



Adams County, Idaho, Wildland-Urban Interface Wildfire Mitigation Plan

January 26, 2004

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



This plan was developed by the Adams County Wildland-Urban 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 Wildland-Urban Interface Wildfire Mitigation 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 wildfire events while reducing factors of risk.



Adams County Commissioners
and the employees of Adams County



West Central Highlands of Idaho Resource
Conservation and Development Association



USDI Bureau of Land Management
Lower Snake River District



USDA Forest Service
Payette National Forest



Idaho Department of Lands
Payette Lakes Area
And
Southern Idaho Timber Protective Association

Council Volunteer Fire Department
Indian Valley Volunteer Fire Department
Meadows Valley Volunteer Fire Department
Salmon River Rural Fire Department
McCall Fire Protection District
&

Local Businesses and
Citizens of Adams County

To obtain copies of this plan contact:

Adams County Commissioners Office
Adams County Courthouse
201 Industrial
Council, ID 83612

Table of Contents

Chapter I: Overview of this Plan and its Development.....	1
1 Introduction	1
1.1 Goals and Guiding Principles	2
1.1.1 National Fire Plan Philosophy	2
1.1.1.1 Identifying and Prioritizing Communities at Risk	3
1.1.2 Federal Emergency Management Agency Philosophy	4
1.1.3 Adams County Planning Effort and Philosophy.....	5
1.1.3.1 Mission Statement	5
1.1.3.2 Vision Statement	5
1.1.3.3 Goals	5
1.2 Documenting the Planning Process	6
1.2.1 Description of the Planning Process	6
1.2.2 The Planning Team	6
1.3 Public Involvement	7
1.3.1 News Releases	7
1.3.1.1 Radio Messages.....	7
1.3.1.2 Newspaper Articles.....	7
1.3.2 Public Mail Survey.....	8
1.3.2.1 Survey Results	9
1.3.2.2 Committee Meetings.....	12
1.3.2.3 Public Meetings	14
1.3.2.4 Public Document Review.....	16
Chapter 2: County Characteristics & Risk Assessment.....	17
2 Background and Area Description	17
2.1 Demographics	17
2.2 Socioeconomics	19
2.2.1 Forestry and Logging	22
2.2.2 Recreation	22
2.2.3 Resource Dependency	23
2.2.4 Development Trends	23
2.3 Cultural Resources.....	24
2.4 Transportation	27
2.5 Vegetation & Climate.....	27

2.5.1	Monthly Climate Summaries in Adams County	29
2.5.1.1	Council, Idaho (102187)	29
2.5.1.2	New Meadows Ranger Station, Idaho (106388).....	29
2.6	Wildfire Hazard Profiles.....	30
2.6.1	Wildfire Ignition Profile.....	30
2.6.2	Wildfire Extent Profile	33
2.7	Analysis Tools and Techniques to Assess Fire Risk.....	36
2.7.1	Fire Prone Landscapes	37
2.7.2	Fire Regime and Condition Class.....	41
2.7.3	On-Site Evaluations.....	43
2.8	Wildland-Urban Interface.....	44
2.8.1	People and Structures.....	44
2.8.2	Infrastructure	47
2.8.3	Ecosystems	47
2.9	Soils.....	47
2.9.1	Physiography.....	47
2.9.2	Soil Map Unit Descriptions	48
2.9.3	Hydrophobic Characteristics	48
2.9.4	Fire Mitigation Practices to Maintain Soil Processes.....	48
2.10	Hydrology	49
2.10.1	Fire Mitigation Practices to Maintain Hydrologic Processes.....	50
2.11	Air Quality.....	51
2.11.1	Fire Mitigation Practices to Maintain Air Quality	52
Chapter 3:	Summaries of Risk and Preparedness.....	55
3	Overview.....	55
3.1	Wildland Fire Characteristics.....	55
3.1.1	Weather.....	55
3.1.2	Topography	55
3.1.3	Fuels.....	56
3.2	Adams County Conditions.....	56
3.3	Adams County’s Wildland-Urban Interface	57
3.3.1	Council	58
3.3.1.1	Fuels Assessment	58
3.3.1.2	Community Risk Assessment.....	59
3.3.1.3	Potential Mitigation Activities	59

3.3.2	Mesa & Indian Valley.....	60
3.3.2.1	Fuels Assessment	60
3.3.2.2	Community Risk Assessment.....	60
3.3.2.3	Potential Mitigation Activities	61
3.3.3	Cuprum.....	63
3.3.3.1	Fuels Assessment	63
3.3.3.2	Community Risk Assessment.....	64
3.3.3.3	Potential Mitigation Activities	64
3.3.4	Pinehurst to Black Bear Subdivision; Along Highway 95	67
3.3.4.1	Fuels Assessment	67
3.3.4.2	Community Risk Assessment.....	68
3.3.4.3	Potential Mitigation Activities	68
3.3.5	Round Valley - South to New Meadows Area	69
3.3.5.1	Fuels Assessment	69
3.3.5.2	Community Risk Assessment.....	70
3.3.5.3	Potential Mitigation Activities	72
3.3.6	Forested Ecosystems North of Council; West New Meadows – Tamarack – Evergreen	74
3.3.6.1	Potential Mitigation Activities	74
3.4	Fire Fighting Resources and Capabilities.....	77
3.4.1	Wildland Fire Districts.....	77
3.4.1.1	Southern Idaho Timber Protective Association (SITPA).....	77
3.4.1.2	Payette National Forest – US Forest Service.....	79
3.4.1.2.1	Council Ranger District.....	79
3.4.1.2.2	New Meadows District Ranger Office.....	80
3.4.1.3	Bureau of Land Management, Lower Snake River District.....	81
3.4.2	Rural Fire Districts.....	84
3.4.2.1	Council Volunteer Fire Department	84
3.4.2.2	Indian Valley Volunteer Fire Department.....	86
3.4.2.3	Meadows Valley VFD	87
3.4.2.4	Salmon River Rural Fire Department	88
3.4.2.5	McCall Fire Protection District	89
	Chapter 4: Treatment Recommendations.....	91
4	Overview.....	91
4.1	Possible Fire Mitigation Activities	92

4.2	Proposed Projects Being Developed by the US Forest Service in Adams County	92
4.3	WUI Safety & Policy	96
4.4	People and Structures.....	98
4.5	Infrastructure	104
4.6	Resource and Capability Enhancements	105
4.7	Regional Land Management Recommendations	107
Chapter 5: Supporting Information.....		108
5	108
5.1	List of Tables.....	108
5.2	List of Preparers.....	109
5.3	Signature Pages.....	110
5.4	Glossary of Terms	112
5.5	Literature Cited.....	119

Chapter I: Overview of this Plan and its Development

1 Introduction

This Wildland-Urban Interface Wildland Fire Mitigation Plan for Adams County, Idaho, 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 Adams County, Idaho. The planning team responsible for implementing this project was led by the Adams County Commissioners. Agencies and organizations that participated in the planning process included:

- USDI Bureau of Land Management (also providing funding through the National Fire Plan)
- USDA Forest Service
- Idaho Department of Lands
- Southern Idaho Timber Protective Association
- West Central Highlands Resource Conservation and Development Council
- Boise (the company formerly known as Boise Cascade Corp.)
- Midvale Fire District
- Indian Valley Fire District
- Council Valley Fire #1
- Meadows Valley Fire District
- McCall Fire Protection District
- Salmon River Rural Fire Department
- Northwest Management, Inc.

The Adams County Commissioners solicited competitive bids from companies to provide the service of leading the assessment and the writing of the **Adams County Wildland-Urban Interface Wildland Fire Mitigation Plan**. The Commissioners selected Northwest Management, Inc., to provide this service. Northwest Management, Inc., is a professional natural resources consulting firm located in Moscow, Idaho. The Project Manager from Northwest Management, Inc., was Dr. William E. Schlosser, a professional forester and regional planner. The County also hired a local coordinator to serve as liaison between Northwest Management, Inc., and the Commissioner's Office, local citizenry, and others. The County hired Rick Belnap, a resident of New Meadows, a retired USDA Forest Service employee, who also works part-time with the Idaho Department of Lands.

This Wildland-Urban Interface Wildland Fire Mitigation 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 Idaho Statewide Implementation Strategy for the National Fire Plan—July 2002.

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

“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

1.1 Goals and Guiding Principles

The Wildland-Urban Interface Wildland Fire Mitigation Plan for Adams County takes its targeted outcomes simultaneously from the combination of the National Fire Plan, the Idaho Statewide Implementation Strategy for the National Fire Plan, and FEMA Region 10 guidelines for the review process for local hazard mitigation plans. The objective of combining these three complimentary guidelines is to facilitate an integrated wildland fire risk assessment, identify pre-hazard mitigation activities, and prioritize activities and efforts to achieve the protection of people, structures, the environment, and significant infrastructure in Adams County.

1.1.1 National Fire Plan Philosophy

The goals of this Wildland-Urban Interface Fire 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 Wildland-Urban Interface Fire Mitigation Plan documents the County’s intentions in meeting the National Fire Plan’s 10-Year Comprehensive Strategy and the Idaho 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 (Section 5.3) agree that reducing the threat of wildland fire to people, communities, and ecosystems will require:

- Firefighter and public safety continuing as the highest priority.
- A sustained, long-term and cost-effective investment of resources by all public and private parties, recognizing overall budget parameters affecting Federal, State, Tribal, and local governments.

- A unified effort to implement the collaborative framework called for in the Strategy in a manner that ensures timely decisions at each level.
- Accountability for measuring and monitoring performance and outcomes, and a commitment to factoring findings into future decision making activities.
- The achievement of national goals through action at the local level with particular attention on the unique needs of cross-boundary efforts and the importance of funding on-the-ground activities.
- Communities and individuals in the wildland-urban interface to initiate personal stewardship and volunteer actions that will reduce wildland fire risks.
- Management activities, both in the wildland-urban interface and in at-risk areas across the broader landscape.
- Active forestland and rangeland management, including thinning that produces commercial or pre-commercial products, biomass removal and utilization, prescribed fire and other fuels reduction tools to simultaneously meet long-term ecological, economic, and community objectives.

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

1.1.1.1 Identifying and Prioritizing Communities at Risk

The following was prepared by the National Association of State Foresters, 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.

References:

1. *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment. 10-Year Comprehensive Strategy Implementation Plan.* May 2002. (Goal 4 Task e: "Develop nationally comparable definitions for identifying at-risk wildland urban interface communities and a process for prioritizing communities within state and tribal jurisdiction.") (Available at: <http://www.fireplan.gov/reports>).
2. *Memorandum of Understanding for the Development of a Collaborative Fuels Treatment Program.* January 13, 2003. (Available at: <http://www.fireplan.gov/reports>).
3. *Concept Paper: Communities at Risk.* National Association of State Foresters (NASF), December 2, 2002. (Available at: <http://www.stateforesters.org/reports>).
4. *Wildland/Urban Interface Fire Hazard Assessment Methodology.* NWCG, undated (circa 1997). (Available through the NWCG Publications Management System (PMS), NIFC Catalog number NFES 1597.)

Definition – Community at Risk: For the purpose of this document, a community is defined as "a group of people living in the same locality and under the same government" (*The American Heritage Dictionary of the English Language*, 1969). A community is considered at risk from wildland fire if it lies within the wildland/urban interface as defined in the federal register (*FR Vol. 66, No. 3, Pages 751-754, January 4, 2001*).

1.1.2 Federal Emergency Management Agency Philosophy

Effective November 1, 2004, a Local 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 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 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 covers the planning process, risk assessment, mitigation strategy, plan maintenance, and adoption requirements.

FEMA will only review a local hazard mitigation plan submitted through the appropriate State Hazard Mitigation Officer (SHMO). Draft versions of local 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. In Idaho the SHMO is:

Idaho Bureau of Disaster Services
4040 Guard Street, Bldg 600
Boise, ID 83705
Jonathan Perry, 208-334-2336 Ext. 271

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

1.1.3 Adams County Planning Effort and Philosophy

The goals of this planning process include the integration of the National Fire Plan, the Idaho Statewide Implementation Strategy, and meets the requirements of FEMA for a county-wide Fire Mitigation Plan; a component of the County's All Hazards 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 Idaho and the Inland West.

1.1.3.1 Mission Statement

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

1.1.3.2 Vision Statement

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

1.1.3.3 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
- Educate communities about the unique challenges of wildfire in the wildland-urban interface (WUI)
- Establish mitigation priorities and develop mitigation strategies in the WUI
- Strategically locate, plan, and implement fuel reduction projects

- Provide recommendations for alternative treatment methods, such as modifying forest stand density, herbicide treatments, fuel reduction techniques, and disposal or removal of treated slash
- Meet or exceed the requirements of the National Fire Plan and FEMA for a County level Fire Mitigation Plan

1.2 Documenting the Planning Process

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

1.2.1 Description of the Planning Process

The Adams County Wildland-Urban Interface Wildfire Mitigation Plan was developed through a collaborative process involving all of the organizations and agencies detailed in Section 1.0 of this document. The County's local coordinator 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 though out the process):

1. **Collection of Data** about the extent and periodicity of wildfires in and around Adams County. This included an area encompassing Adams, Gem, Payette, Valley, and Washington Counties to insure a robust dataset for making inferences about fires in Adams County specifically; this included a wildfire extent and ignition profile.
2. **Field Observations and Estimations** about wildfire risks including fuels assessments, juxtaposition of structures and infrastructure to wildland fuels, access, and potential treatments by trained wildfire specialists.
3. **Mapping** of data relevant to wildfire control and treatments, structures, resource values, infrastructure, fire prone landscapes, 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 acceptance 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 acceptance of the final document.

1.2.2 The Planning Team

Planning efforts were led by the Project Director, Dr. William E. Schlosser, of Northwest Management, Inc., and Mr. Belnap, the Adams County Fire Plan Coordinator. Dr. Schlosser's education include 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). They led a team of resource professionals that included fire mitigation specialists, wildfire control 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.

1.3 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.

1.3.1 News Releases

Under the auspices of the Adams County Wildland-Urban Interface Wildfire Mitigation Planning Committee, news releases were submitted to area news papers and radio (there are no local television companies servicing this county).

1.3.1.1 Radio Messages

The local radio station (KMCL in McCall) aired information about the public meeting 3 times a day for the 3 days preceding each public meeting.

1.3.1.2 Newspaper Articles

Committee and public meeting announcements were published in the local newspapers ahead of each meeting. The following is an example of one of the newspaper announcements that ran in the local newspaper.

PUBLIC MEETINGS FOR ADAMS COUNTY WILDFIRE MITIGATION PLANNING

The ADAMS COUNTY WILDFIRE MITIATION PLANNING TEAM will be conducting public meetings to provide information and accept comments on the plan. All residents of Adams County are encouraged to attend to review the information and provide feedback.

The team has been working since April of this year on the plan. It covers all lands within Adams County regardless of ownership or boundaries. It provides a hazard analysis, that based on many years of data shows where historically fires have occurred in addition to areas of high fire spread risk. It also identifies communities and concentrations of development or sub-divisions as well as those individual properties and dwelling scattered throughout the county. The plan identifies those areas that are most at risk from fire and will recommend mitigation efforts to reduce the problem.

The planning group has also met with city and rural fire departments within the county to identify boundaries and or jurisdictions (or lack of) as well as equipment or training needs.

There will be two public meetings, the first one will be held in Council at the Adams County Courthouse on September 29. The meeting will begin at 6:30 p.m. and will conclude at 8:00 p.m. The second meeting will be in New Meadows at the senior center and will also begin at 6:30 p.m. and end at 8:00 p.m.

Public involvement and citizen participation is critical to this process. Please attend one of the two meetings to become familiar with and provide input to the plan.

If there are any questions, please direct them to Rick Belnap, Adams County Fire Coordinator at area code 208-347-2442.

ADAMS COUNTY FIRE PLAN PUBLIC REVIEW

Adams County Wildland Urban Interface (WUI) Wildfire Mitigation Plan has been developed in 2003 and is in its draft form.

It will be available for review and comment Jan 5th-15th, 2004 at the Adams County Courthouse in Council and in the Council Valley Free Library located at 104 California Avenue, as well as the Meadows Valley Public Library at 400 Virginia Street in New Meadows.

Public comment and review of this draft plan is an integral part of the plan development.

Please direct any comments or questions to your local county commissioner, or Rick Belnap, Adams County Fire Plan Coordinator (208) 347-2442, rickbelnap@yahoo.com, or William Schlosser, Northwest Management, Inc. (208) 883-4488, schlosser@consulting-foresters.com.

1.3.2 Public Mail Survey

In order to collect a broad base of perceptions about wildland fire and individual risk factors of homeowners in Adams County, a mail survey was conducted. Using the cadastral database of landowners in Adams County, homeowners from the Wildland-Urban Interface surrounding each community were identified. They were included in a database of names that integrated individuals living on parcels with a home, at least 3 acres of land, and a mailing address within Adams County. This database created a list of 256 names to which was affixed a random number that contributed to the probability of being selected for the public mail survey. A total of 206 landowners meeting the above criteria were selected.

The public mail survey developed for this project has been used in the past by Northwest Management, Inc., during the execution of other WUI Wildfire 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 mailing was sent August 8, 2003, and included a cover letter, a survey, and an offer of receiving a custom GIS map of the area of their selection in Adams 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 envelope, was included in each packet. A postcard reminder was sent to the non-respondents on August 20, 2003, encouraging their response. A final mailing, with a revised cover letter pleading with them to participate, was sent to non-respondents on September 1, 2003.

Surveys were returned during the months of August, September, October, and early November. A total of 114 residents responded to the survey. Five of the surveys were returned as undeliverable, and three responded that they no longer live in the area. The effective response rate for this survey was 58%. Statistically, this response rate allows the interpretation of all of the response variables significantly at the 95% confidence level.

1.3.2.1 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.

Approximately 98% of the respondents have a home in Adams County, and 89% consider this their primary residence. About 36% of the respondents were from the New Meadows area, 30% were from the Council Area, 7% were from the Indian Valley area, and the remainder were from a variety of other areas in the county but totaled less than 5% of all responses.

Virtually all of the respondents correctly identified that they have emergency telephone 911 services in their area. However, their ability to correctly identify if they are covered by a rural fire district was less than hoped. Respondents were asked to identify if their home is protected by a fire district. Approximately 5% responded they do not have a fire district covering their home, when in fact they do. About 14% of the respondents indicated they do have a fire district, when in fact they do not. Only 2% reported they do not know either way. The remaining 79% of the respondents correctly identified the existence or absence of a fire district covering their home.

Respondents were asked to indicate the type of roofing material covering the main structure of their home. The majority of the respondents, 73% indicated their homes were covered with aluminum, tin, or other metal. About 19% indicated their home were covered with a composite roofing material. Only 5% of the respondents indicated they have a wooden roofing material such as shakes; these are the homes at the greatest risk to roof ignition during a wildfire. The remaining 3% of respondents indicated other roofing materials were used.

Residents were asked to evaluate the proximity of trees within certain distances of their homes. Often, the density of trees around a home is an indicator of increased fire risk. The results are presented in Table 1.1

Table 1.1 Survey responses indicating the proximity of trees to homes.

Number of Trees	Within 250 feet of your home	Within 75 feet of your home
None	36%	61%
Less than 10	34%	28%
Between 10 and 25	30%	12%
More than 25	0%	0%

Approximately 79% of those returning the survey indicated they have a lawn surrounding their home. Of these individual home sites, 70% indicated they keep this lawn green through the fire season.

The average driveway length of the respondents was approximately 535 feet long, from their main road to their parking area. Roughly 5% of the respondents had a driveway over ½ mile long, and a corresponding 10% had a driveway over ¼ of a mile long. Of these homes, roughly 90% have turnouts allowing two vehicles to pass each other in the case of emergency. Approximately 64% of all homeowners indicated they have an alternative escape route, with the remaining 36% indicating only one-way-in and one-way-out.

Nearly all respondents indicated they have some type of tools to use against a wildfire that threatens their home. Table 1.2 summarizes these responses.

Table 1.2. Percent of homes with indicated fire fighting tools in Adams County.

99% – Hand tools (shovel, Pulaski, etc.)
14% – Portable water tank
13% – Stationery water tank
43% – Pond, lake, or stream water supply close
20% – Water pump and fire hose
16% – Equipment suitable for creating fire breaks (bulldozer, cat, skidder, etc.)

Roughly 30% of the respondents in Adams County indicated they have someone in their household trained in wildland fire fighting. Approximately 17% indicated someone in the household had been trained in structural fire fighting. However, it is important to note that these questions did not specify a standard nor did it refer to how long ago the training was received.

A couple of questions in the survey related to on-going fire mitigation efforts households may be implementing. Respondents were asked if they conduct a periodic fuels reduction program near their home sites, such as grass or brush burning. Approximately 68% answered affirmative to this question, while 36% responded that livestock (cattle, horses, sheep) graze the grasses and forbs around their homes.

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 1.3).

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

Table 1.3. Fuel Hazard Rating Worksheet		Rating	Results
Fuel Hazard	Small, light fuels (grasses, forbs, weeds, shrubs)	1	54%
	Medium size fuels (brush, large shrubs, small trees)	2	35%
	Heavy, large fuels (woodlands, timber, heavy brush)	3	10%
Slope Hazard	Mild slopes (0-5%)	1	68%
	Moderate slope (6-20%)	2	25%
	Steep Slopes (21-40%)	3	4%
	Extreme slopes (41% and greater)	4	1%
Structure Hazard	Noncombustible roof and noncombustible siding materials	1	29%
	Noncombustible roof and combustible siding material	3	0%
	Combustible roof and noncombustible siding material	7	59%
	Combustible roof and combustible siding materials	10	0%
Additional Factors	Rough topography that contains several steep canyons or ridges	+2	Average -2.5 pts
	Areas having history of higher than average fire occurrence	+3	
	Areas exposed to severe fire weather and strong winds	+4	
	Areas with existing fuel modifications or usable fire breaks	-3	
	Areas with local facilities (water systems, rural fire districts, dozers)	-3	

Calculating your risk

Values below are the average response value to each question.

$$\begin{array}{rcl}
 \text{Fuel hazard} & \underline{1.6} & \times \text{ Slope Hazard } \underline{1.4} = \underline{2.1} \\
 \text{Structural hazard} & + & \underline{3.1} \\
 \text{Additional factors (+ or -)} & & \underline{-2.5} \\
 \text{Total Hazard Points} & = & \underline{3.1}
 \end{array}$$

Table 1.4. Percent of respondents in each risk category as determined by the survey respondents.

- 00% – Extreme Risk = 26 + points
- 00% – High Risk = 16–25 points
- 18% – Moderate Risk = 6–15 points
- 82% – Low Risk = 6 or less points

Maximum household rating form score was 14 points, as assessed by the homeowners.

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 teach homeowners in the

wildland–urban interface how to improve the defensible space surrounding your home and adjacent outbuildings?” The majority of respondents, 58% indicated a desire to participate in this type of training.

Homeowners were also asked, “Would you be interested in participating in a cost share program that would pay a portion of the costs of implementing fire risk projects on your property?” To this question, only 38% indicated a willingness to do so. It has been pointed out that some landowners may have interpreted this question and responded with the intention of indicating they would be willing to pay 100% of the costs themselves, or none of the costs themselves, relying on a 100% federal, state, or grant payment to make the treatments happen. Because this vastly differing interpretation of the same question, further elucidation of this response should not be made.

1.3.2.2 Committee Meetings

The following list of people who participated in the planning committee meetings, volunteered time, or responded to elements of the Adams County Wildland-Urban Interface Wildfire Mitigation Plan’s preparation.

NAME	ORGANIZATION
• Suzanne Acton	U.S. Forest Service
• Mike Barguen	Idaho Power Company
• Jeannie Boehm	Indian Valley Rural F.D.
• Larry Boehm.....	Indian Valley Rural F.D.
• Kimberly Brandel.....	U.S. Forest Service
• Bill Brown	Adams County Commissioner
• Dick Clay	Citizen
• Vincent P. Corrao.....	Northwest Management, Inc.
• Dennis Crew.....	U.S. Forest Service
• Craig DeMoss	Citizen
• Linda DeMoss	Citizen
• Randy Eardley.....	Bureau of Land Management
• Micki Eby.....	Citizen
• Rachel Edwards	Nez Perce Tribe
• Judy Ellis	Adams County Commissioner
• John Erixson	Northwest Management, Inc.
• Mary Farnsworth	U.S. Forest Service
• Sam Feider.....	U.S. Forest Service
• Mike Fisk	Adams County
• Kirk Fowler	Citizen
• Cynthia Fowler	Citizen
• Rich Green	Adams County Sheriff
• Steve Haren	Boise Building Solutions
• Karen Hatfield	Adams County Assessor
• Bob Henderson	Citizen
• Ken Homik.....	Northwest Management, Inc.
• Don Horton	Adams County
• Monte Hurd	U.S. Forest Service
• Nathan Lefevre.....	Bureau of Land Management
• Jeff Luff	New Meadows Fire Chief and U.S.F.S employee

- Shelly LewisU.S. Forest Service
- Warren LoomisCitizen
- Russ ManwaringWest Central Highland RC&D
- Mickey Mathews.....Citizen
- Denny Minshall.....Adams County
- Mike NourseCitizen
- Peggy PolichioIdaho’s National Fire Plan Coordinator
- Andi Olsen.....Citizen
- David Overcast.....Bureau of Land Management
- Mike ParadisAdams County Commissioner
- Gene PenningtonSalmon River Rural Fire Chief
- Gary PhillipsU.S. Forest Service
- Jessie Raymond.....U.S. Forest Service
- Tom Richards.....Northwest Management, Inc.
- John RobisonIdaho Conservation League
- Jeff RohlmanIdaho Fish and Game
- Venita Ross.....Citizen
- William E. SchlosserNorthwest Management, Inc.
- Randy Skelton.....U.S. Forest Service
- Dee Smart.....Citizen
- Dave Sparks.....McCall Fire Chief
- Roger SpauldingFish and Wildlife Service
- Shawn Stanford.....Council Fire Chief
- Dennis ThomasNorthwest Management, Inc.
- Mark WoodsSouthern Idaho Timber Protective Assn.
- Becky WroblewskiU.S. Forest Service

Committee Meetings were scheduled and held on the following dates:

May 2, 2003

This was the initial meeting after making contacts with potentially interested or affected people and agencies. It was attended by 12 people (mostly representatives of the US Forest Service-6 people). The plan and perceived work loads were discussed.

May 12, 2003

A meeting was held in New Meadows. In attendance were two people from Northwest Management, one local fire chief, 4 Forest Service personnel, one county employee and the local coordinator. The planning process was discussed with specific time-lines developed for the completion of various tasks.

June 3, 2003

The committee met in Council for an orientation by the Project Manager from Northwest Management, Inc. There were 14 attendees at this meeting. Two county commissioners, 6 Forest Service, 1 BLM, 1 state Fire protection agency, 1 local fire chief, 2 county employees and 1 plan coordinator.

July 24-28, 2003

An article was placed in the two local newspapers explaining the up coming plan. It identified the rationale, objectives, process and invited the public to participate in future meetings. Specific names and contact information were provided for the public to contact for more information.

September 18-25, 2003

Placed public meeting notices in the two local newspapers. The notices ran for two weeks in each paper. It also ran for 1 day (the day before the first public meeting) in Idaho Statesman, a regional newspaper. Notices were also posted at 29 different business, state and federal offices and local gathering places. The 3 county commissioners, Mayors of Council and New Meadows as well as 37 people on the mailing list were personally invited by the coordinator.

September 23, 2003

A meeting with Northwest Management, Inc., the US Forest Service, and the local plan coordinator was held to review fire risk assessment maps and additional information prepared for the public meetings. It was attended by the Forest Service, a fire protection agency, the plan coordinator and 2 personnel from Northwest Management.

1.3.2.3 Public Meetings

Public meetings were held during the planning process, as an integral component to the planning process. It was the desire of the planning committee, and the Adams County Commissioners to integrate the public's input to the development of the fire mitigation plan.

Formal public meetings were held on September 29, 2003, in Council, Idaho, and on September 30, 2003, at New Meadows, Idaho. The purpose of these meetings was to share information on the planning process with a broadly representative cross section of Adams County residents. Both meetings had wall maps posted in the meeting rooms with many of the analysis results summarized specifically for the risk assessments, location of structures, fire protection, and related information. The formal portion of the presentations included a PowerPoint presentation made by Project Director, Dr. William E. Schlosser. During his presentations, comments from committee members, fire chiefs, and others were encouraged in an effort to engage the audience in a discussion.

It was made clear to all in attendance that their input was welcome and encouraged, as specific treatments had not yet been decided, nor had the risk assessment been completed. Attendees were told that they could provide oral comment during these meetings (which was recorded by the County Fire Plan Facilitator Rick Belnap and are summarized below), they could provide written comment to the meetings, or they could request more information in person to discuss the plan. In addition, attendees were told they would have an opportunity to review the draft plan prior to its completion to further facilitate their comments and input.

The formal presentations lasted approximately 1½ hours and included many questions and comments from the audience. Following the meetings, many discussions continued with the committee members and the general public discussing specific areas, potential treatments, the risk analysis, and other topics.

Attendance at the public meetings included 10 people at the Council meeting (attended mainly by US Forest Service and BLM employees, County Commissioners, and Rural Fire District Chiefs), and 14 at New Meadows (including many local residents not otherwise involved in the planning process). The following are comments, questions or suggestions from the meetings:

1. An absentee citizen wants to spend the money on the purchase of a chipper rather than on planning.
2. North slopes may be out of historic norm for fire risk, this applies to the lack of grazing as well as timber harvest.
3. How are power lines taken into account as hazard areas that may be included in the WUI projects for potential funding?
4. WUI could be things other than density of structures, how is this dealt with?
5. Goodrich has been annexed into the Indian Valley Rural Fire District and has its own station.
6. Getting and keeping volunteers are a problem for rural fire departments.
7. Home and property insurance needs to be an important factor of any fire district. Some people perceive home inspections to be a tool to raise taxes.
8. The county is looking at an ordinance that may require property owners to treat fuels hazards before a building permit is issued.
9. The capability, structure, and lack of signing or placards on bridges need to be resolved throughout the county.
10. Main roads such as Highway 95 and 55 may need heavy fuels reductions projects to ensure they are not closed down for long periods due to threat of a nearby fire.
11. How will WUI projects be selected? What will be the make up of the selecting committee?
12. Is there documentation that livestock grazing may or may not reduce the risk of wildland fires or natural fuels build up?
13. It appears that livestock grazing, irrigating, agricultural farming and timber management helps reduce the impact or risk of wildfire.
14. Some insurance companies may not cover homes built in the urban interface unless natural fuels are treated.
15. Homeowner check lists similar to the Firewise programs or some brochures are worth while to the average person.
16. In the GAP analysis process, the water supply needs to be considered (locally and county wide).
17. What will happen with the slash residue created from fuels treatment projects?
18. How will the selected fuels projects be implemented and by whom?
19. Who could I contact to have a fire risk assessment done on my property?
20. Idaho County is using their LEPC committee to set priorities and select fuels projects. How will Adams County accomplish this task?
21. How do we find out about all the available grants and different types of money available for projects?

1.3.2.4 Public Document Review

The Adams County Wildland-Urban Interface Wildfire Mitigation Plan DRAFT was completed in late November, 2003. This document was made available to the members of the planning committee and others as a first round of edits, modifications, and enhancements. Written and verbal comments were integrated into the revision of the document. Comments from many on the committee, and others involved in land management and fire control were integrated into the document revision.

The revised document (Version 20040102) was completed on January 2, 2004, for distribution to key locale in Adams County in an effort to make it available to those wishing to provide comments to the document draft. The document was printed and made available at local libraries (Council Free Library & Meadows Valley Library), the US Forest Service Offices (Council and New Meadows), and the County Courthouse (Council) from January 6th-20th. Comments were integrated into the final version of the plan.

The final plan was presented to the Adams County Commissioners at a General Meeting of the County Commissioners on January 26, 2004, where it was accepted by the Commissioners.

Chapter 2: County Characteristics & Risk Assessment

2 Background and Area Description

2.1 Demographics

Adams County reported a total population of 3,476 in 2000 with approximately 2,000 housing units. Adams County has two incorporated communities, Council (pop. 816) and New Meadows (pop. 533). The total population for the county increased 7% from 1990 to 2000. The total land area of the county is roughly 1,370 square miles (876,143 acres).

Adams County was established March 3, 1911, with its county seat at Council, where it remains to this day. Adams County was named for John Adams, the second President of the United States. The Council valley was a meeting place for the Nez Perce and Shoshoni Indian Tribes. Table 2.1 summarizes some relevant demographic statistics for Adams County.

Table 2.1. Selected demographic statistics for Adams County, Idaho, from the Census 2000.

Subject	Number	Percent
Total population	3,476	100.0
SEX AND AGE		
Male	1,784	51.3
Female	1,692	48.7
Under 5 years	140	4.0
5 to 9 years	216	6.2
10 to 14 years	305	8.8
15 to 19 years	247	7.1
20 to 24 years	84	2.4
25 to 34 years	246	7.1
35 to 44 years	539	15.5
45 to 54 years	609	17.5
55 to 59 years	274	7.9
60 to 64 years	255	7.3
65 to 74 years	345	9.9
75 to 84 years	159	4.6
85 years and over	57	1.6
Median age (years)	44.4	(X)
18 years and over	2,645	76.1
Male	1,336	38.4
Female	1,309	37.7
21 years and over	2,549	73.3
62 years and over	713	20.5
65 years and over	561	16.1
Male	287	8.3
Female	274	7.9
RACE		
One race	3,436	98.8
White	3,347	96.3
Black or African American	2	0.1

Table 2.1. Selected demographic statistics for Adams County, Idaho, from the Census 2000.

Subject	Number	Percent
American Indian and Alaska Native	49	1.4
Asian	5	0.1
Asian Indian	0	0.0
Chinese	1	0.0
Filipino	0	0.0
Japanese	2	0.1
Korean	1	0.0
Vietnamese	1	0.0
Other Asian ¹	0	0.0
Native Hawaiian and Other Pacific Islander	1	0.0
Native Hawaiian	1	0.0
Guamanian or Chamorro	0	0.0
Samoan	0	0.0
Other Pacific Islander ²	0	0.0
Some other race	32	0.9
Two or more races	40	1.2
Race alone or in combination with one or more other races³		
White	3,382	97.3
Black or African American	3	0.1
American Indian and Alaska Native	77	2.2
Asian	8	0.2
Native Hawaiian and Other Pacific Islander	3	0.1
Some other race	46	1.3
HISPANIC OR LATINO AND RACE		
Total population	3,476	100.0
Hispanic or Latino (of any race)	54	1.6
Mexican	37	1.1
Puerto Rican	0	0.0
Cuban	1	0.0
Other Hispanic or Latino	16	0.5
Not Hispanic or Latino	3,422	98.4
White alone	3,318	95.5
RELATIONSHIP		
Total population	3,476	100.0
In households	3,438	98.9
Householder	1,421	40.9
Spouse	900	25.9
Child	907	26.1
Own child under 18 years	773	22.2
Other relatives	78	2.2
Under 18 years	32	0.9
Non-relatives	132	3.8
Unmarried partner	69	2.0
In group quarters	38	1.1
Institutionalized population	32	0.9
Non-institutionalized population	6	0.2
HOUSEHOLDS BY TYPE		
Total households	1,421	100.0
Family households (families)	1,031	72.6

Table 2.1. Selected demographic statistics for Adams County, Idaho, from the Census 2000.

Subject	Number	Percent
With own children under 18 years	398	28.0
Married-couple family	900	63.3
With own children under 18 years	303	21.3
Female householder, no husband present	81	5.7
With own children under 18 years	59	4.2
Nonfamily households	390	27.4
Householder living alone	329	23.2
Householder 65 years and over	141	9.9
Households with individuals under 18 years	435	30.6
Households with individuals 65 years and over	398	28.0
Average household size	2.42	(X)
Average family size	2.83	(X)
HOUSING OCCUPANCY		
Total housing units	1,982	100.0
Occupied housing units	1,421	71.7
Vacant housing units	561	28.3
For seasonal, recreational, or occasional use	332	16.8
Homeowner vacancy rate (percent)	3.5	(X)
Rental vacancy rate (percent)	17.7	(X)
HOUSING TENURE		
Occupied housing units	1,421	100.0
Owner-occupied housing units	1,124	79.1
Renter-occupied housing units	297	20.9
Average household size of owner-occupied unit	2.41	(X)
Average household size of renter-occupied unit	2.46	(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.

2.2 Socioeconomics

Adams County had a total of 1,982 housing units and a population density of 2.5 persons per square mile reported in the 2000 Census (Table 2.1). Ethnicity in Adams County is distributed: white 98.8%, black or African American 0.1%, American Indian or Alaskan Native 1.4%, other race 0.9%, two or more races 1.2%, Hispanic or Latino 1.6%, and white alone (not Hispanic or Latino) 95.5%.

Specific economic data for individual communities is collected by the US Census; in Adams County this includes New Meadows and Council. Adams County households earn a median income of \$28,423 annually, Council had a median household income of \$24,375 in 2000, which is 14% below the County median income during the same period. The city of New Meadows had a median household income of \$28,500 in 2000, which is nearly identical to the Adams County median income during the same period. Table 2.2 shows the dispersal of households in various income categories in both communities.

Table 2.2. Income in 1999	Council		New Meadows	
	Number	Percent	Number	Percent
Households	342	---	202	---
Less than \$10,000	56	16.4	30	14.9
\$10,000 to \$14,999	33	9.6	19	9.4
\$15,000 to \$24,999	88	25.7	34	16.8
\$25,000 to \$34,999	56	16.4	48	23.8
\$35,000 to \$49,999	61	17.8	32	15.8
\$50,000 to \$74,999	33	9.6	34	16.8
\$75,000 to \$99,999	7	2.0	3	1.5
\$100,000 to \$149,999	5	1.5	1	0.5
\$150,000 to \$199,999	0	0.0	0	0.0
\$200,000 or more	3	0.9	1	0.5
Median household income (dollars)	\$24,375	(X)	\$28,500	(X)

(Census 2000)

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, directs federal agencies to identify and address any disproportionately high adverse human health or environmental effects of its projects on minority or low-income populations. In Adams County, a significant number of families are at or below the poverty level. Approximately 11.7% of Adams County families are below poverty level (Table 2.3).

Table 2.3 Poverty Status in 1999 (below poverty level)	Adams County	
	Number	Percent
Families	123	(X)
Percent below poverty level	(X)	11.7
With related children under 18 years	67	(X)
Percent below poverty level	(X)	16.0
With related children under 5 years	18	(X)
Percent below poverty level	(X)	17.0
Families with female householder, no husband present	33	(X)
Percent below poverty level	(X)	37.9
With related children under 18 years	25	(X)
Percent below poverty level	(X)	40.3
With related children under 5 years	8	(X)
Percent below poverty level	(X)	40.0
Individuals	518	(X)
Percent below poverty level	(X)	15.1
18 years and over	374	(X)
Percent below poverty level	(X)	14.3
65 years and over	64	(X)
Percent below poverty level	(X)	11.7
Related children under 18 years	134	(X)
Percent below poverty level	(X)	16.9

Table 2.3 Poverty Status in 1999 (below poverty level)	Adams County	
	Number	Percent
Related children 5 to 17 years	113	(X)
Percent below poverty level	(X)	17.2
Unrelated individuals 15 years and over	128	(X)
Percent below poverty level	(X)	27.9

(Census 2000)

The unemployment rate was 4.2% in Adams County in 1999, compared to 4.4% nationally during the same period. Approximately 18.1% of the Adams County employed population worked in natural resources, with much of the indirect employment relying on the employment created through these natural resource occupations; Table 2.4 (Census 2000).

Table 2.4 Employment & Industry	Adams County	
	Number	Percent
Employed civilian population 16 years and over	2,767	100.0
OCCUPATION		
Management, professional, and related occupations	389	27.7
Service occupations	254	18.1
Sales and office occupations	304	21.7
Farming, fishing, and forestry occupations	74	5.3
Construction, extraction, and maintenance occupations	201	14.3
Production, transportation, and material moving occupations	181	12.9
INDUSTRY		
Agriculture, forestry, fishing and hunting, and mining	258	18.4
Construction	145	10.3
Manufacturing	107	7.6
Wholesale trade	30	2.1
Retail trade	177	12.6
Transportation and warehousing, and utilities	52	3.7
Information	26	1.9
Finance, insurance, real estate, and rental and leasing	54	3.8
Professional, scientific, management, administrative, and waste management services	80	5.7
Educational, health and social services	206	14.7
Arts, entertainment, recreation, accommodation and food services	125	8.9
Other services (except public administration)	53	3.8
Public administration	90	6.4

Approximately 59% of Adams County's employed persons are private wage and salary workers, while around 20% are government workers (Table 2.5).

Table 2.5 Class of Worker	Adams County	
	Number	Percent
Private wage and salary workers	834	59.4
Government workers	276	19.7
Self-employed workers in own not incorporated business	274	19.5
Unpaid family workers	19	1.4

(Census 2000)

2.2.1 Forestry and Logging

Over the past century, employment through timber harvesting has been significant in the region. Forestry, logging, trucking, and related support industries have relied on timber harvests from this region. Today, the mill at Tamarack operates a dimension lumber sawmill to the southwest of New Meadows.

2.2.2 Recreation

This region is a favorite destination for a variety of recreational opportunities. Riggins, to the north of Adams County in Idaho County, is the self proclaimed "White Water Capital of the World", referring to white water rafting opportunities on the Salmon River. Wilderness areas offer hiking and backpacking opportunities as well.

Brundage Mountain Ski Area is located 10 miles out of McCall, Idaho, on the Adams County, Valley County line. Over the years, McCall has earned the nickname, "Ski Town USA," as the home of numerous Olympic skiers. Thousands of winter-time recreation users travel to this destination in Adams County for skiing.

Hells Canyon, North America's deepest river gorge, encompasses a vast and remote region with dramatic changes in elevation, terrain, climate and vegetation. Carved by the great Snake River, Hells Canyon plunges more than a mile below Oregon's west rim, and 8,000 feet below snowcapped He Devil Peak of Idaho's Seven Devils Mountains. There are no roads across Hells Canyon's 10-mile wide expanse, and only three roads that lead to the Snake River between Hells Canyon Dam and the Idaho-Oregon-Washington boundary. Hells Canyon National Recreation Area is part of the Wallowa-Whitman, Nez Perce, and Payette National Forests. Congress directed the Forest Service to manage this area for many activities. In addition to recreation, you may see other examples of "Caring for the Land and Serving People," including removal of dead or diseased trees to improve forest health, or activities to enhance range conditions for both wildlife and livestock.

Zimms Hot Springs is a destination resort located near New Meadows for those wishing to partake in the mineral hot springs and camping found there.

An upscale golf and country club operates near New Meadows at the Meadow Creek Resort. In addition to being a destination golf course, a large number of structures have been built around the facility as housing units, condominiums, and support facilities.

Big game hunting for deer, elk and moose is especially intense every fall. During the winter, snowmobiling has become a very popular sport, with a smaller amount of cross-country skiing and snowshoeing. Fishing in the County's rivers and lakes is a favorite activity of many people especially at Brundage Reservoir, Lost Valley Reservoir, and Goose Lake.

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

2.2.3 Resource Dependency

The communities of Adams County have been evaluated by the University of Idaho College of Natural Resources Policy Analysis Group (PAG) for the degree of natural resource dependency each community experiences. The findings of this group indicate that both New Meadows and Council were fairly constant in population with a net decline of only 0.2% and 1.8% respectively between 1990 and 2000 (Harris *et al.* 2003).

Idaho communities with more than 10% employment in resource-based sectors (wood products, travel & tourism, agriculture, and mining) were evaluated by Harris *et al.* (2003). Their findings indicate that Council falls into this category as a “Travel & Tourism and Agriculture” dependent community. New Meadows is considered under the heading of “Wood products and Agriculture” dependent community (Harris *et al.* 2000).

From 1993 to 1998 sawmill capacity dropped rapidly in response to dwindling public log supplies. Only two of five dominant companies operating in 1995 were still operating in 1998, and one of these, Boise Cascade, closed two of its large sawmills during this period. In the mid-1980s Boise Cascade operated three sawmills, one plywood mill and a finishing-planer mill. Idaho closures included its Council and Horseshoe Bend sawmills. Only two facilities remained open in 1999, the sawmill in Cascade and a plywood mill in Emmett. In the last few years, both of these mills closed, along with Croman’s mill (Harris *et al.* 2000).

Harris *et al.* (2003) further evaluated Idaho communities based on their level of direct employment in several industrial sectors. Their findings for communities in Adams County are summarized in Table 2.6.

Table 2.6. Levels of direct employment by industrial sector

Community	Economic Diversity Index	Agriculture	Timber	Travel and Tourism	State/Local Government	Federal Government	Mining and Minerals
New Meadows	Med. Low	Low	High	Low	High	Med. Low	Low
Council	Med. High	Med. High	Low	Med. High	Med. Low	Med. High	Low

A “low” level of direct employment represents 5% or less of total employment in a given sector; “med. low,” 6 to 10%; “med. high” 11 to 19%; and “high” 20% or more of total employment in a given sector.

Source: Harris *et al.* 2000

2.2.4 Development Trends

Adams County, once a dominantly agriculture and forestry based economy is now less so. Recent trends of development and growth in this area have seen many high-value homes in sub-divisions that are purchased by out-of-county buyers that use these homes for weekend and vacation use, or in conjunction with recreational objectives. In addition, some new home buyers work in nearby McCall (Valley County). A significant number of new home buyers in the county do not reside full-time in Adams County.

2.3 Cultural Resources

Section 106 of the National Historic Preservation Act requires federal agencies to consider the effects of their proposals on historic properties, and to provide state historic preservation officers, tribal historic preservation officers, and, as necessary, the Advisory Council on Historic Preservation a reasonable opportunity to review and comment on these actions.

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.

Adams County is within the Aboriginal territory boundary of the Nez Perce Indian Nation. Much of this territory was ceded to the US Government in 1855. Today, the northern edge of Adams County is approximately 50 miles south of the southeastern tip of the Nez Perce Indian Reservation boundary (1863 Treaty).

Typical archeological sites include lithic scatters, village sites, rock art, and hunting blinds. The Nez Perce had a network of trails throughout the area which included various trade routes, as well as gathering and hunting routes. Some of the same trails were later used by homesteaders and miners. Traditional Cultural Properties (TCPs) are cultural resources defined as a significant place or setting, and does not necessarily have any associated material remains. For example, a TCP can be a mountain, river, or natural feature (i.e., rock formation, meadow, etc.). Some of these are present in Adams County.

Many of these sites are at risk from wildland fire due to the increase in fuel accumulation since historic times. The integrity of some cultural resources has been impacted in the past by logging activities, road building, mining, and grazing.

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 Tables 2.7-2.14.

Table 2.7. Historic Places: Adams County Courthouse	Added 1987 - Building - #87001599 Also known as 001206 Michigan St., Council
Historic Significance:	Architecture/Engineering, Event
Architect, builder, or engineer:	Unknown
Architectural Style:	Colonial Revival
Area of Significance:	Architecture, Politics/Government
Period of Significance:	1900-1924, 1925-1949
Owner:	Local Gov't
Historic Function:	Government
Historic Sub-function:	Courthouse
Current Function:	Government
Current Sub-function:	Courthouse

(NRHP 2003)

Table 2.8. Historic Places: Council Ranger Station	Added 1992 - Building - #92000689 Also known as 10-AM-162 and PY-540 Jct. of US 95 and Whiteley Ave., Council
Historic Significance:	Architecture/Engineering, Event
Architect, builder, or engineer:	Civilian Conservation Corps, U.S. Forest Service
Architectural Style:	Late 19th And Early 20th Century American

Table 2.8. Historic Places: Council Ranger Station	Added 1992 - Building - #92000689 Also known as 10-AM-162 and PY-540 Jct. of US 95 and Whiteley Ave., Council
	Movements
Area of Significance:	Conservation, Architecture, Politics/Government
Period of Significance:	1925-1949
Owner:	Federal
Historic Function:	Government
Historic Sub-function:	Government Office
Current Function:	Government
Current Sub-function:	Government Office

(NRHP 2003)

Table 2.9. Historic Places: Heigho, Col. E. M., House (current name Heartland Inn)¹	added 1978 - Building - #78001041 Also known as Farnsworth Hotel ID 95, New Meadows
Historic Significance:	Architecture/Engineering, Person
Architect, builder, or engineer:	Brinson, George, Bond, H.W.
Architectural Style:	Colonial Revival
Historic Person:	Heigho, E.M., Col.
Significant Year:	1912, 1911
Area of Significance:	Transportation, Architecture
Period of Significance:	1900-1924
Owner:	Private
Historic Function:	Domestic
Historic Sub-function:	Single Dwelling
Current Function:	Domestic
Current Sub-function:	Hotel

(NRHP 2003)

Table 2.10. Historic Places: Hells Canyon Archeological District	Added 1984 - District - #84000984 Address Restricted, Cuprum
Historic Significance:	Information Potential, Event
Area of Significance:	Transportation, Agriculture, Historic - Aboriginal, Industry, Prehistoric
Cultural Affiliation:	Windust Phase, Nimipu Phase, Cascade Phase
Period of Significance:	9000-10999 BC, 5000-6999 BC, 1000 AD-999 BC, 2500-2999 BC, 499-0 AD, 1800-1824, 1850-1874, 1875-1899, 1900-1924, 1925-1949
Owner:	Private, Federal
Historic Function:	Agriculture/Subsistence, Domestic, Industry/Processing/Extraction, Transportation
Historic Sub-function:	Animal Facility, Extractive Facility, Village

¹ Local information on the “The Heigho, Col. E. M., House” indicates that this particular building is no longer standing, however, the building referred to as the **Farnsworth Hotel** currently serves as the **Heartland Inn** located across the street on Highway 95, in New Meadows. Data presented here reflects the information located on the National Register of Historic Places, modified to reflect this information.

Table 2.10. Historic Places: Hells Canyon Archeological District	Added 1984 - District - #84000984 Address Restricted, Cuprum
Current Function:	Site, Water-Related Agriculture/Subsistence, Recreation And Culture
Current Sub-function:	Outdoor Recreation

(NRHP 2003)

Table 2.11. Historic Places: Huntley, A. O., Barn	Added 1978 - Building - #78001040 W of Cuprum, Cuprum
Historic Significance:	Architecture/Engineering
Architect, builder, or engineer:	Unknown
Architectural Style:	No Style Listed
Area of Significance:	Architecture
Period of Significance:	1900-1924
Owner:	Private
Historic Function:	Agriculture/Subsistence
Historic Sub-function:	Animal Facility
Current Function:	Unknown

(NRHP 2003)

Table 2.12. Historic Places: Meadows Schoolhouse	Added 1979 - Building - #79000769 Also known as Smith, Mark, Residence ID 55, New Meadows
Historic Significance:	Architecture/Engineering
Architect, builder, or engineer:	Unknown
Architectural Style:	Other
Area of Significance:	Architecture
Period of Significance:	1900-1924
Owner:	Private
Historic Function:	Education
Historic Sub-function:	School
Current Function:	Commerce/Trade, Domestic
Current Sub-function:	Professional, Single Dwelling

(NRHP 2003)

Table 2.13. Historic Places: Pacific and Idaho Northern Railroad Depot	Added 1978 - Building - #78001042 U.S. 95, New Meadows
Historic Significance:	Architecture/Engineering, Event
Architect, builder, or engineer:	Bond, H.W.
Architectural Style:	Italianate
Area of Significance:	Transportation, Architecture
Period of Significance:	1900-1924
Owner:	Local Gov't
Historic Function:	Transportation
Historic Sub-function:	Rail-Related
Current Function:	Vacant/Not In Use

(NRHP 2003)

Table 2.14. Historic Places: Pomona Hotel	Added 1986 - Building - #78001039 Main and Moser Sts., Council
Historic Significance:	Architecture/Engineering, Event
Architect, builder, or engineer:	Washington County Land & Development, Bond, H.W.

Table 2.14. Historic Places: Pomona Hotel	Added 1986 - Building - #78001039 Main and Moser Sts., Council
Architectural Style:	Other
Area of Significance:	Transportation, Architecture
Period of Significance:	1900-1924
Owner:	Private
Historic Function:	Domestic
Historic Sub-function:	Hotel
Current Function:	Domestic
Current Sub-function:	Hotel
This building burned down before the 1980s and is currently the site of a new structure.	

(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. However, work in the Hells Canyon Archeological District may adversely impact cultural sites if not done carefully. Areas where ground disturbance will occur will need to be inventoried depending on the location.

2.4 Transportation

Primary access to and from Adams County is provided by US Highways 95 and 55, each two-lane paved roads with turnouts. Smaller access roads (many gravel) provide access to the adjoining areas within the county. A variety of trails and closed roads are to be found throughout the region.

Many of the roads in the county were originally built to facilitate logging and farming activities. As such, many of 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 of homes. In most cases, these roads are adequate to facilitate firefighting equipment. County building codes for new developments should be adhered to closely to insure this tendency continues.

The most limiting point of access in the county is along US Highway 95 where it parallels the Little Salmon River, from Smokey Boulder Road north approximately 3 miles. The highway in this area is narrow, has many turns, and drops approximately 1,000 feet in elevation in less than 20 miles. Traffic congestion during the summer (RV season) is sometimes extreme. The state highway is a narrow two-lane paved road that follows a meandering path roughly analogous to the stream's path. Limited shoulder width provides poor parking for vehicles. In addition, the forest fuels surrounding this road are heavy in places, exacerbating a potentially catastrophic situation. Improvements to this stretch of US Highway 95 would serve to improve access on this stretch of Highway.

2.5 Vegetation & Climate

Vegetation in Adams County is a mix of forestland and rangeland ecosystems. An evaluation of satellite imagery of the region provides some insight to the composition of the forest 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 2.15.

The most represented vegetated cover type is ponderosa pine dominated forests at approximately 20.1% of the total area. The next most common vegetation cover type

represented is the mixed xeric forest at 16.4%. Perennial grass slopes are the third most common plant cover type at 7.9% along with bitterbrush (7.9%) and Douglas-fir dominated forests (7.6%). None of the remaining ground cover types total in excess of 6% in any one category (Table 2.15).

Table 2.15. Cover Types in Adams County	Acres	Percent of County's Total Area
Ponderosa Pine	175,753	20.1%
Mixed Xeric Forest	143,494	16.4%
Perennial Grass Slope	69,404	7.9%
Bitterbrush	69,303	7.9%
Douglas-fir	66,652	7.6%
Subalpine Fir	47,380	5.4%
Warm Mesic Shrubs	37,722	4.3%
Agricultural Land	35,026	4.0%
Low Sagebrush	29,906	3.4%
Basin & Wyoming Big Sagebrush	27,463	3.1%
Grand Fir	24,845	2.8%
Mixed Subalpine Forest	21,875	2.5%
Perennial Grassland	21,200	2.4%
Montane Parklands and Subalpine Meadow	21,057	2.4%
Mountain Big Sagebrush	19,521	2.2%
Shrub Dominated Riparian	15,262	1.7%
Subalpine Pine	10,869	1.2%
Douglas-fir/Grand Fir	10,104	1.2%
Herbaceous Burn	8,055	0.9%
Broadleaf Dominated Riparian	4,654	0.5%
Water	3,610	0.4%
Lodgepole Pine	3,049	0.3%
Needleleaf Dominated Riparian	2,991	0.3%
Foothills Grasslands	2,133	0.2%
Shrub/Steppe Annual Grass-Forb	1,832	0.2%
Low Intensity Urban	828	0.1%
Shallow Marsh	417	0.0%
Wet Meadow	378	0.0%
Disturbed, High	300	0.0%
Disturbed, Low	168	0.0%
Exposed Rock	121	0.0%
Deep Marsh	121	0.0%
Graminoid or Forb Dominated Riparian	119	0.0%
Herbaceous Clearcut	110	0.0%
Alpine Meadow	79	0.0%
Engelmann Spruce	33	0.0%

Vegetative communities within the county follow the strong moisture and temperature gradient related to the major river drainages. Limited precipitation and steep slopes result in a relatively arid environment in the southern portion of the county, limiting vegetation to drought-tolerant plant communities of grass and shrublands, with scattered clumps of ponderosa pine and Douglas-fir at the higher elevations. 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.

2.5.1 Monthly Climate Summaries in Adams County

2.5.1.1 Council, Idaho (102187)

Period of Record Monthly Climate Summary

Period of Record : 8/ 1/1948 to 3/31/2003

Table 2.16 Climate records for Council, Idaho

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	32.8	39.6	49.0	61.7	71.6	80.3	90.8	90.0	79.1	65.1	47.6	35.7	61.9
Average Min. Temperature (F)	15.9	20.0	27.2	34.3	41.3	48.4	55.0	53.4	43.9	34.4	26.6	19.4	35.0
Average Total Precipitation (in.)	4.00	2.53	2.29	1.81	1.80	1.54	0.44	0.59	1.03	1.78	2.94	3.47	24.21
Average Total SnowFall (in.)	17.4	7.0	2.6	0.1	0.0	0.0	0.0	0.0	0.0	0.2	3.8	14.0	45.1
Average Snow Depth (in.)	8	7	2	0	0	0	0	0	0	0	0	3	2

Max. Temp.: 87.1% Min. Temp.: 87.1% Precipitation: 90.7% Snowfall: 87.6% Snow Depth: 85.9%

2.5.1.2 New Meadows Ranger Station, Idaho (106388)

Period of Record Monthly Climate Summary

Period of Record : 8/ 1/1948 to 12/31/2002

Table 2.17. Climate records for New Meadows, Idaho

Table 1.2	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	30.5	37.2	45.0	55.1	64.9	73.3	83.9	83.1	73.5	59.5	43.0	31.6	56.7
Average Min. Temperature (F)	8.7	11.2	18.1	26.3	32.9	39.1	41.9	39.9	32.5	24.7	19.8	10.5	25.5
Average Total Precipitation (in.)	3.42	2.31	2.19	1.84	1.94	1.91	0.67	0.76	1.27	1.73	2.73	3.35	24.12
Average Total SnowFall (in.)	25.7	13.9	7.1	1.8	0.2	0.0	0.0	0.0	0.1	0.4	8.4	23.4	80.9
Average Snow Depth (in.)	17	19	10	1	0	0	0	0	0	0	1	9	5

Percent of possible observations for period of record: Max. Temp.: 94.1% Min. Temp.: 94.1% Precipitation: 95.9% Snowfall: 96.8% Snow Depth: 92.4%

The following is summarized from the Soil Survey for Washington and Adams County:

The agricultural regions of the southern part of Adams County have hot, dry summers and cool winters. There are significant local variations in climate because of the topography. The much smaller area around New Meadows, which is at an elevation of 3,868 feet, is cooler and wetter than the south end of the county. Precipitation peaks in December and January, ranging from 2 to 4 inches per month. The average monthly precipitation steadily decreases in spring and summer, and it is lowest in July.

The growing season at New Meadows typically is about 37 days. The lowest temperature on record, which occurred at New Meadows on December 24, 1983, is - 45 degrees. In July, the average temperature is about 63 degrees at New Meadows.

Growing degree days are equivalent to “heat units”. During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (32 degrees). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall. The mean annual precipitation is about 25 inches at New Meadows. Of this, about 29 percent usually falls in April through September. In 2 years out of 10, the rainfall during this period is less than 5 inches. Thunderstorms occur on about 19 days each year, and most occur in spring and summer.

The average seasonal snowfall is about 84 inches at New Meadows. The average relative humidity in the afternoon is about 25 percent in July and 65 percent in January. Humidity is highest at night, and the average at dawn is 60 percent in July and 90 percent in January. The sun shines 85 percent of the time possible in July and 35 percent in January. The prevailing wind is from the southeast in September through April and from the northwest in May through August. Average wind speed is highest, 11 miles per hour, in March.

2.6 Wildfire Hazard Profiles

2.6.1 Wildfire Ignition Profile

Fire was once an integral function of the majority of ecosystems in Idaho. The seasonal cycling of fire across the landscape was as regular as the 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 Payette National Forest in McCall. In addition, the Idaho Department of Lands keeps records of fire ignitions dating back to 1983. Using this data on past fire extents (1956 through 2002–Payette NF), fire ignition data (1956 through 2002–Payette NF and 1983-1989 IDL), the occurrence of wildland fires in Adams County has been evaluated.

Many fires have burned in Adams County historically. Table 2.18 summarizes fire ignitions by decade as lightning caused or human caused. Since World War II, it would appear that roughly 78% of all fires in the region have been ignited by nature, while the remaining 22%, on average have been human caused. The trend of human caused ignitions reached its peak in the 1970's when approximately 155 fires were started by a variety of human caused factors, for a decadal total of 33% of all fires in the county. Since that time, the number of fire ignitions caused by humans has been highly variable in total number and as a percent of total ignitions. Although the 2000 decade only has 3 years worth of data, an extrapolation of these numbers would indicate that it is matching the pace of human caused ignitions from the 1990s.

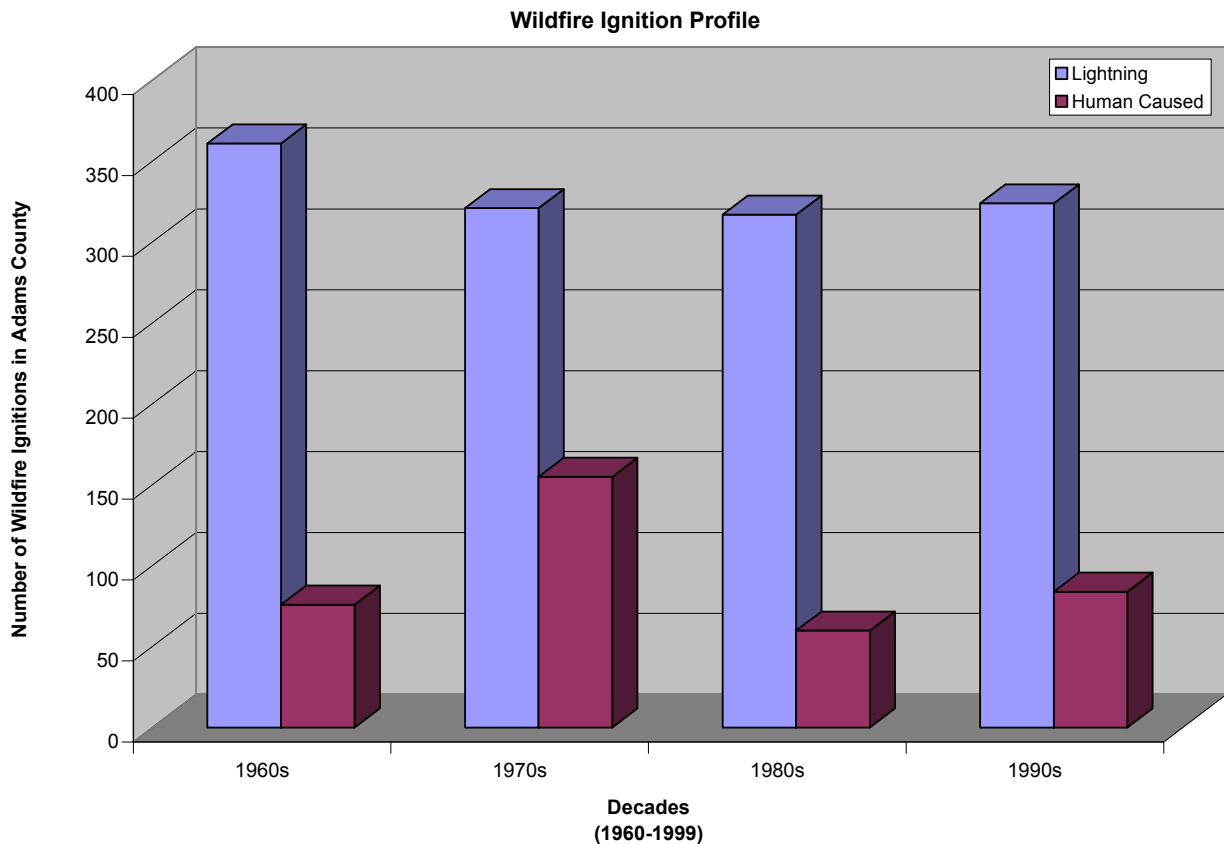
Lightning caused fires average approximately 335 ignitions per decade, or roughly 30-35 ignitions each year in Adams County. It is evident that many of these fires have been contained at smaller sizes. According to the Payette National Forest Database, there have been approximately 1,877 fire ignitions in the county (Table 2.19). The Idaho Department of Lands database of wildfire ignitions, dating from 1983-1998, indicates nearly 7 times as many ignitions as the Payette National Forest database for the same period, within Adams County. However, there is discrepancy as the rate of incidence for each category of fire ignitions remains fairly divergent (e.g., lightning caused fires accounted for 60.8% in the IDL database, while the PNF database indicated 81.7% for approximately the same period).

In the IDL database, which appears to be more robust although it does not include the most recent data, approximately 60.8% of all fires in the area were ignited by lightning, which is only slightly lower than the state's average of nearly 65% of the total. Debris burning in the region accounted for about 10.6% of the ignited wildfires. Camp fires in the area accounted for 5.5% of the fire starts during this period. Equipment use accounted for 5.1% of starts, while smoking caused an additional 2.5%. Arson started fires caused around 2.2%, children started approximately 2.3% and miscellaneous or undetermined fire starts accounted for 10.6% of the fires in this region during this 15 year period (Table 2.19).

Table 2.18. Wildfire Ignition Profile of Adams County by Decade

Decade	Lightning		Human Caused	
	Number of Ignitions	Percent of Decade's Total	Number of Ignitions	Percent of Decade's Total
1950s	38	76%	12	24%
1960s	361	83%	76	17%
1970s	321	67%	155	33%
1980s	317	84%	60	16%
1990s	324	79%	84	21%
2000s	104	81%	25	19%

This data is presented in graphic format in the following figure.



Note: Data on the 1950's and the 2000's was omitted from this chart because only partial information from those decades was available.

Table 2.19 Wildfire Ignitions by Cause in Adams County.

Cause	Cause Reference	1983-1998 ¹		1956-2002 ²	
		Occurrence	Percent	Occurrence	Percent
Lightning	1	3,313	60.8%	1,465	78.1%
Campfire	2	298	5.5%	36	1.9%
Smoking	3	136	2.5%	50	2.7%
Debris Burning	4	579	10.6%	197	10.5%
Arson	5	121	2.2%	38	2.0%
Equipment Use	6	278	5.1%	1	0.1%
Railroad	7	22	0.4%	20	1.1%
Children	8	127	2.3%	4	0.2%
Miscellaneous	9	576	10.6%	66	3.5%
Total		5,450		1,877	

¹ Data from 1983-1998 was provided by the Idaho Department of Lands and includes recorded fire ignitions within Adams County.

² Data from 1955-2002 was provided by the US Forest Service, Payette National Forest, and includes recorded fire ignitions within Adams County.

2.6.2 Wildfire Extent Profile

Across the west, wildfires have been increasing in extent and cost of control. The National Interagency Fire Center (2003) reports nearly 88,500 wildfires in 2002 burned a total of nearly 7 million acres and cost \$1.6 billion (Table 2.20). By most informed accounts, the 2003 totals will be significantly higher in terms of acres burned and cost.

Table 2.20. National Fire Season 2002 Summary

Number of Fires (2002 final)	88,458
10-year Average (1992-2001)	103,112
Acres Burned (2002 final)	* 6,937,584
10-year Average (1992-2001)	4,215,089
Structures Burned (835 primary residences, 46 Commercial buildings, 1500 outbuildings)	2,381
Estimated Cost of Fire Suppression (Federal agencies only)	\$ 1.6 billion

- *This figure differs from the 7,184,712 acres burned estimate provided by the National Interagency Coordination Center (NICC). The NICC estimate is based on information contained in geographic area and incident situation reports prepared at the time fires occurred. The 6,937,584 estimate is based on agency end-of-year reports.*

The National Interagency Fire Center, located in Boise, Idaho, maintains records of fire costs, extent, and related data for the entire nation. Tables 2.21 and 2.22 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 in areas like Adams County.

Table 2.21. Total Fires and Acres 1960 - 2002 Nationally

These figures 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.

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

(National Interagency Fire Center 2003)

Table 2.22 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
1994	\$98,417,000	\$49,202,000	\$3,281,000	\$16,362,000	\$678,000,000	\$845,262,000
1995	\$56,600,000	\$36,219,000	\$1,675,000	\$21,256,000	\$224,300,000	\$340,050,000
1996	\$96,854,000	\$40,779,000	\$2,600	\$19,832,000	\$521,700,000	\$679,167,600
1997	\$62,470,000	\$30,916,000	\$2,000	\$6,844,000	\$155,768,000	\$256,000,000
1998	\$63,177,000	\$27,366,000	\$3,800,000	\$19,183,000	\$215,000,000	\$328,526,000
1999	\$85,724,000	\$42,183,000	\$4,500,000	\$30,061,000	\$361,000,000	\$523,468,000
2000	\$180,567,000	\$93,042,000	\$9,417,000	\$53,341,000	\$1,026,000,000	\$1,362,367,000
2001	\$192,115,00	\$63,200,000	\$7,160,000	\$48,092,000	\$607,233,000	\$917,800,000
2002	\$204,666,000	\$109,035,000	\$15,245,000	\$66,094,000	\$1,266,274,000	\$1,661,314,000

(National Interagency Fire Center 2003)



Although many very large fires, growing to over 250,000 acres have burned in the West Central Highlands of Idaho, which Adams County is a part, actual fires in this county have usually been controlled at much smaller extents. This is not to imply that wildfires are not a concern in this county, but to point to the aggressive and professional manner to which the wildland and rural fire districts cooperate in controlling these blazes. The Payette National Forest, the South Idaho Timber Protective Association (SITPA), and the BLM provide primary wildland fire protection to Adams County, while rural fire districts augment these services with home protection and related services.

During the development of this Wildland-Urban Interface Wildfire Mitigation Plan, Adams County was faced with a wildland fire that threatened people, structures, and infrastructure just to the northeast of Council. The “**Hall Fire**” ignited in August 9, 2003, and burned a total of 1,886 acres before it was contained on August 14, 2003. The cost of this fire is estimated at \$4.0 million. One home and one out-building were reported lost during this fire. This blaze also threatened the high-tension power lines servicing the city of McCall in Valley County, and caused US Highway 95 traffic to be rerouted through Fruitvale and Glendale along gravel roads. No lives were lost. However, this fire points to the primary concern for developing this plan; the need to



provide for the protection of people, structures, the environment, and infrastructure during wildfire events.

Data on 31 large fire events that burned within Adams County have been summarized (Table 2.23). While some of these fires were centered outside of Adams County, all of the listed fires burned within the geographical extent of the county. On average, wildfires in Adams County which exceed 100 acres, reach a size of 7,700 acres, however, this is highly variable (STD 21,664 acres). By removing the three largest fires from this database the average large fire size is approximately 2,740 acres (STD 4,300).

Table 2.23. “Large Wildland fires” in Adams County 1960-2000.

Fire Name	Year	Acres Burned	Cause
Mesa Hill	1960	313	Smoking
Eckels Creek	1960	11,862	Lightning
Paradise	1968	279	Lightning
Devils Hole	1981	137	Lightning
Black Point	1982	149	Lightning
Goodrich	1986	10,577	Lightning
Eagle Bar	1988	14,140	Railroad
Casey Springs	1989	154	Lightning
Sale	1989	28	Lightning
Curren	1989	7,178	Lightning
Emmett	1989	570	Lightning
Fawn Creek	1991	344	Miscellaneous
Windy Ridge	1992	17,580	Lightning
Corral Creek	1994	117,954	Lightning
Rock Jack	1996	117	Lightning
Dam	1996	4,112	Lightning
Granite Creek	1997	40	Arson
Sheep Peak	2000	197	Lightning
Ditch	2000	124	Lightning
Goodrich	2000	2,257	Lightning
		22,323	
		12	
		656	
Additional fires from the BLM Database without fire name or year. However, they do include location and extent and are mapped in the Appendix I.		7,874	
		270	
		27	<i>Unknown</i>
		2,257	
		348	
		9,280	
		637	

2.7 Analysis Tools and Techniques to Assess Fire Risk

Adams County and the adjacent counties comprising the West Central Highlands of 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 from the Landsat 7 ETM+ satellite. 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.

2.7.1 Fire Prone Landscapes

Schlosser *et al.* 2002, developed a methodology to assess the location of fire prone landscapes on forested and non-forested ecosystems in the western US. Working under an agreement with the Clearwater Resource Conservation and Development Council, Inc., (RC&D), Northwest Management, Inc., a natural resources consulting firm, completed a similar assessment for five counties in the north central Idaho area including Clearwater County, Idaho County, Latah County, Lewis County, and Nez Perce County. In a separate project, also funded by the Bureau of Land Management working in cooperation with the Elmore County, Ada County, Canyon County, and the Southwest Idaho RC&D, Northwest Management, Inc., completed a Fire Prone Landscapes assessments on those listed areas. This assessment of Fire Prone Landscapes was completed simultaneously for Adams County, Valley County, Washington County, Payette County, and Gem County, working in cooperation with the West Central Highlands RC&D located in Emmett.

The goal of developing the Fire Prone Landscapes analysis is to make inferences about the relative risk factors across large geographical regions (5 counties) for wildfire spread. This analysis uses the extent and occurrence of past fires as an indicator of characteristics for a specific area and their propensity to burn in the future. Concisely, if a certain combination of vegetation cover type, canopy closure, aspect, slope, stream and road density have burned with a high occurrence and frequently in the past, then it is reasonable to extrapolate that they will have the same tendency in the future, unless mitigation activities are conducted to reduce this potential.

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

Digital Elevation: Digital elevation models (DEM) for the project used USGS 10 meter DEM data provided at quarter-quadrangle extents. These were merged together to create a continuous elevation model of the analysis area. Elevations were reported in meters in the source files and converted to feet using the relationship of 1 Meter = 3.28084 Feet.

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

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

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

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

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

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

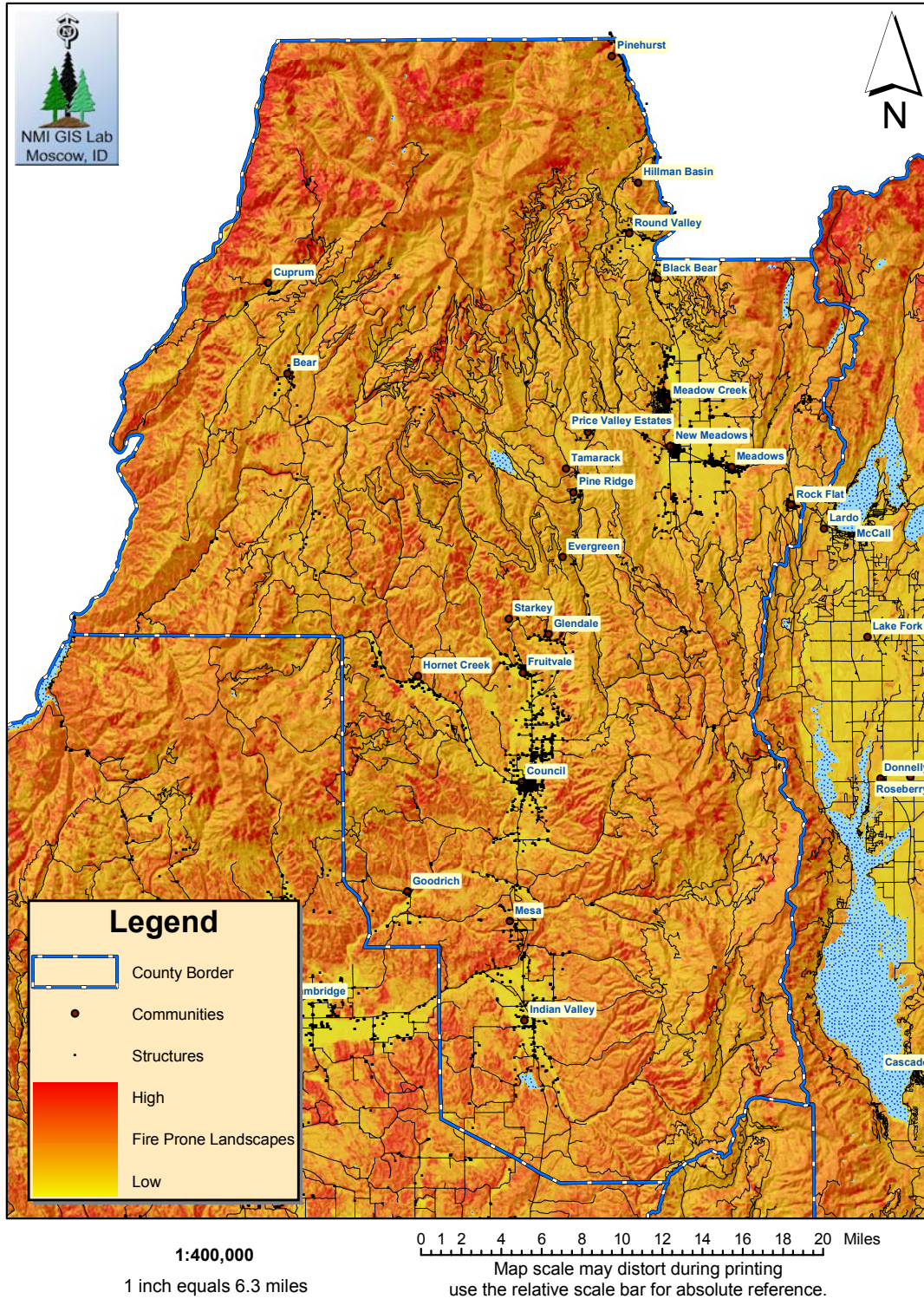
Wind Direction: Wind direction and speed data detailed by monthly averages was used in this project to better ascertain certain fire behavior characteristics common to large fire events. These data are spatially gridded Average Monthly Wind Directions in Idaho. The coverage was created from data summarized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

Past Fires: Past fire extents represent those locations on the landscape that have previously burned during a wildfire. Past fire extent maps were obtained from a variety of sources for the central Idaho area including the USFS Payette National Forest and the Lower Snake River B.L.M..

Fire Prone Landscapes: Using the methodology developed by Schlosser *et al.* (2002), and refined for this project, the factors detailed above were used to assess the potential for the landscape to burn during the fire season in the case of fire ignition. Specifically, the entire region was evaluated at a resolution of 10 meters (meaning each pixel on the map represented 10 square meters on the ground) to determine the propensity for a particular area (pixel) to burn in the case of a wildfire. The analysis involved creating a linear regression analysis within the GIS program structure to assign a value to each significant variable, pixel-by-pixel. The analysis ranked factors from 0 (little to no risk) to 100 (extremely high risk) based on past fire occurrence. In fact, the maximum rating score for rangelands was 88, while a few acres of forestland ranked as high as 100.

The maps depicting these risk categories display yellow as the lowest risk and red as the highest with values between a constant gradient from yellow to orange to red (Table 2.24). While large maps (12 square feet) have been provided as part of this analysis, smaller size maps are presented in Appendix I.

Fire Prone Landscapes in Adams County:



This map is presented for reference in this section of the plan. This map, and additional maps are detailed in Appendix I.

Table 2.24. Fire Prone Landscape rankings and associated acres in each category for the entire West Central Highlands Area.



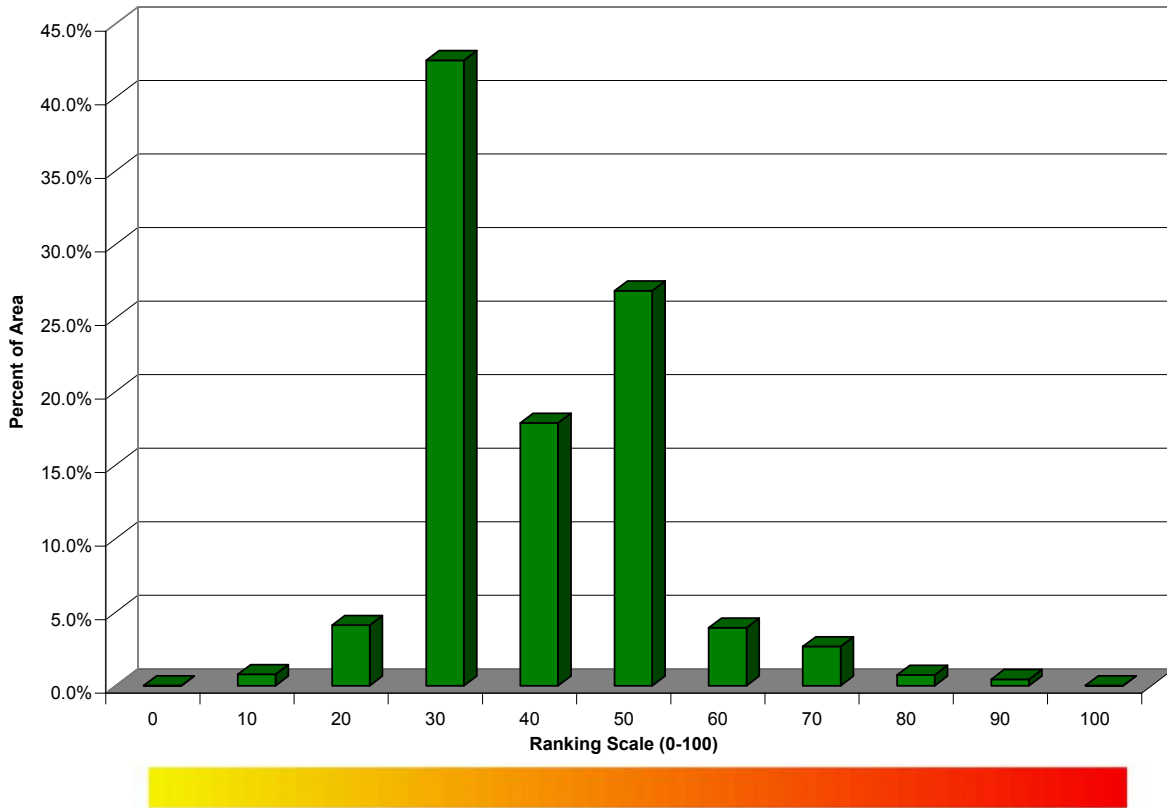
Color Code	Acres			Percent of Total Area	
	Value	Forestlands	Rangelands		
	0	23	4,026	4,049	0.1%
	10	49,207	76,978	126,186	2.6%
	20	131,378	97,229	228,607	4.7%
	30	974,129	121,784	1,095,913	22.7%
	40	976,803	138,115	1,114,918	23.1%
	50	699,750	829,636	1,529,387	31.7%
	60	138,152	210,525	348,677	7.2%
	70	151,801	90,535	242,336	5.0%
	80	117,034	2,218	119,251	2.5%
	90	19,067	-	19,067	0.4%
	100	-	-	-	-
Total			4,828,391		

Table 2.25. Fire Prone Landscape rankings and associated acres in each category for the Adams County.

Color Code	Acres			Percent of Total Area	
	Value	Forestlands	Rangelands		
	0	7	146	154	0.0%
	10	4,543	2,239	6,781	0.8%
	20	27,029	9,028	36,057	4.1%
	30	356,704	15,650	372,354	42.5%
	40	108,601	47,912	156,513	17.9%
	50	92,377	142,851	235,228	26.9%
	60	27,131	7,359	34,489	3.9%
	70	22,797	662	23,459	2.7%
	80	6,095	356	6,450	0.7%
	90	3,887	-	3,887	0.4%
	100	-	-	-	0.0%
Total			875,478		

Distribution of Fire Prone Landscapes by Ranking in Adams County



The risk category values developed in this analysis should be considered **ordinal data**, that is, while the values presented have a meaningful ranking, they neither have a true zero point nor scale between numbers. Rating in the “40” range is not necessarily twice as “risky” as rating in the “20” range. These category values also do not correspond to a rate of fire spread, a fuel loading indicator, or measurable potential fire intensity. Each of those scales is greatly influenced by weather, seasonal and daily variations in moisture (relative humidity), solar radiation, and other factors. The risk rating presented here serves to identify where certain constant variables are present, aiding in identifying where fires typically spread into the largest fires across the landscape.

2.7.2 Fire Regime and Condition Class

The US Forest Service, Payette National Forest has provided their assessment of Fire Regime Condition Class for the forested areas of Adams County to this WUI Fire Mitigation Plan analysis. These measures of forest conditions are the standard method of analysis for the USDA Forest Service.

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

Table 2.26. Fire Regime Condition Class Definitions.

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

An analysis of Fire Regime Condition Class in Adams County shows that approximately $\frac{2}{3}$ of the County is in Condition Class 2, just over $\frac{1}{4}$ is in Condition Class 1, with the remaining area in Condition Class 3 (Table 2.27).

Table 2.27. FRCC by area in Adams County.

Condition Class	Acres	Percent of Area
1	167,644	26%
2	423,361	66%
3	46,742	7%

See Appendix I for maps of Fire Regime and Conditions Class.

2.7.3 On-Site Evaluations

Fire control and evaluation specialists as well as hazard mitigation consultants evaluated the communities of Adams County to determine, first-hand, the extent of risk and characteristics of hazardous fuels in the Wildland-Urban Interface. The on-site evaluations have been summarized in written narratives and are accompanied by photographs taken during the site

visits (Chapter 3). In addition, field personnel completed FEMA's Fire Hazard Severity Forms and Fire Hazard Rating Criteria Worksheets (Appendix II). These worksheets and standardized rating criteria allow comparisons to be made between all of the counties in the country using the same benchmarks. The FEMA rating forms are summarized for each community in Appendix II.

2.8 Wildland-Urban Interface

2.8.1 People and Structures

A key component in meeting the underlying need is the protection and treatment of fire hazard in the wildland-urban interface. The wildland-urban interface refers to areas where wildland vegetation meets urban developments, or where forest fuels meet urban fuels (such as houses). These areas encompass not only the interface (areas immediately adjacent to urban development), but also the continuous slopes and fuels that lead directly to a risk to urban developments. Reducing the fire 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 fire danger by creating defensible areas around them and taking other measures to minimize the fire 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. 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 as cited in Norton 2002);
- improving defensible space in the immediate areas for suppression efforts in the event of wildland fire.

Four wildland/urban conditions have been identified for use in the wildland urban interface (Norton 2002). 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.

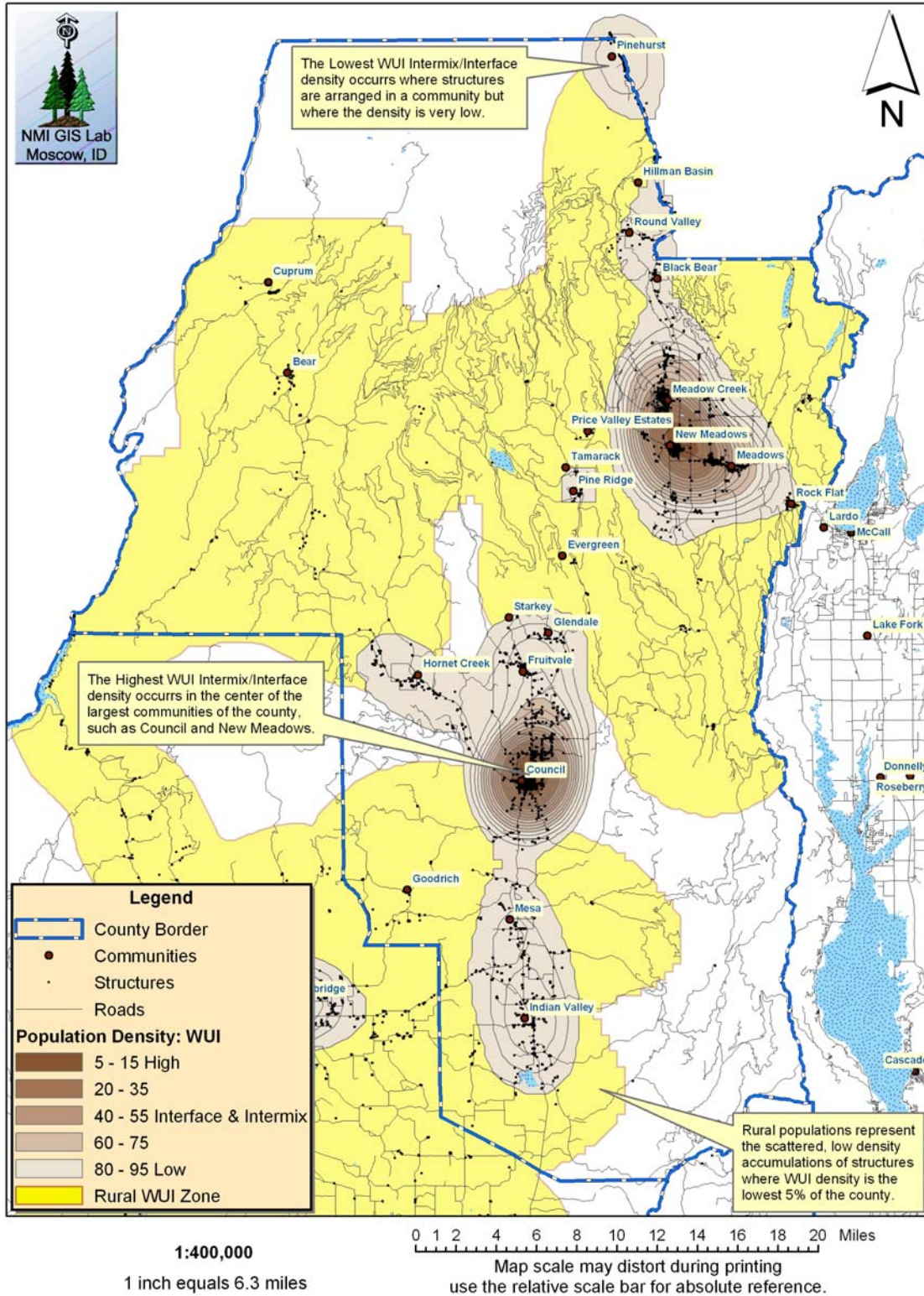
The location of structures in Adams County have been mapped and are presented on a variety of maps in this analysis document; specifically in Appendix I. The location of all structures was determined by examining two sets of remotely sensed images. The more detailed information was garnered from digital 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 wildfire 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 by Secretary Norton of the Department of Interior). 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.

It is critical to understand that in the protection of people, structures, infrastructure, and unique ecosystems, this portion of the analysis only serves to identify structures and by some extension the people that inhabit them. It does not define the location of infrastructure and unique ecosystems. Other analysis tools will be used for those items.

Wildland-Urban Interface in Adams County:



This map is presented for reference in this section of the plan. This map, and additional maps are detailed in Appendix I.

2.8.2 Infrastructure

Adams County has both significant infrastructure and unique ecosystems within its boundaries. Of note for this WUI Fire Mitigation Plan is the existence of the only state highway routes connecting north and south Idaho (US Highway 95 and 55), and the presence of high tension power lines supplying the communities of Adams and Valley Counties. These resources will be considered in the protection of infrastructural resources for Adams County and to the larger extent of this region, and the rest of Idaho.

2.8.3 Ecosystems

Adams 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 (USDA 1999). As a result, forests and rangelands in Adams 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 forests, has resulted in significant safety risks to firefighters and higher costs for fire suppression (House of Representatives, Committee on Agriculture, Washington, DC, 1997).

Changes in plant community composition and structure are most pronounced in the dry and semi-Mesic forest types. Here, open park-like stands of fire-adapted ponderosa pine, western larch, and Douglas-fir have been replaced through ecological succession with dense and decadent stands of fire intolerant species such as grand fir. These species are more susceptible to high intensity wildland fire. In some dry meadows and grassland habitats, a shift in fire regimes has resulted in changes in ecological succession patterns, such as accelerated encroachment of trees and shrubs. A shift in plant species composition, due to invasion and spread of invasive herbaceous species, has also influenced fire regime and frequency.

2.9 Soils

Detailed soil information has been provided by the USDA Natural Resources Conservation Service (NRCS) in the "Soil Survey of Adams-Washington Area, Idaho, Parts of Adams and Washington Counties". The following information is summarized from that document. For more detailed discussions on specific soil characteristics the Soil Survey should be consulted.

2.9.1 Physiography

The soil survey area conducted by the NRCS includes nearly level flood plains and very gently sloping to moderately sloping terraces along the rivers and larger streams. Adjacent to the flood plains are high terraces, some of which have been dissected to form rolling hills. A large part of the area consists of gently sloping to very steep basalt foothills and mountains. In the northern part are steep granitic mountains. Elevation ranges from 1,600 feet along the Snake River to about 6,000 feet in the mountains southeast of New Meadows. The Snake River flows north along the western edge of the area. The main drainageway is the Weiser River and its tributaries, which flow southwest into the Snake River at Weiser. The Little Salmon River flows north from the New Meadows area.

2.9.2 Soil Map Unit Descriptions

These Soil Map Unit Descriptions are mapped in Appendix I with labels corresponding to the following titles of each soil association. The ID numbers listed correspond with map unit ID numbers on the maps. Specific soil descriptions are included in the Soil Survey and incorporated by this reference.

2.9.3 Hydrophobic Characteristics

The soil resource is an extremely important resource for maintaining a healthy ecosystem. 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 rapidly was evaluated. In general, with notable exceptions, the majority of the area within Adams County has a clay content in the Bt horizon from 5 to 35 percent. Much of the area has little to no reported clay content in the A horizon with a medial silt loam to a gravelly medial silt loam present. On average these soils are well drained with moderate permeability.

Low to moderate intensity fires would be 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 Bt horizon substrate depth would have the potential to create hydrophobic characteristics in that layer. Rocky and gravelly characteristics in the A horizon layer would not be expected to be displaced greatly, however, the silty and loamy fines in these soils will have an erosion and displacement potential. These soils will experience the greatest potential impacts resulting from hot fires that burn for prolonged periods.

2.9.4 Fire Mitigation Practices to Maintain Soil Processes

Firelines constructed by hand or with the use of machinery will have varying impacts, depending upon construction techniques. If only the surface litter is removed in the fireline construction, minor increases to soil erosion may occur. If trenches are dug which channelize runoff down steep slopes, heavy rilling or gullying could occur depending upon rock content of surface layers exposed. Jackpot burning and, to a greater extent, pile burning could result in greater soil heating and localized impacts. Loss of soil carbon, nitrogen, sulphur, phosphorus, potassium, and soil organisms may be high in the soil surface layer. Soil physical structure could be altered thereby creating hydrophobic soils. Impact severity and duration depend upon the amount of slash accumulation in each pile, the number of piles, and the amount of soil mixing in burn piles.

Indirect effects of burning to slope stability are comparatively minor in the soil types found in Adams County. Tree structure, including root strength after surface fires, is maintained from three to fifteen years following the burn and therefore soil saturation potential is not greatly altered. For example, a slope stability analysis was conducted for the First Creek timber sale on the Salmon River in 1997. Slope stability was determined for the stream breaklands using the

Level 1 Slope Analysis (LISA) model (Hammond *et al.* 1992). The calculated probability for slope failure was determined for slopes ranging from 60 to 90 percent. The 10 percent probability threshold was utilized to delineate landslide prone areas. The landslide prone areas corresponded to 78 percent slopes and greater for the stream breaklands. Slumps and debris flows are the most common form of slope failure in the area (Thompson *et al.* 1973).

Cumulative effects on the soil resource include past effects from timber harvest, grazing, mining, and fire. Timber harvest has the potential to cause substantial soil damage due to the use of heavy equipment for harvesting, yarding, and site preparation. The damage mostly includes soil compaction and displacement of the organic rich surface soil layers. Where heavy grazing has occurred in the past, there is also a potential that soil productivity has been reduced. This is especially true in riparian areas where animal concentrations have historically been the greatest. Mining also has significant effects on soil quality through soil compaction and mass displacement.

Severe fires in the past have consumed surface organics and volatilized nitrogen into the air. On some sites, however, these severe burns are a natural process, and therefore the inherent soil productivity may not be reduced. On other sites, however, where low intensity underburns typically occurred, high intensity wildland fires have consumed amounts of soil organics in excess of the historic patterns. Furthermore, excessive soil heating in these intense fires likely resulted in creation of water repellent soils, and therefore increased overland flow and soil erosion. The slow recovery from soil damages make cumulative effects to soil productivity and soil hydrologic function a major concern.

To avoid potential impacts, wherever possible, firelines should be located outside of highly erosive areas, steep slopes, intermittent streams, and riparian and other sensitive areas. Following prescribed fire or fire suppression activities, firelines should be rehabilitated. Thinning activities involving heavy machinery can result in compaction of soils in localized areas of ingress and egress. The degree of soil compaction depends on the number of passes over a particular area as well as the type of vehicle. Idaho Forest Practices Act guidelines should be used when implementing treatments.

Prescribed fire (low to moderate intensity) should release nutrients into the soil and the fertilization effects of ash would provide an important source of nutrition for vegetation in the area. In addition to increasing nitrification of the soils and increasing minerals and salt amounts in the soil, the ash and charcoal residue resulting from incomplete combustion would aid in soil buildup and soil enrichment by being added as organic matter to the soil profile. The added material works in combination with dead and dying root systems to make the soil more porous, better able to retain water, and less compact while increasing needed sites and surface areas for essential microorganisms, mycorrhiza, and roots (Vogl 1979, Wright and Bailey 1980, Wright and Bailey 1982).

2.10 Hydrology

The Idaho Water Resource Board is charged with the development of the Idaho Comprehensive 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 (IDEQ 2003). The Idaho Department of Water Resources has prepared General Lithologies of the Major Ground Water Flow Systems in Idaho. The majority of Adams County has not been designated by the IWRB as a ground water system. However, the area beginning at the Adams County northern boundary and extending southward through the community of New Meadows (approximately 2.4 miles wide) has been designated as producing quaternary undifferentiated

sediments (Qs). A smaller area adjacent to this Qs designation has received the categorization of Tertiary Columbia River Basalts (Tcr) by the IWRB (Grahm and Campbell 1995).

The state may assign or designate beneficial uses for particular Idaho water bodies to support. These beneficial uses are identified in sections 3.35 and 100.01 - .05 of the Idaho water quality standards (WQS). These uses include:

- **Aquatic Life Support:** cold water biota, seasonal cold water biota, warm water biota, and salmonid spawning;
- **Contact Recreation:** primary (swimming) and secondary (boating);
- **Water Supply:** domestic, agricultural, and industrial; and
- **Wildlife Habitat and Aesthetics.**

While there may be competing beneficial uses in streams, federal law requires DEQ to protect the most sensitive of these beneficial uses (IDEQ 2003).

The geology and soils of this region lead to moderate moisture infiltration. Slopes are moderate to steep, however, headwater characteristics of this watershed 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 on stable soils. The bedrock is typically well fractured and moderately soft. This fracturing allows excessive soil moisture to rapidly 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) and wildland fire (especially hot fires that increase soil hydrophobic characteristics), can lead to increased surface runoff and debris flow to stream channels.

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

Timberlands in the region have been extensively harvested for the past four 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.

2.10.1 Fire Mitigation Practices to Maintain Hydrologic Processes

The effects of wildland fire and prescribed burning on water quality are variable. The removal of the vegetative canopy will tend to reduce transpiration and increase water yield, especially during the growing season and immediately afterwards (MacDonald *et al.* 1991). Prescribed burning is used to maintain a healthy, dynamic ecosystem while meeting land management objectives. Prescribed burning objectives include reduction of natural fuels, assuring current and future habitat conditions for native plants and animals, improvement of forest health, and enhancement, protection, and maintenance of old growth and riparian areas. The majority of the burned areas are expected to receive a low intensity ground fire with some areas of moderate intensity. This may include occasional torching of single trees or larger clumps or trees and consumption of some patches of regeneration. Impacts to soil and large woody debris are expected to be minimal.

A large, stand-replacing fire could have negative effects on watershed conditions, thus affecting both fish and habitat in streams. Treatment with low to moderate intensity fire would result in a mosaic pattern of burned and unburned areas of ground level vegetation. Some patches of shade-tolerant, fire intolerant species may also be consumed. Each treatment may leave a mosaic of burned and unburned areas.

The effects on sediment yield vary according to the intensity of fire; degree of soil disturbance; steepness of the slope and drainage network; the size of the area burned; and the extent to which the vegetation controls the movement and storage of sediment. Fire also has the potential to increase surface erosion and sediment delivery rates by removing the litter layer and organic debris that traps sediment both on slopes and in the stream channel (MacDonald *et al.* 1991). The magnitude of these effects will depend on the geomorphic sensitivity of the landscape, which is largely a function of slope steepness and parent material (Swanson 1978).

Fire may increase surface erosion by temporarily creating a hydrophobic soil layer. Some soils within the project area are generally at moderate risk for hydrophobic conditions due to their fine-grained textures and clay content. In addition, the relatively low burn intensity of the prescribed fires will also help prevent the formation of hydrophobic soils.

The effects of wildland fire or prescribed fire are generally considered in terms of potential short-term, negative effects and long-term benefits of fuels reduction, which will result in a decreased risk of high intensity, stand-replacing fire. Potential short-term effects to streams and fish include increased risk of landslides, mass movement and debris torrents, increases in surface sediment erosion, possible reduction in streamside vegetation resulting in changes within management areas, and possible increases in water yield depending on the amount and severity of the vegetation burned. Long-term effects include increases in nutrient delivery, possible increases in woody debris in streams, and possible increases in stream temperature if shading is significantly reduced.

Riparian buffer strips should be maintained, thereby preserving canopy cover for shading, sediment filtering, and streambank and floodplain stability. Areas not burned will provide significant protection from adverse water quality impacts associated with wildland fire and prescribed burning. Therefore, effects to fish and habitat in these streams from increased water yield and sediment yield are unlikely. Forest practices in the area will be conducted to meet the standards of the Idaho Forest Practices Act and the Payette NF Forest Plan. These rules are designed to use best management practices that are adapted to and take account of the specific factors influencing water quality, water quality objectives, on-site conditions, and other factors applicable to the site where a forest practice occurs.

2.11 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).

Smoke emissions from fires potentially affect an area and the airsheds that surround it. Climatic conditions affecting air quality in the West Central Highlands of Idaho 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. In Adams County, winds are generally from a southwesterly direction throughout the year. Air quality in the area and surrounding airshed 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.

Adams County is in the North Idaho Airshed Units 14 & 15: Montana/Idaho Airshed Group Operating Guide (Levinson 2002). An airshed is a geographical area which is characterized by similar topography and weather patterns (or in which atmospheric characteristics are similar, e.g., mixing height and transport winds). The USDA Forest Service, Bureau of Land Management, and the Idaho Department of Lands are all members of the Montana/Idaho State Airshed Group, which is responsible for coordinating burning activities to minimize or prevent impacts from smoke emissions. Prescribed burning must be coordinated through the Missoula Monitoring Unit, which coordinates burn information, provides smoke forecasting, and establishes air quality restrictions for the Montana/Idaho Airshed Group. The Monitoring Unit issues daily decisions which may restrict burning when atmospheric conditions are not conducive to good smoke dispersion. Burning restrictions are issued for airsheds, impact zones, and specific projects. The monitoring unit is active March through November. Each Airshed Group member is also responsible for smoke management all year.

The Clean Air Act, passed in 1963 and amended in 1977, is the primary legal authority governing air resource management. The act established a process for designation of Class I and Class II areas for air quality management. Class I areas receive the highest level of protection and numerical thresholds for pollutants are most restrictive for this Class.

Some of the Class I airsheds in the immediate area include:

- **Hell's Canyon Wilderness Area:** A sensitive Class I airshed is the Hell's Canyon Wilderness Area (86,116 acres), which is managed for high scenic and recreation values.
- **Selway-Bitterroot Wilderness:** Another Class I Airshed nearby is the Selway-Bitterroot Wilderness (1.1 million acres). The Selway-Bitterroot Wilderness is directly in the path of the prevailing winds crossing over Adams County.

All of the communities within Adams County could be affected by smoke or regional haze from burning activities in the region. Idaho Department of Environmental Quality maintains Air Pollution Monitoring Sites throughout Idaho. The Air Pollution Monitoring program monitors all of the six criteria pollutants. Measurements are taken to assess areas where there may be a problem, and to monitor areas that already have problems. The goal of this program is to control areas where problems exist and to try to keep other areas from becoming problem air pollution areas (Louks 2001).

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).

Air quality measurement stations juxtaposed near Adams County include McCall, Grangeville, Sawtooth Wilderness Station, Garden Valley, and Salmon.

2.11.1 Fire Mitigation Practices to Maintain Air Quality

Vehicle use associated with thinning operations can increase fugitive dust levels on the access roads. To mitigate for any potential increase in dust a variety of recommendations may be

implemented including limiting vehicle speed on dirt and gravel roads, watering travel surfaces, or other methods deemed adequate and appropriate on a case-by-case basis.

Smoke consists of dispersed airborne solids and liquid particles, called particulates, which can remain suspended in the atmosphere for a few days to several months. Particulates can reduce visibility and contribute to respiratory problems. Very small particulates can travel great distances and add to regional haze problems. Regional haze can sometimes result from multiple burn days and/or multiple owners burning within an airshed over too short a period of time to allow for dispersion.

For prescribed fires, there are three principle strategies to manage smoke and reduce air quality effects. They include:

1. **Avoidance** - This strategy relies on monitoring meteorological conditions when scheduling prescribed fires to prevent smoke from drifting into sensitive receptors, or suspending burning until favorable weather (wind) conditions exist. Sensitive receptors can be human-related (e.g. campgrounds, schools, churches, and retirement homes) or wildlife-related (threatened and endangered species and their critical habitats);
2. **Dilution** – This strategy ensures proper smoke dispersion in smoke sensitive areas by controlling the rate of smoke emissions or scheduling prescribed fires when weather systems are unstable, not under conditions when a stable high-pressure area is forming with an associated subsidence inversion. An inversion would trap smoke near the ground; and
3. **Emission Reduction** – This strategy utilizes techniques to minimize the smoke output per unit area treated. Smoke emission is affected by the number of acres burned at one time, pre-burn fuel loadings, fuel consumption, and the emission factor. Reducing the number of acres burned at one time would reduce the amount of emissions generated by that burn. Reducing the fuel beforehand reduces the amount of fuel available. Prescribed burning when fuel moistures are high can reduce fuel consumption. Emission factors can be reduced by pile burning or by using certain firing techniques such as mass ignition.

If weather conditions changed unexpectedly during a prescribed burn, and there was a potential for violating air quality standards or for adverse smoke impacts on sensitive receptors (schools, churches, hospitals, retirement homes, campgrounds, wilderness areas, and species of threatened or endangered wildlife), the management organization may implement a contingency plan, including the option for immediate suppression. Considering 1) the proposed action would result in prescribed fire on a relatively small number of acres, 2) burning as part of this mitigation plan's implementation in the County will most likely occur over a 5-year or 10-year period at a minimum, and 3) the County will adhere to Montana/Idaho Airshed Group advisories and management strategies to minimize smoke emissions, prescribed fire activities would not violate national or state emission standards and would cause very minor and temporary air quality impacts. The greatest threat to air quality would be smoke impacts on sensitive receptors, however, the scarcity of sensitive receptors within the County minimizes this potential air quality impact.

In studies conducted through the Interior Columbia Basin Management Project, smoke emissions were simulated across the Basin to assess relative differences among historical, current, and future management scenarios. In assessing the whole Upper Columbia Basin, there was a 43 percent reduction in smoke emissions between the historical and current periods (Quigley and Arbelbide 1997). The projected smoke emissions varied substantially with the vastly different management scenarios. The consumptive demand and passive management

scenarios were projected to substantially increase smoke emissions above current levels. The active management scenarios were projected to result in a decrease of current levels.

Although prescribed fire smoke may occur more frequently than wildland fire smoke, since prescribed fires are scheduled during the year, the effects of wildland fire smoke on visibility are more acute. Prescribed fires produce less smoke than wildland fires for comparatively shorter periods, because they are conducted under weather conditions that provide for better smoke dispersion. In a study conducted by Holsapple and Snell (1996), wildland fire and prescribed fire scenarios for the Columbia Basin were modeled. In conclusion, the prescribed fire scenarios did not exceed the EPA particulate matter (PM 10) standard in a 24-hour period. Similar projections were observed for a PM 2.5 threshold. Conversely, all wildland fire scenarios exceeded air quality standards. Similar responses were reported by Huff *et al.* (1995) and Ottmar *et al.* (1996) when they compared the effects of wildland fire to prescribed fire on air quality. The impacts of wildland fire and management ignited prescribed fire on air quality vary because of the differences in distribution of acres burned, the amount of fuel consumed per acre (due to fuel moisture differences), and the weather conditions in which typical spring and fall prescribed burns occur. This analysis reveals wildland fire impacts on air quality may be significantly greater in magnitude than emissions from prescribed burns. This may be attributable, in part, to the fact that several states within the project area have smoke management plans requiring favorable weather conditions for smoke dispersion prior to igniting wildland fires (Quigley and Arbelbide 1997).

Chapter 3: Summaries of Risk and Preparedness

3 Overview

3.1 *Wildland Fire Characteristics*

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

3.1.1 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.

3.1.2 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.

3.1.3 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 home sites 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, the some of the principles that govern fire behavior have been identified and are recognized.

3.2 Adams County Conditions

Vegetative structure and composition within Adams County is closely related to elevation, aspect and precipitation. Warm and dry environments characterize the flat, low elevations. These conditions limit the establishment of woody tree species, allowing for the dominance of sage and bunchgrass communities. These vegetative communities contain lower fuel accumulations that burn rapidly at relatively low intensities. These fuel types are common in southern Adams County, as well as in portions of the low lands of the Meadows Valley (upper reaches of the Little Salmon River).

At higher elevations and in the river canyons of the Weiser and Little Salmon River, moisture becomes less limiting due to a combination of higher precipitation and reduced solar radiation. Vegetative patterns begin to show a shift toward forested communities dominated by ponderosa pine and Douglas-fir at the lower elevations, transitioning to lodgepole pine and subalpine species at the highest elevations. The 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 grass and shrub lands, 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.

Between the shrub and grass communities and the forested lands is a transitional area that has components of both vegetative communities. These warm and dry forests have an abundance of highly flammable vegetation and open stand conditions. These attributes allow for rapid fire spread through the surface fuels, with fuel concentrations resulting in dramatic increases in

intensity. These areas are valued for their scenic qualities as well as for their proximity to travel corridors. These attributes have led to increased subdivision and home construction in these areas. 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.

3.3 Adams County's Wildland-Urban Interface

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

- Bear
- Black Bear²
- Council¹
- Cuprum¹
- Evergreen¹
- Fruitvale
- Glendale
- Goodrich
- Goose Creek Subdivision
- Hillman Basin (Boulder Creek Woods)
- Hornet Creek
- Indian Valley¹
- Meadow Creek¹, Highland above Meadow Creek², Little Salmon Estates², Granite View²
- Meadows¹
- Mesa¹
- New Meadows¹
- Pine Ridge
- Pinehurst¹
- Price Valley Estates & Price Valley Subdivision
- Rock Flat
- Round Valley²
- Starkey¹
- Tamarack¹
- Whitney Ranch Subdivision

¹Those communities with a "1" following the name 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.

²Communities with a "2" following the name were also referenced during evaluations for this plan in subsequent sections.

3.3.1 Council

3.3.1.1 Fuels Assessment

Many of the residents in the area of Council are concentrated near the city; however, larger landowners are scattered across the Weiser River valley, particularly to the north and south along U.S. Highway 95. Much of the area has been developed for agricultural purposes; primarily hay, and pastureland. The Weiser River, flowing west of town, continues its path towards Cambridge to the south. A smaller drainage, Hornet Creek, enters the valley from the west, but only fields adjacent to these waterways have established irrigation. This type of land use significantly reduces the risk of wildfire by controlling the herbaceous vegetation.



The community of Council is located in the Weiser River valley along U.S. Highway 95. The regions north and south of town are fairly flat. There are several hay fields, but much of the area is vegetated by pasture, low-growing grasses, and patches of sagebrush. A steep, west-facing slope rises from town to the east. The lower slopes are dominated by grasses, sagebrush, and various other shrub species, but as the elevation increases, clumps of timber become more frequent in the draws. Several homes have been established on the lower slope of this range and more are currently being built. Two ranges shape the topography west and southwest of town. The smaller ridge runs north and south along the Weiser River tapering down as it nears the community. It is a dry, east aspect dominated by heavy sagebrush and grasses. The mountains on the western boundary are part of the Cuddy Mountain Range on the Payette



National Forest. This area is vegetated by ponderosa pine and Douglas-fir with intermixed grasses, sagebrush, and other shrubs. Portions of this region have been managed for the timber resource or developed for recreational purposes. There are several homes along the Hornet Creek Road, which travels over the range to the communities of Cuprum and Bear. The fire risk in the Cuddy Mountain Range is primarily moderate to high increasing further west as the amount of timber and other fuels accumulate. Fuel model 2 is most common within 3 miles of the community,

but fuel model 1 also occurs. These fuel types tend to support lower intensity surface fires. The greatest risk for rapid rate of fire spread is associated with the hot, dry slopes, especially in the mountains to the west.

The primary access into the area is from U.S. Highway 95, a paved two-lane highway that extends to the north and south (the primary state-wide link between north and south Idaho). The Hornet Creek Road could also serve as an escape route; however, it is more likely that a wildfire would occur along this corridor than to the east of the community. There are several additional escape routes using roads leading away from the community to the north and south. Most of

these roads are located in areas with little risk due to the agricultural land use. Some signing of these roads as alternate escape routes would help visitors in the area.

3.3.1.2 Community Risk Assessment

There are approximately 800 structures within 5 miles of Council's city center. Structural fire protection in the Council area is provided by the Council Volunteer Fire Department. The primary threat to the community is the higher risk range lands to the west. Annual burning of crop fields increases the risk of an escaping agricultural fire spreading into the mountains, although this occurrence is historically low. The prevailing winds in this area would most likely travel from the valley, up the canyons driving a fire westward. Wildfire in this area has the potential to threaten lives and structures trapped in the creek bottom and along the road.

3.3.1.3 Potential Mitigation Activities



Many homes in this area have been constructed with building materials unfavorable for protecting them against wildfire. Cedar shake roofs and wood siding, while not common, are still found within the wildland-urban interface. Individual home site evaluations can increase homeowners' awareness and when improvements are recommended and carried out, could improve the survivability of structures in the event of a wildfire. Current management of the vegetation surrounding most 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. On the Hornet Creek Road, in particular, there were homeowners who could increase their safety by following a program for developing and maintaining a defensible space, limbing trees, and disposing of ladder fuels. Educating the homeowners in techniques for protecting their structures is critical in these hot, dry environments.

Council	
Item	Score
FEMA: Overall wildfire hazard rating score	Low Hazard
FEMA: Potential fire hazard severity	Moderate Hazard
Fire Prone Landscapes: average score	45
Average slope of community and surrounding area:	55%
Land cover type:	Rangeland

This information is summarized in Appendix II

3.3.2 Mesa & Indian Valley

3.3.2.1 Fuels Assessment



The Mesa and Indian Valley area is a rangeland ecosystem currently managed as pasture land, and agriculture fields. A significant amount of this area is currently being managed in the conservation reserve program and supporting grassland plant communities with small and scattered amounts of sagebrush, rabbit brush and mountain mahogany. Fuel models in this area are typically 1 and 2, where fires are carried in the light herbaceous layer, typically as a flashy fire that can burn rapidly across the terrain, but generally with lower

intensities. Winds serve to drive fires in this undulating topography. Higher intensity fires can occur where sagebrush species and mahogany are denser and older. The spread of range fires to the forestland interface are common.

Homes in this area are generally in the rural WUI condition. Scattered ranches and individual homes are surrounded by the rangeland fuels. In these areas the most critical two factors leading to a home being protected during a wildland fire include 1) a fuels break of 150 feet or more, and 2) adequate access for firefighting equipment.

3.3.2.2 Community Risk Assessment

While forestland fuels abut the rangeland fuels, the overwhelming majority of the human habitations in this area are in the rangeland fuel types. Most of the homes and barns are surrounded by a green zone of watered and trimmed grasses. While trees are common in these areas, most are for windbreaks and include a variety of hardwood species, especially poplars. Very little wildland fire risk is afforded by the inclusion of these tree species in the WUI area.



Ben Ross Reservoir is located a couple miles south of the community of Indian Valley. This body of water is an important resource for firefighting agencies to use in the event of a wildfire as a water pickup location for aerial attack. The existence of this body of water also serves to provide water for the surrounding regions where wildland fires might pose a threat.

There are just over 300 structures within 4 miles of Mesa and Indian Valley communities. Rural fire protection in this area is provided by the Indian Valley Volunteer Fire Department.



3.3.2.3 Potential Mitigation Activities

Mitigation activities in this area will focus on maintaining current home site practices of keeping green grass, trees, and shrubs for the entire summer and fall time seasons around all home and farm buildings. Deciduous trees used for wind breaks do not seem to increase the wildfire risk potential to homes and other structures. Most of the homes in this area are adequately protected.

Cattle grazing in scattered fields throughout the valley provide a logical fuels break in many fields. Although grass density and height are not greatly affected by grazing the presence of these bovine serve to keep grasses trimmed and managed, reducing the potential for a large rangeland fire. Although the potential still exists, the livestock grazing in this zone is a positive mitigating factor to wildland fire spread.



Much of the Conservation Reserve Program (CRP) lands in the valley has been in the program for several years. Sagebrush and rabbit brush species are showing up in clumps in these fields. Since this land is neither harvested nor grazed, the accumulations of fuels has risen to levels above the managed agriculture land in the area. As this situation

continues, the need to mitigate for potential rangeland fires will increase. One method of mitigating for the risk of fire spreading from the CRP fields to adjoining fields is to maintain a plowed line of barren soil next to the CRP lands, and to keep the fuels in the roadside ditch lines trimmed or prescribed burned.

Indian Valley	
Item	Score
FEMA: Overall wildfire hazard rating score	Low Hazard
FEMA: Potential fire hazard severity	Moderate Hazard
Fire Prone Landscapes: average score	44
Average slope of community and surrounding area:	26%
Land cover type:	Rangeland

Mesa	
Item	Score
FEMA: Overall wildfire hazard rating score	Low Hazard
FEMA: Potential fire hazard severity	Moderate Hazard
Fire Prone Landscapes: average score	53
Average slope of community and surrounding area:	48%
Land cover type:	Rangeland

This information is summarized in Appendix II

3.3.3 Cuprum

3.3.3.1 Fuels Assessment



Fuel models 1, 2, 8, 9, and 10 are common within 3 miles of Cuprum. Fires in these fuel types tend to burn at a high intensity with the potential for spotting. This community is in an area with steep slopes and dense forests with scattered pockets of rangelands. The vegetation is consistent with ponderosa pine/mallow ninebark and Douglas-fir/mallow ninebark habitat types. Grazing does occur in many areas near the community with cattle and horses being the most common livestock.

Most of the livestock grazing is under a rotational type grazing system which tends to control some of the understory vegetation. The overall risk to the community is high with most homes at risk from loss due to wildfires.

Cuprum is located 35 miles northwest of Council, Idaho. Access to and from the community is on a narrow winding and partially paved road (Council to Bear) and gravel road (Bear to Cuprum). The road gets narrow and steeper as you approach the community. There are several possible escape routes which will be threatened during a wildfire. The greatest threat to lives in this area is associated with inadequate driveways and the potential loss of alternate escape routes. There are scattered homes located along this road from Council to Cuprum and throughout the surrounding areas. Many of these homes are at risk due to the vegetation and topography.



3.3.3.2 Community Risk Assessment



The nearly 25 structures within 3 miles of Cuprum do not have structural fire protection. This can result in structural fire spreading into the wildlands. During the summer, the USFS stations a 5 person hand-crew in Bear. After that, the closest wildland fire protection is stationed in Council, Idaho. Aerial attack is located at Price Valley and would most likely be first on the scene. The core area of Cuprum and the surrounding area are at high risk from wildfire, as most of the homes are located in the wildland urban interface. A major concern in Cuprum is the road system into

and out of the area. Most of the roads are at high risk from wildfire which can lead to the entrapment of the residences. Most areas have dense vegetation growing right up to the road edge. This condition, combined with the steep topography, puts these roads at risk of burnovers. The vegetation around the roads and structures in Cuprum is primarily timber and dense forest shrubs.

Forest Health issues add to the problems found in and around Cuprum. Several areas observed showed signs of active Douglas-fir bark beetles. Additionally, root rot does appear to be an issue in the area. Both problems provide additional potential fuel and in some cases increase the risk of a surface fire becoming a crown fire. Treatment of highly infected areas should be a priority in the Cuprum area.



3.3.3.3 Potential Mitigation Activities

Observation of home characteristics provides insight into the community awareness of the wildfire issues. Many homes in the Cuprum area have been built in the wildland-urban interface. These homes are often overtopped by trees or are built in the middle of dense forest stands. Due to the nature of these characteristics the homes can not be considered defensible. Much work is necessary to create defensible space in and around these homes. Cedar shake roofs, while not common, are still found in this wildland-urban interface. Educating homeowners about the risk associated with these types of building materials would be beneficial in the area. Individual home assessments can provide the necessary information for the homeowners. Aggressive management of the vegetation within 250 feet of these homes will improve the potential survivability of the homes. There are many areas where homeowners could increase their safety by following a program of developing and maintaining defensible space through limbing, pruning, creating a healthy forest environment by treating insect and disease problems and disposing of ladder fuels.

Beyond the immediate vicinity of the homes, forest management activities can be implemented that will reduce the potential for a wildfire to threaten this community. These activities would improve forest health, reduce the fuel accumulations in and around access and homes, and modify stand structure to increase defensibility in the case of a wildfire. This may include the reintroduction of fire (prescribed), the harvest of trees, and other treatments. The areas to target would include those Condition Class II and III areas, and where the fire prone landscapes assessment indicate the most fire prone areas.



One major concern for the Cuprum area is the integrity of the escape routes. Dense vegetation is growing immediately adjacent to the roads that provide ingress and egress to Cuprum. In order to reduce the risk to the people living in this area the safety of these roads must be addressed. Where roads are narrow and steep turnouts should be installed. Vegetation should be treated on the downhill side of the road for a distance of 250 feet, with special attention paid to pruning trees to a minimum height of 17 feet. Escape routes need to be clearly marked and well maintained. In addition to improving the escape routes, a safety zone should be established and maintained for any residences that may not have the opportunity to escape a wildfire.





Cuprum	
Item	Score
FEMA: Overall wildfire hazard rating score	High Hazard
FEMA: Potential fire hazard severity	Extreme Hazard
Fire Prone Landscapes: average score	66
Average slope of community and surrounding area:	133%
Land cover type:	Forestland

This information is summarized in Appendix II

3.3.4 Pinehurst to Black Bear Subdivision; Along Highway 95

3.3.4.1 Fuels Assessment

This area, following the Highway 95 corridor, is a steep, forested canyon, with slopes ranging from 40 to 100%. Both the east and west-facing slopes are a mix of upland grasslands, mesic shrublands, and warm forests with ponderosa pine, Douglas-fir, and western larch. The overstory is comprised by a mix of ponderosa pine and Douglas-fir, with the abundance of Douglas-fir increasing on the cooler, moister east faces of the canyon. Understory vegetation follows the moisture gradient from dry grassland species to mesic shrub communities with mountain maple, ninebark, and serviceberry common.



A mix of fuel models 1, 2, 5 and 9 can be found in this area. Wildland fire events in these fuel types generally burn through the dead and cured herbaceous layer or surface needle litter. Concentrations of dead stemwood and other clumps of fuel may generate higher intensities that lead to the production of fire brands and lead to individual and groups of trees torching, and in some severe weather instances lead to the development of crown fires (Anderson 1982). However, the steep canyon walls in this area dramatically increase effective flame lengths, causing preheating of both surface and aerial fuels, increasing both the rate of spread and the potential for the fire to reach the crowns.



The majority of homes in this area are concentrated along the bottom of the canyon. Fires starting in this area are expected to spread upslope and away from homes and structures. The greatest threat to many of these homes is likely to come from rolling debris loosened by fire on the slopes above the valley. In addition, fire spotting from the canyon hill slopes and ridge tops into this zone is a potential, especially if fires are accompanied by high winds. Although it is difficult to mitigate specifically for these hazards, reduction of the fuels around the communities and individual home sites will

reduce the threat from these instances.

There are approximately 200 structures in this area. Meadows Valley Rural Fire District provide protection as far north as the community of Black Bear, but those in Round Valley are not protected. The Salmon River Rural Fire District provides protection in Idaho County and for the Adams County residents near Pinehurst.

Along the Little Salmon River corridor adjacent to Highway 95, treatment opportunities are likely to be limited due to the steepness of the canyon and the inaccessibility of much of the area beyond home sites. Any harvest activities may require the use of skyline or helicopter yarding systems. Prescribed fire opportunities may also be limited. Specific management actions will need to be evaluated on a case-by-case basis.

3.3.4.2 Community Risk Assessment

Home defensibility in these vegetative types can generally be achieved by managing the grass and shrub vegetation in the immediate vicinity of the home. The best measures for home defensibility in these fuel types is to clear the native fine herbaceous fuels in the vicinity of the home, approximately 250 feet from any combustible structures or propane tanks. In cases where native vegetation has not been replaced by cultivated green grass, native grasses should be periodically cut to ground level, and clippings discarded away from the home site.



Grazing of domestic livestock in this zone will serve to keep much of these fuels under control, as they currently do in the areas surrounding these communities. Year round grazing systems of equine, bovine, or ovine will serve to keep fuels trimmed in the areas extending well beyond the immediate structures in this area.

3.3.4.3 Potential Mitigation Activities

Vegetation in this area should be managed to increase the effectiveness of fire suppression equipment in the event of a wildland fire. Plantings near homes should use low flammability vegetation and be well spaced. Green grass, trimmed periodically should be maintained. Other possible management actions include:

- Remove weak, dying, and sick trees,
- Thin standing trees to create crown openings spaced to approximately 20% of live tree height (e.g., a 60 foot tree would be spaced to 12 feet between crowns, a 100 foot tree to 20 feet between crowns),
- Prune trees to a minimum of 17 feet of all branches (or up to 50% of live crown which ever is less),
- Prune smaller trees to at least 6 feet above the ground or half the crown height,
- Remove ladder fuels that may carry fire into the crowns of larger, overstory trees,
- Dispose of all excess vegetative material by chipping or hand-piling and burning when conditions are favorable.

Access roads in these areas require additional treatments to insure a viable escape route for residents while simultaneously providing for access by emergency vehicles. The majority of the homes in the wildland-urban interface (situated within the range and forest lands) have multiple entrances and exits from their homes and businesses. The vegetation surrounding these access points however, should be trimmed and disposed of in such a way to allow easy access to and from homes. Improved addressing and address markers on the road would increase emergency response to many of the homes in this area. Site specific treatments should be developed for each home.

3.3.5 Round Valley - South to New Meadows Area

3.3.5.1 Fuels Assessment



The area south of Round Valley and Smokey Boulder Road, extending slightly south of New Meadows was considered together. Moisture is more available in this area, supporting a warm mesic forest type in which ponderosa pine and Douglas-fir are the major tree species. Farm fields and

grazing land are common, especially at the bottom of the valley. Many homes are located in the forests, near these fields. Stand structure and canopy closure is highly dependent on fire frequency and severity. Historically, forest vegetation was relatively open with widely spaced trees and a few young trees in the understory. Fire exclusion has resulted in more dense stand conditions (USDA 1999). These forest types are highly valued for their scenic and recreation values. Because of their valley bottom location and ease of access, these forests have been a favored area for urban development (Scott 1998).

Forest fuel models 1, 2 and 9 characterize these forested areas. Understory vegetation includes dry grasses, mountain maple, spirea, ninebark, pinegrass, and scattered clumps of sage. Historically, wildland fire events would burn through the dead and cured herbaceous layer or surface needle litter. Concentrations of dead stemwood and other clumps of fuel may generate higher intensities that may lead to the production of fire brands and lead to individual and group tree torching, and in some severe weather instances, crown fires (Anderson 1982). In much of this forest type, fire exclusion and other disruptions of the natural fire cycle have led to the development of dense understories of Douglas-fir or grand fir and the accumulation of dead and downed woody material. These changes increase the probability for the development of crown fires by increasing the intensity by which these fires typically burn, and by providing a fuel ladder to the canopy.



3.3.5.2 Community Risk Assessment

Home defensibility in these vegetative types can generally be achieved by managing the grass and shrub vegetation in the immediate vicinity of the home. The best measures for home defensibility in these fuel types is to clear the native fine herbaceous fuels in the vicinity of the home, approximately 250 feet from any combustible structures or propane tanks. In cases where native vegetation has not been replaced by cultivated green grass, native grasses should be periodically cut to ground level, and clippings discarded away from the home site.



Grazing of domestic livestock in this zone will serve to keep much of these fuels under control, as they currently do in the areas surrounding these communities. Year round grazing systems of equine, bovine, or ovine will serve to keep fuels trimmed in the areas extending well beyond the immediate structures in this area.

The relatively new subdivisions and surrounding areas represents the highest concentration of homes within the forested environment in the area. The most noticeable of these housing projects includes Meadow Creek, the Highland above Meadow Creek, Little Salmon Estates, and Granite View subdivision. There are hundreds of structures in these subdivisions, with new housing starts expected in the future. Many of the forest fuels have been removed by means of timber harvest and follow-up treatments to treat and reduce the fire hazard from post-harvest slash. Tree crown height above ground on the majority of trees in the area are quite high, thanks to localized pruning efforts.



While some of the homes in and around these subdivisions already have adequate defensible space surrounding the primary structures, with green lawns or other low-combustion landscaping, other structures have trees adjacent to the structures, shingle roof material with needles, cones, and branches accumulated on them, wooden decks with shrubs and small trees growing under them, and even wooden siding adjacent to highly flammable fuels. On the other hand, there are fire hydrants scattered around and throughout the area. Treatments around these homes should be prioritized ahead of creating a more

fire-smart landscape. It should be noted that these treatments will not only reduce the potential of a wildfire crossing from the wildland to the structures, but it will aid in reducing the potential of a home fire spreading to the surrounding vegetation and then back to other structures nearby.



Meadow Creek was developed over twenty years ago. At that time, it was an upscale development that recognized the risk from fire and living in the wildlands. Trees were thinned, road systems designed, and fire protection amenities installed. Since that time, the vegetation has changed and again homes are a threat from wildfire.

Meadow Creek sub-division applied for and received a federal (Hazard Fuel Treatment/HFT) grant in 2002. The objective was to remove hazardous fuels on 400 acres surrounding 200 plus homes and other improvements. This included removal of dead bush and trees, thinning and pruning of overstory and understory vegetation, as well as treatment of defensible space around homes. Many homes in the area are valued from \$150,000 to \$2,000,000.

A local logging contractor was hired to do the mitigation work. They did a professional job in all aspects. Since a golf course and sensitive grounds were involved, some of the area was logged in the winter to protect the ground from disturbance.

The end product of this venture is a model for Adams County as well as all of Idaho and any wildland urban interface (WUI) in the nation to follow for the reduction of fuels and risk to homeowners from loss to wildfire. Since the entire project could not be finished with existing grants or matching money/contributions from the landowners, Meadow Creek again applied for and received a federal grant to finish the remaining portion of the work in 2004.

Through cooperation with adjacent landowners (primarily Boise Cascade Corp.), several hundred additional acres on the south and west side of the sub-division was also treated by timber harvest and thinning to reduce the risk of fire encroachment. This is an excellent example of collaborative efforts by landowners toward meeting a common problem in the WUI.

3.3.5.3 Potential Mitigation Activities

Vegetation in this area should be managed to increase the effectiveness of fire suppression equipment in the event of a wildland fire. Plantings near homes should use low flammability vegetation and be well spaced. Green grass, trimmed periodically should be maintained. Other possible management actions include:

- Remove weak, dying, and sick trees,
- Thin standing trees to create crown openings spaced to approximately 20% of live tree height (e.g., a 60 foot tree would be spaced to 12 feet between crowns, a 100 foot tree to 20 feet between crowns),
- Prune trees to a minimum of 17 feet of all branches (or up to 50% of live crown which ever is less),
- Prune smaller trees to at least 6 feet above the ground or half the crown height,
- Remove ladder fuels that may carry fire into the crowns of larger, overstory trees,
- Dispose of all excess vegetative material by chipping or hand-piling and burning when conditions are favorable.

Access roads in these areas require additional treatments to insure a viable escape route for residents while simultaneously providing for access by emergency vehicles. The majority of the homes in the wildland-urban interface (situated within the range and forest lands) have multiple entrances and exits from their homes and businesses. The vegetation surrounding these access points however, should be trimmed and disposed of in such a way to allow easy access to and from homes. Site specific treatments should be developed for each home.

In addition, some of the housing developments in this area have access roads that cannot support water trucks used by fire fighters (rural and wildland). Some roads have steep adverse grades, while others have turning radiuses that would be difficult for large trucks to navigate. Some roads have both limitations. The vast majority of the bridges observed in the area would support water laden trucks. We recommend signing roads in developments to allow emergency vehicles to plot a route over navigable roads while responding to an emergency. Improved address markers at driveways would improve accurate emergency vehicle response during emergencies.

Other buildings in this area should also be treated in a similar fashion but with a reduced perimeter to approximately 150 feet. Access improvement would only be needed for a handful of structures. There is generally an overlap of treatment areas where the home and the other building are less than 250 feet from each other.

Meadow Creek Subdivision	
Item	Score
FEMA: Overall wildfire hazard rating score	Low Hazard
FEMA: Potential fire hazard severity	Extreme Hazard
Fire Prone Landscapes: average score	36
Average slope of community and surrounding area:	26%
Land cover type:	Forestland

Highlands above Meadow Creek, Little Salmon Estates & Granite View Estates

Item	Score
FEMA: Overall wildfire hazard rating score	Moderate Hazard
FEMA: Potential fire hazard severity	Extreme Hazard
Fire Prone Landscapes: average score	36
Average slope of community and surrounding area:	26%
Land cover type:	Forestland

Meadows & Goose Creek

Item	Score
FEMA: Overall wildfire hazard rating score	Moderate Hazard
FEMA: Potential fire hazard severity	High Hazard
Fire Prone Landscapes: average score	86
Average slope of community and surrounding area:	62%
Land cover type:	Forestland

New Meadows

Item	Score
FEMA: Overall wildfire hazard rating score	Low Hazard
FEMA: Potential fire hazard severity	Moderate Hazard
Fire Prone Landscapes: average score	83
Average slope of community and surrounding area:	34%
Land cover type:	Rangeland/Forestland

Round Valley Community

Item	Score
FEMA: Overall wildfire hazard rating score	Moderate Hazard
FEMA: Potential fire hazard severity	High Hazard
Fire Prone Landscapes: average score	35
Average slope of community and surrounding area:	72%
Land cover type:	Forestland

This information is summarized in Appendix II

3.3.6 Forested Ecosystems North of Council; West New Meadows – Tamarack – Evergreen

3.3.6.1 Potential Mitigation Activities



Beyond the structure treatments in this extent of Adams County, additional treatments may prove beneficial and critical to saving homes in this region. Of critical importance is the areas where rangelands are adjacent to forestlands. In these areas, shrubs tend to be denser, forest tree species tend to be more scattered and have branches extending from the crown down to the ground. These scattered trees become denser as they meet more favorable growing conditions leading to thick forest stands. These conditions combine to create a ladder

of fuels that can carry a fast moving range fire to a hot burning forest fire. This condition is common in the northern half of Adams County and is also the location of major transportation networks (Highways 95 and 55), and many homes.

Forest fuels should be modified within this zone in order to increase fire suppression effectiveness and reduce potential of torching and crowning to the greatest extent possible. The actual size of this treatment zone will vary according to the forest conditions on site and on the topographic features of the landscape. The exact techniques and methods utilized will depend on a number of conditions, including current forest stand structure and fuel conditions, forest type, availability of funding, social acceptability, technical capability, and other resource considerations.



Treatment options to reduce the accumulation of dead and down forest fuels may incorporate one or more of the following:

- Salvage logging to remove insect infected and diseased trees in this zone,
- Hand and machine piling of dead and down fuels, with pile burning when conditions are favorable,
- Chipping of unwanted material,
- Use of low intensity, light underburns in order to further reduce fine fuels (less than one-quarter inch in diameter) and small woody fuels (one inch and less) when conditions are favorable (only after hand or machine piling and burning has been completed),

- Use of domestic livestock grazing to reduce fine fuels where appropriate.

Treatment options utilized to modify the stand structure to a condition that is not conducive to the initiation and propagation of crown fires may include one or more of the following:

- Tree thinning in order to open up the forest canopy and reduce the potential for group tree torching and development of crown fires,
- Slashing and piling (either by machine or hand) of the “ladder fuels” that may carry flames into the canopy of overstory trees.
- Pruning the lower 17-20 feet of tree branches in order to raise the crown base height, followed by the piling and burning of these materials,
- Use of low intensity, light underburns to further reduce fine fuels and small woody fuels.



Treatments should target the retention of fire tolerant species, such as ponderosa pine, Douglas-fir, and western larch. Recognizing that forests are dynamic systems in which change is normal, active management will be necessary to maintain the desired stand conditions in the future. Specific actions will largely depend on the natural growth cycle of the treated stand and on natural disturbances that may alter stand conditions. In the absence of disturbances that significantly alter stand structure, such as ice or windstorms or insect

infestation, mechanical treatments coupled with prescribed fire is likely to be a preferred management regime. Repeated application of mechanical treatments with prescribed fire on a five to ten year cycle may be the most economical and ecologically appropriate tool for maintaining the desired conditions.

Specifically, in the Highway 95 corridor (near Glendale to Tamarack) treatment opportunities are likely to be limited due to the steepness of the slopes and the inaccessibility of much of the area beyond home sites. Any harvest activities may require the use of skyline or helicopter yarding systems. Prescribed fire opportunities may also be limited. Specific management actions will need to be evaluated on a case-by-case basis. However, treatments in this area are justified given the importance of this highway, the access it provides for firefighting equipment, and the locations of homes in and around this vicinity.

An outstanding example of treatments in this zone, that have been already implemented are found on the Boise Cascade Corp., (now known as BOISE) lands west of New Meadows and the Meadow Creek sub-division (visible along Highway 95 west of New Meadows). This forest type is characterized by ponderosa pine dominating the overstory, with grasses, sagebrush, and other shrubs in the understory. Small openings are occupied by sagebrush species and mountain mahogany or Douglas-fir with grasses filling in between them. Boise Cascade Corp., has entered many acres of these stands for commercial thinning purposes. The logging debris was piled and then burned in the fall of 2003. In addition, their road system has been improved to facilitate fire fighting activities. This area represents some of the best fire-smart land management in the region for forestlands in the wildland-urban interface.



In some areas, livestock grazing has been coupled with this WUI-friendly silvicultural treatment. This grazing will further improve the treatment as fine fuels are eaten or trampled into the ground, grasses and shrubs are trimmed down, and unintended access is monitored.

The areas that have been treated are at high risk to wildland fire and are adjacent to a high concentration of homes and people. Because of these treatments, much of this risk of loss has been mitigated. These treatments should be recognized as extremely positive for the county, and encouraged as a model for treatments in this forest type.

3.4 Fire Fighting Resources and Capabilities

The Fire Fighting Resources and Capabilities information provided in this section (3.4) 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. ***In an effort to correctly portray their observations, little editing to their responses has occurred.*** These summaries indicate their perceptions and information summaries.

3.4.1 Wildland Fire Districts

3.4.1.1 Southern Idaho Timber Protective Association (SITPA)

Headquarters:

Southern Idaho Timber Protective Association
555 Deinhard Lane
McCall, ID 83638
208-634-2268 (links to radio/telephone interface number 634-3030 after hours).

Field Office:

Southern Idaho Timber Protective Association
810 S. Main
Cascade, ID 83611
208-634-2268 or 208-382-4105

Association Description: SITPA is a private, non-profit timber protection association, organized 99 years ago by local land owners (primarily the large timber companies and ranchers) to provide fire protection services for its members. As such, the Association pre-dates both the USFS and Idaho Department of Lands. Timber protective associations have been written into the Idaho Code, and as a result are funded by annual membership fees or through forest and rangeland fire protection assessments levied by the state.

As a result, SITPA provides wildland fire protection for private, county, state, and federal lands within its boundaries (except the Council area where the US Forest Service provides protection). SITPA provides wildland fire protection and hazardous fuel reduction for the Payette Lakes Area of the Idaho Department of Lands (Cooperative Agreement between Director-Idaho Department of Lands and Southern Idaho Timber Protective Association, Inc., June 19, 1985).

SITPA operates out of two facilities, the headquarters in McCall and a field office/warehouse in Cascade. SITPA has five permanent full-time employees: Chief Fire Warden, Assistant Warden-McCall, Assistant Warden-Cascade, and a Mechanic. In addition the association employs seven permanent part-time employees: Dispatcher/clerk, two Lead Smokechasers (McCall and Cascade), four equipment operators (two each at McCall and Cascade), and an Administrative Assistant. The association also employs four seasonal smokechasers (two each McCall and Cascade) and staffs three fire lookouts (Brundage Mtn, No Business, and Tripod). The McCall office is staffed year-around from 0800 to 1700 hours Monday through Friday. During the closed fire season (May 10th through October 20th) the office is staffed from 0800-1700 hours, 7 days per week. An Assistant Warden, three Smokechasers and two equipment operators work out of the Cascade field office 5 days per week during field season. The Cascade office is staffed daily

from 0800 to 0900 to issue burn permits, otherwise the office may not have personnel present during the day.

Largest Problem Areas:

Any areas where homes are potentially threatened by wildland fire are seen as high priority areas. Continued population increases and development characterized by an urban population moving to rural environment and seeking to maintain “wilderness” characteristics. Individual property owners asserting their right to do as they please on their lands. In the SITPA protection area of Adams County, three general areas of concern are 1) New Meadows to Tamarack, 2) Southwest of New Meadows, and 3) Rock Flat.

Effective Mitigation Strategy:

Coordinated information and education program (FIREWISE). A county-wide program to assist property owners in obtaining grants to improve existing developments and maintain FIREWISE improvements. County-wide planning/zoning requirements and development standards for fire protection (structural and wildland) including defensible space, roads/access management, water systems, building codes, signage, and maintenance/management of private forest and range lands.

Current Resources:

McCall:

- 1995 Ford F-250, ¾ ton, 4x4. 200 gal, 34 gpm.
- 2002 Ford F-250, ¾ ton, 4x4 xcab. Fuel tank for dozer or excavator
- 1970 Gamma Gote, 6x6, ATV. 200 gal, 34 gpm.
- 1998 Ford F-150, ½ ton, 4x4. Chief Warden
- 1993 Ford F-250, ¾ ton, 4x4.
- 1993 Ford F-250, ¾ ton, 4x4. Mechanic.
- 1997 Ford F-350, 1 ton, 4x4. 300 gal, 34 gpm.
- 2000 Ford F-250, ¾ ton, 4x4. Asst. Warden.
- 1988 Ford F-350, 1 ton, 4x4. 300 gal, 34 gpm.
- 1988 Ford F-350, 1 ton, 4x4. 300 gal, 34 gpm.
- 1970 Gamma Gote, 6x6, ATV. 200 gal, 34 gpm.
- 1985 Dodge Crewcab, 4x2.
- 1967 Chevrolet, 2 ½ ton Tilt-bed vehicle transport volume pump Water tender.
- 1975 Jeep, 5 ton, 6x6. 3,000 gal, 264 gpm volume pump Water tender.
- 1970 M275A2, 2 ½ ton, 6x6.
- Kenworth T800 Tractor transport/trailer, Dozer and excavator transport.
- John Deere 550G Dozer.

Cascade:

- 1995 CAT D4C Dozer.
- 1997 CAT 312B Excavator.
- 1994 Ford F-250, ¾ ton, 4x4. 200 gal, 34 gpm.
- 1997 Ford F-350, 1 ton, 4x4. 300 gal, 34 gpm.
- 2001 Ford F-250, ¾ ton, 4x4. Asst. Warden.
- 2002 Ford F-250, ¾ ton, 4x4 xcab. Fuel tank for dozer or excavator.
- 1970 Gamma Gote, 6x6, ATV. 200 gal, 34 gpm.
- Ford F-250, ¾ ton, 4x4.
- 1997 Ford F-250, ¾ ton, 4x4. 300gal, 34 gpm.

- 1970 Am. Gen. Corp., 2 ½ ton 6x6. 1,500 gal, 138 gpm.
- 1975 Jeep, 5 ton, 6x6. 3,000 gal, 264 gpm volume pump Water tender.
- 1980 Astro, 7 ton Tractor transport/trailer, dozer and excavator transport.

Greatest Resource Need:

1. Securing funding and equipment to complete narrow band radio conversion.
2. Additional initial attack smokechasers (2 each, Cascade and McCall)
3. Upgrade current transport (dozer/excavator) capabilities
4. Upgrade/replacement of both water tenders (aging military vehicles).

Mutual Aid Agreements:

As an extension of the existing agreement, SITPA functions as an agent of the Idaho Department of Lands under the Cooperative Fire Protection Agreement between the United States Department of Interior Bureau of Land Management – Idaho, National Park Service – Pacific West Field Area, Bureau of Indian Affairs – Portland Area, U.S. Fish and Wildlife Service – Pacific Region, U.S. Department of Agriculture Forest Service – Pacific Northwest, Intermountain, and Northern Regions, and the State of Idaho – Department of Lands. SITPA also functions as an agent of the Idaho Department of Lands in executing its Cooperative Fire Protection Agreement between U.S. Department of Interior Bureau of Reclamation – Pacific Northwest Region and the State of Idaho Department of Lands.

In addition, SITPA has entered into mutual assistance agreements with Cascade Rural Fire Department, Donnelly Rural Fire Department, McCall Fire Department, and New Meadows Fire Department for wildland fire protection.

3.4.1.2 Payette National Forest – US Forest Service

3.4.1.2.1 Council Ranger District

PO Box 567
500 East Whitely
Council, Idaho 83612
(208) 253-0100

The Payette National Forest protection area includes all of the Council Ranger District, (Appendix I) to include around the District boundary an additional 1 mile of protection to mitigate threat of wildland fire crossing from other ownership to National Forest Lands. Also, all other Federal (BLM) and State Lands in Adams County north of the Indian Valley / Little Weiser Road and south of and west of the New Meadows Ranger District Boundary with an additional 1 mile of protection around these lands to mitigate the threat of wildland fire crossing from other ownership on to the State or BLM lands.

Personnel:

During a period of time normally June 1 – September 30, out personnel include approximately 21 Fire Employees. Normal hours are 9am – 6pm, 7 days a week during fire season.

* Indicates Permanent Full Time Position, all others are seasonal

- 1 District Fire Management Officer*,
- 2 District Assistant Fire Mgmt Officers*,

- A District Fire Prevention Officer,
- 2 Fire Lookouts, (Indian Mountain and Horse Mountain)
- 5-person Initial Attack Handcrew stationed at Bear Work Center,
- 1 Type 4 (700 gal) Wildland Fire Engine with a 5-person crew and a Type 6 (300 gal) Wildland Engine with a 5-person crew both stationed at the Council District Office.

Working relationship with other agencies, and mutual aid agreements:

We have good working relationships with all of our cooperators and agreements with Council Valley RFD, Adams County Sheriff, Idaho Department of Lands, Indian Valley RFD and the BLM (Lower Snake River District).

Available Equipment:

Truck #	Year	Make	GPM	Capacity	Structure-Wildland
E 1-1	02	Ford 550	90gpm	300 gal	Wildland
E 1-2	01	Int. 33,000 gvw	90 gpm	700 gal	Wildland
P 1-1	97	Chevrolet	20 gpm	95 gal	Wildland

District wide on any given season, there are usually 35 people trained and qualified to fight a wildland fire available on the District.

3.4.1.2.2 New Meadows District Ranger Office

New Meadows District Ranger Office
 PO Box J
 3674 Highway 95
 New Meadows, ID 83654
 (208) 347-0300

Price Valley Guard Station
 2295 Price Valley Road
 New Meadows, ID 83654
 (208) 347-0327 ext. 3001

The New Meadows Ranger District protection responsibilities include 285,839 acres of National Forest System land and about 80,000 acres of non-National Forest System land (BLM, State of Idaho, private). The area is from the Salmon River at French Creek south to State Hwy 55, west to US Hwy 95 to Fruitvale, north to boundary with Nez Perce NF and east to French Creek (Appendix I).

The Station operates 7 days a week from during the period of July 1, through October 15 annually. The Station operates other times as available and required by the District office in New Meadows.

Personnel:

- 24 Heli-rapellers,
- 6-person Type 4 wildland engine,
- 1 person Type 2 Tactical water tender,
- 1 fire prevention technician.

Mutual Aid Agreements:

Mutual aid agreements are in place with the Salmon River Rural Fire Department (responsible agency for structure protection in non-Forest Service wildland jurisdiction) and Southern Idaho Timber Protective Association (responsible agency for wildland fire on some FS system land).

Top Resource Priorities:

More consistent funding and less cumbersome processes to make resource management decisions.

Resources most at risk of loss from wildland fire:

Homes, other improvements and some power lines.

Highest risk “problem area”:

Homes and other improvements upslope and downwind from a major transportation corridor susceptible to random ignitions from a variety of potential sources.

Equipment Description:

Truck #	Assigned Station	Year	Make/Model	Capacity (gallons)	Pump capacity (GPM)	Type
E3-1	New Meadows RS	1994	Ford F-600	700	80	Wildland
Prevention 3	New Meadows RS	2000	Dodge ¾ ton	50	11	Fire Prevention
Water Tender 3	New Meadows RS	1978	GMC JE77013	2600	300	Wildland
T2 Copter	Price Valley GS	N/a	Bell 205++	300	Heli-rappel crew (12)	Wildland
T2 Copter	Price Valley GS	N/a	Bell 205++	300	Heli-rappel crew (12)	Wildland

Operational Challenges:

Our ability to retain adequate suppression resources when budgets vary so dramatically from year to year. Secondly, the extreme difficulty the Forest Service faces in funding and implementing legitimate hazardous fuels reduction projects when critics/appellants can so easily derail the project.

3.4.1.3 Bureau of Land Management, Lower Snake River District

- Boise BLM Fire Office, 3948 Development Ave., Boise, 83705; 208-394-3400
- Hammett Guard Station, north of Exit 112 on Interstate 84, 208-366-7722
- Bruneau Guard Station, Hot Creek Road, Bruneau, 208-845-2011
- Wild West Guard Station, Exit 13 off I-84, 208-454-0613

The Lower Snake River District BLM does not have any equipment stationed in Adams County but does provide protection for a small area of the county south of Indian Valley and into Washington County. Resources and capabilities of the Lower Snake River District BLM have been included in this document, but it should be noted that this equipment is only available as back-up resources in Adams County to augment the US Forest Service, SITPA, and rural fire district resources. However, the BLM has been involved in Adams County through assistance to rural fire districts and national fire prevention programs. The Department of Interior, BLM, provided funding for this Wildland-Urban Interface Wildfire Mitigation Plan.

The district’s primary station is located in Boise, where 3 crews, with 3 engines per crew are based, along with both helicopter and fixed-wing aircraft resources. One of the three Boise

crews is stationed during the day at Boise Fire Station #2 at the base of the foothills. Additional day-use stations are available in Kuna, Hidden Springs, Eagle, and at Juniper Butte.

Additionally, the district has out stations at Bruneau, Hammett, and Wild West (at Exit 13 on Interstate 84). Each facility is staffed by one crew, with three engines, on a 24-hour, 7-day per week basis from mid June to mid September. A dozer also is typically based at Hammett.

BLM crews are neither trained nor equipped for structure suppression. Primary protection responsibilities are on public land throughout southwest Idaho. The BLM responds to fires originating on public lands and those on private land that threaten public land. Additionally, through mutual aid agreements with local fire departments, they will provide assistance when requested on wildland fires.

The BLM 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 we provide as part of our organization.

Personnel: The fire program staff totals 135 individuals, including 20 permanent employees, 40 career-seasonal employees who work up to nine months each year, and 75 seasonal employees on staff from roughly June to September. These are all paid staff members trained in wildland fire, but not in structure protection.

Mutual Aid Agreements: The BLM has an interagency working relationship with the US Forest Service (Boise National Forest and Payette National Forest) and the Idaho Department of Lands and the crews are dispatched on a closest-forces concept to public lands. Additionally, the BLM has mutual aid agreements with approximately 42 community fire departments.

Top Resource Priorities:

- **Training:** Increasing the amount and level of training for and with partner community fire departments .
- **Communications:** Using the Rural Fire Assistance Program to allow departments to purchase radios for partner community departments to facilitate communication, coordination, and safety at the fire scene.

The district encompasses a broad spectrum of resources at risk, including recreation sites, power lines, wildlife habitat, wilderness study areas, wild horse management areas, historic districts, cultural and archaeological sites, and a range of vegetation types, from rare plant species to sagebrush and timber resources.

Table 3.1 summarizes available equipment.

Truck #	Assigned Station	Make/ Model	Capacity (gallons)	Pump capacity (GPM)	Type
7158	Duck Valley	Internat'l	Heavy 800 – 1000	120 GPM	Wildland
7130	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7131	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7132	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7133	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7134	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7135	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7136	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7137	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7138	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland

Table 3.1. BLM Equipment List for Wildland Fire Protection

Truck #	Assigned Station	Make/ Model	Capacity (gallons)	Pump capacity (GPM)	Type
7154	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7155	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7143	Hammett	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7144	Hammett	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7145	Hammett	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7146	Bruneau	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7147	Bruneau	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7148	Bruneau	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7140	Wild West (exit 13, I-84)	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7141	Wild West (exit 13, I-84)	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7142	Wild West (exit 13, I-84)	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7150	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7151	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7156	Boise	Internat'l	Heavy 800 – 1,000	120 GPM	Wildland
7161	Boise	Ford	Light 300	120 GPM	Wildland

- The LSRD has 3 dozers, one of which is stationed in Hammett; and two in Boise
- The LSRD also has 3, 3500 gallon water tenders.
- There are 4 Fire Lookouts, one on Squaw Butte, north of Emmett; one on South Mountain, southeast of Jordan Valley; one on Danskin Peak, north of Mountain Home; and one on Bennett Mountain, northeast of Mountain Home.

Additionally, suppression resources include:

- **Helicopter:** The district has an Aerospatiale helicopter on contract from June to October and an 11 member helitack crew. U.S. Forest Service helitack crews stationed at Lucky Peak and Garden Valley are available for assistance if needed and if they are not assigned elsewhere. Additionally, there are other helicopter resources equipped for fire missions that are available on a call-when-needed (CWN) basis.
- **Fixed-Wing:** The district has a contract AeroCommander 500S fixed-wing aircraft, staffed by a pilot and the air attack supervisor. The air attack supervisor coordinates aerial firefighting resources and serves as an observation and communications platform for firefighters on the ground.
- **Air Tankers:** There are typically two air tankers (fire retardant planes) on contract in Boise during the fire season. However, these aircraft are considered national resources and are assigned where they're needed at any particular time. Other, nearby, air tankers are located in McCall and various locations in Nevada and Oregon. There are also contract single-engine air tankers (SEATS) located in Vale, Oregon, and Twin Falls, Idaho.

The primary operational challenges facing the district include:

- Continued development of wildland-urban interface areas across the district.
- Communications and coordination with current, new, and developing community fire departments and working with them to stay abreast of communication and technological

developments so that we can continue and improve working together effectively at the fire scene.

- 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.

3.4.2 Rural Fire Districts

3.4.2.1 Council Volunteer Fire Department

Shawn Stanford, Chief
100 Ace Alley
Council, ID 83612
Tel: 208-253-4631
Stanford@ctcweb.net

Department Summary: Council Volunteer F.D. has structural fire protection responsibilities for both the city and rural areas of approximately 50 square miles in the central portion of Adams County. The department has a staff of 14 all volunteer firemen, trained for both wildland and structural firefighting. Although the department's primary responsibility is structural fire, the nature of the dry environment and the proximity of homes to flammable vegetation result in wildland suppression activities as well.

The department has been successful in keeping loss due to wildland fires to a minimum. Prior to 2003, no homes were lost in recent history due to fires spreading from the wildlands to structures. A portion of this success can be attributed to an aggressive prevention campaign. Each week, a "fire run blotter" is printed in the local newspaper, describing the number and nature of fire calls for the week, as well as providing a prevention "tip of the week." The public feedback has been positive and indicates that the blotter is well read. This form of public education and prevention appear to be quite effective and should be considered for adoption by other rural departments.

Despite the success of suppression of the department in reducing loss of homes and resources, the district does have a considerable interface problem. The problem is continuing to mount as more and more homes are built in the forested portions of the district, particularly along the eastern and northern fringe of the district.

Largest Problem Area: Fruitvale-Glendale Corridor- The corridor is a forested portion of the northern edge of the district along the Weiser River. The area has considerable housing density and is seeing increases in housing development. The abundance of dry forest and grass fuels as well as the high potential for human caused ignition sources from Highway 95 put this area at high risk to wildland fire.

The primary concern in the corridor is access. Many of the driveways are steep and narrow, often with sharp switchbacks. The department would not be willing to commit resources to such homes because of egress concerns in the event of increases in fire behavior. Although the county does have ordinances regarding minimum requirements for emergency vehicle access, many of the structures in the area pre-date the ordinances. Additionally, the ordinances only apply to subdivisions; the access requirements do not apply to single lot development.

Greatest challenge for the future: The continued growth and development in the area will continue to tax the capabilities of the department. With a small tax base, funding has been and will continue to be an issue unless other reliable, steady funding sources (such a mill levy specifically for the fire department) is secured.

Greatest Resource Need: Fire Station. The current facility does not provide adequate storage space for existing equipment, and excludes the procurement of additional equipment, simply because there is no way to store additional apparatus. The current facility also lacks adequate training facilities. A new facility would provide better space to accommodate all the existing equipment and future equipment is a must. A new station is also envisioned as also serving as a community center, which would further carry the prevention and education message.

Secondary Need: Cab and chassis (F450 or F550 type) on which to mount existing 250-gallon slip-on tank.

Most Effective Strategies for Reducing Potential loss:

- 1) Increase in fuels mitigation activities around homes.
- 2) Adoptions of building codes that reduce home ignition potential, establishment of defensible space, and emergency vehicle access.
- 3) Continued education and prevention through programs such as Firewise.

The Glendale-Fruitvale area would be a prime area for a concentrated mitigation-education program. Individual home assessments may help raise awareness of the dangers associated with living in a flammable environment. A program that emphasizes the importance of emergency vehicle access may sway some homeowners to make necessary improvements. When unwilling or unable to make such improvements, education should stress the importance of reducing home ignitability and creation of defensible space, as these characteristics will likely be the only line of defense in the event of a wildland fire.

Current Resources

- 1975 Ford LaFrance 1000 gal capacity, 1250 gpm pumper
- 1969 International 1500 gal capacity, 1250 gpm tender
- 1973 Western States 500 gal capacity, 1500 gpm pumper
- 1986 Ford ¾ ton, 200 gal, 300 gpm wildland engine
- 1984 Chevrolet extrication
- 1968 Dodge 4000gal, 500 gpm water tender
- 1990 Chevrolet IC/Command vehicle

Future Considerations: It is best to address the wildland-interface issue before it becomes a problem. County commissioners, fire officials, and building inspectors should consider development of road and housing construction standards that address fire protection issues prior to home construction.

Mutual Aid Agreements:

Council RFD maintains Mutual Aid Agreements with the Meadows Valley FD to the north, as well as with the Indian Valley FD to the south. Federal cooperators include the Council District of the Payette National Forest as well as with the Lower Snake Fire Protection District of the Bureau of Land Management. The working relationship between the cooperators is excellent and helps to provide fire protection services throughout the district.

3.4.2.2 Indian Valley Volunteer Fire Department

Larry Boehm, Chief
2293 Mundy Gulch RD
Indian Valley, ID 83632
ljboehm@ctcweb.net

Department Summary: Indian Valley is an all-volunteer department of 16 firefighters that provide both wildland and structural protection within its district, as well as Basic Life Support medical response. The main station and training facility is in Indian Valley, with forward advance stations located in Mesa and Goodrich. The department has recently annexed additional protection area in the Goodrich area in response to planned development in the Goodrich area. The land developer has contributed significantly to the construction of the station in order to assure fire protection to future homes and to meet homeowner's insurance requirements. The department has seen a reduction in the number of calls per year over time. This reduction is attributed to an effective prevention program as well as an observation of the state closed fire season that runs from May 10th to October 20th each year.

Largest Problem Area: The Goodrich area is seen as the area at most risk to wildland fire due to the presence of dense shrub and scattered timber near a number of home sites. This area has a history of large fires in the past. The concern over this area will surely increase, as development in the fire prone sage and range land on the uplands in the Goodrich area. There is also other multi-home development planned in other portions of the district. Risk is highest where homes abut dense sage communities and CRP fields.

Greatest challenge for the future: Although the establishment of new stations provides facilities, there is likely to be a shortage of volunteer staff in the future. Like many RFD's, there is a steady decline in volunteers to staff the department. In addition, funding for resources is limiting.

Greatest Resource Need:

- **Rural Addressing Update.** The district would most benefit from updated rural addressing. The most recent update was done about seven years ago. With the development in the area, the maps and address resources available to the district are inaccurate and outdated, making home location difficult.
- **Communications.** Additionally, there is a need for improved communications for district dispatch as well as a need for more radios for safe operations. Currently, the dispatch radio does not have sufficient channels to monitor all necessary emergency radio traffic.
- **Water Tender.** The district would benefit from a 5,000 gallon water tender. Water availability is always an issue in arid landscapes. The district has installed a number of dry hydrants in improve water sources. However, a reliable mobile source would help to assure water availability for suppression needs.
- **Training.** Training to meet national standards is necessary in order to assist on mutual aid responses with federal cooperators.

Most Effective Strategies for Reducing Potential loss:

- 1) Education and Prevention.

Continued education and prevention measures would help to reduce the threat to homes and resources in the district. The primary threat comes from spread of range fires through cured grass, to the home. Measures to safeguard against home loss are easy and simple. The challenge is to find the means to disseminate this information through the community.

Current Resources

Indian Valley Station:

- 1968 Studebaker 1400 gal. 250 gpm wildland engine.
- 1983 Chevrolet ¾ ton 350 gal, 250 gpm wildland engine.
- Quick Response Unit, EMS and Hazmat response.
- 1985 Seagraves 450 gal, 1,500 gpm structure pumper.

Mesa Station:

- 1974 Kenworth 5000 gal, 250 gpm wildland/structural tender.
- 1983 Chevrolet ¾ ton 250 gal, 100 gpm wildland engine.
- 1983 Seagraves 1000 gal, 1250 gpm structural pumper.

Goodrich Station:

- 1983 Seagraves 1000 gal, 1200 gpm structural pumper.

The equipment is well maintained and functional; however there are always reliability issues with aging apparatus. Upgrades are always in need.

Mutual Aid

Indian Valley maintains Mutual Agreements with Council, Cambridge, and Midvale VFD's. The departments work cooperatively in providing treatment for their personnel. Indian Valley also has mutual aid agreements with the Council District of the Payette NF as well as with the Lower Snake District of the BLM and with SITPA.

3.4.2.3 Meadows Valley VFD

200 Highway 95
PO Box 523
New Meadows, ID 83654
Tel: (208) 347-3190

The Meadows Valley Fire Protection District is approximately 126 square miles in area extending from the northern boundary at mile post 170.8 on US Hwy 95, to the eastern boundary at mile post 152 on State Hwy 55, the southwestern boundary at mile post 149.9 on US Hwy 95. The district includes Evergreen (forest products) and its co-generation electrical production facility.

Station description: One station at 200 Hwy 95 in New Meadows has 6 bays shared with MV Ambulance Service, Inc., constructed in 2001 with a training room, office, and standby electric generator. It is staffed as needed by volunteer firefighters.

Protection responsibilities include structures and improvements only.

Emergency Medical Treatment is provided by Meadows Valley Ambulance Service, Inc.

Personnel: 20 all-volunteer firefighters provide for structural protection service.

Mutual aid agreements: Mutual aid with Salmon River Rural FD, Council Rural FD and all FD's in Valley County (McCall, Donnelly and Cascade). Working relationships are excellent and we all share training opportunities when available.

Top Resource Priorities: More training, more training, more training!!!

Resources most at risk of loss from wildland fire: Homes, other improvements and some power lines.

Highest risk “problem area” in district: Homes and other improvements upslope and downwind from a major transportation corridor susceptible to random ignitions from a variety of potential sources served by inadequate access routes, such as driveways too steep and narrow.

Equipment Description:

Truck #	Assigned Station	Year	Make/ Model	Capacity (gallons)	Pump Capacity (GPM)	Type
E-1	New Meadows	1971	American LaFrance Pioneer	500	1000	Structure
Foam 1	New Meadows	1990	Kenworth	2800	500	Structure, Class A compressed air foam
Water Tender 1	New Meadows	1987	Peterbilt	4000	600	Structure or tactical wildland w/2 2300 gl. Portable tanks
Water Tender 2	New Meadows	1964	Military 5 ton chassis	2000	0	Structure
Utility 1	New Meadows	1975	Dodge van	0	0	Support equipment transport

Operational Challenges: A burgeoning increase of properties requiring protection and an inadequate ability to maintain a trained, qualified, well-equipped roster of safety-conscious firefighters to respond in a reasonable time.

3.4.2.4 Salmon River Rural Fire Department

Gene Pennigton, Chief
 PO Box 444
 Riggins, ID 83549
 Tel: 208-628-3247

District Summary: Salmon River Rural provides wildland and structural fire protection from the Whitebird Summit south to Riggins, Pinehurst, and the Smokey Boulder Road. The boundary includes portions of Adams and Idaho Counties. The Salmon River Rural Fire Department provides protection for homes in Adams County surrounding the community of Pinehurst. Prior to its inception in 1980, there was no organization that provided fire protection in unincorporated areas. The district currently has 60 active volunteers, trained in both structure and wildland fire. The fire district provides protection on a subscription basis, with no financial backing derived from taxes. Salmon River Rural does provide protection for roughly 60 homes in Adams County along the Little Salmon River. The district is characterized by dry forest types perched on the steep and rugged terrain typical of the Salmon River drainage. There are significant access issues within the protection district, with steep roads and drives with no turnouts or turnarounds. The homes within the Adams County boundary typically have better access, but are exposed to risk in the event of a wildland fire.

Largest Problem Area: Within Adams County, the greatest concern is the threat to homes and businesses around Pinehurst. Any homes that are not in compliance with FIREWISE specifications are at risk to loss. Beyond these, there is considerable concern regarding the power supply lines and highway 95 through the Salmon River Canyon. The canyon is the route for power coming from McCall, feeding Riggins. There is no grid system to Riggins to provide alternative electricity routes in the event the lines through the canyon were disrupted.

Effective Mitigation Activities:

- **Prevention-** Expansion of the existing fire prevention program.

- **Education-** The chief and volunteers have been very active in consulting with landowners. Continuation of this work will help to reduce potential loss.
- **Mitigation-** Providing assistance to homeowners will further increase the compliance with FIREWISE landscaping and defensible space creation.

Greatest Resource Needs:

- **Structural Fire Fighting Gear-** SRRFD is in need of all structural firefighting gear, including SCBA's, helmets, and turnout gear. At present, none of their equipment meets NFPA requirements.
- **Water Tenders-** The department is in need of two large capacity water tenders.

Current Resources:

Station #1: US Highway 95 and Pines Rd.

- 1992 Chevrolet 1-ton. 300 gal. 200 gpm wildland engine.

Station #2: Grouse Lane and Elk Haven Circle.

- 1973 Ford F-750. 500 gal., 750 gpm. Structure and wildland engine.
- 1976 Chevrolet 1-ton. 300 gal. 200 gpm. Type 6 wildland engine.

Station #3: Rapid River Road and Fish Trap Lane.

- 1955 IH 2000 gal. 500 gpm. Water Tender.
- 1994 Ford F-150 100 gal. 95 gpm. Command Vehicle.
- 1974 Chevrolet Structural Rehab equipment vehicle.

Station #4: US 95 and Lucile Circle.

- 1974 GMC 1-ton. 500 gal. 500 gpm. Structural pumper.

Station #5: Old Slate Creek Road and Slate Creek

- 1975 Chevrolet 1-ton. 300 gal. 200 gpm. Wildland-Structure.

Station #6: US 95 and Hoot's Dr.

- 1979 Dodge 1-ton. 200 gal. 200 gpm. Wildland Engine.

Mutual Aid Agreements: The department maintains written agreements for mutual aid with the Idaho Department of Lands, the BLM, and the Payette, New Perce, and Wallowa-Whitman National Forests. There are also agreements with the cities of New Meadows, White Bird and Riggins.

3.4.2.5 McCall Fire Protection District

Dave Sparks, Chief
 300 Park St.
 PO Box 1297
 McCall, ID 63638
 Tel: 208-634-7070
 chief@mccallfireandems.com

District Summary: McCall Fire Protection District provides protection to roughly 20 houses in the Rock Flat subdivision in Adams County on a subscription basis (a pay for protection arrangement made on a house-by-house basis), plus the Brundage Mountain Ski Area. McCall

FPD's primary protection responsibilities are in Valley County. The department has a staff of two paid fire positions, two paid EMS positions, one full-time office administrator and 25 members paid on a by the call basis. The department provides structural and wildland fire protection within its district. McCall FPD maintains one main station in town that also serves as the administrative center. The department also rents two storage units and a hanger the airport for apparatus housing.

Largest Problem Area: McCall FPD faces many challenges with providing fire protection to residents within Valley County. Many homes within the protection district are summer homes, and residents are not willing to compromise the "wilderness" characteristics of their property in order to assure protection in the event of a structure or wildland fire. In Adams County, the challenges are not as great, as there are many fewer homes for which McCall FPD provides protection.

Current Resources:

Main Station, 300 Parks Street.

- 1995 Pierce 750gal. 1500gpm. Structure
- 1980 Mack 500 gal. 1000 gpm. Structure with CAF
- 1978 AL 250 gal. 1250 gpm. Aerial Ladder
- 2002 Ford ILS Ambulance
- 2002 Ford ILS Ambulance

ELO

- 1978 Mack 500 gal. 1500 gpm. Structure.
- 1980 International 3000 gal. Tender.

A-1

- 1973 International 200 gal. Brush Engine.
- 1980 GMC Rescue

Mutual Aid Agreements: McCall Fire Protection District has mutual aid agreements with the Emergency Service Departments within the county, including Donnelly Fire and EMS, Cascade City Fire Department, Cascade Rural Fire Department, and agreements with SITPA and the Payette National Forest. McCall FPD is also a member of the Valley Interagency Interface Group. Finally, McCall FPD also has a mutual aid agreement with Meadows Valley FD.

Greatest Resource Need: McCall FPD is in need of a large capacity water tender and continued training.

Special Features: The main power supply to the city of McCall goes through timberland owned by Boise Cascade, the USDA Forest Service, and private lands.

Chapter 4: Treatment Recommendations

4 Overview

Critical to the implementation of this Wildland-Urban Interface 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 Adams County and the region. Since there are many land management agencies and hundreds of private landowners in Adams County, it is reasonable to expect that differing schedules of adoption will be made and varying degrees of compliance will be observed across all ownerships.

The Federal land management agencies in Adams County, specifically the USDA Forest Service and the Bureau of Land Management, are participants in this planning process and have contributed to its development. Where available, their schedule of WUI treatments has been summarized in this section to better facilitate a correlation between their identified planning efforts and the efforts of Adams County.

This chapter of the plan will be separated into a few, logical sections grouping like activities together. Section 4.2 will summarize the US Forest Service's proposed treatments in Adams County, section 4.3 details policy and safety proposals, section 4.4 explores activities related to people and structure protection, section 4.5 looks at infrastructure improvements, section 4.6 explores fire fighting resources and capabilities, while 4.7 makes recommendations linked to land management. These six sections of this chapter are intended to address, together, the interrelated components making up the WUI issues for Adams County with recommendations. Proposals in this chapter have been generated from the preceding chapters where the detailed risk assessments were made.

All risk assessments were made based on the conditions existing during 2003, thus, the recommendations in this section have been made in light of those conditions. However, the components of wildfire 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 Adams County in relation to this planning document, this entire **Wildland-Urban Interface Wildfire Mitigation Plan** should be reviewed annually at a special meeting of the Adams County Commissioners, open to the public, where action items, priorities, budgets, and modifications can be made or confirmed. A written review of the plan should be approved 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 Idaho 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 WUI Wildfire Mitigation Plan (signatures by the cooperators would be collected at the Chairman's discretion). Re-evaluation of this plan should be made on the 5th anniversary of its acceptance, and every 5-year period following.

Prioritization of activities recommended in this plan should be made by the Adams County Commissioners. During the annual review of this plan, reprioritization can be justified in response to changing conditions and funding opportunities.

4.1 Possible Fire Mitigation Activities

As part of the implementation of fire mitigation activities in Adams 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

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.

4.2 Proposed Projects Being Developed by the US Forest Service in Adams County

The Payette National Forest manages much of the highest risk lands in the region. As shown on the area maps, Appendix I, the USFS manages the majority of the area in Adams County. Their staff of resource and fire professionals has conducted analysis and developed management projects in the WUI, that are designed to reduce the risk of wildfire and the risk of WUI losses from those fires.

Table 4.1 lists nine WUI treatment projects in Adams County, developed by the Payette National Forest. Table 4.2 shows their anticipated implementation schedule as of the preparation of this document. All of these projects are aligned with the County's WUI Wildland Fire Mitigation Plan's Mission, Vision, and Goals as enumerated in this document. Additional treatments in the County are justified, and will be targeted at amplifying these efforts. For instance, a community defensibility project may be recommended for areas immediately adjacent to one of the Forest Service's treatment areas so that the two projects compliment each other.

Table 4.1. US Forest Service WUI treatments being considered in Adams County, Idaho.

Project	Summary (Purpose and need)	Benefit to the Community	Location	Description	Acres
Middle Little Salmon (Circle C Ranch Subdivision)	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 adjacent to the Circle C Ranch Subdivision, approximately 10 miles north of New Meadows.	Treat approximately 605 acres of 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	605 acres
Meadows Slope	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 adjacent to the Timber Ridge, Rock Flat, King's Pine, and Crescent Rim Subdivisions and additional private property east of New Meadows.	Treat approximately 6480 acres of 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	6480 acres
Rapid River	Reduce hazardous fuels, improve forest health by changing Condition Classes, improve wildlife habitat, and improve watershed integrity	Decrease the risk of a wildland fire destroying the Rapid River watershed. Improve fisheries habitat. Improve hunting opportunities.	National Forest System Lands within the Rapid River Drainage on the Payette National Forest.	Treat approximately 2000-2500 acres annually or biennially with prescribed fire to reduce the risk of large wildfires and improve wildlife habitat	18,200 acres
Pinehurst I	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 adjacent to the private property and other federally/state owned land west of Pinehurst.	Treat approximately 800 acres of 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	800 acres

Table 4.1. US Forest Service WUI treatments being considered in Adams County, Idaho.

Project	Summary (Purpose and need)	Benefit to the Community	Location	Description	Acres
Surprise Gulch	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 adjacent to private property around the community of Evergreen.	Treat approximately 800 acres of 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	800 acres
Starkey	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 adjacent to the private property and other federally/state owned land north of Starkey and Fruitvale.	Treat approximately 800 acres of 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	800 acres
Green Hornet	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 adjacent to the private property and other state owned land west of Peck Mountain, along West Mill Creek.	Treat approximately 2000 acres of 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	Approx. 2000
Cuprum	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 adjacent to private property around the community of Cuprum.	Treat approximately 2000 acres of 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	Approx. 2000

Table 4.1. US Forest Service WUI treatments being considered in Adams County, Idaho.

Project	Summary (Purpose and need)	Benefit to the Community	Location	Description	Acres
Brundage Mt. WUI Fuel treatments.	Reduce the spread of wildfires and impacts to private inholdings in the wildland/urban interface. Reduce the amount of live fuel so that if a wildfire were to occur or encroach it would burn as a surface fire rather than a crown fire.	Decrease the risk of wildfire encroaching on ski area improvements.	National Forest System Lands within and adjacent to Brundage Mt. Ski Area.	Treat up to 1000 acres of National Forest System Lands with mechanical harvest/thinning, piling and prescribed fire to reduce the risk of crown fire, improve firefighter and public safety and alter condition class.	Up to 1000 acres

Table 4.2. USFS WUI Project Development and Implementation Timeframes.

Project	Planning Timeframe*	Implementation Timeframe*
Middle Little Salmon (Circle C Ranch Subdivision)	FEIS signed in 2003.	Begin implementation in Spring/Summer of 2004. Finish implementation in 2005.
Meadows Slope	Complete DEIS by January 2004, FEIS by June 2004	Begin implementation in Fall of 2004. Finish implementation in 2008
Rapid River	Planning complete in 1997. Supplemental Information Report complete in 2003.	Annually or biennially, burn approximately 2000-2500 acres until complete
Pinehurst I	Complete CE by Fall 2004	Begin implementation in Fall of 2004. Finish implementation in Spring/Summer of 2005
Surprise Gulch	Complete EA/EIS by Fall 2005	Begin implementation in Fall 2006. Finish implementation in Fall 2007.
Starkey	Complete CE/EA by Fall 2006	Begin implementation in Fall 2007.
Green Hornet	Complete CE by Fall 2003	Begin implementation in Spring/Summer of 2004. Finish implementation in 2005.
Cuprum	Complete CE by Fall 2004	Begin implementation in Spring/Summer of 2005. Finish implementation in 2006.
Brundage Mt. WUI Fuel treatments.	Unknown at this time.	Unknown at this time.

4.3 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 4.3. WUI Action Items in Safety and Policy.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
4.3.a: Amend existing building codes to apply equally to new single housing construction as it does to sub-divisions.	Protection of people and structures by applying a standard of road widths, access, and building regulations to insure new homes can be protected while curtailing risks to firefighters (defensible space, access mgmt, water systems, building codes, signage, and maintenance of private forest and range lands)	County Commissioners in cooperation with Rural Fire Districts.	<ul style="list-style-type: none"> • Year 1 debate and adoption of revised code (2004). • Review adequacy of changes annually, make changes as needed.

Table 4.3. WUI Action Items in Safety and Policy.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
4.3.b: Rural Addressing Update	Protection of people and structures by improving database of structures in the county which will link to fire fighting efforts and improved response times. Also linked to developing an enhanced 911 system.	County Planning and Zoning office in cooperation with the County Commissioners Office	<ul style="list-style-type: none"> • To be implemented during first year (2004), pending funding and adoption by elected officials. May take most of a year to complete. • Estimate cost at around \$45,000 to complete entire county
4.3.c: Enhanced 911 Service	Protection of people and structures by improving the ability of emergency response personnel to respond to an emergency.	County Commissioners in combination with County Sheriff's Office, County Assessor's Office and Fire Departments.	Can be completed only after the Rural Addressing project is completed. Target implementation during year 3 (2006) of this project.
4.3.d: Rural Signage (Road Signs & Rural Fire District Boundary Signs) Improvements across the county	Protection of people, structures, and infrastructure by improving the ability of emergency services personnel, residents, and visitors to navigate roads.	County Roads Department in cooperation with County Commissioners and Rural Fire Departments	Can be completed during year 1 (2004) pending funding to implement the project. Estimate \$15,000 for signs and posting.
4.3.e: Develop County policy concerning building materials used in high-risk WUI areas on existing structures and new construction	Protection of people and structures by improving the ability of emergency response personnel to respond to threatened homes in high-risk areas.	County Commissioners Office in cooperation with Rural Fire Departments	Year 1 (2004) 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.
4.3.f: Develop a formal WUI Advisory Committee to advise County Commissioners on WUI Issues and Treatments	Protection of people and structures by improving the ability of decision makers to make informed decisions about wildfire issues.	County Commissioners Office	Year 1 (2004) activity: Formalize a committee, its membership and service decided on by the County Commissioners, to collaborate on WUI issues within Adams County. Members potentially to include land management organizations and companies, private landowners, and fire protection personnel.

4.4 *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 fire fighter 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 Adams 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 a common theme was present that pointed to a situation of landowners not recognizing risk factors:

- Homeowners in the public mail survey ranked their home site wildfire risk factors significantly lower than a random sample of home rankings completed by fire mitigation specialists
- 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 preponderance of the respondents to the public mail survey indicated (58%) 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.

In addition to those items enumerated in Table 4.4, residents and policy makers of Adams 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 Adams 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 Adams 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 Adams 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 into the future as a low cost, positive tool of wildfire mitigation in the Wildland-Urban Interface and in the wildlands.
- **Forest Management** in Adams County has been affected greatly by the reduction of operating sawmills in the region (see section 2.2). However, the active forest management program of Boise Corp., the Idaho Department of Lands, the US Forest Service and many of the private forestland owners in the region has led to a significant reduction of wildland fuels where they are closest to homes and infrastructure. An excellent example of this has already been highlighted in this document (Section 3.3) involving the Boise Corp management to the west of New Meadows along Highway 95. This management improved forest health, reduced the buildup of forestland fuels, and

provided for the effective treatment of logging residue. All of this management occurred in an area that if ignited could easily threaten many homes and other structures in the area. However, because of this treatment and others like it, the risk has been greatly reduced. 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 Adams County has 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 Adams County's economy (see Section 2.2). Much of the rangeland interface is dotted and intermixed with agricultural crops, even extending to the forestland interface. The original conversion of these lands to agriculture from rangeland, 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 that much of the rangeland 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 Adams County is integral to the continued management of wildfire risk in this region.

Table 4.4. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
<p>4.4.a: Youth and Adult Wildfire Educational Programs</p>	<p>Protect people and structures by increasing awareness of WUI risks, how to recognize risk factors, and how to modify those factors to reduce risk</p>	<p>Cooperative effort including:</p> <ul style="list-style-type: none"> • University of Idaho Cooperative Extension • Idaho Department of Lands • USFS Payette National Forest and State and Private Forestry Office • Bureau of Land Management • Local School Districts 	<p>To start immediately using existing educational program materials and staffing. Formal needs assessment should be responsibility of University of Idaho Cooperative Extension faculty and include the development of an integrated WUI educational series by year 3 (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.</p>
<p>4.4.b: Wildfire risk assessments of homes in identified communities</p>	<p>Protect people and structures by increasing awareness of specific risk factors of individual home sites in the at-risk landscapes. Only after these are completed can home site treatments follow.</p>	<p>To be implemented by County Commissioners Office in cooperation with the Rural Fire Departments and Wildland Fire Protection Specialists. Actual work may be completed by Wildfire Mitigation Consultants, fire district personnel, and others.</p>	<ul style="list-style-type: none"> • Cost: Approximately \$100 per home site for inspection, written report, and discussions with the homeowners • There are approximately 2,000 housing units in Adams County, roughly 80% of these structures would benefit from a home site inspection and budget determination for a total cost estimate of \$160,000. • Action Item: Secure funding and contract to complete the inspections during years 1 & 2 (2004-05). • Home site inspection reports and estimated budget for each home site's treatments will be a requirement to receive funding for treatments through grants.
<p>4.4.c: Home Site WUI Treatments</p>	<p>Protect people, structures, and increase fire fighter safety by reducing the risk factors surrounding homes in the WUI of Adams County</p>	<p>County Commissioners in cooperation with Fire Mitigation Consulting company</p> <p><i>Complete concurrently with 4.4.b.</i></p>	<ul style="list-style-type: none"> • Actual funding level will be based on the outcomes of the home site assessments and cost estimates • Estimate that treatments in rangelands will cost approximately \$1,000 per home site for a defensible space of roughly 150'. Approximately 575 homes in this category for an estimated cost of \$575,000. Median home and business assessed value in County is \$28,373 (average \$57,800): B/C Ratio of this treatment is approximately 27.8:1. • Estimate that treatments in forestland will cost roughly \$2,500 per home site for a defensible space of about 250'. Approximately 715 homes in this category for an estimated cost of \$ 1,787,500. Median home and business assessed value in County is \$28,373 (average \$57,800): B/C Ratio of this treatment is approximately 23.1:1. • Combined estimate for treatments of all homes and

Table 4.4. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
4.4.d: Community Defensible Zone WUI Treatments	Protect people, structures, and increase fire fighter safety by reducing the risk factors surrounding high risk communities in the WUI of Adams County	County Commissioners in cooperation with the USFS and BLM to identify funding availability and project implementation opportunities.	<p>businesses in at-risk areas will be in the range of \$ 2.3-\$2.4 million. Total assessed value of homes and businesses in county is approximately \$281.3 million (structures only). Overall B/C Ratio of this project is approximately 120:1 when viewed over all structures in county versus total program cost.</p> <ul style="list-style-type: none"> • Home site treatments can begin with the securing of funding for the treatments and immediate implementation in 2004 and will continue from year 1 through 5 (2008). • Actual funding level will be based on the outcomes of the home site assessments and cost estimates. • Years 2-5 (2004-08): Treat high risk wildland fuels from home site defensible space treatments (4.4.c) to an area extending 400 feet to 750 feet beyond home defensible spaces, where steep slopes and high accumulations of risky fuels exist. 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 to target: Cuprum, Bear, Evergreen, Fruitvale, Glendale, Hornet Creek, Meadow Creek, Meadows, Round Valley, Starkey. Others based on additional assessments. • Approximate average cost on a per structure basis is \$1,500. When coupled with the home defensibility space costs of \$2,500, the average B/C Ratio in forestland areas is 14.4:1. • These treatments would only be applied in rangeland areas in specific cases evaluated by request.
4.4.e: Maintenance of Home Site WUI Treatments	Protect people, structures, and increase fire fighter safety by reducing the risk factors surrounding homes in the WUI of Adams County	County Commissioners Office in cooperation with Rural Fire Departments and local home owners	<ul style="list-style-type: none"> • 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.

Table 4.4. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
4.4.f: Re-entry of Home Site WUI Treatments	Protect people, structures, and increase fire fighter safety by reducing the risk factors surrounding homes in the WUI of Adams County	County Commissioners Office in cooperation with Rural Fire Departments and local home owners	<ul style="list-style-type: none"> • 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.
4.4.g: Access Improvements of bridges, cattle guards, and limiting road surfaces	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.	County Roads and Bridges Department in cooperation with US Forest Service, BLM, State of Idaho (Lands and Transportation), and industrial forestland owners (e.g., Boise Corp.).	<ul style="list-style-type: none"> • Year 1 (2004): Update existing assessment of travel surfaces, bridges, and cattle guards in Adams County as to location. Secure funding for implementation of this project (grants) • Year 2 (2005): Conduct engineering assessment of limiting weight restrictions for all surfaces (e.g., bridge weight load maximums). Estimate cost of \$100,000 which might be shared between County, USFS, BLM, State, and private based on landownership associated with road locations. • Year 2 (2005): 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 (2006): 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.
4.4.h: Access Improvements for communities with one-way-in and one-way-out	Protection of people, structures, infrastructure, and economy by improving access for residents and fire fighting personnel in the event of a wildfire. Allows for alternative escape routes when a primary access is compromised.	County Roads and Bridges Department in cooperation with US Forest Service, BLM, State of Idaho (Lands and Transportation), and industrial forestland owners (e.g., Boise Corp.).	<ul style="list-style-type: none"> • Year 1 (2004): Update existing assessment of roads in Adams County as to location. Secure funding for implementation of this project (grants). • Year 2 (2005): Specifically address access issues in Cuprum, Bear, and others identified in assessment. Develop alternatives for improving access limitations. Landowners and agencies to play significant role in alternative development. • Year 3 (2006): Secure funding and implement projects to improve limiting access. No way to estimate costs until priorities are set and options identified.

Table 4.4. WUI Action Items for People and Structures.

Action Item	Goals and Objectives	Responsible Organization	Action Items, Planning Horizon and Estimated Costs
<p>4.4.i: Access Improvements through road-side fuels management</p>	<p>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.</p>	<p>County Roads and Bridges Department in cooperation with US Forest Service, BLM, State of Idaho (Lands and Transportation), and industrial forestland owners (e.g., Boise Corp.).</p>	<ul style="list-style-type: none"> • Year 1 (2004): Update existing assessment of roads in Adams County as to location. Secure funding for implementation of this project (grants). • Year 2 (2005): Specifically address access issues to Cuprum, Bear, the Fruitvale-Glendale Corridor, and others identified in assessment. Approximately 62 structures in Cuprum and Bear currently, with approximate assessed value of \$2.1 million. 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), 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. If 10 miles of roadway are prioritized for treatment (est.) B/C Ratio of 14.3:1 is achieved. This B/C ratio may be maintained in many rural treatment areas of the county. The Fruitvale-Glendale Corridor would be significantly higher. • Year 3 (2006): Secure funding and implement projects to treat road-side fuels.

4.5 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 West Central Highlands, and to Adams 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. Although site specific treatments will impact directly local networks, little needs done to insure the system's viability.

Transportation Infrastructure (road and rail networks): This component of the WUI has some significant potential limitations in Adams County. All traffic flowing from north to south and vice versa in the state of Idaho must cross through a single intersection in New Meadows. While New Meadows is not necessarily a high risk community from a wildland fire standpoint, both Highway 95 and 55 pass through narrow, steep, two lane stretches, surrounded by heavy accumulations of forest fuels. Highway 55 passes through some hazardous areas from the Adams/Valley border to the community of Meadows. Highway 95 crosses through similar conditions from the Fruitvale turnoff, north to Tamarack, and then again from the Round Valley turnoff to Pinehurst.

Other roads in the county have limiting characteristics, such as steep grades, 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 road surfaces 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. Specific recommendations for these roads are enumerated in Table 4.4.

Energy Transport Supply Systems (gas and power lines): During the Hall Fire in Adams County, the high tension power lines maintained by Idaho Power that cross the region from the Snake River to McCall and then to Riggins were threatened by smoke and particulate matter in the smoke. The power lines were at risk to arcing and potentially failure. Fortunately, power was not lost to the communities of Adams and Valley counties as a result of the fire, but it did point to the need for an increased focus on fuels management under and immediately adjacent to the high tension power lines in this region (Appendix I). These lines are the sole source of power to McCall and surrounding communities. The Payette National Forest, Council Ranger District, manages some of the land that the existing power lines occupy and the location of the proposed new transmission lines along with many other landowners (Federal, State, and private). Since the Hall Fire, their attention has been acutely focused on improving fuels management in this WUI spotlighted issue.

As part of the on-going assessment of these areas, the Payette National Forest will develop a strategy to address these areas. This process will involve all owners in the area and represents an opportunity for collaboration while linking treatments across the affected areas. Once completed, it should be integrated into this planning document and incorporated into implementation time-lines.

Water Supply: In many of Idaho'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 Adams County, water is supplied to the majority of homes from single home or multiple home wells. Because of this, domestic water supply is not considered at-risk from wildfires in this county.

Agricultural water supply from the region's rivers and lakes is an important component of the viability of the regional economy (agriculture and ranching). These resources are at-risk to wildland fires. Their protection comes from the limiting of the extent and frequency of wildfires in any given watershed. Based on the analysis of past fires in Adams County and the current status of wildland fire protection in the region, this component of the economy seems to be stable and reasonably protected. Changes to the status quo are not recommended at this time, in light of the other recommendations in this plan.

4.6 Resource and Capability Enhancements

There are a number of resource and capability enhancements identified by the rural and wildland fire fighting districts in Adams County. For specific details on these comments, refer to sections 3.4.1 and 3.4.2. 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:

- More water tenders for Rural Fire Districts
- Improved radio capabilities within each district and for mutual aid operations
- Retention and recruitment of volunteers
- Training and development of rural firefighters in structure and wildland fire
- New facilities (fire stations) for housing existing equipment (Council VFD) and forward advancing equipment and personnel to areas experiencing population growth (New Meadows VFD).

Although additional, and specific, needs were enumerated by the districts in Adams County, these items were identified by multiple districts (Table 4.5). 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 West Central Highlands Resource Conservation and Development Council may be an organization uniquely suited to work with all of the districts in Adams County and adjacent counties to assist in the prioritization of needs across district and even county lines. Once prioritized, the WCH RC&D is in a position to assist these districts with identifying, competing for, and obtaining grants and equipment to meet these needs.

Table 4.5. WUI Action Items in Fire Fighting Resources and Capabilities.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
4.5.a: Obtain 5,000 water tenders for rural fire districts (4).	Protection of people and structures by direct fire fighting capability enhancements.	West Central Highlands Resource Conservation and Development Council in cooperation with rural and wildland fire districts.	<ul style="list-style-type: none"> • Year 1 (2004): Verify stated need still exists, develop budget, and locate funding or equipment (surplus) sources. • Year 1 or 2 (2004-05): Acquire and deliver needed equipment to districts based on prioritization by need and funding awards.
4.5.b: Enhance radio availability in each district, link in to existing dispatch, and improve range within the region	Protection of people and structures by direct fire fighting capability enhancements.	West Central Highlands Resource Conservation and Development Council in cooperation with rural and wildland fire districts	<ul style="list-style-type: none"> • Year 1 (2004): Summarize existing two-way radio capabilities and limitations. Identify costs to upgrade existing equipment and locate funding opportunities. • Year 2 (2005): Acquire and install upgrades as needed. • Year 2-3 (2005-06): Identify opportunities for radio repeater towers located in the region for multi-county benefits.
4.5.c: facilities (buildings) for existing districts as expansion of a district, or increasing storage of existing facilities.	Protection of people and structures by direct fire fighting capability enhancements.	West Central Highlands Resource Conservation and Development Council in cooperation with rural and wildland fire districts.	<ul style="list-style-type: none"> • Priority Districts: <ul style="list-style-type: none"> ○ Council VFD ○ New Meadows VFD • 5 Year Planning Horizon
4.5.d: Retention of Volunteer Fire Fighters	Protection of people and structures by direct fire fighting capability enhancements.	Rural and Wildland Fire Districts working with broad base of county citizenry to identify options, determine plan of action, and implement it.	<ul style="list-style-type: none"> • 5 Year Planning Horizon, extended planning time frame • Target an increased recruitment (+10%) and retention (+20% longevity) of volunteers • Year 1 (2004): Develop incentives program and implement it.
4.5.e: Increased training and capabilities of fire fighters	Protection of people and structures by direct fire fighting capability enhancements.	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.	<ul style="list-style-type: none"> • Year 1 (2004): 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

Table 4.5. WUI Action Items in Fire Fighting Resources and Capabilities.

Action Item	Goals and Objectives	Responsible Organization	Action Items & Planning Horizon
			acquire. • Year 1 (2004): Begin implementing training opportunities for volunteers.

4.7 Regional Land Management Recommendations

In section 4.4 of this plan, reference was given to the role that forestry, grazing and agriculture have in promoting wildfire mitigation services through active management. Adams 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 fuels and homes 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 Idaho Department of Lands, Industrial forestland owners, private forestland owners, and all other landowners in the region to actively manage their Wildland-Urban Interface lands in a manner consistent with the management of reducing fuels and risks in this zone.

Chapter 5: Supporting Information

5

5.1 List of Tables

Table 1.1 Survey responses indicating the proximity of trees to homes.	9
Table 1.2. Percent of homes with indicated fire fighting tools in Adams County.	10
Table 1.3. Fuel Hazard Rating Worksheet.....	11
Table 1.4. Percent of respondents in each risk category as determined by the survey respondents.....	11
Table 2.1. Selected demographic statistics for Adams County, Idaho, from the Census 2000. .	17
Table 2.2. Income in 1999	20
Table 2.3 Poverty Status in 1999 (below poverty level).....	20
Table 2.4 Employment & Industry.....	21
Table 2.5 Class of Worker	22
Table 2.6. Levels of direct employment by industrial sector	23
Table 2.7. Historic Places: Adams County Courthouse	24
Table 2.8. Historic Places: Council Ranger Station	24
Table 2.9. Historic Places: Heigho, Col. E. M., House (current name Heartland Inn).....	25
Table 2.10. Historic Places: Hells Canyon Archeological District	25
Table 2.11. Historic Places: Huntley, A. O., Barn	26
Table 2.12. Historic Places: Meadows Schoolhouse	26
Table 2.13. Historic Places: Pacific and Idaho Northern Railroad Depot.....	26
Table 2.14. Historic Places: Pomona Hotel	26
Table 2.15. Cover Types in Adams County	28
Table 2.16 Climate records for Council, Idaho.....	29
Table 2.17. Climate records for New Meadows, Idaho	29
Table 2.18. Wildfire Ignition Profile of Adams County by Decade	31
Table 2.19 Wildfire Ignitions by Cause in Adams County.....	32
Table 2.20. National Fire Season 2002 Summary	33
Table 2.21. Total Fires and Acres 1960 - 2002 Nationally.....	34
Table 2.22 Suppression Costs for Federal Agencies Nationally.....	35
Table 2.23. “Large Wildland fires” in Adams County 1960-2000.	36
Table 2.24. Fire Prone Landscape rankings and associated acres in each category for the entire West Central Highlands Area.	40

Table 2.25. Fire Prone Landscape rankings and associated acres in each category for the Adams County.	40
Table 2.26. Fire Regime Condition Class Definitions.	43
Table 2.27. FRCC by area in Adams County.....	43
Table 3.1. BLM Equipment List for Wildland Fire Protection	82
Table 4.1. US Forest Service WUI treatments being considered in Adams County, Idaho.	93
Table 4.2. USFS WUI Project Development and Implementation Timeframes.....	96
Table 4.3. WUI Action Items in Safety and Policy.....	96
Table 4.4. WUI Action Items for People and Structures.	100
Table 4.5. WUI Action Items in Fire Fighting Resources and Capabilities.....	106
Table 5.1. List of Preparers.....	109

5.2 List of Preparers

The following personnel participated in the formulation, compilation, editing, and analysis of alternatives for this assessment.

Table 5.1. List of Preparers

Name	Affiliation	Role
William E. Schlosser, Ph.D.	Northwest Management, Inc.	Lead Author , Project Manager, GIS Analyst, Natural Resource Economist, 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
Ken Homik, M.S.	Northwest Management, Inc.	Fire Use & Air Quality Specialist
Craig Scott, B.S.	Northwest Management, Inc.	Natural Resource Manager, Fire Control Technician
Terra Duman, B.S.	Northwest Management, Inc.	Natural Resource Manager, Fire Control Technician
John Krebs	Northwest Management, Inc.	Fire & Fuels Specialist
John Blackburn	Northwest Management, Inc.	Fire & Fuels Specialist
Vaiden E. Bloch, M.S.	Northwest Management, Inc.	GIS Analyst
Greg Bassler, M.S.	Northwest Management, Inc.	Roads Engineer, Timber Sale Layout & Harvest Manager
Rick Belnap	Adams County Coordinator	Local Coordinator

5.3 Signature Pages

This **Adams County Wildland-Urban Interface Wildfire Mitigation Plan** has been developed in cooperation and collaboration with the representatives of the following organizations, agencies, and individuals.

By: Bill Brown, Chairman
Adams County Commissioner

Date

By: Judy Ellis
Adams County Commissioner

Date

By: Mike Paradis
Adams County Commissioner

Date

By: Dr. Bruce D. Gardner
Mayor–City of Council

Date

By: Sandy Shiffman
Mayor–City of New Meadows

Date

By: Mark Madrid, Forest Supervisor
USDA Forest Service Payette National Forest

Date

By: Rosemary Thomas, Acting Field Manager
Four Rivers Field Office, USDI BLM

Date

By: Shawn Stanford, Chief
Council Volunteer Fire Department

Date

By: Larry Boehm, Chief
Indian Valley Volunteer Fire Department

Date

By: Gene Pennigton, Chief
Salmon River Rural Fire Department

Date

By: Dave Sparks, Chief
McCall Fire Protection District

Date

By: Jeff Luff, Chief
Meadows Valley Volunteer Fire Department

Date

By: Mark Woods
Southern Idaho Timber Protective Association

Date

By: Sheldon Keafer, Area Supervisor
Payette Lakes, Idaho Department of Lands

Date

By: Rick Belnap—Coordinator
Adams County WUI Fire Mitigation Plan

Date

By: William E. Schlosser, Ph.D.
Project Manager & Lead Author
Forester—Northwest Management, Inc.

Date

5.4 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 rapidly 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 rivers 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 net work 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 rapidly 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 Idaho 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 precommercial 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 wild lands.

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 nonstructure 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.

5.5 Literature Cited

- Agee, J.K. 1993. Fire ecology of the Pacific Northwest forests. Washington: Island Press.
- Anderson, H. 1982. Aids to Determining Fuel Models for Estimating Fire Behavior. USDA Forest Service, Intermountain Forest and Range Experiment Station. INT-GTR-122. 22 pp.
- Barrett, J.W. 1979. Silviculture of ponderosa pine in the Pacific Northwest: the state of our knowledge. USDA Forest Service, General Technical Report PNW-97. Pacific Northwest Forest and Range Experiment Station, Portland, OR. 106 p.
- Brown, J.K. 1995. Fire regimes and their relevance to ecosystem management. Pages 171-178 *In* Proceedings of Society of American Foresters National Convention, Sept. 18-22, 1994, Anchorage, AK. Society of American Foresters, Wash. DC.
- Dillman, D.A. 1978. Mail and Telephone Surveys: The Total Design Method. Hoboken: John Wiley & Sons, Incorporated. 344 p.
- Hammond, C.; Hall, D.; Miller, S.; Swetik, P. 1992. Level 1 stability analysis (LISA) documentation for version 2.0 USDA, Forest Service. General Technical Report INT-285. Intermountain Research Station, Ogden, UT.
- Hann, W.J., Bunnell, D.L. 2001. Fire and land management planning and implementation across multiple scales. *Int. J. Wildland Fire*. 10:389-403.
- Hardy, C.C., Schmidt, K.M., Menakis, J.M., Samson, N.R. 2001. Spatial data for national fire planning and fuel management. *International Journal of Wildland Fire* 10:353-372.
- Harris, C., P.S. Cook, and J. O'Laughlin. 2003. Forest Resource-Based Economic Development in Idaho: Analysis of Concepts, Resource Management Policies, and Community Effects. Policy Analysis Group, University of Idaho, College of Natural Resources, Report № 22. Pp 82.
- Holsapple, L.J., Snell, K. 1996. Wildfire and prescribed fire scenarios in the Columbia River Basin: relationship to particulate matter and visibility. In: Keane, R.E., Jones, J.L., Riley, L.S., Hann, W.J., tech. eds. Compilation of administrative reports: multi-scale landscape dynamics in the Basin and portions of the Klamath and Great basins. On file with: U. S. Department of Agriculture, Forest Service, Department of Interior, Bureau of Land Management; Interior Columbia Basin Ecosystem Management Project, 112 E. Poplar, Walla Walla, WA 99362.
- Homer, C.G. 1998. Idaho/western Wyoming landcover classification report and metadata. Department of Geography and Earth Resources. Utah State University. Logan, UT 84322-9635. chomer@gis.usu.edu
- Huff, M.H., Ottmar, R.D., Alvarado, E., et al. 1995. Historical and current forest landscapes in eastern Oregon and Washington. Part II: Linking vegetation characteristics to potential fire behavior and related smoke production. Gen. Tech. Rep. PNW-GTR-355. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 43p. (Everett, Richard L., team leader; Eastside forest health assessment; Hessburg, Paul F., science team leader and tech. ed., Volume III: assessment.)
- IDEQ (Idaho Department of Environmental Quality). 2003. Rules of the Department of Environmental Quality, IDAPA 58.01.02, "Water Quality Standards and Wastewater Treatment Requirements". Idaho Administrative Code (3-20-97), IDAPA 58.01.02, Boise, ID.

- Johnson, C.G.; Clausnitzer, R.R.; Mehringer, P.J.; Oliver, C.D. 1994. Biotic and Abiotic Processes of Eastside Ecosystems: the Effects of Management on Plant and Community Ecology, and on Stand and Landscape Vegetation Dynamics. Gen. Tech. Report PNW-GTR-322. USDA-Forest Service. PNW Research Station. Portland, Oregon. 722pp.
- Johnson, C.G. 1998. Vegetation Response after Wildfires in National Forests of Northeastern Oregon. 128 pp.
- Levinson, D.H. 2002. Montana/Idaho Airshed Group; Operating Guide. Montana / Idaho Airshed Group, Missoula, MT 59808
- Louks, B. 2001. Air Quality PM 10 Air Quality Monitoring Point Source Emissions; Point site locations of DEQ/EPA Air monitoring locations with Monitoring type and Pollutant. Idaho Department of Environmental Quality. Feb. 2001. As GIS Data set. Boise, Id.
- McCoy, L., K. Close, J. Dunchrack, S. Husari, and B. Jackson. 2001. May 6 –24, 2001. Cerro Grande Fire Behavior Narrative.
- MacDonald, L. H.; Smart, A.W.; and Wissmar, R.C. 1991. Monitoring guidelines to evaluate effects of forestry activities on streams in the Pacific Northwest and Alaska. USEPA Region 10 Report No. 910/9-91-001.
- National Interagency Fire Center. 2003. Information posted on the Agency's Internet web site at <http://www.nifc.gov/>
- National Register of Historic Places. 2003. Internet web site listings for Adams County, Idaho. On the Internet at www.nationalregisterofhistoricalplaces.com
- Norton, P. 2002. Bear Valley National Wildlife Refuge Fire Hazard Reduction Project: Final Environmental Assessment, June 20, 2002. Fish and Wildlife Service, Bear Valley National Wildlife Refuge.
- Ottmar, Roger D.; Alvarado, E.; Hessburg, P.F.; [and others]. 1996. Historical and current forest and range landscapes in the interior Columbia River basin and portions of the Klamath and Great basins. Part III: Linking vegetation patterns to potential smoke production and fire behavior. Draft report. On file with: U.S. Department of Agriculture, Forest Service; U.S. Department of interior, Bureau of Land management; Interior Columbia Basin Ecosystem Management project, 112 E. Poplar, Walla Walla, WA.
- Quigley, T. and S. Arbelbide (Tech. Editors). 1997. An assessment of Ecosystem Components in the Interior Columbia Basin. Pacific Northwest Research Station, Walla Walla, WA. GTR-405. pp. 372, 460, 462, 480-486, 855-869.
- Quigley, T.M., R.A. Gravenmier, R.T. Graham, tech. eds. 2001. Interior Columbia Basin Ecosystem Management Project: project data. Station Misc. Portland, OR. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station.
- Rasmussen, L.M. 2000. Soil Survey of Adams-Washington Area, Idaho, Parts of Adams and Washington Counties. USDA Natural Resources Conservation Service. Available on the Internet at http://www.or.nrcs.usda.gov/pnw_soil/idaho/id656.html
- Redmond, R.L. 1997. Mapping existing vegetation and land cover across western Montana and Northern Idaho. Wildlife Spatial Analysis Lab. Montana Cooperative Fish and Wildlife Research Unit. University of Montana, Missoula, MT 59812.
- Schlosser, W.E., V.P. Corrao, D. Thomas. 2002. Shoshone County Wildland Urban Interface Fire Mitigation Plan, Final Report. Northwest Management, Inc., Moscow, ID.

- Schmidt, K.M., Menakis, J.P. Hardy, C.C., Hann, W.J., Bunnell, D.L. 2002. Development of coarse-scale spatial data for wildland fire and fuel management. General Technical Report, RMRS-GTR-87, U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins, CO.
- Scott, H.S. 1998. Fuel reduction in residential and scenic forests: a comparison of three treatments in western Montana ponderosa pine stand. Res. Pap. RMRS-RP-5. Ogden, UT. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 19 p.
- Steele, R.; Arno, S.F.; and Geier-Hayes, K. 1986. Wildfire patterns change in Central Idaho's ponderosa pine-Douglas-fir forest.
- Swanson, F.J. 1978. Fire and geomorphic processes; in Fire Regimes and Ecosystem Properties. USDA Forest Service Gen. Tech. Rep. WO. 26 pp.
- Thompson, R.A., P.H. Skabelund, N.C. Kulesza, E.N. Dean. 1973. Soil - Hydrologic Reconnaissance. New Meadows Ranger District, Payette National Forest. 242 pp.
- USDA. 1999. Salmon River Canyon Project Draft Environmental Statement. USDA Forest Service. Nez Perce National Forest.
- USDA-Forest Service (United States Department of Agriculture, Forest Service). 2000. Incorporating Air Quality Effects of Wildland Fire Management into Forest Plan Revisions – A Desk Guide. April 2000. - Draft
- USFS. 2001. United States Department of Agriculture, Forest Service. Wildland Urban Interface. Web page. Date accessed: 25 September 2001. Accessed at: <http://www.fs.fed.us/r3/sfe/fire/urbanint.html>
- Vogl, R.J. 1979. Some basic principles of grassland fire management. Environmental Management 3(1):51-57, 1979.
- Wright, H.A. and A.W. Bailey. 1980. Fire ecology and prescribed burning in the Great Plains – A research review. United States Department of Agriculture, Forest Service, Intermountain Forest Range Experiment Station, Ogden, Utah. General Technical Report. INT-77.
- Wright, H. A. and Bailey, A.W. 1982. Fire ecology: United States and Southern Canada. John Wiley and Sons, Inc. 501 pp.

Last Page of Document
(Intentionally Blank)