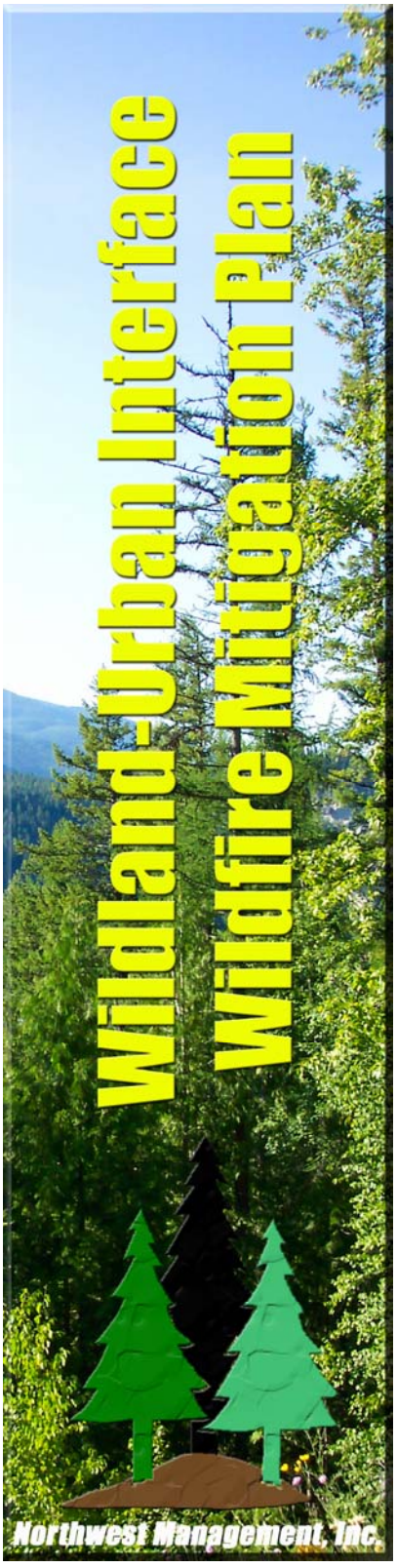

Pend Oreille County, Washington, Community Wildfire Protection Plan (*CWPP*)

November 21, 2005

Vision: *Institutionalize and promote a countywide hazard mitigation ethic through leadership, professionalism, and excellence, leading the way to a safe, sustainable Pend Oreille County.*

This plan was developed by the Pend Oreille County Interface Wildfire Mitigation Plan 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.

Pend Oreille County Commissioners
and the employees of Pend Oreille County

WASHINGTON STATE DEPARTMENT OF Natural Resources

WASHINGTON STATE UNIVERSITY
PEND OREILLE COUNTY EXTENSION

USDI Bureau of Land Management

USDA Forest Service

FIRESAFE spokane

Federal Emergency Management Agency

Kalispel Tribe of Indians

Pend Oreille Conservation District

EMD Washington Military Department Emergency Management Division

City of Newport
City of Cusick
City of Ione
City of Metaline
City of Metaline Falls

Pend Oreille County Fire Districts,
Newport Fire Department,
Cusick Fire Department,
Ione Fire Department,
Metaline Fire Department,
Metaline Falls Fire Department
&
Local Businesses and Citizens of Pend Oreille County

To obtain copies of this plan contact:

Pend Oreille County Commissioners Office
Pend Oreille County Courthouse
625 West 4th Street
Newport, Washington 99156

Phone: 509-447-4119
Fax: 509-447-0595
Website: www.co.pend-oreille.wa.us

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Chapter I: Overview of this Plan and its Development

1 Introduction

This Community Wildfire Mitigation Plan for Pend Oreille 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 Pend Oreille County, Washington. The planning team responsible for implementing this project was led by the Pend Oreille County Commissioners. Agencies and organizations that participated in the planning process included:

- Pend Oreille County Commissioners and County Departments
- City of Newport
- City of Ione
- City of Cusick
- City of Metaline
- City of Metaline Falls
- Community of Dalkena
- Community of Furport
- Community of Diamond Lake
- Community of Usk
- Pend Oreille County Fire Districts
- Washington Department of Natural Resources
- USDI Bureau of Land Management
- Washington Military Department, Emergency Management Division
- Pend Oreille Conservation District
- Washington State University Extension
- USDA Forest Service
- Pend Oreille County Highway Districts
- Pend Oreille County Disaster Management
- Northwest Management, Inc.

Pend Oreille County solicited competitive bids from companies to provide the service of leading the assessment and the writing of the **Pend Oreille County Community Wildfire Protection Plan**. Northwest Management, Inc., was also selected to provide this service to the County. Northwest Management, Inc., 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 Dr. William E. Schlosser, Mr. Toby R. Brown, with Mrs. Tera R. King.

1.1 Goals and Guiding Principles

1.1.1 Federal Emergency Management Agency Philosophy

Effective November 1, 2004, an All 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 program provide funding, through state emergency management agencies, to support local mitigation planning and projects to reduce potential disaster damages.

The new local All Hazard Mitigation Plan requirements for HMGP and PDM eligibility is based on the Disaster Mitigation Act of 2000, which amended the Stafford Disaster Relief Act to promote and integrated, cost effective approach to mitigation. Local All 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 will only review a local All Hazard Mitigation Plan submitted through the appropriate State Hazard Mitigation Officer (SHMO). Draft versions of local All Hazard Mitigation Plans will not be reviewed by FEMA. FEMA will review the final version of a plan prior to local adoption to determine if the plan meets the criteria, but FEMA will be unable to approve it prior to adoption.

This Community Wildfire Protection Plan will be added as a chapter to the Pend Oreille County All Hazard Mitigation Plan already approved by FEMA.

In Washington the SHMO is:

Mark Stewart
State of Washington Emergency Management Division
Building 20,
Camp Murray, Washington 98430-5122

A FEMA designed plan will be 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

1.1.2 United States Government Accounting Office

Technology Assessment - April 2005 – "Protecting Structures and Improving Communications during Wildland Fires"

1.1.2.1 Why GAO Did A Study

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 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.

1.1.2.2 What GAO Found

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 FEMA requirements for an All Hazard Mitigation Plan, while also adhering to the guidelines proposed in 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:

- 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 Federal Emergency Management Agency's Region 10 guidelines for a Local All Hazard Mitigation Plan as defined in 44 CFR parts 201 and 206, and as related to a fire mitigation plan chapter of a Natural Hazards Mitigation Plan.

> ***"When implemented, the 10-Year Comprehensive Strategy will contribute to reducing the risks of wildfire to communities and the environment by building collaboration at all levels of government."***
> **- The NFP 10-Year Comprehensive Strategy August 2001**

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 Pend Oreille 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 Mitigation 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 other high-priority watersheds at-risk.
2. Collaboration among governments and broadly representative stakeholders
3. Accountability through performance measures and monitoring for results.

This Community Wildfire Mitigation 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 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 under estimated, 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 be occurring concurrently with this County wide 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, communications, additional planning, new facilities, infrastructure improvements, code and/or ordinance revision, volunteer efforts, 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. To develop these plans each county should bring together the following individuals, as appropriate for each county, to make up the County Wildland Fire Interagency Group. It is important that this group has representation from agencies with wildland fire suppression responsibilities:

- County Commissioners (Lead)
- Local Fire Chiefs
- Washington Department of Natural Resources representative
- USDA Forest Service representative
- USDI Bureau of Land Management representative
- US Fish and Wildlife representative
- Bureau of Indian Affairs
- Local Tribal leaders

- Washington Military Department, Emergency Management Division
- LEPC Chairperson
- Resource Conservation and Development representative
- Washington Department of Wildlife representative
- Interested citizens and community leaders as appropriate
- Other officials as appropriate

Role of Resource Conservation and Development Councils (RC&D): If requested by the County Commissioners, the local RC&D's may be available to assist the County Commissioners in evaluating each County within their council area to determine if there is a wildland fire mitigation plan in place, or if a plan is currently in the development phase. If no plan is in place, the RC&D's, if requested, could be available to assist the Commissioners with the formation of the County Wildland Fire Interagency Group and/or to facilitate the development of wildland fire mitigation plan.

If a plan has been previously completed, the Commissioners will determine if the recommended five elements have been addressed. The Counties will provide a copy of the completed mitigation plan to the Washington Department of Natural Resources National Fire Plan Coordinator, which will include a contact list of individuals that developed the 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 council 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" MOU, and to satisfy the requirements of Task e, Goal 4 of the Implementation Plan for the 10-Year Comprehensive Strategy.

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

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

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

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

1.1.3.3.2 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, 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, determining the community's willingness and readiness to actively participate in an identified project.
- Third, determining the willingness and ability of the owner of the surrounding land to undertake, and maintain, a complementary project.
- Last, 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, 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 Pend Oreille County Community Wildfire Protection Plan is developed to adhere to the principles of the HFRA while providing recommendations consistent with the policy document which should assist the federal land management agencies (US Forest Service and Bureau of Land Management) with implementing wildfire mitigation projects in Pend Oreille County that incorporate public involvement and the input from a wide spectrum of fire and emergency services providers in the region.

1.1.4 Local Guidelines and Integration with Other Efforts

1.1.4.1 Pend Oreille 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, the Healthy Forests Restoration Act, and the requirements of FEMA for a wildfire plan chapter, a component of the County's All Hazard Mitigation Plan. This effort will utilize the best and most appropriate science from all partners, the integration of local and regional knowledge about wildfire risks and fire behavior, while meeting the needs of local citizens, the regional economy, the significance of this region to the rest of Washington and the Inland West.

1.1.4.1.1 Mission Statement

To make Pend Oreille County residents, communities, state and federal 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 concept through leadership, professionalism, and excellence, leading the way to a safe, sustainable Pend Oreille County.

1.1.4.1.3 Goals

- To 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, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy
- To provide a Community Wildfire Protection Plan that will not diminish the private property rights of landowners in Pend Oreille County
- Educate communities about the unique challenges of wildfire in the wildland-urban interface (WUI)
- Establish mitigation priorities and develop mitigation strategies in Pend Oreille County
- Strategically locate and plan fuel reduction projects
- Provide recommendations for alternative treatment methods, such as brush density, herbicide treatments, fuel reduction techniques, and disposal or removal of treated fuels

- Meet or exceed the requirements of the National Fire Plan and FEMA for a County level All Hazard Mitigation Plan

1.1.4.2 Pend Oreille County Local Hazard Mitigation Plan

The Pend Oreille County Local Hazard Mitigation Plan was developed to meet the requirements of the Disaster Mitigation Act of 2000. The Pend Oreille County Hazard Mitigation Task Force was established to make the population, neighborhoods, businesses, and institutions of the County more resistant to the impacts of future disasters. The Task Force completed a comprehensive, detailed evaluation of the vulnerabilities of the community to all types of future, natural, technological, and societal hazards in order to identify ways to make the communities of the planning area more resistant to their impacts. The Plan further addresses the mitigation goals and objectives established by the Task Force.

Mitigation planning is a dynamic process that can be adjusted when warranted to account for changes in the community and to further refine the information, judgments, and proposals documented in the local mitigation plan. Maintenance of the Local Hazard Mitigation Plan will included the Task Force's activities every five years to monitor implementation of the Plan, to evaluate the effectiveness of implemented mitigation initiatives, to revise and update the Plan to include initiatives proposed within the 5-year period, and to continually strive to engage the community in the planning process.

1.1.4.3 Pend Oreille County Comprehensive Plan

The Pend Oreille County Comprehensive Plan provides a vision for the County that indicates how it wants to develop and make public investments over the next 20 years. It analyzes land use, natural resources, public facilities, local services, population, economics, and housing to identify local issues and devise appropriate policies that will address those issues in a manner consistent with this vision. It provides the long-range focus to help decision-makers set priorities and evaluate whether development proposals are consistent with this vision. It is a tool to coordinate with other government agencies and to communicate to citizens and developers the vision of the community. The Plan provides the framework for regulatory updates, land use decisions, and public investments and will be an invaluable resource for the County as it enters the 21st Century.

The Plan is a dynamic document that represents a continuous process of setting goals and establishing priorities on actions to achieve those goals. This Plan provides for periodic updates and review of the plan. These updates will allow the County to reflect changing conditions and take advantage of new opportunities.

Chapter 2: Documenting the Planning Process

2 Initiation

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 Pend Oreille County Community Wildfire Protection Plan was developed through a collaborative process involving all of the organizations and agencies detailed in Section 1.0 of this document. The County Commissioner's Office contacted these organizations directly to invite their participation and schedule meetings of the planning committee. The planning process included 5 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 Pend Oreille County. This included an area encompassing Spokane and Stevens County and Boundary and Bonner County in Idaho to insure a robust dataset for making inferences about hazards in Pend Oreille 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 signature of the final document.

2.2 The Planning Team

Planning efforts were led by the Project Co-Directors, Dr. William E. Schlosser and Toby R. Brown, B.S., with Tera R. King, B.S., of Northwest Management, Inc. Dr. Schlosser's education includes 4 degrees in natural resource management (A.S. geology; B.S. forest and range management; M.S. natural resource economic & finance; Ph.D. environmental science and regional planning). Mr. Brown received a Bachelor of Science degree in forest resource management from the University of Washington and Mrs. King has earned a Bachelor of Science degree in natural resource management from the University of Idaho. Leading efforts from Pend Oreille County, was JoAnn Boggs, Pend Oreille County Emergency Management Director, who organized meetings, facilitated information management, and coordinated many activities associated with the development of the plan.

They led a team of resource professionals that included Pend Oreille County government, incorporated cities, city and rural fire protection, law enforcement, Washington Department of

Natural Resources, Conservation Districts, the US Forest Service, fire mitigation specialists, resource management professionals, and hazard mitigation experts.

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 All Hazard Mitigation Plans which impact multiple jurisdictions. This Community Wildfire Protection Plan is applicable to the following Jurisdictions:

- Pend Oreille County, Washington
- City of Newport
- City of Ione
- City of Cusick
- City of Metaline
- City of Metaline Falls

All of 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 municipality (e.g., meetings with County Commissioners, or City Councils in chambers).
- Special meetings at each jurisdiction by the planning committee leadership requested by the municipality involving elected officials (mayors and County Commissioners), appointed officials (e.g., County Assessor, Sheriff, City Police), 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: Dr. William E. Schlosser, Brian Vrablick, Vincent P. Corrao, Toby Brown, Tera King, and Vaiden Bloch, all of Northwest Management, Inc., and JoAnn Boggs, Pend Oreille County Emergency Management Director.

Like other rural areas of Washington and the USA, Pend Oreille County's human resources have many demands put on them in terms of time and availability. None of the elected officials (County Commissioners and City Mayors) serve in a full-time capacity; all 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 from the jurisdiction to cooperate on the planning committee and then report back to the remainder of their organization on the process and serve as a conduit between the planning committee and the jurisdiction. In the case of the Pend Oreille County Commissioners, all of the Commissioners attended the planning committee meetings as regular attendees.

2.3 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 process.

2.3.1 News Releases

Under the auspices of the Pend Oreille Interface Wildfire Planning Committee, news releases were submitted to the Spokesman Review, the Newport Miner, the Selkirk Sun, the Priest River Times, the North Columbia Monthly, and the New Cusick Newsletter. Informative flyers were also distributed around town and to local offices through the committee.

Figure 2.1. Article in the Selkirk Sun on July 18th, 2005.

Pend Oreille County, Washington Wildland-Urban Interface Wildfire Mitigation Plan

Public Meetings!

Ione Community Center: Tuesday, July 26, 7:00 PM, Refreshments Provided

Cusick Community Center: Wednesday, July 27, 12:00 PM, Lunch Provided

Newport, Create Place: Wednesday, July 27, 7:00 PM, Refreshments Provided
Community Center for the Arts, 900 West 4th St., Newport

These public meetings will address the **Wildland-Urban Interface Wildfire Mitigation Plan** for our communities. These meetings are open to the public and will include slideshow presentations from wildfire mitigation specialists working on the Pend Oreille County Wildfire Mitigation Plan. Public input is being sought in order to better frame the County's efforts of wildfire mitigation treatments, fire district resource enhancements, and public land management. This meeting will last for approximately 1.5 hours.

Please attend and participate!

Learn about the assessments of Wildfire Risk and the Wildland-Urban Interface of Pend Oreille County. Discuss ***YOUR*** priorities for how our communities can best mitigate these risks.

For more information on Wildfire Mitigation Plan projects in Pend Oreille County, contact JoAnn Boggs, Director of Pend Oreille County Emergency Management (509) 447-3731, Carol Mack WSU/ Pend Oreille County Extension (509) 447-2401, or
William Schlosser
at Northwest Management, Inc.
(208) 883-4488.

Figure 2.2 Sample media release.

Media Release

From: William E. Schlosser, Fire Mitigation Project Leader
Date: May 5, 2005
RE: Pend Oreille County Fire Mitigation

Pend Oreille County Plans to Mitigate Wildfire Risk

The Pend Oreille County Commissioners have created a Wildfire Mitigation Plan Committee to complete a Wildfire Mitigation Plan for Pend Oreille County as part of the National Fire Plan and Healthy Forests Restoration Act as authorized by Congress and the White House. The Pend Oreille County Wildfire Mitigation Plan will include risk analysis at the community level with predictive models for where fires are likely to ignite and where they are likely to spread rapidly once ignited. Northwest Management, Inc. has been retained by Pend Oreille County to provide wildfire risk assessments, mapping, field inspections, and interviews, and to collaborate with the committee to prepare the plan. The committee includes rural and wildland fire districts, land managers, elected officials, agency representatives, and others. Northwest Management, Inc. specialists are conducting analyses of fire prone landscapes and making recommendations for potential treatments. Specific activities for homes, structures, infrastructure, and resource capabilities will be proposed as part of the analysis.

One of the most important steps in gathering information about fire risk in Pend Oreille County is to conduct a homeowner's survey. Northwest Management, Inc., in cooperation with the local Washington State University Extension office, will mail a brief survey to randomly selected homeowners in the county seeking details about home construction materials, proximity to water sources, and other risk factors surrounding homes. This survey is very important to the success of the plan. Those homes that receive a survey are asked to please take the time to complete it, thereby benefiting the community overall.

The planning team will be conducting Public Meetings to discuss preliminary findings and to seek public involvement in the planning process in mid July. A notice on the date and location of these meetings will be posted in local newspapers.

For more information on the Fire Mitigation Plan in Pend Oreille County contact your County Commissioners at 509-447-4119, Joann Boggs Director of Pend Oreille County Department of Emergency Management at 509-447-3731 or William Schlosser at the Northwest Management, Inc. office in Moscow, Idaho at 208-883-4488.

2.3.2 Public Mail Survey

In order to collect a broad base of perceptions about wildland fire and individual risk factors of homeowners in Pend Oreille County, a mail survey was conducted. Approximately 232 residents of Pend Oreille County were randomly selected to receive a mail survey.

The public mail survey developed for this project has been used in the past by Northwest Management, Inc., during the execution of other Mitigation Plans. The survey used The Total Design Method (Dillman 1978) as a model to schedule the timing and content of letters sent to the selected recipients. Copies of each cover letter, mail survey, and communication are included in Appendix III.

The first in the series of mailings was sent June 2, 2005, and included a cover letter, a survey, and an offer of receiving a custom GIS map of the area of their selection in Pend Oreille County 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 this process. Each letter also informed residents about the planning process. A return self-addressed enveloped was included in each packet. A postcard reminder was sent to the non-respondents on June 8, 2005, encouraging their response. A final mailing, with a revised cover letter pleading with them to participate, was sent to non-respondents on June 21, 2005.

Surveys were returned during the months of June, July, and August. A total of 103 residents responded to the survey as of August 10, 2005. The effective response rate for this survey was 47%. Statistically, this response rate allows the interpretation of all of the response variables significantly at the 99% confidence level.

2.3.2.1 Survey Results

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

Of the 96 respondents in the survey, approximately 37% were from the Newport area, 16% from Diamond Lake, 15% were from Ione, 9% from Usk, 7% from both Cusick and Metaline Falls, with the remaining respondents from other areas in the county.

The vast majority of the respondents (99%) correctly identified that they have emergency telephone 911 services in their area. 79% of residents indicated that their address was clearly visible from the nearest public road and 97% responded that their homes were within a taxing fire district.

Respondents were asked to indicate the type of roofing material covering the main structure of their home. Approximately 29% of respondents living in a rural area indicated their homes were covered with a composite material (asphalt shingles). About 66% of these residents indicated their homes were covered with a metal (e.g., aluminum, tin) roofing material. Only 1% of the rural respondents indicated they have a wooden roofing material such as shakes or shingles.

When asked how many trees were within 75 feet of their homes 5% said none and 81% indicated less than 10. When asked how many were within 250 feet 27% responded less than 10, 19% said between 10 and 20, and 52% said more than 25.

The average driveway length of respondents to the survey was 636 feet long (0.12 miles). The longest reported was 15,840 feet (3.0 miles). Of those respondents (12%) with a driveway over ¼ mile long, approximately 43% do not have turnouts allowing two vehicles to pass. 13% of all respondents indicated that a 25 foot long vehicle *could not* turn around in their driveway. Survey recipients were also asked how wide the running surface was and what type of material it was covered with. Average driveway width of respondents is 16.7 feet, with 65% saying their drive was a gravel or rock surface, 15% saying it was paved, and 20% saying it was dirt. Approximately 73% of the respondents indicated an alternate escape route was available in an emergency which cuts off their primary driveway access.

Survey recipients were asked to report emergency services training received by members of the household. Their responses are summarized in Table 2.1.

Table 2.1. Emergency Services Training received by household.

Type of Training	Percent of Households	If yes, was it within the last 5 years?
Wildland Fire Fighting	29%	44%
City or Rural Fire Fighting	27%	22%

Table 2.1. Emergency Services Training received by household.

Type of Training	Percent of Households	If yes, was it within the last 5 years?
EMT (Emergency Medical Technician)	14%	67%
Basic FirstAid/ CPR	80%	52%
Search and Rescue	21%	33%

Nearly all respondents (99%) indicated they have some type of tools to use against a wildfire that threatens their home. Table 2.2 summarizes these responses.

Table 2.2. Percent of homes with indicated fire fighting tools in Pend Oreille County.

98% – Hand tools (shovel, Pulaski, etc.)

16% – Portable water tank

13% – Stationery water tank

50% – Pond, lake, or stream water supply close

17% – Water pump and fire hose

24% – Equipment suitable for creating fire breaks (bulldozer, cat, skidder, etc.)

Respondents were asked to complete a fuel hazard rating worksheet to assess their home's fire risk rating. An additional column titled "results" has been added to the table, showing the percent of respondents circling each rating (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	41%
	Medium size fuels (brush, large shrubs, small trees)	2	33%
	Heavy, large fuels (woodlands, timber, heavy brush)	3	26%
Slope Hazard	Mild slopes (0-5%)	1	68%
	Moderate slope (6-20%)	2	21%
	Steep Slopes (21-40%)	3	8%
	Extreme slopes (41% and greater)	4	3%
Structure Hazard	Noncombustible roof and noncombustible siding materials	1	30%
	Noncombustible roof and combustible siding material	3	53%
	Combustible roof and noncombustible siding material	7	4%
	Combustible roof and combustible siding materials	10	13%
Additional Factors	Rough topography that contains several steep canyons or ridges	+2	Average -2.0 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 districts, dozers)	-3	

Calculating your risk

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

Fuel hazard __1.8___ x Slope Hazard ___1.5___ = ____2.7____		
Structural hazard	+	____3.5__
Additional factors	(+ or -)	____-2.0__
Total Hazard Points	=	____4.2__.

Table 2.4. Percent of respondents in each risk category as determined by the survey respondents.
00% – Extreme Risk = 26 + points
03% – High Risk = 16–25 points
19% – Moderate Risk = 7–15 points
78% – 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 their property had been professionally assessed for wildfire danger in the last 5 years; only 7% said that their property

had been assessed. The second question asked if they conducted a periodic fuels reduction program near their home; a majority; 55% said that they did. Finally respondents were asked if livestock was grazed around their home and 21% indicated that there was.

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?" A strong majority, 61% of respondents, indicated a desire to participate in this type of training.

Homeowners were also asked, "How Hazard Mitigation projects should be funded in the areas surrounding homes, communities, and infrastructure such as power lines and major roads?" Responses are summarized in Table 2.5.

Table 2.5. Public Opinion of Hazard Mitigation Funding Preferences.

	100% Public Funding	Cost-Share (Public & Private)	Privately Funded (Owner or Company)
Home Defensibility Projects →	30%	32%	38%
Community Defensibility Projects →	49%	47%	4%
Infrastructure Projects Roads, Bridges, Power Lines, Etc. →	67%	14%	19%

We wish to thank all Pend Oreille County residents completing and returning these surveys.

2.3.3 Committee Meetings

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

NAME **ORGANIZATION**

- Fred Anderson ..... City of Newport
- JoAnn Boggs ..... County Department of Emergency Management
- Len Broderson ..... WA Department of Natural Resources
- Mitch Brown ..... Pend Oreille County Commissioner
- Toby Brown ..... Northwest Management, Inc.
- Matt Butler ..... USDA Forest Service
- Walt Caravan ..... City of Metaline
- Matt Castle ..... WA Department of Natural Resources
- Bruce Coleman ..... Fire District #7
- Dean Cummings ..... Pend Oreille County
- Stephen Davis ..... City of Ione
- Orin DeGroat ..... Metaline Fire Department
- Sandie Durand ..... Pend Oreille Conservation District
- Steve Gibson ..... Fire District #4
- Paul Haas ..... City of Cusick
- Steve Harris ..... WA Department of Natural Resources
- Mark Havener ..... Fire District #3
- Dave Hoisington ..... Newport Fire Department
- Susan Huntley ..... City of Metaline Falls
- Chuck Johnson ..... WA Department of Natural Resources

- Lynn Kaney ..... USDA Forest Service
- Carol Mack ..... WSU/Pend Oreille County Extension
- Dale Maki ..... Newport Fire Department
- Paul Miller ..... Metaline Falls Fire Department
- Curt Monk..... Fire District #6
- Ken Oliver ..... Pend Oreille County Commissioner
- Larry Pollock ..... Fire District #2
- Burch Schleisnor ..... Fire District #5
- William Schlosser..... Northwest Management, Inc.
- Joe Serba..... Ione Fire Department
- Chris Smith..... Fire District #8
- Rick Stone..... Fire District #2
- Eric Trimble ..... USDA Forest Service
- Jim Vander Ploeg..... Stimson Lumber Company
- Gary Weber..... USDA Forest Service
- Bill Wilburn ..... FireSafe Spokane
- Carl Wright ..... USDA Forest Service

2.3.3.1 Committee Meeting Minutes

Committee Meetings were scheduled and held from March 2005 through November 2005.

2.3.3.1.1 March 10th, 2005 – Newport, Washington

Bill Schlosser & Brian Vrablick presented a power point presentation outlining the overall Wildfire Mitigation Planning process. The slide show was over an hour long and included some general discussion on the goals of the plan, unique local considerations and state and federal requirements.

After the presentation the group then discussed the overall goals of the present committee and what other groups/governing bodies/individuals and stakeholders should be present/ represented at the committee level for the FMP.

The date for the first meeting of the Wildfire Mitigation planning committee was set for Tuesday May 3 at 10 am in the Emergency Services Building.

2.3.3.1.2 May 3rd, 2005 – Newport, Washington

Bill: open – introduction and sign-in sheet.

Handouts- National Fire Plan, Changing role and needs of local rural and volunteer fire departments in the WUI, State monthly hazardous news update

Toby: Mission, Vision & Goals: Toby discussed each and gave overview of the MVG. Discussion from the group: USFS/BLM definition of WUI is critical. Add goal of defining WUI. DNR & USFS here. What about NIPF fuels discussion about Forest Practices Act impacting on home defensibility projects? How do we encourage home defensibility treatments around homes if they have to get/go through complicated costly (pay fee) compliance regulations? Noted that this is only in the case of a homeowner selling a product from this treatment DNR can partner with homeowner groups to mitigate high risk areas. Need to identify impediments to our success and goals. We can make policy recommendations to State as well as County.

Bill: Led an in-depth discussion of how NMI defines the WUI area based on structure density. Bill stressed that this is only one part of the overall WUI definition, focusing on structure and by extension population for the protection of people and structures. Infrastructure must be looked at as another layer in the WUI definition. Bill handed out a written description of the WUI defining process.

For critical infrastructure the State plan defines primary access roads and state and interstate highways. For other critical infrastructure, wells, surface water watersheds etc. contact PUD for location of surface water- Chuck Frandrup is the best contact. Chuck headed up the committee that wrote the counties all hazard mitigation plan.-

For additional county GIS data contact Larry Hamel at P&Z with the county.

A general discussion ensued about the WUI:

Impact on USFS. The USFS has to adopt the WUI as defined by the county. This will have a significant impact on the work the USFS will do on their ownership within the WUI. This will help them define the location of future projects. Positive feedback from the agencies (USFS/DNR) on the WUI definitions and mapping progress to date. Some concern about cooperation with adjacent counties (i.e. evacuation routes/ infrastructure doesn't end at county line- has to carry into the next county). Part of the final planning process will be to look at adjacent counties plans and try and tie them into the PO FMP plan.

Also there was the request to house some of the maps electronically so members of the committee can access them. NMI FTP site is not a good method for this. Possibly Tom Macarfry at Public Works office can do this. Paper maps will be posted at the courthouse for public awareness.

Larry Hamel should have additional data sets for fire districts. Bill and Toby will contact him after today's meeting.

Toby: Described Press Release and took comments on edits. WSU will be sending a complete media mailing list to NMI.

Walked through public mail survey. Answered questions and talked about some possible additional questions. No additional questions were decided on at the meeting. Q20 will change the number of years from 7 to 5.

Review of Community Assessments and which communities were completed

DNR shape file has response times for fire equipment for the various communities.

Need to add/ rearrange assessment for the following communities:

- Diamond Lake
- Scotia Valley + Deer Valley + Elk (?)
- Sacheen Lake
- Camp Spalding area
- River Bend Loop
- Dalkena
- Bead Lake + Marshall Lake + Furport
- Kalispel Reservation

Another possible assessment should be a general write up of the development along the river. Along river: getting lots of structures- how to deal with assessments vs. risk

Thursday is Fire Chiefs Training Council Meeting. Chief Mark will share community assessments.

June 9 Fire Chiefs Meeting: JoAnn Boggs will share the assessments with that group.

Edits due by May 30 to NMI.

Reminder to send logos to NMI.

The next committee meeting was set for June 21st at 9-12 in the Emergency Services conference room.

2.3.3.1.3 June 21st, 2005 – Newport, Washington

Toby: open – introduction and sign-in sheet.

Handouts- Agenda, Contact Lists, Media Release List, Updated Community Assessments, Completed R&C list, Pend Oreille County Treatment Recommendations and Prioritization of Mitigation Activities.

The meeting started off with a discussion about the participation of the incorporated cities and local tribes. Names of the mayors will be added to the contacts list. The cities have been notified of the planning effort and the local County Fire chiefs are in contact with their city counterparts. The Kalispel Tribe has been on the contact list, but they are starting their own separate planning effort which will be referenced by this county plan. Among those that will be added to the contacts list are: Mayor of Newport, Mayor and Fire Chief of Cusick, Mayor of Ione, Mayor of Metaline and Mayor of Metaline Falls. Most of these contacts were copied from the local paper provided by Commissioner Ken.

The county is in the process of rewriting their Comprehensive plan. NMI needs to obtain a copy of the current plan.

The Public Mail Survey was mailed the first week of June. Approximately 45 surveys have been returned. Reminder post cards will be mailed today and an additional reminder survey will be sent in 10 to 14 days.

Next on the agenda was the discussion on the updated Community Assessments. At the last meeting several communities were noted for not having assessments. These communities have been added and copies of the assessments were handed out. Electronic versions will be E-mailed by Toby in the next week.

A discussion ensued regarding if all the communities are now covered in the assessment. After several minutes of discussion it was decided that the area known as “Tiger Inlet” just south of Ione should be added to the Ione write up. Bill noted the area on the GIS map.

Also the importance and use of the Ione airport needs to be added to the FD #2 R&C. Larry will add and e-mail to Toby.

Several copies of the community assessments were returned to Toby with corrections. Mark noted the Newport section 1.3.9.4 should state “Newport fire Department”.

Also Sandie gave Toby a cd with the Pend Oreille WRIA 62 Watershed Plan. This will be incorporated into the fire plan.

Next agenda item was the Resource and Capabilities assessments that the fire districts, DNR and USFS are to provide to the plan. Toby handed out a sheet noting which he has received and which are still missing. The importance of these to the overall planning process was stressed by both Bill and Toby.

Toby handed out copies of FD #2 R&C as an excellent example of an R&C. Note that for the county Districts 4-8 are missing. Toby will contact the Spokane district #4 (Ed Lewis 461-4500) for district #1 (under contract).

The DNR has turned in R&C's for the two districts covering PO County.

USFS Priest Lake RD has turned in their R&C, Newport District is still missing.

Discussion ensued as to the need for R&C's from the City of Newport Fire District and if any protection is provided by the USAF Survival School. No R&C is needed from the City of Newport, and the USAF does not provide any direct fire equipment. In the past training has been done by the USAF and DNR to utilize local USAF helicopters during larger forest fires. No current USAF resources are located in the county. Homeland security personnel are located in the county and may be available for communications help, but very limited use for wildfire response.

Public meetings: The committee felt that three Public meetings in the communities of Ione, Cusick and Newport would cover the county and provided the public with a personal forum for making comments on the Fire Planning process. After much discussion the potential dates for public meetings was set for the week of July 26th-28th. Toby will contact several different venues that were suggested for each county and send an initial schedule to the committee. Press releases for the public meetings need to get out the week of July 4th.

BILL: Bill began a discussion on mapping updates since the last meeting. He reviewed the B&W ortho photos and mentioned that the county (JoAnn Boggs) is currently purchasing new color air photos. Hopefully they will be available for the public meetings.

The fire start and extent maps had also been updated. The committee was in agreement that for those fires which do not have mapped fire extent, that circles with the appropriate scale size could be used in helping to represent fire history in the county.

Next Bill reviewed the ownership map NMI has created for this project. The map presents an overall ownership by industrial private, federal, state and county. Slight gaps between ownership layers are due to different projections. Bill recommended that the county continue with its cadastral data layer.

Bill then asked various members of the committee to note areas on the map where specific fuels treatments are needed. Everyone agreed that the area south of Ione, Tiger Inlet, and Rivers Ranch Road are a high priority for fuels management. Additional potential project areas were highlighted in blue and orange.

Past WUI treatment areas are needed from the USFS and DNR. USFS Priest Lake will get us their past treatments. DNR will track down what they have done, but will need to follow up when Steve Harris returns.

Bill then reviewed the Treatment Recommendation handout. Bill noted that these are just the summary of ideas that we have seen on various Resource and Capabilities assessments or that have been discussed during previous meetings.

WUI Safety and Policy.

- There are several approaches to this, informational, planning and zoning and regulatory. The committee felt that an informational approach similar to the "New Code of The West" would be the best approach.
- Fire districts can currently comment on developments through the county planning department. A better method for informing the fire chiefs of building permit applications and plans would help the chiefs make more informed comments.

- Also a continuing WUI advisory committee as a yearly meeting as part of the fire chiefs meeting.
- The county has adopted the International Building Code (2004 IBC) in 2005.
- They have NOT adopted the International Fire Code. The committee felt there should be a county wide discussion on the pros and cons of adopting the International Fire Code.

People and Structures.

- Education regarding the need and process for DNR permits when conducting commercial logging operations even for wildfire hazard reduction.
- Public education (Firewise) on how to improve the defensible space around home sites. WSU/Extension would be willing to help with this.
- Access improvements. Limiting road surfaces due to grade, switchbacks, lack of turnouts, width, overhead obstructions etc.
- Primary and Secondary road side fuel treatments. Currently Highway 31 is being widened and fuels reduced.

Infrastructure

- Public water supplies. See WRIA Plan. Protection of drainages where surface water is used for domestic drinking water. To a lesser extent also for irrigation.
- High Tension Power lines. PUD has an active management program of their power line right of ways clearing brush and danger trees.
- Bridge at Usk. This bridge is in danger of being closed by the state due to its substandard condition. Currently truck traffic can only go one way with one large vehicle on the bridge at any time. Closure of this bridge would greatly reduce the ability of fire personnel and equipment to move from one side of the river to the other.

Resource and Capability Enhancements

- Communications. Currently being worked on by JoAnn, she will put together a summary on where the communications plan is at for the final plan.
- Dry Hydrants Approximately 15 have been installed across the county. An additional 30+- sites are needed. The chiefs should put together a list of preferred locations.
- Identify and develop helicopter dipping sites.
- Ione Airport. Potential site for fixed wing and helicopter support and watering site for the north end of the county.
- No mans land. Expanding current fire districts to cover structures outside of current fire district boundaries.

The next meeting was scheduled for Tuesday August 23rd, 9 am in the DEM basement meeting room. This meeting will be a review of the Committee Draft of the plan.

2.3.3.1.4 August 23rd, 2005 – Newport, Washington

William Schlosser, Northwest Management, Inc., began the meeting by making introductions and passing around the sign-in sheet. The purpose of this meeting was to hand out the DRAFT-Pend Oreille County Community Wildfire Protection Plan. Bill went over the general lay-out of the plan and asked the committee to send Northwest Management, Inc. specific comments and edits by September 21st, 2005.

2.3.3.1.5 September 26, 2005 – Newport, Washington

William Schlosser and Toby R. Brown from NMI conducted this meeting.

Bill: open –Review of 2nd Committee draft, changes, updates and comments received. Introduction and sign-in sheet.

Handouts- Committee comments list.

Bill: Led a review of the new FRCC/HFR data and maps based on one information received from the forest service.

From this review and discussion several ideas/ suggestions were discussed for addition to the plan.

- Under table 4.1 break out some of the miscellaneous category. If possible so a sub table hitting the major "miscellaneous" items or at least a paragraph or two discussion of what they are and some of the educational opportunities.
- Define and discuss in the document treatments along high tension power lines, add a "WUI" corridor along power lines outside of the WUI.
- Add a suggestion to Sec 5 on placing power lines underground.
- Look on WSP website for State Fire marshal fire start data by county from fire districts.

Electric companies around the state are motivated to maintain their power lines ROW as DNR now changers the companies for fires started due to negligent ROW maintenance.

Next Bill reviewed the committee comments that were received. NMI has already incorporated many of the "no brainier" recommendations that were related to spelling, grammar, factual changes/additions/updates. A couple of items were discussed specifically:

- Pg 10 of the comments the section on categorical exclusions. This language should be placed in the document in chapter 5 Regional land management recommendations.
- Try and track down the Transformers layer from USFS or PUD for addition to NMI maps.
- Bill should send the Repeater table to Carl and Joann so they can double check that all known repeater sites are listed/mapped in the plan.

There was a final discussion about the WUI as mapped by NMI and a suggested methodology forwarded by the USFS. Bill presented the USFS suggestion on the overhead projector and had the NMI wui map in a paper copy on the wall. After a general discussion the committee agreed to go with the NMI WUI map. In looking more closely at the map several suggestions were made. Among them:

- To and an "infrastructure WUI" to add a "WUI" corridor along high tension power lines.
- Add to the document wording on how at a project level along power lines the project would have to determine how far from the power lines the project needs to extend based on site specific conditions, slope fuel type, aspect etc.
- To add surface (drinking water) watersheds where they extend past the WUI lines
- 100 ft WUI buffer around repeaters. Mention in the document the need to keep repeater sites protected (fuel reduction).
- Add a recommendation that there be a single "depository" for all known communication sites (repeaters/cell phones/ etc.) in the county.

The final discussion was on the readiness of the plan to go out for a public review. The commissioners present and then committee felt the plan was read for the public to review it. I was decided that the plan should be updated with today's recommendations and made ready to go out to the public from October 3 to Nov. 4th.

Electronic copies of the plan need to be made available to JoAnn who will see that the plan is on the county website. Also they will do the printing to distribute to the local city halls, USFS office and libraries. Joann will also see that all interested parties receive a copy.

A signing party was tentatively scheduled form the morning of November 14th during a normal commissioners meeting. Invitations should be sent out to all signatories to be present to sign the plan. Including the DNR state Forester.

2.3.4 Public Meetings

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

The initial schedule of public meetings included three locations in the county and were attended by a number of individuals on the committee and from the general public. The public meeting announcement is attached below in Figure 2.9.

Figure 2.3. Public meeting announcement for June 2005 meetings.

WASHINGTON STATE UNIVERSITY
PEND OREILLE COUNTY EXTENSION

Pend Oreille County, Washington Wildland-Urban Interface Wildfire Mitigation Plan

Public Meetings!

Ione Community Center:	Tuesday, July 26, 7:00 PM, Refreshments Provided
Cusick Community Center:	Wednesday, July 27, 12:00 PM, Lunch Provided
Newport, Create Place:	Wednesday, July 27, 7:00 PM, Refreshments Provided Community Center for the Arts, 900 West 4th St., Newport

These public meetings will address the **Wildland-Urban Interface Wildfire Mitigation Plan** for our communities. These meetings are open to the public and will include slideshow presentations from wildfire mitigation specialists working on the Pend Oreille County Wildfire Mitigation Plan. Public input is being sought in order to better frame the County's efforts of wildfire mitigation treatments, fire district resource enhancements, and public land management.

This meeting will last for approximately 1.5 hours.

Please attend and participate!

Learn about the assessments of Wildfire Risk and the Wildland-Urban Interface of Pend Oreille County. Discuss ***YOUR*** priorities for how our communities can best mitigate these risks.

For more information on Wildfire Mitigation Plan projects in Pend Oreille County, contact JoAnn Boggs, Director of Pend Oreille County Emergency Management (509) 447-3731, Carol Mack WSU/ Pend Oreille County Extension (509) 447-2401, or William Schlosser at Northwest Management, Inc. (208) 883-4488.

2.3.4.1 July 26th, 2005, Ione

Presented by Dr. William Schlosser, assisted by Jim Colla, Northwest Management, Inc.,

Attendees: 14

Dr. Schlosser opened the meeting at 7:00 p.m. by giving the history, background, purpose and objectives of the Pend Oreille County plan and explained the purpose of the meeting was to obtain public input on proposed plan elements. He then presented background information and preliminary analyses on individual plan elements, providing opportunity for comment and answering questions throughout the presentation.

Comments related to the plan

- Who has to sign the plan? County Commissioners and City heads, fire chiefs are not required to sign, but their endorsement by signature is sought.
- What is the relationship between the National Fire Plan and FEMA mitigation plan requirements? Basically both require the same elements, although details may vary. This plan will integrate all requirements under the National Fire Plan, FEMA and HFRA into one comprehensive and all-inclusive document
- When "industry" is referred too, who do you mean and why is their involvement important. Industry means the major forest landowners, e.g., Stimson, Riley Creek, Forest Capitol; their involvement is important because of their critical role in reducing fire risk through their forest management actions.

Comments related to WUI areas

- In this county, fire starts are typical 60% human caused and 40% lighting, western US averages are about 25% human. Accessibility in the county is one reason why human caused fires are up over regional averages, although this rate has come down over the last decade due to prevention efforts. In addition, increased vigilance and enforcement of fire restriction regulations by FPDs has helped.
- WUI map generally seems to capture where the highest risk areas are, but is not complete, how do we add to that information? Draw what you think are critical areas on the map.

Comments related to preparedness

- We either need more crossings of the Pend Oreille River, which isn't likely to happen anytime soon, or more equipment and fire stations on the east side.
- Defensible space code is non-existent and not something many people are interested in or think is needed.
- FPDs don't cover the Kalispel Tribe areas.
- A station and equipment is needed in Tiger, one is planned to be built at River Bend, but funds are lacking. If stations are built, we'll get volunteer firefighters, as it is now, there is no place for them to meet, train, or store equipment.
- WDNR and the USFS have resources stationed throughout the county, and the ability to get significant additional resources as the need arises prior to or during a fire bust.
- Our experience is FEMA won't fund a building or much else for that matter, as we are too small to worry about in the national picture, will this plan help? To be eligible to obtain funding, this plan has to be complete and signed off; other local governments have received funding by participating in the fire plan program.
- We have trouble getting surplus equipment from the USFS, DNR, or larger structure departments without going through an auction house and paying big money we don't

have. Policy changes should be made that allows small and financially strapped FPDs the ability to obtain surplus equipment at a reasonable cost.

Comments related to public involvement

Get the plan drafted and out for review as soon as possible as it is on target.

2.3.4.2 July 27th, 2005, Cusick

Question--Paul Seiracki, SCA How do WUI boundaries on USFS land compare with default? How derived? -Had concerns about extent of rural zone beyond structures.

Discussion- How to extend the boundaries of FD protected areas around Cusick?

M.H.- FD #4 working with reservation and covers Cusick under contract. FD#6 covers some of the reservation area.

Fire District Discussion- Concern with "no man's land"--especially no protection south of Newport.

How are FD boundaries set?

Mark H –some historical basis for boundaries based on where people lived at time. More recently, some owners don't want to opt in and have tax obligations.

Fire Districts can bill landowners for services rendered if outside districts.

Review of FD needs

FD#2 spread very thin—worst situation of all

FD#3 better, building new station at Deer Valley and Highway 211

FD # 6 and 2 also looking at new buildings

Biggest concern of all districts is recruitment and retention of volunteers.

Mutual aid agreements are in place, they are working on automatic aid agreements along boundaries.

Federal situation--Lynn Kaney

2 stations in county with 3 people at each, and 2 engines. Can acquire more resources when needed.

State situation--Chuck Johnson

DNR has two engines south of county, 12 in Spokane County, 8 in Stevens, a plane at Deer Park and 10 helicopters to be staged where needed.

Both emphasized that neither state nor Feds do structure protection—they have no resources to enter or save houses.

CWPP progress- draft expected out mid September to mid October

Mitch Brown—commented that project seems to be on track

Chuck Johnson said Pend Oreille County is ahead of other counties in NE Washington, which should have us at head of line for implementation funds. Ferry is about ready to hire a consultant with NFP funding. Stevens and Okanogan expect to begin during next year.

2.3.4.3 July 27th, 2005, Newport

Presented by Dr. William Schlosser, assisted by Jim Colla, Northwest Management, Inc.,

Attendees: 12

Dr. Schlosser opened the meeting at 7:00 p.m. by giving the history, background, purpose and objectives of the Pend Oreille County plan and explained the purpose of the meeting was to obtain public input on proposed plan elements. He then presented background information and preliminary analyses on individual plan elements, providing opportunity for comment and answering questions throughout the presentation.

Comments related to the plan

- Who has to sign the plan? County Commissioners and City heads, fire chiefs are not required to sign, but their endorsement by signature is sought.
- What is the relationship between the National Fire Plan and FEMA mitigation plan requirements? Basically both require the same elements, although details may vary. This plan will integrate all requirements under the National Fire Plan, FEMA and HFRA into one comprehensive and all-inclusive document.
- The historic fire regimes map is too broad brush to be of much use and doesn't reflect the actual nature of the vegetation. This map should be redone as some of the data may not be the best available, will you revise? Yes, provided the agencies submit the most up to date information and on condition class and fire history.
- Does "pre-European" condition include Native American burning? Yes.

Comments related to WUI areas

- In this county, fire starts are typical 60% human caused and 40% lighting, western US averages are about 25% human. Accessibility in the county is one reason why human caused fires are up over regional averages, although this rate has come down over the last decade due to prevention efforts. In addition, increased vigilance and enforcement of fire restriction regulations by FPDs has helped.
- WUI map generally seems to capture where the highest risk areas are, but is not complete, how do we add to that information? Draw what you think are critical areas on the map.
- What does the yellow color describe as it implies areas of higher risk? Rural areas that are sparsely populated.
- Many of the yellow areas have no homes, or are located on federal lands, so these bounds should be redrawn, is that possible? These bounds were drawn using a mathematical model based on density and spacing of structures, we can take another look.
- Much of the treatment in these yellow areas would have to involve removal of sub-merchantable timber for which there is no market. This is a large area, how would this plan address this very large and difficult task? The plan will help identify priority treatment areas, in rural (yellow) areas it will not be possible to treat everything, but it is possible to focus on creating defensible space around structures. We can only reduce, not eliminate, risk from fire.

Comments related to preparedness

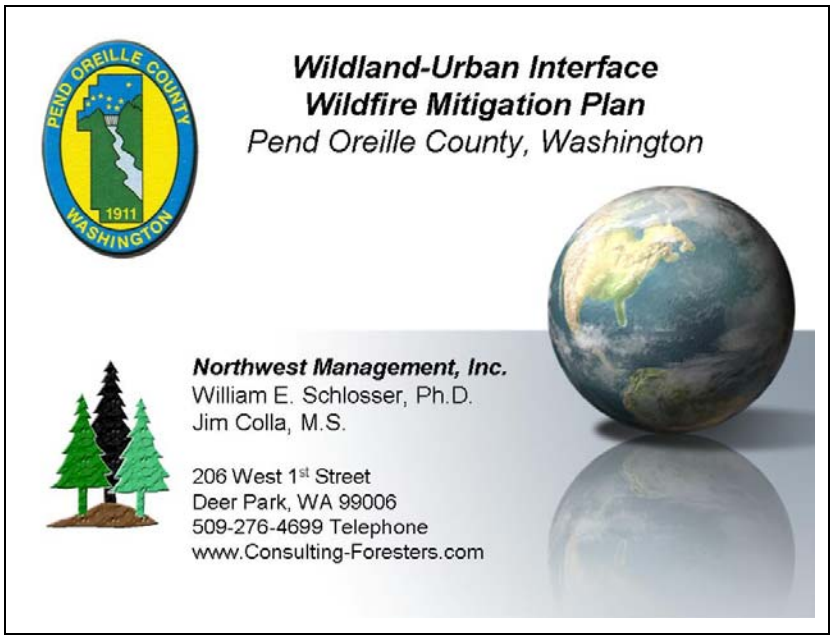
- While people may or may not want fire protection, they are reluctant to raise their taxes to pay for it or endorse code to improve chances for structure survival.

- Why is FPD#2 so big? It is one of the first FPDs in the area and much of this area is included for EMS response.
- Is protection provided on Kalispel Tribe lands? FPD#4 has an agreement to provide fire protection, this done through a fee.
- Relatively speaking, FPD#4 is in good shape equipment and personnel wise, but lacks training in wildland firefighting and has limited extended attack capabilities.
- WDNR and the USFS have resources stationed throughout the county, and the ability to get significant additional resources as the need arises prior to or during a fire bust.
- What are examples of safety and policy recommendations? County planning and zoning changes.
- The county comprehensive is under revision and more effort should be undertaken to link this plan with that effort, the fire chiefs association may be able to help carry that message.

Comments related to public involvement

Get the plan drafted and out for review as soon as possible as it is on target.

Figure 2.4. Public meeting slideshow overview.



The public meeting slide show (title slide above) is outlined below.

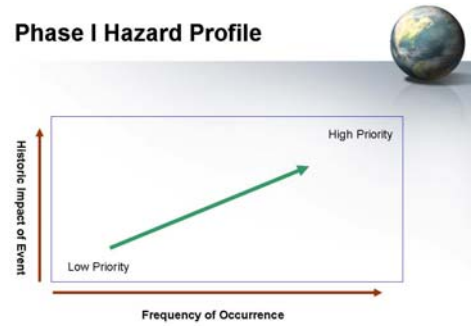
Table 2.6. Public meeting slide show.

Slide 1

Slide 2

Slide 3

Slide 4

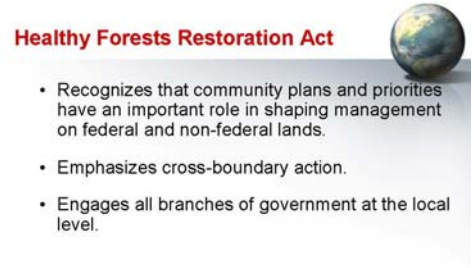


Slide 5

Slide 6

Slide 7

Slide 8



Slide 9

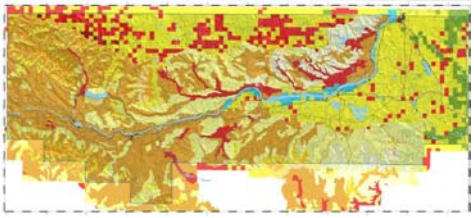
Key Issues from HFRA

- Where is the Wildland-Urban Interface?
- How should federal agencies prioritize their $$$ and projects for community protection?
- What is the role of individuals and communities in reducing their own risk?

Slide 10

Historic Fire Regime

Slide rotated for display, in the public meeting slideshow it was full width of the screen and scrolled to show detail.



Slide 11

Combining Efforts

- **Federal Efforts**
  - National Fire Plan
  - Healthy Forests Restoration Act
  - Federal Emergency Management Agency
- **State Efforts**
  - Statewide Implementation Efforts
  - EMD: Homeland Security
- **The Goal is Hazard Reduction (eg., *FireWise*)**
  - Protection of People and Structures
  - Protection of Infrastructure
  - Protection of Economy & Way of Life
  - Protection of Ecosystems

Slide 12

Recommendations

- WUI Safety & Policy
- People & Structures
- Infrastructure
- Resources & Capabilities
- Regional Land Management Recommendations

Slide 13

Pend Oreille County, Washington

Slide 14

Topographic Relief

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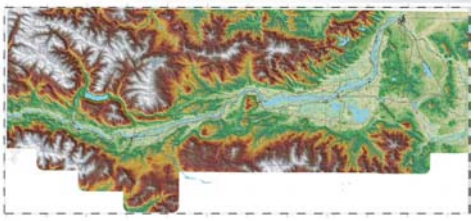

Slide 15

Aerial Photography

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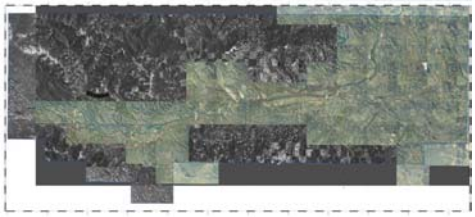

Slide 16

Land Ownership

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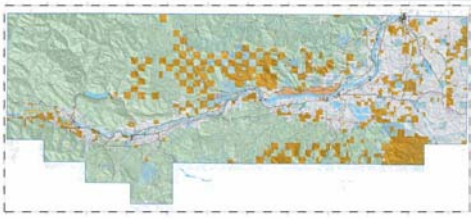

Slide 17

Past Wildfires

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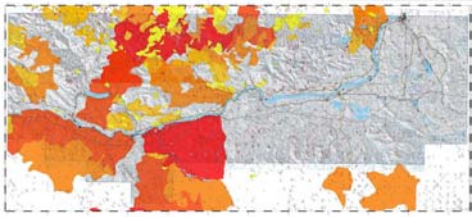

Slide 18

Historic Fire Regime

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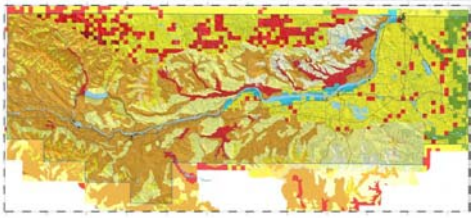

Slide 19

Wildland-Urban Interface

- **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
- **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.

Slide 20

Defining Pend Oreille County's Wildland-Urban Interface

- Unique to each area & it changes over time
- Based on where structures are currently located
- Uses mathematical formulae and geospatial relationships to visually represent where the WUI exists
- *When you see it, you'll understand what we mean*

Slide 21

Wildland-Urban Interface

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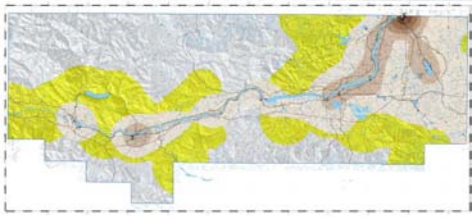

Slide 22

Preparedness

- City Fire Protection
- Rural Fire Protection
- Wildland Fire Protection

Slide 23

Rural and City Fire Protection

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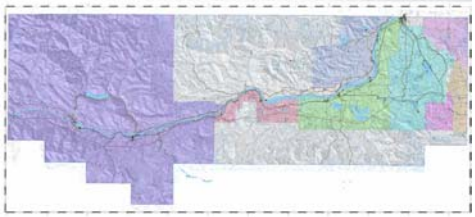

Slide 24

Proposed Treatments

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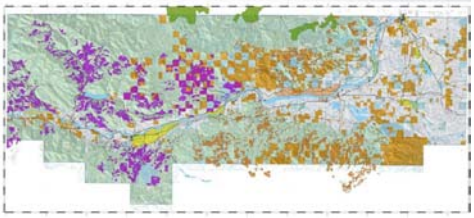


Slide 25

Potential Treatment Areas

Area	Acres
Clark Creek Defensible Space Treatment Area	101
Ione Community Defensible Space Treatment Area	1,793
Tiger Community Defensible Space Treatment Area	4,195
Blueside Community and Roadside Treatment Area	1,687
LeClerc Creek Community Defensible Space	137
Furport Community Defensible Space Treatment Area	1,190
Bead Lake Community Defensible Space	141
Marshall Lake Community Defensible Space	61
Davis Lake Community Defensible Space	69
Sacheen Lake Community Defensible Space	1,610
Diamond Lake Community Treatment Area	802
Coyote Trail Community Treatment Area	660
Newport-South Community Defensible Space	283
Newport-West Community Defensible Space	152
Newport-Northwest Community Defensible Space	118

Slide 26

Public Involvement

- Public Mail Survey was sent to about 235 households in Pend Oreille County
  - Response rate of 40% currently
- Monthly Planning Committee Meetings
- Public Meetings around the county (x3) this week
- Public Review of the DRAFT Plans will be facilitated once all sections have been completed and reviewed by the committee

Slide 27

Recommendations

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

Slide 28

Your Input

- Maps on the Walls – Mark them up!
- Talk to one of the planning committee members,
- Let us know your ideas and concerns,
- Make this YOUR Wildfire Mitigation Plan

- Thank you for attending and participating! Please visit with us.

Slide 29

2.3.5 Documented Review Process

Review and comment on these plans 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 2005, the committee met to discuss findings, review mapping and analysis, and provide written comments on draft sections of the document. During the public meetings attendees observed map analyses, photographic collections, and discussed general findings within the Community Wildfire Protection Plan.

The first draft of the document was prepared after the public meetings and presented to the committee on August 23rd, 2005, for a full committee review. The draft document was released for public review on September 28th, 2005. The public review period remained open until November 4. Comments received during the public review period have been summarized in the Appendix to the plan, including the edit actions taken. The adoption of the plan was advertised by the Pend Oreille County Board of County Commissioners for a formal public hearing on November 21, 2005. The CWPP was formally adopted by the Board on that date.

2.3.6 Continued Public Involvement

Pend Oreille County is dedicated to involving the public directly in review and updates of this Community Wildfire Mitigation Plan. The Pend Oreille County Commissioners, through the Wildland-Urban Interface Wildfire Mitigation Committee are responsible for the annual review and update of the plan as recommended in the "Recommendations" section of this document.

The public will have the opportunity to provide feedback about the Plan annually on the anniversary of the adoption of this plan, at the meeting of the County Commissioners. Copies of the Plan will be catalogued and kept at all of the appropriate agencies in the county. The existence and location of these copies will be publicized. Instructions on how to obtain copies of the plan will be made available on the County's Internet web site. The Plan also includes the address and phone number of the County Emergency Management Director, responsible for keeping track of public comments on the Plan.

In addition, copies of the plan and any proposed changes will be posted on the county website. This site will also contain an email address and phone number to which people can direct their comments and concerns.

A public meeting will also be held as part of each annual evaluation or when deemed necessary by the Wildland-Urban Interface Wildfire Mitigation Committee. The meetings will provide the public a forum for which they can express concerns, opinions, or ideas about the Plan. The County Public Information Officer will be responsible for using county resources to publicize the annual public meetings and maintain public involvement through the public access channel, webpage, and newspapers.

Chapter 3: Pend Oreille County Characteristics

3 Background and Area Description

3.1 Demographics

Pend Oreille County reported an increase in total population from 8,915 in 1990 to 11,732 in 2000 with approximately 4,633 households. That is a 32% county growth rate or an increase of about 3% per year. Pend Oreille County has five incorporated communities. 2000 Census Bureau information is available for three of them; Newport (pop. 1,888), Ione (pop. 506), and Cusick (pop. 211). Over 16% of the total county population resides in Newport. Unincorporated communities include Dalkena, Usk, Diamond Lake, and Furport. The total land area of the county is roughly 1,425.32 square miles (912,204.8 acres).

Table 3.1 summarizes some relevant demographic statistics for Pend Oreille County.

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

Subject	Number	Percent
Total population	**11,732**	**100.0**
SEX AND AGE		
Male	5,931	50.6
Female	5,801	49.4
Under 5 years	639	5.4
5 to 9 years	861	7.3
10 to 14 years	970	8.3
15 to 19 years	896	7.6
20 to 24 years	371	3.2
25 to 34 years	952	8.1
35 to 44 years	1,840	15.7
45 to 54 years	2,002	17.1
55 to 59 years	787	6.7
60 to 64 years	644	5.5
65 to 74 years	1,073	9.1
75 to 84 years	569	4.8
85 years and over	128	1.1
Median age (years)	42.4	(X)
18 years and over	8,648	73.7
Male	4,351	37.1
Female	4,297	36.6
21 years and over	8,275	70.5
62 years and over	2,142	18.3
65 years and over	1,770	15.1
Male	867	7.4

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

Subject	Number	Percent
Female	903	7.7
RELATIONSHIP		
Population	**11,732**	**100.0**
In households	11,632	99.1
Householder	4,633	39.5
Spouse	2,678	22.8
Child	3,312	28.2
Own child under 18 years	2,703	23.0
Other relatives	431	3.7
Under 18 years	252	2.1
Nonrelatives	578	4.9
Unmarried partner	272	2.3
In group quarters	100	0.9
Institutionalized population	80	0.7
Noninstitutionalized population	20	0.2
HOUSEHOLDS BY TYPE		
Households	**4,633**	**100.0**
Family households (families)	3,265	70.5
With own children under 18 years	1,355	29.2
Married-couple family	2,693	58.1
With own children under 18 years	912	19.7
Female householder, no husband present	349	7.5
With own children under 18 years	269	5.8
Nonfamily households	1,368	29.5
Householder living alone	1,162	25.1
Householder 65 years and over	471	10.2
Households with individuals under 18 years	1,451	31.3
Households with individuals 65 years and over	1,722	37.2
Average household size	2.51	(X)
Average family size	2.97	(X)
HOUSING TENURE		
Occupied housing units	**4,639**	**100.0**
Owner-occupied housing units	3,589	77.4
Renter-occupied housing units	1,050	22.6
Average household size of owner-occupied unit	2.54	(X)
Average household size of renter-occupied unit	2.40	(X)

(X) Not applicable
[1] Other Asian alone, or two or more Asian categories.
[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.
[3] In combination with one or more other races listed. The six numbers may add to more than the total population and the six percentages may add to more than 100 percent because individuals may report more than one race.

Source: U.S. Census Bureau, Census 2000 Summary File 1, Matrices P1, P3, P4, P8, P9, P12, P13, P,17, P18, P19, P20, P23, P27, P28, P33, PCT5, PCT8, PCT11, PCT15, H1, H3, H4, H5, H11, and H12.

3.2 Socioeconomics

Pend Oreille County had a total of 4,639 occupied housing units and a population density of 8.4 persons per square mile reported in the 2000 Census. Ethnicity in Pend Oreille County is distributed: white 93.5%, black or African American 0.1%, American Indian or Alaskan Native 2.9%, Asian 0.6%, Hispanic or Latino 2.1%, two or more races 2.0%, and some other race 0.6%.

Specific economic data for individual communities is collected by the US Census; in Pend Oreille County this includes Newport, Ione, and Cusick. Newport households earn a median income of $25,709 annually, Ione has a median income of $24,083, and Cusick reported a median income of $14,000, all of which compares to the Pend Oreille County median income during the same period of $31,677. Table 3.2 shows the dispersal of households in various income categories in Pend Oreille County.

Table 3.2. Income in 1999.	**Pend Oreille County**	
	Number	**Percent**
Households	4,633	100.0
Less than $10,000	629	13.6
$10,000 to $14,999	450	9.7
$15,000 to $24,999	774	16.7
$25,000 to $34,999	661	14.3
$35,000 to $49,999	823	17.8
$50,000 to $74,999	751	16.2
$75,000 to $99,999	303	6.5
$100,000 to $149,999	176	3.8
$150,000 to $199,999	31	0.7
$200,000 or more	35	0.8
Median household income (dollars)	31,677	(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 Pend Oreille County, a significant number, 13.6%, of families are at or below the poverty level (Table 3.3).

Table 3.3. Poverty Status in 1999 (below poverty level).	**Pend Oreille County**	
	Number	**Percent**
Families	**445**	**(X)**
Percent below poverty level	(X)	13.6
With related children under 18 years	367	(X)
Percent below poverty level	(X)	25.7
With related children under 5 years	145	(X)
Percent below poverty level	(X)	30.3
Families with female householder, no husband present	209	(X)

Table 3.3. Poverty Status in 1999 (below poverty level).	Pend Oreille County	
	Number	Percent
Percent below poverty level	(X)	59.9
With related children under 18 years	194	(X)
Percent below poverty level	(X)	66.2
With related children under 5 years	105	(X)
Percent below poverty level	(X)	83.3
Individuals	**2,095**	**(X)**
Percent below poverty level	(X)	18.1
18 years and over	1,244	(X)
Percent below poverty level	(X)	14.5
65 years and over	111	(X)
Percent below poverty level	(X)	6.4
Related children under 18 years	815	(X)
Percent below poverty level	(X)	27.6
Related children 5 to 17 years	633	(X)
Percent below poverty level	(X)	27.1
Unrelated individuals 15 years and over	597	(X)
Percent below poverty level	(X)	31.9

(Census 2000)

The unemployment rate was 5.1% in Pend Oreille County in 1999, compared to 4.4% nationally during the same period. Approximately 5.6% of the Pend Oreille 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.	Pend Oreille County	
	Number	Percent
Employed civilian population 16 years and over	4,044	100.0
OCCUPATION		
Management, professional, and related occupations	1,083	26.8
Service occupations	708	17.5
Sales and office occupations	836	20.7
Farming, fishing, and forestry occupations	103	2.5
Construction, extraction, and maintenance occupations	536	13.3
Production, transportation, and material moving occupations	778	19.2
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	225	5.6
Construction	339	8.4
Manufacturing	562	13.9
Wholesale trade	77	1.9
Retail trade	364	9.0
Transportation and warehousing, and utilities	375	9.3
Information	86	2.1
Finance, insurance, real estate, and rental and leasing	163	4.0

Table 3.4. Employment and Industry.	Pend Oreille County	
	Number	Percent
Professional, scientific, management, administrative, and waste management services	168	4.2
Educational, health and social services	943	23.3
Arts, entertainment, recreation, accommodation and food services	301	7.4
Other services (except public administration)	239	5.9
Public administration	202	5.0

(Census 2000).

Approximately 62% of Pend Oreille County's employed persons are private wage and salary workers, while around 24% are government workers (Table 3.5).

Table 3.5. Class of Worker.	Pend Oreille County	
	Number	Percent
Private wage and salary workers	2,515	62.2
Government workers	969	24.0
Self-employed workers in own not incorporated business	527	13.0
Unpaid family workers	33	0.8

(Census 2000)

3.2.1 Description of Pend Oreille County

Information summarized from the Pend Oreille County Soil Survey Manuscript..

Pend Oreille County is in the northeastern part of Washington. It borders Idaho on the east, the Canadian Province of British Columbia on the north, Stevens County on the west, and Spokane County on the south. The major land owners in the survey area are the Forest Service, the State of Washington, the Kalispel Indian Reservation, and the Bureau of Land Management.

Pend Oreille County was established by the state legislature in June 1911. Prior to that time, it was part of Stevens County. In 1912, Newport was selected as the county seat. Newport is about 40 miles northeast of Spokane and 75 miles south of the Canadian border.

Summers in Pend Oreille County are warm or hot in most valleys and much cooler in the mountains. Winters are cold in the mountains. Valleys are colder than the lower slopes of the adjacent mountains because of cold air drainage. Precipitation occurs in the mountains throughout the year, and a deep snow pack accumulates during winter. Snowmelt usually supplies much more water than can be used for agriculture. In the valleys, summer precipitation falls during showers and thunderstorms and in winter the ground is covered with snow much of the time. Chinook winds, which blow down slope and are warm and dry, often melt and evaporate the snow.

3.2.1.1 Land Use

The land use pattern in Pend Oreille County is typical of the rural areas of the Northern Rocky Mountains and Columbia Forest Province. Mountains cloaked in a coniferous forest surround a river valley. Most of the forestland is in public ownership as national forests. Small towns that have, or had, resource-based economies are situated along the Pend Oreille River valley with hay meadows and pastures filling the level land in between those towns. There are second-

home and retirement home subdivisions along the river and lakeshores, and a scattering of large-lot subdivisions in the parts of the County nearest the cities and towns.

Pend Oreille County contains approximately 896,000 acres of land, or 1,400 square miles roughly 65% is publicly owned and approximately 35% is held in private ownership. Public lands are owned and managed by public entities such as the County, State, Federal, and Tribal governments. Public ownership accounts for roughly 65% (or 580,000 acres) of the land in the County, including over 500,000 acres in federal lands. U.S. Forest Service land and wilderness areas occupy much of the County north of Newport, both east and west of the Pend Oreille River valley. State land equals approximately 35,000 acres, primarily managed by the Department of Natural Resources and Department of Fish and Wildlife. Roughly 6,000 acres belong to the Kalispel Tribe of Indians, primarily located along the Pend Oreille River near Usk and Cusick. The County, Public Utility District #1, and Port of Pend Oreille manage roughly 10,000 acres of land. Incorporated cities and towns comprise less than 1% of the land area in the County. The total area of the County's five cities and towns totals approximately 6,117 acres. Within unincorporated Pend Oreille County, privately owned property comprises roughly 310,000 acres of land or approximately 35% of the total land area in the County. Of privately owned land, almost 72% is Assessor Designated Timber land. Approximately 9% of the private land is held in the Agricultural Open Space program, and just over 5% is platted in short or long subdivisions. Approximately 14% of the private land consists of rural lands-land outside the Urban Growth Areas; outside designated agricultural, forest, and mineral resource lands, and not already platted. Privately owned land is concentrated in the very south part of the County, in the Cusick Flats area, and north along the Pend Oreille River, with some private checkerboard timber holdings in the central part of the County east of the river. Subdivided land is concentrated along the Pend Oreille River, in the Highway 2 corridor from the Highway 211 junction to Newport, along the south half of the Highway 211 corridor, and around Sacheen and Diamond Lakes. Smaller private Assessor designated timber holdings abound in the southeast part of the County east of Highway 211 south of Highway 20. Industrial activity is centered near the junction of Highways 20 and 211, and near Metaline Falls.

Figure 3.1. Land Use in Pend Oreille County (adopted from Pend Oreille County Comprehensive Plan 2005).

Land Ownership, Use, and/or Designation	Number of Acres	% of Total Acres
Federal	**529,319**	**59.1%**
U.S. Forest Service	527,725	58.9
Bureau of Land Management	1,594	0.2
State of Washington	**34,251**	**3.8**
County	**10,937**	**1.2%**
Pend Oreille County	8,011	0.9
Public Utility District	2,022	0.2
Port of Pend Oreille	904	0.1
Kalispel Tribe of Indians	**6,040** [does not match website]	**0.7**
Incorporated Cities and Towns [incorporated areas + interim UGA]	**6,117**	**0.7**
Cusick UGA [2,090 + 405]	2,495 [does not match narrative]	
Ione UGA [383 + 1,400]	1,783 [does not match narrative]	
Metaline UGA [195 + 0]	195 [does not match narrative]	
Metaline Falls UGA [143 + 0]	143 [does not match narrative]	
Newport UGA [712 + 789]	1,501 [does not match narrative]	
Other Public: City of Seattle	**859**	**0.1**
Private	**308,797**	
Agricultural Open Space	28,280	3.1
Designated Timber	223,341	24.9
Improved Parcels This figure incl. incorporated areas	4640	0.6
Unimproved Parcels This figure incl. incorporated areas	10,722	1.2
Rural Lands	41,162	4.6
TOTAL [1,400.5 sq. mi.]	**896,320**	**100%**

3.2.1.2 Recreation

Pend Oreille County has many outstanding tourism and recreational facilities. The county offers a full panorama of recreational opportunities ranging from fishing and boating on the Pend Oreille River to camping, hunting, or hiking in the Colville or Kaniksu National Forests.

The economic impacts of these activities to the local economy and the economy of Washington have not been enumerated. However, they are substantial given the many months of the year that activities take place and the large numbers of visitors that travel to this location.

3.2.1.2.1 Colville National Forest

The Colville National Forest disproves the widely held notion that Washington State lies flat east of the Cascade Mountains. These million acres in the northeast corner roll like the high seas. Three waves of mountains run from north to south, separated by troughs of valleys. These ranges -- the Okanogan, Kettle River, and Selkirk -- are considered foothills of the Rocky Mountains.

The troughs between the mountains channel water into the Columbia River system. The Pend Oreille River flows north into Canada to merge with the Columbia.

The major rivers in the national forest are following paths bulldozed by Ice Age glaciers. Mile-high ice sheets surging south from Canada drowned all but the tallest peaks several times during the last two million years. The ice ground off sharp edges, leaving the mountains well rounded.

Today's landscape emerged from the melting ice about 10,000 years ago. Animals and plants followed the retreating glaciers northward, and humans were not far behind. The first Indians probably began hunting, fishing, and gathering in the area about 9,000 years ago.

3.2.1.2.2 Kaniksu National Forest

Located in "the panhandle" of northern Idaho and extending into eastern Washington State and western Montana, lies the Idaho Panhandle National Forest (made up of the Coeur d' Alene, Kaniksu, and St. Joe National Forests). Some 300 miles from the Pacific Ocean, the forest is in the east-central part of the Columbia Plateau, between the Cascade Mountains to the west and the Bitterroot Mountains to the east. The Forest comprises about 2.5 million acres. The natural beauty of mountain tops, clear lakes and rivers, ancient cedar groves, great varieties of fish, unique wildlife, and remnants of earlier people provide settings for diverse outdoor recreation activities. During the spring, summer, and fall a variety of activities can be found. In winter, hundreds of miles of groomed trails beckon nordic skiers and snowmobilers.

3.2.1.2.3 Boating

Boating is a very popular activity in Pend Oreille County. The Pend Oreille River, Diamond Lake, Sacheen Lake, Davis Lake, Sullivan Lake, and several others along with many of their tributaries offer excitement for various types of boaters and recreators during the warmer months. Boat ramps, docks, and other facilities are conveniently located at several access points along the waterfronts.

3.2.1.2.4 Camping

Camping is another popular activity enjoyed by tourists and the residents of Pend Oreille County. The Colville and Kaniksu National Forests provide many developed and undeveloped campsites. The amenities vary from full RV hookup to only a cleared tent site. There are also numerous RV parks closer to populated areas.

3.2.1.2.5 Fishing and Hunting

Fishing and hunting is very important to Pend Oreille County both from a recreational standpoint and as an economic resource. A wide variety of fish can be caught in Pend Oreille County including: trout, salmon, bass, crappie, perch, and pike. The river systems and many of the stocked lakes and mountain lakes provide excellent fishing.

For those who prefer a gun or bow to a fly rod, Pend Oreille County offers a bounty of hunting experiences. Wild birds and game, like deer, elk, bear, mountain lion, mountain goat, bighorn sheep, pheasant, turkey, quail, partridge, grouse, wild duck, geese, and doves are found in abundance.

3.2.1.2.6 Winter Sports

For those people who enjoy winter sports, Pend Oreille County has a variety of activities to interest them. Cross-country and downhill skiers will be exhilarated by the hills and trails at the nearby 49° North Ski Resort. Also, the Forest Service maintains several backcountry cross-country ski and snowshoeing trails. Snowmobilers are not left out; hundreds of miles of snowmobile trails attract many local and out of town thrill seekers.

3.2.1.2.7 Wildlife Viewing

Pend Oreille County is known for its large diversity of birds and other wildlife. There is several wildlife viewing organizations in the area that frequent Pend County to see its vast array of wildlife in a natural setting.

3.2.1.3 Resource Dependency

Historically, Pend Oreille County has had a cyclical economy dependent on the extraction of the abundant natural resources of the area, such as timber and minerals. The County unemployment rate is consistently among the highest in the State, and per capita income levels well below the state average. Traditional extractive industries are no longer the principal source of income in places like Pend Oreille County. In the past 20 years, most of the major mills and plants that processed these materials have closed and have not been replaced by other industries. Agriculture, forestry, and mining sectors of the local economy accounted for no more than 2% of total wages paid in the County and no more than 1.2% of total employees in 2000. However, in the manufacturing sector at least 280 full-time jobs are dependent upon raw wood supplies, either in the form of logs or wood chips. Ponderay Newsprint Company, Ponderay Valley Fiber, and Aerocell are currently the largest private employers. Government, services, and manufacturing employment are significant and stable sources of employment in the county.

A sizable portion of the economy that is emerging in Pend Oreille County is based on commuting-mostly to Spokane County-and transfer payments. The Washington State Office of Financial Management has estimated that approximately one-third of employed county residents commute out-of-county to work.

Over the past century, employment through agricultural farming, timber harvesting and livestock ranching has been significant in the region. Forestry, logging, trucking, and related support industries have relied on timber harvests from this region. Livestock ranching has been and continues to be an important component of the economy of Pend Oreille County. Livestock grazing in Pend Oreille and surrounding Counties has provided stable employment while serving to keep rangelands and forestlands alike maintained at a lower wildfire risk than if they had not been present and managed. The chief farming enterprise in the area is the breeding and raising of beef cattle. The area has a few dairy farms. Hay is the primary crop grown for livestock. Oats and barley also are grown for feed. Irrigation increases yields in some areas where water is available.

3.3 Cultural Resources

Cultural resource impacts were qualitatively assessed through a presence/absence determination of significant cultural resources and mitigation measures to be employed during potential fire mitigation activities such as thinning and prescribed fire.

The United States has a unique legal relationship with Indian tribal governments defined in history, the U.S. Constitution, treaties, statutes, Executive Orders, and court decisions. Since

the formation of the union, the United States has recognized Indian tribes as domestic dependant nations under its protection. The Federal Government has enacted numerous regulations that establish and define a trust relationship with Indian tribes.

The relationship between Federal agencies and sovereign tribes is defined by several laws and regulations addressing the requirement of Federal agencies to notify or consult with Native American groups or otherwise consider their interests when planning and implementing Federal undertakings, among these are:

- **EO 13175, November 6, 2000**, Consultation and Coordination with Indian Tribal Governments.
- **Presidential Memorandum, April, 1994**. Government-Government Relations with Tribal Governments (Supplements EO 13175). Agencies must consult with federally recognized tribes in the development of Federal Policies that have tribal implications.
- **EO 13007, Sacred sites, May 24, 1996**. Requires that in managing Federal lands, agencies must accommodate access and ceremonial use of sacred sites and must avoid adversely affecting the physical integrity of these sites.
- **EO 12875, Enhancing Intergovernmental Partnerships, October 26, 1993**. Mainly concerned with unfunded mandates caused by agency regulations. Also states the intention of establishing "regular and meaningful consultation and collaboration with state, local and tribal governments on matters that significantly or uniquely affect their communities."
- **Native American Graves Protection and Repatriation Act (NAGPRA) of 1989**. Specifies that an agency must take reasonable steps to determine whether a planned activity may result in the excavation of human remains, funerary objects, sacred objects and items of cultural patrimony from Federal lands. NAGPRA also has specified requirements for notifying and consulting tribes.
- **Archaeological Resources Protection Act (ARPA), 1979**. Requires that Federal permits be obtained before cultural resource investigations begin on Federal land. It also requires that investigators consult with the appropriate Native American tribe prior to initiating archaeological studies on sites of Native American origin.
- **American Indian Religious Freedom Act (AIRFA), 1978**. Sets the policy of the US to protect and preserve for Native Americans their inherent rights of freedom to believe, express, and exercise the traditional religions of the American Indian . . . including, but not limited to access to sacred sites, use and possession of sacred objects, and the freedom to worship through ceremonies and traditional rites.
- **National Environmental Policy Act (NEPA), 1969**. Lead agency shall invite participation of affected Federal, State, and local agencies and any affected Indian Tribe(s).
- **National Historic Preservation Act (NHPA), 1966**. Requires agencies to consult with Native American tribes if a proposed Federal action may affect properties to which they attach religious and cultural significance. (Bulletin 38 of the act, identification of TCPs, this can only be done by tribes.)
- Treaties (supreme law of the land) in which tribes were reserved certain rights for hunting, fishing and gathering and other stipulations of the treaty.
- Unsettled aboriginal title to the land, un-extinguished rights of tribes.

3.3.1 Kalispel Indian Reservation

Summarized from Kalispel Tribe of Indians at http://www.kalispeltribe.com.

The Kalispel Indians, "River/Lake paddlers" or "camas people," as they were called by other Tribes, were semi-nomadic hunters, diggers and fishermen. Traditionally, the Tribe inhabited a 200-mile stretch of land along the Pend Oreille River with a Tribal membership of about 3000 people. The abundant homeland consisting of mountainous, forested land, and most importantly the river, provided the necessary natural resources for the Tribe to sustain their way of life.

During the mid to late 19th century, the Tribe worked to preserve their culture and life in the midst of increasing white settlement in the area. Roman Catholic priests began working with the Kalispels in 1844. In 1855, the Upper Kalispels gave up their lands and moved to the Jocko Reservation in Montana at the request of the U.S. Government. The Lower Kalispels, of which today's Kalispel members are descendants, refused to give up their ancestral lands and continued to work toward an agreement that would allow the Tribe to remain on their homeland.

During the late 1800s, while most other tribes were going through the process of having reservations established, the Kalispels had almost no relationship with the Federal Government. Though Congress did propose a treaty in 1872, the terms were poor and the Tribe refused to sign it. By 1874, Congress had stopped establishing treaties with Tribes altogether, leaving the Kalispels with no legal protection. By 1875, the Tribal population had shrunk to only 395 people. From 1880 to 1910, as more and more white settlers moved into their territory, the Tribe witnessed their land being taken away, but could do nothing to prevent it. Many of the white settlers filed claims under the Homestead laws and "legally" owned land which was previously home for much of the Tribe.

In 1914, a reservation was finally established, by Executive Order, for the sovereign Kalispel Tribe on a tiny base of flood plain and mountainside that neither resembled the original homeland in scale, nor provided economic support for the Tribe. The reservation consisted of approximately 4,600 acres along the Pend Oreille River. In 1924, the U.S. Government allotted the entire reservation to Tribal members to encourage farming. The Kalispels received about 40 acre allotments each of hillside or floodplain land, which was extremely difficult to farm. Comparatively, members of neighboring Tribes, such as the Spokane and Coeur d'Alene, received 160-180 acre allotments of good farmland.

3.3.2 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 3.6.

Table 3.6. National Register of Historic Places in Pend Oreille County, Washington.

Item Number	Resource Name	Address	City	Listed	Architect, builder, or engineer
1	**Idaho and Washington Northern RR Bridge**	Spans Pend Oreille River of WA 31	Metaline Falls	1982	Idaho and Washington Northern RR Company
2	**Larson, Lewis P., House**	5th and Pend Oreille Blvd	Metaline Falls	1979	Cutter,Kirtland Kelsey
3	**Metaline Falls School**	302 Park	Metaline Falls	1988	Cutter & Malmgren

Table 3.6. National Register of Historic Places in Pend Oreille County, Washington.					
Item Number	Resource Name	Address	City	Listed	Architect, builder, or engineer
4	**Pend Oreille Mines and Metals Building**	103 S. Grandview St.	Metaline Falls	1997	Pehrson, Gustav Albin
5	**United States Border Station**	Roughly bounded by WA 31 and the U.S.--Canadian border, Colville National Forest, Metaline Falls	Metaline Falls	1997	Wetmore, James A., US Treasury, Simon, Louis A
6	**Washington Hotel**	5th and Washington St.	Metaline Falls	1979	Larson,Lewis P.

(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. Such actions may include, but not be 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 Pend Oreille County transportation system relies heavily on US Route 2 and State Routes (SR) 20, 31, and 211, which link the communities and towns together and to outside areas. US 2, a roadway on the National Highway System, traverses from northern Spokane County to the City of Newport, then it turns east into the State of Idaho. Within the County, US 2 is a rural four-lane roadway from the southern County line to SR 211 and then a two-lane highway to the City of Newport. Within the City of Newport, US 2 is a two-lane couplet.

SR 20 traverses from west to east, beginning at the border with Stevens County and turns south at Tiger Junction, and then follows the Pend Oreille River to the City of Newport, where it joins US 2. SR 20 is mostly a rural two-lane highway. SR 31 begins at the Canadian border and runs south for 27 miles where it terminates at Tiger Junction and joins SR 20. SR 31 is a rural two-lane highway.

SR 211 is a 14-mile roadway connecting US 2 on the south and SR 20 on the north near the community of Usk. The route bypasses the City of Newport and provides a more direct route to the northern portion of the County for those entering or leaving Spokane County. SR 211 is a rural two-lane highway.

Almost all of the roads in the county were originally built to facilitate logging and farming activities. As such, these roads can support timber harvesting equipment, logging trucks, and fire fighting equipment referenced in this document. However, many of the new roads have been built for home site access, especially for new sub-divisions. 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 adhered to closely to insure this tendency continues.

Transportation networks in the county have been challenged by a number of communities with only one, two, or three access points suitable for use during an emergency. The community of Metaline is a prime example. Other communities that may be at risk because of limited access include Metaline Falls, Ione, and Furport.

Pend Oreille County has both significant infrastructure and unique ecosystems within its boundaries. Of note for this Community Wildfire Protection Plan are the existence of State Routes 20 and 31 and the presence of high tension power lines supplying the communities of Pend Oreille, Stevens, Spokane Counties.

3.4.1 Repeater Towers & Lookouts

Included in the assessment of critical infrastructure is the location of lookouts and repeater towers. Six items were identified in the county and are summarized in Table 3.7.

Table 3.7. Repeaters and Lookout tower locations.

Name	UTM_X	UTM_Y
Indian Mountain Lookout	497176.10330199900	5389870.08368999000
Sullivan Mountain Repeater	481863.67121000000	5413741.43372999000
Salmo Mountain Repeater	492456.59059600000	5423686.51535000000
North Baldy Repeater	488557.30241700000	5376948.36254000000
South Baldy Vista Lookout	489926.15311299900	5363171.20756999000
Calispel Peak Repeater	462901.29373999900	5364779.26016000000

3.4.2 Primary and Secondary Access Routes

Access routes were identified by committee members and amended by the public during public meetings. These routes identify the primary and secondary 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. Table 3.8 summarizes the extent of the various categories of access routes identified in this planning process.

Table 3.8. Access routes in Pend Oreille County.

Type of Access	Miles
Primary Access	119.8
Secondary Access	113.9
Priest Lake Emergency Escape Route	20.7

3.5 Vegetation & Climate

Vegetation in Pend Oreille 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 as determined from Landsat 7 ETM+ imagery in tabular format, Table 3.8.

The most represented vegetated cover type is ponderosa pine at approximately 32% of the total area. The next most common vegetation cover type represented is a western larch forest at 31%. Urban areas and agriculture represents approximately 12% of the total area (Table 3.8).

Table 3.9. Vegetative cover types in Pend Oreille County.

Cover	Acres	Percent
Ponderosa Pine	295,686	32%
Western Larch	279,845	31%
Urban/Development/Ag	113,181	12%
Lodgepole pine	96,054	11%
Western white pine	93,026	10%
Open Water	28,801	3%
Douglas-fir	3,776	0%
Agriculture	2,254	0%
Total	**912,621**	

Vegetative communities within the county follow the strong moisture and temperature gradient related to the major river drainage. 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 available moisture during the growing season.

3.5.1 Monthly Climate Summaries in Pend Oreille County

3.5.1.1 Metaline Falls

Period of Record Monthly Climate Summary

Period of Record : 8/11/1926 to 5/31/1965

Table 3.10. Monthly climate records for Metaline Falls, Pend Oreille County, Washington.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	29.9	37.3	46.9	58.9	68.5	74.4	83.9	82.3	72.8	57.2	39.6	32.4	57.0
Average Min. Temperature (F)	16.6	19.5	25.2	31.5	39.0	45.0	48.6	46.9	41.3	34.7	26.9	21.7	33.1
Average Total Precipitation (in.)	3.02	2.24	2.07	1.68	2.24	2.70	1.15	1.13	1.67	2.81	3.09	3.58	27.38
Average Total Snowfall (in.)	27.0	15.5	8.4	0.7	0.1	0.0	0.0	0.0	0.0	0.9	9.1	23.8	85.5
Average Snow Depth (in.)	13	14	6	1	0	0	0	0	0	0	1	6	3

Percent of possible observations for period of record. Max. Temp.: 99.1% Min. Temp.: 99% Precipitation: 99.2% Snowfall: 99% Snow Depth: 98.8%

3.5.1.2 Newport, Washington

Period of Record Monthly Climate Summary

Period of Record : 1/ 2/1927 to 3/31/2005

Table 3.11. Monthly climate records for Newport, Pend Oreille County, Washington.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	31.7	38.7	48.4	59.5	69.1	75.8	85.3	84.5	73.8	58.3	40.7	33.2	58.3

Table 3.11. Monthly climate records for Newport, Pend Oreille County, Washington.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Min. Temperature (F)	18.2	20.9	25.7	31.1	38.0	43.9	46.4	44.6	38.6	32.4	27.2	21.9	32.4
Average Total Precipitation (in.)	3.18	2.35	2.28	1.81	2.08	1.86	0.92	0.99	1.37	2.16	3.47	3.71	26.18
Average Total Snowfall (in.)	19.7	10.2	3.9	0.3	0.0	0.0	0.0	0.0	0.0	0.4	5.9	17.9	58.2
Average Snow Depth (in.)	10	10	5	0	0	0	0	0	0	0	1	5	3

Percent of possible observations for period of record. Max. Temp.: 98.4% Min. Temp.: 98.3% Precipitation: 98.8% Snowfall: 99% Snow Depth: 95.8%

3.6 Ecosystems

Pend Oreille 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) 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 Pend Oreille 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 Soils

There are various soil types in the Pend Oreille County area. Three major soil divisions are found:

1. Seventy-nine percent of the land area (mainly in the mountains and foothills) are moderately deep and very deep well drained soils formed in material weathered from granitic rock, shale, phyllite, igneous rock and quartzite and in glacial till. These soils are used mainly for grazable woodland or commercial trees.
2. Eighteen percent of the land area (mainly on terraces and in basins) are very deep highly to poorly drained soils formed in glacial lake sediments and glacial outwash that in most areas are mixed with or mantled by volcanic ash and loess. These soils are used mainly for grazable woodland, non-irrigated and irrigated crops, recreation, watershed, wildlife habitat, or home site development.
3. Three percent of the land area (mainly on flood plains and in lake basins) are very deep and somewhat poorly drained soils formed in alluvium and muck. These soils are used for non-irrigated and irrigated crops, hay and pasture, or grazable woodland.

Our soil resource is an extremely important component for maintaining a healthy ecosystem and economy. Fire can play an intricate role in this process, if it occurs under normal conditions of light fuels associated with low intensity underburns. However, the buildup of fuels and consequent high severity fires can cause soils to become water repellent (hydrophobic), and thus greatly increases the potential for overland flow during intense rains. Soil in degraded

conditions does not function normally, and will not be able to sustain water quality, water yield, or plant communities that have normal structure, composition, and function. Fire is also strongly correlated with the carbon-nutrient cycles and the hydrologic cycle. Fire frequency, extent, and severity are controlled to a large degree by the availability of carbon, as well as the moisture regime (Quigley & Arbelbide 1997).

Soils were evaluated for their propensity to become hydrophobic during and after a fire as evidenced by the presence of clay and clay derivatives (e.g., clay loam, cobbly clay) in the upper soil layers. In addition, their permeability and tendency to allow runoff to infiltrate the soil was evaluated. In general, with notable exceptions, the majority of the area within Pend Oreille County has low clay content in the B horizon. Much of the area has little to no reported clay content in the A horizon with a silty, sandy, or stony loam present. On average these soils are well drained with moderate permeability.

Low to moderate intensity fires would not be expected to damage soil characteristics in the region, especially if the hotter fires in this range were limited to small extents associated with jackpots of cured fuels. Hot fires providing heat to the B horizon substrate depth have the potential to create hydrophobic characteristics in that layer. This can result in increased overland flow during heavy rains, following wildfire events, potentially leading to mass wasting. Rocky and gravelly characteristics in the A horizon layer would be expected to be displaced, while the silty and loamy fines in these soils may experience an erosion and displacement potential. These soils will experience the greatest potential impacts resulting from hot fires that burn for prolonged periods (especially on steep slopes).

The National Resource Conservation Service (NRCS) has mapped a large portion of Pend Oreille County in detail. Please refer the Pend Oreille County NRCS Soil Survey Report to view each soil unit in the County and the associated characteristics relating to the effects of wildland fire.

3.8 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, 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 Pend Oreille County will be the maintenance of the domestic watershed supplies in the Pend Oreille Watershed (Watershed Resources Inventory Area 62). More discussion about these watersheds will be provided in the recommendations section.

Timberlands in the region have been extensively harvested for the past several decades, therefore 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.

Tables listing the Washington Water Resources database of municipal water supplies in Pend Oreille County and the Recorded Water Certificates and Permits in Pend Oreille County can be found in the Appendix. These water sources may be placed at risk in the event of a wildland fire.

3.9 Air Quality

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

The Clean Air Act, passed in 1963 and amended in 1977, is the primary legal authority governing air resource management. The Clean Air Act provides the principal framework for national, state, and local efforts to protect air quality. Under the Clean Air Act, 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 Eastern 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 good to excellent. 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 Pend Oreille County.

3.9.1 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.

3.9.1.1 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.

3.9.1.2 Purpose

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

3.9.1.3 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.

3.9.1.4 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.

This 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.

3.9.1.5 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.

3.10 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 Pend Oreille 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, local agencies, and private individuals (Norton 2002). "The role of [most] federal agencies in the wildland-urban interface includes wildland fire fighting, 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.

Four 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, Occluded Condition, and Rural 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

- **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.

In addition to these classifications detailed in the Federal Register, three additional classifications of population density have been included to augment these categories:

- **High Density Urban** – those areas generally identified by the population density consistent with the location of incorporated cities, however, the boundary is not necessarily set by the location of city boundaries: it is set by very high population densities (more than 7-10 structures per acre or more). Many counties and reservations in the west do not have high density urban areas. Pend Oreille County, Washington, was determined not to have any areas of high density urban based on current (2005) structure locations.
- **Infrastructure 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 planning committees.
- **Wildland 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.

The Pend Oreille Interface Wildfire Planning Committee created three Infrastructure WUI sub-categories to better suit the wildfire mitigation needs of the County. These are: a Power Line WUI, an Access Route WUI, and a Communication Site WUI.

- **Power Line WUI** – a situation where power lines cross designated wildlands (lands outside of the four main categories of WUI conditions). This consists of a 700 foot buffer, which includes an additional 250 foot buffer on each side of the existing 200 foot buffer. There are approximately 1,212 acres of this condition of WUI in Pend Oreille County that would have otherwise been classified as wildlands. Treatments in these areas would be focused on increasing the chances that a wildfire could be contained on the surface fuels as opposed to crown fires.
- **Access Route WUI** – a situation where primary access routes travel through designated wildlands (lands outside of the four main categories of WUI conditions). This WUI includes a 200 foot buffer extending from each side of the roadway. There are approximately 135 miles of access routes totaling 779 acres of potential treatment areas which would otherwise have been designated as wildlands.
- **Communications Site WUI** – a situation where a repeater tower site is located in the designated wildlands (lands outside of the four main categories of WUI conditions). This WUI includes the area within a 250 foot radius of a repeater tower or other communications structure. There are 6 communication sites summarized in this plan, each totaling 4.5 acres around the site.

In summary, the designations of areas by the Pend Oreille Interface Wildfire Planning Committee includes:

- Interface Areas: WUI
- Intermix Areas: WUI

- Occluded Areas: Not Present
- Rural Areas: WUI
- Infrastructure Areas: WUI
- High Density Urban: Not Present
- Wild Land Condition: Not WUI, but present in Pend Oreille County

The locations of structures in Pend Oreille 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 two sets of remotely sensed images. The more detailed information was garnered from digital ortho-photos at a resolution of 1 meter (from 1998). For those areas not covered by the 1 meter DOQQ images, SPOT satellite imagery at a resolution of 10 meters was used (from 2002). These records were augmented with data collected on hand-held GPS receivers to record the location of structures, especially in areas where new housing developments were seen.

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 Interface and Intermix WUI, as well as Rural WUI (as defined in the Federal Register). 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. This mapping procedure was followed and is presented in the maps included in the Appendix.

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 Pend Oreille County Interface Wildfire Mitigation Planning 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.

3.10.1 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 all of them would eliminate populated places with a perceived low level of fire risk today, which may in a year become an area at high risk due to forest health issues or other concerns.

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

address factors of 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 fire fighting personnel, and other factors.

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.

Conversely, there has been some degree of animated discussion about a portion of the WUI in northern Pend Oreille County, east of Metaline Falls which overlaps an area of USFS Designated Wilderness. While this has caused some concern that wildfire mitigation efforts would be making clearcuts in the Wilderness in the name of home defensible space, nothing could be further from the truth. The Salmo-Priest National Wilderness Area's southwest boundary is a scant 3,300 feet from the nearest homes near Sullivan Lake and the Mill Pond. The Sullivan Mountain Communications Site is immediately adjacent to the Wilderness, and many Forest Service System Roads provide access to the area adjacent to the Wilderness. Readers of this plan will recognize that because there are homes in close proximity to the Wilderness the WUI will overlap the boundary of the Wilderness. Treatments applied to the homes in the area of Sullivan Lake and the Mill Pond will have to take into account the proximity of the Wilderness and make adjustments for improved access and defensible space around their personal property.

The authors of this plan do not feel that there are any conflicting values in designating a portion of the Wilderness in the category of WUI. The designation of the WUI is a planning tool revealing where population densities fit into various classifications.

Chapter 4: Risk and Preparedness Assessments

4 Overview

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. The combination of light fuels and dry sites lead to fires that typically display the highest 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. 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. 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

4.2.1 Wildfire Ignition Profile

Fire was once an integral function of the majority of ecosystems in 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 ignition and extent have been compiled by the Washington Department of Natural Resources of fire ignitions dating from 1970 to 2003. The US Forest Service also maintains detailed fire ignition and extent data for this region. Using this data on past fire extents and fire ignition data, the occurrence of wildland fires in the region of Pend Oreille County has been evaluated.

The Washington Department of Natural Resources database of wildfire ignitions for those areas where the Washington Department of Natural Resources provides primary wildfire suppression services includes data from 1970 through 2003. An analysis of the wildfire ignitions in Pend Oreille County reveals that approximately 1,070 wildfires have been ignited during this period in Pend Oreille County (4.1).

Table 4.1. Summary of wildfire ignitions in Pend Oreille County from the Washington Department of Natural Resources database.

Cause	Acres Burned	Percent	Number of Ignitions	Percent
Lightning	141	3%	273	26%
Campfire	77	2%	42	4%
Smoking	1,056	20%	61	6%
Debris Burning	888	18%	291	27%
Recreation	317	6%	89	8%
Equipment Use	39	1%	14	1%
Children	29	1%	56	5%
Railroad	1	0%	5	1%
Miscellaneous	2,512	49%	239	22%
Totals	5,060	100%	1,070	100%

The “Miscellaneous” category includes ignitions originating from structure fires, burning material from aircraft, burning material from auto (other than smoking), burning vehicle, electric fence, equipment crash, fireworks (other than children), hot ashes, power lines, sparks from auto exhaust, sparks from cutting torch or welder, sparks from farm tractors, spontaneous combustion (other than sawdust piles), use of fire (other than logging), woodcutting, and an “other” category. Ignitions stemming from power lines were the most significant of this category causing 62 ignitions and burning 2,066 acres. Also high on the list were electric fences with 15 ignitions and 77 acres burned and the “other” category, which caused 69 ignitions and burned 325 acres.

Figure 4.1. Wildfire Ignitions within DNR Protection Area 1970-2003.

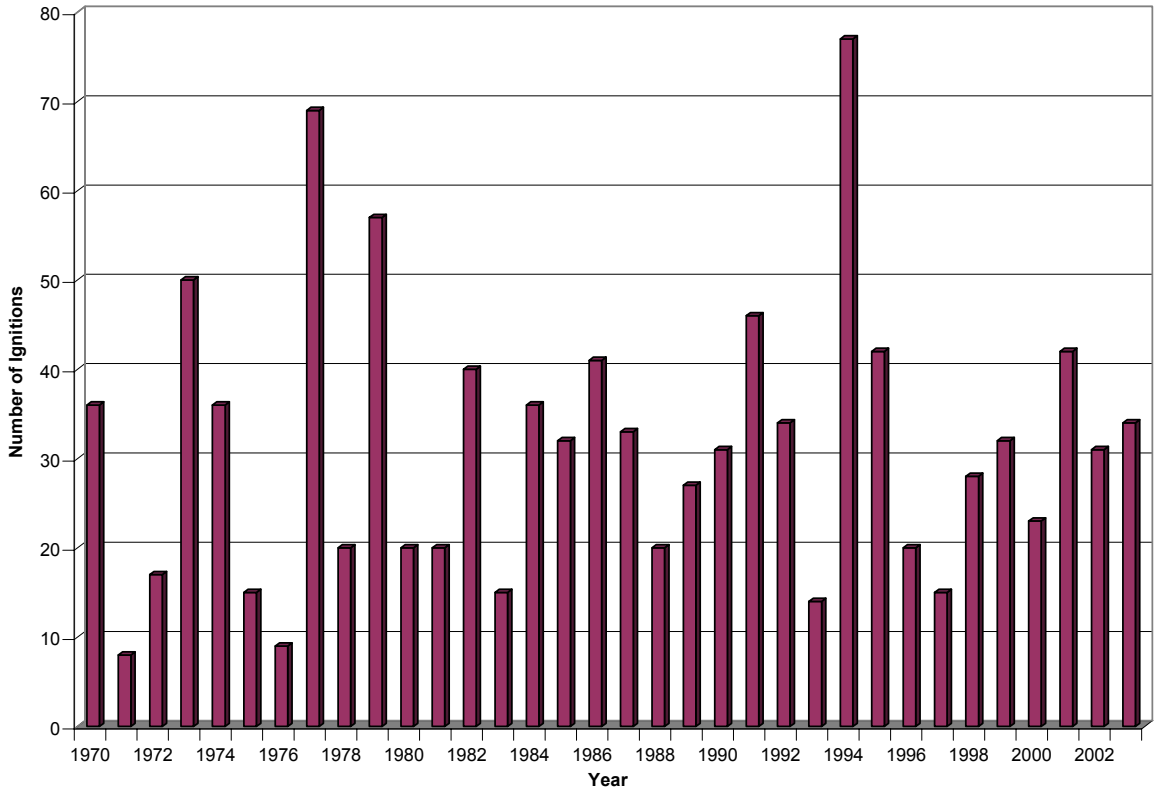


Table 4.2. Wildfire Ignition and Extent Summary by Year within the DNR Protection Area.

Year	Acres Burned by Year	Number of Ignitions
1970	1,076	36
1971	5	8
1972	12	17
1973	1,222	50
1974	29	36
1975	5	15
1976	5	9
1977	103	69
1978	21	20
1979	105	57
1980	3	20
1981	48	20
1982	228	40
1983	10	15
1984	35	36
1985	115	32
1986	23	41

Table 4.2. Wildfire Ignition and Extent Summary by Year within the DNR Protection Area.

Year	Acres Burned by Year	Number of Ignitions
1987	85	33
1988	28	20
1989	51	27
1990	87	31
1991	1,158	46
1992	34	34
1993	5	14
1994	98	77
1995	46	42
1996	14	20
1997	256	15
1998	11	28
1999	25	32
2000	17	23
2001	53	42
2002	17	31
2003	33	34

The US Forest Service maintains detailed records for the areas where they provide primary wildfire suppression services. The Newport-Sullivan Lake Ranger District and the Priest Lake Ranger District both maintain data from 1940 through 2004 for Pend Oreille County. Within the Newport-Sullivan Lake Ranger District area, approximately 2,746 ignitions have been recorded since 1938. Approximately 76% of these have been caused by lightning (Table 4.3, Table 4.4, Figure 4.2).

Table 4.3. Summary of wildfire ignitions in Pend Oreille County from the Priest Lake Ranger District (USFS) database.

Year	Total Acres	Total Ignitions	Lightning Acres	Lightning Ignitions	Recreation Acres	Recreation Ignitions	Smoker Acres	Smoker Ignitions	Debris Burning Acres	Debris Burning Ignitions	Arson acres	Arson ignitions	Equip. acres	Equip. ignitions	Children acres	Children ignitions	Misc. acres	Misc. ignitions
2004	1.9	14	1.46	7	0.2	2			0.03	2							0.21	3
2003	6.97	15	6.77	13	0.1	1											0.1	1
2002	5.14	19	1.89	15	0.15	1			3	2							0.1	1
2001	38.5	28	28	26	0.1	1			10.4	1								
2000	3.7	19	1.65	13	0.1	1			0.1	1							1.85	4
1999	1.25	14	0.71	10			0.11	2	0.43	2								
1998	4.66	24	3.95	20					0.61	3					0.1	1		
1997	0.6	7	0.5	5			0	1									0.1	1
1996	3.92	8	0.21	3	0.1	1			3.5	2	0.1	1			0.01	1		
1995	16.503	14	1.101	8	1.001	2	0.1	1	15	1	0.001	1					0.1	1
1994	1070.7	54	1058.7	43	0.2	2			0.2	2	11.2	5					0.2	2
1993	5.4	10	1.2	7					4.2	3								
1992	45.77	23	7.37	17	0.2	2	3	1	35	1							0.2	2
1991	284.9	35	4.35	28	0.35	2			15.1	2			0.1	1			265	2
1990	0.5	5	0.3	3	0.1	1							0.1	1				
1989	11.9	35	5.6	24	0.1	1	0.3	3	3.8	5			2	1			0.1	1
1988	6.56	19	2.15	5	0.5	5	0.1	1	0.51	4			3	1			0.3	3
1987	44.85	31	2.65	21	0.7	4	0.1	1	41.2	3					0.1	1	0.1	1
1986	561.35	42	560.5	35	0.1	1			0.3	3	0.1	1					0.35	2
1985	765.35	26	736.9	22	0.1	1			1.25	2							0.1	1
1984	11.2	62	6.75	54	0.1	2	0.15	2					0.1	1			4.1	3
1983	0.4	4	0.3	3			0.1	1										
1982	12.23	30	11.83	26					0.1	1							0.3	3
1981	3.55	24	1.9	19	0.1	1			1.35	2			0.1	1			0.1	1
1980	2.46	19	2.26	17													0.2	2
1979	112.245	29	6.01	19	0.11	1	0.45	2	86.5	4			0.025	1			19.15	2
1978	41.69	10	1.3	6	0.1	1	0.15	1	0.14	1			40	1				
1977	35.402	64	12.052	50	0.4	4			22.85	8			0.1	2				
1976	47.61	16	0.69	6	0.1	1	0.02	1	45.2	6			1.5	1			0.1	1
1975	1.55	12	1.35	10	0.1	1											0.1	1
1974	27.75	33	2.71	23	0.2	1	0.48	5									24.36	4
1973	3.46	31	1.42	15	0.35	2	1.29	11					0.1	1			0.3	2

Table 4.3. Summary of wildfire ignitions in Pend Oreille County from the Priest Lake Ranger District (USFS) database.

Year	Total Acres	Total Ignitions	Lightning Acres	Lightning Ignitions	Recreation Acres	Recreation Ignitions	Smoker Acres	Smoker Ignitions	Debris Burning Acres	Debris Burning Ignitions	Arson acres	Arson ignitions	Equip. acres	Equip. ignitions	Children acres	Children ignitions	Misc. acres	Misc. ignitions
1972	41.45	24	2.45	21	0	0	10	2	29	1								
1971	10.34	12	0.69	3	0.2	2	0.35	4	9	2							0.1	1
1970	1.22	16	0.59	8	0.1	1	0.33	4	0.1	1	0	0	0.1	2	0	0	0	0
1969	46.38	15	45.06	10	0.1	1	0.22	3	0	0	0	0	1	1	0			
1968	41.91	20	1.86	18	0.05	1	0	0	40	1								
1967	12.45	32	12.15	30													0.3	2
1966	42.48	29	2.91	22	0	0	5.75	4	16	1							17.82	2
1965	4.19	28	3.42	22	0	0	0.2	2									0.57	4
1964	2.87	21	2.67	19	0.1	1											0.1	1
1963	10.53	36	8.57	29	0	0	0.37	2	0	0	0	0	1.3	1	0	0	0.29	4
1962	6.6	34	4.19	28	2.31	5	0	0	0.1	1								
1961	8.48	43	6.07	36	0.3	3	0	0	0.2	1	0	0	0.01	1	0	0	1.9	2
1960	328.78	15	2.2	5	0	0	0	0	99	1	0	0	227	1	0	0	0.58	8
1959	0.8	8	0.5	5	0.2	2											0.1	1
1958	42.967	50	30.94	41	0.017	1	0.2	2	11.6	3							0.21	3
1957	0.87	10	0.55	6	0.1	1	0.22	3										
1956	6.77	11	1.2	5	0.07	1	4.21	3	1.2	1							0.1	1
1955	3.324	26	3.094	24													0.23	2
1955-2004 Totals	3792.38	1131	2603.647	905	9.208	61	28.2	62	496.97	74	11.401	8	276.535	18	0.21	3	339.82	
1955-2004 Percent by cause Acres			69.14		0.24		0.75		13.20		0.30		7.34		0.01		9.02	
1955-2004 Percent by cause Ignitions				80.02		5.39		5.48		6.54		0.71		1.59		0.27		0.00

Table 4.4. Summary of wildfire ignitions in Pend Oreille County from the Newport-Sullivan Lake Ranger District (USFS) database.

Cause	Total Cost	Total Number of Acres	Percent (Acres)	Number of Ignitions	Percent (Ignitions)
Lightning	$4,379,576	1,293	47%	683	69%
Campfire	$8,488	65	2%	91	9%
Smoking	$19,841	59	2%	72	7%
Debris Burning		1232.7	45%	36	4%
Arson	$250	9	0%	12	1%
Equipment Use	$14,721	43.08	2%	29	3%
Children	$250	0.12	0%	3	0%
Railroad	$800	1	0%	1	0%
Miscellaneous	$41,187	33.59	1%	61	6%
Totals	**$4,465,113**	**2,736.5**		**988**	

Figure 4.2. Wildfire Ignitions within the Newport-Sullivan Lake Ranger District Protection Area 1938-2004.

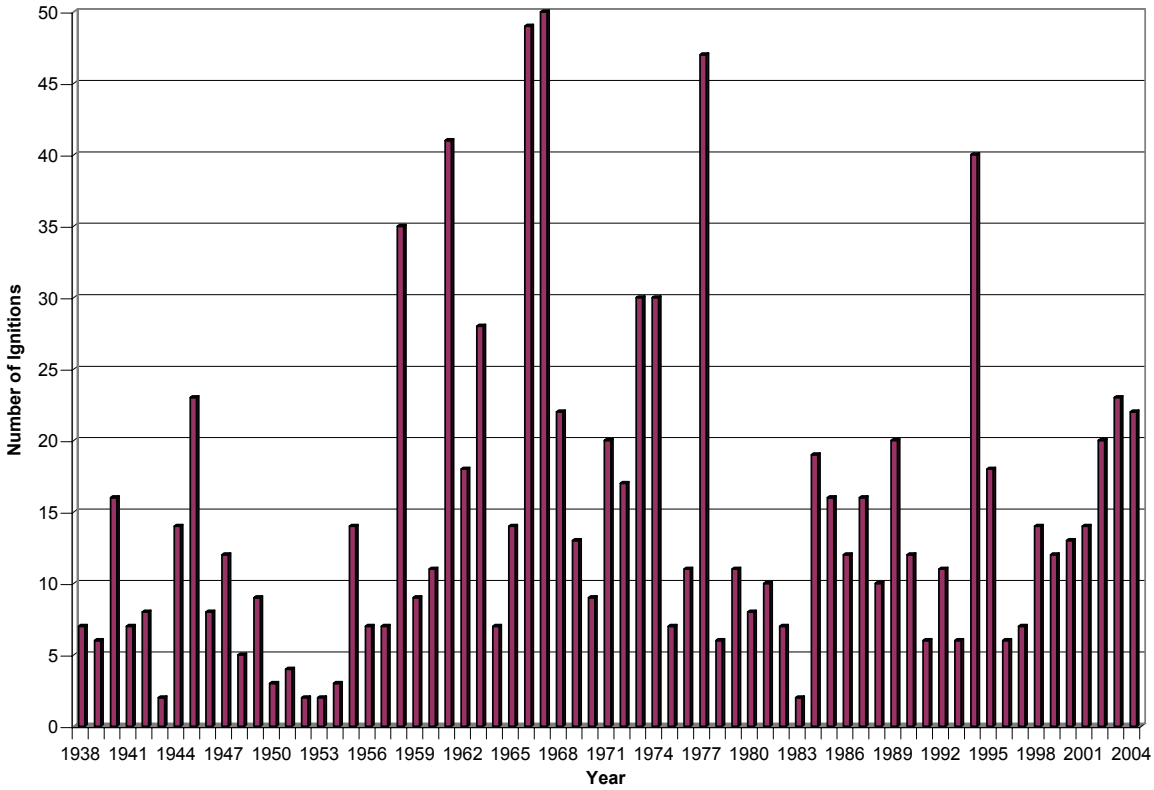


Table 4.5. Wildfire Ignitions by year, cost, acres, and total number of ignitions from the Newport-Sullivan Lake Ranger District (USFS) database.

Year	Total Cost	Number of Acres Burned	Number of Ignitions
1938	$0.00	3	7
1939	$0.00	6	6
1940	$0.00	3	16
1941	$0.00	0	7
1942	$0.00	0	8
1943	$0.00	0	2
1944	$0.00	2	14
1945	$0.00	30	23
1946	$0.00	4	8
1947	$0.00	2	12
1948	$0.00	0	5
1949	$0.00	2	9
1950	$0.00	1	3
1951	$0.00	36	4
1952	$0.00	0	2
1953	$0.00	0	2
1954	$0.00	0	3
1955	$0.00	1	14
1956	$0.00	54	7
1957	$0.00	2	7
1958	$0.00	4	35
1959	$0.00	2	9
1960	$0.00	3	11
1961	$0.00	42	41
1962	$0.00	14	18
1963	$0.00	3	28
1964	$0.00	1	7
1965	$0.00	44	14
1966	$0.00	25	49
1967	$0.00	16	50
1968	$0.00	7	22
1969	$0.00	16	13
1970	$0.00	87	9
1971	$0.00	25	20
1972	$0.00	12	17
1973	$0.00	31	30
1974	$0.00	95	30
1975	$0.00	0	7
1976	$0.00	4	11
1977	$0.00	12	47
1978	$0.00	2	6
1979	$0.00	48	11

Table 4.5. Wildfire Ignitions by year, cost, acres, and total number of ignitions from the Newport-Sullivan Lake Ranger District (USFS) database.

Year	Total Cost	Number of Acres Burned	Number of Ignitions
1980	$0.00	3	8
1981	$0.00	1	10
1982	$0.00	20	7
1983	$0.00	12	2
1984	$0.00	19	19
1985	$0.00	7	16
1986	$0.00	554	12
1987	$0.00	182	16
1988	$0.00	101	10
1989	$0.00	63	20
1990	$0.00	2	12
1991	$0.00	9	6
1992	$0.00	3	11
1993	$0.00	1	6
1994	$3,739,500.00	1053	40
1995	$12,100.00	5	18
1996	$3,000.00	1	6
1997	$2,950.00	1	7
1998	$141,180.00	10	14
1999	$83,914.00	16	12
2000	$13,090.00	4	13
2001	$163,129.00	6	14
2002	$119,160.00	10	20
2003	$134,565.00	6	23
2004	$52,525.00	8	22
Totals	**$4,465,113.00**	**2,737**	**988**

As can be seen from the above data, approximately 988 wildfire ignitions have been documented in Pend Oreille County. It is important to recognize that the DNR data reaches back to 1970 while the USFS data reaches back as far as 1938. While lightning caused ignitions play a major role in the wildfire starts on the USFS protected lands (approximately 69% of all wildfires), their impact on DNR protected lands accounts for only 26% of all wildfires. This is not to say that lightning caused wildfires are less of an impact in the southern portions of the county, but instead to identify the increases in the additional wildland fires caused by humans, thereby reducing the percentage of fires caused by nature.

In all analyses, Pend Oreille County is impacted by wildland fire.

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 4.7). Data summaries for 200 through 2004 are provided and demonstrate the variability of the frequency and extent of

wildfires nationally (Table 4.6). It is important to note that the 10 year moving average number of acres burned reported each year has been increasing constantly since 2000.

Table 4.6. National Fire Season Summaries.

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
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 4.7 and 4.8 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 (Table 4.7) 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 4.7. 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 4.8. 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)

Although many very large fires, growing to over 250,000 acres have burned in Eastern Washington, which Pend Oreille County is a part, actual fires in this county have usually been controlled at much smaller extents. Large fires have occurred in and around Pend Oreille County.

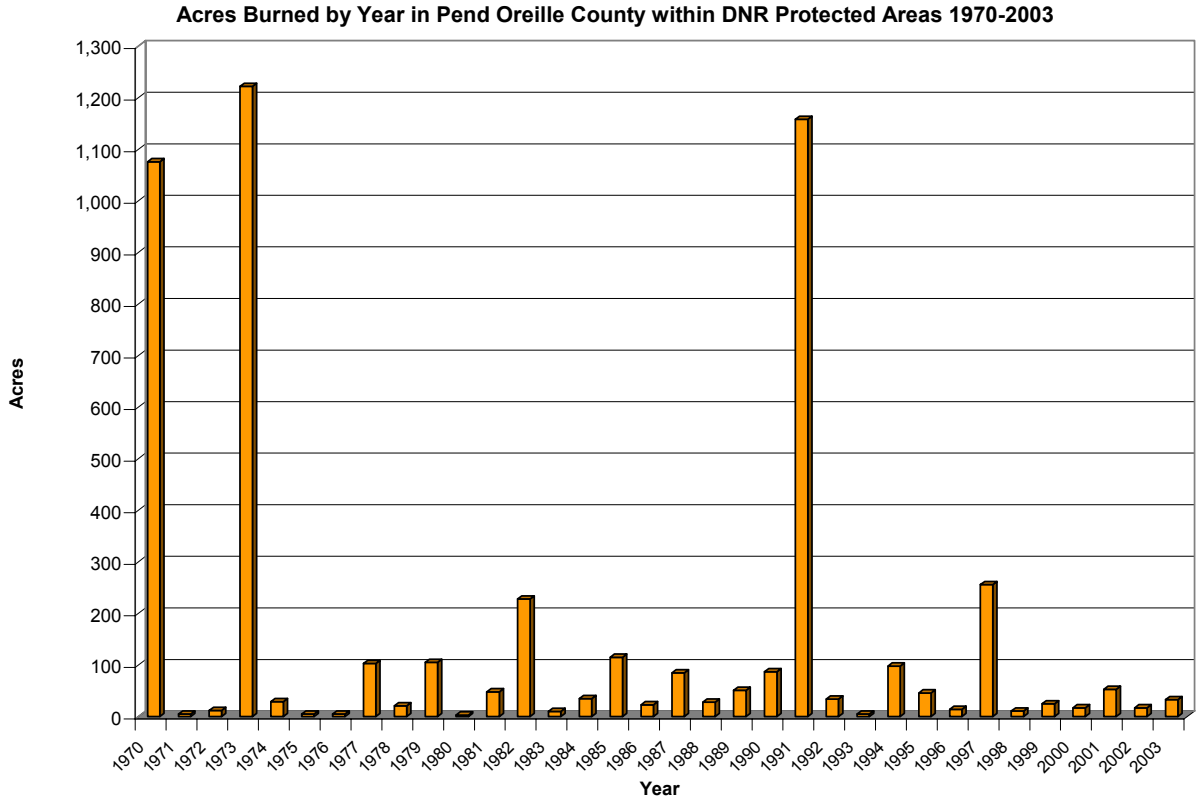
Table 4.9. Summary of wildfire extent (acres burned) by ignition cause within the DNR Protection Area 1970-2003.

Year	Total Acres	LIGHTNING	RECREATION	SMOKER	DEBRIS BURNING	ARSON	EQUIP.	CHILDREN	RAILROAD	MISC.
1970	1,076	14.8	4.0	150.1	15.3	-	-	0.2	-	892.0
1971	5	-	-	-	4.1	-	0.3	0.2	-	-
1972	12	-	0.1	-	6.0	-	-	-	-	6.0
1973	1,222	0.2	261.1	881.1	28.9	48.0		-	-	2.2
1974	29	0.3	0.1	12.6	12.4	2.5	-	0.9	-	0.6
1975	5	-	-	0.2	4.4	-	-	-	-	-
1976	5	-	0.1	0.1	0.2	-	-	-	-	4.6
1977	103	6.7	0.7	2.4	83.4	3.3	-	0.4	-	5.9
1978	21	0.4	0.4	-	9.6	3.1	-	-	-	7.1
1979	105	3.5	29.7	0.5	25.9	5.9	24.5	4.7	-	10.2
1980	3	1.2	-	-	0.6	-	-	1.0	-	0.1
1981	48	8.0	0.1	4.0	35.0	-	-	-	-	0.5
1982	228	0.1	3.0	0.1	166.6	0.1	-	1.6	-	56.6
1983	10	-	0.1	-	9.6	-	-	-	-	0.3
1984	35	12.3	-	-	8.9	1.0	-	5.1	0.2	7.8
1985	115	3.8	0.1	-	105.5	-	-	0.4	-	5.6
1986	23	6.2	2.6	0.3	12.8	-	-	0.5	0.5	0.5
1987	85	2.3	0.1	0.1	69.9	0.2	3.1	3.0	0.1	5.8
1988	28	0.8	1.1	0.1	23.0	0.1	-	0.3	-	2.1
1989	51	2.9	0.2	-	41.4	-	6.0	0.3	-	0.1
1990	87	0.8	0.7	0.4	77.7	0.1	-	5.0	-	2.0
1991	1,158	9.7	0.3	3.0	0.3	0.7	-	0.4	-	1,143.1

Table 4.9. Summary of wildfire extent (acres burned) by ignition cause within the DNR Protection Area 1970-2003.

Year	Total Acres	LIGHTNING	RECREATION	SMOKER	DEBRIS BURNING	ARSON	EQUIP.	CHILDREN	RAILROAD	MISC.
1992	34	5.5	0.4	-	17.4	3.4	4.0	0.1	-	2.9
1993	5	0.2	3.4	-	0.3	-	-	1.0	-	-
1994	98	32.5	1.9	0.2	18.2	8.5	-	1.4	-	35.5
1995	46	3.7	0.5	0.3	30.2	0.1	-	0.4	-	10.5
1996	14		0.2	0.3	12.1	-	-	-	-	1.7
1997	256	1.3	-	-	3.6	-	-	-	-	250.7
1998	11	8.1	0.2	-	1.7	-	0.3	-	-	0.7
1999	25	1.0	2.2	-	10.5	-	-	-	-	11.6
2000	17	0.5	0.2	0.5	8.5	-	1.0	-	-	6.5
2001	53	4.5	2.8	-	33.9	-	-	1.7	-	9.6
2002	17	1.4	0.3	0.1	4.9	-	-	-	-	9.8
2003	33	8.2	0.3	-	5.2	-	-	0.1	-	18.9

Figure 4.3. Acres burned in DNR Protection Areas 1970-2003.



Summaries of wildfire extents have been provided by the Washington Department of Natural Resources and the Newport-Sullivan Lake Ranger District for Pend Oreille County. Although data on wildfire extents has been provided by the Priest Lake Ranger District, data on wildfire extents for the areas protected by the Priest Lake Ranger District is limited. Data is available for the extent of wildfires (where they burned), however, it does not include data on the year of

ignition or cause in correlation with acres burned. Summaries of acres burned are provided with the ignition data.

4.3 Wildfire Hazard Assessment

Pend Oreille County and the adjacent counties of Stevens and Spokane and Bonner and Boundary County in Idaho, were analyzed using a variety of techniques, managed on a GIS system (ArcGIS 8.2). Physical features of the region were represented by data layers including roads, streams, soils, elevation, and remotely sensed images. Field visits were conducted by specialists from Northwest Management, Inc., and others. Discussions with area residents and fire control specialists augmented field visits and provided insights 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 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 was stratified into ecoregions, potential natural vegetation types (PNVs), slope classes, and aspect classes to derive rule sets which were then modeled spatially. Expert opinion was substituted for a stratum when empirical data was not available.

Fire is 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.

4.3.1.1 General Limitations

These data were derived using fire history data from a variety of different sources. These data were designed to characterize broad scale patterns of historical fire regimes for use in regional

and subregional assessments. Any decisions based on these data should be supported with field verification, especially at scales finer than 1:100,000. Because the resolution of the HFR theme is 1,000 meter cell size, the expected accuracy does not warrant their use for analyses of areas smaller than about 10,000 acres (for example, assessments that typically require 1:24,000 data).

Table 4.10. Assessment of Historic Fire Regimes.

Regime	Description	Acres	Percent
1	0-35 yrs; Low Severity	21,443	2.4%
2	0-35 yrs; Mixed Severity	--	--
3	35-100+ yrs; Mixed Severity	566,815	62.2%
4	35-100+ yrs; Stand Replacement	288,814	31.7%
5	200+ yrs; Stand Replacement	2,953	0.3%
7	Water	31,495	3.5%
		911,519	

The USDA Forest Service has not made an intensive analysis of the Historic Fire Regimes within Pend Oreille County. However, as a proxy for Historic Fire Regimes, they have made correlations between current plant association groups and Historic Fire Regime. Table 11 summarizes this assessment of Historic Fire Regime using this method. The Pend Oreille County Historic Fire Regime Map is printed in Appendix I.

Table 4.11. Assessment of Historic Fire Regimes, using Plant Association Groups; USDA Forest Service.

Regime	Description	Acres	Percent
1	0-35 yrs; Low Severity	175,064	19%
2	0-35 yrs; Mixed Severity	--	--
3	35-100+ yrs; Mixed Severity	563,896	62%
4	35-100+ yrs; Stand Replacement	45,294	5%
5	200+ yrs; Stand Replacement	--	--
7	Undetermined	127,265	14%
		911,519	

4.3.2 Fire Regime Condition Class

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

I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75% of the dominant overstory vegetation replaced);

II – 0-35 year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);

III – 35-100+ year frequency and mixed severity (less than 75% of the dominant overstory vegetation replaced);

IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);

V – 200+ year frequency and high (stand replacement) severity.

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

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

The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime (Hann and Bunnell 2001, Hardy *et al.* 2001, Schmidt *et al.* 2002). The central tendency is a composite estimate of vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside.

Characteristic vegetation and fuel conditions are considered to be those that occurred within the natural (historical) fire regime. Uncharacteristic conditions are considered to be those that did not occur within the natural (historical) fire regime, such as invasive species (e.g. weeds, insects, and diseases), “high graded” forest composition and structure (e.g. large trees removed in a frequent surface fire regime), or repeated annual grazing that maintains grassy fuels across relatively large areas at levels that will not carry a surface fire. Determination of the amount of departure is based on comparison of a composite measure of fire regime attributes (vegetation characteristics; fuel composition; fire frequency, severity and pattern) to the central tendency of the natural (historical) fire regime. The amount of departure is then classified to determine the fire regime condition class. A simplified description of the fire regime condition classes and associated potential risks are presented in Table 4.12. Maps depicting Fire Regime and Condition Class are presented in Appendix I.

Table 4.12. Fire Regime Condition Class Definitions.

Fire Regime Condition Class	Description	Potential Risks
Condition Class 1	Within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics. Composition and structure of vegetation and fuels are similar to the natural (historical) regime. Risk of loss of key ecosystem components (e.g. native species, large trees, and soil) is low.

Table 4.12. Fire Regime Condition Class Definitions.

Fire Regime Condition Class	Description	Potential Risks
Condition Class 2	Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe). Composition and structure of vegetation and fuel are moderately altered. Uncharacteristic conditions range from low to moderate. Risk of loss of key ecosystem components is moderate.
Condition Class 3	High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are highly departed (more or less severe). Composition and structure of vegetation and fuel are highly altered. Uncharacteristic conditions range from moderate to high. Risk of loss of key ecosystem components is high.

An analysis of Fire Regime Condition Class in Pend Oreille County shows that approximately 3% of the County is in Condition Class 1 (low departure), just about 63% is in Condition Class 2 (moderate departure), with 17% of the area in Condition Class 3 (Table 4.13).

Table 4.13. Assessment of Current Condition Class in Pend Oreille County.

	Condition Class	Acres	Percent of Area
1	Condition Class 1	27,040	3.0%
2	Condition Class 2	576,526	63.2%
3	Condition Class 3	158,038	17.3%
5	Agriculture	2,402	0.3%
6	Urban/Development/Ag	116,019	12.7%
7	Water	31,495	3.5%
		911,519	

When evaluated by historic fire frequency and fire regime against current condition class, additional insights to departures from the natural role of fire becomes evident (Table 4.14). Future land management activities targeted at maintaining lands in Condition Class 1, can use the relationships shown in Table 4.14 as a guideline to attain these conditions. For instance, those areas with a historic fire frequency of 0-35 years, and currently in Condition Classes 2 or 3, can be managed through mechanical harvesting, followed by broadcast burning to treat slash. However, if forest harvest rotations exceed 35 years, then an intermediate treatment that includes an under-burning would be consistent with maintaining the historical fire frequency. The same process can be used on other lands as well.

Table 4.14. Fire Regime Condition Class by Historical Fire Frequency.

Fire Regime Condition Class by Historical Fire Frequency	Acres	Percent of Area
0-35 yrs; Condition Class 1	5,114	0.6%
0-35 yrs; Condition Class 2	2,578	0.3%

Table 4.14. Fire Regime Condition Class by Historical Fire Frequency.

Fire Regime Condition Class by Historical Fire Frequency	Acres	Percent of Area
0-35 yrs; Condition Class 3	7,634	0.8%
35-100+ yrs; Condition Class 1	21,926	2.4%
35-100+ yrs; Condition Class 2	571,480	62.7%
35-100+ yrs; Condition Class 3	149,919	16.4%
200+ yrs; Condition Class 2	2,468	0.3%
200+ yrs; Condition Class 3	485	0.1%
Agriculture & Non-Vegetative Areas	118,421	13.0%
Water	31,495	3.5%
Total	911,519	

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

4.3.3 On-Site Evaluations

Fire control and evaluation specialists as well as hazard mitigation consultants evaluated the communities of Pend Oreille County to determine the extent of risk and characteristics of hazardous fuels in the Wildland-Urban Interface. The on-site evaluations have been summarized in written narratives. These evaluations included the estimation of fuel models as established by Anderson (1982). These fuel models are described in the following section of this document.

4.3.4 Fuel Model Descriptions

Anderson (1982) developed a categorical guide for determining fuel models to facilitate the linkage between fuels and fire behavior. These 13 fuel models, grouped into 4 basic groups: grass, chaparral and shrub, timber, and slash, provide the basis for communicating fuel conditions and evaluating fire risk. There are a number of ways to estimate fuel models in forest and rangeland conditions. The field personnel from Northwest Management, Inc., that evaluated communities and other areas of Pend Oreille County have all been intricately involved in wildland fire fighting and the incident command system. They made ocular estimates of fuel models they observed. In an intense evaluation, actual sampling would have been employed to determine fuel models and fuel loading. The estimations presented in this document (Chapter 4) are estimates based on observations to better understand the conditions observed.

The following is a brief description of each of the 13 fire behavior fuel models.

4.3.4.1 Grass Group

Fire Behavior Fuel Model 1 - Fire spread is governed by the very fine, porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move through the cured grass. Very little timber or shrub are present. Fire Behavior Fuel Model 2 - Fire spread is primarily through cured or nearly cured grass where timber or shrubs cover one to two-thirds of the open area. These are surface fires that may increase in intensity as they hit pockets of other litter. Fire Behavior Fuel Model 3 - Fires in this grass group display the highest rates of spread and fire intensity under the influence of wind. Approximately one-third or more of the stand is dead or nearly dead.

4.3.4.2 Shrub Group

Fire Behavior Fuel Model 4 - Fire intensity and fast spreading fires involve the foliage and live and dead fine woody material in the crowns of a nearly continuous secondary over story. Stands of mature shrubs six feet tall or more are typical candidates. Besides flammable foliage, dead woody material in the stands contributes significantly to the fire intensity. A deep litter layer may also hamper suppression efforts. Fire Behavior Fuel Model 5 - Fire is generally carried by surface fuels that are made up of litter cast by the shrubs and grasses or forbs in the understory. Fires are generally not very intense because the fuels are light and shrubs are young with little dead material. Young green stands with little dead wood would qualify. Fire Behavior Fuel Model 6 - Fires carry through the shrub layer where the foliage is more flammable than Fuel Model 5, but requires moderate winds greater than eight miles per hour. Fire Behavior Fuel Model 7 - Fires burn through the surface and shrub strata with equal ease and can occur at higher dead fuel mixtures because of the flammability of live foliage and other live material.

4.3.4.3 Timber Group

Fire Behavior Fuel Model 8 - Slow burning ground fuels with low flame lengths are generally the case, although the fire may encounter small “jackpots” of heavier concentrations of fuels that can flare up. Only under severe weather conditions do the fuels pose a threat. Closed canopy stands of short-needled conifers or hardwoods that have leafed out support fire in the compact litter layer. This layer is mostly twigs, needles, and leaves. Fire Behavior Fuel Model 9 - Fires run through the surface faster than in Fuel Model 8 and have a longer flame length. Both long-needle pine and hardwood stands are typical. Concentrations of dead, down woody material will cause possible torching, spotting, and crowning of trees. Fire Behavior Fuel Model 10 - Fires burn in the surface and ground fuels with greater intensity than the other timber litter types. A result of over maturing and natural events create a large load of heavy down, dead material on the forest floor. Crowning out, spotting, and torching of individual trees are more likely to occur, leading to potential fire control difficulties.

4.3.4.4 Slash Group

Fire Behavior Fuel Model 11 - Fires are fairly active in the slash and herbaceous material intermixed with the slash. Fuel loads are light and often shaded. Light partial cuts or thinning operations in conifer or hardwood stands. Clearcut operations generally produce more slash than is typical of this fuel model. Fire Behavior Fuel Model 12 - spreading fires with high intensities capable of generating fire brands can occur. When fire starts, it is generally sustained until a fuel break or change in conditions occurs. Fuels generally total less than 35 tons per acre and are well distributed. Heavily thinned conifer stands, clearcuts, and medium to heavy partial cuts are of this model. Fire Behavior Fuel Model 13 - Fire is generally carried by a continuous layer of slash. Large quantities of material three inches and greater is present. Fires spread quickly through the fine fuels and intensity builds up as the large fuels begin burning. Active flaming is present for a sustained period of time and firebrands may be generated. This contributes to spotting as weather conditions become more severe. Clearcuts are depicted where the slash load is dominated by the greater than three inch fuel size, but may also be represented by a “red slash” type where the needles are still attached because of high intensity of the fuel type.

4.4 Pend Oreille County Conditions

Pend Oreille County is comprised by two ecologically diverse subregions, the Pend Oreille River valley and surrounding forestlands.

The productive soils of the bottomlands make the river valley well suited to growth of both grassland vegetation and agriculture. Over the course of the past century, much of the native riparian vegetation has been converted to agriculture fields supporting livestock grazing and predominately hay crops.

Coniferous woodlands associated with the national forest cover the majority of the county. The transition zone between forest and riparian vegetation 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.

Pend Oreille County is characterized by moderate to cold winters and warm, dry summers. Although relatively infrequent, fires in the forest fuel types present throughout much of the County have the potential to produce large, intense fires, resulting in high social and economic costs. This potential was realized in the summer of 1910 when much of Pend Oreille and surrounding counties were completely burned over. This event clearly illustrates the mounting urban-interface issue facing Pend Oreille County. Population growth rates have been steadily increasing throughout the County. The growing appreciation for seclusion has led to significant development in the lower elevation forests and around many of the lakes. 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. The increased potential for fire starts and the fire prone landscapes in which homes have been constructed greatly increases the potential for fires in interface areas.

4.4.1 County-Wide Potential Mitigation Activities

There are four basic opportunities for reducing the loss of homes and lives to fires. There are many single actions that can be taken, but in general they can be lumped into one of the following categories:

- Prevention
- Education/ Mitigation
- Readiness
- Building Codes

4.4.1.1 Prevention

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 weekly "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 devise. 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: Fires cannot be suppressed until they are detected and reported. As the number and popularity of cellular phones has increased, expansion of the #FIRE program throughout Washington may provide an effective means for turning the passing motorist into a detection resource.

Burn Permits: The issues associated with debris burning during certain times of the year are difficult to negotiate and enforce. However, there are significant risks associated with the use of fire adjacent to expanses of flammable vegetation under certain scenarios. The Washington State Department of Ecology regulates all types of outdoor burning except silvicultural burning which is regulated by Washington State Department of Natural Resources. Burn permits must be obtained from the Department of Ecology for any type of agricultural burning or burning associated with land clearing. Other types of burning, such as fire training or habitat enhancement, may require a special permit. In addition, those who have obtained a permit are only allowed to burn on designated burn days. In order to find out if it is legal to burn in a specific area, permit holders must call the Department of Ecology hotline, 1-800-406-5322, and their local fire departments for an official "okay".

Residential and land clearing burning are not allowed in Urban Growth Areas (UGAs) in cities with 10,000 people or more. To find out if you live in a UGA and what permits or restrictions might apply, contact your city planning department. Some kinds of outdoor burning are allowed in UGAs, such as the burning of windblown vegetation, tumbleweeds, and recreational fires. For commercial agricultural operations located within UGAs, permitted field burning, permitted orchard tear-out burning, and the burning of fencerows, ditch banks, windblown vegetation, tumbleweeds, and annual pruning are allowed. If you live outside the boundaries of a UGA, it is legal to burn natural vegetation; however, the Department of Ecology promotes alternatives to this type of burning such as chipping, composting, or designated solid waste disposal.

4.4.1.2 Education

Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home as to whether the home will survive the passing fire front. Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, fire fighting 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.

The majority of the uncultivated vegetation in Pend Oreille County is comprised of grass and forestland. These fuel types are very flammable and can support fast moving fires. In many cases, homes can easily be protected by following a few simple guidelines that reduce the ignitability of the home. There are multiple programs such as FIREWISE detailing precautions that should be taken in order to reduce the threat to homes, such as clearing cured grass and weeds away from structures and establishing a green zone around the home. Education needs to be followed up by action. Any education programs should include an implementation plan. Ideally, funds would be made available to financially assist the landowner making the necessary changes to the home.

The survey of the public conducted during the preparation of this Community Wildfire Mitigation Plan indicated that approximately 61% of the respondents are interested in participating in this type of activity.

4.4.1.3 Readiness

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.

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.

4.5 Pend Oreille County's Wildland-Urban Interface

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 4.15. Pend Oreille County Communities.

Community Name	Planning Description	Vegetative Community	National Register Community At Risk?[1]
Newport	City	Forestland	Yes
Ione	Community	Forestland	Yes
Cusick	Community	Forestland	Yes
Metaline	Community	Forestland	Yes
Metaline Falls	Community	Forestland	Yes
Usk	Community	Forestland	Yes
Furport	Community	Forestland	No
Dalkena	Community	Forestland	No
Diamond Lake	Community	Forestland	No

[1]Those 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.

4.5.1 Mitigation Activities Applicable to all Communities

4.5.1.1 Home site Evaluations and Creation of Defensible Space

Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Current management of the vegetation surrounding homes provides good protection; however, maintaining a lean, clean, green zone within 100 feet of structures to reduce the potential loss of life and property is recommended.

Assessing individual homes in the outlying areas can address the issue of escape routes and home defensibility characteristics. Educating the homeowners in techniques for protecting their homes is critical in these hot, dry environments.

4.5.1.2 Travel Corridor Fuel Breaks

Ignition points are likely to continue to be concentrated along the roads and railway lines that run through the county. These travel routes have historically served as the primary source of human-caused ignitions, particularly along U.S. Highway 2. In areas with high concentrations of resource values along these corridors, plow or disk lines may be considered in order to provide a fuel break in the event of a roadside ignition. Passage with a disk parallel to an access route can provide an adequate control line under normal fire conditions. Alternatively, permanent fuel breaks can be established in order to reduce the potential for ignitions originating from the highway to spread into the surrounding lands.

4.5.1.3 Power Line Corridor Fuel Breaks

The treatment opportunities specified for travel corridor fuel breaks apply equally for power line corridors. The obvious difference between the two is that the focus area is not an area parallel to and adjacent to the road, but instead focuses on the area immediately below the infrastructure element. Firefighters working near power lines can be at extreme risk if the lines are still active due to the possibility of arcing between lines; thus, in order to safely use power line corridors as fuel breaks, power lines should be inactive and wildlands extending from the cleared corridor must also be treated. Treating the wildlands adjacent to this type of fuel break will help reduce the intensity and usually the flame lengths of the fire front before it arrives. Fuel reduction projects under and extending from high tension power lines are strongly recommended.

4.6 Communities in Pend Oreille County

4.6.1 Vegetative Associations

Vegetative structure and composition in Pend Oreille County is closely related to elevation, aspect, and precipitation. Relatively mild and moist environments characterize the undulating topography of the region which transitions from the Pend Oreille River valley riparian plant communities to the forest ecosystems that characterize the vast majority of the land area in Pend Oreille County. These forest communities 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 toward forested communities dominated by ponderosa pine, western larch, grand fir, and Douglas-fir at the lower elevations transitioning to lodgepole pine and subalpine fir at the higher elevations. Engelmann spruce and western red cedar are commonly 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 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 fuel accumulation fuel large, intense wildfires.

Many lower elevation forested areas throughout Pend Oreille 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 the ability to manage wildland fires in the wildland-urban interface.

4.6.2 Overall Fuels Assessment

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.

The majority of homes and structures within and surrounding these communities are along a spectrum from low to moderate to high risk of loss to wildland fire. Individual characteristics of each community and structure dictate the risk factors. The prevalence of forestland fuels pose a moderate to high threat to homes surrounded by these fuels. Fire typically spreads quickly through grasses, but burns at relatively high intensities in the brush and forest tree fuels, especially where declining forest health is a factor. Many homes are at low risk because of the management of fuels in the area immediately surrounding the structures and their access routes. There are a number of individual homes that are at much higher risk to wildland fire loss in the area, largely due to use of highly ignitable materials in home construction, or by lack of defensible space surrounding the home. Home defensibility practices can dramatically increase the probability of home survivability. The amount of fuel modification necessary will depend on the specific attributes of the site. Considering the high spread rates possible in these fuel types, homes need to be protected prior to fire ignitions, as there is little time to defend a home in advance of fire.

4.6.3 Individual Community Assessments

4.6.3.1 Metaline and Metaline Falls

The towns of Metaline and Metaline Falls are the most northern communities in Pend Oreille County lying just 11 miles south of the Canadian border and 16 miles west of the Idaho border.

Metaline Falls sits at an elevation of 2,100 feet and is situated on the east side of the Pend Oreille River with Sullivan Creek to the immediate north. The small community of Pend Oreille Village lies on the north bank of Sullivan Creek. Metaline is on the west side of the river on a flat that slopes gently down to the water.

Metaline, Metaline Falls, and the surrounding area maintain a stable year around population of approximately 480 individuals. In the summer months and fall hunting season this number can easily triple or quadruple with the influx of seasonal homeowners, recreationalists, and vacationers.

These communities are some of the oldest in Pend Oreille County having been established as mining communities in the late 1800s. Gold was discovered in 1859 and Metaline was incorporated in the same year making it the oldest white settlement in Pend Oreille County. Metaline Falls was incorporated in 1911.

The two towns provide basic services; sewer, water, groceries, fuel, schools, libraries, post offices, and lodging for the north end of Pend Oreille County. Metaline has a city park on the river with a boat launch. Both towns are popular jumping off points for boaters and fishermen utilizing the Pend Oreille River above Boundary Dam. Metaline Falls is called one of the 100 best small arts towns in America. Both towns have distinct main streets and downtown areas consisting of historic brick and wooden buildings.

4.6.3.1.1 Fire Potential

Fuels Assessment

There is little evidence of recent wildfire activity near these towns, although the potential does exist. The topographic relief of the area around the towns is dominated by the relatively flat benches located along the Pend Oreille River. Once out of this river valley the hillsides vary greatly in topography from large, nearly flat benches to steep mountainsides. Breaks in forestland vegetation are usually associated with small wetlands or natural meadows, home sites, and road corridors. There are many old mine sites and quarries that may also create discontinuity in the vegetation. There are several open aspen stands and grassy, south facing hillsides, but for the most part the forest is thick and brushy with an abundance of regeneration. Ladder fuels are present in almost all of the forested areas making a crown fire a distinct possibility given the terrain and local summer weather conditions.

Due to the steep, rugged terrain in some areas, fires in these forests are difficult and potentially dangerous to fight. In the lowlands there are many logging roads that can provide for wildland firefighting access if they are maintained for such a purpose.

Ignition Profile

Both natural and man-caused fires could affect this area. High mountains surround the valley making summer thunderstorms common occurrences. Lightning strikes occur often; however, are usually limited to the higher elevations. The possibility of human-caused fires also exists, especially since this is an area heavily used for recreation. There are many campsites near the river which provide increased sources of human caused ignition. Other possibilities of human-caused fires also exist, including debris burning, discarded cigarettes, children playing with matches, fireworks, and roadway fires. Railroad tracks parallel the river and run through Metaline Falls and Pend Oreille Village. There is a possibility of hot sparks or other ignition sources stemming from the trains that regularly use these tracks. Main power transmission lines run parallel to the railroad tracks and a network of public lines run to individual homes and businesses throughout the area. The possibility of trees coming into contact with the live wires

or arcing between lines due to smoke is significant. The narrow width of the current power line corridors and the high wind events that occur in the area further increase the fire potential.

The abundance of human and natural ignition sources and the nature of fuels in the area increase the probability of wildland fire. Fire characteristics will depend on fuel types and moisture levels, as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity, and strong winds can quickly lead to fast-moving, destructive wildfires.

4.6.3.1.2 Ingress-Egress

The primary access into Metaline and Metaline Falls is Highway 31 which travels north and south along the Pend Oreille River. This is a paved two-lane state highway that provides access between the Spokane area and Canada. This road travels through the Pend Oreille River Valley bordered by thick, mixed species forests for most of its length. There are very steep cliffs above the highway in the vicinity of Metaline and Metaline Falls. A two-lane bridge spans the river between Metaline and Metaline Falls. There are virtually no alternative north-south escape routes.

From Metaline Falls there is a paved county road that accesses Sullivan Lake approximately 5 miles to the east. The road then turns south and continues along the western edge of Sullivan Lake for 4 miles before turning back to the west and reconnecting with State Route 31 just south of Ione. This route could potentially be used as a bypass for Highway 31 between Ione and Metaline Falls; however, due to its location in a steep canyon surrounded by timber type fuels, the Sullivan Lake Road is not a good option. The river itself would provide an escape route via boat, but there are dams both north and south of the towns within a few miles. North of Metaline, Boundary Road travels north to Canada on the west side of the river, opposite of the highway; however, this road is narrow, windy, and runs through heavily forested land.

There are several other forest routes in the area; nevertheless, these are generally forest access roads that lead to more remote regions of the Colville National Forest making them impractical for fire escape.

4.6.3.1.3 Infrastructure

Selkirk High School lies about two miles south of Metaline on the east side of Highway 31. It has a large clearing for the school and ball field, but a thick cedar forest surrounds the site. The forest is within 100 feet of the school building itself. Escape from this area is limited to the highway.

High power transmission lines from Boundary Dam run along the west side of the Pend Oreille River from the dams location near the Canadian border, south, past Ione. This power line corridor runs parallel to Highway 31 anywhere from 200 feet to 1 ½ miles from the highway. This corridor is well maintained and has the potential to provide a fuel break for the highway and the town of Metaline.

The Pend Oreille County Public Utility District owns and operates the new water system recently installed for residents of Metaline Falls and Pend Oreille Village. The new system maintains a constant 150,000 gallon reservoir of treated water and would be capable of supplying approximately 1,000 gallons per minute for at least one and one half hours without power via gravity feed. The old well system is also still in place, but would only be used as a last resort water resource. The old system is also dependent on power to operate the pumps.

Tourism is becoming an increasingly important component of the local economy. Weekend travelers and adventurers are supporting small stores and lodging facilities in these towns. These businesses also provide closer access to supplies and amenities for residents. In addition, more and more homes are being built in the area. Restricted access to the surrounding forests due to fire danger may negatively affect this important economic factor in the local economy. A large scale wildfire in the area would also reduce the areas scenic beauty and may result in reduced tourism dollars.

4.6.3.1.4 Fire Protection

The Metaline Volunteer Fire Department is responsible for structural fires within the city limits of Metaline. The Metaline Falls Volunteer Fire Department responds to structural fires within the city of Metaline Falls and in the Sullivan Lake area. A mutual aid agreement between Metaline, Metaline Falls, and Pend Oreille County Fire District #2 is in effect for structural fires in either city. Under a contractual agreement with County Fire District #2, both volunteer departments are capable of responding to fires to the south and north (to the Canadian border). This includes structural and wildland fires within DNR and USFS jurisdiction, but only applies until the appropriate agency can respond.

The US Forest Service, Colville National Forest is responsible for wildland fire protection. The North Columbia District of the DNRC will also respond to wildland fire emergencies in this area.

4.6.3.1.5 Community Assessment

Metaline Falls lies at the north end of a steep sided valley, which encompasses the Pend Oreille River. The town itself lies on a flat bench about 100 feet above the river. The steep hillside between the river and the town is forested. The bench itself is very open and there is a substantial amount of open grass area between the town and the forested hillside above. There is a baseball field on the south end of town and mine tailings covered in grass on the northeast side of town at the base of the mountain. These areas could help provide defensible space to the community if the flashier fuels were regularly abated. Most of the town would be protected by the open spaces in the event of a fire on the hillside east of town, but there are a few homes located adjacent to and within the forested area. This forest consists mainly of open aspen and fir. There is a large landslide just southeast of town that runs uphill from the river a few hundred vertical feet, which could also provide a defensible zone from any fire from the south being pushed by a northern wind. The river would provide protection from a fire to the south, west, and north of town. Sullivan Creek runs just north of town, and there are sewage ponds and open space along the creek. Most of the homes in town have metal roofs and wood or vinyl siding.

Just north of the creek lies Pend Oreille Village, a small community with a few streets and homes. Almost all of these homes have metal roofs, but there are a few with composite shingles. Most of these homes also have wood or vinyl siding. This village is also on a bluff and is mostly surrounded by grasslands.

On the east side of Pend Oreille Village, just below the highway, are large piles of firewood, split and stacked or piled. These piles are against the timber below the roadway and directly above the highway is thick fir and cedar forest.

There is very little underbrush in the village and few trees. The trees that do exist are mainly mature Douglas-fir, which have been limbed to a height of at least 16 feet. The forest fuels abut the northeast side of town. On the north side of the village is a gravel pit that would provide a defensible zone from any fire coming down from the north. Both of these communities have the

potential to be protected by defensible zones by utilizing the natural and man made vegetative communities around the area.

Metaline lies on an open flat right next to the Pend Oreille River. Most of the town lies between Highway 31 and the river. This portion of town is flat and very open. Most homes have irrigated lawns and the trees are limbed and well kept. On the west side of the highway toward the forested hillside is a large field and a baseball diamond. There are only a few homes on this side of the highway next to the timber. Most of the homes in town have metal roofs and vinyl siding, but there are some with composite shingles or wood siding. On the north side of town, the backwaters of Linton Creek form a large marsh. This would provide protection to most of the town from any fire approaching from the north. The motel and a few homes lying on the north side of the marsh would not be as well protected. There is a large waterfront park with a boat ramp, which would allow engines to draft directly out of the river if needed. Also, fire suppression aircraft would have very quick turn around times protecting these communities due to the easy access and proximity of the river.

These communities are at medium to high risk of wildfire due to the rugged nature of the topography, heavy forestland fuels in the surrounding area, and multiple ignition sources. The homes on the outskirts of town next to the forest are at the highest risk. Many of these homes have metal roofs as well as irrigated lawns, which acts a defensible space against wildfires.

4.6.3.1.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Pend Oreille County must be made aware that home defensibility starts with the home. 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 Metaline and Metaline Falls and the surrounding areas should be encouraged to work with fire management agencies within the county to complete community defensible zones and individual home site evaluations. Community and home defensibility steps should be enacted based on the results of these evaluations.

Development of a community evacuation plan is necessary to assure an orderly evacuation in the event of a threatening wildland fire. Designation and posting of escape route signage would reduce chaos and escape times for fleeing residents. A community safety zone should also be established in the event of compromised evacuation. Efforts should be made to educate homeowners through existing homeowners associations or creation of such organizations to act as conduits for this information.

Other specific mitigation activities are likely to include management of trees and vegetation along roads, especially Highway 31 and Sullivan Lake Road. Furthermore, building codes should be revised to provide for more fire conscious construction techniques such as using fire resistant siding, roofing, and decking.

Also of vital importance is the accessibility of the home to emergency apparatus. If the 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.

Recreational facilities near the community and along access routes should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape proof fire rings and barbeque pits should be installed and maintained. Surface fuel accumulations in nearby forests can also be kept to a minimum by periodically conducting 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 strictly enforcing fire-use regulations.

Recreational and industrial activities introduce a multitude of potential ignition sources. Landowners should be especially careful to maintain a well-groomed defensible space and locate propane and fuel tanks as well as firewood away from structures.

4.6.3.2 Ione

The community of Ione is located on the western bank of the Pend Oreille River approximately 8 miles south of Metaline on Highway 31. It is mostly on an open flat west of the highway, but a small portion of the town is between the highway and the river. The town was founded in 1894 and is home to 479 people. Steam wheelers began stopping here in the 1880's and limestone suitable for making cement was found in 1910. Lumber was an important industry in Ione until the late 1930's and one of the largest mills in northeast Washington used to be located here. There are services along the highway route through town, as well as an elementary school, motels, RV parks, and a city park with a boat launch. The Ione Community Center has a staffed library, a large meeting room, and a cafeteria. There is a four bay, three story fire station on the south end of town manned by 27 volunteer firefighters. The town also operates an airport with a helipad about 1 ½ miles south of Ione on Highway 31.

4.6.3.2.1 Fire Potential

Fuels Assessment

There is evidence of an old fire on the east side of the river south of Ione on a very steep slope. Closer to the town, though, there is little evidence of recent fire activity. The possibility of a wildfire near Ione does exist, especially given the intermixed and rural nature of homes on the edge of the town and in the outlying area. The valley bottom surrounding Ione is wider than that of Metaline and Metaline Falls and there is much more open ground, especially to the south. The flat valley bottom between Ione and the old community of Tiger a few miles to the south is interspersed with forest land and open agricultural land and pasture, which could provide a defensible zone from a fire approaching from the south.

On the south end of town is a large millpond formed by the backwaters of Big and Little Muddy Creeks. Bordering the east side of town is the Pend Oreille River. Cedar Creek runs along the north side of town, but would offer little protection because there is no open area adjacent to the creek. Several homes directly border and intermingle with the thick cedar forest fuels near Cedar Creek and along Cedar Creek Road and could be in real danger if a wildfire occurred north of town. In particular, there are a group of homes just out of town whose only access is by a wooden bridge across Cedar Creek. This bridge is surrounded by dense fuels with no weight rating information available causing serious access issues for fire engines if they were needed. The west side of town abuts the continuous forest fuels of the Colville National Forest, which in the Ione vicinity is a fairly dry pine and fir habitat.

Ignition Profile

Both natural and man-caused fires could occur in this area. High mountains surround the valley, making summer thunderstorms common. Lightning strikes occur often; however, primarily at higher elevations. The possibility of human-caused fires also exists, especially since this is an

area heavily used for recreational purposes. There are many campsites near the river which could lead to escaped campfires. Other possibilities of human-caused fires also exist, including debris burning, discarded cigarettes, children playing with matches, fireworks, and roadway fires. There are also railroad tracks paralleling the river and running through town. There is a possibility of hot sparks or other ignition sources stemming from the trains that regularly run on these tracks.

The abundance of human and natural ignition sources and the dry nature of fuels in the area increase the probability of wildland fire. Fire characteristics will depend on fuel types and moisture levels, as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity and strong winds can quickly lead to fast-moving, destructive wildfires.

4.6.3.2.2 Ingress-Egress

State Highway 31 passes directly through Ione. This two lane highway parallels the Pend Oreille River running north and south and provides access between the Spokane area and Canada. It is the only major highway in the Pend Oreille River Valley. South of Ione, the road travels on the west side of the river through a mix of vegetation, including thick cedar and fir forests and agricultural land and pasture. There are some narrow windy areas, but for the most part the road is straight. To the north of town the highway travels through mostly thick forests high above the river. On the west side of town, the Smackout Pass Road heads west over the top of the mountain to Northport. Meadow Lake Road forks off of the Smackout Pass Road about half way up and heads south to Colville. Meadow Lake Road would provide an escape route in the event Highway 31 was cut off to the north and south of town. Approximately ¾ miles south of Ione is Sullivan Lake Road, which travels east over the river. Once on the other side, you could escape south to Newport or north around Sullivan Lake and end up at Highway 31 north of Metaline Falls. Also, about 3 miles south of Ione, in Tiger, Highway 20 heads west from Highway 31 to Colville. This would provide alternate access to the Spokane area via Chewelah if Highway 31 south of Tiger was blocked by fire. The Pend Oreille River would provide escape to the south via boat; however, Box Canyon Dam blocks the river about three miles north of town. There is a small airport about a mile and a half south of Ione, which services small aircraft and a small helipad for helicopters.

4.6.3.2.3 Infrastructure

Ione lies on a flat west of the Pend Oreille River. Highway 31 as well as the Pend Oreille Valley railroad travel north and south through town. The east side of town lies next to the Pend Oreille River where there is a city park with a boat ramp, which could be used by fire engines to draft. The river could be used by fire suppression aircraft to fill as well. There is a slough formed by the backwaters of Cedar Creek on the north side of town east of Highway 31. North of the Cedar Creek slough is an RV park encompassed by a thick cedar forest. The town of Ione recently upgraded their water system by replacing the old water lines from the wells in Ione Town Park to the 500,000 gallon tank on Cedar Creek Road and back down to the hydrant and residential lines in both Ione and Chippewa.

Main power transmission lines run along these tracks and many other power lines run to homes and businesses through town. There is also another main transmission line about a mile west of town. The possibility of leaves or branches striking the power lines and causing fires is significant. The narrow width of power line corridors and the high wind events that occur in the area also increase this possibility.

There is an abundance of water and, more importantly, water access points in the area. About three miles north of town on the Pend Oreille River is Box Canyon Dam, which supplies the Pend Oreille River Valley with its electricity. There are transmission lines running north and south from the dam along the railroad tracks both of which are bordered by thick forest fuels. However, the corridors are well maintained and the power poles are made of metal. These lines transport power to the entire valley.

4.6.3.2.4 Fire Protection

The primary responsibility for the Ione Volunteer Fire Department is to provide fire and medical protection within the Ione city limits. Pend Oreille County Fire District #2 has contracted with the town of Ione to provide fire and medical attention with the confines of Fire District #2 boundaries. Additionally, upon request the Ione Volunteer Fire Department will respond to fire and medical calls within Metaline and Metaline Falls. The US Forest Service, Colville National Forest is responsible for wildland fire protection. The Washington DNR, North Columbia District will also respond to wildland fire emergencies in this area.

4.6.3.2.5 Community Assessment

Ione and the surrounding area is a high wildfire risk. Most of the town is relatively safe because it is flat and open with few trees. The edges and outlying areas of town are at a high risk because they directly border the surrounding forest fuels. Some homes have trees directly over the roof and some homes exhibit poor access for fire suppression equipment.

Most of the homes have metal roofs and irrigated and groomed lawns; thus, creating an effective defensible space.

4.6.3.2.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Pend Oreille County must be made aware that home defensibility starts with the home. 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 Ione should be encouraged to work with local fire departments and fire management agencies within the county to complete community defensible zone and individual home site evaluations. Community and home defensibility steps should be enacted based on the results of these evaluations.

Development of a community evacuation plan is necessary to assure an orderly evacuation in the event of a threatening wildland fire. Designation and posting of escape route signage would reduce chaos and escape times for fleeing residents. A community safety zone should also be established in the event of a compromised evacuation. Efforts should be made to educate homeowners through existing homeowners associations or creation of such organizations to act as conduits for this information.

Other specific mitigation activities are likely to include management of trees and vegetation along roads and power line right-of-ways. Highway 31, Highway 211, and Smackout Pass Road should be given special consideration for vegetation manipulation. Furthermore, building codes

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

Also of vital importance is the accessibility of the home to emergency apparatus. If the 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.

Recreational facilities near the community and along the Pend Oreille River corridor should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape proof fire rings and barbeque pits should be installed and maintained. Surface fuel accumulations in nearby forests can also be kept to a minimum by periodically conducting controlled burns. Other actions that would reduce the fire hazard would be thinning and pruning timbered areas, creating fire resistant buffers along roads and power line corridors, and strictly enforcing fire-use regulations.

Recreational and industrial activities introduce a multitude of potential ignition sources. Landowners should be particularly careful to maintain a well-groomed defensible space and locate propane and fuel tanks as well as firewood away from structures.

4.6.3.3 Cusick and Usk

Cusick is located on the west side of the Pend Oreille River approximately 30 miles south of Ione along State Highway 20. The town is home to approximately 212 year around residents. Usk is a smaller community about two miles south of Cusick. There are two mills on opposite sides of this town, Ponderay Newsprint Company and Ponderay Fiber. They are the largest employers in the area. The land around both Cusick and Usk is flat and used for agricultural purposes and pasture land. South of Usk is a large forested area that eventually connects with the Colville National Forest. On the east side of both the towns is the Pend Oreille River, which is about a third of a mile wide at this point. The Kalispel Indian Reservation lies just north of Cusick on the east side of the Pend Oreille River directly across from both towns.

4.6.3.3.1 Fire Potential

Fuels Assessment

There is little sign of large wildfire events in the Cusick/Usk area, but the possibility of wildfire does exist. The towns are within the open valley bottom, which may protect them from the direct affects of wildfire; however, it is likely the fumes and gases resulting from a wildfire would be funneled directly through the populated areas. Homes along the edge of the valley and within the forest lands have a much higher risk to wildfire. The west side of Cusick and the south side of Usk abut wooded areas. The wooded areas near the town sites are typically isolated stands, which are at much less risk; however, fires ignited in these stands could potentially threaten homes. The drier forests are composed of ponderosa pine and Douglas-fir, while the wetter sites are grand fir, western red cedar, and western hemlock. Western larch is also common. Much of the forest above the valley floor is very brushy and regeneration is typically abundant. Thick ladder fuels are present in most areas, which have a much higher potential of leading to a crown fire. This would be very dangerous to homes on the edge of these communities.

Ignition Profile

Both natural and man-caused fires could occur in this area. High mountains surround the valley, making summer thunderstorms common. Lightning strikes occur often, mostly in the higher terrain. The possibility of human-caused fires also exists, especially since this is an area heavily used for recreational purposes. There are many campsites near the river which could lead to a campfire getting out of control. Other possibilities of human-caused fires also exist, including debris burning, discarded cigarettes, children playing with matches, fireworks, and roadway fires. There are also railroad tracks paralleling the river and running through the towns. There is a possibility of hot sparks or other ignition source coming from the trains that regularly run on these tracks. Main power transmission lines run along these tracks and many other power lines run to homes and businesses throughout both Cusick and Usk. The possibility of leaves or branches contacting the power lines and causing fires is significant. The narrow width of power line corridors and the high wind events that occur in the area further increase the ignition potential.

The abundance of human and natural ignition sources and the dry nature of fuels in the area increase the probability of wildland fire. Fire characteristics will depend on fuel types and moisture levels, as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity and strong winds can quickly lead to fast-moving, destructive wildfires.

4.6.3.3.2 Ingress-Egress

Cusick and Usk are both located just off of Highway 20, which runs north and south through the Pend Oreille River Valley. Running west out of Cusick is Meadow Road, which leads to the Flowery Trail Road, a paved thoroughfare to Chewelah that could serve as an alternate escape route although it is narrow and windy in some areas. Highway 211 is a cut off road between Usk and Highway 2 to Spokane. There is a bridge over the Pend Oreille River heading east out of Usk leading to Leclerc Creek Road, which runs north and south along the east side of the river. This is a paved two lane road. There are also many other county roads and forest roads, most of which would not be suitable as escape routes because they lead further into the forest.

4.6.3.3.3 Infrastructure

Cusick and Usk are very flat and relatively well protected from any fire to the east by the wide Pend Oreille River. Cusick also has a slough on the north side of town formed by the backwaters of Calispell Creek. There is a baseball field between this slough and the town and a power substation to the north. To the southwest and south of Cusick are miles of wide open agricultural fields and wetlands of the Calispell Valley. Much of this bottomland is irrigated. Most of the homes in Cusick have metal roofs, but some have wood siding. There are main transmission lines running along the railroad tracks through town and smaller power lines running along streets.

Usk has mills on the north and south sides of town with stacks of logs intermingled with heavy machinery. Many of the log decks are watered regularly and should be resistant wildfire. If a deck was ignited, it would likely burn very intensely and be very difficult to control. Most of Usk is paved or open, but the continuous forest fuels do abut the south edge of town. This area would pose the most risk, especially since there is a mill on the west side of the wooded area. There is an abundance of water adjacent to these towns available for fire suppression, as well as a boat ramp on the north side of Usk where engines could draft.

4.6.3.3.4 Fire Protection

The Pend Oreille County Fire District #4 provides structural fire protection for residents of Cusick, Usk, and the surrounding area on the west side of the river. The US Forest Service, Colville National Forest and the Washington Department of Natural Resources are responsible for wildland fire protection.

4.6.3.3.5 Community Assessment

These towns are both at medium risk of a wildfire. They are flat, open, and mostly surrounded by agricultural fields. There is also a marsh in the lowlands surrounding the towns. Most of the homes in the communities have irrigated lawns and metal roofs, both of which will help prevent fires from entering the communities. Most of the forest land is located away from the town sites.

Homes at the edges of these communities are at a much higher risk due to their location near or within the local forests.

4.6.3.3.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Pend Oreille County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward home or other valued resources, the probability of that structure surviving a passing fire front is largely dependent on the structural and landscaping characteristics of the home. Also of vital importance is the accessibility of the home to emergency apparatus. If the 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 that reduce the ignitability 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 Pend Oreille County should be encouraged to work with local fire departments and fire management agencies within the county to complete community and individual home-site evaluations. Community and 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 may threaten Cusick or Usk. Development of a community evacuation plan 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. A community safety zone should also be established in the event of compromised evacuation. Efforts should be made to educate homeowners through existing homeowners associations or creation of such organizations to act as conduits for this information.

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

Recreational facilities near the community should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape-proof fire rings and barbeque pits should be installed and maintained. Surface fuel accumulations in nearby forests can also be kept to a minimum by periodically conducting 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 strictly enforcing fire-use regulations.

4.6.3.4 Dalkena

Dalkena is a small community along State Route 20 between Cusick and Newport on the west side of the Pend Oreille River consisting of a small town center with homes scattered mostly between the highway and the river. This section of the Pend Oreille River Valley is mostly open and flat. Furport is a small riverside community on the east side of the Pend Oreille River

4.6.3.4.1 Fire Potential

Fuels Assessment

There is no visible sign of large wildfires in the Dalkena area, but the possibility of a wildfire does exist. Dalkena lies in the flat valley bottom and is dominated by cleared pasture or agricultural ground with only a few isolated stands of trees. Most of the homes associated with the community are located along the edge of the river. There is a large pasture to the west of town which separates the community center from the wooded area.

The drier forests are composed of ponderosa pine and Douglas-fir, while the wetter sites are dominated by grand fir, western red cedar, and western hemlock. Western larch is also common. Much of the forest above the valley floor is very brushy and regeneration is abundant. Ladder fuels are present in most areas, which could lead to a crown fire or other extreme fire behavior.

Ignition Profile

Both natural and man-caused fires could occur in this area. High mountains surround the valley, making summer thunderstorms common. Lightning strikes occur often; however, mostly at higher elevations. The possibility of human-caused fires also exists, especially due to the intense recreational use of the area. There are many campsites near the river which could lead to escaped campfires. Other possibilities of human-caused fires also exist, including debris burning, discarded cigarettes, children playing with matches, fireworks, and roadway fires. There are also railroad tracks paralleling the highway through Dalkena. Although unlikely, there is a possibility of sparks from the tracks starting a fire. Main power transmission lines run along these tracks and supply power to homes and businesses throughout the town. The possibility of a fire ignition stemming from these lines does exist.

The abundance of human and natural ignition sources and the dry nature of fuels in the area increase the probability of wildland fire. Fire characteristics will depend on fuel types and moisture levels, as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity, and strong winds can quickly lead to fast-moving, destructive wildfires.

4.6.3.4.2 Ingress-Egress

The primary access into Dalkena is by State Highway 20. This two lane highway runs north and south through the Pend Oreille River Valley running through both forested and agricultural areas. The river is within a half mile of the highway most of the time. There is also a paved two lane road heading west out of town called Westside Calispell Road. This road reaches Highway 211 in about two miles. Highway 211 heads south toward Highway 2 and the Spokane area and north to Usk.

Infrastructure

Residents of Dalkena obtain their water resources from personal or multiple home wells. It is unlikely that these resources would be severely affected by a wildland fire.

Power lines parallel the railroad tracks running north and south along Highway 20. Loss of power to the community would affect its ability to draw drinking water from the wells, provide heat, and would hamper any emergency response efforts including fire suppression.

There is a boat launch in town where fire engines and tenders could draft and the river provides water for fire suppression aircraft if needed.

4.6.3.4.3 Fire Protection

The Pend Oreille County Fire District #4 provides structural fire protection for residents of Dalkena and the surrounding area on the west side of the Pend Oreille River. The Washington State Department of Natural Resources is responsible for wildland fire protection.

4.6.3.4.4 Community Assessment

The community of Dalkena is at low risk of experiencing a wildland fire. Dalkena consists of mainly riverfront homes and homes on larger properties surrounding the community center. The community is very spread out with no distinguished downtown area. Most homes have well-manicured lawns and are separated from the forest by the highway to the west and the river to the east. There is open pasture to the west and south of town separating most of the homes from the surrounding forest.

4.6.3.4.5 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Pend Oreille County must be made aware that home defensibility starts with the home. 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 Dalkena and the surrounding area 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 the community. Development of a community evacuation plan 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. A community safety zone should also be established in the event of compromised evacuation. Efforts should be made to educate homeowners through existing homeowners associations or creation of such organizations to act as conduits for this information.

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.

Also of vital importance is the accessibility of the home to emergency apparatus. If the 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.

Recreational facilities near the community and along the Pend Oreille River and in the surrounding forest should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape proof fire rings and barbeque pits should be installed and maintained. Surface fuel accumulations in nearby forests can also be kept to a minimum by periodically conducting 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.

4.6.3.5 Diamond Lake

Diamond Lake is located just north of Highway 2 between Newport and the Highway 211 and Highway 2 junction. This is a relatively large lake that has been intensely developed with both permanent and recreational residences as well as small businesses and services. Many structures are packed in along the north, east, and southern shores; however, the western side is less populated due to the lack of access. Additionally, the South Shore housing development lies about ½ miles east of the lake and contains approximately 40 structures. Camp Cowles, a Boy Scout facility, lies on the northwest shore and Little Diamond Lake Campground is about 1 mile north of Diamond Lake near Mallard Marsh.

4.6.3.5.1 Fire Potential

Fuels Assessment

The vast majority of the homes and camping facilities in the Diamond Lake area are surrounded by forest fuels, many of which actually have large trees near or overhanging structures. The timber type in this area is predominantly ponderosa pine and Douglas-fir; however, grand fir and western larch are also found. The understory component is thick with brush and regeneration for the most part, although several landowners have taken actions to reduce the hazardous fuels. Due to the intense recreational use and its importance to the local economy, many homeowners prefer to keep as much natural vegetation around structures as possible, regardless of the fire risk. Many homes around Diamond Lake are built using wood siding and decking and shake roofs, which increases the risk of ignition. Continuous forest fuels, non-fire resistant construction materials, and numerous ignition sources put Diamond Lake and the surrounding area at high risk of wildfire. Although the topography is relatively gentle, fires in the fuels present around the lake will tend to burn with moderate to high intensities. Areas that have been thinned or cleared of underbrush are at much less risk.

Ignition Profile

The probability of a human induced fire occurrence near Diamond Lake is much greater than a natural ignition; however, lightning storms are common in this region. Sources associated with the recreational activities such as campfires, off road vehicles, and lanterns are plentiful. The close proximity of homes to timber fuels and the use of mechanized equipment in farming and logging operations in the area also increase potential ignition sources significantly. Debris burning, discarded cigarettes, children playing with matches, fireworks, and roadway fires are

just a few of the other countless potential human ignition sources. Contact between power lines and trees can also spark fires, especially during windy conditions.

The abundance of human and natural ignition sources and the heavy fuels around much of Diamond Lake increase the probability of wildland fire. Fire characteristics will depend on fuel types and moisture levels, as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity, and strong winds can quickly lead to fast-moving, destructive wildfires.

4.6.3.5.2 Ingress-Egress

The primary access into Diamond Lake is via the South Shore Diamond Lake Road, which is a two-lane, paved route accessing the south and east shore of the lake. This road makes a loop from Highway 2 at the small community of Diamond Lake to the waterfront and then travels east past the South Shore subdivision and connects back to the highway. The North Shore Diamond Lake Road splits from the South Shore Diamond Lake Road and heads west accessing many of the homes along the north shore before eventually looping back into Highway 2. Many of the individual homes are accessed by short driveways to the lake. These are typically narrow and often cluttered with boats or other recreational vehicles and equipment. There is only one main road into Little Diamond Lake Campground making evacuation of this area potentially difficult.

4.6.3.5.3 Infrastructure

Residents of Diamond Lake rely on personal or multiple home wells. These water resources may be impacted by wildfire (sedimentation, increased surface runoff, etc.), but it is improbable that the damage would be severe or long-term.

Above ground power lines crisscross the Diamond Lake area often running through trees or over roofs. Heavy accumulations of burnable fuels have been cleared from beneath the power line corridors for the most part; however, the potential for an ignition due to sparks from the wires exists, particularly under the influence of high winds.

A fire in this area would certainly impact home and business owners in the area. Many of the permanent residences rely on the tourism industry for their livelihood. Fires that destroy homes or decrease the aesthetic value of the area may divert recreators elsewhere.

4.6.3.5.4 Fire Protection

The Pend Oreille County Fire District #3 provides structural fire protection to residents near Diamond Lake. The Washington State Department of Natural Resources is responsible for wildland fire protection in the area.

4.6.3.5.5 Community Assessment

The community at Diamond Lake has a higher probability of incurring damages caused by a wildfire as well as a higher probability of an ignition in the area; thus, the fire risk is very high. Homes intermingled with forest fuels and accessed by narrow one-way in, one-way out driveways are at the highest risk. A large part of the problem lies in the layout of the housing development. There are many homes packed into the small area along the shore, which tends to make fire suppression difficult as fires are more likely to spread from home to home. Although there is an abundance of water resources available for suppression, fighting fires in this compact area may become very dangerous. Continuous forestland fuels extending from the lake north towards the Little Diamond Lake Campground and beyond increase the fire risk;

however, Highway 2 may block the passage of wildfire south of the lake. The Little Diamond Lake Campground itself has a very high risk of fire due to the lack of alternate escape routes and the close proximity of timber in all directions.

4.6.3.5.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners, including absentee homeowners, of the risks associated with living in a flammable environment. Residents of Pend Oreille County must be made aware that home defensibility starts with the home. 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 the greater Diamond Lake area 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.

Development of a community evacuation plan 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. Additionally, an alternated escape route from the Little Diamond Lake Campground area should also be established. A community safety zone would drastically improve the security of residents in the event of compromised evacuation. Efforts should be made to educate homeowners through existing homeowners associations or creation of such organizations to act as conduits for this information.

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.

Also of vital importance is the accessibility of the home to emergency apparatus. If the 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.

4.6.3.6 Kalispel Reservation

See fire risk assessments for the Kalispel Reservation and tribally owned properties in the Kalispel Reservation Fire Management Plan.

4.6.3.7 Scotia Valley, Spring Valley, and Deer Valley Area

Scotia Valley defines the Little Spokane River drainage southwest of Newport. There are many home sites and ranchettes scattered throughout the timber along the main access, Scotia Road, and many of the numerous secondary roads in the area. Spring Valley is a small farming community that lies in the southeast corner of the County. There is a small cluster of homes at the intersection of Spring Valley Road and Tweedie Road that are primarily surrounded by farm or pasture ground; however, most residents are scattered throughout the area with timber intermixed. Deer Valley extends from Newport all the way to Grayback Mountain on the west side of Highway 211. Residents are scattered throughout the area, typically on relatively large

acreages. The Deer Valley Road, the primary access route, travels through both heavily wooded areas and open agricultural or pasture ground.

4.6.3.7.1 Fire Potential

Fuels Assessment

The Little Spokane River drainage through Scotia Valley is characterized by a narrow riparian marsh ecosystem; however, the slopes rising from both sides of the valley are dominated by forestland. The timber types in greater Scotia Valley area range from western red cedar/Engelmann spruce to Douglas-fir/grand fir/ponderosa pine/western larch to lodgepole pine. Slopes are generally moderate to steep, except for much of the area immediately south of Highway 2, which is relatively flat. In areas that have not been managed, ladder fuels and dead and down woody debris are prevalent; thus, increasing the fire hazard. Many of the lodgepole pine stands near Highway 2 are considered dog hair stands making them prone to ignition. Due to active management by both industrial and small private landowners, the fire risk around many homes has been effectively mitigated. Nevertheless, there are also many landowners with homes directly abutting thick timber fuels.

Forestland around the Spring Valley area is primarily dry site ponderosa pine, Douglas-fir, western larch, grand fir, and lodgepole pine. Many of the forest stands surrounding homes have been managed; thus, reducing the fire risk. Additionally, many home sites are surrounded by developed pasture or farmland. There are some homes that are at higher fire risk due to their construction materials and close proximity to forest fuels.

Topography bordering Deer Valley is highly variable. The Valley near Highway 211 and in stretches north of Diamond Lake is relatively flat with open marshy areas and developed pasture ground. In comparison, Deer Valley Road also travels through heavily wooded areas, in which many homes are nestled among thicker stands of timber. Forest types range from lodgepole monocultures to mixed stands of Douglas-fir, grand fir, ponderosa pine, and western larch. Many of the small draws and wetter sites also have a western red cedar and/or Engelmann spruce component.

Ignition Profile

Both natural and man-caused fires occur in these areas. The close proximity of homes to timber fuels and the use of mechanized equipment in farming and logging operations increase potential ignition sources significantly. Deer Valley, particularly where it crosses Highway 211 between Sacheen Lake and Davis Lake, is used extensively for recreational purposes. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the other countless potential human ignition sources in the area. Contact between power lines and trees can also spark fires, especially during windy conditions.

The abundance of human and natural ignition sources and the heavy fuels in much of the Scotia Valley, Spring Valley, and Deer Valley area increase the probability of wildland fire. Fire characteristics will depend on fuel types and moisture levels, as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity, and strong winds can quickly lead to fast-moving, destructive wildfires.

4.6.3.7.2 Ingress-Egress

Scotia Road loops through Scotia Valley from Highway 2. This is a paved two lane route that serves as the primary access into the area. There are also several secondary roads including Telephone Road, Camden Diamond Lake Road, and Green Road accessing Scotia Valley.

Camden Diamond Lake Road is also a paved, two lane route; however, most of the secondary roads are graveled. Roads through the Scotia Valley area typically abut timber-type fuels. The river canyon is narrow enough that a fire on either side could restrict access due to extreme heat and fumes. In the event of a wildfire along the river, it is likely that this escape route would become impassable.

Spring Valley can be accessed from the north or the south by Spring Valley Road. Tweedie Road is also a primary route off of State Highway 41 to the east. There are numerous secondary roads accessing rural homes that crisscross the Spring Valley area. Most of the public roads accessing Spring Valley are well-maintained gravel routes. Roads accessing individual or groups of homes in this area are typically at higher risk. Not only are they bordered by thick stands of timber, but they generally only provide for one-way in and one-way out. This puts both the residents and fire suppression personnel at significant risk.

The Deer Valley Road travels through the entire length of Deer Valley offering access from Newport, Highway 2, or Highway 211. This is a paved, two-lane road; however, timber type fuels abut the roadway in several areas. Several other secondary roads crisscross the valley including Coyote Trail, Gray Road, Deeter Road, and Rocky Gorge Road providing additional escape routes in several directions; however, these routes should be marked in order to lessen confusion in an emergency situation.

4.6.3.7.3 Infrastructure

Residents in the Scotia Valley, Spring Valley, Deer Valley, and the surrounding areas rely on personal wells. These water resources would not likely be affected by wildfire. There are also several springs and ponds dotting the landscape, which commonly are used to water livestock. These water resources may be impacted by wildfire (sedimentation, increased surface runoff, etc.), but it is improbable that the damage would be severe or long-term.

Above ground power lines crisscross both the Scotia Valley, Spring Valley, and Deer Valley areas. Heavy accumulations of burnable fuels have been cleared from beneath the power line corridors; however, the potential for an ignition due to sparks from the wires exists, particularly under the influence of high winds.

4.6.3.7.4 Fire Protection

The Pend Oreille County Fire District #3 provides both structural and wildland fire protection for Scotia Valley and Deer Valley residents. Structural and wildland fire protection in Spring Valley is provided by the Pend Oreille County Fire District #8. The Washington State Department of Natural Resources is responsible for wildland fire protection in timbered areas.

4.6.3.7.5 Community Assessment

The rural communities of Scotia Valley, Spring Valley, and Deer Valley are at moderate risk of experiencing a wildland fire. Homes built on steeper slopes or with timber directly abutting or overhanging structures are at the highest risk. Fires in timber fuel types are generally much more intense and difficult to control than rangeland fires. Dry grasses and underbrush on the slopes would support very rapidly spreading wildfires, leaving little time for residents to escape. Preparing a home prior to a wildfire event will significantly increase its chance of survival.

The Little Spokane River drainage through Scotia Valley poses a slightly different situation. The steeper slopes have a higher concentration of dense timber stands with homes adjacent to burnable fuels. Hot gases and smoke would likely be funneled through the valley making

evacuation and protection of homes much more difficult and dangerous. Limited access creates a concern for both the landowner and responding fire fighting resources.

Fires that start at homes or along roadways become larger and more difficult to suppress as they head into forestlands. Such fires would have large-scale impacts to the landscape that would negatively affect development and communities down river via erosion and flooding, as well as decreased water quality.

Many landowners in the Spring Valley area are grazing cattle and horses around homes, in pastures, and in the forest-range interface. These animals serve to eat the fine, porous grasses and shrubs, trample fine woody fuels, and keep some of the ladder fuels trimmed and thus reduce the fire risk in this interface area. Although this practice helps deflate the fire risk in this area, there are many other mitigation activities that would significantly improve the survivability of this community in the event of a wildland fire.

4.6.3.7.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Pend Oreille County must be made aware that home defensibility starts with the home. 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 the greater Scotia Valley, Spring Valley, and Deer Valley areas 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.

Development of a community evacuation plan is necessary to assure an orderly evacuation in the event of a threatening wildland fire. Designation and posting of escape route signage would reduce chaos and escape times for fleeing residents. A community safety zone should also be established in the event of compromised evacuation. Efforts should be made to educate homeowners through existing homeowners associations or creation of such organizations to act as conduits for this information.

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.

Also of vital importance is the accessibility of the home to emergency apparatus. If the 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.

4.6.3.8 River Bend Loop Subdivision

The River Bend Loop Subdivision is located on the eastern bank of the Pend Oreille River along LeClerc Road between Cusick and Ione. This is a flat, grassy bench with homes built primarily along the river bank. LeClerc Creek Road is the sole access route to River Bend Loop and the nearest bridges across the Pend Oreille are in Ione to the north and Usk to the south. Although

homes are relatively close together and typically accessed by short one-way in, one-way out drives, the lack of heavy fuels in the immediate area and the abundant water supply put this small community at low fire risk. Forest fuels associated with the Colville National Forest extend from LeClerc Creek Road westward; however, only a few homes would be seriously affected by a fire on the west side of the road. Nevertheless, the sole escape route could be cutoff by wildfire creating a need to evacuate the community via boat. Currently, River Bend Loop has no formal structural fire protection; however, the US Forest Service, Colville National Forest and the Washington Department of Natural Resources are responsible for wildland fire protection.

4.6.3.9 Newport

The town of Newport is located on the west side of the Pend Oreille River as it crosses from Idaho into Washington. It is the county seat and the largest town in Pend Oreille County. In the center of Newport is the junction of State Routes 2 and 20. Highway 2 is the main road from Spokane to north Idaho and the community of Sandpoint. State Highway 20 runs north along the Pend Oreille River towards Canada.

The town is the focal point of all county government and major emergency services including the County's sole hospital. Newport provides the major services and shopping for all of Pend Oreille County. Services such as sewer, water, groceries, fuel, schools, libraries, post offices, lodging, restaurants, entertainment and grocery stores are all available in Newport.

4.6.3.9.1 Fire Potential

Fuels Assessment

There is little evidence of recent wildfire activity near Newport, although the potential does exist. The topographic relief of the area around the towns is dominated by the flat benches located along the Pend Oreille River. Once out of this river valley the hillsides above are rolling in nature with several small streams that form the headwaters of the Spokane River. In the lower elevations the area is dominated by a mix of pastures and forestlands. For the most part, the forests are managed stands of timber in different stages of growth. The forest stands northwest of the community are predominately Douglas-fir, grand fir, western larch, ponderosa pine, which form a relatively continuous fuel to the west and north along Highway 20. Fires in these timber types would likely burn very intensely and could potentially threaten many of the rural homes in the surrounding area. In many places the brush and understory is thick with ample amounts of regeneration. Ladder fuels are present in almost all of the forested areas making a crown fire a distinct possibility given the steepness of the terrain and local summer weather conditions. Dog hair lodgepole stands are prevalent south of town and extending into Idaho along State Route 41. These dense stands tend to experience intense stand replacing fires.

Due to the rolling terrain and numerous drainages, fires in these forests can be problematic and potentially dangerous to fight. In the lowlands there are many older logging roads which can provide for wildland firefighting access if maintained for such a purpose.

Ignition Profile

Both natural and man-caused fires could occur in this area. Lightning strikes occur often and are often scattered across the area, particularly along ridge tops. The possibility of human-caused fires also exists, especially due to the intense recreational use of the area. There are many campsites near the river which provide increased sources of human ignitions. Other possibilities of human-caused fires also exist, including debris burning, discarded cigarettes, children playing with matches, fireworks, and roadway fires. There are also railroad tracks paralleling the river and running in several directions through town. There is a possibility of hot sparks coming from

the trains that regularly run on these tracks. High tension power lines run through the area and individual transmission lines run to homes and throughout town. The possibility of leaves, branches, or other debris striking the lines and causing fires is significant. The narrow width of power line corridors and the high wind events that occur in the area also increase the fire potential.

The abundance of human and natural ignition sources and the nature of fuels in the area increase the probability of wildland fire. Fire characteristics will depend on fuel types and moisture levels, as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity and strong winds can quickly lead to fast-moving, destructive wildfires.

4.6.3.9.2 Ingress-Egress

The primary access into Newport is Highway 2 coming from either Spokane or Sandpoint. Highway 20 begins in Newport and travels north along the Pend Oreille River to Tiger, where it turns west and connects to Colville on the other side of the Colville National Forest in adjacent Stevens County. Both highways are paved two-lane state routes, which provide access between the Spokane area, British Columbia, and Sandpoint. All of these roads travel through thick, mixed species forests for the majority of their length.

There are numerous well-maintained county roads that lead into and out of the Newport area. Forest access routes, some of which are navigable by 2-wheel drive vehicles, are also prevalent; however, they tend to lead to more remote regions of the Colville National Forest.

4.6.3.9.3 Infrastructure

The community of Newport relies on a well system for their water resources, which would not likely be severely impacted by a wildfire event. However, it is possible that the power supply that operates the pumps could be interrupted or damaged, which could leave all or a portion of residents without water.

Tourism is becoming an increasingly important component of the local economy. Weekend warriors and other adventurers are supporting small stores and lodging facilities in and around Newport. These businesses also provide closer access to supplies and amenities for residents. In addition, more and more homes are being built in the area. Restricted access to the surrounding forests due to fire danger may negatively affect this important economic factor. A large scale wildfire in the area would also reduce the areas scenic beauty and may result in reduced tourism dollars as well.

4.6.3.9.4 Fire Protection

The Newport Fire Department provides structural fire protection for most residents of Newport; however, some structures in the outlying areas to the north and west are protected by Pend Oreille County Fire Districts #4 or #3. A large area directly south of Newport has no formal structural fire protection. The Washington State Department of Natural Resources is responsible for wildland fire protection.

4.6.3.9.5 Community Assessment

The city of Newport is at low risk of experiencing a wildland fire. Most of the homes are between the highway and the river, so they are protected from both sides. There is forest land to the west and south of town. These interface areas, which include the local high school, are at a higher

risk from wildfire. The river provides water for fire suppression aircraft and drafting, if needed. South and west of town there are many homes directly adjacent to forest fuels. This wooded area has few fuel breaks and is mostly dry Douglas-fir and ponderosa pine. There is a higher potential for wildfire in this part of the Newport area. Some homes are located near or on fairly steep slopes, which makes them more susceptible to fire, requiring an increased defensible space. Homes with trees close by need to make sure there is no brush, regeneration, or firewood near the home and trees should be pruned. Lawns should be kept watered and roofs kept clear of pine needles and other combustible debris.

4.6.3.9.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Pend Oreille County must be made aware that home defensibility starts with the home. 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 Newport and the surrounding areas should be encouraged to work with fire management agencies within the county to complete community defensible zones and individual home site evaluations. Community and home defensibility steps should be enacted based on the results of these evaluations.

Development of a community evacuation plan is necessary to assure an orderly evacuation in the event of a threatening wildland fire. Designation and posting of escape route signage would reduce chaos and escape times for fleeing residents. A community safety zone should also be established in the event of compromised evacuation. Efforts should be made to educate homeowners through existing homeowners associations or creation of such organizations to act as conduits for this information.

Other specific mitigation activities are likely to include improvement of emergency water supplies and management of trees and vegetation along roads, especially Highways 2 and 20. Furthermore, building codes should be revised to provide for more fire conscious construction techniques such as using fire resistant siding, roofing, and decking.

Also of vital importance is the accessibility of the home to emergency apparatus. If the 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.

Recreational facilities near the community and along access routes should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape proof fire rings and barbeque pits should be installed and maintained. Surface fuel accumulations in nearby forests can also be kept to a minimum by periodically conducting 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 strictly enforcing fire-use regulations.

Recreational and industrial activities introduce a multitude of potential ignition sources. Landowners should be especially careful to maintain a well-groomed defensible space and locate propane and fuel tanks as well as firewood away from structures.

4.6.3.10 Sacheen Lake and Davis Lake

Both Sacheen Lake and Davis Lake are located just west of Highway 211 on the west side of Pend Oreille County. Development has occurred all along the Sacheen Lake shore and has extended into the surrounding area, particularly south into the Fertile Valley and somewhat north into Deer Valley. Development at Davis Lake has been fairly limited to the north shore, although there are also several structures along the south shore that are associated with Camp Spalding.

4.6.3.10.1 Fire Potential

Fuels Assessment

Sacheen Lake is completely surrounded by native forestlands consisting of predominantly Douglas-fir, ponderosa pine, and lodgepole pine. These forestlands form a continuous fuel bed that extends westward to the Colville National Forest. Due to a dense understory of brush and regeneration, fires in this area would likely become very intense and exhibit characteristics of extreme fire behavior, particularly crown fires and torching. Steep slopes rise around the lake with several small drainages that could make fire suppression difficult. The West Branch of the Little Spokane River drains from the west corner of the lake

Davis Lake is surrounded by forest fuels made up of predominantly Douglas-fir, ponderosa pine, and lodgepole pine with a smaller component of Engelmann spruce. Grayback Mountain rises sharply from the west shore making development difficult. There is also a relatively steep slope behind the housing development on the north side of Davis Lake. These timbered slopes would likely support an intense wildfire due to abundance of dead down material and brush and regeneration in the understory. Although the surrounding area is forested, the immediate grounds of Camp Spalding are generally clear of brush and other debris.

Homes around both Sacheen Lake and Davis Lake are typically squished into small waterfront lots with timber intermingling or directly abutting structures. Short, narrow driveways or small parking areas next to the main access route are typical and construction materials tend to be wood products.

Ignition Profile

The probability of a human induced fire occurrence near Sacheen or Davis Lake is much greater than a natural ignition; however, lightning storms are common in this region. Sources associated with the recreational activities such as campfires, off road vehicles, and lanterns are plentiful. The close proximity of homes to timber fuels and the use of mechanized equipment in farming and logging operations in the area also increase potential ignition sources significantly. Debris burning, discarded cigarettes, children playing with matches, fireworks, and roadway fires are just a few of the other countless potential human ignition sources. Contact between power lines and trees can also spark fires, especially during windy conditions.

The abundance of human and natural ignition sources and the heavy fuels around much of Sacheen Lake and Davis Lake increase the probability of wildland fire. Fire characteristics will depend on fuel types and moisture levels, as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity, and strong winds can quickly lead to fast-moving, destructive wildfires.

4.6.3.10.2 Ingress-Egress

State Route 211 is the primary access for both Sacheen and Davis Lake. This is a paved, two-lane route that, for the most part, is bordered by forestland fuels. A fire in the area could easily cut off emergency travel on this corridor. Highway 211 is the only main access route for Davis Lake; however, Westside Calispell Road about 1 mile north of the lake may provide a short cut to Highway 20 if northbound travel is feasible. The Fertile Valley Road, which runs along the north side of Sacheen Lake and continues into the Fertile Valley and eventually hooks into Highway 2 just a few miles north of Eloika Lake, is a well maintained route that could serve as an alternate escape route for residents. Eastward travel on Deer Valley Road could also provide an additional escape route for residents of both Sacheen Lake and Davis Lake depending on the location of the wildfire.

4.6.3.10.3 Infrastructure

Residents around Sacheen Lake and parts of the nearby Fertile Valley rely on a surface water system, which could be heavily impacted by wildfire (sedimentation, increased surface runoff, etc.). Davis Lake residents are dependent on personal or multiple structure wells that are not likely to be severely impacted by wildfires. However, the power supply that operates the pumps could potentially be interrupted or damaged by wildfire; thus, leaving all or a portion of the population without water.

Access to water by fire suppression equipment will likely be limited to air operations and designated public boat ramps as private access is typically too narrow or unsafe.

Above ground power lines crisscross the Sacheen and Davis Lake area often running through trees or over roofs. Heavy accumulations of burnable fuels have been cleared from beneath the power line corridors for the most part; however, the potential for an ignition due to sparks from the wires exists, particularly under the influence of high winds.

A fire in this area would certainly impact home and business owners in the area. Many of the permanent residences rely on the tourism industry for their livelihood. Fires that destroy homes or decrease the aesthetic value of the area may divert recreators elsewhere.

4.6.3.10.4 Fire Protection

Sacheen Lake lies in the structural fire protection district of the Pend Oreille County Fire District #3. Pend Oreille County Fire District #4 provides structural protection for the Davis Lake area. The Washington Department of Natural Resources is responsible for wildland fire in this area.

4.6.3.10.5 Community Assessment

The communities at Sacheen Lake and Davis Lake have a higher probability of incurring damages caused by a wildfire as well as a higher probability of an ignition in the area; thus, the fire risk is very high. Homes intermingled with forest fuels and accessed by narrow one-way in, one-way out driveways are at the highest risk. A large part of the problem lies in the layout of the housing development. There are many homes packed into the small areas along the waterfronts, which tend to make fire suppression difficult as fires are more likely to spread from home to home. Although there is an abundance of water resources available for suppression, fighting fires in this compact area may become very dangerous. Continuous forestland fuels extending from the lake shores in all directions significantly increase the fire risk; however, Highway 211 may block the passage of wildfire on either side of the highway. The Little

Diamond Lake Campground itself has a very high risk of fire due to the lack of alternate escape routes and the close proximity of timber in all directions.

4.6.3.10.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners, including absentee homeowners, of the risks associated with living in a flammable environment. Residents of Pend Oreille County must be made aware that home defensibility starts with the home. 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 the greater Sacheen Lake, Davis Lake, and Highway 211 area 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.

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. A community safety zone should also be established in the event of compromised evacuation. Efforts should be made to educate homeowners through existing homeowners associations or creation of such organizations to act as conduits for this information.

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.

Also of vital importance is the accessibility of the home to emergency apparatus. If the 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.

4.6.3.11 Furport, Bead Lake, and Marshall Lake

Furport is a residential cluster on the east side of the Pend Oreille River near Indian Island. There is approximately a two mile stretch where many homes sites have been established between LeClerc Creek Road and the waterfront. Additionally, the Ponderay Shores subdivision is located about two miles north of Furport, also between LeClerc Creek Road and the Pend Oreille River.

Bead Lake is located about four miles northeast of Furport. This well-populated lake is completely surrounded by the Colville National Forest. Most of the residences, both seasonal and permanent, lie on the western shore. Marshall Lake sits about two miles southeast of Bead Lake and two miles north of the Pend Oreille River. This lake is almost exclusively used for seasonal recreation. Similar to Bead Lake, most of the Marshall Lake structures are limited to a relatively small area on the southwestern point of the lake. An RV accounts for the majority of the structures near Marshall Lake; however, there are a few permanent buildings surrounding the park and a handful of cabins that are accessed by trail or boat only. Marshall Lake is also surrounded by Colville National Forest lands.

4.6.3.11.1 Fire Potential

Fuels Assessment

The Colville National Forest lands around both Bead Lake and Marshall Lake consist of ponderosa pine, lodgepole pine, and Douglas-fir timber types with a smaller component of western red cedar, grand fir, and Engelmann spruce primarily in the draws. The south and west aspects typically have less timber and a less dense understory, while north and east aspects tend to be more heavily timbered with a dense understory of brush and regeneration. Crowding and dead and down debris is magnified in draws where more moisture is available. The fire risk around the lakes is exacerbated by highly variable topography. There are several small watersheds that drain into the lakes creating terrain that may become difficult and dangerous for fire suppression and a high potential for extreme fire behavior.

The south aspect slope rising from the Pend Oreille River near Furport is dominated primarily by ponderosa pine and some Douglas-fir. Naturally, this forest type would burn at fairly frequent intervals; thus, keeping the understory clear of excessive brush and regeneration. However, due to years of fire suppression, the understory in some areas has become overgrown with several species of brush; which will not only increase the potential for a fire, but will also increase the intensity at which a fire would burn through the area.

Ignition Profile

The probability of a human induced fire occurrence near Bead Lake and Marshall Lake is much greater than a natural ignition; however, lightning storms are common in this region. Sources associated with the recreational activities such as campfires, off road vehicles, and lanterns are plentiful. The close proximity of homes to timber fuels and the use of mechanized equipment in logging operations in the area also increase potential ignition sources significantly. Debris burning, discarded cigarettes, children playing with matches, fireworks, and roadway fires are just a few of the other countless potential human ignition sources. Contact between power lines and trees can also spark fires, especially during windy conditions.

The abundance of human and natural ignition sources and the heavy fuels around much of Bead Lake and Marshall Lake increase the probability of wildland fire. Fire characteristics will depend on fuel types and moisture levels, as well as on weather conditions at the time of ignition. Fires during periods of drought with high temperatures, low humidity, and strong winds can quickly lead to fast-moving, destructive wildfires.

4.6.3.11.2 Ingress-Egress

Furport is accessed via LeClerc Creek Road. This is a paved, two-lane route that travels the length of the Pend Oreille River from Newport to Metaline Falls with the nearest bridges being located at Newport and Usk. There are several county or forest routes traveling north in the general vicinity of Furport; however, these do not make ideal escape routes because they access more remote regions of the Colville National Forest.

The main route used to access both Bead Lake and Marshall Lake is the Bead Lake Road, which splits from the LeClerc Creek Road near the Pioneer Park campground. Bead Lake Road is a paved, two-lane access road that not only accesses Bead Lake, but also continues north connecting with Boswell Road. Most of the homes at Bead Lake are accessed via the Bead Lake Loop or short dead end roads extending from the Bead Lake Loop road. The Marshall Lake Road is a short spur off the main Bead Lake Road, which becomes very narrow and eventually dead ends at the lake. Although fairly well-traveled thoroughfares, all of these roads abut dense timber fuels and; thus, could potentially be disabled during a wildfire situation.

4.6.3.11.3 Infrastructure

The water resources around Bead Lake and Marshall Lake may be impacted by wildfire (sedimentation, increased surface runoff, etc.), but it is improbable that the damage would be severe or long-term. Most residents rely on personal or multiple home wells, which are unlikely to be severely damaged during a wildfire event.

Access to water by fire suppression equipment will likely be limited to air operations and designated public boat ramps as private access is typically too narrow or unsafe.

Above ground power lines crisscross the Bead and Marshall Lake area often running through trees or over roofs. Heavy accumulations of burnable fuels have been cleared from beneath the power line corridors for the most part; however, the potential for an ignition due to sparks from the wires exists, particularly under the influence of high winds.

A fire in this area would certainly impact home and business owners in the area. Many of the permanent residences rely on the tourism industry for their livelihood. Fires that destroy homes or decrease the aesthetic value of the area may divert recreators elsewhere.

4.6.3.11.4 Fire Protection

Pend Oreille County Fire District #6 provides structural fire protection for the communities of Furport, Bead Lake, and Marshall Lake. The US Forest Service, Colville National Forest and the Washington Department of Natural Resources are responsible for wildland fire protection.

4.6.3.11.5 Community Assessment

Homes in Furport have moderate risk of wildfire. Many structures along the waterfront were constructed with materials such as wood siding, decking, and roofing, which are not resistant to fire. Homes with abutting or overhanging vegetation, limited access by fire suppression equipment, and limited space between neighboring structures are at the highest risk. Many homeowners maintain irrigated lawns; thus, creating a defensible space. It is probable that an ignition would begin in the residential area and move up slope; therefore, homes located above might be at higher risk.

Residents and homes near Bead Lake and Marshall Lake are at very high fire risk. Not only are they closely surrounded by forestland fuels, they also have a limited number of safe escape routes. Bead Lake Road could easily be cutoff by fire or smoke due to the close proximity of forest fuels. Many of the structures are packed tightly along the waterfront area making it easy for a fire to spread from home to home. Additionally, many homes are accessed by short and narrow dead end driveways or small roadside turnouts, which may not be adequate for emergency vehicles. Power line corridors from home to home typically pass through treetops and over roofs making the potential for sparks or arcing significant. The topography around Bead Lake and Marshall Lake will likely make fire suppression difficult with a high probability of extreme fire behavior.

4.6.3.11.6 Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners, including absentee homeowners, of the risks associated with living in a flammable environment. Residents of Pend Oreille County must be made aware that home defensibility starts with the home. 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 the greater Furport, Bead Lake, and Marshall Lake area 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.

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. Development of additional escape routes out of the Marshall Lake and Bead Lake area would also increase the safety of residents. Community safety zones should also be established in the event of compromised evacuation. Efforts should be made to educate homeowners through existing homeowners associations or creation of such organizations to act as conduits for this information.

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. Fuels reduction projects near housing developments would serve as buffers to slow fire spread and intensity. Furthermore, building codes should be revised to provide for more fire conscious construction techniques such as using fire resistant siding, roofing, and decking.

Also of vital importance is the accessibility of the home to emergency apparatus. If the 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.

4.7 Fire Fighting Resources and Capabilities

Rural and city fire district personnel are often the first responders during emergencies. In addition to house fire protection, they are called on during wildland fires, floods, landslides, and other events. There are many individuals in Pend Oreille County serving fire protection districts in various capacities. The following is a summary of the departments and their resources.

The Fire Fighting Resources and Capabilities information provided in this section is a summary of information provided by the Rural Fire Chiefs or Representatives of the Wildland Fire Fighting Agencies listed. Each organization completed a survey with written responses. Their answers to a variety of questions are summarized here. These summaries indicate their perceptions and information summaries.

Table 4.16. Fire District summaries in Pend Oreille County.

Fire District Number	Acres	Number of Structures
1	14,539	443
2	381,960	1,576
3	63,068	1,894
4	61,019	1,979
5	19,842	274
6	47,526	1,094
7	10,915	169
8	20,142	271

Table 4.16. Fire District summaries in Pend Oreille County.

Fire District Number	Acres	Number of Structures
Newport	647	692
Not Protected	292,377	2,087
Total	**912,035**	**10,479**

4.7.1 Pend Oreille County Fire District #1

Contracts all services from Spokane County Fire District #4.

4.7.2 Pend Oreille County Fire District #2

Larry Pollock, Chief
P.O. Box 435
Metaline Falls, WA 99153
(509) 446-2240
lpollock@potc.net

District Summary:

Pend Oreille County Fire District #2 was formed in 1967 to provide fire protection to the residents of the northern third of Pend Oreille County. The Fire District encompasses the northern third of Pend Oreille County and runs from the Canadian border to a point 33 miles south and from the Stevens County line to the Idaho State border (averaging 22 miles) east to west and is bisected north to south by the Pend Oreille River. The borders for Fire District #2 encompass approximately 750 square miles while the Fire District #2 Ambulance District is approximately 1000 square miles. The river is crossed by two bridges one located at Metaline Falls and the other one mile south of Ione (the two bridges being approximately 10 miles apart). The population of the District is approximately 2,500 in the winter months and 5,000 in the summer months. The major employers in the area are two hydroelectric dams, a hard rock underground mine, the timber industry and the school district. The Nelway International Border Crossing north of Metaline Falls is also a major local employer.

In the early 1990s the District started providing emergency medical services and in 1997 the District started providing emergency ambulance transport to the northern half of Pend Oreille County. The District is the state licensed emergency medical provider for the northern one-half of Pend Oreille County. While the Fire District is a junior taxing agency the Ambulance District operates as a fee for service provider with no taxing authority. Through the year some small grants are received to help support the Ambulance District.

Fire District #2 staffing consists of one part time administrative aid, one full time paramedic/firefighter and 25 volunteer firefighter and EMTs.

Fire District #2 facilities consist of:

- Rented office space in Metaline Falls which is staffed by the administrative aid.
- One District owned fire station housing one engine in the far northeast section of the district which provides fire and EMT response (Sullivan Lake). This is a volunteer facility.
- A rented “barn” in the far southeast section of the district housing one engine and one state licensed ambulance which provided fire and EMT response (Rivers Edge). This is a volunteer facility.

- A two bay ambulance station “on loan” to the Fire District which houses two ambulances (Metaline Falls). The full time Paramedic/Firefighter is assigned here. The rest of the staff is volunteers.
- When the weather permits the second ambulance from the Metaline Falls station is staged at various private homes in the middle of the District (Ione area). Volunteer manned.

Fire District #2 maintains mutual aid (fire) agreements with the Town of Ione and the cities of Metaline and Metaline Falls. Each community maintains one station staffed by volunteers. Fire District #2 provides all emergency medical service to these communities. The District is part of the county wide fire and county wide medical mutual aid agreements. The Fire District assists the United States Forest Service and the Washington State Department of Natural Resources when able. At this time the Fire District only provides structure protection to these agencies. The Fire District does provide EMS services to the USFS and DNR responsibility areas.

The US Forest Service, Newport-Sullivan Lake Ranger District (Colville National Forest) is responsible for wildland fire protection. The Washington State Department of Natural Resources, North Columbia and/or Arcadia Districts will also respond to wildland fire emergencies in this area.

Priority Areas:

Residential Growth: The majority of the residential growth is expected to continue along both sides of the Pend Oreille River south of the Ione Bridge (Sullivan Road). This area extends approximately 9-10 miles. Several new homes have been built in this area recently with several under construction at this time. Pend Oreille County’s building code adoption and enforcement is expected to be a major influence is creating an area of code compliant structures.

Almost all structures in Fire District #2 are in “wild land-urban interface” areas. There are indefensible space concerns with many of the existing structures in the District. Many structures are located on public and private non-all weather roads. Road signage is poor in some areas and visible 360° house numbering is non-existent in most areas. In several areas number sequencing is out of order and fixing the problems are being met with resident resistance. Several north/south streets run east/west and likewise. As the Fire District expands its volunteer EMT and Fire personnel, this is one of the major challenges.

Communications:

Communications in the District is barely adequate. Several contributing factors to the problem are:

- A large area (1000 square miles) of terrain that covers all the definitions of “remote” i.e. topographical conditions, canyons, valleys, trees, and other obstructions are a communications challenge.
- Obsolete communications equipment at the county as well as Fire District #2 level. One of the major problems is the restricted “signal strength” requirements associated with our being adjacent to the International Border with Canada.
- Communications within Fire District #2 and communications with the other area emergency providers are hindered by the lack of repeater ability within the county system. When we communicate using the existing repeater channels (required due to the above described “remote” conditions) it many times interferes with emergency activity on the same channel in the south end of the county (40+ miles).
- Cell phone availability is very limited and repeater access is spotty so cell phone usage is a low priority at this time. In addition, this enhancement is costly to a small

organization. We do have cell phones on our three ambulances and in the Paramedic vehicle but its usage is primarily for the transport of EMS patients to Colville, Newport, and Spokane area hospitals and can obtain a usable signal.

- Fire District #2 recently expended funds to locate a repeater for the District's paging system to the Pend Oreille County Public Utility District's new cell tower to provide paging capabilities to the north end of the district. This will require an ongoing expenditure of funds to "rent" this tower space.
- No alternate emergency communications system exists in the north end of the county in the event of a failure of the main sheriff's center and its alternate site in Newport. Consideration of a combined fire station/alternate emergency communications facility, sheriff's station/public refuge area should be considered.

Fire Fighting Vehicles:

Limited budget resources have resulted in the acquisition of firefighting vehicles that are showing their age. We have little to no wild land capabilities. The District has no wild land apparatus and no water tenders. We depend on limited mutual aid capabilities from the local communities (volunteer manned) to provide water sources. Some capable hydrants exist in the District but are spread out over the District's area. The Pend Oreille River provides some locations where during favorable weather drafting operations can be set up.

Fire Stations:

Fire District #2 owns one dedicated fire station that sits on donated land (Station 21 – Sullivan Lake). It has electrical power only. No natural gas serves the area. No domestic water connection exists. The extent of the property line is such that no area exists to expand to construct a septic system without purchasing (if practical/available) adjacent land. The size of the station is such that additional construction would be needed to construct a bathroom.

The District owns (donated) a one acre parcel at Tiger Junction (Highway 20 at Highway 31) for future construction. This is the site for Station 23

We also own a one acre parcel (donated) at 20281 N. LeClerc Rd. for future construction of Station 24.

We own a lot within the city of Metaline Falls for the possible future construction of a replacement for the ambulance station (Station 22). This was also donated property.

Our current facilities goal is:

- Station 21-Sullivan Lake. Maintain "as is" with the future expansion to include upgrading water and septic availability. Continue to maintain the single volunteer engine company that exists to provide fire and EMS coverage to the area.
- Station 22-Metaline Falls. Maintain "as is" with the future relocation to an improved facility on the District owned property in Metaline Falls. The relocated facility would include a classroom type area for training. Continue to maintain the ambulance that exists to provide EMS coverage to the north end of the District.
- Station 23- Construct a facility to house a volunteer engine company and a volunteer EMS ambulance. As this location is in the center of Fire District #2 and in the area of increased building activity, provide an office area for the relocation of the District operations office and a classroom space for education and training. Considerations also include the provision of some type of public refuge area in the event of a local disaster. This would also be a location to consider as an alternate emergency communications center in the county. Use as a sheriff's station for the north county should also be a consideration.

- Station 24-N. LeClerc Rd. Construct a facility to house a volunteer engine company and a volunteer EMS ambulance.
- Thought is being given to the placement of wild land engine and water tender placement at any or all fire station locations.

The Department of Homeland Security maintains a 24 hour field office in Metaline. They maintain a presence in the north county with several full time vehicles on patrol throughout the region. The vehicles have Fire District #2 and Pend Oreille County Sheriffs radio frequencies among there capabilities. They are usually available to assist in emergencies when requested. In the event of an evacuation, they would be a primary source for vehicles with the ability to communicate with the District and or Sheriffs.

Table 4.17. North Pend Oreille County Administrative Sites

Site	Assigned	Address	GPS	Phone
Fire District #2 Administrative Office	Administrative Aid	302 Park St. Room 3 PO Box 435 Metaline Falls, 99153	48.51.657 117.22.472	446-2240 446-2406 fax
Fire District #2 Fire Station 21	Engine 21 Engine 23	13501 Sullivan Lake Rd. Metaline Falls, 99153	48.51.129 117.17.162	446-2727
Fire District #2 Ambulance Station 22	Medic 22 Rescue 22 Medic 23	103 N. Grandview Metaline Falls, 99153	48.51.827 117.22.399	446-3434
Fire District #2 Fire Station 24	Engine 24 Medic 24	20281 N. LeClerc Rd. Cusick, 99119	48.33.753 117.190.989	n/a
Fire District #2 Vacant Land (Future Fire Station 23)		Highway 20 and Tiger Highway Ione, 99139	48.41.075 117.24.334	n/a
Fire District #2 Vacant Land (Future Fire Station 24)		21291 N. LeClerc Rd. Cusick, 99119	48.34.618 117.20.297	n/a
Fire District #2 Vacant Land (Future Ambulance Station 22)		200 Block of 3rd Ave. Metaline Falls, 99153	48.51.640 117.22.327	n/a
Metaline Falls Fire Dept.		213 E. 3rd Ave. Metaline Falls, 99153	48.51.640 117.22.282	446-2633
Metaline Fire Dept.		103 Housing Dr. Metaline, 99152	48.50.918 117.23.550	
Ione Fire Dept.		111 S. Central Ione, 99139	48.44.339 117.25.179	442-3531

Future Mitigation Strategies:

In the year 2004 two new members of a three member Board of Fire Commissioners were elected or appointed. Among the first items addressed was the freezing of all but emergency Fire and EMS expenditures until such a time that past budget obligations were identified and a prudent future plan could be put in place.

The current course of spending is one of austerity. The lack of fire stations has been identified as the principle area of focus. With the indications that most of the future expansion of Fire District #2 will occur in the lower area of the district, two additional stations are needed immediately at the LeClerc and Tiger locations. We have a need for several additional EMTs and Firefighters

(volunteer). The lack of facilities is a deterrent to the recruitment effort. Not having a station to report to or an apparatus to be the "owner" of makes it difficult to recruit volunteers.

Limited site and infrastructure preparations have begun at the LeClerc location (Station 24). Funding will be from the current budget. Where possible, the donation of materials and labor is being pursued. On going labor during construction will be through of the efforts of our volunteers. It is hoped to have sufficient funds and labor to have this building enclosed but not complete by the winter of 2005-2006.

We are becoming more educated in "grant" processes that are available. We intend to pursue grants as a way to finance the Tiger location (Station 23) in the near future. We recently received a DNR wild land PPE grant and submitted a Homeland Security Grant for 2005-2006.

To address the signage and address concerns, we are currently in the process of setting up a public education and address sign purchase program based on those of adjacent Fire Districts. In addition, we are addressing our concerns on this problem to the Pend County Commissioners through routine communications.

In the area of communications, a program has begun at the county level to address some of the shortcomings of the system. A county wide infrastructure improvement and replacement program has begun this spring. Time will tell if Fire District #2 will benefit from these improvements. Through necessity, the District will begin to radio replacement in the near future.

Fire vehicle replacement and acquisition will continue to be a challenge. Several avenues being explored are the Federal Excess Property Program (FEPP), Washington Department of Natural Resources, adjacent fire agencies, donations and gifts.

Education and Training:

Approximately 98%+ of the Fire Districts emergency activity is EMS related (200+ calls per year) therefore much of the volunteer staffs time is spent working on this segment of the district operations. Our EMS volunteers also respond on all fires. Their primary function is the provision of rehabilitation of department members, traffic control, air bottle change out and any other assignment from the Incident Commander. Maintaining three state certified ambulances, EMT training and continuing education are very time consuming. The District provides CPR, AED, and First Aid training within the District through the school system (administrators as well as students), community programs, Seattle City Lights employees, and yearly, our instructors provide Pend Oreille county employee instruction in Newport.

We participate in fire safety education through the local school with the EDITH house and provide individual school programs as requested by the school district. In conjunction with the Conservation District we participate in the 6th grade field trip which provides various education opportunities to the students. We work with Pend Oreille County Fire District #8, Chief Cris Smith, in presenting his Junior Fire Fighter recruitment program to the high school during career days.

As a member of the county wide Pend Oreille Training Council, Fire District #2 avails itself of several of the opportunities provided through the POTC and through State Region 9 training cadre. I am a participating member of the Pend Oreille County Origin and Cause Unit. Through the Pend Oreille County mutual aid agreement, we provide Origin and Cause investigations within the county. In the near future additional scheduled training will be provided in the Origin and Cause field.

Current Resources:

Table 4.18. North County Fire District #2 and Incorporated Cities Equipment List.

Location	Apparatus	Description	Year / Make/Model	Tank size	Pump Size	Mileage
Fire Station 21 as Engine 23		Structural Engine	1967 Ford C950 American LaFrance	750 Gallons	1250 GPM	21,560
Fire Station 21 as Engine 21		Structure Engine	1980 Mack	500 Gallons	1500 GPM	7,484
Metaline FD	T-221	Type 2 Water Tender		4000 Gallons		
Ione FD	T-233	Type 2 Water Tender		2500 Gallons	550 GPM	
Ione FD	E-232	Type 2 Structural Engine		750 Gallons	750 GPM	
Ione FD	E-231	Type 2 Structural Engine		750 Gallons	1250 GPM	
Metaline FD	E-221	Type 2 Structural Engine		750 Gallons	1000 GPM	
Metaline Falls FD	E-212	Type 1 Structural Engine		1000 Gallons	750 GPM	
Metaline Falls FD	E-211	Type 2 Structural Engine		800 Gallons	500GPM	
Fire Station 24 as Engine 24		Structural Engine	1967 Ford American LaFrance	750 Gallons	750 GPM	20,742
Ambulance Station 22 as Rescue 23		Rescue Truck	1988 Dodge W350 4x4			72,454
Ambulance Station 22 as Medic 23		Type 3 Ambulance	2000 Ford Horton			98,531
Ambulance Station 22 as Rescue 22		Paramedic Response Vehicle	1998 Chevrolet Suburban 1500			78,499
Fire Station 24 as Medic 24		Type 3 Wheeled Coach Ambulance	2000 Ford			47,523
Ambulance Station 22 as Medic 22		Type 2 Ambulance	1990 Ford Braun-Northstar			114,324

Future Considerations:

In considering an evacuation north on highway 31 north of Metaline/Metaline Falls, the presence of an international border crossing with Canada needs to be considered. It is unknown what problems might be encountered when trying to move several hundred plus United States citizens rapidly across this border crossing.

The construction of two additional fire stations to provide fire and EMS services to the residents of Fire District #2 is a priority. The addition of these stations will help provide improved EMS coverage in the communities of Ione, Metaline, and Metaline Falls.

Recruitment of volunteer firefighters and EMTs. The construction of facilities to provide a “home” for volunteers is a key to recruitment.

Continue to pursue sources for fire and EMS vehicles.

Improve our ability to provide properly equipped and trained wild land resources.

4.7.3 Pend Oreille County Fire District #3

Mark Havener, Chief
509-447-5305
mark@pofd3.org
325272 Highway 2
Newport, WA 99156
www.pofd3.org

District Summary:

Pend Oreille County Fire District 3 is responsible for structure and wildland fire protection for 100 square mile area in the south central area of the county. This includes the communities of Diamond Lake, Sacheen Lake, Scotia Valley and Deer Valley. There are three fire stations in the district. One station is located in the Diamond Lake community on Highway 2; the Sacheen Lake area has a station and a new replacement station in the process on Highway 211 near Deer Valley road intersection. The last station, 33, is in the Deer valley area and is located near the intersection of Coyote Trail and Deer Valley Rd. We are an all-volunteer department with a total of 30 firefighters divided between the three fire houses. We have a full-time Chief who works out of the Diamond Lake station. The chief acts as a responder and administrator. This enables us to have a rapid response time during the day when some of our members are not available due to work constraints. Our primary area of concern is community safety. The fire department has proactively approached this with having quality volunteers trained to a wide variety of requests. We have also implemented a monthly Public Education workshop series that deals with all types of emergencies including wildfire prevention and preparedness. Fire District #3 also has made available to the community our workshop delivery to community groups and are in the process of developing on-line education opportunities with streaming audio and video downloads. We have applied for a Fire wise grant to initiate an on the ground assessment of the Sacheen Lake community, one of our highest concerns.

Table 4.19. Pend Oreille Fire District #3 Equipment List.

Apparatus	Description	Year / Make	Tank size	Pump Size	Supply hose	Crew #	Foam	Notes
E31	Structural engine	1985 Mack	750	1500	3" 1400'	5	Y	Extrication equipped
E32	Structural engine	1985 Ford	750	1250	3" 800'	4	Y	Extrication equipped
E33	Structural engine	1984 Pierce	750	1500	3" 1400'	4	Y	Extrication equipped
T31	Tender	1988 Ford	2100	500	250 3"	3	Y	Wild land equipped
T32	Tender	1984 Mack	1800	500	100' 3"	3	n	Small wheelbase/ reel hose
T33	Tender	1977 KW	4500	500	100' 3"	2	n	County road only
T-31 A	Tender	1988 White	3200	750	300' 3"	2	Y	Under construction
BR-31	Type 6 Brush engine	2000 Ford	350	250	300' 2.5"	3	Y	wild land
R-31	Type III Ambulance	1988 Ford	n/a	n/a	n/a	4	n	EMS / support
R-32	Type 6 Brush / EMS	1988 Ford	250	200	200' 2.5"	3	Y	
R-33	Type 6 Brush / EMS	1988 GMC	250	200	200' 2.5"	3	Y	
C-31	Command Vehicle	1986 GMC	n/a	n/a	n/a	4 max	N	Cascade Air / support

Priority Areas:

Residential Growth:

The Diamond Lake and Sacheen Lake area has been experiencing significant residential growth over the last several years with the conversion of recreational properties being

converted to full time residents. All indications are that this trend will continue into the foreseeable future.

In addition, as more land areas become available on the real estate market, we are experiencing additional growth in previously undeveloped areas of the district. This creates new challenges with regards to response time, water supply availability, and interface issues that did not exist in the past.

The use of improper building materials, and/or construction practices, for new construction, in "high risk" wildland-urban interface areas, and indefensible ground surrounding existing structures is a problem in some areas.

Communications:

Communication capabilities in our district are adequate. However, many of the district's portable radios are of the vintage that they will be due for replacement. We are planning for radio replacement in the near future with grant assistance. The ability to keep pace with communications technology will also be a concern.

We do hope to improve some of the communications by making available more preplanned areas in the community that will better prepare our firefighters when emergencies arise. We are working with Pend Oreille County Dispatch to implement an automatic aid system to improve resource response.

Fire Fighting Vehicles:

Due to limited funding, the age and capabilities of the fire fighting vehicles in our department has been a concern. We have been successful in obtaining Federal excess property vehicle and making them usable for our district. We recently completed the build out (in-house) of a 3200 gallon type 2 tender. We also acquired this past year a 2000 type 6 engine for the diamond lake station. The age of our structural fleet is in dire need of replacement in the coming 5 – 7 years.

Building Permit Regulations:

FD #3 as all in the county is hoping to get more involved the building permitting process. We strongly recommend the adoption of the international Fire Code and will look at the ability for the district to have an active role in the enforcement of this guidance document.

Effective Mitigation Strategies:

We have been very effective with a dedicated group of volunteers. We have increased our number of Red Carded FF's to 20 over the past 12 months. We are also active in the public education sector in improving community awareness to the preparedness and prevention of emergencies.

Education and Training:

Our department continues to emphasize the importance of continued training to our firefighters, and this issue could have just as easily been included in the "Priorities" section of this discussion. Our members participate in training activities provided to us through our mutual aid agreement with surrounding departments and agencies in addition to local training activities conducted at our fire department drills.

As a result of recruitment and retention efforts we hope to see a 50 % increase in volunteers over the next 5 years. Through the SAFER grant, we will hopefully add abilities to our current marketing and recruitment plan.

Cooperative Agreements:

Pend Oreille County Fire District 3 has mutual aid agreements in EMS and fire throughout the entire county. We have a mutual aid agreement with the Washington DNR for wildfire and structural protection through out our response area. We believe we have very good working relationships with these agencies and enjoy the cooperative nature of this mutually beneficial association.

Future Considerations:

Pend Oreille County Rural Fire Protection District 3 will continue to be actively engaged in upgrading and modernizing existing vehicles and equipment assets. Protecting our community and our firefighters is our paramount objective. Back to Basics training will always be our mantra as we constantly see an influx of new volunteers.

As previously stated, there is a need in the County for new regulations concerning new construction and code enforcement.

We will continue to provide service to the best of our ability as we state in our mission.

4.7.4 Pend Oreille County Fire District #4

Fire District #4 is one of the larger districts in the central part of Pend Oreille County. The district boundaries are the City of Newport and Coyote Trail Road on the south and Calicoma Road on the north end. The Pend Oreille River provides the east boundary. The western boundary is quite irregular but as a rule, encompasses the private lands along the western edge of the district.

Fire District #4 has four fire stations located throughout the district. Station 41 is located at Dalkena, in the center of the district. Station 42 is located about three miles north of Newport on Highway 20. Station 43 is a small station in the west central section of the town of Newport. Station 44 is located at the north end of the district on Meadows Road, about three miles west of the town of Cusick, Washington. The total land area included with the district boundaries is more than 95 square miles. Fire and medical service is also provided to the residents of the Kalispel Indian Reservation through a service contract with the Kalispel Tribe.

The fire department for the town of Cusick is currently being reorganized. Fire District #4 has agreed to provide fire and medical coverage for the Town of Cusick for a brief interim period of time. The district also provides the same coverage for the Town of Usk, who has no fire department. The total land area covered by Fire District #4 is now in excess of 100 square miles.

The fire district also houses an engine at the Ponderay Newsprint Company fire station under a cooperative agreement.

Fire apparatus and other emergency vehicles available for service in Fire District #4 are as follows:

Fire Station 41:

- 1- Class A structural fire engine carrying 2000 gallons of water
- 1- 3500 gallon tender
- 1- type 6 wildland/rescue engine
- 1-medical response ambulance

Fire Station 42

- 1- Class A structural fire engine with 500 gallon booster tank
- 1- 3000 gallon tender

- 1- type 7 wildland/rescue engine
- 1- suburban crew transport vehicle

Fire Station 43

- 1-Class A structural fire engine with 500 gallon booster tank

Fire Station 44

- 1- Class A structural fire engine with 2000 gallons of water
- 1- type 6 wildland engine
- 1- medical response ambulance

Ponderay Newsprint Company

- 1- type 3 wildland engine

Fire District #4 staffing consists of one full time career firefighter/EMT and 25 volunteer firefighters and or medical responders.

The training goal for Fire District #4 is to maintain the medical skills for a cadre of EMTs and first responders, the structural fire suppression skills for a core group and some wildland fire suppression skills for all firefighters. Fire district personnel will respond to any and all types of emergencies. They have training in a variety of disciplines not included in the three categories listed.

4.7.5 Pend Oreille County Fire District #5

Burch Schleisner, Chief
Nancy Schleisner, Secretary
406722 Highway 20
Cusick, Washington 99119
509-445-0349

Table 4.20. Pend Oreille County Fire District #5 Equipment List.

Type	Resource	Gallons	Drive	Vehicle #	Specifications	Location
3	Engine	800	4x2	E53	180 gpm, Porta Pump	Hwy 20
3	Engine	500	4x4	E51	150 gpm, Porta Pump	Hwy 20
2	Tender	3500	4x2	T51	2 pumps	Hwy 20
n/a	Aid Vehicle		4x2	R51	Non transport aid vehicle	Hwy 20

4.7.6 Pend Oreille County Fire District #6

District Summary:

Fire District #6 is currently an all volunteer fire company consisting of two stations with fifteen volunteer professionals. The district runs three Class A Engine companies, one 4000-gallon water tender, one BLS aid vehicle, and one brush/command unit. They are currently in the process of developing an 1800 tender-pumper water supply unit for the district. They are also looking at a 1-ton flatbed as a special Ops unit for wildland fires. The district enjoys an ISO rating nine within five miles of the Furport station. They are applying for ISO rating eight this month for both stations.

The main station is in Furport 7.5 miles north of Newport. Equipment housed here includes two pumpers, one water tender, one rescue, and the brush/command unit. The second station is in Uskand houses one pumper.

The vision for this district is that they will open a third station next year in the Bead Lake area and a fourth station near the LeClerc Road – Bead Lake Road intersection. The fourth station may take to years or better. District #6 will be applying for tender credit within a year with a special water supply operation. The district will have three small water districts with pressure hydrants and three dry hydrants with the next three years.

The district itself covers 75 square miles on the east side of the Pend Oreille River. On the north, we border the Kalispel Tribal Nation protected by the Pend Oreille County Fire District #4. On the south, we border Idaho, protected by a combination of USFS, DNRC, and Idaho Department of Lands. The district is a combination of rural, forest, far, and recreational land. Most of the homes are located near either the river or one of the mountain lakes. There are several large farms on the north end of the district. Seventy percent of the district is comprised of forest land with a mix of interface and intermix making up almost ninety-five percent. Commercial development is comprised of three Bible-related compounds or camps, one Geo-physical Observatory, one large RV park, one 600+ acre RV-Horse Ranch, one grange building, and numerous clubhouses.

District #6 is identifying four fire management zones (FMZs) within our area based on possible station locations. Each has its own wildland problem. Zone 1 comprises a five mile radius north, south, and east of Station 61/Furport. Zone 1 has several areas of interest. First, is Furport itself with several homes in the interface surrounded by undergrowth that would allow fire to climb into the trees. Next, is the Pend Oreille Bible camp with 184 acres of interface. Areas around the Geo-Physical site are currently being burned as part of the Healthy Forests Restoration Act (HFRA). FMZ 2 is on the north end in Station 62's area. The concerns are the Best Chance Road area with a lot of underbrush and limited access for residents or fire crews. The other areas of concern are the King Lake and Berry Road on the unimproved part. FMA 3 is the Bead Lake area. The majority of the housing is located on the west side of the Lake. The rest is protected by USFS and DNR. The USFS has done a lot of burning under HFRA in the last year. This is our largest forested area in our district. The Bead Lake housing areas have good egress down Bead Lake Road. The rest of the area has limited egress thru one land fire roads. There are many summer cabins and trailers in this area. In the winter this area is impassable beyond the Crystal Shore housing. FMZ 4 includes the Marshall Lake area, campgrounds, and homes. This area was hit with a major fire storm in the early 1990's in October just before the snow hit. Also, we have the Bench Road area with several homes in the interface. The south side of LeClerc Creek Road near the river has several homes in the interface such as the Pend Oreille River home development. The islands along the river have had several fires over the years. Sparks from one of these fires could start a mainland fire that would race up the Bead Lake Hill to Marshall Lake. Fire District #6 has a huge potential for a major fire event with possible loss of property and life.

Needs:

- Better code enforcement on driveways, turnarounds, and homes
- Any water systems in their area approved by the planning commission at 500 gallons per minute or better with 20,000 gallons of storage for fire protection
- County Commissioner approval for impact fees for new developments that would greatly effect fire or medical response
- More education for public on wildfire safety

Table 4.21. Pend Oreille County Fire District #6 Equipment List.

Resource	Gallons	Specifications
Engine 61 - 1981 Darley pumper	750	1000 GPM pump, 3-man cab, mid-ship walk thru pump
Engine 60 – 1978 Ford F-700 pumper	750	750 GPM front mount pump
Engine 62 – 1970 Louisville pumper	1000	3-man cab, 1000 GPM front mount pump
WT-60 1983 Transtar Water Tender	4000	350 GPM PTO pump
Command 61 1985 GMC Brush Command Unit	300	65 GPM pump
1975 Ford F-900 Tender/Pumper	1800	500 GPM pump

Station 61
7572 Leclerc Rd.S.
Newport, Wa 99156
Houses E-61, 60, WT-61, R-61, C-61, and 12 Volunteers

Station 62
12972 LeClerc Rd. S.
Usk, Wa
Houses E-62 and 4 Volunteers

4.7.7 Pend Oreille County Fire District #7

Pend Oreille Fire District #7
Bruce Coleman
509-292-8374
bdcoleman3467@yahoo.com
11 Jermain Road
Newport, Washington 99156

District Summary

Fire District 7 is comprised of 18 square miles of rural residential area, which is mostly forested area, some of which has been logged and slash piles left. We have one major highway through our district with all other roads being paved two lane or gravel roads. We are primarily responsible for fire protection of homes and out buildings with a first response with DNR back up for wildland fires. We also are responsible for full medical response to the entire district. District 7 is an all-volunteer district with limited funds, we have 12 volunteers of whom 3 are junior firefighters, and of the 9 remaining, we have 4 EMT's. We respond out of one station on Jermain Road and Fertile Valley Road, which is approximately in the center of the district. At this time we have no commercial buildings within the district boundaries but have one proposed with a subdivision planned behind it on Fertile Valley Road.

Priority Areas

Residential Growth:

Due to the location of our district on the south end of the county we are seeing more families moving in that work in Spokane because of the main highway, which goes directly to Spokane. I believe this growth will only continue as northern Spokane County continues to grow.

I believe that there should be codes established for those building their own homes as well as developers. Adequate access routes and on-site water sources for fire extinguishment should be addressed in these codes.

Communications:

The communications in this part of the county are poor because we are in a bowl with mountains blocking the present antennas. The sheriff has the same problem in this area. We have mounted rebroadcasters on our station to aid us in being paged, which works well. We have mounted another rebroadcaster to aid in our transmissions to the dispatch office, but so far we have not had as much success with this system. We are in the process of attempting to re-tune the rebroadcaster.

Firefighting Apparatus:

We have older equipment due to our limited resources, but it has new engines, transmissions, and pumps. In the last 5 years we have upgraded almost all of our vehicles except one and we are in the process of doing that now.

Education and Training:

We have been involved since 1999 with Pend Oreille Training Council which has made it possible for us to bring our training capabilities up to a professional level at a cost that we and other fire departments in the county could afford. This helps bring all departments to an equal competency level, so that we can work together on mutual aid calls.

Cooperative Agreements:

District 7 has mutual agreements with DNR, Spokane County Fire District 4 and a countywide mutual aide agreement for all of Pend Oreille County.

Current Resources

At the present time we have a FEMA grant to obtain a newer tender which will replace the GMC.

Table 4.22. Pend Oreille County Fire District #7 Equipment List.

Apparatus #	Year / Make	Tank size	Pump Size	Supply hose	Crew #	Notes
Engine 71	65 crown	500 gal	1000gpm	3000 ft 3 inch	5 seat	3-13/4 attack 1-21/2 attack
Tender 71	79 GMC	3000 gal	100 gpm	300ft 3inch 3 seat		200 ft 1 1/2 attack
Rescue	92 Ford					Ambulance/Rescue
Brush 71	79 Chevrolet	300 gal			3 seat	200 ft 1 inch 300 ft 1 1/2 inch brush hose
Brush 71	81 GMC	400 gal				

4.7.8 Pend Oreille County Fire District #8

Christopher Lee Smith, Chief
4941 Spring Valley Road
P.O. Box 947 – Newport, Washington 99156
(509) 447-0147
csmith@surf1.ws

DISTRICT SUMMARY:

Pend Oreille County Fire District #8 was formed in 1992 as a result of "Fire Storm" to provide fire protection to the residents of the "Spring Valley" community. The Fire District encompasses the southeast corner of Pend Oreille County and extends from the Idaho/Washington State line west approximately seven miles and from the Spokane County line north approximately seven miles, with a diagonal line running northeast to southwest along a ridge line. Within these borders, Fire District #8 encompasses approximately 30 square miles. There is only one main road (Spring Valley Road) within the district, and numerous smaller, unpaved roads (many of which are "dead ends"). Several areas serviced by the Fire District require either traveling into the State of Idaho and then back into Washington State; through adjoining Pend Oreille County Fire District #3 and then back into Fire District #8; or into Spokane County and then back into Pend Oreille County to reach our outlying areas. The population of the district is approximately **700** permanent residents. The major employers in the district are self-employed farms however the majority of the residents work outside of the district.

In early 2005, the District started providing emergency medical service to its residents, and is a state-licensed aid-only emergency medical provider for the Spring Valley area of Pend Oreille County. While the District is a junior taxing agency, this emergency medical service operates free-of-charge under the budget of the Fire District.

Fire District # 8 staffing consists of one Chief, one Assistant Chief, 15 Firefighters, one Medical Officer and two Firefighter/EMTs. All personnel are volunteers, and all are firefighter-qualified; the EMTs are utilized in the firefighter rehabilitation area when not called upon to assist in fighting fires.

Fire District #8 facilities consist of: One unmanned, District-owned fire station housing two engines, a water tender and an attack (wild land engine), centrally located in the district at the southeast corner of Spring Valley and Tweedie Roads.

Fire District #8 is part of the countywide fire and countywide medical mutual aid agreements. The District assists the United States Forest Service and the Washington State Department of Natural Resources when able or called upon. The District provides structure protection as well as wild land protection to these agencies. The Fire District will provide EMS service to the USFS and DNR responsibility areas if called upon.

PRIORITY AREAS

Residential Growth:

The majority of the residential growth is expected to continue along both sides of Spring Valley Road. This area extends the length of the District, for approximately 16 miles. Several new homes have been built along this corridor in the District, with several in the planning stage at this time. The District has seen a number of new roads established off of Spring Valley Road, with new construction and more residences in the planning stage. Pend Oreille County's building code adoption and enforcement is expected to be a major influence is creating an area of code compliant structures.

All structures in Fire District # 8 are in "wild land-urban interface" areas. There are indefensible space concerns with many of the existing structures in the District. Many structures are located on public and private non-all weather roads. Road signage is poor in some areas and visible 360° house numbering is non-existent in most areas. As the Fire District expands its volunteer EMT and Fire personnel, this is one of many major challenges.

Fire District # 8 is selling code-compliant address number signs in an attempt to remedy part of the problem. Additionally, in one area, address number sequencing is out of order and fixing the problems is being met with resident resistance.

Communications:

Communications in the District is adequate. However there is an on-going problem:

- Due to the topographical conditions, Fire District # 8 has a few dead radio areas when we are out of the repeaters line-of-sight.
- Cell phone availability is limited and repeater access is spotty due to the topographical conditions in the District.

Fire Fighting Vehicles:

Limited budget resources have resulted in the acquisition of firefighting vehicles that are showing their age. Fire District # 8 has relied on the Federal Excess Property System to obtain most of its vehicles. It also has obtained some vehicles through donations from larger districts/departments within the state.

Water Supply:

Fire District # 8 has installed two dry hydrants in the southwest portion of the district in a small private lake and a pond. The district had no pressurized hydrants or rivers within in its boundary.

Fire Stations:

Fire District #8 owns one dedicated fire station (Station 81) that sits on land donated to the district at the southeast corner of Spring Valley Road and Tweedie Road. It has electrical power only. No natural gas serves the area. No domestic water connection exists. The size of the land would allow for a septic system, domestic water well, and expansion of the station to include restrooms, kitchen, additional vehicle bays and a community center for our aging citizens during our frequent power outages, but the cost is prohibitive.

Our current facilities goal is:

- Station 81: Expand station to include water, restrooms, vehicle bays, kitchen, and community center.
- Station 82: Woodman/Doe Meadow Road area. Build a small station to house vehicles for this area that is time-consuming to reach due to relationship-to-Station 81 and District boundaries.

Future Mitigation Strategies:

The three-member Board of Fire Commissioners set priorities for the 2005 budget year, with the full knowledge of our limited junior taxing districts income and expenditures.

Maintenance of our aging vehicles was and still is a priority. This is a slow and costly project that must be ongoing. The District is standardizing all vehicles so equipment can be used with multiple vehicles, both structure and wild land, thus saving the District money (i.e., all vehicles are now draft-capable, suction hosed fit structure, wild land and tenders, etc.).

Expansion of our current station: It is hoped that a grant can be found to buy materials to expand the station. The volunteers will donate the labor as they did during the building of the station. Restroom, water, septic system, and additional bays are a priority, with the hopes of a community center being added if monies are available.

We are becoming more educated in “grant” processes that are available. We intend to pursue grants as a way to finance the expansion of Station 81 and the building of Station 82.

We have received DNR wild land PPE grants and dry hydrant grants, and have received Homeland Security/FEMA Grants in the past to obtain radio equipment, wild land fire shelters and PASS devices.

To address the signage and address concerns, we do currently offer code-compliant address signs, and the District is active in public education and has sponsored several “fire wise” classes within the District as well as numerous classes outside of the District, which has reduced our fire calls.

In the area of communications, both dispatch and the local phone carriers have been notified of our concerns and, until upgrades are made in both systems, we have to deal with the few dead areas. (We did upgrade our radios two years ago with a FEMA grant that helped tremendously}.

Fire vehicle replacement, maintenance, and acquisition will continue to be a challenge. We have in the past and will continue to use the Federal Excess Property Program (FEPP), Washington Department of Natural Resource, other fire agencies, donations and gifts.

Education and Training:

A majority (60%+) of the Fire District’s emergency responses are medical. All available personnel are required to respond to all calls, both medical- and fire-related, and therefore much of our time is spent working within the medical segment of the District’s operations.

We participate in the fire safety education through the local schools with the EDITH house. We participate with the Conservation Districts 6th grade field trips, which provide various education opportunities to the students, and have been involved and taught “Fire Wise” classes to the adult public in conjunction with DNR and Fire Safe Spokane. Fire District #8 has been the lead district for “Give Burns the Boot” campaign within the county as well as the “Junior Fire Fighter Academy”, which recruits high school students as well as adults where, over a 5-6 week period during the summer, trains these students to become firefighters in both structure and “Red Carded” wild land fire fighting.

Fire District # 8 is a charter member and I am one of the board members of the countywide Pend Oreille Training Council; I have been the county representative to the Region 9 Training Council, Region 9 Fire Council and the Inland Empire Fire Chiefs Association for the past six years. I have written several grants to bring training to Pend Oreille County through Region 9, including a certified instructor’s course, safety officer’s course, and origin-and-cause course. I, along with our medical officer, are participating members of the Pend Oreille County Origin and Cause Fire Investigation Unit, which consists of ongoing training in this field. Our District continues to have and encourages its volunteers to participate in fire training programs as well as providing education to the public we serve.

CURRENT RESOURCES

Location	Station 81 as Engine-801	**Location**	Station 81 as Truck-803
Make	GMC	**Make**	Chevrolet
Model	Structure Engine	**Model**	Wildland Pumper Engine
Year	1972	**Year**	1978
Pump Size	1,500 gpm	**Pump Size**	250 gpm, plus a 250 gpm portable pump
Tank Size	750 gallons	**Tank Size**	750 gallons
Mileage	33,705 mi	**Mileage**	55,872 mi

Location	Station 81 as Engine-802
Make	Seagraves
Model	Structure Engine
Year	1973
Pump Size	1,500 gpm
Tank Size	500 gallons
Mileage	34,940 mi

Location	Station 81 as Tender-821
Make	Amgen
Model	Water Tender
Year	1973
Pump Size	250 gpm
Tank Size	2,000 gallons
Mileage	19,780 mi

Location	Chief's home as Command-8
Make	Ford
Model	Bronco Chief's Command Vehicle
Year	1983
Pump Size	N/A
Tank Size	N/A
Mileage	117,980 mi

Location	Chief's home as Command-82
Make	Ford
Model	Aerostar Passenger/EMS Van
Year	1993
Pump Size	N/A
Tank Size	N/A
Mileage	95,590 mi

Location	Chief's home as Truck-802
Make	International
Model	Wildland Pumper Engine
Year	1955
Pump Size	350 gpm
Tank Size	1,000 gallons
Mileage	107,863 mi

Location	Chief's home as Truck-801
Make	International
Model	Wildland Pumper Engine
Year	1954
Pump Size	250 gpm
Tank Size	90 gallons
Mileage	110,942 mi

Location	Chief's home as Tender-822
Make	Amgen
Model	Water Tender
Year	1974
Pump Size	portable 250gpm pump
Tank Size	1,200 gallons
Mileage	22,817 mi

FUTURE CONSIDERATIONS

Maintenance of our aging fleet is our priority.

The expansion of the station will enable us to house all of our vehicles plus enable us to open our door to the public during times of emergency.

The building of a new station will enable us to have a faster response to our citizens that are at the far reaches of our district.

Recruitment/training of volunteer Firefighters and Emergency Medical Technicians (EMTs).

Improve our ability to provide properly trained and equipped personnel to serve the public.

4.7.9 Ione Volunteer Fire Department

Joseph W. Sterba, Chief

District Summary

The Ione Volunteer Fire Department operates within a municipality with a fire station located on the south end of town, one block west of Highway 31. At 211 South Central, this fire station has three floors where on the third floor consists offices and outside communication antenna with inside base station and direct phone lines to the County Sheriff's Department Communication Center. The second floor has a large training/conference room, kitchen with bathroom (includes laundry and shower), and a meeting room. The first floor is the operation floor with full turnouts, lockers, cascade system, fire hose washer & racks for drying, restroom, fire/rescue/medical equipment, and supplies. The east side of the station has four bay doors which houses two type 2 pumpers, one tender, and one licensed BLS first response vehicles. The Ione Volunteer Fire Department currently has 27 members of which 18 have successfully completed WSP FF1 curriculum. There are 13 EMT-B, 2 EMT-IV, and 1 ILS that are certified in the State of Washington. The Ione VFD has 12 trained in high angle rescue and 6 in dive rescue.

Equipment:

Rescue one: 1996 Type 3 Ford Horton
BLS/ILS equipped
Basic MVA equipment
Complete Repelling equipment (high angle rescue)

E-231: 1963 American La France Type 2 Structural Engine
600 gallon tank 1250gpm
1000 gpm Variable Nozzle Mounted Deck Gun
8-complete SCBA/spare cylinders
Standard firefighting equipment

E-232: Primary Response Engine for MVA's
1980 Mack Structural Engine
500 gallon tank 1500gpm
Extrication Equipment
Portable Generator with lights
Positive Pressure Fan
8-SCBA's/spare cylinders
Standard firefighting equipment

E-233: 1978 Ford Tender/ Waterous pump
1600 gallon tank 550gpm
150' Booster Reel Line
2-150gpm floata-pumps
1600 gallon Prota-Tank

E-Reserve 1960 Ford C850 Structural / Wild land Engine
600 gallon tank 750gpm
2-150' Booster Reels

4.8 Wildland Fire Districts

4.8.1 Washington Department of Natural Resources

4.8.1.1 Arcadia District

Department of Natural Resource
NE Region, Colville, WA
(509) 684-7474

Arcadia District Work Center, Deer Park, WA

The Department of Natural Resources provides wildfire protection and suppression on privately owned forest land and state owned forest land in the state of Washington.

The Arcadia District of the DNR encompasses approximately 2.1 million acres of private and state lands in the counties of Spokane, Stevens, Lincoln and Pend Oreille in Northeast Washington state. Mutual Aid Agreements with 18 rural fire protection districts, the Colville National Forest, the Spokane Indian Agency, The Kalispel Indian Agency, US Fish and Wildlife Service, and the National Park Service provide for DNR assistance in fire protection assistance in and adjacent to the Arcadia District. The border of the Arcadia District includes all of Spokane County, the portion of Lincoln County north of US Highway 2, the portion of Stevens County south of Deer Lake and east of the Hunters divide, and the portion of Pend Oreille County South of Tiger and Sullivan Lake.

Special features within the district include the Cities of Spokane and Spokane Valley, the Kalispel Indian Reservation, Spokane Indian Reservation, Turnbull National Wildlife Refuge, Mt. Spokane State Park, Riverside State Park, Lake Roosevelt National Recreation Area, and portions of the Colville National Forest.

The district's primary workstation is located in Deer Park, north of Spokane. The DNR utilizes a "home guard" approach in that the seasonal engine drivers park their assigned engines at their residence within their assigned geographic portion of the district. The Arcadia District staffs ten to eleven 3-person brush engines within the district each season, with one engine in south Stevens County, one engine in South Pend Oreille County, and the remainder spread through Spokane County. Engine staffing is on a varied schedule that provides seven day per week coverage June through September.

The Arcadia District is also is home to a PBY air tanker on contract by the state. The 1500 gallon scooper fixed wing aircraft is based at the Deer Park Airport, and is available from mid-June until the fire season is declared over in the fall, usually late September.

The DNR maintains call when needed contracts for Dozers and operators trained and equipped for fire suppression throughout the district.

The Arcadia District is also the home to the Airway Heights Camp Program, which staffs five10 person inmate hand crews trained in wildland fire suppression.

DNR crews are neither trained nor equipped for structure suppression. Primary protection responsibilities are on private and state forest land throughout Northeast Washington and the DNR also responds to fires off of DNR jurisdiction which threaten DNR protection.

The DNR does not provide formal EMT services. The crews are trained in first-aid, and some staff members have EMT and first-responder training, but this is not a service the DNR provides as part of their organization.

Personnel: The Arcadia District fire program staff totals 38-40 individuals, including 4 permanent employees, 5 career-seasonal employees who work up to nine months each year, and 30 seasonal employees on staff from roughly June to September. These are all paid staff members trained in wildland fire, but not in structure protection. Within the District an additional 5-8 permanent employees work in other programs, but assist in the fire program during the summer as needed.

Mutual Aid Agreements: The DNR has individual mutual aid agreements with local fire protection districts. Through the "Master Agreement" and "Northwest Compact", the DNR has mutual aid agreements with Federal Agencies, neighboring states and Canada.

Table 4.23. Arcadia District Equipment List for Wildland Fire Protection.

Assigned Station	Make/ Model	Capacity (gallons)	Pump capacity (GPM)	Type
Arcadia	Ford	240	120 GPM	Wildland T6
Arcadia	Ford	240	120 GPM	Wildland T6
Arcadia	Ford	240	120 GPM	Wildland T6
Arcadia	Ford	240	120 GPM	Wildland T6
Arcadia	Ford	240	120 GPM	Wildland T6
Arcadia	Ford	240	120 GPM	Wildland T6
Arcadia	Ford	240	120 GPM	Wildland T6
Arcadia	Ford	240	120 GPM	Wildland T6
Arcadia	Ford	240	120 GPM	Wildland T6
Arcadia	Ford	240	120 GPM	Wildland T6
Arcadia	International	600	120 GPM	Wildland T5

- The Arcadia District Contracts Dozers as needed
- The Arcadia District is home to the 5 – 10 person Airway Heights crews
- The Arcadia District is base to the PBY, Tanker 85.
- The Arcadia District staff includes: Type 3 Incident Commanders and Division Supervisors, and other various NWCG rated overhead staff.
- The Arcadia District maintains a supply cache and two mop-up support trailers with portable pumps, hose, and fittings.

Additional suppression resources include:

- **Helicopter:** The DNR has six type 2 helicopters based out of Ellensburg, and they are staged throughout the state as needed. In times of high fire danger there is often a helicopter staged at Colville and occasionally at Deer Park.
- **Fixed-Wing:** The DNR Northeast Region often partakes in contracting a fixed-wing platform for Air-Attack during peak fire periods.
- **Air Tankers:** In addition to Tanker 85, the Arcadia district has access to Federal Tankers, Coeur d' Alene Air Tanker Base is nearby and often has a tanker on base during high fire danger periods, although with reduced aircraft available the availability has been decreased. In addition, the DNR is able to utilize Canadian Air-Tankers through agreements.

The following is a list of local equipment available thru the mutual aid agreements mentioned above:

Pend Oreille County Dispatch
331 S Garden Avenue
PO Box 5075
Newport, Wa 99156
447-3151
Fax: 447-2222

Newport Fire Department (City Hall)
Dale Maki, Chief (447-9339)
Deanna Watson, Secretary (447-9303)
200 S Washington Avenue
Newport, Wa 99156-9670
447-5611
Fax: 447-2259

Cusick Fire Department
Dave Hoisington, Chief (445-1148)
PO Box 146
Cusick, Wa 99119
509-445-1672
Fax: 509-446-2406

The primary operational challenges facing the district include:

- Continued development of wildland-urban interface areas across the district. All counties are experiencing rapid growth and development in previous rural areas.
- Nearly all fires are multi-jurisdictional within the district and require unified command with at least one additional agency, often two. This requires constant joint training and relationship building to overcome challenges with communication and jurisdiction during incident response. Currently the DNR has a positive relationship with local partners, however it requires constant maintenance.
- Meeting high standards for training, personnel, and equipment under increasingly restricted budgets.
- Internally, an operational challenge is to have sufficient and appropriate staff available throughout the year to foster partnerships with local departments and facilitate continued and improved coordination, training, communications, and other joint efforts with our partners across the district.

Our effectiveness in addressing these challenges will largely hinge on funding available for the fire program and its various elements.

4.8.1.2 North Columbia District

North Columbia District provides fire suppression, fire prevention, burning regulation and enforcement on approximately 1.35 million acres of private and state trust land in portions of Stevens, Ferry and Pend Oreille counties. While most of the district lies within Stevens County, a portion of our district encompasses northern Pend Oreille County as shown in figure 1. Due to the remoteness of northern Pend Oreille County, a lack of state trust land for crew projects and a historically low frequency of fires, our fire crews spend most of their work hours in Stevens and Ferry Counties. We do, however, have the ability to respond to the Ione area within 30 minutes on most summer days. In order to ensure adequate fire response, the district has a large staff of seasonal employees and the equipment necessary to support our firefighters.

Staffing: North Columbia District has eight full time employees. Two of these employees work primarily in the fire program. The district also has 33 seasonal employees that support the fire program. The majority of these individuals are only employed from June 16 to September 15 of

any given year. A handful of seasonal employees, currently five, are employed for a longer period of time. This period of employment averages April 1 to November 15. Most employees are qualified as wildland firefighters only but a handful of others hold a variety of NWCG qualifications such a single resource boss, task force leader and division supervisor. Due to the fact that the North Columbia work center is co-located with the region office in Colville, we are often able to pull permanent staff from the main office to assist with fires as needed.

Resources and Crew Configurations:

- ***North Columbia Ten Person Crew***. This trail crew travels in two 4x4 type seven engines, each one carrying 150 gallons of water. Other equipment includes various hand tools, chainsaws, portable pumps, fire hose and various fittings. See figure 2.
- ***Five Type 6 Engines***. Each engine is four-wheel drive and is staffed with a crew of three. These engines have 240 gallons of water and assorted equipment comparable to the 10-person crew. See figure 3.
- ***One Type 5 Engine***. This engine is staffed with a crew of three as well. This two-wheel drive engine carries 620 gallons of water is equipped with much the same equipment as our other engines. See figure 4.
- ***One Type 7 Engine***. This 4x4 engine is also staffed with a crew of three and carries 150 gallons of water. It also carries equipment similar to our other engines. Same as figure 2.
- ***Two mop up trailers***. These trailers are outfitted with several thousand feet of fire hose, portatanks, pumps, various fittings and other equipment. See figure 5.
- ***One 2000 gallon water tender***. This federal excess truck is used to shuttle water to fires as needed. It can be operated by a handful of employees who hold CDL endorsements. It carries some fire hose, fittings and a port-a-tank as well. See figure 6.

In addition to our own local resources, we have the ability to use a variety of other resources. Air resources include the 1500-gallon PBY air tanker based out of Deer Park and several type 2 DNR helicopters based out of Ellensburg. One helicopter is usually moved to northeast Washington during times of high fire danger. We also have the ability to use federal air tankers as well as Canadian air tankers. North Columbia District has fire response agreements with all rural fire districts in Stevens and Ferry counties. Through these agreements, we have the ability to hire fire district resources to supplement our own fire resources as needed. We also hire private contractors for hand crews, engines, water tenders, timber fallers and dozers when needed.

The following is a list of contacts for local equipment available thru the mutual aid agreements mentioned above:

Pend Oreille County Dispatch
331 S Garden Avenue
PO Box 5075
Newport, Wa 99156
447-3151
Fax: 447-2222

Newport Fire Department (City Hall)
Dale Maki,Chief (447-9339)
Deanna Watson, Secretary (447-9303)
200 S Washington Avenue
Newport, Wa 99156-9670
447-5611
Fax: 447-2259

Pend Oreille County Fire District #6
Furport
Curt Mont, Chief
7572 LeClerc Road S.
Newport, Wa 99156
509-447-3736

Pend Oreille County Fire District #7
Fertile Valley
Bruce Coleman, Chief
Jermain Road
Newport, Wa 99156
509-292-8374

Cusick Fire Department
Dave Hoisington, Chief (445-1148)
PO Box 146
Cusick, Wa 99119
509-445-1672
Fax: 509-446-2406

Pend Oreille County Fire District #1
Karen Johnston, Secretary
4411 Allen Road
Elk, Wa 99009
509-939-7714

Pend Oreille County Fire District #2
Brad Larson, Chief
PO Box 435
Metaline Falls, Wa 99153-0435
509-446-2240
Fax: 208-446-2406

Pend Oreille County Fire District #3
Diamond Lake & Sacheen Lake
Mark Havenor, Chief
PO Box 870
Newport, Wa 99156-0870
509-447-0978

Pend Oreille County Fire District #8
Spring Valley
Chris Smith, Chief
PO Box 947
Newport, Wa 99156
509-447-0147

Pend Oreille County Fire District #5
Locke/Ruby
Burch Schleisnor, Chief
406722 Hwy 20
Cusick, Wa 99119
509-445-1104

Pend Oreille County Fire District #4
Newport/Cusick/Dalkena
Steve Gibson, Chief
11 Dalkena Street
Newport, Wa 99156
509-447-2476

The primary operational challenges facing the district include:

- Continued development of wildland-urban interface areas across the district. All counties are experiencing rapid growth and development in previous rural areas.
- Nearly all fires are multi-jurisdictional within the district and require unified command with at least one additional agency, often two. This requires constant joint training and relationship building to overcome challenges with communication and jurisdiction during incident response. Currently the DNR has a positive relationship with local partners, however it requires constant maintenance.
- Meeting high standards for training, personnel, and equipment under increasingly restricted budgets.
- Internally, an operational challenge is to have sufficient and appropriate staff available throughout the year to foster partnerships with local departments and facilitate continued

and improved coordination, training, communications, and other joint efforts with our partners across the district.

Our effectiveness in addressing these challenges will largely hinge on funding available for the fire program and its various elements.

4.8.2 USDA Forest Service

4.8.2.1 Priest Lake Ranger District, Idaho Panhandle National Forest

USDA Forest Service
Idaho Panhandle NFs
Priest Lake Ranger District
Gary Weber, DFMO
208-443-6837
gaweber@fs.fed.us
32203 Highway 57
Priest River, ID 83856

District Summary

Priest Lake Ranger District is responsible for wildland fire protection on all National Forest System lands in that portion of Pend Oreille County east and north of the watershed divide between the Pend Oreille River and the Priest River/Priest Lake. The station is located at the district headquarters near MP 32 on Idaho State Highway 57, four miles south of Nordman, ID. The Fire Management workforce includes 7 full-time employees and 10-15 season employees (April-November). The primary areas of concern are National Forest lands within the wildland-urban interface and adjacent to private industrial land and the emergency evacuation route for the heavy summer recreation population should Highway 57 become blocked. No formal agreement is in place with the Washington Department of Natural Resources, who has protection responsibility for all private lands within this area.

Priority Areas

The private lands in the Lower West Branch, locally known as “the Bearpaw”, have seen residential growth over the past few years with no indications of this stopping. Washington DNR provides wildland fire protection, but there is no structure fire protection provided. Although no formal agreements are in place, Priest Lake Ranger District fire personnel respond to most reported incidents during wildland fire season. Vegetative conditions in this area, both on federal and on private ground, are such that much of the area is at risk from high intensity wildfire.

While most of the private industrial lands are not adjacent to current residential areas, trends elsewhere have seen industrial ground subdivided and sold to private individuals. This has to be a consideration here, also.

An identified emergency evacuation route for Priest Lake is the Kalispell Creek-LeClerc Creek route. Upwards of 20,000 recreation visitors may be expected at Priest Lake on busy summer weekends. Should Highway 57 become blocked between the Outlet and Dickensheet areas, this would be the only feasible evacuation route for heavy recreational traffic.

Current Resources

Table 4.24. Priest Lake Ranger District Current Resource List.

Resource	Description	Year/make	Tank size	Pump Size	Supply hose	Crew #	Notes
4841	Type 4 Wildland	1994 Ford F-700 4x2	750	BB-4 18hp	2,000+' mixed	3	Foam capable, 65-gpm@150psi
4861	Type 6 Wildland	2000 Ford F-450 4x2	300	BB-4 18hp	2,000+' mixed	3	Foam capable, 65-gpm@150psi
4862	Type 6 Wildland	2002 Ford F-550 4x4	300	BB-4 18hp	2,000+' mixed	3	Foam capable, 65-gpm@150psi
D8 IA Module	5-Person Hand Crew					5	Chainsaws, firing devices, fireline construction

There are plans to expand the fire cache/fire office area, but this would not change available resources.

*Note: The area within Pend Oreille County described here is approximately one-third of the total area of responsibility of Priest Lake Ranger District Fire Management.

4.8.2.2 Newport-Sullivan Lake Ranger District, Colville National Forest

Table 4.25. Newport-Sullivan Lake Ranger District Equipment List.

Apparatus #	Description	Year / Make	Tank size	Pump Size	Supply hose	Crew #	Notes
Engine 302	F-450 Type 6 Wildland	2006 International	500	BB-4/18hp	2,000' mixed	3	Foam capable, 250-gpm@150psi
Engine 303	F-700,Type 3 Wildland	1992 Ford	1,000	CBP-3/PTO	3,000 plus/mix	3	Foam capable, 250 gpm
Engine 501	F-550 Type 6 Wildland	2005 Ford	300	BB-4/18hp	2,000'-mixed	3	Foam capable, 65-gpm@150psi
Engine 502	F-450 Type 6	Ford	200	BB-4/18hp	2,000-mixed	3	Foam capable, 65-gpm @ 150 psi
Crew 304	5 person hand crew					5	Chainsaws, firing devices, fireline construction
Crew 305	5 person hand crew					5	Chainsaws, firing devices, fireline construction

4.9 Issues Facing Pend Oreille County Fire Protection

4.9.1 Accessibility

Fire chiefs throughout the County have identified home accessibility issues as a primary concern in some parts of Pend Oreille County. It appears as through many homes and driveways have been constructed without regard to access requirements of large emergency vehicles. Lack of accessibility precludes engagement by suppression resources. Many homes within fire protection districts in Pend Oreille County effectively have no fire protection simply because access is not possible or is potentially dangerous. Adoption and enforcement of the International Fire Code, regarding road and driveway construction standards for fire apparatus would prevent accessibility issues in new developments.

4.10 Current Wildfire Mitigation Activities in Pend Oreille County.

4.10.1 State Highway 31 Fire Mitigation Project

State Highway 31 is currently under construction in order to widen the running surface of the roadway. In conjunction with the road improvements, fuels abutting the corridor are being reduced to provide fire protection as well as better visibility. This project will serve to make Highway 31 a safer escape route and could potentially provide a fuel break in the event of a wildland fire.

4.10.2 Flowery Trail Reconstruction Project

The on-going reconstruction project on the Flowery Trail Road from Cusick to Chewelah has drastically improved the travel capabilities of this roadway. In addition, through widening and re-paving the surface, the Flowery Trail Road can now serve as a fuel break through the Colville National Forest.

Chapter 5: Treatment Recommendations

5 Administration & Implementation Strategy

Critical to the implementation of this Community Wildfire Mitigation Plan will be the identification of, and implementation of, an integrated schedule of treatments targeted at achieving an elimination of the lives lost, and reduction in structures destroyed, infrastructure compromised, and unique ecosystems damaged that serve to sustain the way-of-life and economy of Pend Oreille County and the region. Since there are many land management agencies and thousands of private landowners in Pend Oreille 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.

Pend Oreille 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 federal land management agencies in Pend Oreille County, specifically the USDA Forest 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 Pend Oreille County.

All risk assessments were made based on the conditions existing during 2005, 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 Pend Oreille County in relation to this planning document, this entire **Community Wildfire Mitigation Plan** should be reviewed annually at a special meeting of the Pend Oreille County Commissioners, open to the public and involving all municipalities/jurisdictions, where action items, priorities, budgets, and modifications can be made or confirmed. A written review of the plan should be prepared (or arranged) by the Chairman of the County Commissioners, detailing plans for the year's activities, and made available to the general public ahead of the meeting (in accord with the Washington Open Public Meeting Laws). Amendments to the plan should be detailed at this meeting, documented, and attached to the formal plan as an amendment to the Community Wildfire Mitigation Plan. 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

Prioritization of projects will occur at the County, City, agency, and private levels. Differing prioritization processes will occur, however, the county and cities will adopt the following prioritization process, as indicated through the adoption of this plan by each municipality.

The prioritization process will include a special emphasis on cost-benefit analysis review. The process will reflect that a key component in 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 Management Director.

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 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 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 three grant programs (the post-disaster Hazard Mitigation Grant Program, the pre-disaster Flood Mitigation Assistance 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 projects will occur annually and be facilitated by the County Emergency Management Director to include the County Commissioner's Office, City Mayors and Councils, Fire District Chiefs and Commissioners, agency representatives (USFS, WA DNR, etc.). The prioritization of projects will be based on the selection of projects which create a balanced approach to pre-disaster mitigation which recognizes the hierarchy of treating in order (highest first):

- People and Structures
- 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.

To prioritize projects, a general scoring system has been developed. This prioritization scheme has been used in statewide all hazard mitigations plans. These factors range from cost-benefit ratios, to details on the hazard being mitigated, to environmental impacts.

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

The analysis process will include summaries as appropriate for each project, but will include benefit / cost analysis results. Projects with a negative benefit / cost analysis result will be ranked as a 0. Projects with a positive Benefit / Cost analysis will receive a score equal to the projects Benefit / Cost Analysis results divided by 10. Therefore a project with a BC ratio of 50:1 would receive 5 points, a project with a BC ratio of 100:1 (or higher) would receive the maximum points of 10.

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 $1,000,000 or more in losses. Property benefit of less than $1,000,000 will receive a score of the benefit divided by $1,000,000 (a ratio below $1 million). Therefore, a property benefit of $300,000 would receive a score of 3. 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 ranking high, medium, or low based on the non-planning project thresholds of:

Project Ranking Priority Score Non-Planning Projects

- High 40-65
- Medium 25-39
- Low 9-24

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 Pend Oreille 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 WUI
- Home site defensible zone through fuels modification

- Community defensible zone fuels alteration
- Access improvements
- Access creation
- 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 WUI 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. WUI Action Items in Safety and Policy.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.1.a: Develop County policy concerning building materials used in high-risk WUI areas on existing structures and new construction (e.g., Newport, Dalkena, Usk, Cusick, Ione, Metaline, Metaline Falls, Furport, Scotia Valley, Spring Valley, Fertile Valley, Sullivan Lake, Deer Valley, Diamond Lake, Sacheen Lake, Bead Lake, Marshall Lake, and Davis Lake.)	**Protection of people and structures** by improving the ability of emergency response personnel to respond to threatened homes in high-risk areas. Prioritization Score: 30/30 Priority: High	County Commissioners Office and Rural Fire Departments	**Year 1 (2005) activity:** 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: Develop policy on requiring new home and business construction to install underground power lines.	**Protection of people and structures by** reducing the risk of wildfire ignitions. Prioritization Score: 24/30 Priority: High	County Commissioners and County Planning and Zoning in conjunction with utilities companies.	Year 1 (2005): Implement a policy to require new utility lines to be buried underground. Year 1 (2005): Collaborate with local utility companies to implement this policy.

Table 5.1. WUI Action Items in Safety and Policy.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.1.c: Develop policy on adoption of International Fire Code	**Protection of people and structures** by improving the ability of emergency services personnel to safely and effectively respond to home fires. Prioritization Score: 25/30 Priority: High	County Commissioners Office and Rural Fire Departments.	**Year 1 (2005) activity:** Consider and develop policy to adopt the International Fire Code regulations adopted by the State of Washington.

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 Pend Oreille 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 (61%) 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 Pend Oreille 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 Pend Oreille County. These 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 Pend Oreille 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 Pend Oreille County. Domestic livestock not only eat these grasses, forbs, and shrubs, but 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. Livestock grazing in this region should be encouraged in the future as a low cost, positive tool of wildfire mitigation in the Wildland-Urban Interface and in the wildlands.

- **Forest Management** in Pend Oreille County has not been greatly affected by the reduction of operating sawmills in the region. The active forest management program of the U.S. Forest Service, Washington Department of Natural Resources, and many of the private and industrial forestland owners in the region has led to a significant reduction of wildland fuels where they are closest to homes and infrastructure. In addition, forest resource professionals managing these lands, and the lands of the state and federal agencies are generally trained in wildfire protection and recognize risk factors when they occur. One of the reasons that Pend Oreille County forestlands have not been impacted by wildland fires to a greater degree historically, is the presence and activities related to active forest management.
- **Agriculture** is a significant component of Pend Oreille County's economy. Much of the rangeland interface is made up of a mosaic of agricultural crops, even extending to the forestland interface. 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 Pend Oreille County is integral to the continued management of wildfire risk in this region.

Table 5.2. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
5.2.a: Implementation of Youth and Adult Wildfire Educational Programs.	**Protect people and structures** by increasing awareness of WUI risks, how to recognize risk factors, and how to modify those factors to reduce risk. Prioritization Score: 30/30 Priority: High	Cooperative effort including: • University of Washington Cooperative Extension • Washington Department of Natural Resources • State and Private Forestry Offices • Bureau of Land Management • USDA Forest Service • Local School Districts • Cities of Pend Oreille County	To start immediately using existing educational program materials and staffing. Formal needs assessment should be responsibility of University of Washington Cooperative Extension faculty and include the development of an integrated WUI educational series by year 2 (2006). 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.
5.2.b: Wildfire risk assessments of homes in identified communities	**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.	To be implemented by **County Commissioners Office** in cooperation with the **Rural Fire Departments and Wildland Fire Protection Specialists, and every city municipality in the county**. Actual work may be completed by Wildfire Mitigation Consultants.	• **Cost:** Approximately $100 per home site for inspection, written report, and discussions with the homeowners • **Action Item:** Secure funding and contract to complete the inspections during years 1 & 2 (2005-06) • Home site inspection reports and estimated budget for each home site's treatments will be a requirement to receive funding for treatments through grants.
Home site inspections: (all prioritized "High")	• Pend Oreille County Fire District #1: *443 structures* • Pend Oreille County Fire District #2: *1,576 structures* • Pend Oreille County Fire District #3: *1,894 structures* • Pend Oreille County Fire District #4: *1,979 structures* • Pend Oreille County Fire District #5: *274 structures* • Pend Oreille County Fire District #6: *1,094 structures* • Pend Oreille County Fire District #7: *169 structures* • Pend Oreille County Fire District #8: *271 structures* • Pend Oreille County Fire District Newport: *692 structures* • Pend Oreille County area without protection: 2,087 structures		• Prioritization Score: 51/65 • Prioritization Score: 53/65 • Prioritization Score: 51/65 • Prioritization Score: 51/65 • Prioritization Score: 51/65 • Prioritization Score: 51/65 • Prioritization Score: 51/65 • Prioritization Score: 51/65 • Prioritization Score: 56/65 • Prioritization Score: 51/65

Table 5.2. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
5.2.c: Home site WUI Treatments	**Protect people, structures, and increase firefighter safety** by reducing the risk factors surrounding homes in the WUI of Pend Oreille County	**County Commissioners** in cooperation with Cities, rural fire districts, Washington Department of Natural Resources, and USDA Forest Service	• Actual cost level will be based on the outcomes of the home site assessments. • **Estimate** that treatments in rangelands will cost approximately $850 per home site for a defensible space of roughly 150'. • Estimate that treatments in forestland will cost roughly $1,000 per home site for a defensible space of about 200'. • Home site treatments can begin with the securing of funding for the treatments and immediate implementation in 2005 and will continue from year 1 through 5 (2009).
	Home site treatments: (prioritized with 5.2.b above)	• Pend Oreille County Fire District #1: *443 structures* • Pend Oreille County Fire District #2: *1,576 structures* • Pend Oreille County Fire District #3: *1,894 structures* • Pend Oreille County Fire District #4: *1,979 structures* • Pend Oreille County Fire District #5: *274 structures* • Pend Oreille County Fire District #6: *1,094 structures* • Pend Oreille County Fire District #7: *169 structures* • Pend Oreille County Fire District #8: *271 structures* • Pend Oreille County Fire District Newport: *692 structures* • Pend Oreille County area without protection: 2,087 structures	
5.2.d: Community Defensible Zone WUI Treatments.	**Protect people, structures, and increase firefighter safety** by reducing the risk factors surrounding high risk communities in the WUI of Pend Oreille County. Prioritization Score: 52/65 Priority: High	**County Commissioners** in cooperation with the **Washington Department of Natural Resources** and the **BLM** to identify funding availability and project implementation opportunities.	• Actual funding level will be based on the outcomes of the home site assessments and cost estimates. • **Years 2-5 (2006-09):** 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. • **Communities and areas to target:** Metaline Falls, Metaline, Ione, Newport, Furport, Diamond Lake, Sacheen Lake, Bead Lake, Marshall Lake, Sullivan Lake, Davis Lake, Scotia Valley, Deer Valley, and Fertile Valley.

Table 5.2. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
5.2.e: Maintenance of Home site WUI Treatments.	**Protect people, structures, and increase firefighter safety** by reducing the risk factors surrounding homes in the WUI of Pend Oreille County. Prioritization Score: 51/65 Priority: High	**County Commissioners Office** in cooperation with Rural Fire Departments and local home owners	• Home site defensibility treatments must be maintained periodically to sustain benefits of the initial treatments. • Each site should be assessed 5 years following initial treatment • Estimated re-inspection cost will be $50 per home site on all sites initially treated or recommended for future inspections • Follow-up inspection reports with treatments as recommended years 5 through 10.
5.2.f: Re-entry of Home site WUI Treatments.	**Protect people, structures, and increase firefighter safety** by reducing the risk factors surrounding homes in the WUI of Pend Oreille County. Prioritization Score: 51/65 Priority: High	**County Commissioners Office** in cooperation with Rural Fire Departments and local home owners	• Re-entry treatments will be needed periodically to maintain the benefits of the initial WUI home treatments. Each re-entry schedule should be based on the initial inspection report recommendations, observations, and changes in local conditions. Generally occurs every 5-10 years.
5.2.g: Development of community evacuation plans and alternate safety zones for the communities of Bead Lake, Marshall Lake, Davis Lake, Sacheen Lake, Sullivan Lake, Diamond Lake, Scotia Valley, Deer Valley, Fertile Valley, and other remote communities in Pend Oreille County.	**Protect people, structures, and increase firefighter safety** by directly increasing the safety of residents and visitors during a wildfire evacuation situation. Prioritization Score: 17/30 Priority: Medium	**Rural Fire Departments in cooperation with community residents, USFS, State of Washington, and BLM.**	• Develop a safe evacuation plan for the community including alternate routes and safety zones (2005). • Send information to residents and hold a public meeting to inform communities.

Table 5.2. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
5.2.h: Access improvements of bridges, cattle guards, culverts, and limiting road surfaces (e.g. Scotia Valley Road, LeClerc Creek Road, Fertile Valley Road, Sullivan Lake Road, and Bead Lake Road.).	**Protection of people, structures, infrastructure, and economy** by improving access for residents and fire fighting personnel in the event of a wildfire. Reduces 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. Prioritization Score: 51/65 Priority: High	**Highway Districts** in cooperation with the BLM, State of Washington (Lands and Transportation), USFS, and industrial forestland owners (e.g., Stimson Lumber Company.).	• **Year 1 (2005):** Update existing assessment of travel surfaces, bridges, and cattle guards in Pend Oreille County as to location. Secure funding for implementation of this project (grants) • **Year 2 (2006):** Conduct engineering assessment of limiting weight restrictions for all surfaces (e.g., bridge weight load maximums). Estimate cost of $1,000,000 which might be shared between County, BLM, USFS, State, and private based on landownership associated with road locations. • **Year 2 (2006):** 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 $15-$25,000 for signs and posting. • **Year 3 (2007):** Identify limiting road surfaces in need of improvements to support wildland fire fighting vehicles and other emergency equipment. 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.
5.2.i: Access Improvements through road-side fuels management (e.g. State Highway20, State Highway 31, State Highway 211,LeClerc Creek Road, Scotia Valley Road, Spring Valley Road, Fertile Valley Road, Deer Valley Road, Bead Lake Road, Flowery Trail Road, Diamond Lake Road, and Sullivan Lake Road)	**Protection of people, structures, infrastructure, and economy** by improving access for residents and fire fighting personnel in the event of a wildfire. Allows for a road based defensible area that can be linked to a terrain based defensible areas. Prioritization Score: 37/65 Priority: Medium	**County Highway Districts** in cooperation with BLM, State of Washington (Lands and Transportation), USFS, and industrial forestland owners.	• **Year 1 (2005):** Update existing assessment of roads in Pend Oreille County as to location. Secure funding for implementation of this project (grants). • **Year 2 (2006):** Specifically address access issues to Bead Lake, Marshall Lake, Diamond Lake, Deer Valley, Fertile Valley, Sullivan Lake, Scotia Valley, and others identified in assessment, such as LeClerc Creek Road and the Highway 20, 31, and 211 corridors. 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 100' on downhill side of roads and 75' on uphill side for estimated cost of $15,000 per mile of road treated. Potentially 500 miles of roads to treat in county. • **Year 3 (2007):** Secure funding and implement projects to treat road-side fuels.

Table 5.2. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
5.2.j: Development of "Community Emergency Response Team" program in communities.	**Protection of people, structures, infrastructure, and economy** by improving emergency response and recruiting more local residents for emergency response organizations (i.e. fire departments, ambulance, police departments). Prioritization Score: 20/30 Priority: High	**Pend Oreille County Emergency Management** and community governments.	• **2005** develop team and objectives, implement program including emergency services personnel

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 the Eastern Washington Area, and to Pend Oreille County specifically. These networks are by definition a part of the Wildland-Urban Interface in the protection of people, structures, **infrastructure**, and unique ecosystems. Without supporting infrastructure a community's structures may be protected, but the economy and way of life lost. As such, a variety of components will be considered here in terms of management philosophy, potential policy recommendations, and 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 Pend Oreille County. U.S. Highway 2 is the primary maintained route linking Pend Oreille County to other major population centers including Spokane, Wenatchee, and Everett and Sandpoint in north Idaho. Thus, a significant amount of intrastate traffic flowing east to west or vice versa travels through the County. Also, State Highways 20, 31, and 211 connect the more remote communities with the commercial hub of Newport. Highway 31 also serves as a Port of Entry into British Columbia, Canada. In many cases, these roads are the only primary route to and from the smaller Pend Oreille County communities. In the event these highways 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 some roads. 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 Pend Oreille County. Unfortunately, many of these power lines cross over forestland ecosystems. When fires ignite in these vegetation types, the fires tend to be slower moving and burn at relatively high intensities. Additionally, 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 these high tension power lines lead to the conclusion that current conditions coupled with urban developments have mitigated this potential substantially. It is the recommendation of this Community Wildfire Mitigation Plan that this situation be evaluated annually and monitored but that treatments not be specifically targeted at this time. 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, creation of ash and sediment. As such, watersheds should be afforded the highest level of protection from catastrophic wildfire impacts. In Pend Oreille County, water is supplied to many homes by single home or multiple home wells. However, the communities of Sacheen, Usk, Jared, River Bend, Metaline, and Metaline Falls depend on surface flows as their primary water source.

Most of the local watersheds in Pend Oreille County are encompassed by the Pend Oreille Watershed Management Plan, also referred to as Water Resource Inventory Area (WRIA) 62 Management Plan, which encompasses about 1,300 square miles of the Pend Oreille River watershed within northeastern Washington State. WRIA 62 represents only about five percent of the total Pend Oreille River drainage basin. The Pend Oreille River, on of the major sub-basins of the Columbia River, drains the Clark Fork – Pend Oreille watershed, which spans about 26,000 square miles and includes the fourth and fifth largest lakes in the United States: Flathead Lake in Montana and Lake Pend Oreille in Idaho (Golder Associates 2005).

5.5.1 Proposed Activities

Table 5.3. Infrastructure Enhancements.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.3.a: Post "Emergency Evacuation Route" signs along the identified primary and secondary access routes in the county.	**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. Prioritization Score: 61/65 Priority: High	**County Commissioners** in cooperation with Rural Fire Districts and County Highway Districts.	• Purchase of signs (2005). • Posting roads and make information available to residents of the importance of Emergency Routes.
5.3.b: Build a two-lane bridge at Usk	**Protection of people and structures** by providing better and safer access to the east side of the Pend Oreille River. Prioritization Score: 37/65 Priority: Medium	**County Commissioners and County Roads Department.**	• Year 1: Locate funding and hire contractor to begin engineering and traffic pattern study. • Year 2 – 5: Locate funding sources and hire a contractor to implement and construct new bridge design.
5.3.c: Fuels mitigation of the "Emergency Evacuation Routes" in the county to insure these routes can be maintained in the case of an emergency.	**Protection of people and structures by** providing residents and visitors with ingress and egress that can be maintained during an emergency. Prioritization Score: 41/65 Priority: High	**County Commissioners** in cooperation with Rural Fire Districts and County Highway Districts.	• Full assessment of road defensibility and ownership participation (2005). • Implementation of projects (linked to item 5.2.g, 5.2.h, and 5.2.i.

5.6 Resource and Capability Enhancements

There are a number of resource and capability enhancements identified by the rural and wildland fire fighting districts in Pend Oreille County. All of the needs identified by the districts are in line with increasing the ability to respond to emergencies in the WUI and are fully supported by the planning committee.

Specific repeated themes of needed resources and capabilities include:

- Improved radio capabilities within each district and for mutual aid operations

- Retention and recruitment of volunteers
- Update firefighting equipment county-wide
- 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 Pend Oreille 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 rural 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 county-wide equity. However, the County Emergency Management Department may be an organization uniquely suited to work with all of the districts in Pend Oreille County and adjacent counties to assist in the prioritization of needs across district and even county lines. Once prioritized, the Emergency Management Department is in a position to assist these districts with identifying, competing for, and obtaining grants and equipment to meet these needs.

Table 5.4. WUI Action Items in Fire Fighting Resources and Capabilities.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
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 fire fighting capability enhancements. Prioritization Score: 59/65 Priority: High	**Emergency Management Director** in cooperation with rural and wildland fire districts, and Pend Oreille County Commissioners.	• **Year 1 (2005):** Summarize existing two-way radio capabilities and limitations. Identify costs to upgrade existing equipment and locate funding opportunities. • **Year 2 (2006):** Acquire and install upgrades as needed.
5.4.b: Annex lands south of Newport into County Fire Protection District #3 to close the gap in the service area.	**Protection of people and structures** by direct fire fighting capability enhancements. Prioritization Score: 48/65 Priority: High	Fire Protection District #3..	Year 1 (2005):Identify area to be annexed by each department and inform landowners. Year 2 (2006): Formally annex the lands into the district's coverage area.
5.4.c: Retention of Volunteer Firefighters	**Protection of people and structures** by direct fire fighting capability enhancements. Prioritization Score: 30/30 Priority: High	**Rural and Wildland Fire Districts** working with broad base of county citizenry to identify options, determine plan of action, and implement it.	• 5 Year Planning Horizon, extended planning time frame. • Target an increased recruitment (+10%) and retention (+20% longevity) of volunteers. • **Year 1 (2005):** Develop incentives program and implement it.

Table 5.4. WUI Action Items in Fire Fighting Resources and Capabilities.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.4.d: Increased training and capabilities of firefighters	**Protection of people and structures** by direct fire fighting capability enhancements. Prioritization Score: 30/30 Priority: High	**Rural and Wildland Fire Districts** working with the **BLM and USFS** for wildland training opportunities and with the **State Fire Marshall's Office** for structural fire fighting training.	• **Year 1 (2005):** Develop a multi-county training schedule that extends 2 or 3 years in advance (continuously). • Identify funding and resources needed to carry out training opportunities and sources of each to acquire. • Year 1 (2005): Begin implementing training opportunities for volunteers.
5.4.e: Develop and update Mutual Aid Agreements between all Rural Fire Districts and the Federal and State wildfire fighting agencies working in and around Pend Oreille County.	**Protection of people and structures** by direct fire fighting capability enhancements. Prioritization Score: 30/30 Priority: High	Rural and Wildland Fire Districts, BLM, USFS, BIA, Washington DNR, State Fire Marshall's Office.	• 2005: Identify current mutual aid agreements and needed agreements. • Draft and implement agreements across the county.
5.4.f: Establish and map onsite water sources such as dry hydrants or underground storage tanks for rural housing developments.	**Protection of people and structures** by direct fire fighting capability enhancements. Prioritization Score: 30/30 Priority: High	County Commissioners and Rural Fire Departments	• Identify populated areas lacking sufficient water supplies and develop project plans to develop fill or helicopter dipping sites. • Implement project plans.
5.4.g: Facility and basic equipment for a substation of County Fire District #2 in Tiger.	**Protection of people and structures** by direct firefighting capability enhancements. Prioritization Score: 47/65 Priority: High	County Fire District #2.	Year 1 (2005): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2005-06): Acquire and deliver needed materials and equipment.
5.4.h: Facility and basic equipment for a substation of County Fire District #2 in the River Bend Subdivision.	**Protection of people and structures** by direct firefighting capability enhancements. Prioritization Score: 46/65 Priority: High	County Fire District #2.	Year 1 (2005): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2005-06): Acquire and deliver needed materials and equipment.

Table 5.4. WUI Action Items in Fire Fighting Resources and Capabilities.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
5.4.i: Establish and map developed dipping sites.	**Protection of people and structures** by direct firefighting capability enhancements. Prioritization Score: 26/30 Priority: High	County Fire Districts	Year 1: Identify prospective sites, perform a feasibility study, and develop a plan for construction. Year 2: Locate funding, and implement development plans.
5.4.j: Facility, land, and basic equipment for a substation of County Fire District #6 in Bead Lake area.	**Protection of people and structures** by direct firefighting capability enhancements. Prioritization Score: 46/65 Priority: High	County Fire District #6.	Year 1 (2005): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2005-06): Acquire and deliver needed materials and equipment.
5.4.k: Facility, land, and basic equipment for a substation of County Fire District #6 at junction of LeClerc Creek Road and Bead Lake Road.	**Protection of people and structures** by direct firefighting capability enhancements. Prioritization Score: 40/65 Priority: High	County Fire District #6.	Year 1 (2005): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2005-06): Acquire and deliver needed materials and equipment.
5.4.l: Update rolling stock for County Fire District #3.	**Protection of people and structures** by direct firefighting capability enhancements. Prioritization Score: 40/65 Priority: High	County Fire District #3.	Year 1 (2005): Verify stated need still exists, develop budget, and locate funding and equipment (surplus) sources. Year 1 or 2 (2005-06): Acquire and deliver needed materials and equipment.
5.4.m: Improve safety equipment for all RFDs in Pend Oreille County.	**Protection of people and structures** by direct fire fighting capability enhancements. Prioritization Score: 52/65 Priority: High	**Emergency Management Director** in cooperation with County Commissioners and Rural Fire Districts.	Complete an inventory of all supplies held by the RFDs (boots, turnouts, Nomex, gloves, modern lighting, straps, and hardware), and complete a needs assessment matching expected replacement schedule. Develop county-wide re-supply process for needed equipment.

5.7 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. Pend Oreille 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, the Washington Department of Natural Resources, 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 in this zone.

5.7.1 USDA Forest Service Projects

Federal laws require the US Forest Service to conduct environmental reviews when undertaking any action on federal land. The National Environmental Policy Act (NEPA) of 1969 is the basic law which mandates the government to conduct an analysis. The level of analysis required is dependent on the action being proposed and what potential effects to the environment may be brought forth by the action.

NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. As part of the Healthy Forests Initiative (HFI), the Forest Service has been granted authority to conduct streamlined analysis if proposed actions fall under certain categories and it has been demonstrated that further analysis is not needed. How the public is involved in the decision making is also different under HFI projects. One of the public involvement strategies includes using a collaborative approach to decision making such as working with County mitigation groups to help define project needs and priorities. It is the intent of the Forest Service to meet with the Pend Oreille Wildfire Mitigation Planning Group to seek input on prioritizing Forest Service Projects. The Forest Service feels it is important to keep this group active to help coordinate local state and federal fuels projects.

The USDA Forest Service has provided copious summaries of past and planned projects in Pend Oreille County. All of these treatments have been included on mapping products developed in the course of this analysis and planning process.

5.7.1.1 Priest Lake Ranger District

5.7.1.1.1 Future Projects in Concept

Table 5.5. Priest Lake Ranger District Future Projects in Concept.

Project	Summary (Purpose and Need)	Benefit to the Community	Location	Description	Acres
Tunnel* ***May be combined as Lower West Branch HFRA**	Reduce hazardous fuels and improve forest health by changing Condition Class along Forest Boundary adjacent to Wildland Urban Interface.	Decrease the risk of a wildland fire burning structures or forest resources. Provide economic opportunities through timber sale/mechanical treatment.	National Forest System lands within the Snow Creek and Tunnel Creek drainages, adjacent to private land and along emergency egress routes.	Treat National Forest System lands with mechanical harvest/thinning, hand piling, and prescribed fire to reduce the risk of crown fire, improve firefighter and public safety, and improve Condition Class/forest health	Treat estimated 300 acres within the estimated 3000 acre project area

Table 5.5. Priest Lake Ranger District Future Projects in Concept.

Project	Summary (Purpose and Need)	Benefit to the Community	Location	Description	Acres
Flat Creek* *** May be combined as Lower West Branch HFRA**	Reduce hazardous fuels and improve forest health by changing Condition Class along Forest Boundary adjacent to Wildland Urban Interface.	Decrease the risk of a wildland fire burning structures or forest resources. Provide economic opportunities through timber sale/mechanical treatment.	National Forest System lands within the Flat Creek drainage, adjacent to private land and along emergency egress routes.	Treat National Forest System lands with mechanical harvest/thinning, hand piling, and prescribed fire to reduce the risk of crown fire, improve firefighter and public safety, and improve Condition Class/forest health	Treat estimated 500 acres within the estimated 2000 acre project area
Mosquito Bear* *** May be combined as Lower West Branch HFRA**	Reduce hazardous fuels and improve forest health by changing Condition Class along Forest Boundary adjacent to Wildland Urban Interface.	Decrease the risk of a wildland fire burning structures or forest resources. Provide economic opportunities through timber sale/mechanical treatment.	National Forest System lands within the Bear Paw and Mosquito Creek drainages, adjacent to private land and along emergency egress routes.	Treat National Forest System lands with mechanical harvest/thinning, hand piling, and prescribed fire to reduce the risk of crown fire, improve firefighter and public safety, and improve Condition Class/forest health	Treat estimated 200 acres within the estimated 1500 acre project area
Lamb Creek Connection Road	Reduce hazardous fuels and improve forest health by changing Condition Class in dry site ecosystems.	Decrease the risk of a wildland fire burning forest resources. Provide economic opportunities through timber sale/mechanical treatment.	National Forest System lands within the Upper West Branch drainage.	Treat National Forest System lands with mechanical harvest/thinning, hand piling, and prescribed fire to reduce the risk of crown fire, improve firefighter and public safety, and improve Condition Class/forest health	Treat estimated 500 acres within the estimated 2000 acre project area
Squaw Valley and Goose Creek	Reduce hazardous fuels and improve forest health by changing Condition Class along Forest Boundary adjacent to Wildland Urban Interface.	Decrease the risk of a wildland fire burning structures or forest resources. Provide economic opportunities through timber sale/mechanical treatment.	National Forest System lands within the Goose Creek and Upper West Branch drainages, adjacent to private land and along emergency egress routes.	Treat National Forest System lands with mechanical harvest/thinning, hand piling, and prescribed fire to reduce the risk of crown fire, improve firefighter and public safety, and improve Condition Class/forest health	Treat estimated 200 acres within the estimated 2000 acre project area

5.7.1.1.2 Current and On-Going Projects

Table 5.6. Priest Lake Ranger District Current and On-Going Projects.

Project	Summary (Purpose and Need)	Benefit to the Community	Location	Description	Acres
Flat Moores	Reduce hazardous fuels and improve forest health by changing Condition Class along Forest Boundary adjacent to Wildland Urban Interface.	Decrease the risk of a wildland fire burning structures or forest resources. Provide economic opportunities through timber sale/mechanical treatment.	National Forest System lands along Flat Creek and Moores Creek adjacent to private land.	Treat National Forest System lands with mechanical harvest/thinning and prescribed fire to reduce the risk of crown fire, improve firefighter and public safety, and improve Condition Class/forest health	Treat 1241 acres in 25000 acre project area
Chips Ahoy	Improve forest health and watershed integrity. Change Condition Class along Forest Boundary and reduce hazardous fuels.	Decrease the risk of a wildland fire burning structures or forest resources. Provide economic opportunities through timber sale/mechanical treatment.	National Forest System lands within the Upper West Branch drainage, approximately 5 miles southwest of Priest Lake.	Treat National Forest System lands with mechanical harvest/thinning and prescribed fire to reduce the risk of crown fire, improve firefighter and public safety, and improve Condition Class/forest health.	Treat approximately 1500 acres within the 20000 acre project area
Lakeview Reeder **(formerly Kalispell and Granite-Reeder projects)**	Reduce hazardous fuels and improve forest health by changing Condition Class along Forest Boundary adjacent to Wildland Urban Interface and improve watershed integrity..	Decrease the risk of a wildland fire burning structures or forest resources. Provide economic opportunities through timber sale/mechanical treatment.	National Forest System lands within the lower reaches of Granite Creek, Kalispell Creek, and Reeder Creek, adjacent to private land within the Nordman area.	Treat National Forest System lands with mechanical harvest/thinning and prescribed fire to reduce the risk of crown fire, improve firefighter and public safety, and improve Condition Class/forest health	Total project area is 30,000 acres. Treat estimated 8000 acres within Bonner and Pend Oreille Counties.

5.7.1.1.3 Past Wildfire Mitigation Projects

5.7.1.1.3.1 Butch Creek

The Butch Creek project in the Lower West Branch treated approximately 200 acres by prescribed burning and 60 acres by machine piling and burning during the 2000-2004 timeframe.

5.7.1.1.3.2 Flat Moores

The Flat Moores project in the Lower West Branch and the Upper West Branch treated approximately 240 acres by prescribed burning and 20 acres by machine piling and burning

during the 2002-2005 timeframe. Approximately 115 acres planned for broadcast burning remain to be treated. Additional acreage was treated nearby in Bonner County, Idaho.

5.7.1.1.3.3 Galena Point

The Galena Point project in the Upper West Branch treated approximately 230 acres by prescribed burning during the 1991-1992 timeframe.

5.7.1.1.3.4 Gold Creek

The Gold Creek project in the Gold Creek drainage north of Granite Pass treated approximately 150 acres by prescribed burning during the 1993-1995 timeframe.

5.7.1.1.3.5 Grassy Top

The Grassy Top project in the Granite Creek drainage near Pass Creek Pass treated approximately 80 acres by prescribed burning and 110 acres by machine piling and burning during the 1991-1992 timeframe.

5.7.1.1.3.6 Kalispell Basin

The Kalispell Basin project in the Kalispell Creek drainage treated approximately 15 acres by prescribed burning and 40 acres by machine piling and burning during the 1992-1993 timeframe.

5.7.1.1.3.7 Kalispell Virgin

The Kalispell Virgin project in the Kalispell Creek drainage treated approximately 110 acres by prescribed burning in 1992.

5.7.1.1.3.8 Klahowya

The Klahowya project in the Upper West Branch treated approximately 100 acres by prescribed burning and 10 acres by machine piling and burning during the 1991-1992 timeframe.

5.7.1.1.3.9 Ojibway

The Ojibway project in the Lower West Branch treated approximately 280 acres by prescribed burning and 100 acres by machine piling and burning during the 1990-1998 timeframe.

5.7.1.1.3.10 Paqua

The Paqua project in the Upper West Branch treated approximately 100 acres by prescribed burning during the 1993-1995 timeframe.

5.7.1.1.3.11 Ponderosa Connection

The Ponderosa Connection project in the Upper West Branch treated approximately 60 acres by prescribed burning during the 1999-2000 timeframe.

5.7.1.1.3.12 Rogers Mosquito

The Rogers Mosquito project in the Lower West Branch treated approximately 100 acres by prescribed burning and 25 acres by machine piling and burning during the 2000-2003 timeframe.

5.7.1.1.3.13 Section 16

The Section 16 project in the Lower West Branch treated approximately 90 acres by prescribed burning in 1999.

5.7.1.1.3.14 Solo Basin

The Solo Basin project in the Upper West Branch treated approximately 275 acres by prescribed burning and 100 acres by machine piling and burning during the 1991-1998 timeframe.

5.7.1.1.3.15 Solo Grouse

The Solo Grouse project in the Upper West Branch treated approximately 10 acres by prescribed burning and 75 acres by machine piling and burning during the 2002-2003 timeframe.

5.7.1.1.3.16 Stone Bead

The Stone Bead project in the Lower West Branch treated approximately 90 acres by prescribed burning and 10 acres by machine piling and burning during the 2000-2003 timeframe.

5.7.1.1.3.17 Tola

The Tola project in the Upper West Branch treated approximately 15 acres by prescribed burning in 2002. Additional acreage was treated nearby in Bonner County, Idaho.

5.7.1.2 Newport-Sullivan Lake Ranger District

5.7.1.2.1 Past, and On-Going Projects

Newport-Sullivan Lake Ranger District has many past, current and on-going fire mitigation projects throughout Pend Oreille County. Timber sale related fuels treatment data from 2000 through 2007 for the Newport Area is summarized in Figure 5.1. Accomplishments for 2005 to 2007 are for projects that are contracted and are estimating completion dates. Sullivan Lake Area timber sale related fuels treatments from 1995 to 2005 are summarized in Figure 5.2. Stand alone non-timber sale related fuel reduction projects have been completed in both areas, but are not included in these charts.

Figure 5.1. Newport-Sullivan Lake Ranger District, Newport Area Timber Sale Related Fuels Treatment Summary.

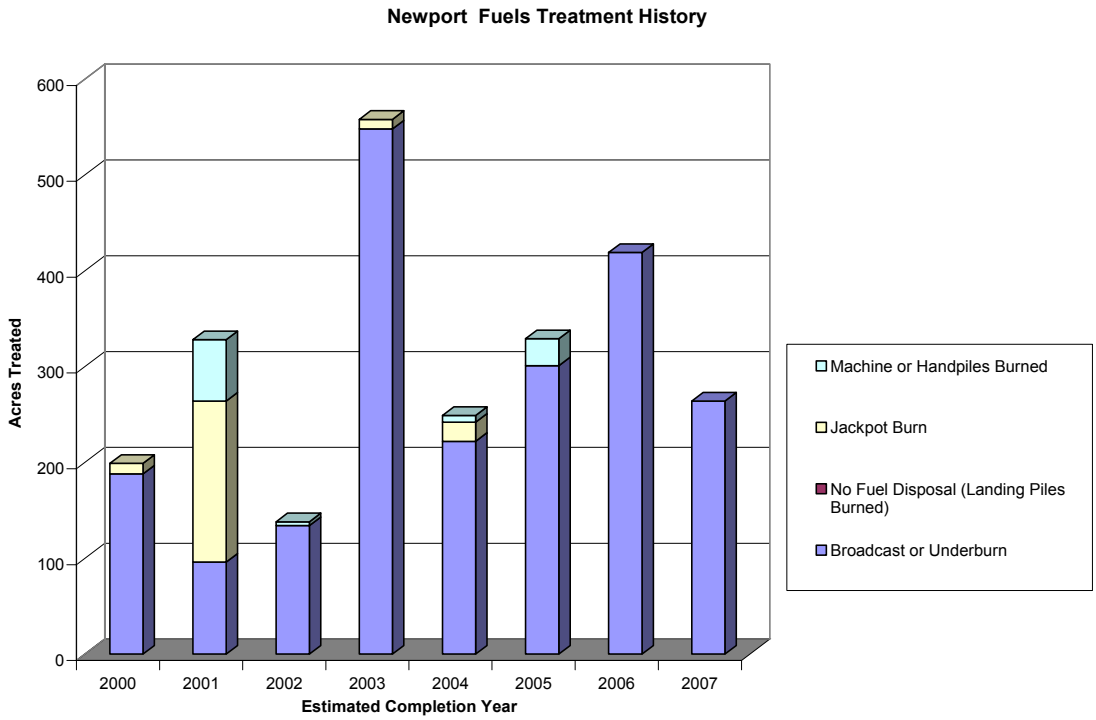
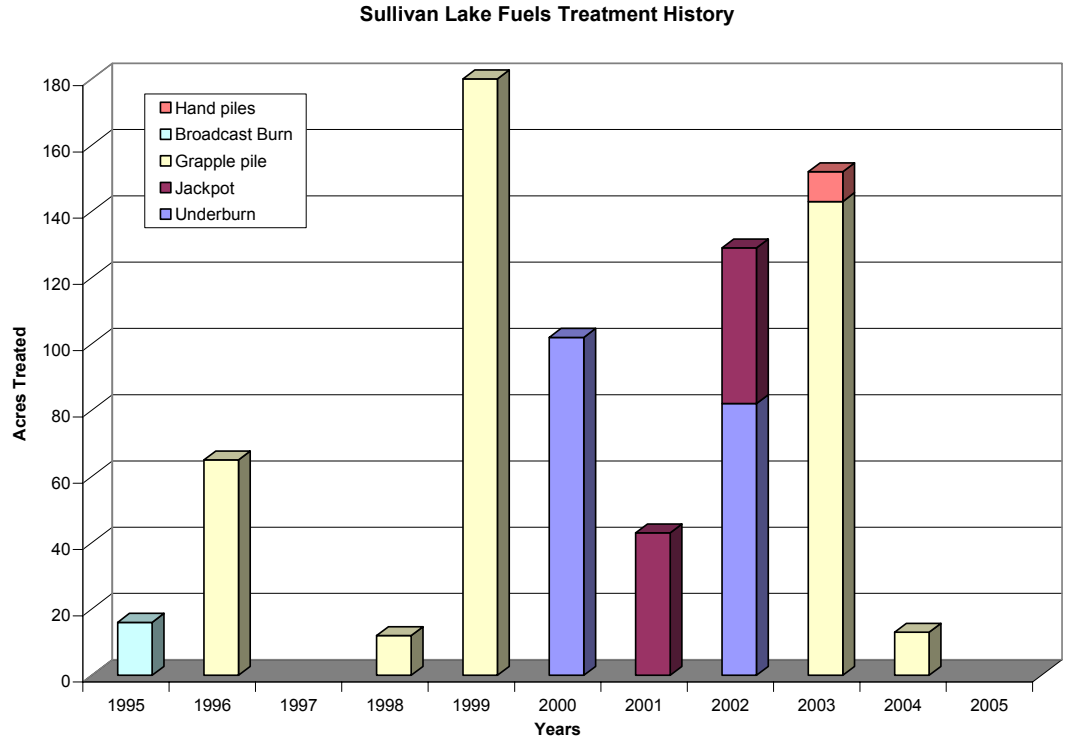


Figure 5.2 Newport- Sullivan Lake Ranger District, Sullivan Lake Area Timber Sale Related Fuels Treatment Summary.



5.7.1.2.2 Proposed Projects

The Newport and Sullivan Lake Ranger District have also detailed a number of projects in Pend Oreille County. Table 5.7 details future activities currently in the planning and concept stage. CE's are specific and the acres planned will be fairly close to acres to be completed. Timber EA's may include private land and are true planning acres. Treated acres will be considerably less. Maps of these potential treatment areas are available at the Newport and Sullivan Lake district offices.

Table 5.7. Newport-Sullivan Lake Ranger District Future Projects in Concept.

Project	Type	Fiscal Year-planned	Acres
Sullivan Lake/Larsonvill	Fuels CE	2004	139
Sullivan Lake West	Fuels CE	2004	7
Conger	Timber EA	2004	5730
Browns Lake	Timber EA	2004	7612
Misery Lake	Timber EA	2004	14093
East LeClerc	Timber CE	2004	1187
Bead Lake	Fuels CE	2004	475
Bead Lake	Fuels CE	2004	578
Earthquake	Timber CE	2004	91
Timber Mtn	Timber EA	2005	20001
Upper/Lower Wolf	Fuels CE	2005	10
Upper/Lower Wolf	Fuels CE	2005	42
Upper/Lower Wolf	Fuels CE	2005	126
Upper/Lower Wolf	Fuels CE	2005	4
Bead Lake	Fuels CE	2005	283
Geophysical	Fuels CE	2005	44
Geophysical	Fuels CE	2005	527
Granite	Timber EA	2006	5801
Loop	Timber CE	2006	529
Red	Timber CE	2006	14
Red	Timber CE	2006	62
Diamond City	Timber EA	2006	10430
Yocum Lake	Fuels CE	2006	465
Indian Creek	Timber EA	2006	2657
Pocahontas	Timber CE	2007	63
Middle Branch	Timber EA	2007	11954
Power	Timber EA	2007	8436
Little Mudy	Timber CE	2008	51
Panhandle	Fuels CE	2008	116
Eagle	Fuels CE	2008	100
Ralph	Timber CE	2008	91
Old Pit	Fuels CE	2008	467
Dry Ridge	Timber EA	2008	10504
Limestone	Timber EA	2009	8646
Renshaw	Timber EA	2009	8174
Old Taco II	Timber EA	2009	15181

Table 5.7. Newport-Sullivan Lake Ranger District Future Projects in Concept.

Project	Type	Fiscal Year-planned	Acres
Chewelah	Timber EIS	2009	3919

5.7.2 Other Treatment Projects

During the implementation of this planning process, many projects were identified by the planning committee and members of the public as areas in need of wildfire mitigation treatments. These areas have been mapped and summaries created. Table 5.7 details projects by name and total size. Detailed cost projections have not been detailed for each of these projects, however, a total cost of approximately $850 per acre on average, would not be unexpected for many of these projects.

Table 5.8. Proposed Community Defensible Space Treatment Areas in Pend Oreille County.

Area	Acres
Clark Creek Defensible Space Treatment Area	100.6
Ione Community Defensible Space Treatment Area	1,792.6
Tiger Community Defensible Space Treatment Area	4,195.3
Blueside Community and Roadside Treatment Area	1,686.7
LeClerc Creek Community Defensible Space	137.2
Furport Community Defensible Space Treatment Area	1,190.4
Bead Lake Community Defensible Space	140.8
Marshall Lake Community Defensible Space	61.1
Davis Lake Community Defensible Space	68.8
Sacheen Lake Community Defensible Space	1,609.7
Diamond Lake Community Treatment Area	802.4
Coyote Trail Community Treatment Area	659.9
Newport-South Community Defensible Space	282.9
Newport-West Community Defensible Space	151.6
Newport-Northwest Community Defensible Space	117.5
Tiger-East River Community Treatment Area	1,391.4
Blueside - South Community Treatment Area	95.9
Total	**14,484.8**

Chapter 6: Supporting Information

6

6.1 List of Tables

6.2 List of Figures

6.3 List of Preparers

The following personnel participated in the formulation, compilation, editing, and analysis of alternatives for this assessment.

Table 6.1. List of Preparers

Name	Affiliation	Role
William E. Schlosser, Ph.D.	Northwest Management, Inc.	**Lead Author,** Project Co-Manager, GIS Analyst, Natural Resource Economist, Hazard Mitigation Specialist, Regional Planner
Tera R. King, B.S.	Northwest Management, Inc.	Natural Resource Manager, Fire Control Technician
Toby R. Brown, B.S.	Northwest Management, Inc.	Natural Resource Manager, Project Co-Manager, Hazard Mitigation Specialist
Vincent P. Corrao, B.S.	Northwest Management, Inc.	Resource Management Specialist, Deputy Project Manager
John A. Erixson, M.S.	Northwest Management, Inc.	Range Management, Fire Specialist
Dennis S. Thomas	Northwest Management, Inc.	Fire & Fuels Specialist, Prescribed Burning Manager
Vaiden E. Bloch, M.S.	Northwest Management, Inc.	GIS Analyst
Greg Bassler, M.S.	Northwest Management, Inc.	Roads Engineer, Timber Sale Layout & Harvest Manager
JoAnn Boggs	Pend Oreille County Disaster Management	Coordinator, Project Leadership

6.4 Signature Pages

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

6.4.1 Representatives of Pend Oreille County Government

This Community Wildfire Protection Plan and all of its components identified herein were adopted formally through a resolution of the Board of County Commissioners as of November 21, 2005, resolution number _____, recorded in the official record of the Pend Oreille County Commissioners.

By: Dean Cummings Pend Oreille Board of County Commissioners	Date
By: Mitchell Brown Pend Oreille Board of County Commissioners	Date
By: Kenneth Oliver Pend Oreille Board of County Commissioners	Date
By: JoAnn Boggs Pend Oreille County Emergency Management	Date

6.4.2 Representatives of City Government in Pend Oreille County

This Community Wildfire Protection Plan and all of its components identified herein were adopted formally through individual resolutions passed by each city government herein listed.

By: Fred Anderson Mayor, City of Newport	Date	Adopted by Resolution of the City Resolution Number: _____ Adoption Date: _____
By: Stephen Davis Mayor, City of Ione	Date	Adopted by Resolution of the City Resolution Number: _____ Adoption Date: _____
By: Robert Robert Spencer Mayor, City of Cusick	Date	Adopted by Resolution of the City Resolution Number: Adoption Date:
By: Walt Caravan Mayor, City of Metalline	Date	Adopted by Resolution of the City Resolution Number: _____ Adoption Date: _____
By: Sue Huntley Mayor Pro Temp, City of Metaline Falls	Date	Adopted by Resolution of the City Resolution Number: _____ Adoption Date: _____

6.4.3 Representatives of City and Rural Fire Districts in Pend Oreille County

This Community Wildfire Mitigation Plan and all of its components identified herein were developed in close cooperation with the participating fire districts listed herein. Those fire districts which are a Pend Oreille County Entity or a City entity have shown their organization's adoption through the formal adoption of the County or the City. Fire protection districts which are independent of a city or the county have indicated their formal adoption of the Community Wildfire Protection Plan below:

By: Dale Maki, Chief Newport Fire Department	Date
By: Dave Hoisington, Chief Cusick Fire Department	Date
By: Joe Serba, Chief Ione Fire Department	Date
By: Orin DeGroat, Chief Metaline Fire Department	Date
By: Paul Miller, Chief Metaline Falls Fire Department	Date
By: Larry Pollock, Chief Pend Oreille County Fire District #2	Date
By: Mark Havener, Chief Pend Oreille County Fire District #3	Date
By: Steve Gibson, Chief Pend Oreille County Fire District #4	Date

By: Burch Schleisnor, Chief Pend Oreille County Fire District #5	Date
By: Curt Monk, Chief Pend Oreille County Fire District #6	Date
By: Bruce Coleman, Chief Pend Oreille County Fire District #7	Date
By: Chris Smith, Chief Pend Oreille County Fire District #8	Date

6.4.4 Representatives of Federal and State Agencies, and Companies

This Community Wildfire Mitigation Plan was developed in cooperation and collaboration with the additionally listed agencies and organizations. These entities listed below are not elligable to "formally adopt" this plan, but will strive to implement its recommendations.

By: Pat McElroy, Washington State Forester Washington Department of Natural Resources	Date
By: Ranotta McNair, Forest Supervisor Idaho Panhandle National Forest	Date
By: Rick Brazell, Forest Supervisor Coville National Forest	Date
By: William E. Schlosser, Ph.D. Project Manager–Pend Oreille County Community Wildfire Mitigation Plan, Lead Author, Northwest Management, Inc.	Date

6.5 Resolutions of Adoption

The following resolutions have been adopted by the listed municipalities in Pend Oreille County.

6.5.1 Resolution of the Commissioners of Pend Oreille County, Washington

#_____

A resolution of the Commissioners of Pend Oreille County declaring County support and adoption of the Pend Oreille County Community Wildfire Protection Plan.

Whereas, The Board of Pend Oreille County Commissioners supports the Pend Oreille County Community Wildfire Protection Plan, and

Whereas, The Pend Oreille County Community Wildfire Protection Plan will be utilized as a guide for planning as related to FEMA Pre-Disaster Mitigation, The National Fire Plan, The Healthy Forest Restoration Act, and other purposes as deemed appropriate by the Pend Oreille County Commissioners,

Therefore be it resolved, that the Pend Oreille County Commissioners do hereby adopt, support, and will facilitate the Pend Oreille County Community Wildfire Protection Plan's implementation.

Passed and approved this 21st Day of November, 2005.

Board of County Commissioners

Pend Oreille County, Washington

_____

By: Dean Cummings
Pend Oreille Board of County Commissioners

_____

By: Mitchell Brown
Pend Oreille Board of County Commissioners

_____

By: Kenneth Oliver
Pend Oreille Board of County Commissioners

_____

Attested by: Chris Mylar
Clerk / Auditor / Recorder

6.5.2 Resolution of the City Council of Newport

#_____

A resolution of the City Council of Newport declaring City support and adoption of the Pend Oreille County Community Wildfire Protection Plan.

Whereas, The City Council of Newport supports the Pend Oreille County Community Wildfire Protection Plan, and

Whereas, The City Council of Newport has participated in the development of the Pend Oreille County Community Wildfire Protection Plan, and

Whereas, The Pend Oreille County Community Wildfire Protection Plan will be utilized as a guide for planning as related to FEMA Pre-Disaster Mitigation, The National Fire Plan, The Healthy Forest Restoration Act, and other purposes as deemed appropriate by the City Council of Newport,

Therefore be it resolved, that the City Council of Newport does hereby adopt, support, and will facilitate the Pend Oreille County Community Wildfire Protection Plan's implementation.

Passed and approved this ____ Day of ____ 2005.

City Council of Newport located in Pend Oreille County, Washington

_____

By: Fred Anderson

Mayor, City of Newport

_____

Attested by: Nickole Schutte
City Clerk

6.5.3 Resolution of the City Council of Ione

#_____

A resolution of the City Council of Ione declaring City support and adoption of the Pend Oreille County Community Wildfire Protection Plan.

Whereas, The City Council of Ione supports the Pend Oreille County Community Wildfire Protection Plan, and

Whereas, The City Council of Ione has participated in the development of the Pend Oreille County Community Wildfire Protection Plan, and

Whereas, The Pend Oreille County Community Wildfire Protection Plan will be utilized as a guide for planning as related to FEMA Pre-Disaster Mitigation, The National Fire Plan, The Healthy Forest Restoration Act, and other purposes as deemed appropriate by the City Council of Ione,

Therefore be it resolved, that the City Council of Ione does hereby adopt, support, and will facilitate the Pend Oreille County Community Wildfire Protection Plan's implementation.

Passed and approved this ____ Day of ____ 2005.

City Council of Ione located in Pend Oreille County, Washington

_____

By: Stephen Davis

Mayor, City of Ione

_____

Attested by: Mary Ann Koontz
City Clerk

6.5.4 Resolution of the City Council of Cusick

#_____

A resolution of the City Council of Cusick declaring City support and adoption of the Pend Oreille County Community Wildfire Protection Plan.

Whereas, The City Council of Cusick supports the Pend Oreille County Community Wildfire Protection Plan, and

Whereas, The City Council of Cusick has participated in the development of the Pend Oreille County Community Wildfire Protection Plan, and

Whereas, The Pend Oreille County Community Wildfire Protection Plan will be utilized as a guide for planning as related to FEMA Pre-Disaster Mitigation, The National Fire Plan, The Healthy Forest Restoration Act, and other purposes as deemed appropriate by the City Council of Cusick,

Therefore be it resolved, that the City Council of Cusick does hereby adopt, support, and will facilitate the Pend Oreille County Community Wildfire Protection Plan's implementation.

Passed and approved this ____ Day of ____ 2005.

City Council of Cusick located in Pend Oreille County, Washington

_____

By: Robert Spencer

Mayor, City of Cusick

_____

Attested by: Beverly Ives
City Clerk

6.5.5 Resolution of the City Council of Metaline

#_____

A resolution of the City Council of Metaline declaring City support and adoption of the Pend Oreille County Community Wildfire Protection Plan.

Whereas, The City Council of Metaline supports the Pend Oreille County Community Wildfire Protection Plan, and

Whereas, The City Council of Metaline has participated in the development of the Pend Oreille County Community Wildfire Protection Plan, and

Whereas, The Pend Oreille County Community Wildfire Protection Plan will be utilized as a guide for planning as related to FEMA Pre-Disaster Mitigation, The National Fire Plan, The Healthy Forest Restoration Act, and other purposes as deemed appropriate by the City Council of Metaline,

Therefore be it resolved, that the City Council of Metaline does hereby adopt, support, and will facilitate the Pend Oreille County Community Wildfire Protection Plan's implementation.

Passed and approved this ____ Day of ____ 2005.

City Council of Metaline located in Pend Oreille County, Washington

_____

By: Walt Caravan

Mayor, City of Metalline

_____

Attested by: Ruth Rieber
City Clerk

6.5.6 Resolution of the City Council of Metaline Falls

#_____

A resolution of the City Council of Metaline Falls declaring City support and adoption of the Pend Oreille County Community Wildfire Protection Plan.

Whereas, The City Council of Metaline Falls supports the Pend Oreille County Community Wildfire Protection Plan, and

Whereas, The City Council of Metaline Falls has participated in the development of the Pend Oreille County Community Wildfire Protection Plan, and

Whereas, The Pend Oreille County Community Wildfire Protection Plan will be utilized as a guide for planning as related to FEMA Pre-Disaster Mitigation, The National Fire Plan, The Healthy Forest Restoration Act, and other purposes as deemed appropriate by the City Council of Metaline Falls,

Therefore be it resolved, that the City Council of Metaline Falls does hereby adopt, support, and will facilitate the Pend Oreille County Community Wildfire Protection Plan's implementation.

Passed and approved this ____ Day of ____ 2005.

City Council of Metaline Falls located in Pend Oreille County, Washington

_____

By: Sue Huntley

Mayor Pro Temp, City of Metaline Falls

_____

Attested by: Angela Cain
City Clerk

6.6 Glossary of Terms

Anadromous - Fish species that hatch in fresh water, migrate to the ocean, mature there, and return to fresh water to reproduce (Salmon & Steelhead).

Appropriate Management Response - Specific actions taken in response to a wildland fire to implement protection and fire use objectives.

Biological Assessment - Information document prepared by or under the direction of the Federal agency in compliance with U.S. Fish and Wildlife standards. The document analyzes potential effects of the proposed action on listed and proposed threatened and endangered species and proposed critical habitat that may be present in the action area.

Backfiring - When attack is indirect, intentionally setting fire to fuels inside the control line to contain a spreading fire. Backfiring provides a wide defense perimeter, and may be further employed to change the force of the convection column.

Blackline - Denotes a condition where the fireline has been established by removal of vegetation by burning.

Burning Out - When attack is direct, intentionally setting fire to fuels inside the control line to strengthen the line. Burning out is almost always done by the crew boss as a part of line construction; the control line is considered incomplete unless there is no fuel between the fire and the line.

Canyon Grassland - Ecological community in which the prevailing or characteristic plants are grasses and similar plants extending from the canyon rim to the river's edge.

Confine - Confinement is the strategy employed in appropriate management responses where a fire perimeter is managed by a combination of direct and indirect actions and use of natural topographic features, fuel, and weather factors.

Contingency Plans: Provides for the timely recognition of approaching critical fire situations and for timely decisions establishing priorities to resolve those situations.

Control Line - An inclusive term for all constructed or natural fire barriers and treated fire edge used to control a fire.

Crew - An organized group of firefighters under the leadership of a crew boss or other designated official.

Crown Fire - A fire that advances from top to top of trees or shrubs more or less independently of the surface fire. Sometimes crown fires are classed as either running or dependent, to distinguish the degree of independence from the surface fire.

Disturbance - An event which affects the successional development of a plant community (examples: fire, insects, windthrow, timber harvest).

Disturbed Grassland - Grassland dominated by noxious weeds and other exotic species. Greater than 30% exotic cover.

Diversity - The relative distribution and abundance of different plant and animal communities and species within an area.

Drainage Order - Systematic ordering of the network of stream branches, (e.g., each non-branching channel segment is designated a first order stream, streams which only receive first order segments are termed second order streams).

Duff - The partially decomposed organic material of the forest floor beneath the litter of freshly fallen twigs, needles, and leaves.

Ecosystem - An interacting system of interdependent organisms and the physical set of conditions upon which they are dependent and by which they are influenced.

Ecosystem Stability - The ability of the ecosystem to maintain or return to its steady state after an external interference.

Ecotone - The area influenced by the transition between plant communities or between successional stages or vegetative conditions within a plant community.

Energy Release Component - The Energy Release Component is defined as the potential available energy per square foot of flaming fire at the head of the fire and is expressed in units of BTUs per square foot.

Equivalent Clearcut Area (ECA) - An indicator of watershed condition, which is calculated from the total amount of crown removal that has occurred from harvesting, road building, and other activities based on the current state of vegetative recovery.

Exotic Plant Species - Plant species that are introduced and not native to the area.

Fire Adapted Ecosystem - An arrangement of populations that have made long-term genetic changes in response to the presence of fire in the environment.

Fire Behavior - The manner in which a fire reacts to the influences of fuel, weather, and topography.

Fire Behavior Forecast - Fire behavior predictions prepared for each shift by a fire behavior analysis to meet planning needs of fire overhead organization. The forecast interprets fire calculations made, describes expected fire behavior by areas of the fire, with special emphasis on personnel safety, and identifies hazards due to fire for ground and aircraft activities.

Fire Behavior Prediction Model - A set of mathematical equations that can be used to predict certain aspects of fire behavior when provided with an assessment of fuel and environmental conditions.

Fire Danger - A general term used to express an assessment of fixed and variable factors such as fire risk, fuels, weather, and topography which influence whether fires will start, spread, and do damage; also the degree of control difficulty to be expected.

Fire Ecology - The scientific study of fire's effects on the environment, the interrelationships of plants, and the animals that live in such habitats.

Fire Exclusion - The disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression).

Fire Intensity Level - The rate of heat release (BTU/second) per unit of fire front. Four foot flame lengths or less are generally associated with low intensity burns and four to six foot flame lengths generally correspond to "moderate" intensity fire effects. High intensity flame lengths are usually greater than eight feet and pose multiple control problems.

Fire Prone Landscapes – The expression of an area's propensity to burn in a wildfire based on common denominators such as plant cover type, canopy closure, aspect, slope, road density, stream density, wind patterns, position on the hillside, and other factors.

Fireline - A loose term for any cleared strip used in control of a fire. That portion of a control line from which flammable materials have been removed by scraping or digging down to the mineral soil.

Fire Management - The integration of fire protection, prescribed fire and fire ecology into land use planning, administration, decision making, and other land management activities.

Fire Management Plan (FMP) - A strategic plan that defines a program to manage wildland and prescribed fires and documents the fire management program in the approved land use plan. This plan is supplemented by operational procedures such as preparedness, preplanned dispatch, burn plans, and prevention. The fire implementation schedule that documents the fire management program in the approved forest plan alternative.

Fire Management Unit (FMU) - Any land management area definable by objectives, topographic features, access, values-to-be-protected, political boundaries, fuel types, or major fire regimes, etc., that set it apart from management characteristics of an adjacent unit. FMU's are delineated in FMP's. These units may have dominant management objectives and preselected strategies assigned to accomplish these objectives.

Fire Occurrence - The number of wildland fires started in a given area over a given period of time. (Usually expressed as number per million acres.)

Fire Prevention - An active program in conjunction with other agencies to protect human life, prevent modification of the ecosystem by human-caused wildfires, and prevent damage to cultural resources or physical facilities. Activities directed at reducing fire occurrence, including public education, law enforcement, personal contact, and reduction of fire risks and hazards.

Fire Regime - The fire pattern across the landscape, characterized by occurrence interval and relative intensity. Fire regimes result from a unique combination of climate and vegetation. Fire regimes exist on a continuum from short-interval, low-intensity (stand maintenance) fires to long-interval, high-intensity (stand replacement) fires.

Fire Retardant - Any substance that by chemical or physical action reduces flareability of combustibles.

Fire Return Interval - The number of years between two successive fires documented in a designated area.

Fire Risk - The potential that a wildfire will start and spread as determined by the presence and activities of causative agents.

Fire Severity - The effects of fire on resources displayed in terms of benefit or loss.

Foothills Grassland - Grass and forb co-dominated dry meadows and ridges. Principle habitat type series: bluebunch wheatgrass and Washington fescue.

Fuel - The materials which are burned in a fire: duff, litter, grass, dead branchwood, snags, logs, etc.

Fuel Break - A natural or manmade change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled.

Fuel Loading - Amount of dead fuel present on a particular site at a given time; the percentage of it available for combustion changes with the season.

Fuel Model - Characterization of the different types of wildland fuels (trees, brush, grass, etc.) and their arrangement, used to predict fire behavior.

Fuel Type - An identifiable association of fuel elements of distinctive species; form, size, arrangement, or other characteristics, that will cause a predictable rate of fire spread or difficulty of control, under specified weather conditions.

Fuels Management - Manipulation or reduction of fuels to meet protection and management objectives, while preserving and enhancing environmental quality.

Gap Analysis Program (GAP) - Regional assessments of the conservation status of native vertebrate species and natural land cover types and to facilitate the application of this information to land management activities. This is accomplished through the following five objectives:

1. Map the land cover of the United States.
2. Map predicted distributions of vertebrate species for the U.S.
3. Document the representation of vertebrate species and land cover types in areas managed for the long-term maintenance of biodiversity.
4. Provide this information to the public and those entities charged with land use research, policy, planning, and management.
5. Build institutional cooperation in the application of this information to state and regional management activities.

Habitat - A place that provides seasonal or year-round food, water, shelter, and other environmental conditions for an organism, community, or population of plants or animals.

Heavy Fuels - Fuels of a large diameter, such as snags, logs, and large limbwood, which ignite and are consumed more slowly than flash fuels.

Hydrologic Unit Code - A coding system developed by the U. S. Geological Service to identify geographic boundaries of watersheds of various sizes.

Hydrophobic - Resistance to wetting exhibited by some soils, also called water repellency. The phenomena may occur naturally or may be fire-induced. It may be determined by water drop penetration time, equilibrium liquid-contact angles, solid-air surface tension indices, or the characterization of dynamic wetting angles during infiltration.

Human-Caused Fires - Refers to fires ignited accidentally (from campfires or smoking) and by arsonists; does not include fires ignited intentionally by fire management personnel to fulfill approved, documented management objectives (prescribed fires).

Intensity - The rate of heat energy released during combustion per unit length of fire edge.

Inversion - Atmospheric condition in which temperature increases with altitude.

Ladder Fuels - Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

Landsat Imagery - Land remote sensing, the collection of data which can be processed into imagery of surface features of the Earth from an unclassified satellite or satellites.

Landscape - All the natural features such as grasslands, hills, forest, and water, which distinguish one part of the earth's surface from another part; usually that portion of land which the eye can comprehend in a single view, including all its natural characteristics.

Lethal - Relating to or causing death; extremely harmful.

Lethal Fires - A descriptor of fire response and effect in forested ecosystems of high-severity or severe fire that burns through the overstory and understory. These fires typically consume large woody surface fuels and may consume the entire duff layer, essentially destroying the stand.

Litter - The top layer of the forest floor composed of loose debris, including dead sticks, branches, twigs, and recently fallen leaves or needles, little altered in structure by decomposition.

Maximum Manageable Area - The boundary beyond which fire spread is completely unacceptable.

Metavolcanic - Volcanic rock that has undergone changes due to pressure and temperature.

Minimum Impact Suppression Strategy (MIST) - "Light on the Land." Use of minimum amount of forces necessary to effectively achieve the fire management protection objectives consistent with land and resource management objectives. It implies a greater sensitivity to the impacts of suppression tactics and their long-term effects when determining how to implement an appropriate suppression response.

Mitigation - Actions to avoid, minimize, reduce, eliminate, replace, or rectify the impact of a management practice.

Monitoring Team - Two or more individuals sent to a fire to observe, measure, and report its behavior, its effect on resources, and its adherence to or deviation from its prescription.

National Environmental Policy Act (NEPA) - This act declared a national policy to encourage productive and enjoyable harmony between humans and their environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and will stimulate the health and welfare of humankind; to enrich the understanding of important ecological systems and natural resources; and to establish a Council on Environmental Quality.

National Fire Management Analysis System (NFMAS) - The fire management analysis process, which provides input to forest planning and forest and regional fire program development and budgeting.

Native - Indigenous; living naturally within a given area.

Natural Ignition - A wildland fire ignited by a natural event such as lightning or volcanoes.

Noncommercial Thinning - Thinning by fire or mechanical methods of pre-commercial or commercial size timber, without recovering value, to meet MFP standards relating to the protection/enhancement of adjacent forest or other resource values.

Notice of Availability - A notice of Availability published in the Federal Register stating that an EIS has been prepared and is available for review and comment (for draft) and identifying where copies are available.

Notice of Intent - A Notice of Intent published in the Federal Register stating that an EIS will be prepared and considered. This notice will describe the proposed action and possible alternatives, the proposed scoping process, and the name and address of whom to contact concerning questions about the proposed action and EIS.

Noxious Weeds – Rapidly spreading plants that have been designated "noxious" by law which can cause a variety of major ecological impacts to both agricultural and wildlands.

Planned Ignition - A wildland fire ignited by management actions to meet specific objectives.

Prescribed Fire - Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Prescription - A set of measurable criteria that guides the selection of appropriate management strategies and actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

Programmatic Biological Assessment - Assesses the effects of the fire management programs on Federally listed species, not the individual projects that are implemented under these programs. A determination of effect on listed species is made for the programs, which is a valid assessment of the potential effects of the projects completed under these programs, if the projects are consistent with the design criteria and monitoring and reporting requirement contained in the project description and summaries.

Reburn - Subsequent burning of an area in which fire has previously burned but has left flareable light that ignites when burning conditions are more favorable.

Riparian Habitat Conservation Areas (RHCA) - Portions of watersheds where riparian-dependent resources receive primary emphasis, and management activities are subject to specific standards and guidelines. RHCAs include traditional riparian corridors, wetlands, intermittent headwater streams, and other areas where proper ecological functioning is crucial to maintenance of the stream's water, sediment, woody debris, and nutrient delivery systems.

Riparian Management Objectives (RMO) - Quantifiable measures of stream and streamside conditions that define good fish habitat and serve as indicators against which attainment or progress toward attainment of goals will be measured.

Road Density - The volume of roads in a given area (mile/square mile).

Scoping - Identifying at an early stage the significant environmental issues deserving of study and de-emphasizing insignificant issues, narrowing the scope of the environmental analysis accordingly.

Seral - Refers to the stages that plant communities go through during succession. Developmental stages have characteristic structure and plant species composition.

Serotinous - Storage of coniferous seeds in closed cones in the canopy of the tree. Serotinous cones of lodgepole pine do not open until subjected to temperatures of 113 to 122 degrees Fahrenheit causing the melting of the resin bond that seals the cone scales.

Stand Replacing Fire - A fire that kills most or all of a stand.

Sub-basin - A drainage area of approximately 800,000 to 1,000,000 acres, equivalent to a 4th - field Hydrologic Unit Code.

Surface Fire - Fire which moves through duff, litter, woody dead and down, and standing shrubs, as opposed to a crown fire.

Watershed - The region draining into a river, river system, or body of water.

Wetline - Denotes a condition where the fireline has been established by wetting down the vegetation.

Wildland Fire - Any non-structure fire, other than prescribed fire, that occurs in the wildland.

Wildland Fire Implementation Plan (WFIP) - A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire being managed for resource benefits. A full WFIP consists of three stages. Different levels of completion may occur for differing management strategies (i.e., fires managed for resource benefits will have two-three stages of the WFIP completed while some fires that receive a suppression response may only have a portion of Stage I completed).

Wildland Fire Situation Analysis (WFSA) - A decision making process that evaluates alternative management strategies against selected safety, environmental, social, economic, political, and resource management objectives.

Wildland Fire Use - The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in FMP's. Operational management is described in the WFIP. Wildland fire use is not to be confused with "fire use", which is a broader term encompassing more than just wildland fires.

Wildland Fire Use for Resource Benefit (WFURB) - A wildland fire ignited by a natural process (lightning), under specific conditions, relating to an acceptable range of fire behavior and managed to achieve specific resource objectives.

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