new opportunities for pre-disaster mitigation funding and cooperation.

1.1.3.1 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 broadly representative 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 and the Washington Statewide Implementation Strategy for the National Fire Plan. 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 of this plan does not alter, diminish, or expand the existing jurisdiction, statutory and regulatory responsibilities and authorities or budget processes of participating Federal, State, and tribal agencies.

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

- Firefighter and public safety continuing as the highest priority.
- A sustained, long-term and cost-effective investment of resources by all public and private parties, recognizing overall budget parameters affecting Federal, State, Tribal, 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.
- Communities and individuals in the wildland-urban interface to initiate personal stewardship and volunteer actions that will reduce wildland fire risks.
- Management activities, both in the wildland-urban interface and in at-risk areas across the broader landscape.
- Active forestland and rangeland management, including thinning that produces commercial or pre-commercial products, biomass removal and utilization, prescribed fire

and other fuels reduction tools to simultaneously meet long-term ecological, economic, and community objectives.

The National Fire Plan identifies a three-tiered organization 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 Tribal representatives, 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 at the local level. The role of the private citizen is not to be underestimated, as their input and contribution to all phases of risk assessments, mitigation activities, and project implementation is greatly facilitated by their involvement.

1.1.3.2 Washington Statewide Implementation Strategy

The Strategy adopted by the State of Washington is to provide a framework for an organized and coordinated approach to the implementation of the National Fire Plan, specifically the national "10-Year Comprehensive Strategy Implementation Plan".

Emphasis is on a collaborative approach at the following levels:

- County
- State

Within the State of Washington, the counties, with the assistance of State and Federal agencies and local expert advice, will develop a risk assessment and mitigation plan to identify local vulnerabilities to wildland fire. A Statewide group will provide oversight and prioritization as needed on a statewide scale.

This strategy is not intended to circumvent any work done to date and individual counties should not delay implementing any National Fire Plan projects to develop this county plan. Rather, counties are encouraged to identify priority needs quickly and begin whatever actions necessary to mitigate those vulnerabilities.

It is recognized that implementation activities such as: hazardous fuel treatment, equipment purchases, training, home owner education, community wildland fire mitigation planning, and other activities, will occur concurrently with this countywide planning effort.

1.1.3.2.1 County Wildland Fire Interagency Group

Each county within the State has been requested to write a Wildland Fire Mitigation Plan. These plans should contain at least the following five elements:

- 1) Documentation of the process used to develop the mitigation plan. How the plan was developed, who was involved and how the public was involved.
- 2) A risk assessment to identify vulnerabilities to wildfire in the wildland-urban interface (WUI).
- 3) A prioritized mitigation strategy that addresses each of the risks. Examples of these strategies could be: training for fire departments, public education, hazardous fuel

treatments, equipment acquisition, developing communications, additional planning, funding new facility construction, infrastructure improvements, code and/or ordinance revision, utilizing volunteers, developing evacuation plans, etc.

- 4) A process for maintenance of the plan which will include monitoring and evaluation of mitigation activities.
- 5) Documentation that the plan has been formally adopted by the involved agencies. Basically a signature page of all involved officials.

This five-element plan is an abbreviated version of the FEMA mitigation plan and will begin to meet the requirements for that plan.

1.1.3.3 National Association of State Foresters

1.1.3.3.1 Identifying and Prioritizing Communities at Risk

This plan is written with the intent to provide the information necessary for decision makers (elected officials) to make informed decisions in order to prioritize projects across the entire county. These decisions may be made from within the board of Commissioners, or through the recommendations of ad hoc groups tasked with making prioritized lists of projects. It is not necessary to rank 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 of prioritizing treatments between communities.

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

Intent: 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)).

1.1.3.3.2 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 nation-wide, 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 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, livestock, agriculture, 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 MOU “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, focus on the zone of highest overall risk but consider projects in all zones. Identify a set of projects that will effectively reduce the level of risk to communities within the zone.
 - Second, determine the community’s willingness and readiness to actively participate in an identified project.
 - Third, determine the willingness and ability of the owner of the surrounding land to undertake, and maintain, a complementary project.

- Last, set 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 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 is necessary for continued support, 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*”.

Similarly, scattered, individual homes that complete projects to create defensible space could be “counted” as “households at reduced risk”. This would be a way to report progress in reducing risk to scattered homes in areas of low priority for large-scale fuels treatment projects.

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 – federal, state, local, and tribal – taking an active role.

1.1.3.4 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 Columbia County Community Wildfire Protection Plan is developed to adhere to the principles of the HFRA while providing recommendations consistent with the policy which should assist the federal land management agencies (US Forest Service and Bureau of Land Management) with implementing wildfire mitigation projects in Columbia County that incorporate

public involvement and the input from a wide spectrum of fire and emergency services providers in the region.

1.1.4 Planning Philosophy and Goals

1.1.4.1 Columbia County Fire Mitigation Planning Effort and Philosophy

The goals of this planning process include the integration of the National Fire Plan, the Washington Statewide Implementation Strategy, and the Healthy Forests Restoration Act. This effort will utilize the best and most appropriate science from all partners and integrate local and regional knowledge about wildfire risks and fire behavior while meeting the needs of local citizens, the regional economy, and the significance of this region to the rest of Washington and the Inland West.

1.1.4.1.1 Mission Statement

To make Columbia County residents, communities, state agencies, local governments, and businesses less vulnerable to the negative effects of wildland fires through the effective administration of wildfire hazard mitigation grant programs, hazard risk assessments, wise and efficient fuels treatments, and a coordinated approach to mitigation policy through federal, state, regional, and local planning efforts. Our combined prioritization will be the protection of people, structures, infrastructure, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy.

1.1.4.1.2 Vision Statement

Institutionalize and promote a countywide wildfire hazard mitigation ethic through leadership, professionalism, and excellence, leading the way to a safe, sustainable Columbia County.

1.1.4.1.3 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
- Prioritize the protection of people, structures, infrastructure, natural resources, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy
- Provide a plan that will not diminish the private property rights of landowners in Columbia County
- Educate communities about the unique challenges of wildfire in the wildland-urban interface (WUI) as well as solutions to these challenges
- 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
- Improve fire agency's awareness of wildland fire threats, vulnerabilities, and mitigation opportunities or options
- Address structural ignitability and recommend measures that homeowners and communities can take to reduce the ignitability of structures
- Enhance regional communication capabilities, particularly between fire departments and local landowners

- 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
- 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's 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 response capabilities
- Meet or exceed the requirements of the National Fire Plan and FEMA for a County level Community Wildfire Protection Plan

1.1.5 Integration with Other Planning Efforts

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 Columbia County planning documents and ordinances considered during development of this plan.

1.1.5.1 Columbia County Comprehensive Plan – April 1996

The comprehensive plan guide was prepared by Columbia County in accordance with Section 36.70A.070 of the Growth Management Act to address growth issues in the urban growth areas. It represents the community's policy plan for growth over the next 20 years. The purpose and intent of the comprehensive plan is to provide general guidance for the orderly growth and development of the land, and the physical improvement within the unincorporated areas of Columbia County. It is further intended to provide a foundation upon which rural, residential, and recreational zoning may be implemented. Although the plan is intended to be the guideline of the future, it is not intended to be an inflexible one, but one that can be adapted to meet unforeseen conditions. It is a means for evaluation of proposed programs in relation to adopted community development standards, and for incorporating those programs which effect improvements, while discarding practices which experience and research have indicated are not desirable. The plan also serves as a long-range foundation framework for the development of specific codes, ordinances, regulations, and public improvements relating to the management and development of the county through official action.

The 1996 Comprehensive Plan is currently being update with official adoption schedule by 2009. It is anticipated that the Community Wildfire Protection Plan will dovetail with the County Comprehensive Plan. Many of the wildfire assessments, goals, and projects as outlined by the CWPP planning committee will be considered as the Comprehensive Plan is updated.

1.1.5.2 Dayton Comprehensive Plan – 1999

Recognizing the importance of planning, the Columbia County Board of Commissioners opted into the state's Growth Management Act in 1991. The GMA requires the City to address several aspects of planning including adopting and revising a comprehensive plan. The primary reason for a comprehensive plan is to enable local government officials and citizens to anticipate and to deal constructively with the changes occurring within the city. Change is inevitable in every community whether it is growing or declining. The Dayton Comprehensive Plan is a vehicle

through which Dayton's governmental officials and citizens can express their goals for the future of their City and guide the City towards these goals.

The 1999 Comprehensive Plan is currently being update with official adoption schedule by 2008. It is anticipated that the Community Wildfire Protection Plan will dovetail with the Dayton Comprehensive Plan. Many of the wildfire assessments, goals, and projects as outlined by the CWPP planning committee will be considered as the Comprehensive Plan is updated.

1.1.5.3 Columbia County Multi-Jurisdictional Hazard Mitigation Plan

Natural hazard mitigation has been a priority in Columbia County for decades. Landowners, flood control districts, conservation districts, cities and the county have planned and conducted mitigation activities as a normal part of life and property protection efforts. The lead entity coordinating this plan is Columbia County Emergency Management. The main goals of the hazard mitigation plan are to:

- protect critical facilities from damage caused by drought, river flooding, flash flooding, wildfire and severe storms,
- reduce environmental and property damage, injury, and deaths caused by natural hazards, and
- increase public awareness of hazards and further voluntary mitigation actions.

It is the intent of the CWPP planning committee that the Community Wildfire Protection Plan supplements the wildfire section of the Multi-Jurisdictional Hazard Mitigation Plan.

1.1.5.4 Washington Rural Development Council – Rural Resource Team Report

The Washington Rural Development Council put together a resource team in partnership with USDA Rural Development, Blue Mountain RC&D Council, WSU Area Health Education Center, and Washington State Community, Trade, and Economic Development. The mission of the resource team was to improve the delivery and accessibility of public and private resources to help rural communities meet their needs. The team intends to accomplish this mission by 1) informing legislators, the governor's office, state agencies, and federal agencies about the rural perspective on community and economic development issues, 2) identify, and in some cases develop, and recommended improvements to existing resource delivery systems, and 3) serve as a liaison or intermediary between rural communities and public and private resource providers. Projects and recommendations resulting from the Community Wildfire Protection Plan will not conflict with any of the goals of the Washington Rural Development Council – Rural Resource Team Report.

Chapter 2

2 Documenting the Planning Process

Documentation of the planning process, including public involvement, is required to meet FEMA's DMA 2000 (44CFR§201.4(c)(1) and §201.6(c)(1)). This section includes a description of the planning process used to develop this 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 Columbia 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 Columbia County. This included an area encompassing Asotin, Garfield, and Columbia Counties to ensure a robust dataset for making inferences about hazards in Columbia County specifically.
2. **Field Observations and Estimations** about risks, juxtaposition of structures and infrastructure 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 planning efforts from Columbia County was the Blue Mountain RC&D Council. Northwest Management, Inc. (NMI) Project Co-Managers were Tera R. King, B.S. and Vaiden Bloch M.S. 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.

This planning team was led by resource professionals from Columbia County government, incorporated city officials, fire protection districts, law enforcement, Washington Department of Natural Resources, Conservation Districts, the US Forest Service, fire mitigation specialists, resource management professionals, local residents, and others.

The planning team met with many residents of the County during the inspections of communities, infrastructure, 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 and state 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 cooperators.

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

CFR requirement §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 is applicable to the following jurisdictions:

- Columbia County, Washington
- City of Dayton
- City of Starbuck

These jurisdictions were represented on the planning committee, in public meetings, and 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 a combination of the following ways:

- Planning committee leadership visits to scheduled municipality public meetings (e.g., county commissioner meetings, city hall meetings) where planning updates were provided and information was exchanged.
- One-on-one visits between the planning committee leadership and the representatives of the municipalities (e.g., meetings with county commissioners, city, fire districts, or communities).
- Special meetings at each jurisdiction by the planning committee leadership requested by the municipality involving elected officials (mayor and county commissioners, county assessor, sheriff, municipality employees, local volunteers (e.g., fire district volunteers), business community representatives, and local citizenry).
- Written correspondence was provided monthly between the planning committee leadership and each municipality updating the cooperators in the planning process, making requests for information, and facilitating feedback.

Planning committee leadership (referenced above) included the Blue Mountain RC&D Council and Tera King and Vaiden Bloch of Northwest Management, Inc.

Like other rural areas of Washington and the USA, Columbia County's human resources have many demands put on them in terms of time and availability. Several of the elected officials (county commissioners and city mayor) 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, 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. For example, Rick Turner, Fire District #3 Chief, was a regular attendee of the planning committee meetings and reported to the Board of County Commissioners on the progress of the Columbia County CWPP.

2.3 Planning Committee Meetings

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

NAME	ORGANIZATION
• Alan Childs	Confederated Tribes of the Umatilla Indian Reservation
• Bill Erickson.....	Bonneville Power Administration
• Bill Schlosser.....	Northwest Management, Inc.
• Bill Peters	Columbia County Emergency Management
• Chris Miller	Columbia County Assessor
• Dan Culley.....	Columbia County resident
• Don Goe.....	Dayton City Council
• Dave Fritts.....	Guy Bennett Lumber
• Diane Longanecker	Columbia County resident
• Dick Jones.....	Columbia County Commissioner
• Dick Rubenser.....	Fire District #1 Commissioner
• Don Jackson	Starbuck Mayor
• Eric Thorn.....	Columbia County resident
• Jim MacArthur	Columbia County resident
• Joan Hudson	Puget Sound Energy
• Joe Weeks	Washington Dept of Natural Resources
• John Wood	Fire District #1 Commissioner
• Kaye Eaton.....	Columbia County resident
• Kelly Allen	Columbia County resident
• Les Teel	Columbia County REA
• Lester Eaton III.....	Columbia County resident
• Lester Eaton Jr.....	Columbia County resident
• Lisa Naylor	Blue Mountain RC&D
• Mike Hubbard.....	Waitsburg lawyer
• Paul Hendrickson.....	Columbia County resident
• Robert and Janet Phinney.....	Columbia County resident
• Rick Turner.....	Fire District #3 Chief
• Shana Winegeart	Washington Fish and Wildlife
• Steve Carlson.....	Pomeroy Ranger District
• Tara Hanger	Pomeroy Ranger District
• Ted Paterson.....	Dayton City Council
• Tera King.....	Northwest Management, Inc.
• Vaiden Bloch	Northwest Management, Inc.
• Valerie Turner	Columbia Conservation District
• Wilbur Eaton.....	Columbia County resident

2.3.1.1 Committee Meeting Minutes

The planning committee began meeting in early 2006 to lay the ground work for the Columbia County CWPP. Northwest Management, Inc. was hired and began attending regular planning committee meetings in January of 2007.

2.3.1.1.1 March 29, 2007 – Columbia County Fire District #3 Fire Station

Agenda Item #1 – Call to Order:

Lisa kicked off the meeting by making introductions and giving some background on the Community Wildfire Protection Plan (CWPP) project up to this point.

Agenda Item #2 – Overview of Process:

In order to give the committee an overview of the whole planning process and make sure everyone understood the purpose of the CWPP, 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 discussion points in the presentation sparked comments and questions from the committee.

Several of the committee members expressed their concerns on how the recent fires in Columbia County were managed. It is inherent that the Community Wildfire Protection Plan addresses these issues. Of particular concern was the need to know who was 'in charge' and how they could be contacted, policy issues in reference to the current 'let it burn' philosophy, communication issues, direction and policy of local government, and the need to allow private landowners to have access to their property during a fire. Don Jackson discussed a current Senate bill that would allow local landowners access to their property during a wildfire. The CWPP may be helpful in offering local support for this legislation.

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. Several of the committee members offered to meet separately to review the statements and come up with some ideas on how to make them more unique to Columbia County.

Agenda Item #4 – Public Survey and Press Release:

Rough drafts of the public survey were handed out. Vaiden and Tera explained that the survey provided the committee with valuable insights on how residents of Columbia County view the fire risk as well as provides some awareness information. The committee will review the survey on their own and provide edits to Tera by the next committee meeting. Vaiden will work with the Assessor's office to get the necessary data to conduct the surveys.

Agenda Item #5 – Resource and Capability Questionnaire:

Tera handed out the Resources and Capabilities questionnaire pointing out that this was directed at the fire district and the agencies with wildfire responsibility. The purpose of these questionnaires is not only to provide a summary of the district'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.

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. NMI staff will be in Columbia County in the following weeks doing risk evaluations to be presented as rough drafts at the next committee meeting.

Improving communications across the county as well as between agencies, departments, landowners, etc. needs to be addressed in Columbia County and the Tri-County area.

Agenda Item #7 – 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 recently past, ongoing, or planned mitigation projects (educational, fuels reduction, policy, existing CWPPs, etc) needs to be sent to NMI.

Agenda Item #8 – Timeline:

Tera discussed the tentative timeline for completion, which was handed out with the agenda. Although the meeting dates may not be exact, this gives a month-by-month run down of tasks including an October adoption of the plan. The public meetings are tentatively scheduled for the end of May; however, if there are other events that could facilitate some public involvement in the project, these should also be considered.

Agenda Item #9 – 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 Mission, Vision, and Goals Statements by next meeting – Committee
3. Review public survey and send edits to NMI by next meeting – Committee
4. Conduct field community assessments by next meeting – NMI
5. Send committee all review materials electronically – Tera
6. Work with Assessor's office to get cadastral data – Vaiden
7. Send NMI completed Resources and Capabilities surveys by next meeting – Fire Depts & Agencies
8. **Send NMI organization logos by the next meeting - Committee**

Agenda Item #10 – Adjournment:

Tera adjourned the meeting at approximately 1200 hours.

Next Meeting: April 26th at 7:00 pm at the Columbia County Fire District #3 Fire Station (same location)

2.3.1.1.2 April 26th, 2007 – Columbia County Fire District #3 Fire Station

Agenda Item #1 – Call to Order:

Bill kicked off the meeting by welcoming everybody to the table and pointing out the sign in sheet as well as the handouts at the front of the room.

Agenda Item #2 – Review Mission Statement and Vision Statement:

Since the last committee meeting, a subcommittee has met twice to develop a unique mission statement and goals list for the planning project and Columbia County. Lisa gave a brief explanation of the revised statements and the work that went into them. Bill commented that the revised statements better clarified the needs of the county and determined a clear direction for the planning committee.

Included in the agenda packet was a copy of the recently passed Senate Bill 5315. This act insures landowners have access to their property during wildland fires. Senate Bill 5315 directly

reflects the sentiment of many local landowners and dovetails with the mission statement and goals defined by the subcommittee.

Agenda Item #3 – Review of Risk Mapping in Tri-County Area:

NMI has completed the initial risk modeling maps and basic GIS layers (roads, streams, landownership, etc.). Bill gave an in-depth explanation of what each map represented and how it could be used by the committee. Included in the map set was a preliminary structure density model that other county CWPP committees have adopted as their Wildland Urban Interface. Bill explained the usefulness of this type of mapping, particularly that it was an unbiased method of determining the WUI. These maps will be discussed in greater detail at subsequent meetings; however, Bill did ask that the committee take a few moments to look at the maps before they left.

During the mapping discussion, several of the committee members noted that the agricultural lands in the county had just as much, if not more, fire risk than the forest areas. The current Fire Prone Landscape model does not reflect this due to a lack of ignition data in this part of Columbia County. Chief Turner agreed to compile some of the ignition data recorded by the fire department to be included in the risk model. It may also be possible to get an estimate of the CRP and no-till lands from the Farm Service Agency; however, since this is not public information, more informal methods, such as drawing them by hand, may need to be used.

Agenda Item #4 – Public Involvement:

NMI is still working on getting the cadastral data from the Assessor's Office to be used in the public mail survey. This will be completed within the next two weeks.

It was also decided that the public meetings should be schedule for the first part of June. The committee felt that both a daytime and evening meeting in Dayton would draw the best crowd. The Seneca Activity Center is a good venue for the evening meeting. NMI will work with Val to supply refreshments. NMI will also produce announcement flyers to be distributed throughout the county.

Agenda Item #5 – Resources and Capabilities:

Bill noted that NMI needs the Resources and Capabilities summaries from each fire department and agency. Chief Turner supplied the summary for District #3.

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. Bill spent several days touring the county during April to produce the written community risk assessments included in the handouts. This documentation will make up a significant portion of the final CWPP. He asked that the committee review his write-ups for both accuracy of content and format preferences and provide comments by the next committee meeting.

Agenda Item #7 – Past, Ongoing, or Proposed Mitigation Activities:

Bill reiterated the need to discuss mitigation activities or programs already occurring in the county in the CWPP. Any information the committee has regarding recently past, ongoing, or planned mitigation projects (educational, fuels reduction, policy, existing CWPPs, etc) needs to be sent to NMI. Tara Hanger agreed to provide information on the Forest Service's fuel treatment projects.

Agenda Item #8 – Open Discussion:

Throughout the course of the meeting several committee members raised their concerns that the CWPP was not being directed at what they felt was the most important issue facing the county regarding wildfire, which is the delegation of authority during a wildfire incident and the general suppression policy. Bill and others explained that although some of their concerns can be addressed in the CWPP, most of what they are talking about should be included in the County's Emergency Operations Plan as well as the actual Delegation of Authority document, which Chief Turner supplied as an example. It was also mentioned that Bill Peters may be working on developing a revised Columbia County Emergency Operations Plan. His email address is bill_peters@co.columbia.wa.us.

Agenda Item #9 – 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 Mission, Vision, and Goals Statements by next meeting – Committee
3. Review public survey and send edits to NMI immediately – Committee
4. Schedule public meetings and contact potential venues – NMI
5. Review Community Assessment packet and provide edits by the next meeting – Committee
6. Work with Assessor's office to get cadastral data – NMI
7. Supply USFS fuel treatment project info to NMI – Tara Hanger
8. Develop public meeting flyer - NMI
9. Send NMI completed Resources and Capabilities surveys by next meeting – Fire Depts & Agencies
10. Send NMI organization logos by the next meeting - Committee

Agenda Item #10 – Adjournment:

The meeting was adjourned at approximately 8:30 pm.

Next Meeting: May 31st at 6:00 pm at the Columbia County Fire District #3 Fire Station (same location)

2.3.1.1.3 May 31st, 2007 – Columbia County Fire District #3 Fire Station

Agenda Item #1 – Introduction:

Tera kicked off the meeting by welcoming the attendees and asking them to pick up the materials set out at the front of the room.

Agenda Item #2 – Public Involvement:

Tera went over the agenda for the public meeting scheduled for June 13th. She reiterated that the intent of the meeting was to engage members of the public regarding their ideas for projects and issues on their property and throughout the county. Lisa recently sent out a press release announcing the meeting to the local papers. Kaye noted that the date in the press release was inaccurate. Lisa will make sure this gets corrected. In addition to the press release, NMI has put together a flyer to be distributed throughout the county. She asked the committee to look over the poster and provide comments. Lester noted that it would be effective to put a picture of his house as it burned during the Columbia Complex fire. Other comments were to include the day of the week the meeting occurs and to reduce the amount of words in the lower portion. This type of flyer should only highlight the most important aspects the committee is trying to convey. Tera will make the changes and send the final version via email for the committee to distribute.

NMI would like to begin the first mailing of the public survey within the next week. Tera discussed several new questions added to the survey per comments received. The committee had an in-depth discussion regarding the new questions as well as the language of several other questions. Tera will revise the survey to address these issues and send the updated version out via email for approval by the committee.

Agenda Item #3 – Community Risk Assessments:

Tera asked if there were any questions regarding the Chapter 4- community assessment packet Bill handed out at the last meeting. So far, there have been no edits received.

Agenda Item #4 – Chapter 1 Review:

Tera handed out a draft of what will become Chapter 1 of the document. She explained that this chapter served as an introduction to the document. Much of the information presented outlines of the different planning guidelines rather than specific information about Columbia County. The committee noted that the version of their mission and goals statements used was outdated. Lisa agreed to send Tera the most recent version. Tera noted the last section of the document is intended to provide a short summary of some of the other planning documents used by the county and the city. She asked that copies of documents such as the County Comprehensive Plan, etc. be sent to NMI as soon as possible.

Tera also asked that if any of the participating organizations would like their logos included on the Acknowledgements page, please send them to NMI.

Agenda Item #5 – GIS Data:

Tera noted that NMI had been receiving GIS data including project data from various agencies; however, there were a few still outstanding.

Emily Ruchert in Pomeroy was able to get CRP data for all three Counties. NMI will incorporate this data into the maps presented at the public meetings.

Agenda Item #6 – Working Groups:

At the end of the meeting, the committee broke into two groups around a map to begin outlining potential project/treatment areas and areas of high risk. Numerous different projects were identified many with specific recommendations for treatment. NMI will work on digitizing these boundaries to be displayed at the public meeting.

Agenda Item #7 – Open Discussion:

During the meeting several issues came up that should be discussed as issues and potential action items in the CWPP. Lester and Rick noted that their were large, contiguous areas of agricultural land throughout the county that made fighting fire very difficult due to the lack of fuel breaks or even varying fuel types. The committee feels that breaking up these expanses by implementing fuel breaks would alleviate some of the problem. This would need to be coordinated by multiple landowners as well as FSA and other government agencies.

Lester also described several of the watersheds in the county as being full of brush and other fine fuels, particularly after the recent fires. The committee felt that active management of these areas through prescribed burning and other tools would be effective.

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. Send NMI picture for public meeting flyer – Lester

3. Contact County and City for access to other planning documents - NMI
4. Revise press release with corrected date – Lisa
5. Send NMI updated mission and goals statement – Lisa
6. Revise maps for public meeting - NMI
7. Review revised public survey and send edits to NMI by June 6th – Committee
8. Continue review of Community Assessment packet and provide edits by June 29th – Committee
9. Revise public meeting flyer - NMI
10. Send NMI completed Resources and Capabilities surveys by next meeting – Fire Depts & Agencies
11. Send NMI organization logos by the next meeting - Committee

Agenda Item #9 – Adjournment:

The meeting was adjourned at approximately 8:00 pm.

Next Meeting: July 12th at 6:00 pm at the Columbia County Fire District #3 Fire Station (same location)

2.3.1.1.4 July 12th, 2007 – Columbia County Fire District #3 Fire Station

Agenda Item #1 – Call to Order:

Tera kicked off the meeting by welcoming everybody to the table and pointing out the sign in sheet as well as the handouts available.

Agenda Item #2 – Housekeeping Items:

Vaiden gave a quick review of the recent fire and subsequent public meeting in Asotin County. The public expressed many of the same concerns that were brought up after the Columbia Complex Fire. This just reiterates the need for improvement.

Tera also noted that the last mailing of the public survey had been sent. There has been an excellent response from Columbia County residents with over 40% returned already.

Agenda Item #3 – Draft Review:

Tera handed out the first complete draft of the CWPP. Several of the sections have already been reviewed by the committee. Tera went through each chapter explaining some of the content and formatting. There were in depth discussions on several of the items in the “County Issues” section, which resulted in changes to the draft. The committee made numerous other corrections as they went, but Tera asked the committee to provide additional comments on the draft by the next meeting.

Agenda Item #4 – Maps:

NMI did not bring any new wall maps; however, the most recent versions of the treatment map and the CRP acres were included in the agenda packet. All of the maps will be included in the Appendices.

Agenda Item #5 – Schedule:

July – September: Committee Review Process

September – October: Public Review

October – November: Adoption

Agenda Item #6 – 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. Complete missing/edited sections of draft CWPP - NMI
3. Review/send edits on Draft CWPP by next meeting – Committee

Agenda Item #7 – Adjournment:

The meeting was adjourned at approximately 8 pm.

Next Meeting: August 16th at 6 pm in the Columbia County Fire District #3 Fire Station (same location)

2.3.1.1.5 August 16th, 2007 – Columbia County Fire District #3 Fire Station

Agenda Item #1 – Call to Order:

Tera kicked off the meeting by welcoming everybody to the table and passing around the updated draft documents as well as the sign in sheet.

Agenda Item #2 – Housekeeping Items:

The last mailing of the survey has been completed and as of August 15th, Columbia County has a 64% response rate. This is a great turnout and Tera expects that a few more will trickle in. The results of the survey will be summarized for the next meeting.

Agenda Item #3 – Appendices Review:

Tera handed out copies of the draft Appendices, which includes all of the maps, surveys, prioritization data, and glossary of terms as well as information on potential funding sources. Most of the material in the Appendices has been reviewed by the committee already or is a supplement to information presented in the main document. Tera asked that the committee review the material for accuracy and send any edits to her by the next meeting.

Agenda Item #4 – Draft Review:

Rather than print the entire draft again, Tera handed out packets of only the information that had changed since the July meeting. She went through each section noting the new material as well as what was still missing. The committee members went over several issues and points of clarification in the document were discussed and will be reflected in the revised draft at the September meeting.

So far, she has not received many edits to the original draft. She asked that the committee please begin sending edits as the data gathering process is almost complete. The committee should begin thinking about finalizing the draft in order to begin the public review process. This will be the focus of the September meeting.

Agenda Item #5 – Prioritization Process:

Using the prioritization scheme outlined in Chapter 5 of the draft, Tera has begun to prioritize the action items listed in the Chapter 5 tables. Tera went over the information used in the prioritization process and asked if the committee had any revisions on the cost figures or any of the other criteria scores. The committee approved the use of this prioritization scheme; therefore, Tera will work on prioritizing the specific committee projects for the next meeting.

Agenda Item #6 – Task List and Assignments:

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

1. Send NMI edits on any of the material handed out so far – Committee

2. Complete missing/edited sections of draft CWPP - NMI

Agenda Item #7 – Adjournment:

The meeting was adjourned at approximately 8:30 pm.

Next Meeting: September 20th at the Columbia County Fire District #3 Fire Station at 6 pm

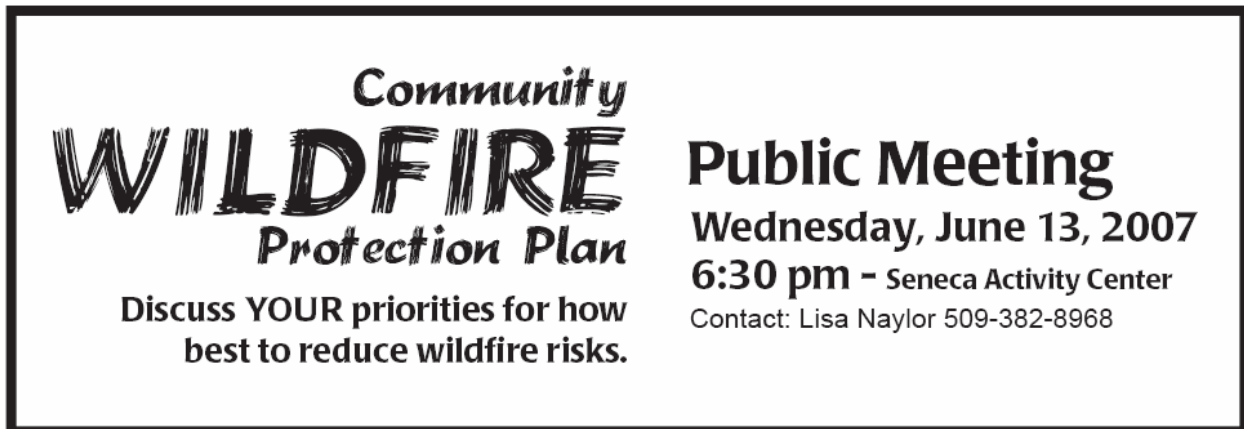
2.4 Public Involvement

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

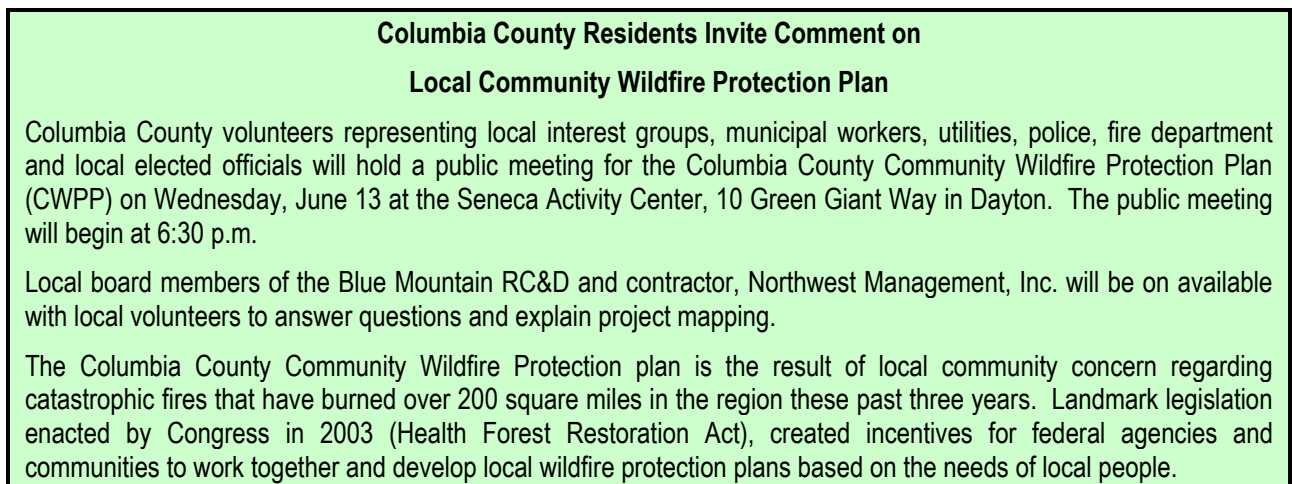
Under the auspices of the Columbia County planning committee, news releases were submitted to local newspapers and informative flyers were also distributed around town and to local offices within the communities. The following is an advertisement printed in the *Blue Mountain News* and a news release printed in the *Dayton Chronicle* to announce the public meeting.

Figure 2.1. Advertisement Printed by the *Blue Mountain News* on June 1st, 2007.



The advertisement is enclosed in a black rectangular border. On the left side, the text reads: "Community WILDFIRE Protection Plan" where "WILDFIRE" is in large, bold, black, hand-drawn style letters. Below this, it says "Discuss YOUR priorities for how best to reduce wildfire risks." On the right side, the text reads: "Public Meeting Wednesday, June 13, 2007 6:30 pm - Seneca Activity Center Contact: Lisa Naylor 509-382-8968".

Figure 2.2. News Release Printed by the *Dayton Chronicle* on May 30th & June 6th, 2007.

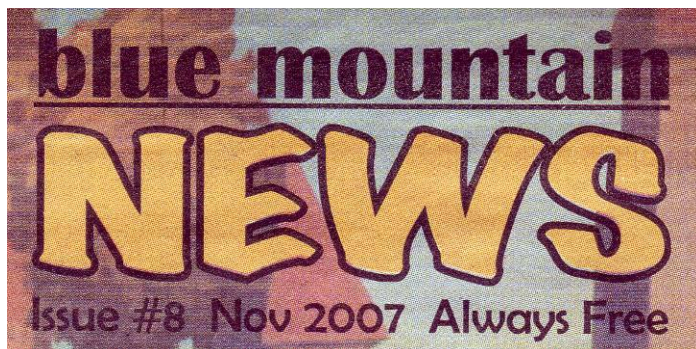


The news release text is enclosed in a light green rectangular border. The title is "Columbia County Residents Invite Comment on Local Community Wildfire Protection Plan". The main text reads: "Columbia County volunteers representing local interest groups, municipal workers, utilities, police, fire department and local elected officials will hold a public meeting for the Columbia County Community Wildfire Protection Plan (CWPP) on Wednesday, June 13 at the Seneca Activity Center, 10 Green Giant Way in Dayton. The public meeting will begin at 6:30 p.m." The second paragraph reads: "Local board members of the Blue Mountain RC&D and contractor, Northwest Management, Inc. will be on available with local volunteers to answer questions and explain project mapping." The third paragraph reads: "The Columbia County Community Wildfire Protection plan is the result of local community concern regarding catastrophic fires that have burned over 200 square miles in the region these past three years. Landmark legislation enacted by Congress in 2003 (Health Forest Restoration Act), created incentives for federal agencies and communities to work together and develop local wildfire protection plans based on the needs of local people."

A CWPP helps Columbia County clarify and refine its priorities for the protection of life, property, and critical infrastructure in the wildland-urban interface.

Local volunteers have been meeting since March to learn the fire protection planning process, identify the wildland-urban interface, determine a mission, vision and goals statement, and assist the contractor with knowledge of past fire history in the county.

Figure 2.3. News Release Printed in the November issue of Blue Mountain News.



Wildfire Protection Plan Public Review

The Columbia County Community Wildfire Protection Plan (CWPP) has been completed in draft form and is available to the public for review and comment. The public review phase of the planning process will be open through November 9th, 2007. Copies of the plan are available for review at the following locations:

- Dayton City Hall, 111 S. First St., Dayton
- Columbia County Courthouse, 341 E. Main St., Dayton
- Dayton Memorial Library, 111 S. Third St., Dayton
- Starbuck Post Office, 301 Main St., Starbuck

The purpose of the CWPP is to reduce the wildfire risk for Columbia County residents, landowners and agencies; promote wildfire mitigation activities; improve wildfire response capabilities; and encourage sustainable natural resource management policies. The Plan is being developed by a committee of local and state fire agency representatives, park and land managers, local emergency managers, and others. Northwest Management, Inc. of Moscow, ID is working with the committee to prepare the Plan.

For more information on the CWPP, please contact Lisa Naylor, Blue Mountain RC&D, at (509) 382-8968 or Tera King with Northwest Management, Inc. at 208-883-4488.

2.4.2 Public Mail Survey

A survey of Columbia County homeowners was conducted to collect a broad base of perceptions about wildland fire and individual risk factors. Approximately 316 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. The county planning committee was integral in the final wording and polishing of the survey questions. Copies of each cover letter and survey are included in Appendix II.

The first in the series of mailings was sent on June 13, 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 June 28, 2007, encouraging their response. A final mailing, with a revised cover letter urging them to participate, was sent to non-respondents on July 12, 2007.

Surveys were returned during the months of June, July, and August. A total of 200 residents responded to the survey as of September 18, 2007. The effective response rate for this survey was 63%. 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 200 respondents in the survey, approximately 81% were from the Dayton area, 9% claimed the nearest community was Waitsburg, 4% were nearest Pomeroy, 3% were from the Starbuck area, and the remaining respondents were from other areas in the county at a rate of about 1% or 2% per community.

All but one respondent correctly identified that they have emergency telephone 911 services in their area. When asked if their home was protected by a local fire department, 88% indicated that they were within a fire protection district. 46% 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, 37% thought the average response time was between 10 and 20 minutes, 10% of respondents thought that a fire department would be there within 20 to 30 minutes, 6% thought it would take 30 to 45 minutes, and 1% thought it would take longer than 45 minutes.

Respondents were asked to indicate the type of roofing material covering the main structure of their home. Approximately 64% of respondents indicated their homes were covered with a composite material (asphalt shingles). About 27% indicated their homes were covered with a metal (e.g., aluminum, tin) roofing material, and 8% 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, only 5% indicated there were none, 61% said less than 10, 30% said between 10 and 25 trees, and 6% indicated more than 25 trees. 96% of respondents replied that they had a lawn and 95% of those said they kept it green year round.

The average driveway length of respondents to the survey was 426 feet long (.08 miles). The longest reported was 1.5 miles. Of those respondents (8%) with a driveway over ¼ mile long, 49% do not have turnouts allowing two vehicles to pass. 12% of respondents with a driveway indicated having a dirt surface, while 68% had gravel or rock and 20% had a paved driveway.

Approximately 76% of the respondents indicated an alternate escape route was available in an emergency that cut 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 firefighting tools in Columbia County.

93% – Hand tools (shovel, axe, etc.)

24% – Portable water tank

11% – Fixed/Stationary water tank

33% – Pond, lake, swimming pool, or stream water supply close

19% – Water pump and fire hose

57% – Well or cistern

39% – Equipment suitable for creating fire breaks (bulldozer, cat, farm tractor, etc.)

20% of respondents indicated that they owned equipment that could be used for fire suppression purposes. Of those respondents 61% said they would be willing to be on contract with the federal and/or state government for the use of that equipment.

Respondents were asked if anyone in their household had received emergency services training in the last five years. Table 2.2 summarizes their responses.

Table 2.2. Percent of homes with emergency services training in Columbia County.

16% – Wildland Firefighting

14% – City or Rural Firefighting

10% – Emergency Medical Technician

60% – Basic First Aid / CPR

8% – Search and Rescue

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 2.3).

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

Table 2.3. Fuel Hazard Rating Worksheet		Rating	Results
Fuel Hazard	Small, light fuels (grasses, forbs, weeds, shrubs)	1	53%
	Medium size fuels (brush, large shrubs, small trees)	2	33%
	Heavy, large fuels (woodlands, timber, heavy brush)	3	14%
Slope Hazard	Mild slopes (0-5%)	1	63%
	Moderate slope (6-20%)	2	17%
	Steep Slopes (21-40%)	3	13%
	Extreme slopes (41% and greater)	4	7%
Structure Hazard	Noncombustible roof and noncombustible siding materials	1	24%
	Noncombustible roof and combustible siding material	3	31%
	Combustible roof and noncombustible siding material	7	14%
	Combustible roof and combustible siding materials	10	32%
Additional Factors	Rough topography that contains several steep canyons or ridges	+2	Average -1.5 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.

$$\begin{array}{rcl}
 \text{Fuel hazard} & \underline{1.6} & \times \text{ Slope Hazard } \underline{1.7} = \underline{2.7} \\
 \text{Structural hazard} & + & \underline{5.3} \\
 \text{Additional factors (+ or -)} & & \underline{-1.5} \\
 \text{Total Hazard Points} & = & \underline{6.5}
 \end{array}$$

Table 2.4. Percent of respondents in each risk category as determined by the survey respondents.

- 00% – Extreme Risk = 26 + points
- 05% – High Risk = 16–25 points
- 38% – Moderate Risk = 7–15 points
- 57% – 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; 84% said that they did. Respondents were also asked if livestock were grazed around their home; 34% indicated there were. Respondents were asked if they would be willing to participate in a program to further protect agricultural fields by creating fuel breaks; 73% indicated they would be interested. 87% of respondents said they would support increased use of coordinated prescribed burning as a fuels management tool and 75% said they would support controlled grazing on their property and/or public property in an effort to reduce the wildfire risk.

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 65% of

respondents indicated a desire to participate in this type of training. 60% of respondents said they or their family would be interested in participating in a one-day group effort to reduce hazardous fuels in their neighborhood or community.

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 2.5.

	100% Public Funding	Cost-Share (Public & Private)	Privately Funded (Owner or Company)
Home Defensibility Projects →	15%	32%	53%
Community Defensibility Projects →	46%	44%	10%
Infrastructure Projects Roads, Bridges, Power Lines, Etc. →	62%	20%	18%

2.4.3 Public Meetings

A public meeting was held during the hazard assessment phase of the planning process at the Seneca Activity Center on June 13, 2007. The public meeting was intended to share information on the planning process, inform details of the hazard assessments, and discuss potential mitigation treatments. Attendees at the public meeting were asked to give their impressions of the accuracy of the information generated and provide their opinions of potential treatments.

The Dayton public meeting was attended by a number of individuals on the committee and from the general public. The public meeting announcement sent to the local newspapers, local radio stations, fire district representatives, and distributed by committee members is included below in Figure 2.3.

Figure 2.4. Public Meeting Announcement.

Columbia County, Washington
Community Wildfire
Protection Plan
Public Meeting!



Wednesday, June 13th, 2007
at 6:30 pm
Seneca Activity Center
Dayton, Washington

Please come and provide input and comments on the
Columbia County Community Wildfire Protection Plan!
Meeting will last 1 hour.



For more information on the Community Wildfire Protection Plan project in Columbia County, contact
the Blue Mountain RC&D Coordinator, Lisa Naylor, at (509) 382-8968.

The following slideshow was presented at the public meeting by William Schlosser of Northwest Management, Inc. In addition, a planning committee representative opened the meeting with a brief introduction and narration of recent fires, vegetation changes, and forest health issues in Columbia County.

Table 2.6. Public meeting slide show.

Slide 1

**Columbia County,
Community Wildfire Protection Plan**

Northwest Management, Inc.
 William E. Schlosser, Ph.D.
 Tera King, B.S.
 Valden Bloch, M.S.

233 East Palouse River Drive
 Moscow, Idaho 83843
 208-863-4488 Telephone
 www.Consulting-Foresters.com

June 13, 2007

Slide 2

Northwest Management, Inc.

- Serving the Western U.S. since 1984
- Main Office in Moscow, Idaho
 - Deer Park, Washington
 - Hayden, Idaho
 - Helena, Montana
- Full Service Natural Resource Consultants
 - Wildland-Urban Interface Wildfire Mitigation Planning
 - All Hazards Mitigation Planning

Providing a balanced approach to natural resource management

Slide 3

Goals of Today's Meeting

- Discuss the Wildfire Planning needs of Columbia County
 - Integration of what has been done
 - Explore additional efforts in progress
 - Share a vision of where we are going
 - Develop projects which mitigate potential losses from wildfire in the County

Slide 4

Planning Guidelines

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

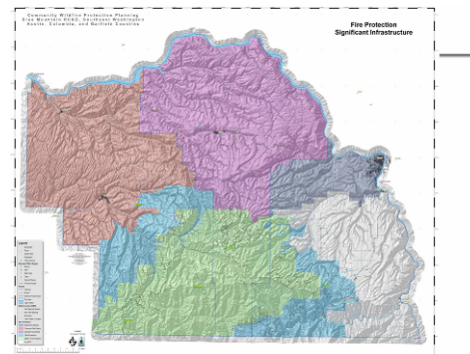
national fire plan
 FEMA
 HFI
 HEALTHY FORESTS

Slide 5

Planning is Committee Based

- Planning Committee has been meeting monthly to develop this plan
- Shared Vision and Goals
- Risk Assessments
 - Map (GIS) Based Assessments
 - Observation Based Assessments (community assessments)
 - Local Knowledge Based Assessments
- Wildland-Urban Interface & Significant Infrastructure determination
- Development of Treatment Projects
 - Policy Actions
 - Home Defensibility Projects
 - Infrastructure Treatments
 - Resources and Capability Enhancements
 - Regional Land Management Recommendations

Slide 6



Slide 7

Potential Treatments

- Access Fuels Treatment, Education, High Priority
- Access Fuels Treatment, Education, Low Priority
- Access Fuels Treatment, Fuel Breaks, Education
- Access Fuels Treatment, Low Priority
- CRP Land, Fuel Breaks
- Defensible Space
- Fuels Treatment
- Infrastructure Improvement, Bridge Needed
- Infrastructure Improvement, Bridge Weight Rating
- Mid Slope Fuel Breaks
- Standing Grain, Fuel Breaks
- Water Sources Needed, Ponds, Wells

Map of Columbia County showing Potential Treatments. The map is color-coded by treatment type, corresponding to the list on the left.

Slide 8

Preparedness

- Structure and Wildland Fire Protection
 - Resources and Capabilities
 - Protection Areas
- Lessons Learned on Recent Large Fire Events

Photo of a boat on a lake at sunset.

Slide 9



Public Involvement

- Press Releases about planning efforts
- Public Mail Survey was sent to about 300 households in Columbia County
- Public Meetings - today
- Public Review of the DRAFT Plans will be facilitated once all sections have been completed and reviewed by the committee

Slide 10



Prioritizing Activities

- Cost/Benefit
- 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

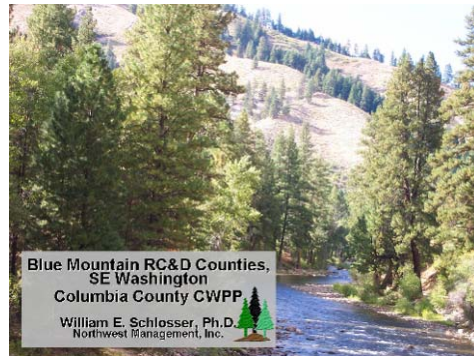
Slide 11



Pulling it all Together

- We invite you to talk with us about your ideas for wildfire mitigation;
- Mark up the maps on the walls with your ideas of what can be done and where it should be done;
- Share with me and members of the planning committee your ideas to make this plan effective with a positive impact.

Slide 12



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 2007, the committee met to discuss findings, review mapping and analysis, and provide written comments on draft sections of the document. At the public meetings attendees observed map analyses, 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 July 12th, 2007 for a full committee review. The draft document was released for public review on October 12th, 2007. The public review period remained open until November 9th, 2007.

2.4.5 Continued Public Involvement

Columbia County is dedicated to involving the public directly in review and updates of this Community Wildfire Protection Plan. The Columbia County Commissioners, through the Community Wildfire Protection Plan committee, are responsible for the annual 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 annually on the anniversary of its adoption at a meeting of the County Commissioners. Copies of the Plan will be kept at the office of the Columbia County Emergency Manager.

A public meeting will also be held as part of each annual evaluation or when deemed necessary by the Community Wildfire Protection Plan committee. The meeting will provide the public a

forum in which they can express concerns, opinions, or ideas about the Plan. The County Commissioner's Office will be responsible for using County resources to publicize the annual public meeting and maintain public involvement through the County webpage and newspapers.

Chapter 3

3 Columbia County Characteristics

3.1 Demographics

Columbia County reported a slight increase in total population from 4,024 in 1990 to 4,064 in 2000 with approximately 2,018 households. Columbia County has two incorporated communities which are Dayton (pop. 2,655) and Starbuck (pop. 130).

Table 3.1 summarizes some relevant demographic statistics for Columbia County.

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

Subject	Number	Percent
Total population	4,064	100.0
SEX AND AGE		
Male	1,982	48.8
Female	2,082	51.2
Under 5 years	217	5.3
5 to 9 years	268	6.6
10 to 14 years	291	7.2
15 to 19 years	295	7.3
20 to 24 years	186	4.6
25 to 34 years	363	8.9
35 to 44 years	564	13.9
45 to 54 years	638	15.7
55 to 59 years	275	6.8
60 to 64 years	214	5.3
65 to 74 years	375	9.2
75 to 84 years	296	7.3
85 years and over	82	2.0
Median age (years)	42.4	(X)
18 years and over	3,091	76.1
Male	1,504	37.0
Female	1,587	39.1
21 years and over	2,950	72.6
62 years and over	880	21.7
65 years and over	753	18.5
Male	333	8.2
Female	420	10.3

3.2 Socioeconomics

Columbia County had a total of 1,687 occupied housing units and a population density of 4.7 persons per square mile reported in the 2000 Census. Ethnicity in Columbia County is distributed: white 93.7%, black or African American 0.2%, American Indian or Alaskan Native 1.0%, Asian 0.4%, Hispanic or Latino 6.3%, two or more races 1.9%, and some other race 3.3%.

Specific economic data for individual communities is collected by the US Census; in Columbia County this information is limited to the incorporated cities. City of Dayton households earn a median income of \$31,409 annually and Starbuck earns a medium income of \$18,125 annually. The Columbia County median income during the same period was \$33,500. Table 3.2 shows the dispersal of households in various income categories in Columbia County.

Table 3.2. Income in 1999.	Columbia County	
	Number	Percent
Households	1,688	100.0
Less than \$10,000	159	9.4
\$10,000 to \$14,999	171	10.1
\$15,000 to \$24,999	279	16.5
\$25,000 to \$34,999	247	14.6
\$35,000 to \$49,999	341	20.2
\$50,000 to \$74,999	294	17.4
\$75,000 to \$99,999	111	6.6
\$100,000 to \$149,999	63	3.7
\$150,000 to \$199,999	5	0.3
\$200,000 or more	18	1.1
Median household income (dollars)	33,500	(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 Columbia County, a significant number, 8.6%, of families are at or below the poverty level (Table 3.3).

Table 3.3. Poverty Status in 1999 (below poverty level).	Columbia County	
	Number	Percent
Families	98	(X)
Percent below poverty level	(X)	8.6
With related children under 18 years	69	(X)
Percent below poverty level	(X)	13.6
With related children under 5 years	30	(X)
Percent below poverty level	(X)	17.8
Families with female householder, no husband present	50	(X)
Percent below poverty level	(X)	38.2
With related children under 18 years	50	(X)
Percent below poverty level	(X)	51.0
With related children under 5 years	24	(X)

Table 3.3. Poverty Status in 1999 (below poverty level).	Columbia County	
	Number	Percent
Percent below poverty level	(X)	68.6
Individuals	507	(X)
Percent below poverty level	(X)	12.6
18 years and over	354	(X)
Percent below poverty level	(X)	11.6
65 years and over	80	(X)
Percent below poverty level	(X)	11.1
Related children under 18 years	153	(X)
Percent below poverty level	(X)	15.9
Related children 5 to 17 years	114	(X)
Percent below poverty level	(X)	15.5
Unrelated individuals 15 years and over	184	(X)
Percent below poverty level	(X)	27.0

(Census 2000)

The unemployment rate was 5.3% in Columbia County in 1999, compared to 4.4% nationally during the same period. Approximately 16% of the Columbia County employed population worked in natural resources, with much of the indirect employment relying on the employment created through these natural resource occupations.

Table 3.4. Employment and Industry.	Columbia County	
	Number	Percent
Employed civilian population 16 years and over	1,720	100.0
OCCUPATION		
Management, professional, and related occupations	4,577	29.8
Service occupations	2,818	18.3
Sales and office occupations	3,402	22.1
Farming, fishing, and forestry occupations	1,463	9.5
Construction, extraction, and maintenance occupations	1,261	8.2
Production, transportation, and material moving occupations	1,847	12.0
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	2,464	16.0
Construction	891	5.8
Manufacturing	723	4.7
Wholesale trade	675	4.4
Retail trade	1,756	11.4
Transportation and warehousing, and utilities	700	4.6
Information	277	1.8
Finance, insurance, real estate, and rental and leasing	474	3.1
Professional, scientific, management, administrative, and waste management services	64	3.7
Educational, health and social services	344	20.0
Arts, entertainment, recreation, accommodation and food services	139	8.1

Table 3.4. Employment and Industry.	Columbia County	
	Number	Percent
Other services (except public administration)	126	7.3
Public administration	160	9.3

(Census 2000)

Approximately 62% of Columbia County’s employed persons are private wage and salary workers, while around 25% are government workers (Table 3.5).

Table 3.5. Class of Worker.	Columbia County	
	Number	Percent
Private wage and salary workers	1,073	62.4
Government workers	431	25.1
Self-employed workers in own not incorporated business	207	12.0
Unpaid family workers	9	0.5

(Census 2000)

3.2.1 Description of Columbia County

Information adapted from the Rural Resource Team Report and the Columbia County Comprehensive Plan.

Columbia County is part of a geographically diverse region located in the foothills of the Blue Mountains of southeastern Washington near Walla Walla. Landscapes range from rolling hills of wheat to extremely rugged mountain wilderness areas. The northern portion of the county borders on Little Goose and Lower Monumental Dam reservoirs on the Snake River. The southern border is located along the Oregon state line and features Oregon Butte at an elevation of 6,401 feet. Comprised of 872.88 square miles, Columbia County ranks 31st in size of the 39 counties in the state of Washington.

By 1854 fur trappers had harvested beaver, pine martin, cougars, and bobcats and moved on to be followed by homesteaders and farmers settling into the Touchet Valley. It was evident that soils in this region were exceptional for raising food and the weather was pleasant. Wheat growers could produce crops yielding up to 50 bushels per acre. In 1871, Jesse N. Day filed the original town plan. Dayton became the Columbia County seat in 1875.

By the 1880’s, agriculture was the economic mainstay featuring wheat, but also including logging, brick making, barley crops, and sheep, horse, and cattle ranching. Numerous wind turbines have also been erected in the Dayton area and are creating new jobs due to engineering, construction, and maintenance requirements.

Dayton is still the county’s largest town with a population of approximately 2,700. Starbuck is the only other town in Columbia County and has a population of about 130. Approximately 1,270 more people reside in the county’s unincorporated areas where agriculture continues to be the economic engine with wheat, barley, oats, and peas being the major crops grown.

3.2.1.1 Topographic Features

The Blue Mountains, predominant in the southern third of Columbia County, extend into the neighboring counties of Walla Walla, Garfield, Asotin, and south into Oregon. Most of the forested lands are within the Umatilla National Forest and are managed by the U.S. Forest Service. The forested lands are drained by the Tucannon and Touchet River systems that

traverse the county. At the extreme south end of the county, a relatively small area of forest is within the Grande Ronde and/or Walla Walla River basins.

The Touchet River, from its origin in the Blue Mountains to its confluence with the Walla Walla River, forms a semi-circular arc with a 20 mile radius from the city of Walla Walla. The course of the river stretches 76 miles. The Touchet River sub-basin ranges in elevation from 1,310 to 5,800 feet. From the east, the land slopes to the central and extreme lower river valleys westward, with intervening portions consisting of high rolling plateaus. The Touchet River Valley has three main branches: the North Fork, the South Fork, and the Wolf Fork.

3.2.1.2 Land Use

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 in the southern half of the County is expected to produce significantly higher demands on privately held land in the future.

Table 3.6. Ownership Categories in Columbia County.

Land Owner	Acres	Percent
City or Municipal Government	0	0%
Forest Industry	6,936	1%
Incorporated Cities	1,024	0%
Private	358,203	64%
US Army Corps of Engineers	5,851	1%
US Bureau of Land Management	390	0%
US Forest Service	158,982	28%
Washington Department of Natural Resources	15,750	3%
Washington State Department of Fish and Wildlife	11,463	2%
Washington State Parks and Recreation Commission	43	0%
Total	558,642	

Lands along the lower and middle Tucannon River, which may be referred to as bottomlands, are, for the most part, cultivated with much of the land under irrigation. Some of this land is seeded to perennial pasture and for hay crops, while other acreages are used for annual crops such as small grains and/or row crops.

All other lands are largely constrained by soil deficiencies, terrain characteristics, or owner preference to being utilized as rangeland, forestland, or for dryland wheat or CRP.

Table 3.7. Major Agricultural Land Use Categories in Columbia County.

Type	Acres	Percent
Conservation Reserve Program	53,904	28%
Fallow	25,947	13%
Wheat and Barley	96,846	50%
Grass Only	17,438	9%
Total	194,135	

3.2.1.3 Resource Dependency

The Snake River connects Columbia County to the world with barge access to ports along its length. Agriculture, particularly the production of wheat, barley, oats, and peas, continues to be the primary economic driver.

The Columbia County Health District, which includes Waitsburg and Dayton Public School Districts, employs the largest number of residents in the county followed by local, state, and federal government. The Port of Columbia maintains facilities in Dayton for light industrial and service businesses. The Port recently created an incubator business building and overseas operation of the Lyons Ferry Marina. The Seneca Seed operation remains in Dayton following the closure of the asparagus processing facility in 2006.

There are currently three wind energy projects in Columbia County. The Hopkins Ridge Project, completed in December of 2005, has 83, 1.8 megawatt turbines with the energy being purchased by Puget Sound Energy. The wind mills are approximately 351 feet high measured from the ground to tip of the blade at its highest point. The Marengo Wind Energy Project was completed in August of 2007. This energy produced by the 78, 1.8 megawatt turbines was purchased by Pacific Corp. The Marengo II (Dayton Wind Project) is currently under construction by Blue Sky Wind, an affiliate of Renewable Energy Resources America Developments, Inc. This project is scheduled for completion in the summer of 2008 with the generated power also being purchased by Pacific Corp. There will be approximately 50, 415 feet tall turbines in the Dayton Wind Project.

3.2.1.4 Recreation

The Lyons Ferry Marina site is located northwest of Starbuck on the Snake River. The site consists of thirty-seven acres, of which nineteen acres are under water. The facilities offer sixty covered moorage spaces and forty open moorage spaces for private boats. It also contains gasoline facilities, general marina supplies and services, a campground, picnic area, and an eighteen space trailer park with full hookups. In the latter part of the 1970's, the marina improved its facilities with the addition of forty tent and self-contained trailer spaces, a restaurant, laundry facilities, and a grocery store.

Ski Bluewood is located 21 miles southeast of Dayton. The area covers 1,600 acres of which 200 are groomed and 1,400 are in natural terrain. The resort has a 15,000 – square foot day lodge with a restaurant, pub, and accessory shops.

Located in the Umatilla National Forest, 46 miles of groomed snowmobiling trails start from the parking lot on the North Touchet and stretch clear around to Eckler Mountain. There are also 150 miles of off-trail paths providing recreation for snowmobilers and cross-country skiers. The National Forest affords much of the county's recreational opportunities. With hunting, fishing, mushrooming, picnicking, camping, snowmobiling, and skiing, the county has a well-rounded selection of recreational facilities.

3.3 Cultural Resources

3.3.1 National Register of Historic Places

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 3.8.

Table 3.8. National Register of Historic Places in Columbia County, Washington.

Item Number	Resource Name	City	Listed	Architect, builder, or engineer
1	Bank of Starbuck	Starbuck	1978	
2	Bishop, A. H., House	Dayton	1986	
3	Brining, John, House	Dayton	1986	
4	Columbia County Courthouse	Dayton	1975	Dexter, A.J., Burrows, W.H.
5	Dayton Depot	Dayton	1974	Oregon Railroad & Navigation Co.
6	Dexter House No. 1	Dayton	1986	Dexter, A.J.
7	Dexter House No. 2	Dayton	1986	Dexter, A.J.
8	Downtown Dayton Historic District	Dayton	1999	Nash, John, Burrows, W.H.
9	Flintner, Frank, House	Dayton	1986	
10	Guernsey—Sturdevant Building	Dayton	1993	
11	Israel, Grover J., House	Dayton	1986	
12	Kelley, Mancel, House	Dayton	1986	Kelley, Mansel, Kelley, Usaba
13	Mill House	Dayton	1986	Rauch, J.W.
14	Nilsson, Andrew, House	Dayton	1986	Carr & Frick
15	Pietrzycki, Dr. Marcel, House	Dayton	1986	Pietrzycki, Marcel
16	Robinette, Joseph, House	Dayton	1986	
17	Snake River Bridge	Lyons Ferry	1982	
18	South Side Historic District	Dayton	1986	Et al, Burrow, W.H.
19	Thronson, J.A., House	Dayton	1986	Dexter, A.J.
20	Washington Street Historic District	Dayton	1986	Et al, Torrance, H.J.
21	Weinhard, Jacob, House	Dayton	1986	Dilley, B.F.

(NRHP 2003)

Fire mitigation activities in and around these sites has the potential to affect historic places. In all cases, the fire mitigation work will be intended 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. Burns over lithic sites are not expected to have an impact on those sites, as long as the fire is of low intensity and short duration. Some areas with heavy vegetation may need to be examined after the burn to locate and record any cultural resources although this is expected to be minimal. Traditional Cultural Properties (TCPs) will also need to be identified. Potential impact to TCPs will depend on what values make the property important and will be assessed on an individual basis.

3.4 Transportation & Infrastructure

The transportation system within the County is comprised of a significant number of roads, an airport, and an extensive trail system. The road system is comprised of state and federal highways, Washington Department of Natural Resources (DNR) roads, county roads, US Forest Service roads, and private roads. The transportation network is very important in the wildland urban interface because it provides a means of escape and access to fight fires and because road corridors may act as barriers to the spread of a fire.

Almost all of the roads in the county were originally built to facilitate farming and logging activities. As such, these roads can generally support the firefighting equipment referenced in this document. However, many of the new roads have been 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. County road standards and building guidelines for new developments should be strictly enforced to insure this tendency continues.

Primary 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. There are 109 miles of primary access routes identified in Columbia County.

Columbia County has both significant infrastructure and unique ecosystems within its boundaries. Of note for this Community Wildfire Protection Plan are the existence of US Highway 12, State Route 261, Hatley Gulch, Eckler Mountain, North Touchet Road, South Touchet Road, Tucannon Road, and the presence of high tension power lines.

3.4.1 Communication Sites and Lookouts

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 3.9.

Table 3.9. Lookouts, Repeater Towers, and Communication Site Locations.

Name	Longitude	Latitude
Table Rock	-117.91180649700	46.03072760880
Oregon Butte	-117.67938528900	46.10965656700
Tallow Flat	-117.73518065100	46.20068125660
Thorn Point (WA DNR)	-117.87603799600	46.30068274960
Delaney	-117.94541500000	46.53099300000
Starbuck	-118.19082700000	46.55318600000
Weinhart	-118.01218800000	46.33182600000

3.5 Vegetation & Climate

Vegetation in Columbia County is a mix of forestland 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.

The most represented vegetated cover types are evergreen forest and cultivated crops at approximately 34% each (Table 3.10).

Table 3.10. Vegetative Cover Types in Columbia County.

Cover	Acres	Percent
Open Water	3,292	0.6%
Developed, Open Space	10,576	1.9%
Developed, Low Intensity	1,058	0.2%
Developed, Medium Intensity	148	0.0%
Developed, High Intensity	24	0.0%

Table 3.10. Vegetative Cover Types in Columbia County.

Cover	Acres	Percent
Barren Land (Rock/Sand/Clay)	30	0.0%
Deciduous Forest	138	0.0%
Evergreen Forest	189,860	34.0%
Mixed Forest	402	0.1%
Shrub/Scrub	95,942	17.2%
Grassland/Herbaceous	60,480	10.8%
Pasture/Hay	4,033	0.7%
Cultivated Crops	190,179	34.0%
Woody Wetlands	411	0.1%
Emergent Herbaceous Wetlands	2,068	0.4%
Total	558,641	

Vegetative communities within the county follow the strong moisture and temperature gradient related to the major drainages. As moisture availability increases, so does the abundance of conifer species, with subalpine forest communities present in the highest elevations where precipitation and elevation provide more moisture during the growing season.

3.5.1 Monthly Climate Summaries in Columbia County

3.5.1.1 Dayton

Period of Record Monthly Climate Summary

Period of Record : 1/2/1931 to 12/31/2005

Table 3.11. Monthly climate records for Dayton, Columbia County, Washington.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	40.0	45.7	53.4	61.4	69.6	77.2	87.1	85.9	77.0	64.5	49.2	41.6	62.7
Average Min. Temperature (F)	25.4	29.1	33.7	38.4	44.4	50.1	54.7	53.8	47.1	38.8	32.0	27.7	39.6
Average Total Precipitation (in.)	2.37	1.79	2.02	1.60	1.50	1.28	0.46	0.52	0.86	1.65	2.45	2.53	19.03
Average Total Snowfall (in.)	6.9	3.2	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	1.2	5.0	17.7
Average Snow Depth (in.)	1	1	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: 99.5% Snowfall: 89.5% Snow Depth: 96.3%

3.5.1.2 Little Goose Dam

Period of Record Monthly Climate Summary

Period of Record : 10/1/1963 to 4/30/1979

Table 3.12. Monthly climate records for Little Goose Dam, Columbia County, Washington.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
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Table 3.12. Monthly climate records for Little Goose Dam, Columbia County, Washington.

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Temperature (F)	Max.	40.5	48.4	55.3	62.5	73.2	81.9	90.6	89.4	79.0	66.1	50.7	42.8	65.0
Average Temperature (F)	Min.	28.4	32.5	35.4	40.5	47.6	55.6	61.4	61.0	52.2	42.0	36.2	30.4	43.6
Average Precipitation (in.)	Total	1.65	0.94	0.92	0.91	0.73	0.72	0.37	0.50	0.54	0.62	1.47	1.99	11.37
Average Snowfall (in.)	Total	0.7	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	2.4
Average Depth (in.)	Snow	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record. Max. Temp.: 98.9% Min. Temp.: 98.8% Precipitation: 99.7% Snowfall: 91.4% Snow Depth: 90.8%

3.6 Ecosystems

Recent forest health assessments of dry ponderosa pine forests in the interior West indicate that fire and insect disturbance regimes and concomitant changes in stand and landscape characteristics have been significantly altered. These altered forests are increasingly susceptible to catastrophic fire events such as the 1988 55,000 acre Dinkleman Burn (Washington), the 1994 250,000 acre Foothill Burn (Idaho), and the 1994 140,000 acre Tye Burn (Washington). These burns are characterized as catastrophic because they are outside the range of variability in burn intensity and extent of historical burns that occurred on these sites before Euro-settlement. Severe burns have the potential to adversely impact biological capacity and biological integrity of affected watersheds (Everett et al 1996).

Columbia 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 and rangelands in Columbia 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).

3.7 Hydrology

The Washington Department of Ecology & Water Resources Program is charged with the development of the Washington State Water Plan. Included in the State Water Plan are the statewide water policy plan, and component basin and water body plans which cover specific geographic areas of the state (WDOE 2005). The Washington Department of Ecology has prepared General Lithologies of the Major Ground Water Flow Systems in Washington.

The state may assign or designate beneficial uses for particular Washington water bodies to support. These beneficial uses are identified in section WAC 173-201A-200 of the Washington Surface Water Quality Standards (WQS). These uses include:

- **Aquatic Life Uses:** char; salmonid and trout spawning, rearing, and migration; nonanadromous interior redband trout, and indigenous warm water species
- **Recreational Uses:** primary (swimming) and secondary (boating) contact recreation
- **Water Supply Uses:** domestic, agricultural, and industrial; and stock watering

While there may be competing beneficial uses in streams, federal law requires protection of the most sensitive of these beneficial uses.

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. Of critical importance to Columbia County will be the maintenance of the domestic watershed supplies in the Middle Snake River Watershed (Watershed Resources Inventory Area 35).

Timberlands in the region have been extensively harvested for the past several decades, altering riparian function by removing streamside shade and changing historic sediment deposition. Riparian function and channel characteristics have been altered by ranch 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.

Table 3.13 lists the Washington Water Resources database of municipal water supplies in Columbia County and the Recorded Water Certificates and Permits in Columbia County. These water sources may be placed at risk in the event of a wildland fire.

Table 3.13. Municipal Water Sources in Columbia County.

System Name	System Type	Source Name
BLUEWOOD SKI AREA	Transient Non-Community	Unnamed Spring #1
CAMP WOOTEN STATE PARK	Transient Non-Community	Well #1
DAYTON WATER DEPARTMENT	Community	Well #2 - AEN297
DAYTON WATER DEPARTMENT	Community	Well #1
DAYTON WATER DEPARTMENT	Community	Well #3 - AEN296
GODMAN GUARD STATION	Group B	SPRING
LAST RESORT WATER SYSTEM	Transient Non-Community	Well #1 - AEN295
LEWIS & CLARK TRAIL STATE PARK	Transient Non-Community	Well #1
LITTLE GOOSE DAM	Non-Transient, Non-Community	Well #1
LITTLE GOOSE DAM	Non-Transient, Non-Community	Well #2
LYONS FERRY MARINA	Transient Non-Community	Well #1
NORTH WORLD VENTURES RV PARK	Group B	Well #1 - AAS782

Table 3.13. Municipal Water Sources in Columbia County.

System Name	System Type	Source Name
STARBUCK, CITY OF	Community	Well #1 - OLD
STARBUCK, CITY OF	Community	Well #2 - NEW
STEARNS BEAUTY SHOP	Group B	WELL 1
TEXAS RAPIDS PARK	Group B	WELL 1
TOUCHET VALLEY BAPTIST CAMP	Transient Non-Community	Well #1
TOUCHET VALLEY SEEDS	Group B	WELL 1
TUCANNON FISH HATCHERY	Group B	WELL 1
TUCANNON FISH HATCHERY	Group B	Well #2
TUCANNON FISH HATCHERY	Group B	Well #3
TUCANNON GUARD STATION	Group B	SPRING
TUCANNON RIVER RETREAT	Transient Non-Community	Well #1
WOOTEN WILDLIFE AREA	Group B	WELL 1

3.8 Air Quality

The primary mean 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, OAQPS (Organization for Air Quality Protection Standards) 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 southeastern Washington 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. Air quality in the area is generally moderate to good. However, 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. All major river drainages are subject to temperature inversions which trap smoke and affect dispersion, causing local air quality problems. This occurs most often during the summer and fall months and would potentially affect all communities in Columbia County.

3.8.1 Washington State Smoke Management Plan

The Department of Natural Resources (DNR), Department of Ecology (DOE), U.S. Forest Service (USFS), National Park Service (NPS), Bureau of Land Management (BLM), participating Indian nations, military installations (DOD), and small and large forest landowners have worked together to deal with the effect of outdoor burning on air.

Protection of public health and preservation of the natural attractions of the state are high priorities and can be accomplished along with a limited, but necessary, outdoor burning program. Public health, public safety, and forest health can all be served through the application of the provisions of Washington State law and this plan, and with the willingness of those who do outdoor burning on forest lands to further reduce the negative effects of their burning.

The Washington State Smoke Management Plan pertains to DNR-regulated silvicultural outdoor burning only and does not include agricultural outdoor burning or outdoor burning that occurs on improved property. Although the portion of total outdoor burning covered by this plan is less than 10 percent of the total air pollution in Washington, it remains a significant and visible source.

Background

Washington State has had a Smoke Management Plan in effect since 1969. After the enactment of the original plan, and with the addition of the 1975 plan, the number of smoke intrusions into designated population areas has dropped significantly every year.

The 1975 Smoke Management Plan has undergone several informal and semi-formal modifications since its adoption, mainly by agreement with the plan's signatories and other agencies. These modifications represent significant changes in DNR operating procedures and emphases.

The earlier Smoke Management Plans of 1969 and 1975 have done their job well. Today the Pacific Northwest is regarded as a leader in controlling smoke from outdoor burning on forest lands; many other states have used past plans as models in setting up their own smoke management programs.

Purpose

The purpose of the Washington State Smoke Management Plan is to coordinate and facilitate the statewide regulation of prescribed outdoor burning on lands protected by the DNR on unimproved, federally-managed forest lands and participating tribal lands. The plan is designed to meet the requirements of the Washington Clean Air Act.

Goals

- Protect human health and safety from the effects of outdoor burning
- Facilitate the enjoyment of the natural attractions of the state
- Provide a limited burning program for the people of this state
- Provide the opportunity for essential forest land burning while minimizing emissions
- Reduce emissions from silvicultural burning other than for forest health reasons first by 20 percent and later by 50 percent, as required by law
- Foster and encourage the development of alternative methods for disposing, of or reducing the amount of, organic refuse on forest lands
- Acknowledge the role of fire in forest ecosystems and allow the use of fire under controlled conditions to maintain healthy forests.

Scope

The plan provides regulatory direction, operating procedures, and advisory information regarding the management of smoke and fuels on the forest lands of Washington State. It applies to all persons, landowners, companies, state and federal land management agencies,

and others who do outdoor burning in Washington State on lands where the DNR provides fire protection, or where such burning occurs on federally-managed, unimproved forest lands and tribal lands of participating Indian nations in the state.

The plan does not apply to agricultural outdoor burning and open burning as defined by Washington Administrative Code (WAC) 173-425-030 (1) and (2), nor to burning done "by rule" under WAC 332-24 or on non-forested wildlands (e.g., range lands). All future reference to burning in this plan will refer only to silvicultural burning unless otherwise indicated.

The plan does not address nor attempt to regulate prescribed natural fire in wilderness areas and national parks for several reasons: the amount of emissions caused by such burning in Washington is relatively small, it is impossible to "regulate" unforecastable natural ignitions, and it is nearly impossible to gather emission data efficiently in the areas where this type of burning generally takes place. Federal agencies that have adopted the use of prescribed natural fires will remain solely responsible for the administration of such programs.

Participation

Those who receive fire protection from the DNR, or from agencies contracted by the DNR, must abide by the requirements of this plan. This includes all burning done on private and state-managed lands that pay, or are subject to paying, Forest Protection Assessment.

Federal agencies that do outdoor burning on forest lands must participate in and abide by the requirements of this plan under the direction of the federal Clean Air Act. These agencies include, but are not limited to, the Forest Service (USFS), Park Service (NPS), Fish and Wildlife Service (F&WS), Bureau of Land Management (BLM), and Department of Defense (DOD).

Indian nations may choose to participate in all or portions of the plan. Participation would be by written agreement between the Indian nation and the DNR. Advantages of participation by Indian nations would include statewide coordination of burning, shared weather forecasting services, uniform data reporting and storage, better protection of the public through a unified burn approval system, satisfaction of federal EPA requirements, and other services provided by either party to the other. Such future agreements would become appendices to this plan.

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, 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 determine how fires burn.

A brief description of each of the fire environment elements follows in order to illustrate their effect 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 dramatically different 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 lead 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, as surface to volume ratio decreases. Fires in large fuels generally burn at a slower rate, but release much more energy, 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 potentially development of crown fire (fire carried from tree crown to tree crown). 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 annual wind events in late summer, 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

Fire was once an integral function of the majority of ecosystems in southeastern Washington. The seasonal cycling of fire across the landscape was as regular as the July, August and September lightning storms plying across the canyons and mountains. Depending on the plant community composition, structural configuration, and buildup of plant biomass, fire resulted from ignitions with varying intensities and extent across the landscape. Shorter return intervals between fire events often resulted in less dramatic changes in plant composition (Johnson 1998). The fires burned from 1 to 47 years apart, with most at 5- to 20-year intervals (Barrett 1979). With infrequent return intervals, plant communities tended to burn more severely and be replaced by vegetation different in composition, structure, and age (Johnson *et al.* 1994). Native plant communities in this region developed under the influence of fire, and adaptations to fire are evident at the species, community, and ecosystem levels. Fire history data (from fire scars and charcoal deposits) suggest fire has played an important role in shaping the vegetation in the Columbia Basin for thousands of years (Steele *et al.* 1986, Agee 1993).

Detailed records of fire ignitions and extents have been compiled by the larger land management agencies in Columbia County including the Washington Department of Natural Resources and United States Forest Service. Using this data on past fire extents and fire ignition data, the occurrence of wildland fires in the region of Columbia County has been evaluated.

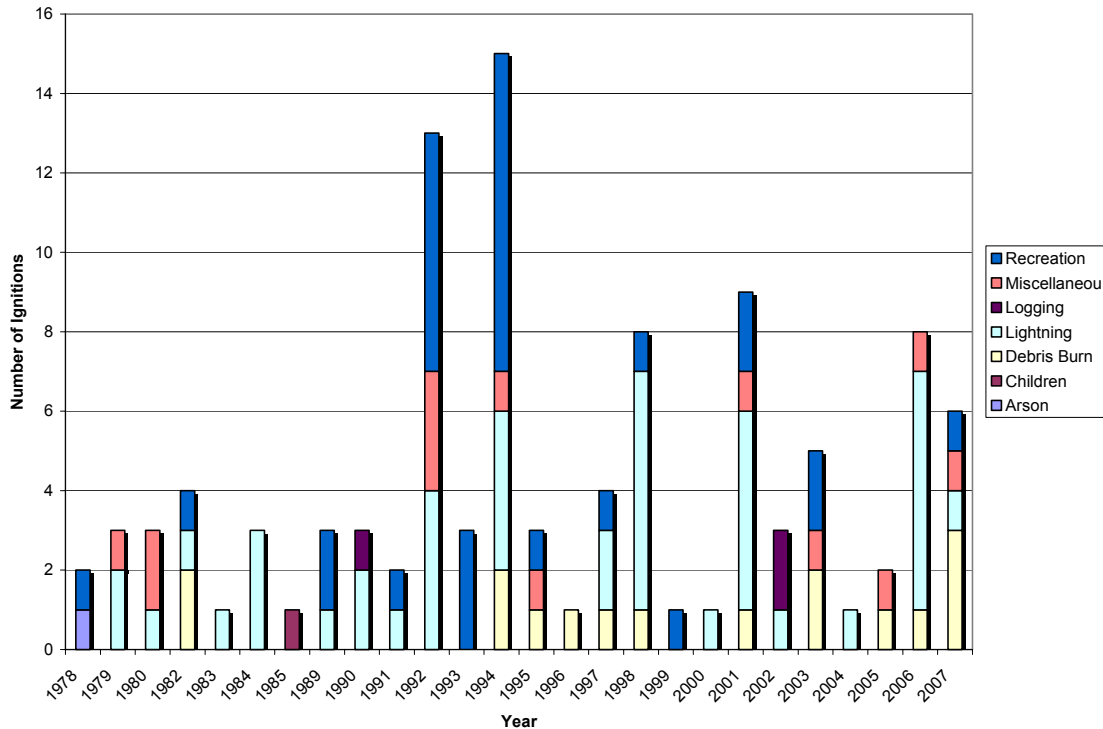
4.2.1.1 Washington Department of Natural Resources

The Washington Department of Natural Resources database of wildfire ignitions includes ignition and extent data from 1978 through 2007 for wildfires responded to by the DNR. An analysis of the DNR reported wildfire ignitions in Columbia County reveals that during this period approximately 52,898 acres burned as a result of 108 wildfire ignitions. The data is somewhat skewed due to the School Fire, which burned approximately 52,000 acres in 2005 (Table 4.1). This was a huge fire event for Columbia and neighboring Garfield County. This database shows that normally lightning results in the most ignitions as well as the highest number of acres burned. The Columbia Complex Fire, which burned 109,402 acres in 2006, also significantly impacted Columbia County; however, data for this fire is not included in the DNR's database.

Table 4.1. Summary of ignitions from Washington DNR database.

Cause	Acres Burned	Percent	Number of Ignitions	Percent
Arson	0	0%	1	1%
Children	10	0%	1	1%
Debris Burning	199	0%	16	15%
Lightning	204	0%	43	40%
Logging	4	0%	3	3%
Miscellaneous	52,465	99%	13	12%
Recreation	15	0%	31	29%
Total	52,898	100%	108	100%

Figure 4.1. Wildfire Ignitions recorded by Washington DNR 1978-2007.



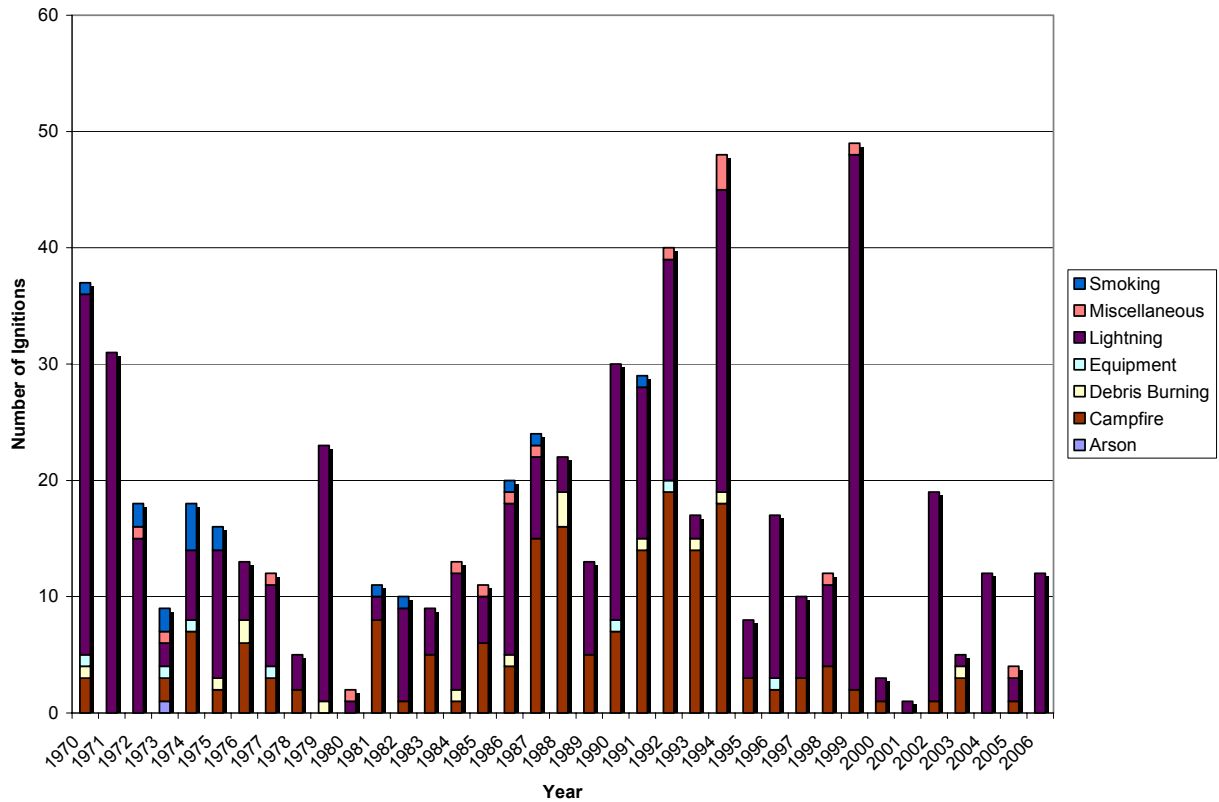
4.2.1.2 U.S. Forest Service

The U.S. Forest Service has maintained an extensive wildfire database for the period of 1970 – 2006 for fires responded to by the Forest Service. As with the DNR database, the Forest Service’s statistics are skewed by the 2005 School Fire. However, lightning still results in the highest number of ignitions and usually the greatest number of acres burned. Equipment, debris burning, and campfires have also caused a significant number of acres to burn. Campfires are also the second highest cause of ignitions. The Forest Service’s database also does not show the Columbia Complex Fire in 2006, which was started by lightning.

Table 4.2. Summary of ignitions from U.S. Forest Service database.

Cause	Acres Burned	Percent	Number of Ignitions	Percent
Arson	0	0%	1	0%
Campfire	190	0%	178	28%
Debris Burning	152	0%	14	2%
Equipment	204	0%	7	1%
Lightning	306	1%	402	64%
Miscellaneous	52,155	98%	15	2%
Smoking	81	0%	16	3%
Total	53,088	100%	633	100%

Figure 4.2. Wildfire Ignitions recorded by U.S. Forest Service 1970 to 2006.



Both databases show that the highest fire risk for both number of ignitions and acres burned is lightning by a significant majority. Debris burning, equipment (both logging and farming), and campfires also result in numerous ignitions and acres burned each year. 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.

4.2.2 Wildfire Extent Profile

Across the west, wildfires have been increasing in extent and cost of control. The National Interagency Fire Center (2005) reported over 77,500 wildfires in 2004 which burned a total of 6.7 million acres and cost \$890 million in containment (Table 4.3). Data summaries for 2000 through 2004 are provided and demonstrate the variability of the frequency and extent of wildfires nationally (Table 4.4). It is important to note that the 10 year moving average number of acres burned reported each year has been increasing constantly since 2000.

Statistical Highlights	2000	2001	2002	2003	2004
Number of Fires	122,827	84,079	88,458	85,943	77,534
10-year Average ending with indicated year	106,393	106,400	103,112	101,575	100,466
Acres Burned	8,422,237	3,555,138	6,937,584	4,918,088	6,790,692
10-year Average ending with indicated year	3,786,411	4,083,347	4,215,089	4,663,081	4,923,848

Table 4.3. National Fire Season Summaries.

Statistical Highlights	2000	2001	2002	2003	2004
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

The National Interagency Fire Center, located in Boise, Idaho, maintains records of fire costs, extent, and related data for the entire nation. Tables 4.4 and 4.5 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, USDA Forest Service and all State Lands.

Table 4.4. Total Fires and Acres 1960 - 2004 Nationally.

Year	Fires	Acres	Year	Fires	Acres
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
1983	161,649	5,080,553	1960	103,387	4,478,188
1982	174,755	2,382,036			

(National Interagency Fire Center 2004)

Table 4.5. Suppression Costs for Federal Agencies Nationally.

Year	Bureau of Land Management	Bureau of Indian Affairs	Fish and Wildlife Service	National Park Service	USDA Forest Service	Totals
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	\$ 192,115,00	\$ 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 2005)

The largest wildfire recorded by both the U.S. Forest Service and the Washington DNR in Columbia County was the School Fire, which occurred in 2005 and burned over 52,000 acres. Due to recent large fires as well as several smaller fires in Columbia County, local firefighting agencies and residents believe that they are at very high risk of wildfire occurrences. Active fuels management programs coupled with public awareness campaigns are a high priority for lessening this risk.

Figure 4.3. Acres burned as recorded by the Washington DNR 1978-2007.

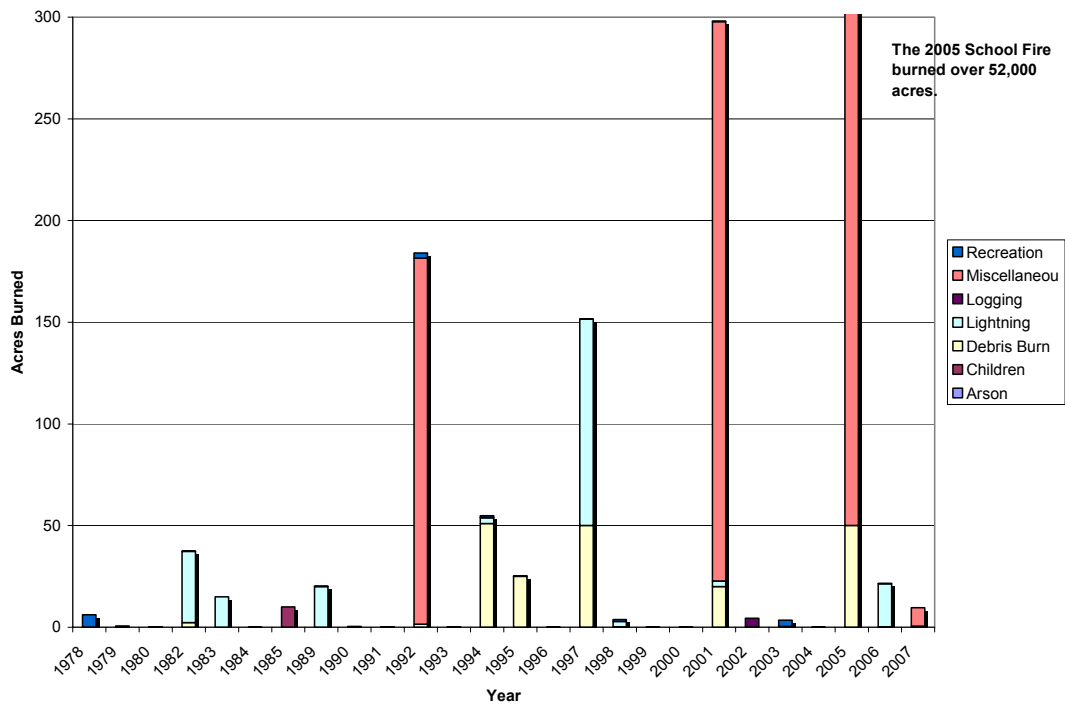
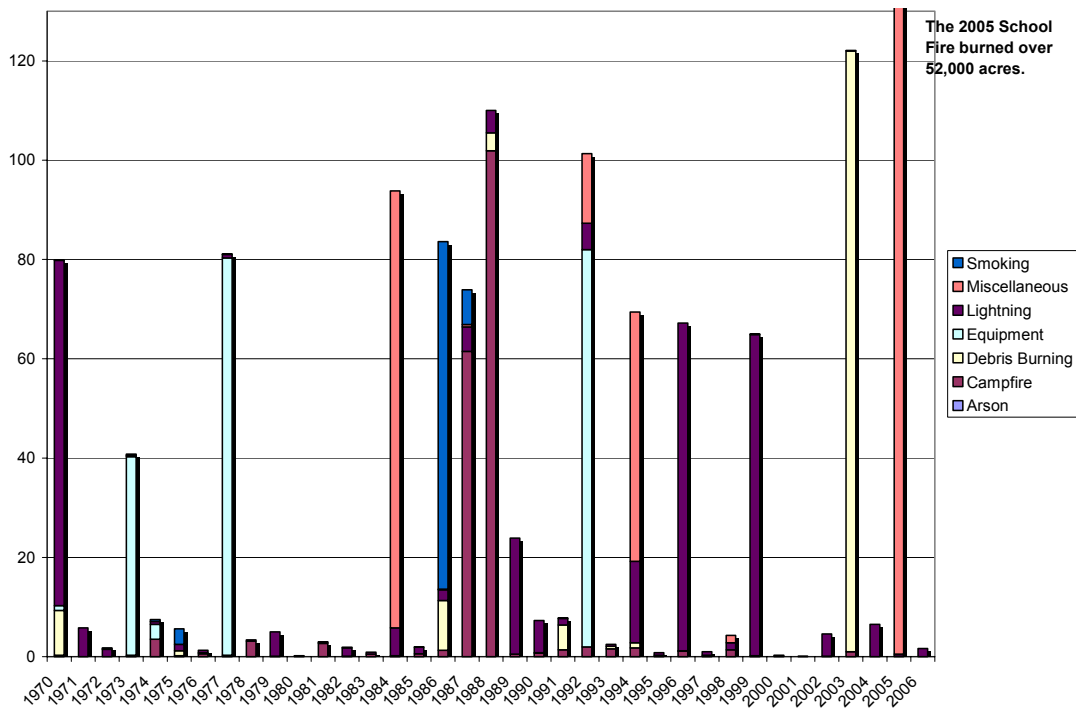


Figure 4.4. Acres Burned as recorded by U.S. Forest Service 1978-2006.



4.3 Wildfire Hazard Assessment

Columbia County and the adjacent counties of Garfield County and Asotin County were analyzed using a variety of techniques, managed on a GIS system (ArcGIS 9.1). 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 to 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 40 counties and Indian Reservations in Idaho, Montana, Nevada, Wyoming, Oregon, and Washington 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 and road density have burned with a high occurrence and frequently 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 9.1. 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 2004 and the second in 2006. Hyper-spectral analysis procedures followed the conventions used by the Washington 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).

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 southeast Washington area including the USDA Forest Service and Washington Department of Natural Resources.

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. 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 Columbia County is included in Appendix I.

Table 4.6. Fire Prone Landscape rankings and associated acres in each category for Columbia County.


Color Code	3 County Blue Mountain RC&D Area			Columbia County	
	Value	Acres	Percent of Total Area	Acres	Percent of County's Area
	0	0	0%	-	0%
	10	23,829	2%	6,018	1%
	20	359,870	25%	150,340	27%
	30	240,048	17%	57,153	10%
	40	272,519	19%	81,992	15%
	50	72,460	5%	23,582	4%
	60	7,332	1%	3,002	1%
	70	33,921	2%	13,077	2%
	80	256,806	18%	124,089	22%
	90	145,985	10%	89,721	16%
	100	14,810	1%	9,668	2%
Total	1,427,579		558,641		

Figure 4.5. Distribution of Fire Prone Landscapes in the Blue Mountain RC&D Planning Area.

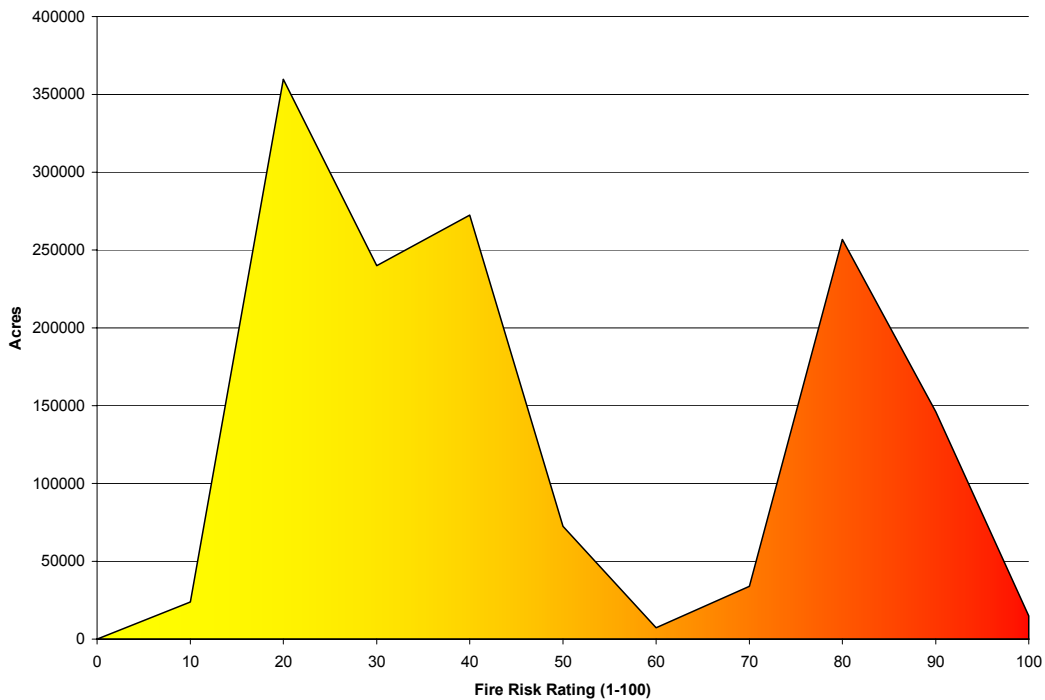
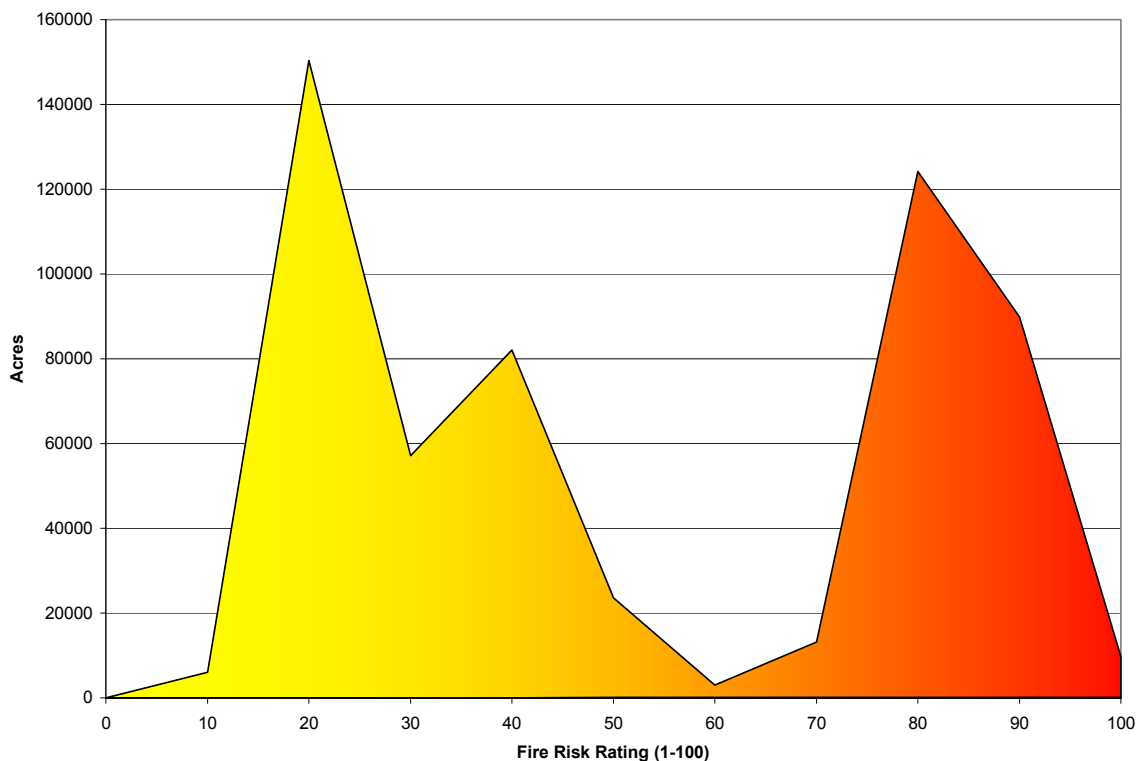


Figure 4.6. Distribution of Fire Prone Landscapes in Columbia County.



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 Washington, fire is undoubtedly the dominant process 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 Washington. 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 were 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 the dominant disturbance process that manipulates vegetation patterns in Washington. 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 Historic Fire Function

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.

4.3.2.2 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.

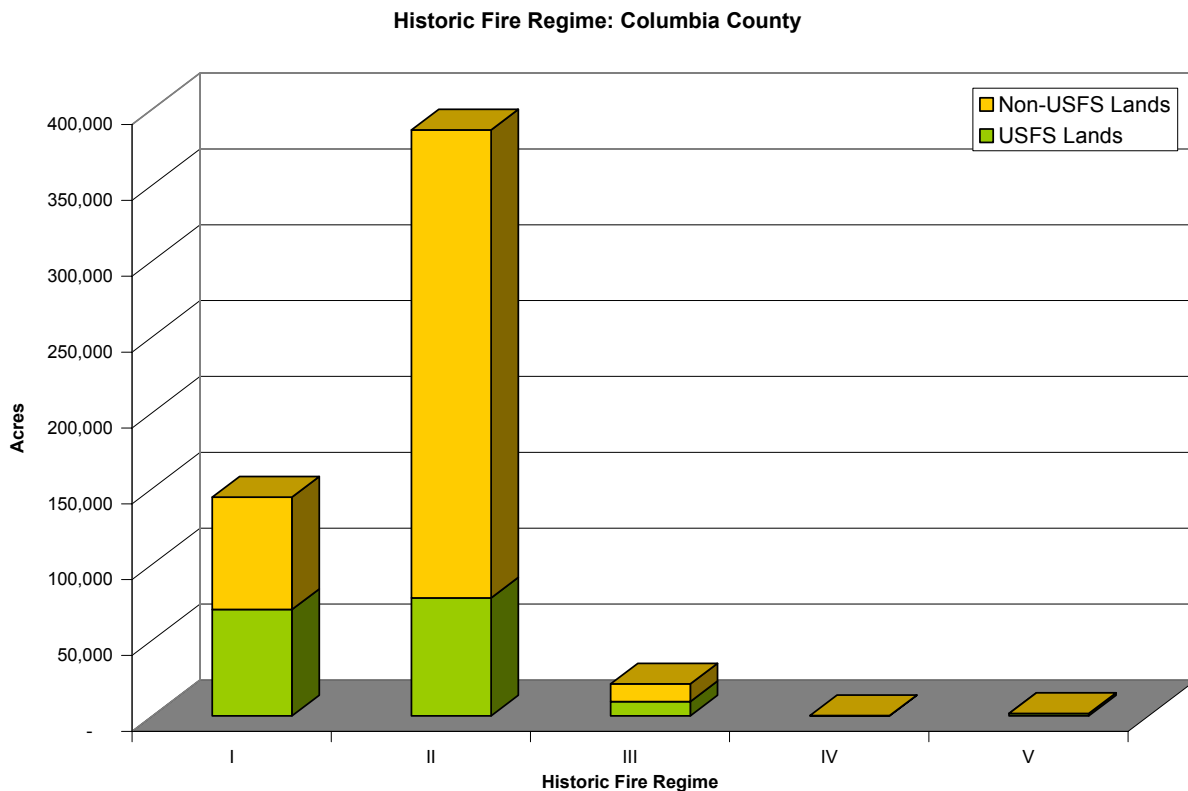
Two data sources have been integrated together to constitute this analysis. The first was generated by the Umatilla National Forest and is based on stand level data used to generate

accurate and reliable data. This data is represented for the USFS managed lands in the analysis. The second source of data was generated from coarse scale data estimating potential vegetation and current vegetation types, integrated with historic fire extent parameters. The resolution of this HFR theme is a 1,000 meter cell size, therefore 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). This data is presented for all of the remaining lands in the analysis area and should be used for reference purposes.

Table 4.7. Assessment of Historic Fire Regimes in Columbia County.

Regime	Description	USFS Lands		Rest of County		Combined	
		Acres	Percent	Acres	Percent	Acres	Percent
1	0-35 yrs; Low Severity	70,106	44%	74,059	19%	144,166	27%
2	0-35 yrs; Stand Replacement	77,781	49%	308,491	77%	386,272	69%
3	35-100+ yrs; Mixed Severity	9,425	6%	11,722	3%	21,147	4%
4	35-100+ yrs; Stand Replacement	7	0%	193	0%	200	0%
7	Water	1,649	1%	-	0%	1,649	0%
Total		160,138		398,304		558,441	

Figure 4.7. Historic Fire Regimes in Columbia County.



4.3.3 Fire Regime Condition Class

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 4.8. Maps depicting Fire Regime and Condition Class are presented in Appendix I.

Table 4.8. 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.	<p>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.</p> <p>Composition and structure of vegetation and fuels are similar to the natural (historical) regime.</p> <p>Risk of loss of key ecosystem components (e.g. native species, large trees, and soil) is low.</p>
Condition Class 2	Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	<p>Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe).</p> <p>Composition and structure of vegetation and fuel are moderately altered.</p> <p>Uncharacteristic conditions range from low to moderate.</p> <p>Risk of loss of key ecosystem components is moderate.</p>

Table 4.8. Fire Regime Condition Class Definitions.

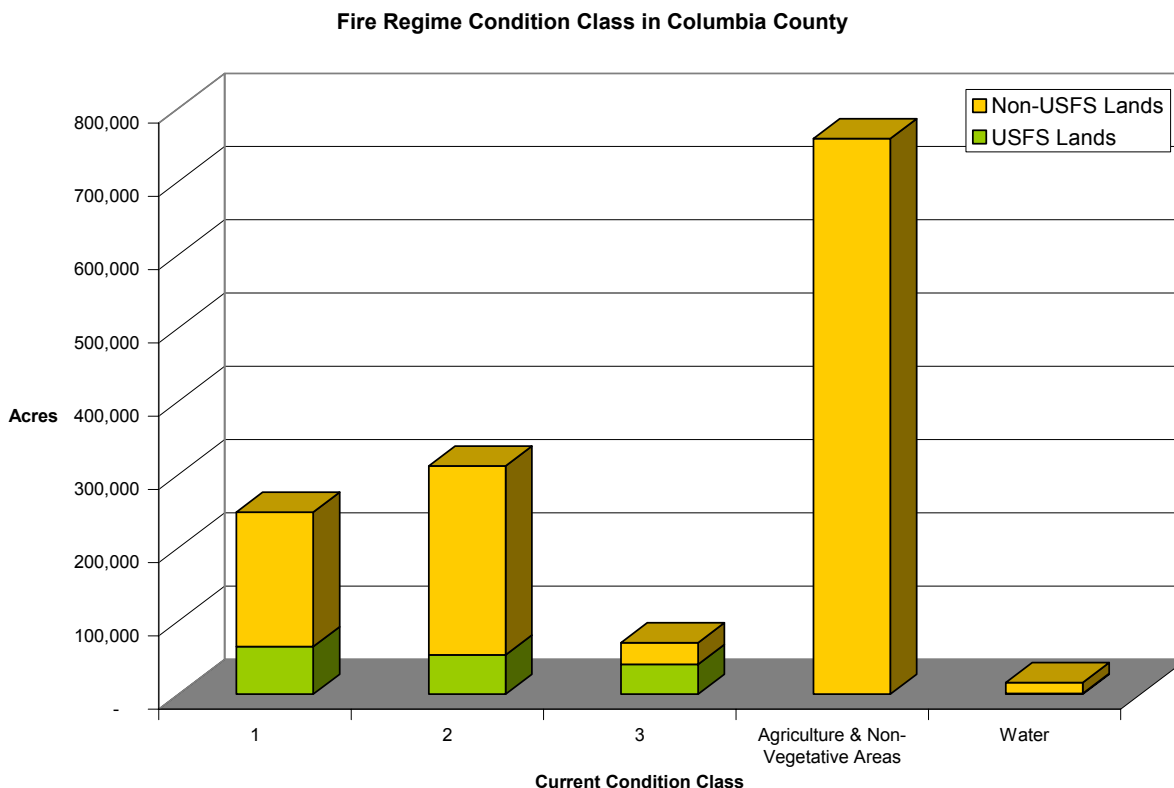
Fire Regime		
Condition Class	Description	Potential Risks
Condition Class 3	High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	<p>Fire behavior, effects, and other associated disturbances are highly departed (more or less severe).</p> <p>Composition and structure of vegetation and fuel are highly altered.</p> <p>Uncharacteristic conditions range from moderate to high.</p> <p>Risk of loss of key ecosystem components is high.</p>

An analysis of Fire Regime Condition Class in Columbia County shows that approximately 13% of the County is in Condition Class 1 (low departure), just about 23% is in Condition Class 2 (moderate departure), with 10% of the area in Condition Class 3 (Table 4.9).

Table 4.9. Assessment of Current Condition Class in Columbia County.

	USFS Lands		Non-USFS Lands		Total	
	Acres	Percent of Area	Acres	Percent of Area	Acres	Percent of Area
Condition Class 1	64,842	41%	7,595	2%	72,437	13%
Condition Class 2	53,420	33%	77,537	19%	130,957	23%
Condition Class 3	40,751	25%	14,731	4%	55,482	10%
Agriculture	-	0%	294,399	74%	294,399	53%
Water	1,122	1%	4,041	1%	5,163	1%
Total	160,135		398,304		558,439	

Figure 4.8. Fire Regime Condition in Columbia County.



The Columbia County Fire Regime Condition Class Map is printed in Appendix I.

4.4 Columbia County Conditions

Columbia County is comprised by three ecologically diverse subregions, the Snake River breaks, agricultural lands, and forestlands. Each possesses a different historic fire function and frequency of fire return.

The Snake River breaks along the northern reaches of the county are prone to frequent but low intensity fires in the steep sagebrush steppe of the region. Generally, these fires are ignited by a combination of human causes and lightning. These areas are relatively difficult to access and fires spread rapidly uphill where they are often met with resistance to burn from cultivated fields or fire suppression efforts. Given the land use patterns in the region, these fires pose limited risk to structures and people since few homes have been built on the steep and inaccessible terrain.

The agricultural lands of the region are plentiful. Dry land farming and livestock grazing dominate the county with cultivation interrupted only by inaccessible finger-draws and human habitation. These lands historically hosted frequent wildfires which burned off the flashy vegetation such as grasses, sagebrush, and rabbitbrush. Currently, fields in active harvest rotation are not at significant risk; however, with the advent of the Conservation Reserve Program (CRP), thousands of acres of agricultural fields have much higher than natural fuel loads. Many ranches and farmsteads in Columbia County could be at risk due to the surrounding fuels, particularly those surrounded by CRP or with little defensible space. Fortunately, many landowners recognize the potential fire risk and frequently maintain plowed

fuel breaks around structures. In several instances, the presence of livestock grazing around communities or farmsteads has attenuated the fuel risks for that area as well.

The third subregion is the forested lands of Columbia County. These lands represent the most difficult areas to suppress wildfires. Historical records suggest these forestlands are also prone to frequent wildfire occurrence. Vegetation is typically characterized by ponderosa pine, Douglas-fir, western larch, and grand fir forests (along with other species). Topography is flat to steep, with every combination of steepness and aspect possible. Forest health ranges from excellent to diseased or infected (posing larger risks for wildfire control due to dead and dying trees). Ownership of the forestlands in Columbia County is a combination of state, federal, tribal, and private landowners. Access ranges from good to poor and communication in the region is limited.

The transition zone between forestland and the riparian vegetation of the major drainages consists of a complex interfingering dependent on localized topographic and climatic conditions. A ponderosa pine and Douglas-fir habitat type typically forms the lower timberline on hills and low mountains. Mixed Douglas-fir, grand fir, lodgepole pine, western red cedar, and western larch forests dominate at mid-elevations elevations, while subalpine fir, lodgepole, and Engelmann spruce occur at higher elevations.

Columbia County is characterized by cold winters and hot, dry summers. Fires in the forest fuel types present throughout the Blue Mountain region have the potential to produce frequent, large and intense fires, resulting in high social and economic costs. This potential has been realized several times over in the last century. Just within the last 20 years Columbia County residents have seen more than three large and damaging wildfires. These events clearly illustrate the mounting urban-interface issue facing Columbia County.

Population growth rates have been holding fairly steady in Columbia County for the past two decades; however, the growing appreciation for seclusion has led to significant development in the lower elevation forests. Frequently, this development is in the dry ponderosa pine – Douglas-fir forest types where grass, needle, and brush surface litter create forest fuel conditions that are at a high propensity for fire occurrence. Human use is strongly correlated with fire frequency, with increasing numbers of fires as use increases. Discarded cigarettes, tire fires, and hot catalytic converters increase the potential for fire starts along roadways. Careless and unsupervised use of fireworks also contributes to unwanted and unexpected wildland fires. Further contributing to ignition sources are the debris burners and “sport burners” who use fire to rid ditches of weeds and other burnable materials. Farm and logging equipment has also been the source of accidental ignitions. The increased potential for fire starts in the fire prone landscapes in which homes have been constructed greatly increases the potential for fires in interface areas.

4.5 Columbia County’s Wildland-Urban Interface

The Wildland-Urban Interface 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 Columbia 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 in the case of wildfires (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 be it from wildfire, landslides, or floods. 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 would 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;
- **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; and

In addition to these classifications detailed in the Federal Register, four additional classifications of population density 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. The condition of the WUI connects these clusters into a relatively homogenous area;

- **High Density Urban Areas** – those areas generally identified by the population density consistent with the location of larger incorporated cities, however, the boundary is not necessarily set by the location of city boundaries: it is set by very high population densities (more than 15-30 structures per acre or more). Many counties and reservations in the west do not have high density urban areas. Columbia County, Washington, was determined not to have any areas of high density urban based on current (2006) structure locations. However, in the nearby Asotin County, Clarkston, Washington, is representative of a high density urban condition;
- **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 or reservation level core teams; and
- **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 designation of areas by the Columbia County core team includes:

- Interface Condition: WUI
- Intermix Condition: WUI
- Occluded Condition: Not Present
- Rural Condition: WUI
- Infrastructure Areas: WUI
- High Density Urban Areas: Not Present.
- Non-WUI Condition: Not WUI, but present in Columbia County

The locations of structures in Columbia County have been mapped and are presented on a variety of maps in this analysis document; specifically in Appendix I. The location of all structures was determined by examining three sets of remotely sensed images. The Farm Services Agency, working with states, counties, tribes, and the state and federal government, has contracted to acquire and make available NAIP color imagery. These aerial photographs are 1 meter resolution (very high quality), and show land based features with acceptable resolution and quality. County level mosaics were obtained for Asotin, Columbia, and Garfield Counties, and for the adjacent counties, and were used to provide locations for digitized structures in the region.

These records were augmented with data collected on hand-held GPS receivers to record the location of structures otherwise obscured from photography.

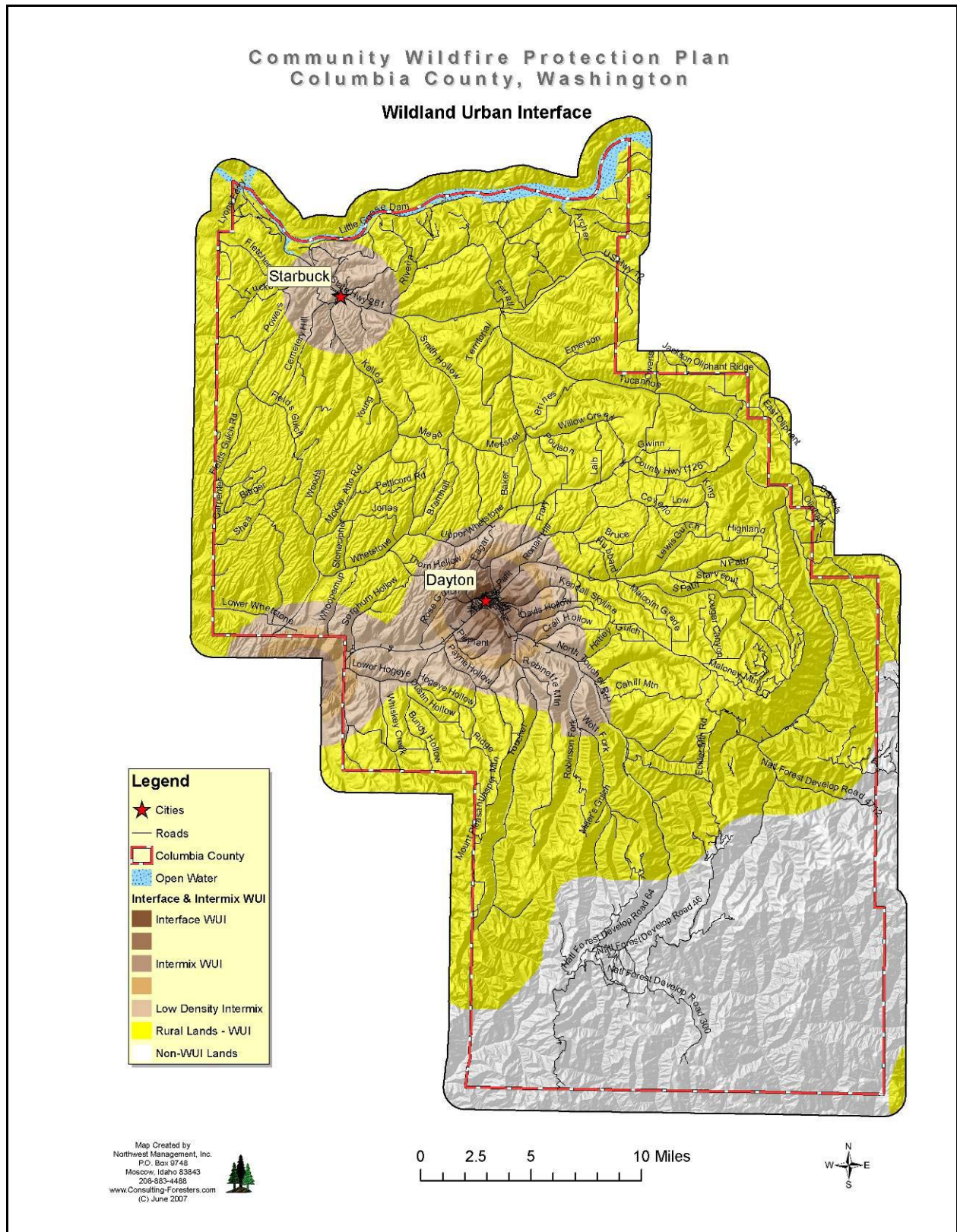
All structures are represented by a “dot” on the map. No differentiation is made between a garage and a home, or a business and a storage building. The density of structures and their specific locations in this management area are critical in defining where the potential exists for casualty loss in the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

By evaluating this structure density, we can define WUI areas 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 of high density urban, 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, consistent, allows for edge matching with other counties and the Reservation, and most important – 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 the 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 Columbia County Community Wildfire Protection Plan core team 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 and local fire districts.

Figure 4.9. Wildland Urban Interface Map of Columbia County.



4.5.1 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). The 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 dependant on both 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 structure 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 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 forest lands automatically equates to a treatment area. The Forest Service is still obligated to manage according to the Standards and Guides listed in the Umatilla National Forest Land and Resource Management Plan (Forest Plan). The Forest Plan has legal precedence over the WUI designation until such a time that the Forest Plan is revised to reflect updated priorities.

All planning in relation to wildfire mitigation must be taken in light of the existing regulatory and environmental laws in place. This will be determined by the owner of the parcel implementing the treatment. Thus, if proposed activities are to occur on federal lands, then the National Environmental Policy Act (NEPA) will determine environmental protection measures. Similarly, if the proposed action is to occur on state lands or private lands, then the Forest Practices Act and SEPA would govern environmental impacts. We have not diminished private property rights through the development of this document. Environmental protection is inherent to all projects because of the existing regulatory environment in Washington State.

Most treatments may begin with the 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, the 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.

4.6 Columbia County Communities At Risk

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

Table 4.10. Columbia County Communities.

Community Name	Planning Description	Vegetative Community	National Register Community At Risk?¹
Dayton (Incorporated City)	City	Agriculture	Yes
Dayton: Camp Wooten Learning Center	Named Place / Community	Rangeland / Woodland	Yes
Dayton: Last Chance Resort	Named Place / Community	Rangeland	Yes
Dayton: Maloney Mt. Homes & Recreation Sites	Named Place / Community	Rangeland / Woodland	Yes
Dayton: Tucannon Camp Ground	Named Place / Community	Rangeland / Woodland	Yes
Dayton: Tucannon Fish Hatchery	Named Place / Community	Rangeland / Woodland	Yes
Dayton: Twin Buttes Recreation Area	Named Place / Community	Rangeland / Woodland	Yes
Dayton: Wa State Campgrounds (Tucannon)	Named Place / Community	Rangeland / Woodland	Yes
Starbuck	Town	Rangeland / Agriculture	No
Alto	Named Place / Community	Rangeland / Agriculture	No
Baileysburg	Named Place / Community	Rangeland / Agriculture	No
Covello	Named Place / Community	Rangeland / Agriculture	No
Delany	Named Place / Community	Rangeland / Agriculture	No
Dumas	Named Place / Community	Rangeland / Agriculture	No
Huntsville	Named Place / Community	Rangeland / Agriculture	No
Jackson	Named Place / Community	Rangeland / Agriculture	No
Long	Named Place / Community	Rangeland / Agriculture	No
Marengo	Named Place / Community	Rangeland / Agriculture	No
McKay	Named Place / Community	Rangeland / Agriculture	No
Menoken	Named Place / Community	Rangeland / Agriculture	No
Mountain Home Park	Named Place / Community	Rangeland / Woodland	No
Mountain Top	Named Place	Rangeland / Woodland	No
Patit	Named Place / Community	Rangeland / Agriculture	No
Powers	Named Place / Community	Rangeland / Agriculture	No
Relief	Named Place / Community	Rangeland	No
Ronan	Named Place / Community	Rangeland / Agriculture	No
Turner	Named Place / Community	Rangeland / Agriculture	No
Varna	Named Place / Community	Rangeland / Agriculture	No
Whetstone	Named Place / Community	Agriculture	No
Wild Goose	Named Place / Community	Rangeland	No

¹Those communities with a “Yes” in the National 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.

Because the Wildland Urban Interface map for Columbia County was based primarily on population density as described above, all of these communities and the populated areas surrounding them are within the Columbia County Wildland-Urban Interface.

4.7 Communities and Places in Columbia County

Vegetative structure and composition in Columbia County is closely related to elevation, aspect, and precipitation. Relatively mild and dry environments characterize the undulating topography of the region which transitions from the Snake River valley riparian plant communities to the rangeland ecosystems that characterize the vast majority of the land area in Columbia County. Forested communities extend this transition as elevation increases, soils change, and conditions favor forest tree species. Forests contain high fuel accumulations that have the potential to burn at moderate to high intensities. Highly variable topography coupled with dry, windy weather conditions typical of the region is likely to create extreme fire behavior.

The transition between developed agricultural land and timberlands occurs somewhat abruptly, usually along toe slopes or distinct property boundaries. At higher elevation mountainous regions, moisture becomes less limiting due to a combination of higher precipitation and reduced solar radiation. Vegetative patterns shift from forested communities dominated by ponderosa pine, western larch, grand fir, and Douglas-fir at the lower elevations to lodgepole pine and subalpine fir at the higher elevations. Engelmann spruce is found in moist draws and frost pockets. These forested conditions possess a greater quantity of both dead and down fuels as well as live fuels. Rates of fire spread tend to be lower than those in the grasslands; however, intensities can escalate dramatically, especially under the effect of slope and wind. These conditions can lead to control problems and potentially threaten lives, structures and other valued resources.

As elevation and aspect increase available moisture, forest composition transitions to moister habitat types. Increases in moisture keep forest fuels unavailable to burn for longer periods during the summer. This increases the time between fire events, resulting in varying degrees of fuel accumulation. When these fuels do become available to burn, they typically burn in a mosaic pattern at mid elevations, where accumulations of forest fuels result in either single or group tree torching, and in some instances, short crown fire runs. At the highest elevations, fire events are typically stand replacing, as years of accumulation fuel large, intense wildfires.

Insects and disease can cause widespread mortality of forest stands in a very short amount of time. Mountain pine beetle populations have continued to increase at epidemic levels throughout Washington State; however, mortality increases are most pronounced in Eastern Washington. Ponderosa pine and lodgepole pine seem to be the most affected species at all elevations in Columbia County. The occurrence of ips beetles, Douglas-fir bark-beetle, Douglas-fir tussock moth, and root disease have also been recorded in Eastern Washington (Washington State Department of Natural Resources 2006). Insects and disease often focus and cause the most mortality in forest stands that are overcrowded or otherwise stressed by drought, recent fires, or other factors. Large areas of dead trees are a significant fire hazard. Oftentimes, dry, dead needles hang on the killed trees for several years making them prime for a potential ignition and subsequent crown fire. Thinning overcrowded stands can help reduce stress on individual trees allowing them to better withstand insect attacks. Planting of appropriate species for the site and continual management can also help ward off future outbreaks.

Many lower elevation forested areas throughout Columbia County are highly valued for their scenic qualities as well as for their proximity to travel corridors. These attributes have led to increased recreational home development and residential home construction in and around forest fuel complexes. The juxtaposition of highly flammable forest types and rapid home development will continue to challenge management of wildland fires in the wildland-urban interface.

4.7.1 Overall Fuels Assessment

The slight to undulating topography and moisture availability across much of Columbia County facilitates extensive farming operations. Agricultural fields infrequently serve to fuel a fire after curing; burning in much the same manner as consistent low grassy fuels. Fires in grass and rangeland fuel types tend to burn at relatively low intensities, with moderate flame lengths and only short-range spotting. Suppression resources are generally quite effective in such fuels. Homes and other improvements can be easily protected from the direct flame contact and radiant heat through adoption of precautionary measures around the structure. Although fires in these fuels may not present the same control problems as those associated with large, high intensity fires in timber fuel types, they can cause significant damage if precautionary measures have not taken place prior to a fire event. Wind driven fires in these short grass fuel types spread rapidly and can be difficult to control. During extreme drought and pushed by high winds, fires in grassland fuel types can exhibit extreme rates of spread, thwarting suppression efforts.

The Tucannon and Touchet River drainages are a patch-work of dry ponderosa pine and Douglas-fir woodlands that, in many areas, have begun suffering from forest health issues. In addition, tree regeneration is resulting in multistoried conditions with abundant ladder fuels. During pre-settlement times, much of Columbia County was characterized by low intensity fires due to the relatively light fuel loading, which mostly consisted of small diameter fuels. Frequent, low intensity fires generally kept stands open; free of fire intolerant species and promoted seral species such as ponderosa pine as well as larger diameter fire resistant Douglas-fir. In some areas, low intensity fires stimulated shrubs and grasses, maintaining vigorous browse and forage. The shrub layer could either inhibit or contribute to potential fire behavior, depending on weather and live fuel moisture conditions at the time of the burn.

In general, natural fires in the Tucannon and Touchet River drainages start high in elevation and move downhill. As fires move down in elevation, they encounter drier and flashier fuels in the lower elevations. Rolling embers and spot fires are a common method of downhill fire spread. Spot fires ignited on slopes trigger uphill runs that throw more spot fires, expanding the downward fire progression. Modifying fuels to reduce the likelihood of torching and crowning trees will in turn reduce the likelihood of spot fires. Human caused fires, on the other hand tend to ignite at the bottom of the draws, near the abundant recreational and development sites and then spread rapidly uphill.

Increased activities by pathogens will continue to increase levels of dead and down fuel, as host trees succumb to insect attack and stand level mortality increases. Overstocked, multi-layered stands and the abundance of ladder fuels lead to horizontal and vertical fuel continuity. These conditions, combined with an arid and often windy environment, can encourage the development of a stand replacing fire. These fires can burn with very high intensities and generate large flame lengths and fire brands that can be lofted long distances. Such fires present significant control problems for suppression resources, often developing into large, destructive wildland fires.

A probability that needs to be planned for is the likelihood of extended spot fires. Large fires may easily produce spot fires from ½ to 2 miles away from the main fire. How fire suppression forces respond to spot fires is largely dependent upon the fuels in which they ignite. Stands of timber that are managed for fire resilience are much less likely to sustain torching and crowning behavior that produces more spot fires. The objective of fuel reduction thinning is to change the fuels in a way that will moderate potential fire behavior. If fire intensity can be moderated by vegetation treatments, then ground and air firefighting resources can be much more effective.

4.7.2 Overall Mitigation Activities

There are many specific actions that will help improve the safety in a particular area; however, there are also many potential mitigation activities that apply to all residents and all fuel types. General mitigation activities that apply to all of Columbia 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 quite effective. Signs that remind folks of the dangers of careless use of fireworks, burning when windy, and leaving unattended campfires can be quite effective. It’s impossible to say just how effective such efforts actually are, however the low costs associated with posting of a few signs is inconsequential compared to the potential cost of fighting a fire.

Slightly more active prevention techniques may involve mass media, such as radio or the local newspaper. Fire districts in other counties have contributed to the reduction in human-caused ignitions by running a weekly “run blotter,” similar to a police blotter, each week 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 has been a champion of prevention, and could provide ideas for such tips. When fire conditions become high, brief public service messages could warn of the hazards of misuse of fire or any other incendiary device. Such a campaign would require coordination and cooperation with local media outlets. However, the effort is likely to be worth the efforts, costs and risks associated with fighting unwanted fires.

Fire Reporting: The success of the Enhanced – 911 (E-911) emergency reporting system can be measured at the frequency that fire calls route to the county emergency centers. Some wildland firefighting agencies maintain direct Forest Fire Reporting numbers, but the bulk of fire reports go to the Communication Centers.

When a fire call comes into Columbia County E-911 Communication Center, the local fire protection districts are paged out to respond. Then the Communication Center staff calls the appropriate wildland agency and relays the fire report info along with the reporting party’s phone number.

Burn Permits: Washington State Department of Natural Resources is the prime agency issuing burn permits in Columbia County. Washington DNR burn permits regulate silvicultural burning.

Washington Department of Ecology (DOE) issues burn permits for improved property and agricultural lands. All DOE burn permits are subject to fire restrictions in place with DNR & local fire protection districts.

Washington DNR has a general burning period referred to as “Rule Burn” wherein a written burn permit is not required in low to some moderate fire dangers.

The timeframes for the Rule Burn are from October 16th to June 30th. Washington DNR allows for Rule Burns to be ten foot (10’) piles of forest, yard, and garden debris. From July 1st to October 15th if Rule Burns are allowed, they are limited to four foot (4’) piles.

As part of their standard operating procedures Columbia County E-911 Communication Center, who handles the fire restriction calls for the Columbia County Sheriff’s Department asks that all burners call the Communication Center business number and report when the burning is complete.

Defensible Space: Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Columbia County must be made aware that home defensibility starts with the homeowner. Once a fire has started and is moving toward a structure or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space. Residents of Columbia 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.

Evacuation Plans: 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 of compromised evacuations. Efforts should be made to educate homeowners through existing homeowners associations or creation of such organizations to act as conduits for this information.

Accessibility: Also of vital importance is the accessibility of the homes to emergency apparatus. If a home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes’ survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles.

Fuels Reduction: Recreational facilities near communities, along the Tucannon River drainage, Mountain Home Park, or in the surrounding forest and range lands should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape proof fire rings and barbecue pits should be installed and maintained. 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 that would reduce the fire hazard would be thinning and pruning timbered areas, creating a fire resistant buffer along roads and power line corridors, and strictly enforcing fire-use regulations. The high tension power lines crisscrossing the county are primary electrical power supplies to much of the state and region; thus, protecting this corridor should be a high priority. Ensuring that the area beneath the line has 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.

Emergency Response: 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.

Rural Addressing: In order to assure a quick and efficient response to an event, emergency responders need to know specifically where emergency services are needed. Continued improvement and updating of the rural addressing system is necessary to maximize the effectiveness of a response.

Other Activities: Other specific mitigation activities are likely to include improvement of emergency water supplies and management of trees and vegetation along roads and power line right-of-ways. Furthermore, building codes should be revised to provide for more fire conscious construction techniques such as using fire resistant siding, roofing, and decking.

4.7.3 Incorporated Cities

Columbia County possesses two incorporated cities: Dayton and Starbuck. Both are located along regional drainage corridors and are surrounded by native rangelands on the steep slopes and abundant agriculture where terrain permits. Dayton is not only the population center of the County, but it is also the county seat. Starbuck is located along State Highway 261.

4.7.3.1 Dayton

Dayton is located at the confluence of the Touchet River and Patit Creek. The region is surrounded by agricultural fields with a combination of hardwoods and ornamental softwood tree species around homes. The city is clustered along Highway 12 with many homes extending southward in the direction of Baileysburg.

4.7.3.1.1 Fuels Assessment

The risk from structure loss due to a wildfire entering the Dayton area is minimal. The only fuels exhibiting some level of risk are located along the southern bench of the city where steep slopes are dominated by native shrub vegetation. During the fire season, these fuels could ignite and be difficult to control. However, the fuels are bounded on the top of the hill by agricultural crops, which may be at less risk. A few structures are along the toe of the slope have an increased risk due to the proximity of fuels.

Another area of concern is the northeast corner of the city where homes give way to native rangeland. Grasses and forbs dominate this area with evidence indicating the presence of livestock grazing. Responsible grazing practices generally lessen the risk of wildfire by reducing the buildup of fine fuels.

Dayton has a low risk of wildfire threatening the city center; however, structure fires within the city have some potential to spread from one structure to another; either carried by radiant heat or spread through common vegetation between structures. This risk is lessened by the presence of an active fire protection district housed in Dayton.

4.7.3.1.2 Ingress-Egress

The primary access into Dayton is provided by U.S. Highway 12, a major intra-county route. There are also several other secondary travel corridors accessing rural areas and population clusters surrounding Dayton such as North Touchet Road, Patit Creek Road, Mustard Hollow Road, and several others. Many of these secondary access corridors are paved, but most are graveled, two-lane routes.

4.7.3.1.3 Infrastructure

A city water system is available for residents of Dayton. Residents in the more rural areas typically rely on personal well systems for their water resources. The main power lines supplying Columbia County pass about four miles south of Dayton with an east-west orientation. Most residents are served by numerous smaller distribution lines.

4.7.3.1.4 Fire Protection

In addition, the Columbia County Fire District #3 provides both structural and wildland protection to a large coverage area including Dayton and the surrounding area. A complete system of fire hydrants is present in the city.

All of the private lands within the fire protection district have joint jurisdiction with the Washington Department of Natural Resources (DNR). Under joint jurisdiction, it is recognized that the fire district has primary responsibility for structure protection and the DNR will have primary responsibility for wildland fire suppression on state and private lands. The DNR provides wildfire protection during the fire season between April and October with varying degrees of available resources in the early spring and late autumn months. The U.S. Forest Service responds to all wildland fires on their jurisdiction and may also respond to wildland fires on private or state lands based on a closest forces, reciprocal agreement with the DNR when resources are available.

4.7.3.1.5 Potential Mitigation Activities

Because of the moderate level of risk in Dayton, few potential mitigation activities are recommended at this time. The continued use of the surrounding landscape for active agricultural (not CRP) and livestock grazing will reduce fuel loading and the potential fire risk.

In addition, the Columbia County Fire Districts have so far been relatively successful at suppressing wildland fires. The continued support of these services by the community will improve their ability to fight fires effectively.

4.7.3.2 Starbuck

Starbuck is located along the Tucannon River, upstream from its confluence with the Snake River. The region is surrounded by rangeland and agricultural fields with ornamental hardwood species around homes and native hardwoods along the Tucannon River. The city is clustered along State Highway 261 with most homes on the south side of the highway.

4.7.3.2.1 Fuels Assessment

The risk from structure loss due to a wildfire in the Starbuck area is moderate. Rangeland fuels surround this community. Range fires have the potential to spread rapidly through the grasses, forbs, and sagebrush of the region. When fanned by high winds, these fires can move rapidly and exhibit large flame lengths. However, the intense livestock grazing on most of these lands has a significant mitigative effect. The fuels are minimal and would provide only spotty advancement of a range fire. In addition, the presence of available access routes provides improves firefighters' quick suppression ability.

Starbuck is at low risk to a wildfire encroaching on the city from the surrounding rangelands. However, structure fires igniting in the city have a potential to spread from one structure to another; either carried by radiant heat or as a fire carried through common vegetation.

4.7.3.2.2 Ingress-Egress

Access in and out of Starbuck is provided by State Highway 261 running northwest-southeast. Many smaller, graveled access routes tie into this two-lane highway.

4.7.3.2.3 Infrastructure

A town water supply is available for residents within Starbuck from Well #1 (old well) and well #2 (new well). Both are managed by the town of Starbuck and are located near the Tucannon River.

4.7.3.2.4 Fire Protection

The Columbia County Fire District #1 provides structural and wildland protection to a large coverage area surrounding Starbuck. All of the private lands within the fire protection district have joint jurisdiction with the Washington Department of Natural Resources (DNR). Under joint jurisdiction, it is recognized that the fire district has primary responsibility for structure protection and the DNR will have primary responsibility for wildland fire suppression on state and private lands. The DNR provides wildfire protection during the fire season between April and October with varying degrees of available resources in the early spring and late autumn months.

4.7.3.2.5 Potential Mitigation Activities

Because of the lower level of risk in Starbuck, few potential mitigation activities are recommended at this time. The continued use of the surrounding landscape for active agricultural (not CRP) and livestock grazing will reduce fuel loading and; therefore, the potential fire risk.

In addition, the Columbia County Fire Districts have so far been relatively successful at suppressing wildland fires. The continued support of these services by the community will improve their ability to fight fires effectively.

4.7.4 Locations on the Federal Register

4.7.4.1 Camp Wooten Learning Center

The Camp Wooten Learning Center is located along the Tucannon River, “where the pavement ends” on the Tucannon River Road. Group camping is facilitated by several cabins located within a ponderosa pine dominated woodland intermixed with rangelands.

This area has been threatened by several wildfires in recent history; however, very aggressive containment efforts have preserved the Learning Center. Recently burned trees and landscapes are evident around the Camp Wooten.

Water supply at the Learning Center is managed by the Washington State Parks (Eastern Region) in Pomeroy. The well for the center is located in the southwest corner of the property.

Access into and out of Camp Wooten is limited to the Tucannon River Road. This is a two lane, recreation use and forest access route linking to Highway 12 about twenty miles to the north. There are no other paved access routes in and out of Camp Wooten; however, there are a few gravel/dirt roads intersecting the Tucannon River Road which have provided additional access in the past.

A limited amount of fire protection equipment is located at Camp Wooten, however, this equipment has been very useful for accidental ignitions originating with the Learning Center.

Effective wildfire mitigation activities around the area should include controlling the fine fuels around the camp cabins and recreational areas. Improving forest health by removing dead trees will also prove useful. The recent fires surrounding the camp have naturally decreased the fuel

loads, but the risk of re-burn should not be overlooked in coming years. Removal of existing dead and dying trees will serve the region well in the years to come.

4.7.5 Communities in Rangeland / Agricultural Environments

Virtually all of the rangeland/agricultural communities and named places in Columbia County face similar challenges related to wildfire control and potential opportunities for fuels mitigation efforts.

Most of the homeowners in the more rural population clusters are challenged by limited access, fine grassy or shrub fuels, and limited structural fire protection resources. Nevertheless, one advantage of living in an agricultural community is that the fuels are easily modified by readily accessible farm implements.

For the most part, natural fuels management in these areas is provided by the presence of agricultural farming and livestock grazing. Where these activities are practiced, the wildfire risk is low. In certain areas, lands are placed in Conservation Reserve Program (CRP) and not farmed or grazed. These fields can, over time, accumulate high concentrations of wildland fuels which can pose a problem for control if ignited.

Structural firefighting resources in the county are limited. Many farms in the area have basic firefighting equipment, which are used as needed to quickly respond to scattered ignitions from a variety of sources.

The majority of the homes and businesses in Columbia County are considered to be in the Rural WUI condition characterized by scattered homes or small communities with miles between these clusters. Often the most effective wildfire mitigation activity is to develop and maintain a defensible space of at least 200 feet around structures where ignitable vegetation is managed or kept green (watering). Very remote farms and dwellings also benefit from keeping rudimentary suppression equipment as needed to head off wildfire ignitions.

4.7.6 Communities in Woodland / Forest Environments

Virtually all of the forestland communities and named places in Columbia County face similar challenges related to wildfire control and potential opportunities for fuels mitigation efforts.

Most of the homeowners in the rural, forested areas face the challenge of limited access, fine grassy or shrub fuels in combination with heavy forest fuels, and limited structural fire protection resources. The Tucannon River drainage and the Mountain Home Park area (Wolf Fork Road and the North Touchet Road) are characteristic of this condition. Structures along the Tucannon River drainage are located in the Rural WUI Condition meaning there are scattered homes or clusters of homes with miles of fuels in between. The Mountain Home Park area; however, forms the boundary with the Intermix WUI Condition, where structures are scattered sometimes densely throughout the wildland fuel complex, and the Rural WUI Condition (in the direction of the Huckleberry Mountain Reservoir to the southeast).

Populated areas in the forestland of Columbia County typically consist of dry ponderosa pine and Douglas-fir woodlands that, in many areas, have begun suffering from forest health issues due to overcrowding and pathogens. In addition, tree regeneration is resulting in multistoried conditions with abundant ladder fuels. Historically, frequent, low intensity fires kept stands open and free of fire intolerant species.

Structural firefighting resources for these areas in the county are limited. Some homeowners or state agencies (parks) in the area have basic firefighting equipment, which is used as needed to

respond to scattered ignitions. Additional wildfire resources are provided by the DNR and U.S. Forest Service.

In these areas, often the most effective wildfire mitigation activity is to develop and maintain a home defensibility space of at least 200 feet around structures. Access is also of particular concern as many driveways are narrow, steep, and have low weight tolerances. Targeted mitigation efforts must begin with road widening, fuels management along the roads, and homesite mitigation efforts to reduce the exposure of individual homes due to flammable roofing material, siding, or wooden decks. It is notable that many of the homes in the area have metal roofing and are actively managing fuels around their structures.

The issue of wildfire risk in these communities is very significant to the residents as recent wildfire events have demonstrated. Turning this awareness into action will be critical in the years to come if residents of the region are going to make a lasting change to their risk exposure to wildfire. Local efforts to provide firefighting resources, while well-intentioned, is best applied to receiving wildfire fighting training (Red Card and Blue Card), maintaining basic wildfire fighting resources in each community (200 gallon water tenders and hand tools), and working with local homeowners to mitigate fuels and improve access.

4.8 Firefighting Resources and Capabilities

Fire district personnel are often the first responders during emergencies. In addition to structure fire protection, they are called on during wildland fires, floods, landslides, and other events. There are many individuals in Columbia County serving fire protection district in various capacities. The following is a summary of the department and its resources. A map of the Columbia County Fire District is presented in Appendix I

The firefighting resources and capabilities information provided in this section is a summary of information provided by the fire chief 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.

4.8.1 Columbia County Fire District #1

Chief: Thomas Hawks
Telephone: 509-520-4808
e-Mail: tandshawks@msn.com
Address: 624 Harlem Road
Dayton, WA 99328

District Summary:

Columbia County Fire District #1 is an all volunteer district (providing fire and medical services) on the north end of Columbia County. The district consists of 125 square miles and has a population of about 165 residents.

Priority Areas:

Residential Growth:

At this time there is little residential growth and nothing on the horizon that would encourage growth.

Communications:

Our communications consist of a repeater on a hill over Starbuck which provides both pager toning and two way communications. The two way communications seem to be doing well enough, but the pager function still has a lot of dead spots.

Burn Permit Regulations:

Currently, the burn permits are issued through the County Fire Marshall.

Education and Training:

Currently, Fire District #1 volunteers meet at least 20 times per year for training of which most is done 'in-house'. Occasionally, we will have a guest speaker and prepared courses or videos to assist in training.

Cooperative Agreements:

Columbia County Fire District #1 maintains mutual aid agreements with all of its neighboring districts.

Current Resources:

Station #1

Table 4.11. Equipment List for Columbia County District #1.

Year	Make	Model	Tank Capacity	Pump Capacity
1992	Dodge	Ram 350	350	100
1961	International	BC-170	600	200
1987	International	S1654	1300	300
1984	Chevrolet	C30	300	100
1978	GMC	Sierra 35	0	0
1968	Ford	Maxim	1000	1500
1979	OshKosh	M911	3800	375
1982	Chevrolet	C30	300	100

Needs:

1. Replace several of the older units that have become too costly and difficult to maintain.
2. Modernize equipment for safety and ease of operational concerns.
3. Increase size of fire station to house the units and provide meeting and storage areas.

4.8.2 Columbia County Joint Fire District #2

Chief: Neil Henze
 Telephone: 509-337-8351 (station)
 Address: PO Box 35
 Waitsburg, WA 99361

District Summary:

District #2 is a joint fire district covering parts of Walla Walla and Columbia Counties. This area is mostly rural farmlands.

Priority Areas:

Residential Growth:

Most residential growth is taking place within the city limits.

Communications:

Need to improve coverage of some areas of the district due to terrain dead spots.

Burn Permit Regulations:

Washington State DOE and each conservation district are in charge of burning regulations.

Education and Training:

At this time, the district is working with chiefs in the surrounding districts and city of Walla Walla and College Place to jointly train and share knowledge and experience on rural and structural firefighting techniques.

Cooperative Agreements:

District #2 has mutual aid agreements with districts and municipalities in both Columbia and Walla Walla Counties.

Current Resources:

Table 4.12. Equipment List for Columbia County District #2.

Year	Make	Model	Tank Capacity (gal)	Pump Capacity (gpm)
2000	Ford	550 4x4	550	150
2003	IHC	7400 4x4	1275	300
1994	IHC	4800 4x4	1050	300
1982	Chevrolet	4x4 1-ton, Rescue		
	AMC	GI Truck 6x6	1800	300
	AMC	GI Truck 6x6	1400	300
	AMC	GI Truck 6x6	1150	300
	IHC	Landstar 4x4	1650	300

Needs:

Great need to expand or construct existing or new 2nd station. Also need extrication equipment and a fire rescue vehicle.

4.8.3 Columbia County Fire District #3

Chief: Rick Turner
Telephone: 509-382-4281 Station or 509-629-3301 Cell
e-Mail: rturner@ccfiredistricts3.org
Address: 206 W. Main
PO Box 66
Dayton, WA 99328

District Summary:

Coverage area is 290 square miles. We provide wildland, structure, and BLS Ambulance service to our District and the Starbuck area. We have 1.5 paid staff with 65 volunteers.

Priority Areas:

Residential Growth:

Dealing with more growth in the Urban-Interface: Weekend cabins outside District Boundaries- But per DNR mutual Aid we provide structure protection.

Communications:

Local Emergency management has secured Grant funds for upgrading and improving with emphasis on compatibility with neighbors.

Firefighting Vehicles:

Due to limited funding, the age and capabilities of the fire fighting vehicles in our department has been a concern.

Burn Permit Regulations:

The Fire District does not enforce or permit burn regulations. The county fire marshal's office is lead agency.

Education and Training:

On going structure training to FFI Level: Annual Red Card training in wildland to FFI Level: Some incident Management team experience: dist is NIMS compliant: 12 current EMT B : 8 current EMT I : High Angle Rescue Techs-9

Cooperative Agreements:

- With Col. Co FPD 1 – Starbuck
- With Col. Co FPD 2- Waitsburg
- Walla Walla FPO 4 – Walla Walla
- WA DNR
- USFS – Pomeroy District
- Col. Co. Sheriffs Dept
- City of Walla Walla Fire Dept

Current Resources:

Main Station: Dayton

Table 4.13. Equipment List for Columbia County District #3 – Dayton Station.

Year	Make	Model	Tank Capacity	Pump Capacity
2001(x2)	Ford	F-450 Grass	350	125
1976	Ford	Pierce-Structure	500	1000
1993	Int.	4900-Structure	750	1250
1988	Int	51800-Tender/Pumper	2500	1000
1995	Int	4x4 – Brush	800	300
2003	Int	4x4 – Brush	800	300
1982	Chev	Beverage Truck for Structure Support	No Water or Pump	
1999	Chev	C 3500 Light Rescue		
2003	Ford	Type 3 Ambulance		
2001	Ford	Type 3 Ambulance		

Station #2: Turner

Table 4.14. Equipment List for Columbia County District #3 – Turner Station.

Year	Make	Model	Tank Capacity	Pump Capacity
1993	Int	4x4 – Brush	800	300 GPM
1990	Int	4x4 – Tender	1500	150
1973	Int	4x4 – Tender	1000	100

Table 4.14. Equipment List for Columbia County District #3 – Turner Station.

Year	Make	Model	Tank Capacity	Pump Capacity
1993	Ford	4x4 – ¾ ton	Command Vehicle	

Future Considerations:

Newer Tenders with more capacity
Fold A – Tanks
4 door Crew Hauler
Additional Truck Bays at Main Station
Structural Training Burn facility

Needs:

Urban – Interface Structural Pumper
4” or 5” supply line for structure trucks
Qualified Firefighters to join Dept.

4.9 Wildland Fire Districts

4.9.1 Washington Department of Natural Resources

District Manger: Rex Reed, 509.925.0968, rex.reed@dnr.wa.gov
East Klickitat FMO: Wyatt Layton, 509.773.5588, wyatt.layton@dnr.wa.gov
East Klickitat AFMO: Dan Lennon, 509.773.5588, dan.lennon@dnr.wa.gov

Equipment: 2- type 6 engines with 3 fire fighters each

District Summary: The Blue Mountains are part of the Klickitat District Fire Management area. This ranges through out the counties of the southern tier in the State of Washington including Klickitat, Benton, Walla Walla, Columbia, Garfield, and Asotin counties. Fire resources are spread throughout this area due to normal workloads and traditional fire risk occurrence. In the case of additional needs, the DNR has the flexibility to move additional resources into the area. These can be regional resources as well as outside resources brought in for short periods of time.

DNR and USFS work jointly to supply adequate resources for prevention and suppression activities as budgetary limitations dictate.

Residential Growth: Residential growth affects the firefighting capabilities of the DNR from the standpoint of those who purchase properties outside of fire districts and then assume that we automatically protect them. This is not the case. Unless the DNR is receiving forest patrol assessments, the DNR does not assist or take on fire suppression activities. Over time this activity has become more and more scrutinized.

The DNR also has mutual aid agreements with the fire districts to assist them in areas where they have jurisdictional control.

Communications: Communications for the area are handled through the statewide radio system which does have weak areas in the Blue Mountains. Most of the administrative communications is handled through use of the Forest Service Dispatch center in Pendleton; however, the use of state channels communications can be done with CWICC in Wenatchee.

Firefighting Vehicles: Currently the DNR has two type 6 engines assigned to the three Blue Mountain Counties. The overhead assigned to the Blue Mountains come from the DNR's

Klickitat Fire Management team, but most of the day to day administration is done via an agreement with the Pomeroy Ranger District.

When fire risks reach a certain level or risk due to weather appear increases, the DNR has the flexibility to move additional resources into the area.

Burn Permit Regulations: On private lands the Washington State Burning Rules are administered unless the counties override them.

Effective Mitigation Strategies: The CWPP process is one of the best forms of mitigation strategies used to educate the communities on risks and assist them in the formulation of goals and objectives suited for their specific area. The DNR can then assist in finding funding sources for mitigation projects.

Education and Training: Education and training is an ongoing process. DNR supplies community support through use of education opportunities such as FIREWISE and also community level assistance as was demonstrated during the School and Columbia Complex incidents. We are also able to supply one-on-one landowner discussions through Stewardship planning as well as forest practices assistance. Cooperation with local agency offices provides for a boarder educational opportunity.

Current Resources: While the DNR maintains two type 6 engines from June 1 –October 1, the resources assigned to the area can change due to fire and weather conditions with additional resources being staged in the area to assist in the suppression needs. This can include additional department overhead personnel, crews, and engines as well as helicopters.

Future Considerations: Currently the regional staff is assessing the potential need of additional fire resources staffed in the area. This is an annual process that provides the region with the best distribution of resources based on the limitations of biannual legislative funding.

Needs: There are areas in Columbia as well as Garfield and Asotin Counties that are not under the protection of a fire district. Many of these areas do not have any form of formal protection through any fire suppression entity. As stated before, the Department’s legislated responsibility lies with protection of unimproved forested lands as well as assisting other agencies and local fire districts.

The areas of the counties which are not protected are commonly known as “no-man’s land”. As with all other fire suppression entities DNR seems to be expected to respond to these fires. In most cases, the Department works cooperatively with other fire suppression agencies to keep all fires small, but there is no assurance that any entity will respond to those “no man’s land” incidents if there are no threats to protected lands or if the Department is involved a multiple fire start situation.

The creates a situation where there is a need for the local residents to recognize that they do not have fire protection and that they need to look at their options as to what they can do to provide themselves with adequate protection.

4.9.2 USDA Forest Service

District Summary: The Pomeroy Ranger District and parts of the Walla Walla Ranger District of the Umatilla National Forest extend into portions of Asotin, Columbia, and Garfield Counties. Each district provides for and manages wildland firefighting resources that are available for not only fire on the local district, but anywhere within the broader interagency dispatching system. Each district fire organization is managed by a district Fire Management Officer and a staff of assistants and suppression leaders. The districts are each funded to provide suppression resources from June 1 through October 15.

The districts occupy the northern portion of the Blue Mountains. “The Blues” are popular recreation and hunting areas known for their plateau-like ridges and deep canyons. Surrounded by farmlands, the forested elevations of the Blue Mountains exhibit vegetation patterns typical of fire regimes of forests east of the Cascade Range. Seasonal lightning and dry summer weather sets up conditions for wildland fires.

Residential Growth: Private properties in forested areas of the Blue Mountains are in high demand. What was once deemed a get-away spot for a little hunting cabin is now being developed for year-round residences. Residential and recreational improvements are growing in numbers around the national forest boundary, particularly on the west side of the Blue Mountains in Columbia and Walla Walla Counties. Similar development is occurring in Garfield and Asotin Counties, but somewhat delayed since those areas are farther from population centers. Residential growth is a concern since wildland fuels are continuous with the national forest and provide a fire spread continuum across the landscape.

Communications: The Umatilla National Forest uses a network of FM radio repeaters for communications with field personnel. Each district office and the Pendleton Interagency Communications Center (PICC) have base station radios that can use the forest service repeaters as well as two DNR repeaters.

Overall, the radio communications system is weak. There are many dead spots in the deep canyons and the links between the repeaters, district offices, and PICC are subject to noise and interruptions. Poor radio communications with field personnel can pose a safety hazard for employees and the public when emergencies cannot be accommodated.

Burn Permit Regulations: The Umatilla National Forest does not issue burn permits. It has no jurisdiction over any other property than that under federal ownership within the Umatilla National Forest.

The Umatilla National Forest does permit recreational campfires during periods of the year when it is safe to do so. It also offers safe sites for campfires in developed campgrounds.

Effective Mitigation Strategies: Forest fuel types are typically overstocked and vulnerable to catastrophic fires. The districts each utilize combinations of prescribed fire, harvesting, and mechanical thinning to reduce forest fuel quantities back toward historic levels as funding permits. The backlog of hazard fuels is extensive and resource constraints inherent within a multiuse management mandate may not allow hazard fuel reduction in all areas.

Education and Training: The ranger districts each do some localized fire prevention efforts to remind citizens of fire danger and fire closures. Visitations to schools for fire ecology and fire safety messages have been done in the past. There is little to no funding for prevention education.

Cooperative Agreements: The Umatilla National Forest has a Cooperative Fire Suppression Agreement with the fire protection districts in Asotin, Columbia, and Garfield County. These agreements provide an outline of responsibilities of each agency in relation to the other, methods of assisting each other, and an administrative vehicle for payments and reimbursements to occur. These agreements were instituted in the summer of 2007 and are subject to periodic review and updates.

The DNR and the Pomeroy Ranger District of the Umatilla National Forest have an agreement whereby Pomeroy Ranger District Fire Management provides daily oversight of the two DNR engine crews that operate out of Dayton and Clarkston.

The DNR and the Forest Service operate under two broad agreements called the Master Cooperative Fire Protection Agreement and a Local Annual Operating Plan. Each of these agreements spell out a variety of details that guide how each agency works with each other.

Current Resources:

Numbers of Forest Service vehicles and personnel may vary according to variations in annual funding allocations.

Pomeroy Ranger District

71 West Main
Pomeroy, WA 99347

District Ranger: Monte Fujishin, 509-843-4620, mfujishin@fs.fed.us

FMO: Reed Heckly, 509-843-4630, rheckly@fs.fed.us

AFMO: Mike Frederick (Suppression), 509-843-4632, mfrederick01@fs.fed.us

AFMO: Steve Carlson (Fuels), 509-843-4633, sbcarlson@fs.fed.us

- 3 – type 6 engines with 3 firefighters each.
- 1 – type 7 engine with 2 firefighters.
- 2 – Initial attack handcrew module with 5 firefighters.

Walla Walla Ranger District

1415 W Rose
Walla Walla, WA 99362

District Ranger: Mike Rassbach, 509-522-6293, mrassbach@fs.fed.us

FMO: Brett Thomas, 509-522-6284, bthomas@fs.fed.us

AFMO: Dan Eddy (Suppression), 509-522-6281, dceddy@fs.fed.us

AFMO: Mark Johnson (Fuels), 509-522-6283, markjohnson@fs.fed.us

- 1 – type 4 engine with 3 firefighters
- 2 – type 6 engines with 3 firefighters
- 1 - type 7 engine with 2 firefighters
- 1 – Initial attack handcrew module with 5 firefighters.

Future Considerations: Growth in the numbers of rural developments in Asotin County will add to the fire suppression load. As urban dwellers extend their reach for county property, any subdivision of large properties quickly sells for development. The Asotin County areas of Cloverland and Anatone south to the Grand Rhonde seem likely to experience this kind of development pressure. These areas are in the rain shadow of the Blue Mountains and are very hot and dry during the summer having instances of extreme fire danger. The combination of extreme fire danger and additional rural development is a recipe for more fires with greater losses.

Needs:

No-Man's-Land Suppression Coverage

The Forest Service is frequently expected to respond to fires that are off of national forest. Some of these responses are to properties where uncontrolled fire can spread and threaten national forest, but are not covered by any wildland fire suppression jurisdiction. The costs of those kinds of suppression are absorbed by the Forest Service. However, during periods of multiple ignition events, such as during lightning storms, priority must be given to fires that occur on national forest as intended by the funding direction of Congress. The Forest Service cannot be relied upon to always have resources available to respond to fires in areas outside of national forest.

Also, the mandate of DNR fire protection is also restricted to unimproved forest land, or other state lands covered by agreement. The DNR also cannot be relied upon to always have resources available to respond to fires on private property outside of its jurisdiction.

It is incumbent upon landowners without fire protection services to choose other options of fire protection rather than the Forest Service or DNR, either through forming a Fire Protection District, or some other kind of fire organization.

Pond Development

Water for firefighting resources is a critical resource and water shortages are common. The upper elevations of the Pomeroy and Walla Walla Ranger Districts do not have many opportunities from which to fill engines, tenders, or helicopter buckets. There are opportunities in several areas where topography would allow shallow excavations that would store snowmelt or drainage from springs. Excavation would involve dozer or excavator activity to hollow out a basin, lining it with clay soil or bentonite, making a vehicle ramp for access, and some revegetation around the margins.

Some strategic areas for pond developments are:

- Little Butte
- Hogback Ridge
- Park Ridge
- Pinkhorn Butte
- Mud Springs / Cape Horn
- Maloney Mountain
- Eckler Mountain
- Turkey Tail
- Chase Mountain

Some sites to improve are:

- Kelly Camp
- Lewis Creek
- Hardy Ridge Pond
- Clearwater Pond

Small Diameter Timber Utilization

Much of the hazard fuels that need to be removed from the national forest to restore healthy stands are small diameter sizes that are underutilized and uneconomical at this time. Developing local markets for wood fiber and small diameter timber is a broader economic development issue that would enable the cost-effective removal of wood from the national forest that is now deemed unmerchantable.

4.10 Issues Facing Columbia County Fire Protection

4.10.1 Accessibility

The CWPP planning committee identified home accessibility issues as a primary concern in some parts of Columbia County. Many homes and driveways have been constructed without regard to access requirements of large emergency vehicles. Lack of accessibility restricts engagement by fire suppression resources. Enforcement of the International Fire Code, regarding road and driveway construction standards for fire apparatus would prevent accessibility issues in new developments.

4.10.2 Fires in Conservation Reserve Program Fields

Since the introduction of the Conservation Reserve Program (CRP) by the federal government, many formerly crop producing fields have been allowed to return to native grasses. Conservation Reserve Program fields are creating a new fire concern all over the west. As thick grasses are allowed to grow naturally year after year, dense mats of dead plant material begin to buildup. Due to the availability of a continuous fuel bed, fires in CRP fields tend to burn very intensely with large flame lengths that often times jump roads or other barriers, particularly under the influence of wind. Many landowners and fire personnel are researching allowable management techniques to deal with this increasing problem. Currently, according to the CRP Handbook, all management must be part of the landowner's Conservation Plan of Operations, which includes burning to reduce the fuel loading, and must be in the best interest of the CRP. Under certain circumstances, burning may be used as a process to enhance or renovate the existing vegetative cover for wildlife, especially if it is overgrown and stagnant. Currently, burning can only be conducted under an approved burn plan by qualified personnel. The County must also issue a burn permit for any controlled burning on CRP fields. A map of the Conservation Reserve Program acres in Columbia County is included in Appendix I.

4.10.3 Firefighting Agency to Landowner Communications

Recent fires in Columbia as well as Garfield and Asotin Counties have repeatedly raised the issue of the lack of communication between wildland firefighting agencies and/or their incident command teams and local residents. Poor communication with residents has led to difficulty with evacuations, law enforcement issues, and a negative sentiment towards firefighter personnel from landowners and residents. Additionally, the inability to convey the suppression plan between firefighting agencies and landowner containment efforts has led to safety issues. For example, lives could be threatened if firefighters light a backburn without being aware of the presence of a group of landowners in the targeted area (or vice versa). Working out a communication plan with local landowners could improve this situation. Designated meeting locations and landowner representatives to work with firefighters and relay information between groups may be two potential solutions.

4.10.4 Landowner Equipment Contracting

Many landowners feel that their farming and ranching equipment as well as knowledge of the region should be better capitalized on by the fire management teams. However, fire management teams believe having untrained persons on a fire, particularly without communication equipment, can lead to safety and liability issues. A cohesive initial attack using both landowner and fire service resources could be more smoothly implemented if landowners went through the proper procedures and minimum training courses (Blue Card and/or Red Card) to contract their services with the federal or state agencies. This would alleviate much of the communication problem and liability issues as well as improve fire agency's ability to make use of local resources.

4.10.5 Management of the Incident Command System

Columbia County residents have expressed concerns regarding the use of the incident command system on large fires in and around Columbia County. Many feel that fire management teams brought in from outside the area are not capitalizing on locally available resources and are not addressing the wishes of the residents for fighting fires. Furthermore, residents have made clear that local officials need to be involved in decisions made by the fire management team to insure Columbia County's best interests are considered.

The Columbia County Emergency Manager should be involved in all decision-making processes of the fire management teams and should have access to the Incident Commander to insure that the County's Emergency Operations Plan is considered and its instructions followed. The Columbia County Emergency Operations Plan specifies the wishes of Columbia County residents as well as lists all qualified personnel and equipment available locally.

4.10.6 Access to Private Property During Wildfires

Access to private property during a wildland fire has become a significant issue for both landowners and firefighters as demonstrated during recent fire events in Columbia County as well as other counties throughout the northwest. While many landowners feel they should have unobstructed access to their property during fires to help with the suppression effort as well as extract any belongings, equipment, etc., many firefighting agencies and organizations feel that *not* restricting access to unsafe areas based on their professional experience would put people in danger and could even be viewed as negligent.

Substitute Senate Bill 5315, which is intended to begin dealing with this issue, has recently (May 2007) been signed by the Governor of Washington. The Bill says that the Washington Association of Sheriffs and Police Chiefs will convene a work group to develop a model policy for sheriffs regarding residents, landowners, and others in lawful possession and control of land during a wildfire. The policy will include guidance on allowing access, *when safe and appropriate*, to residents, landowners, and others during a wildfire to conduct fire prevention or suppression activities and protect or retrieve any property located in their residences. Until the policy is completed, county sheriffs may establish and maintain a registry of persons authorized to access their land during a wildfire. The sheriff may include in the registry persons who demonstrate ownership of agricultural land or forest land and who possess equipment that may be used for fire prevention or suppression activities. Persons included in the registry must be allowed access to their property to conduct fire prevention or suppression activities despite the closure of any state highway, county road, or city street. Residents, landowners, and others in lawful possession and control of land are not liable for unintentional injuries or loss suffered by persons entering upon, or passing through, their land. Additionally, federal, state, and local agencies, and their employees are not liable for any action, or failure to act, when facilitating the access described.

4.11 Current Wildfire Mitigation Activities in Columbia County.

4.11.1 Multi-Jurisdictional Mutual Aid Agreements

Currently the city, fire protection district, and wildland fire agencies within Columbia County have extensive mutual aid agreements that serve to increase the protection and effectiveness of all Columbia County fire response jurisdictions. Municipal and county fire departments provide mutual aid for each other to the fullest extent possible. The Columbia County Fire District has the opportunity for a suppression agreement with the Washington State Department of Natural Resources. The agreement with the DNR allows for a Columbia County fire district to provide fire protection services to an area within the jurisdiction of the DNR located within the district and for the district to contract with the DNR to assist in fire protection services (on a limited basis) on forest land within the district's jurisdiction. These agreements significantly improve the capabilities and effectiveness of any and all individual fire departments as well as provide assistance to the DNR, F&WS, and USFS wildland fire departments. Not only does this improve the safety of Columbia County residents, structures, infrastructure, and lands, but it also facilitates good interdepartmental working relationships.

4.11.2 Road Signage and Rural Addressing

The ability to quickly locate a physical address is critical in providing services in any type of emergency response. Accurate road signage and rural addressing is fundamental to assuring the safety and security of Columbia County residents. Columbia County has been very proactive regarding their road signage and rural addressing. Currently, signs and address markers are present, fire resistant, and up to NFPA code in order to assure visibility and quick location.

Chapter 5

5 Administration & Action Items

Critical to the implementation of this Community Wildfire Protection Plan will be the identification of, and implementation of, an integrated schedule of treatments targeted at achieving a reduction in the number of human caused fires and overall impact of wildland fires on Columbia County. As there are many land management agencies and thousands of private landowners in Columbia 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.

Columbia County encourages the philosophy of instilling 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.

The land management agencies in Columbia County, specifically the USDA Forest Service, the State, and the Fish and Wildlife Service, are participants in this planning process and have contributed to its development. Where available, their schedule of land treatments have been considered in this planning process to better facilitate a correlation between their identified planning efforts and the efforts of Columbia County.

All risk assessments were made based on the conditions existing during 2007, 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 annually to adjust for changes in the components of risk, population density changes, infrastructure modifications, and other factors.

As part of the policy of Columbia County in relation to this planning document, this entire Community Wildfire Protection Plan should be reviewed annually (from date of adoption) at a special meeting 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 Columbia County Emergency Manager, CWPP steering committee representative, and the Blue Mountain RC&D are responsible for the scheduling, publicizing, and leadership of the annual review meeting. During this meeting, participating jurisdictions will report on their respective projects and identify needed changes and updates to the existing plan. Maintenance to the plan should be detailed at this meeting, documented, and attached to the formal plan as an amendment. Re-evaluation of this plan should be made on the 5th anniversary of its acceptance, and every 5-year period following.

5.1 Prioritization of Mitigation Activities

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. Projects will be administered by county and local jurisdictions with overall coordination provided by the County Emergency Manager, a CWPP steering committee representative, and the Blue Mountain RC&D.

County Commissioners and the elected officials of all 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. Often, the types of projects that the County can afford to do on their own are in relation 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 County will reasonably consider all pre-disaster mitigation proposals brought before the County Commissioners by department heads, city officials, fire districts and local civic groups.

When federal or state funding is available for hazard mitigation, there are usually requirements that establish a rigorous benefit-cost analysis as a guiding criterion in establishing project priorities. The County will understand the basic federal grant program criteria which will drive the identification, selection, and funding of the most competitive and worthy mitigation projects. FEMA's two grant programs (the Post-Disaster Hazard Mitigation Grant Program and Pre-Disaster Mitigation grant programs) that offer federal mitigation funding to state and local governments all include the benefit-cost and repetitive loss selection criteria.

The prioritization of new projects and deletion of completed projects will occur annually and be facilitated by the County Emergency Manager, a CWPP steering committee representative, and the Blue Mountain RC&D and will include the County Commissioners, city mayors and councils, fire district chiefs and commissioners, agency representatives (USFS, WA DNR, etc.), and other community organizations. All mitigation activities, recommendations, and action items mentioned in this document are dependent on available funding and staffing. The prioritization of projects will be based on the selection of projects which create a balanced approach to mitigation which recognizes the hierarchy of treating in order (highest first):

- People
- Infrastructure
- Local and Regional Economy
- Traditional Way of Life
- Ecosystems

5.1.1 Prioritization Scheme

A numerical scoring system is used to prioritize projects. This prioritization serves as a guide for the County when developing mitigation activities. This 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 meet the high priorities 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 reasons and 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 county or site specific, will be prioritized in this more formal manner.

Since planning projects are somewhat different than non-planning projects when it comes to reviewing them, different criteria will be considered, depending on the type of project.

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, 10 being the best, has been 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 category are as follows:

5.1.1.1 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 Requirement §201.4(c)(4)(iii) details 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 requirement states 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. Columbia County is committed to implementing mitigation strategies with benefits which exceed costs. For projects which do not require financial assistance from grant programs that 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.

5.1.1.2 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 effects the population, but should not be considered to have no population benefit.

5.1.1.3 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 \$30,000,000 or more in losses. Property benefit of less than \$30,000,000 will receive a score of the benefit divided by \$30,000,000, times 10 (for property benefits below \$30 million). Therefore, a property benefit of \$6,000,000 would receive a score of 2 ($[6,000,000 \div 30,000,000] \times 10 = 2$). 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 effects property, but should not be considered to have no property benefit.

5.1.1.4 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 could 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.

5.1.1.5 Vulnerability of the Community

For planning projects, the vulnerability of the community is considered. A community that has a high vulnerability with respect to other jurisdictions to the hazard or hazards being studied or planned for will receive a higher score. To promote planning participation by the smaller or less vulnerable communities in the state, the score will be based on the other communities being considered for planning grants. A community that is the most vulnerable will receive a score of 10, and one that is the least, a score of 1.

5.1.1.6 Project Feasibility (Environmentally, Politically & 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.

5.1.1.7 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.

5.1.1.8 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 will 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.

5.1.1.9 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 on the onset of the development, the County will be less vulnerable in the future. Projects that will have a significant effect on all future development receive a rating of 5. Those that do not affect development should receive a rating of 1.

5.1.1.10 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 will receive a ranking of 5. A project with effectiveness that is highly questionable and not easily sustained should receive a ranking of 1.

5.1.1.11 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 thresholds of:

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

5.2 Possible Wildfire Mitigation Activities

As part of the implementation of wildfire mitigation activities in Columbia 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)
- Regional land management recommendations for private, state, and federal landowners

Maintaining private property rights will continue to be one of the guiding principles of this plan’s implementation. 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 decisions.

5.3 Safety & 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 in nature 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: Develop County policy concerning building materials used in high-risk WUI areas on existing structures and new construction.	Protection of people and structures by improving the ability of emergency response personnel to respond to threatened homes in high-risk areas. <div style="border: 1px solid black; padding: 2px; width: fit-content;">Priority: High</div>	Lead: Columbia County Planning Department Support: County Commissioner’s Office and Columbia County Fire District #1-3.	Year 1 (2008): Consider and develop policy to address construction materials for homes and businesses located in high wildfire risk areas. Specifically, a County policy concerning wooden roofing materials and flammable siding, especially where juxtaposed near heavy wildland fuels.
5.1.b: Rural signage (road signs & house numbers) improvements across the County.	Protection of people, structures, and infrastructure by improving the ability of emergency services personnel, residents, and visitors to navigate roads. <div style="border: 1px solid black; padding: 2px; width: fit-content;">Priority: Medium</div>	Lead: County E-911 and Emergency Management Support: County Public Works	Can be completed during year 1 (2008) pending funding to implement the project. Estimate \$20,000 for signs and posting.
5.1.c: Develop policy encouraging new home and business construction to install underground power lines.	Protection of people, structures, and ecosystem by reducing the risk of wildfire ignitions. <div style="border: 1px solid black; padding: 2px; width: fit-content;">Priority: High</div>	Lead: County Planning Department Support: County Commissioner’s Office, Columbia County Public Utilities District, and utility companies.	Year 1 (2008): Implement a policy to require new utility lines to be buried underground. Year 1 (2008): Collaborate with Columbia County Public Utilities District and local utility companies to implement this policy.

Table 5.1. Action Items in Safety and Policy.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
<p>5.1.d: Develop a policy to enforce burning permits and fire restrictions throughout the County.</p>	<p>Protection of people, structures, and ecosystem by reducing the fire ignitions in high-risk areas.</p>	<p>Lead: County Commissioners Support: City and County Planning Departments, Columbia County Sheriff's Department, DNR, City of Dayton, Town of Starbuck, and local communities.</p>	<p>Year 1 (2008): Consider and develop policy to address burn permit system and enforcement to help reduce the number of accidental wildfire ignitions.</p>
	<p>Priority: High</p>		
<p>5.1.e: Incorporate the Columbia County Community Wildfire Protection Plan into the Columbia County Comprehensive Plan, where applicable.</p>	<p>Protection of people and structures by dovetailing this planning process with other County planning documents.</p>	<p>Lead: Columbia County Commissioners Support: Columbia County Planning Department.</p>	<p>Ongoing: Incorporate the goals and projects outlined in this plan into the updated Comprehensive Plan.</p>
	<p>Priority: High</p>		
<p>5.1.f: Adopt stringent regulations to insure fire-safe development of rural subdivisions (see FIREWISE or similar programs for specific recommendations).</p>	<p>Protection of people and structures by improving the ability of emergency services personnel to safely and effectively respond to home fires and decrease the overall fire risk in wildland urban interface areas.</p>	<p>Lead: County Planning Department Support: County Commissioner's Office, County Building Department, Columbia County Fire District #1-3, developers, and interested residents.</p>	<p>Year 1 (2008): Research fire-safety related programs such as FIREWISE to determine specific recommendations for policy changes regarding development of rural subdivisions. Year 2 – 3 (2009 – 2010): Begin gathering public support of new regulations. Produce and submit necessary documentation to facilitate County adoption of recommended regulations.</p>
	<p>Priority: High</p>		
<p>5.1.g: Work with the Farm Services Agency to improve Conservation Reserve Program management for wildfire safety purposes.</p>	<p>Protection of people and structures by increasing landowner's ability to reduce fuel loads on CRP land.</p>	<p>Lead: Farm Services Agency and local landowners Support: County Commissioners and Columbia County Conservation District</p>	<p>Year 1 (2008): Research avenues for changing the Farm Services Agency's policies. Begin discussions with FSA and raise local awareness and support. Year 1 – 2 (2008 – 2009): Actively pursue implementation of policy changes.</p>
	<p>Priority: High</p>		
<p>5.1.h: Develop a strategy to remove brush and prune trees to reduce fuel loading along County right-of-ways.</p>	<p>Protection of people, structures, and ecosystem by using more effective fuels reduction techniques.</p>	<p>Lead: County Commissioners and Public Works Support: County Weed Board</p>	<p>Year 1 (2008): Conduct research and consult professionals regarding alternatives to chemical spraying along roads. Year 2 (2009): Begin testing alternatives.</p>
	<p>Priority: High</p>		
<p>5.1.i: Complete a countywide Emergency Operations Plan.</p>	<p>Protection of people and structures by improving the County's ability to respond to emergencies more efficiently and without confusion.</p>	<p>Lead: County Commissioners Support: County Emergency Manager, Sheriff's Department, Hospital District, Columbia County Fire District #1-3, and local citizens.</p>	<p>Year 1 (2008): Form multi-jurisdictional planning committee to identify funding needs and begin gathering information. Year 2 (2009): Use county resources or hire a contractor to author the document.</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: Develop a communication interoperability plan between firefighting agencies/organizations and landowners.	Protection of people and structures by improving communication between residents and firefighters. <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-top: 5px;">Priority: High</div>	Lead: Washington DNR Support: County Sheriff's Office, USFS, DNR, BLM, FWS, and Columbia County Fire Districts #1 - 3.	Year 1 (2008): Convene a multi-jurisdictional committee to work on the development of a communications interoperability plan. Year 1 – 2 (2008 - 09): Develop and publish a practical and feasible plan and implement objectives.
5.1.k: Set up a transfer of command structure to insure that the County Emergency Manager is a liaison to any Fire Management Team deployed to Columbia or neighboring Counties.	Protection of people and structures by improving the communication infrastructure between local officials and fire management teams. <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-top: 5px;">Priority: High</div>	Lead: County Emergency Manager Support: County Commissioners, DNR, USFS, and Columbia County Fire Districts #1 – 3.	Year 1 (2008): Convene a multi-jurisdictional committee to work on the development of a transfer of command structure when graduating from a locally managed fire to a regional fire management team. Insure necessary steps are specified in the County's Emergency Operations Plan.
5.1.l: Develop a formal WUI advisory committee to advise County Commissioners on WUI issues, treatments, and other protective measures.	Protection of people and structures by improving the ability of decision makers to make informed decisions about wildland fire issues. <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-top: 5px;">Priority: High</div>	Lead: County Emergency Manager Support: County Commissioners and interested local parties.	Year 1 (2008): Formalize a committee, its membership and service decided on by the County Commissioners, to collaborate on WUI issues within Columbia County. Members potentially to include land management organizations and companies, private landowners, and fire protection personnel.

5.4 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. The other incident is a firefighter who suffers the loss of life during the combating of a 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 awareness of the residents of Columbia County. 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, the 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 (65%) 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 Columbia 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 the WUI of Columbia County. The items listed below should be encouraged, acknowledged, and recognized for their contributions to the reduction of wildland fire risks:

Livestock grazing in and around the communities of Columbia County has led to a reduction of many of the fine fuels that would have been found in and around the communities and in the wildlands of Columbia County. Domestic livestock not only eat these grasses, forbs, and shrubs, but they also trample certain fuels to the ground where decomposition rates may increase. Livestock ranchers tend their stock, placing additional sets of eyes into the forests and rangelands of the County where they may observe ignitions or potentially risky activities. Recently, there has been a notable reduction in livestock grazing on public land ownerships. Livestock grazing in this region should be encouraged on all land ownerships in the future as a low cost, positive tool of wildfire mitigation in the wildland-urban interface and beyond.

Forest management in Columbia County has not been greatly affected by the reduction of operating sawmills in the region. The forest management programs of the U.S. Forest Service and the Washington Department of Natural Resources 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 agency's fuels reduction programs. In addition, many private and industrial forest landowners have implemented very active forest management programs that are leading to a significant decrease in high risk fuels. 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. Columbia County, as well as several other organizations and agencies, is currently considering using prescribed fire as a management tool to reduce hazardous fuels on their lands.

Agriculture is a significant component of Columbia County's economy. Much of the rangeland interface is made up of a mosaic of agricultural crops. The original conversion of these lands to agriculture from rangeland and forestland, was targeted at the most productive soils and juxtaposition to water. Many of these productive rangeland ecosystems were consequently also at some of the highest risk to wildland fires because biomass accumulations increased in these productive landscapes. The result today, is 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 Columbia County is integral to the continued management of wildfire risk in this region.

Salvage logging after a wildfire event can help capture some of the burned over timber's economic value if implemented immediately after the wildfire event. Additionally, the removal of dead or dying trees can help lessen the forest's subsequent attack by insects. Salvage logging, if done responsibly, can be effective in accomplishing both the economic goals of the administering party as well as help reduce fuel loads in high risk areas.

Prescribed fire can be used as a tool in forest and rangeland management programs to accomplish several goals. Prescribed fire, when done correctly and in appropriate areas, can help reduce hazardous fuel loads. Prescribed fire has also been used to prepare sites for seeding or planting, improve wildlife habitat, manage competing vegetation, control insects and disease, improve forage for grazing, enhance appearance, and improve access.

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>Protect 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 style="border: 1px solid black; padding: 2px;">Priority: High</p>	<p>Cooperative effort including:</p> <ul style="list-style-type: none"> • Washington Department of Natural Resources • State and Private Forestry Offices • Bureau of Land Management • USDA Forest Service • Local School Districts • Blue Mountain RC&D • Local Non-governmental Community Organizations • Local Fire District and Departments in Columbia County • City of Dayton, Town of Starbuck, and communities of Columbia County 	<p>To start immediately using existing educational program materials and staffing (e.g. Forest Stewardship class offered by Washington State University). Formal needs assessment should be the responsibility of WSU Extension 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>5.2.b: Wildfire risk assessments of homes in identified neighborhoods.</p>	<p>Protect 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 style="border: 1px solid black; padding: 2px;">Priority: High</p>	<p>Lead: County Emergency Manager and Washington DNR</p> <p>Support: County Commissioner's, Blue Mountain RC&D, USFS, local community organizations, and Columbia County Fire District #1-3.</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 2,453 structures in Columbia County, roughly 736 (30%) of these structures would benefit from a home site inspection and budget determination for a total estimate of \$73,600.</p> <p>Action Item: Secure funding and contract to complete the inspections during years 1 & 2 (2008-09)</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>5.2.c: 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 Columbia County.</p> <p style="border: 1px solid black; padding: 2px;">Priority: Medium</p>	<p>Lead: County Emergency Manager and Washington DNR</p> <p>Support: County Commissioner's, Blue Mountain RC&D, USFS, local community organizations, and Columbia County Fire District #1-3.</p>	<p>Actual cost level will be based on the outcomes of the home site assessments.</p> <p>Estimate that treatments in rangelands will cost approximately \$400 per home site for a defensible space of roughly 150'.</p> <p>Estimate that treatments in forestland will cost roughly \$1,000 per home site for a defensible space of about 200'.</p> <p>Approximately 515 home site treatments (70% of those assessed) throughout the County would add up to an estimated cost of \$453,200 (80% forestland and 20% rangeland).</p> <p>Home site treatments can begin with the securing of funding for the treatments and immediate implementation in 2008 and will continue from year 1 through 5 (2012).</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: 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 Columbia County.</p>	<p>Lead: County Emergency Manager and Washington DNR Support: County Commissioner's, Blue Mountain RC&D, USFS, local community organizations, and Columbia County Fire District #1-3.</p>	<p>Actual funding level will be based on the outcomes of the home site assessments and cost estimates.</p> <p>Years 2-5 (2009-12): 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) depending on extent of home defensibility site treatments, estimate 258 homes (50% of treated homes) in need of this type of treatment for a cost estimate of \$721,000.</p>
	<p>Priority: Medium</p>		
<p>5.2.e: Maintenance 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 Columbia County.</p>	<p>Lead: County Emergency Manager and Washington DNR Support: County Commissioner's, Blue Mountain RC&D, USFS, local community organizations, and Columbia County Fire District #1-3.</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 \$400 per home site on all sites initially treated or recommended for future inspections (\$206,000).</p> <p>Follow-up inspection reports with treatments as recommended years 5 through 10 (2012-2017).</p>
	<p>Priority: Medium</p>		
<p>5.2.f: Research and pursue requirements to becoming a FIREWISE community.</p>	<p>Protect people, structures, and increase firefighter safety by reducing the risk factors surrounding homes in the WUI of Columbia County.</p>	<p>Lead: Local wildfire planning committee Support: Washington DNR, County Commissioners, City of Dayton, and Town of Starbuck.</p>	<p>Year 1 (2008): Convene local wildfire planning committee and Washington DNR to research the requirements of becoming a FIREWISE community. Develop an action plan and begin pursuing any necessary funding and community support.</p> <p>Year 2 (2009): Begin implementing projects that will reduce wildfire risks and fulfill the requirements of becoming a FIREWISE community.</p>
	<p>Priority: High</p>		
<p>5.2.g: Develop a Columbia County – specific website with information for homeowners on what to do before, during, and after a wildfire modeled after the “Living With Fire” website (http://www.livingwithfire.info).</p>	<p>Protection of people, structures, and ecosystem by providing relevant information to area homeowners regarding actions they can take to reduce their wildfire risk.</p>	<p>Lead: County Emergency Manager Support: CWPP planning committee, DNR, USFS, and Columbia County Fire Districts #1 – 3.</p>	<p>Year 1 (2008): Convene a multi-jurisdictional committee to work on development of the information to be included on the website.</p> <p>Year 1 – 2 (2008 - 09): Obtain funding for and hire an expert to develop a user friendly wildfire website tailored to Columbia County.</p>
	<p>Priority: High</p>		

5.5 Infrastructure

Significant 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 southeastern Washington, and to Columbia 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 are lost. As such, a variety of components will be considered here in terms of management philosophy, potential policy recommendations, and mitigation recommendations.

Communication Infrastructure: This component of the WUI seems to be diversified across the county with multiple source and destination points and a spread-out support network.

Transportation Infrastructure (road and rail networks): This component of the WUI has some significant potential limitations in Columbia County. U.S. Highway 12 is the primary maintained route linking Columbia County to other major population centers including Lewiston and Walla Walla. Thus, a significant amount of interstate and international traffic travels through the County. Also, State Highway 126 and 261 connect the more remote communities of Starbuck and Lyons Ferry. In the event any of these roadways are disabled, access or evacuation to some areas may become limited to seasonally maintained secondary roads or forest routes.

Other roads in the County have limiting characteristics, such as narrow travel surfaces, sharp turning radii, low load limit bridges and cattle guards, and heavy accumulations of fuels adjacent to and overtopping the corridor. Some of these roads access remote forestland and rangeland areas. While their improvements will facilitate access in the case of a wildfire, they are not the priority for treatments in the county. Roads that have these inferior characteristics and access homes and businesses are the priority for improvements in the county.

Energy Transport Supply Systems (gas and power lines): A number of power lines crisscross Columbia County. Unfortunately, many of these power lines cross over rangeland ecosystems. When fires ignite in these vegetation types, the fires tend to be rapidly spreading and burn at variable intensities depending on the weather conditions. There is a potential for high temperatures and low humidity with high winds to produce enough heat and smoke to threaten power line stability. Most power line corridors have been cleared of vegetation both near the wires and from the ground below. Observations across the County of the primary transmission lines lead to the conclusion that many of the lines should be evaluated for potential widening of the corridor and further removal of brush and other vegetation from the ground below the wires.

The Bonneville Power Administration (BPA), Columbia Rural Electric Cooperative, Pacific Power, and Puget Sound Energy maintain several power lines in the county; however, these lines cross only rangeland, agricultural, or otherwise developed areas. Nearly all Columbia County residents are dependent on this power grid for electricity. The use of these areas as "fuel breaks" should be evaluated further, especially in light of the treatments enumerated in this plan (e.g., intensive livestock grazing, mechanical treatments, and herbicide treatments).

Water Supply: In many of Washington's communities, water is derived from surface flow that is treated and piped to homes and businesses. When wildfires burn a region, they threaten these watersheds by the removal of vegetation and creation of ash and sediment. As such, watersheds should be afforded the highest level of protection from catastrophic wildfire impacts. In Columbia County, water is supplied to many homes by single home or multiple home wells or pumped from the major drainages.

Table 5.3. Action Items for Infrastructure Enhancements.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
<p>5.3.a: Post “Emergency Evacuation Route” signs along the identified primary and secondary access routes.</p>	<p>Protection of people and structures by informing residents and visitors of significant infrastructure in the County that will be maintained in the case of an emergency.</p>	<p>Lead: County Emergency Manager Support: County Public Works, County Commissioner’s Office, and Columbia County Fire District #1-3.</p>	<p>Year 1 (2008): Purchase of signs. Post roads and make information available to residents of the importance of Emergency Routes.</p>
	<p>Priority: High</p>		
<p>5.3.b: Create and maintain defensible space around critical infrastructure including, but not limited to communication sites, community shelters, government buildings (city, County, State, and federal), petroleum storage sites, hospitals, water storage sites, and PUD Service Stations.</p>	<p>Protect people, structures, and increase firefighter safety by decreasing the risk of loss of critical communications infrastructure to wildland fire.</p>	<p>Lead: County Emergency Manager Support: County Commissioners, Blue Mountain RC&D, City of Dayton, Town of Starbuck, Columbia County Public Utilities District, and various facility/utility owners.</p>	<p>Year 1 (2008): Meet with facility and utility owners operating communications infrastructure in Columbia County and set up a criteria for maintaining a defensible space in these areas. Year 2 (2009): Develop defensible space plans and begin implementing hazardous fuel reduction projects.</p>
	<p>Priority: Medium</p>		
<p>5.3.c: Improve access by enhancement of bridges, cattle guards, culverts, and limiting road surfaces (e.g. Hatley Gulch Bridge).</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: County Public Works Support: County Commissioners, State of Washington (Lands and Transportation), USFS, DNR, and private landowners.</p>	<p>Year 1 (2008): Update existing assessment of travel surfaces, bridges, and cattle guards in Columbia County as to location. Secure funding for implementation of this project (grants). Year 2 (2009): Conduct engineering assessment of limiting weight restrictions for all surfaces (e.g., bridge weight load maximums). Include in assessment an inventory of plastic culverts that may be at risk of consumption during a wildfire. Project cost may be shared between County, BLM, USFS, State, and private based on landownership associated with road locations. Year 2 (2009): Post weight restriction signs on all limiting crossings, copy information to rural fire districts and wildland fire protection agencies in affected areas. Estimate cost at roughly \$10-\$15,000 for signs and posting. Year 3 (2010): Identify limiting road surfaces and infrastructure in need of improvements to support wildland firefighting vehicles and other emergency equipment and/or to facilitate ingress and egress during an emergency situation. 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>
	<p>Priority: Medium</p>		

Table 5.3. Action Items for Infrastructure Enhancements.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
<p>5.3.d: Fuels mitigation of the primary and secondary access routes in the County to insure these routes can be maintained in the case of an emergency.</p>	<p>Protection of people and structures by providing residents and visitors with ingress and egress that can be maintained during an emergency.</p>	<p>Lead: County Public Works and Washington Department of Transportation Support: County Commissioner's Office, USFS, DNR, Blue Mountain RC&D, and private landowners.</p>	<p>Year 1 (2008): Full assessment of road defensibility and ownership participation. Year 2 (2009): Implement projects.</p>
	<p>Priority: High</p>		
<p>5.3.e: Improve access through roadside fuels management.</p>	<p>Protection of people, structures, infrastructure, and economy by improving access for residents and firefighting personnel in the event of a wildfire. Allows for a road based defensible area that can be linked to a terrain based defensible areas.</p>	<p>Lead: County Emergency Manager Support: County Public Works, State of Washington (Lands and Transportation), USFS, DNR, Blue Mountain RC&D, and private landowners.</p>	<p>Year 1 (2008): Update existing assessment of roads in Columbia County as to location. Secure funding for implementation of this project (grants). Year 2 (2009): Specifically address access issues to roads identified in assessment. Identify forestland and rangeland fuels difficult to control during wildfire that would also respond well to thinning, pruning, and brush cutting (hand pile and burn or chip), while increasing ingress and egress use in wildfire emergencies. Target 200' from each side of the road for estimated cost of \$15-\$23,000 per mile of road treated. Year 3 (2010): Secure funding and implement projects to treat roadside fuels.</p>
	<p>Priority: Medium</p>		
<p>5.3.f: Assess and post weight rating signs on all public and private bridges throughout the county.</p>	<p>Protection of people, structures, infrastructure, and economy by improving emergency access.</p>	<p>Lead: County Public Works and private landowners Support: County Commissioners</p>	<p>Year 1 (2008): Conduct engineering assessments of currently unrated bridges throughout the county. Year 2 (2009): Post appropriate weight rating signs on all bridge crossings.</p>
	<p>Priority: Medium</p>		

5.6 Resource and Capability Enhancements

There are a number of resource and capability enhancements identified by the rural and wildland firefighting districts in Columbia 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.

Specific repeated themes of needed resources and capabilities include:

- Retention and recruitment of volunteers
- Update firefighting equipment countywide
- Improved road and house number signage
- Training and development of rural firefighters in structure and wildland fire

Although additional, and specific, needs were enumerated by the districts in Columbia County, these items were identified by multiple districts and in the public meetings. The implementation of each issue will rely on either the isolated efforts of the fire districts or a concerted effort by the county 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 Blue Mountain RC&D may be an organization uniquely suited to work with all of the districts in Columbia County and adjacent counties to assist in the prioritization of needs across district and even county lines. Once prioritized, the Blue Mountain RC&D is 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: Enhance radio availability in each district, link in to existing dispatch, improve range within the region, and conversion to consistent standard of radio types.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: County Emergency Manager Support: County Commissioner's, USFS, DNR, Blue Mountain RC&D, local community organizations, and Columbia County Fire Districts #1-3.	Year 1 (2008): Summarize existing two-way radio capabilities and limitations. Identify costs to upgrade existing equipment and locate funding opportunities. Year 2 (2009): Acquire and install upgrades as needed.
5.4.b: Retention and recruitment of volunteer firefighters.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Columbia County Fire Districts #1-3. Support: Wildland fire agencies working with a broad base of County citizenry.	Target an increased recruitment (+10%) and retention (+20% longevity) of volunteers. Year 1 (2008): Develop incentives program and implement it.
5.4.c: Establish and map onsite water sources such as hydrants or underground storage tanks and drafting or dipping sites (e.g. Cougar Canyon).	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: County Emergency Manager Support: County Commissioner's Office, County GIS Department, USFS, DNR, Blue Mountain RC&D, and Columbia County Fire Districts #1-3.	Year 1 (2008): Identify populated areas lacking sufficient water supplies and develop project plans to develop a permanent water source or drafting/dipping sites. Implement project plans and begin mapping (GPS) known water sources and drafting/dipping sites to be provided to fire response agencies and County offices.

Table 5.4. Action Items for Firefighting Resource and Capability Enhancements.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
5.4.d: Increase training and capabilities of firefighters.	<p>Protection of people and structures by direct fire fighting capability enhancements.</p> <p>Priority: High</p>	<p>Lead: County Commissioner's and Columbia County Fire Districts #1-3.</p> <p>Support: County Emergency Manager, DNR, BLM, and USFS for wildland training opportunities and with the State Fire Marshall's Office for structural firefighting training.</p>	<p>Year 1 (2008): Develop a multi-County training schedule that extends 2 or 3 years in advance (continuously).</p> <p>Identify funding and resources needed to carry out training opportunities and sources of each to acquire.</p> <p>Year 1 (2008): Begin implementing training opportunities for volunteers.</p>
5.4.e: Obtain funding for an urban interface structural pumper and 4" to 5" supply lines for structural trucks for Columbia County Fire District #3.	<p>Protection of people and structures by direct firefighting capability enhancements.</p> <p>Priority: High</p>	<p>Lead: Columbia County Fire District #3</p>	<p>Year 1 (2008): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources.</p> <p>Year 1 or 2 (2008-09): Acquire and deliver needed materials and equipment.</p>
5.4.f: Improve safety equipment and personal protective equipment for all fire districts and departments in Columbia County.	<p>Protection of people and structures by direct firefighting capability enhancements.</p> <p>Priority: High</p>	<p>Lead: Columbia County Fire Districts #1-3</p> <p>Support: County Commissioner's, USFS, and County Emergency Manager</p>	<p>Year 1 (2008): Complete an inventory of all supplies held by the Fire Districts (boots, turnouts, Nomex, gloves, modern lighting, straps, and hardware), and complete a needs assessment matching expected replacement schedule.</p> <p>Develop Countywide re-supply process for needed equipment.</p>
5.4.g: Support the maintenance and/or enhancement of state and federal firefighting programs and resources in Columbia County.	<p>Protection of people and structures by direct wildland firefighting capability enhancements.</p> <p>Priority: High</p>	<p>Lead: County Emergency Manager</p> <p>Support: County Commissioners and Blue Mountain RC&D.</p>	<p>Ongoing: Provide community and County support for the State and Federal fire and firefighting programs within the County.</p> <p>Assist State and Federal fire programs raise awareness of wildland fire issues in local communities.</p>
5.4.h: Facility, land, and basic equipment for a Columbia County Fire District #3 satellite fire station near Tualum Creek on the Tucannon Road.	<p>Protection of people and structures by direct firefighting capability enhancements.</p> <p>Priority: High</p>	<p>Lead: Columbia County Fire District #3</p>	<p>Year 1 (2008): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources.</p> <p>Year 1 or 2 (2008-09): Acquire and deliver needed materials and equipment.</p>
5.4.i: Obtain funding to update rolling stock, PPEs, and other basic equipment for Columbia County Fire District #1.	<p>Protection of people and structures by direct firefighting capability enhancements.</p> <p>Priority: Medium</p>	<p>Lead: Columbia County Fire District #1</p>	<p>Year 1 (2008): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources.</p> <p>Year 1 or 2 (2008-09): Acquire and deliver needed materials and equipment.</p>

Table 5.4. Action Items for Firefighting Resource and Capability Enhancements.

Action Item	Goals and Objectives	Responsible Organization	Timeline and Implementation Plan
5.4.j: Facility, land, and basic equipment for a larger Columbia County Fire District #1 station to house equipment and provide for storage and training needs.	Protection of people and structures by direct firefighting capability enhancements. Priority: Medium	Lead: Columbia County Fire District #1	Year 1 (2008): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2008-09): Acquire and deliver needed materials and equipment.
5.4.k: Facility, land, and basic equipment for a new Columbia County Joint Fire District #2 station.	Protection of people and structures by direct firefighting capability enhancements. Priority: Medium	Lead: Columbia County Joint Fire District #2	Year 1 (2008): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2008-09): Acquire and deliver needed materials and equipment.
5.4.l: Obtain funding to purchase a fire rescue vehicle and extrication equipment for Columbia County Joint Fire District #2.	Protection of people and structures by direct firefighting capability enhancements. Priority: Medium	Lead: Columbia County Joint Fire District #2	Year 1 (2008): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2008-09): Acquire and deliver needed materials and equipment.
5.4.m: Park a wildland firefighting vehicle in the very rural area of Columbia County Fire District #1 between Starbuck and Waitsburg.	Protection of people and structures by direct firefighting capability enhancements. Priority: High	Lead: Columbia County Joint Fire District #1	Year 1 (2008): Work with landowners in the area to identify a strategic location to park the vehicle. Year 1 (2008): Provide training to the selected landowner on basic operation and administrative procedures regarding the housing of the vehicle.

5.7 Proposed Project Areas

5.7.1 Proposed Structure Defensible Space Projects

The following structure 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 \$400 per structure in rangeland/agricultural areas and \$1,000 per structure in forested areas. It is also assumed that 80% of the structures in the project area will receive treatment.

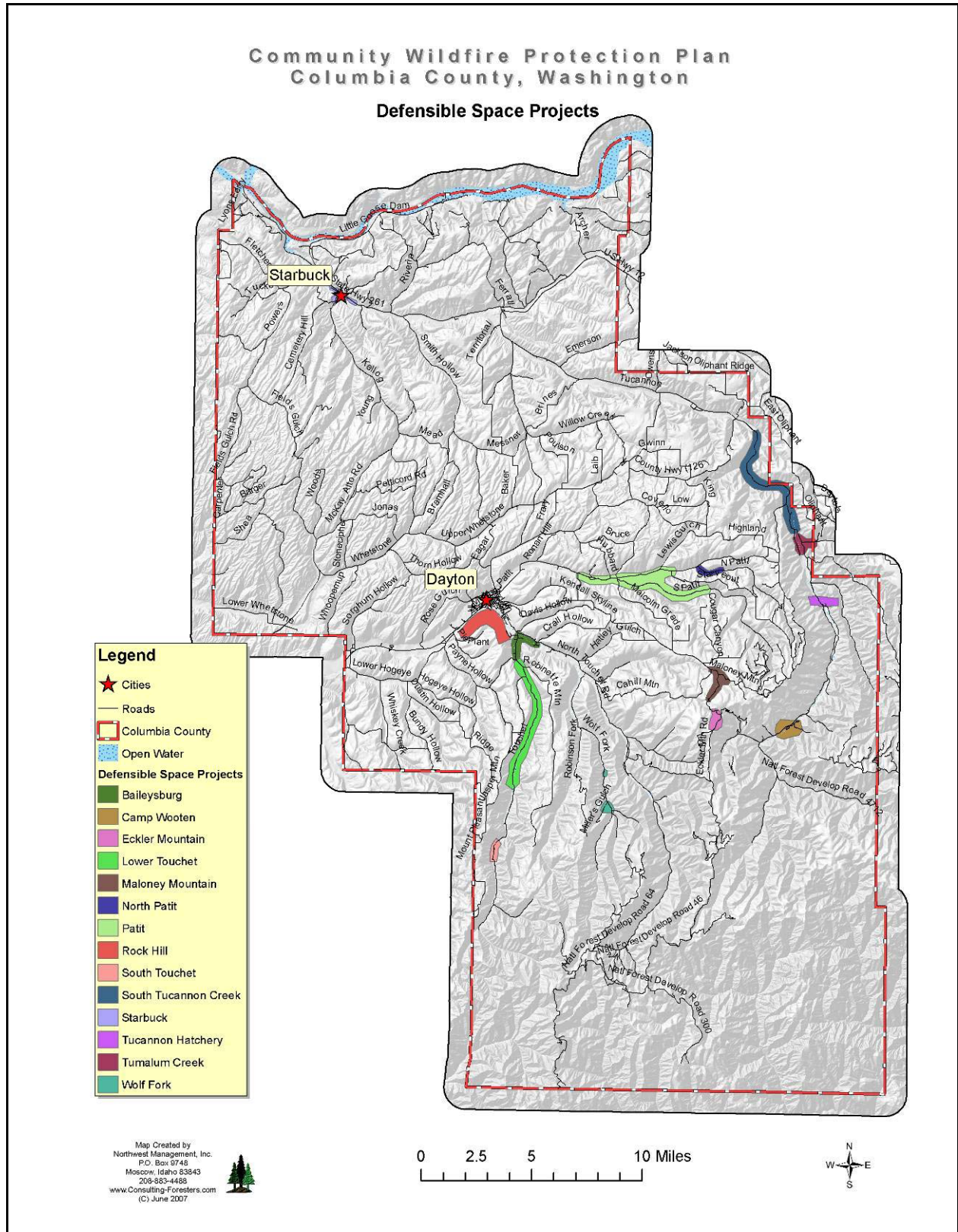
The Washington Department of Natural Resources, U.S. Forest Service, Bureau of Land Management, and/or the Blue Mountain RC&D may take the lead on implementation of many of these projects; however, project boundaries were purposely drawn without regard to land ownership in order to capture the full breadth 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 Structure Defensible Space Project Areas.

Project Areas	Total Structures	Estimated Project Cost	Priority Ranking
Baileysburg Structure Defensible Space	108	\$34,560	High
Camp Wooten Structure Defensible Space	34	\$27,200	High
Eckler Mountain Structure Defensible Space	8	\$6,400	Medium
Lower Touchet Structure Defensible Space	59	\$18,800	High
Maloney Mountain Structure Defensible Space	14	\$11,200	Medium
North Patit Structure Defensible Space	7	\$2,240	Medium
Patit Structure Defensible Space	56	\$17,920	High
Rock Hill Structure Defensible Space	10	\$3,200	Medium
South Touchet Structure Defensible Space	6	\$4,800	Medium
South Tucannon Creek Structure Defensible Space	43	\$13,760	High
Starbuck Structure Defensible Space	283	\$90,560	High
Tucannon Hatchery Structure Defensible Space	11	\$8,800	Medium
Tumalum Creek Structure Defensible Space	37	\$11,840	Medium
Wolf Fork Structure Defensible Space	5	\$4,000	Medium

Figure 5.1. Map of Proposed Structure Defensible Space Projects



5.7.2 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.

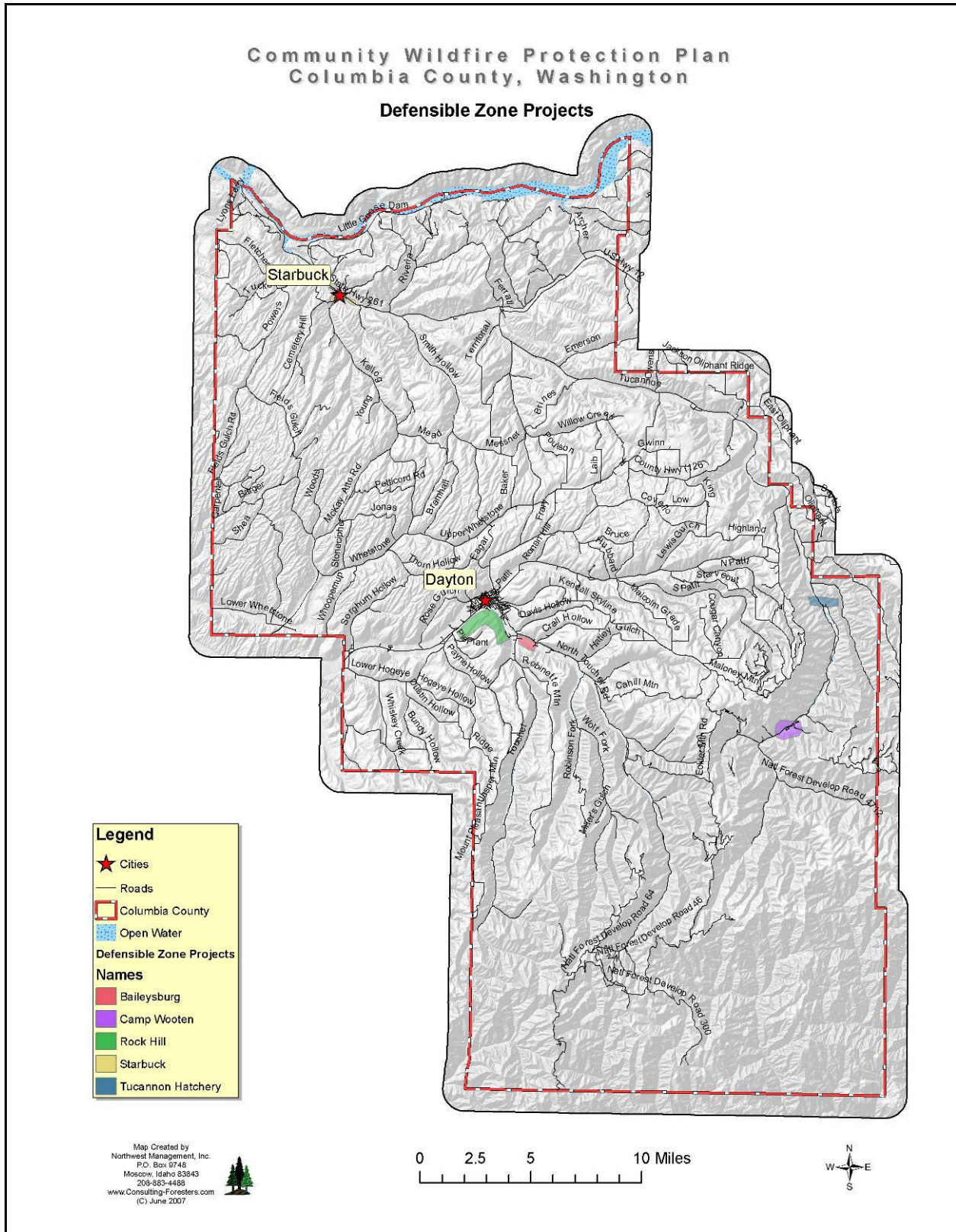
The estimated project costs were calculated based on treating an additional four acres per structure at approximately \$700 per acre. Cost estimates assume that no revenue was generated by the removal of timber or other product. It is also assumed that 80% of the structures in the project area will receive treatment. 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 Washington Department of Natural Resources, U.S. Forest Service, Bureau of Land Management, and/or the Blue Mountain RC&D 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 Structures	Estimated Project Cost	Priority Ranking
Baileysburg Defensible Zone	36	\$80,640	Medium
Camp Wooten Defensible Zone	34	\$76,160	High
Rock Hill Defensible Zone	10	\$22,400	Medium
Starbuck Defensible Zone	283	\$631,680	Medium
Tucannon Hatchery Defensible Zone	11	\$24,640	Medium

Figure 5.2. Map of Proposed Community Defensible Zone Projects



5.7.3 Proposed Fuels Reduction Projects

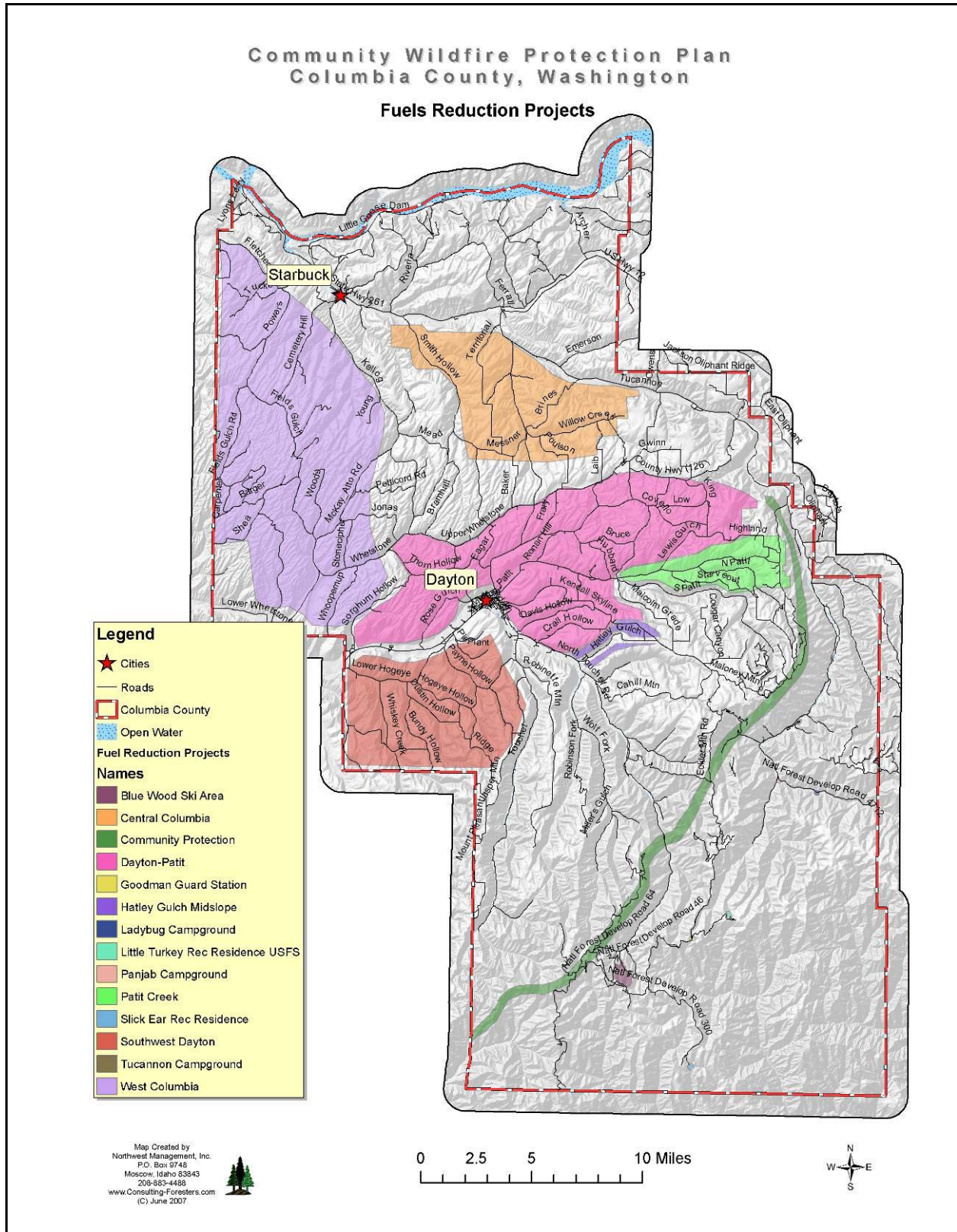
The following proposed fuels reduction projects were identified by the planning committee to be specific areas at high risk to wildfire due not only to the forest fuels, but also due to increased likelihood of an ignition. High use recreational areas or industrial operations in or near forestland fuels 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. It is also assumed that approximately 10% of the acres included in the CRP Fuel Break projects would be treated in any given year. The Washington Department of Natural Resources, U.S. Forest Service, Bureau of Land Management, and/or the Blue Mountain RC&D 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
Bluewood Fuels Reduction	404	\$159,580	Medium
Central Columbia CRP Fuel Breaks	23,663	\$591,575	High
Community Protection Fuel Break	8,600	\$2,150,000	Low
Dayton-Patit CRP Fuel Breaks	47,580	\$1,189,500	High
Goodman Guard Station Fuels Reduction	34	\$8,500	Medium
Hatley Gulch Midslope Fuel Break	1,511	\$377,750	Low
Ladybug Campground Fuels Reduction	30	\$7,500	Medium
Little Turkey Fuels Reduction	40	\$10,000	Medium
Patit Creek / Maloney Mtn Fuels Reduction	7,709	\$1,927,250	Medium
Panjab Campground Fuels Reduction	19	\$4,750	Medium
Slick Ear Fuels Reduction	40	\$10,000	High
Southwest Dayton CRP Fuel Breaks	24,356	\$608,900	High
Tucannon Campground Fuels Reduction	29	\$7,250	Medium
West Columbia CRP Fuel Breaks	61,338	\$1,533,450	High

Figure 5.3. Map of Proposed Fuels Reduction Projects



5.7.4 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 planning and implementation of the identified roadside fuels projects does not alter, diminish, or expand the existing jurisdiction, statutory and regulatory responsibilities and authorities or budget processes of federal state, and tribal agencies. All planning in relation to wildfire mitigation must be taken in light of the existing regulatory and environmental laws in place. This will be determined by the owner of the parcel implementing the treatment. Thus, if proposed activities are to occur on federal lands, then the National Environmental Policy Act (NEPA) will determine environmental protection measures. Similarly, if the proposed action is to occur on state lands or private lands, then the Forest Practices Act and SEPA would govern environmental impacts. We have not diminished private property rights through the development of this document. Environmental protection including fish habitat and clean water is inherent to all projects because of the existing regulatory environment in Washington State.

The Washington Department of Natural Resources, U.S. Forest Service, Bureau of Land Management, and/or the Blue Mountain RC&D 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.

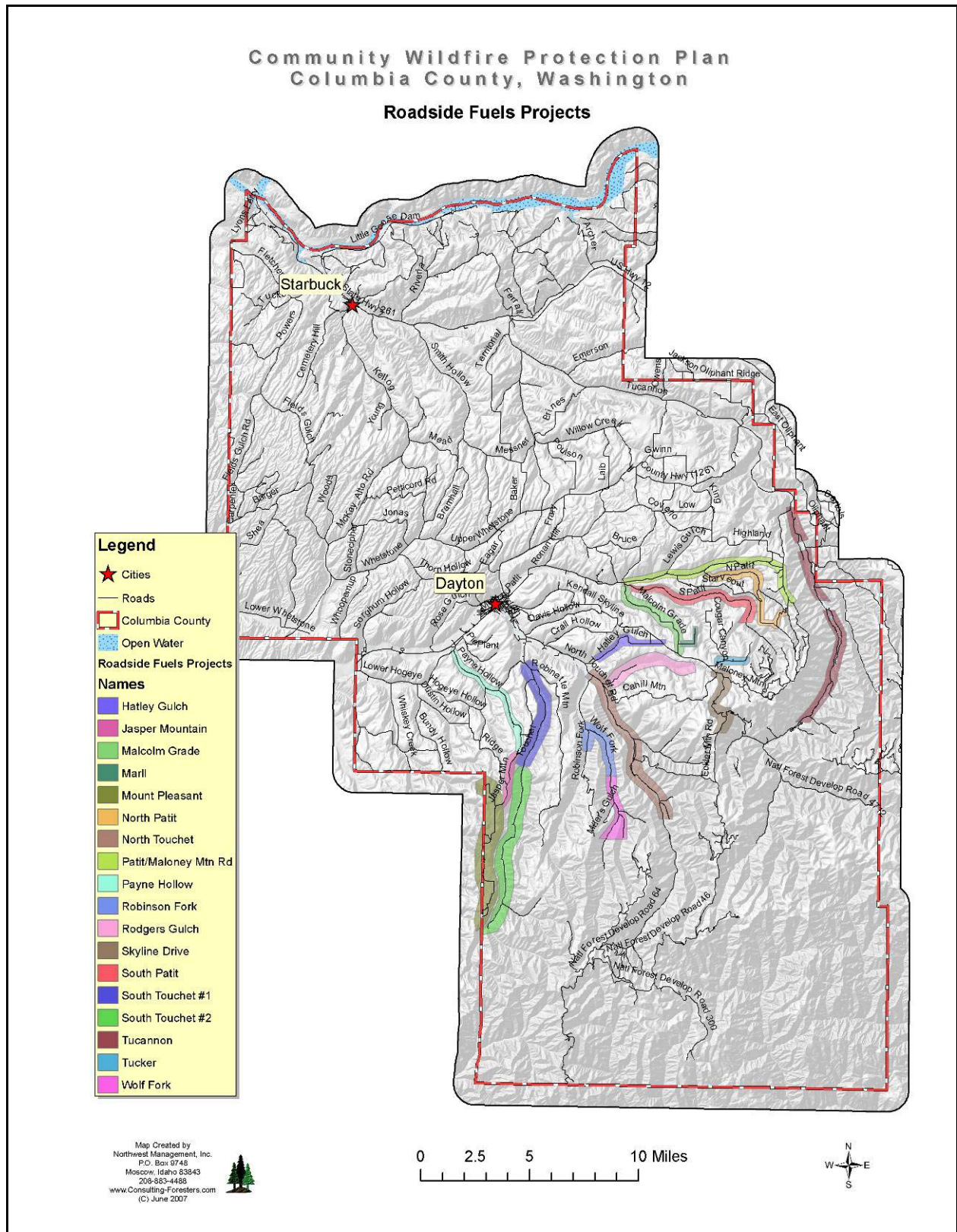
Table 5.8. Proposed Roadside Fuels Treatment Projects.

Roadside Fuels Treatments	Approximate Acres	Estimated Project Cost	Priority Ranking
Hatley Gulch Roadside Fuels	181	\$126,700	Medium
Jasper Mountain Roadside Fuels	143	\$100,100	Medium
Malcolm Grade Roadside Fuels	237	\$165,900	Medium
Marll Roadside Fuels	72	\$50,400	Medium
Mount Pleasant Roadside Fuels	415	\$290,500	Medium
North Patit Roadside Fuels	344	\$240,800	High
North Touchet Roadside Fuels	655	\$458,500	High
Patit / Maloney Mtn Roadside Fuels	541	\$378,700	High
Payne Hollow Roadside Fuels	344	\$240,800	Medium
Robinson Fork Roadside Fuels	200	\$140,000	High
Rodgers Gulch Roadside Fuels	77	\$53,900	Medium
Skyline Drive (FR46) Roadside Fuels	271	\$189,700	High
South Patit Roadside Fuels	341	\$238,700	High

Table 5.8. Proposed Roadside Fuels Treatment Projects.

Roadside Fuels Treatments	Approximate Acres	Estimated Project Cost	Priority Ranking
South Touchet #1 Roadside Fuels	362	\$253,400	High
South Touchet #2 Roadside Fuels	363	\$254,100	Medium
Tucannon Roadside Fuels	762	\$533,400	High
Tucker Roadside Fuels	84	\$58,800	Medium
Wolf Fork Roadside Fuels	224	\$156,800	Medium

Figure 5.4. Map of Proposed Roadside Fuels Treatment Projects



5.8 Regional Land Management Recommendations

Reference has been given to the role that forestry, grazing and agriculture have in promoting wildfire mitigation services through active management. Columbia County is a rural county by any measure. It is dominated by wide expanses of forest and rangelands intermixed with communities and rural houses.

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 range and forestland conditions, and promotes the use of these natural resources (consumptive and non-consumptive) will insure that these lands have value to society and the local region. We encourage the US Forest Service, the Bureau of Land Management, State Parks, the Washington Department of Natural Resources, the Fish and Wildlife Service, industrial forestland owners, private forestland owners, and all agricultural landowners in the region to actively manage their wildland-urban interface lands in a manner consistent with reducing fuels and risks.

The following sections help identify where some of the land management agencies in Columbia 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 this committee as well as 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.

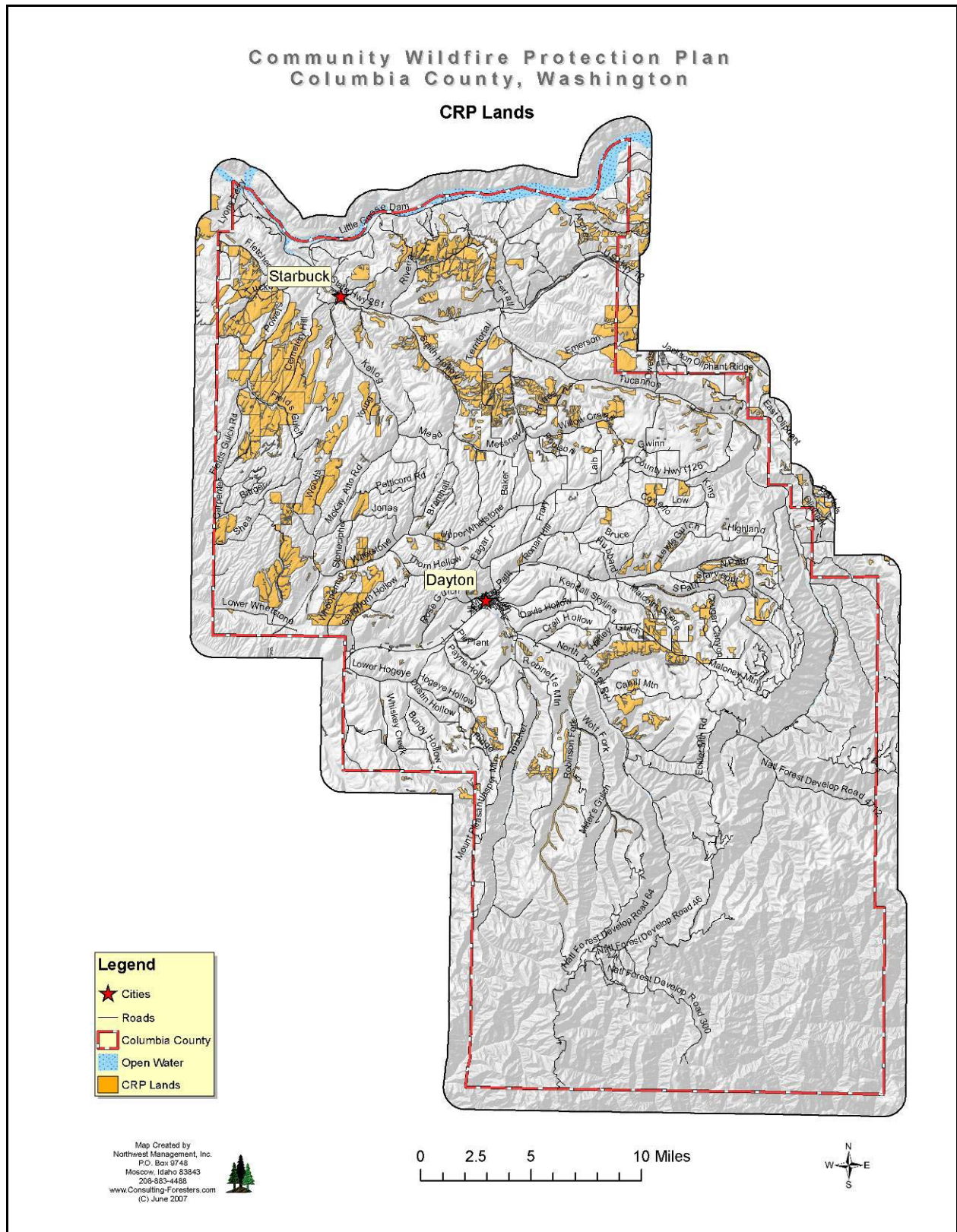
5.8.1 Conservation Reserve Program

The fire hazard associated with the abundant Conservation Reserve Program (CRP) lands has become a prominent issue for all fire departments and emergency personnel in Columbia County. Due to the lack of management on CRP, a dense mat of highly flammable fuels build up as they sit in fallow year after year. Fires in these fuels burn at very high intensities with large flame lengths, particularly under the influence of the strong winds common in Columbia County. Once ignited, CRP fires can burn very rapidly, jumping roads and other barriers that would normally inhibit a natural range or grass fire. Recently, uncontrolled CRP fires have burned hundreds of acres and threatened countless homes and critical infrastructure such as main highways and power poles in Washington.

It is the recommendation of this plan that Columbia County works with the Farm Services Agency to improve landowner's ability to manage fuels on CRP land, particularly around homes, roadways, and to create fuel breaks in large, contiguous tracts. Potential treatment options may include, but are not limited to, rotational grazing, haying, prescribed fire, and/or tilling. Columbia County believes active management will reduce the fire risk associated with these fuels and cut down on the number of CRP fires responded to each year. This is especially critical on those acres adjacent to homes, businesses, and critical infrastructure.

The committee has also specifically identified the need to break up the thousands of acres of continuous CRP fields by constructing fuel breaks in strategic locations. These fuel breaks not only help slow the spread of fire, but will also afford firefighters the ability to access fires and have a safe place to anchor suppression tactics.

Figure 5.5. Map of Crop Reserve Program Acres in Columbia County.



5.8.2 USDA Forest Service Projects

The following scheduled Pomeroy Ranger District projects are in various stages of planning.

Charley Creek Winter Range Prescribed Fire Project

The intent of this burn entry is to reduce decadent grass and shrub in critical elk winter range, and increase quantity and quality of elk forage. This prescribed fire project was also designed to reduce natural fuel loadings.

Charley 5 Prescribed Fire, Charley 3 Prescribed Fire, Charley 4 Prescribed Fire

This project was designed to reduce activity slash created from the Charley Timber Sale, and reduce natural fuel loadings adjacent to Charley Timber Sale Units.

Hairpin Prescribed Fire

The intent of this project is to underburn remaining harvest slash and surrounding natural fuels within the Lick Timber Sale Area. Objectives are to reduce post-harvest activity fuels, and improve wildlife forage.

Dryfork Prescribed Fire

This project is combination of Forest Service and DNR land. The project was designed to underburn remaining harvest slash in the Lick Timber Sale Area on Forest Service land. Adjacent Forest Service natural fuels areas and DNR land was included to reduce build-up of natural hazardous fuels, and to secure holding lines. Other resource objectives for this are to remove descendant grass and shrubs, to increase growth and palatability of elk forage.

Great Ridge Prescribed Fire

This project designed to reduce ground and ladder fuels, reduce timber stand densities, improve wildlife forage and reduce noxious weeds. The intent of this prescribed fire entry is to 1) burn decadent grass and shrubs to encourage new growth and reproduction of palatable forage for wildlife, and decrease noxious weed populations and seed dispersal; 2) reduce accumulations of down woody fuels and ladder fuels to reduce potential for large scale wildfire and probability of active crown fire; and 3) reduce tree stand densities to improve stand health and susceptibility to disease and wildfire.

Red Hill Prescribed Fire Project

The objective of this project is to reduce activity harvest slash from Red Hill Timber Sale units and in surrounding natural fuels areas reduces ground fuel accumulations, reduce decadent grass and shrubs, decrease tree stand densities and reducing ladder fuels.

South/George Vegetation Management Project

No details on this project yet. It is the very early stages of planning. It will include timber harvest and fuels reduction projects, such as thinning from below, hand and mechanical, and prescribed fire.

Sweeney Timber Sale and Big Fire Timber Sale

These timber sales are part of the Upper Charley Subwatershed Ecosystem Restoration Project. They are currently being harvested. After harvest is complete, and units are released we will begin planning prescribed fire projects to reduce the activity slash created from the timber sale.

Skyline Danger Tree Removal Project

Columbia Complex fires spread across approximately 39,000 acres of the Pomeroy Ranger District. Effects from the fires varied widely from light underburn in some areas to areas of intense fire activity where almost all trees were killed. During fire suppression efforts, trees that posed an imminent danger were removed, however, additional standing dead, dying, and unsound green trees that represent a safety threat to the public and Forest Service personnel (both in and outside the burn footprint) are evident. In addition to areas affected by the fire, there are additional areas of danger trees outside the footprint of the fire.

Road Name	Road Number	Miles
Kendall Skyline Road	4600000	15.9
Twin Buttes Road	4600300	5.4
Slickear Recreation Residences	4600301	1.6
Godman-Teepee	4608000	6.4
	Total Miles	29.3

The following list of roads are schedule to receive operational maintenance. These are Level 2 roads designed for high clearance vehicles.

Road Number	Miles	Road Number	Miles
4600030	1.4	4600175	0.2
4600035	0.2	4608073	0.3
4600036	0.2	4608080	0.5
4600050	0.4	4608085	0.2
4600052	0.8	4608090	0.8
4600065	0.4	4608100	0.1
4600100	0.1	4608130	0.7
4600120	0.3	4608140	0.6
4600152	0.3	4610000	2.6
4600157	0.6	4610010	0.1
4600160	2.1	4610025	0.2
4600170	0.1	4610030	0.2
Total Miles	6.9	Total Miles	6.5

Chapter 6

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6.3 Signature Pages

This Columbia County Community Wildfire Protection Plan has been developed in cooperation and collaboration with the representatives of the following organizations, agencies, and individuals.

6.3.1 Local Government

6.3.1.1 Resolution of Adoption by the Board of County Commissioners

BEFORE THE BOARD OF COLUMBIA COUNTY COMMISSIONERS

In the Matter Declaring Support and)
Adoption of the Columbia County) **RESOLUTION 2008-02**
Community Wildfire Protection Plan)

WHEREAS, the Columbia County Board of Commissioners support the Columbia County Wildfire Protection Plan; and

WHEREAS, the Columbia County Board of Commissioners have participated in the development of the Columbia County Wildfire Protection Plan; and

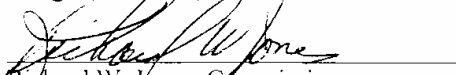
WHEREAS, the Columbia County Wildfire Protection plan will be utilized as a guide for planning as related to the National Fire Plan, the Healthy Forest Restoration Act, and other purposes as deemed appropriate by the Columbia County Board of Commissioners.

NOW, THEREFORE, BE IT HEREBY RESOLVED that the Columbia County Board of Commissioners does hereby adopt, support, and will facilitate the Columbia Wildfire Protection Plan's implementation as deemed appropriate.


PASSED AND ADOPTED by the Columbia County Board of Commissioners, State of Washington, this 22nd day of January, 2008.

**BOARD OF COUNTY COMMISSIONERS
COLUMBIA COUNTY, WASHINGTON**


Dwight Robanske, Chairman


Richard W. Jones, Commissioner


Charles G. Reeves, Commissioner

Attest: 
Leanne J. Peters
Clerk of the Board

6.3.1.2 Resolution of Adoption by the City of Dayton

BEFORE THE BOARD OF COLUMBIA COUNTY COMMISSIONERS

**In the Matter Declaring Support and)
Adoption of the Columbia County) RESOLUTION 2008-02
Community Wildfire Protection Plan)**

WHEREAS, the Columbia County Board of Commissioners support the Columbia County Wildfire Protection Plan; and

WHEREAS, the Columbia County Board of Commissioners have participated in the development of the Columbia County Wildfire Protection Plan; and

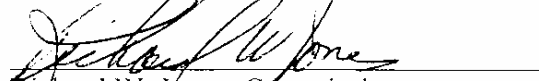
WHEREAS, the Columbia County Wildfire Protection plan will be utilized as a guide for planning as related to the National Fire Plan, the Healthy Forest Restoration Act, and other purposes as deemed appropriate by the Columbia County Board of Commissioners.

NOW, THEREFORE, BE IT HEREBY RESOLVED that the Columbia County Board of Commissioners does hereby adopt, support, and will facilitate the Columbia Wildfire Protection Plan's implementation as deemed appropriate.

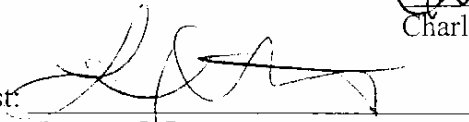
PASSED AND ADOPTED by the Columbia County Board of Commissioners, State of Washington, this 22nd day of January, 2008.

**BOARD OF COUNTY COMMISSIONERS
COLUMBIA COUNTY, WASHINGTON**


Dwight Robanske, Chairman


Richard W. Jones, Commissioner


Charles G. Reeves, Commissioner

Attest: 
Leanne J. Peters
Clerk of the Board

6.3.1.3 Resolution of Adoption by the Town of Starbuck

Resolution of Adoption by the City of Starbuck, Washington
No. #114

A resolution of the City of Starbuck declaring support and adoption of the Columbia County Community Wildfire Protection Plan.

WHEREAS, the Starbuck City Council supports the Columbia County Community Wildfire Protection Plan; and


WHEREAS, the Starbuck City Council has participated in the development of the Columbia County Wildfire Protection Plan; and

WHEREAS, the Columbia County Wildfire Protection Plan will be utilized as a guide for planning as related to the National Fire Plan, the Healthy Forest Restoration Act, and other purposes as deemed appropriate by the Starbuck City Council.

Therefore be it resolved, that Starbuck City Council does hereby adopt, support, and will facilitate the Columbia County Community Wildfire Protection Plan's implementation as deemed appropriated.

Passed and approved this 8th Day of April 2008

By the Starbuck City Council located in Starbuck, Washington



By:
Mayor, City of Starbuck



Attested by:
Clerk, City of Starbuck

6.3.2 Signatures of Participation

This Community Wildfire Protection Plan and all of its components identified herein were developed in close cooperation with the entities listed.



6/16/2008

By: Vicki Christiansen, State Forester
Washington Department of Natural Resources

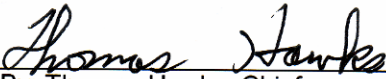
Date



2/21/08

By: Monte Fujishin, District Ranger
USDA Forest Service, Pomeroy Ranger Station

Date



2-11-08

By: Thomas Hawks, Chief
Columbia County Fire District #1

Date

By: _____, Chief
Columbia County Fire District #2

Date




2-11-08

By: Rick Turner, Chief
Columbia County Fire District #3

Date

By: _____
Columbia Conservation District

Date



2-11-08

By: Dave Fritts, Resource Manager
Guy Bennett Lumber Company

Date

By: _____
Puget Sound Energy

Date

By: _____
Confederated Tribes of the Umatilla Indian Reservation

Date

Signatures of Participation Continued . . .



By: Dave Woodall, Wildlife Biologist
Washington Department of Fish and Wildlife

26 Feb 2008

Date

By:
Bonneville Power Administration

Date

By:
U.S. Army Corp of Engineers

Date



By: Jerry Hendrickson, President
Blue Mountain Resource Conservation and Development Council

2/14/08

Date



By: Tera R. King, Project Manager
Northwest Management, Inc.

2-13-08

Date

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